2009 Catalog
How to Use this Catalog

Your Washington State University Catalog provides you with information on a wide variety of important topics. This page shows how you can use the catalog easily.

General Information

The general information section provides you with information about admissions, student services, and choosing a major.

General Education Requirements and Courses

It is important to understand WSU’s General Education Requirements (GERs), since you must fulfill them in order to graduate. The General Education section lists all courses which fulfill particular GERs. Vancouver students follow GER requirements described under the Vancouver Campus section of this catalog.

Note: Students pursuing degrees in the College of Liberal Arts and the College of Sciences have additional credit hour requirements for General Education and foreign language course work. Honors College students also have different requirements.

Departments, Requirements, and Courses

The information in this section includes the following:

- A listing of faculty, descriptions of the academic fields, and details about departmental requirements for majors and options, in alphabetical order by department name.

- A complete listing of all requirements needed for each degree is shown in a semester-by-semester schedule of studies to help you plan your course of studies. Note that departmental requirements are set at the time you certify in your major.

- A description of the courses offered by each department. Undergraduate courses are numbered from 100 through 499. 100- and 200-level courses are suggested for first- and second-year students, while 300- and 400-level courses are most appropriate for third- and fourth-year students. Graduate courses are numbered from 500 through 800, and professional courses are designated with the letter P following the course number.

Understanding Course Descriptions

Below are examples of course descriptions with definitions for each part. Important! Prerequisites will be listed if there are courses you need to take before you enroll in any particular class.

In the first example, the course prefix, “Biol”, is followed by the course number, and then by “[B]”, which indicates that this course is a biological science GER course. The credit hours are shown next. This is a 4-credit course, with three hours in lecture and three hours in lab each week. Next are the prerequisites required for enrolling in the course; “c//” indicates that you may take chemistry at the same time you take Biol 107.

Biol

107 [B] Introductory Biology 4 (3-3) Prereq one semester of chemistry or c//. First or second semester of a one-year sequence (Biol 106/107 or Biol 107/106) for science majors and pre-professional students. Cell biology and genetics of prokaryotes and eukaryotes.

In the second example, this “Topics” course indicates that the subject matter for the class will change each term and that the class may be repeated for additional credit. The course is also a variable credit class and 3 - 6 credits may be offered or taken each term.

Anth

395 Topics in Anthropology V 3-6 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing. Examination of selected topics in contemporary anthropological theory and practice.

Understanding the Schedule of Studies

Here is an example and explanation of what you will see when you look at a schedule of studies:

First Year

<table>
<thead>
<tr>
<th>Semester</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td></td>
</tr>
<tr>
<td>(1)</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)*</td>
<td>3</td>
</tr>
<tr>
<td>Degree Program Course¹</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Language, if necessary, or Elective*</td>
<td>4</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3 or 4</td>
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<tr>
<td>Tier I Science [Q] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

(1) You are required to take a certain number of General Education Requirement courses from different areas. In this case, you need to choose an Arts & Humanities course. Here you have a choice of any course that is designated with an [H] or a [G] from the catalog. Keep in mind that all GER courses you choose must be outside your major department. This means that if you plan to be an architecture major, you cannot use Arch 202 [H] (GER) to satisfy your GER Arts & Humanities requirement, although anyone who is not an architecture major can. A complete list of all GER courses can be found under the General Education section of this catalog.

(2) Footnotes are frequently used to give you more detailed information. In this case, the footnote will list the courses from which to choose, given your specific degree program.

(3) The College of Liberal Arts and the College of Sciences require you to take one year of a foreign language at the university level, if two years were not completed at the high school level.

Many departments allow you to take the required courses in a different order. Your advisor can tell you how much flexibility you have in rearranging the courses that are required for your degree.
# Academic Calendar

## First Semester (Fall)

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Labor Day holiday</td>
<td>Sept 7</td>
<td>Sept 6</td>
<td>Sept 5</td>
<td>Sept 3</td>
<td>Sept 2</td>
<td>Sept 1</td>
</tr>
<tr>
<td>Veterans’ Day holiday</td>
<td>Nov 11</td>
<td>Nov 11</td>
<td>Nov 11</td>
<td>Nov 12</td>
<td>Nov 11</td>
<td>Nov 11</td>
</tr>
<tr>
<td>Commencement</td>
<td>Dec 12</td>
<td>Dec 11</td>
<td>Dec 10</td>
<td>Dec 8</td>
<td>Dec 7</td>
<td>Dec 13</td>
</tr>
<tr>
<td>Final grades due, 5:00 p.m.</td>
<td>Dec 22</td>
<td>Dec 21</td>
<td>Dec 20</td>
<td>Dec 18</td>
<td>Dec 17</td>
<td>Dec 23</td>
</tr>
</tbody>
</table>

## Second Semester (Spring)

<table>
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<tr>
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</thead>
<tbody>
<tr>
<td>Classes begin</td>
<td>Jan 11</td>
<td>Jan 10</td>
<td>Jan 9</td>
<td>Jan 7</td>
<td>Jan 13</td>
<td>Jan 12</td>
</tr>
<tr>
<td>Martin Luther King Jr. Day holiday</td>
<td>Jan 18</td>
<td>Jan 17</td>
<td>Jan 16</td>
<td>Jan 21</td>
<td>Jan 20</td>
<td>Jan 19</td>
</tr>
<tr>
<td>Presidents’ Day holiday</td>
<td>Feb 15</td>
<td>Feb 21</td>
<td>Feb 20</td>
<td>Feb 18</td>
<td>Feb 17</td>
<td>Feb 16</td>
</tr>
<tr>
<td>Midsemester grades due, 5:00 pm.</td>
<td>Mar 3</td>
<td>Mar 2</td>
<td>Mar 29</td>
<td>Mar 27</td>
<td>Mar 5</td>
<td>Mar 4</td>
</tr>
<tr>
<td>Final Exams, Monday–Friday</td>
<td>May 3-7</td>
<td>May 2-6</td>
<td>April 30-May 4</td>
<td>April 29-May 3</td>
<td>May 5-9</td>
<td>May 4-8</td>
</tr>
<tr>
<td>Commencement</td>
<td>May 8</td>
<td>May 7</td>
<td>May 5</td>
<td>May 4</td>
<td>May 10</td>
<td>May 9</td>
</tr>
<tr>
<td>Final grades due, 5:00 p.m.</td>
<td>May 11</td>
<td>May 10</td>
<td>May 8</td>
<td>May 7</td>
<td>May 13</td>
<td>May 12</td>
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## Summer Session

<table>
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</thead>
<tbody>
<tr>
<td>Early Session begins</td>
<td>May 10</td>
<td>May 9</td>
<td>May 7</td>
<td>May 6</td>
<td>May 12</td>
<td>May 11</td>
</tr>
<tr>
<td>Memorial Day holiday</td>
<td>May 31</td>
<td>May 30</td>
<td>May 28</td>
<td>May 27</td>
<td>May 26</td>
<td>May 25</td>
</tr>
<tr>
<td>Eight-Week Session begins</td>
<td>June 7</td>
<td>June 6</td>
<td>June 4</td>
<td>June 3</td>
<td>June 9</td>
<td>June 8</td>
</tr>
<tr>
<td>Late Six-Week Session begins</td>
<td>June 21</td>
<td>June 20</td>
<td>June 18</td>
<td>June 17</td>
<td>June 23</td>
<td>June 22</td>
</tr>
<tr>
<td>Independence Day holiday</td>
<td>July 5</td>
<td>July 4</td>
<td>July 4</td>
<td>July 4</td>
<td>July 4</td>
<td>July 3</td>
</tr>
<tr>
<td>Summer Session ends, Friday</td>
<td>July 30</td>
<td>July 29</td>
<td>July 27</td>
<td>July 26</td>
<td>Aug 1</td>
<td>July 31</td>
</tr>
<tr>
<td>Final grades due, 5:00 p.m.</td>
<td>Aug 3</td>
<td>Aug 2</td>
<td>July 31</td>
<td>July 30</td>
<td>Aug 5</td>
<td>Aug 4</td>
</tr>
</tbody>
</table>

Please note: Faculty advising and registration for continuing students will be held prior to the end of the previous term.

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## Specialized Accreditations

Washington State University is accredited by the Northwest Commission on Colleges and Universities, the regional accrediting association. The institution is a member of the National University Continuing Education Association and is listed in the official publications of the U.S. Office of Education and the State Department of Public Instruction.

Many departments and colleges are accredited by professional accrediting associations recognized by the Council on Postsecondary Accreditation. This information is included in the introductory material of the various departments and colleges, and an abbreviated list is printed below.

- Accrediting Commission on Education for Health Services Administration
- American Animal Hospital Association
- American Assembly of Collegiate Schools of Business: The International Association for Management Education
- American Association for Accreditation of Laboratory Animal Care
- American Association of Colleges for Teacher Education
- American Association of Veterinary Laboratory Diagnosticians
- American Chemical Society
- American Council for Construction Education
- American Council on Pharmaceutical Education
- American Dietetic Association
- American Psychological Association
- American Society of Landscape Architects
- American Speech-Language-Hearing Association
- American Veterinary Medical Association
- Commission on Collegiate Nursing Education
- Computing Accreditation Commission of the Accreditation Board for Engineering and Technology
- Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology
- Foundation for Interior Design Education Research
- National Architectural Accrediting Board
- National Association for the Education of Young Children
- National Association of Schools of Music
- National Athletic Trainers Association
- National Council for Accreditation of Teacher Education
- National Recreation and Park Association
- Northwest Commission on Colleges and Universities
- Society for Range Management
- Society of American Foresters
- University Council for Educational Administration
- Washington State Board of Education
- Washington State Commission for Quality Assurance in Nursing
Washington State University

Washington State University provides quality education for undergraduate and graduate students within a caring and engaged community. The University’s motto—“World Class. Face to Face.”—reflects that.

Considered one of the leading public research universities in America, WSU has 10 colleges and a graduate school. WSU offers strong and varied academic programs. The liberal arts and sciences have an important place in the curriculum, along with business, communication, education, architecture, pharmacy, nursing, and the traditional land-grant disciplines of agriculture, engineering, and veterinary medicine.

WSU offers more than 250 fields of study, including majors, minors, options, and certificate programs. Bachelor’s degrees are available in all major areas, with master’s and doctoral degrees available in most. The undergraduate core curriculum, including world civilizations courses and writing requirements, is nationally recognized. WSU’s Honors College is one of the oldest and most respected all-university programs for academically talented students. WSU confers nearly 6,000 bachelor’s, master’s, professional, and doctoral degrees statewide in a typical year.

More than 1,600 instructional faculty members provide learning opportunities that open students’ minds to the most recent knowledge and discoveries. The chance for students to know and work closely with their teachers is a WSU tradition.

The state’s land-grant research university, Washington State University was founded in Pullman in 1890. Today, it is co-located in Pullman and Spokane with additional campuses in the Tri-Cities (Richland, Pasco, and Kennewick) and in Vancouver, across the Columbia River from Portland, Oregon. Regional Learning Centers and the Distance Degree Programs offer access to WSU degrees statewide and beyond.

WSU programs in Spokane, about 80 miles north of Pullman, play an important role in the University’s educational and research mission. The Intercollegiate College of Nursing/WSU College of Nursing is located there and Doctor of Pharmacy students are based in Spokane for their third and fourth professional years. Also completing their degrees in Spokane—at the Interdisciplinary Design Institute at WSU Spokane's Riverpoint campus—are architecture, interior design, landscape architecture, and construction management students. In August 2008, the first class of WWAMI (Washington, Wyoming, Alaska, Montana, Idaho) medical program students started at WSU Spokane. WSU, at the Pullman campus, has been a part of the regional medical program since 1972.

The university is committed to providing a quality educational and research experience for its undergraduate and graduate students, President Elson S. Floyd says. He puts high priority on WSU being a research leader, having a global presence and serving the needs of Washington citizens.

Washington State University realizes the importance of research in all sectors of society. It has produced an impressive and extensive history of basic and applied research since its founding. WSU is known for research strengths in areas as diverse as biotechnology, shock physics, viticulture, sleep, wood technology, computer chips, and advertising’s impact on healthy decision-making.

WSU’s research quality is reflected in the fact that nine of its faculty members have achieved the country’s highest honor for scientists and engineers as members of either the National Academy of Sciences or the National Academy of Engineering. Another quality indicator is the University’s continued success in increasing funding for its research efforts. Both facts support WSU’s position among the nation’s premier research institutions.

The Pullman campus serves more than 20,800 undergraduate, professional, and graduate students, including those in the Distance Degree Programs. Statewide, WSU has more than 25,300 students.

WSU’s Pullman campus is residential in nature, with some 43 percent of the student body living in residence halls, University-owned single and family student apartments, and fraternity and sorority houses. Students enjoy a variety of cultural activities in an area that benefits from two universities. The University of Idaho is eight miles away in Moscow, Idaho.

WSU students of diverse social, economic, and ethnic backgrounds from throughout the nation and more than 90 foreign countries come together in an academic community committed to education and leadership development.

Located on College Hill in Pullman, WSU’s 620-acre core campus features modern classrooms and libraries, laboratories, museums, student residences, and recreational and athletic facilities. For example, the 94,000-plus-square-foot Samuel H. Smith Center for Undergraduate Education includes classrooms with Internet access at every seat, a cyber café, computer labs, and much more. Students enjoy using the newly-renovated Compton Union Building, the Student Recreation Center and taking part in one of the largest university-sponsored intramural programs in the nation.

Loyal fans, including students, faculty, staff, and alumni, cheer on the WSU Cougar women’s and men’s intercollegiate athletic teams, members of Pac-10 Conference.

Degrees Granted

- Accounting, MAcc
- Agribusiness Economics and Management, BS
- Agricultural Economics, PhD
- Agricultural Economics and Management, BS
- Agricultural and Food Systems, BS
- Agriculture, MS
- American Studies, BA, MA, PhD
- Animal Sciences, BS, MS, PhD
- Anthropology, BA, MA, PhD
- Apparel, Merchandising, and Textiles, BA, MA
- Applied Economics, MA
- Architectural Studies, BS
- Architecture, MArch, MS
- Asian Studies, BA
- Athletic Training, BS
- Biochemistry, BS
- Bioengineering, BS
- Biological and Agricultural Engineering, MS, PhD
- Biology, BS, MS
- Biotechnology, BS
- Botany, MS, PhD
- Business Administration, BA, MBA, PhD
- Chemical Engineering, BS, MS, PhD
- Chemistry, BS, MS, PhD
- Civil Engineering, BS, MS, PhD
- Communication, BA, MA, PhD
- Comparative Ethnic Studies, BA
- Computer Engineering, BS, MS
- Computer Science, BA, BS, MS, PhD
- Construction Management, BS
- Criminal Justice, BA, MA, PhD
- Crop Science, MS, PhD
- Design, DDes, Digital Technology and Culture, BA
- Economics, PhD
- Economic Sciences, PhD
- Education, BA, EdM, MA, MIT, EdD, PhD
- Electrical and Computer Engineering, BS, MS
- Electrical Engineering, BS, MS
- Engineering, MS
- Engineering and Technology Management, METM
- Engineering Science, PhD
- English, BA, MA, PhD
- Entomology, MS, PhD
- Environmental Engineering, MS
- Environmental and Natural Resource Sciences, PhD
- Environmental and Resource Economics and Management, BS
- Environmental Science, BS, MS
- Exercise Physiology and Metabolism, BS
- Exercise Science, MS
- Fine Arts, BA, BFA, MFA
- Food Science, MS, PhD
- Food Science, MS, PhD
- Foreign Languages and Cultures, BA, MA
- Genetics and Cell Biology, BS
- Geology, BS, MS, PhD
- Health Policy and Administration, MPH
- History, BA, MA, PhD
- Horticulture, MS, PhD
- Hospitality Business Management, BA
- Human Development, BA, MA
- Human Nutrition, MS
- Humanities, BA
- Individual Interdisciplinary, PhD
- Integrated Plant Sciences, BS
- (pending final HECBoard approval)
- Interior Design, BA, MA
- Kinesiology, BS
- Landscape Architecture, BLA, MS
- Leadership and Professional Studies, BA
- Liberal Arts, BLibA
- Materials Science, PhD
- Materials Science and Engineering, BS, MS
- Mathematics, BS, MS, PhD
- Mechanical Engineering, BS, MS, PhD
- Microbiology, BS
- Molecular Biosciences, MS, PhD
- Molecular Plant Sciences, MS, PhD
- Music, BA, BMus, MA
- Natural Resource Sciences, BS, MS
- Natural Resources, MS
- Neuroscience, BS, MS, PhD
- Nursing, BS, MNurs, PhD
- Nutrition, BS
- Pharmacology and Toxicology, MS, PhD
- Pharmacy, PharmD
- Philosophy, BA, MA
- Physics, BS, MS, PhD
- Plant Pathology, MS, PhD
- Political Sciences, BA, MA, PhD
- Psychology, BA, BS, MS, PhD
- Public Affairs, BA, MPA
- Science, BS
- Social Sciences, BA
- Social Studies, BA
- Sociology, BA, MA, PhD
- Soil Science, MS, PhD
- Speech and Hearing Sciences, BA, MA
- Sport Management, BA
- Statistics, MS
- Theatre Arts and Drama, BA
- Veterinary Medicine, DVM
- Veterinary Science, MS, PhD
- Women’s Studies, BA
- Zoology, BS, MS, PhD
Washington State University Strategic Plan

Vision
Washington State University will be recognized as one of the nation’s leading land-grant research universities.

Mission
Washington State University is a public research university committed to its land-grant heritage and tradition of service to society. Our mission is three-fold:

• To advance knowledge through creative research and scholarship across a wide range of academic disciplines.
• To extend knowledge through innovative educational programs in which emerging scholars are mentored to realize their highest potential and assume roles of leadership, responsibility, and service to society.
• To apply knowledge through local and global engagement that will improve quality of life and enhance the economy of the state, nation, and world.

Values

• Quality and Excellence: We are committed to maintaining quality and excellence in all our endeavors.
• Integrity, Trust, and Respect: We are committed to being an institution that demonstrates trust and respect for all persons and cultivates individual and institutional integrity in all that we do.
• Discovery, Innovation, and Creativity: We are committed to the pursuit of inquiry and discovery and to the creation and dissemination of knowledge.
• Land-grant Ideals: We are committed to the land-grant ideals of access, engagement, leadership, and service to bring the practical benefits of education to the state, nation, and global community.
• Diversity and Global Citizenship: We embrace a worldview that values diversity and cultural differences and recognizes the importance of global interdependence and sustainability.
• Freedom of Expression: We are committed to being a community that protects the free exchange of ideas while encouraging dialog that is constructive and civil.
• Stewardship and Accountability: We are committed to being ethical and responsible stewards of University resources and to being accountable for upholding the full scope of these values.

Strategic Goals

Goal 1
Offer the best undergraduate experience in a research university.

Goal 2
Nurture a world-class environment for research, scholarship, graduate education, the arts, and engagement.

Goal 3
Create an environment of trust and respect in all we do.

Goal 4
Develop a culture of shared commitment to quality in all of our activities.
Student Services and Facilities

**Campus Involvement**
CUB 320  
509-335-9667  
www.campusinvolvement.wsu.edu

**Center for Advising and Career Development (CACD)**
Lighty Building, Room 180  
509-335-6000, or 888-978-7252  
http://cacd.wsu.edu

**Center for Civic Engagement**
Compton Union Building, Room L 48  
509-335-7708  
tce.wsu.edu

**Center for Human Rights**
French Administration Building, Room 225  
509-335-8288  
www.chr.wsu.edu

**WSU Children’s Center**
509-335-8847  
www.childrencenter.wsu.edu/

**Compton Union Building**
www.cub.wsu.edu

**Counseling and Testing Services**
Lighty Building Room 280  
Counseling: 509-335-4511  
Testing: 509-335-1744  
After hours crisis: 509-335-2159  
www.counsel.wsu.edu

**The Disability Resource Center**
Administration Annex, Room 205  
509-335-3417  
www.drc.wsu.edu

**Federal Veterans Benefits**
French Administration Building, Room 346  
509-335-1234; 509-335-1857  
www.va.wsu.edu

**Financial Aid**
Lighty Building, Room 380  
509-335-9711  
www.finaid.wsu.edu/scholar

**Gender Identity/Expression and Sexual Orientation Resource Center**
Compton Union Building, Room 401  
509-335-6388  
www.thecenter.wsu.edu

**Health and Wellness Services**
Washington Building  
1125 NE Washington Ave.  
509-335-3575  
www.hws.wsu.edu  
student.insurance@wsu.edu  
(Clinic 509-335-3575; Pharmacy 509-335-5742; Insurance 509-335-8216)

**Housing Services**
Streit-Perham Administrative Office  
509-335-7789  
www.livingat.wsu.edu

**Information Technology Services (ITS)**
ITS Services & Accounts Desk  
Information Technology Building 2088  
509-335-3355  
it.sa@wsu.edu

**International Programs**
Bryan Hall, Room 206  
509-335-2541  
www.ip.wsu.edu

**Intensive American Language Center (IALC)**
McAllister Hall, Room 116  
509-335-6675  
www.ip.wsu.edu/ialc

**The Libraries**
www.wsulibs.wsu.edu

**The Office of Multicultural Student Services**
Compton Union Building, Room 409  
509-335-7852  
www.mss.wsu.edu

**National Student Exchange**
Lighty Building, Room 260  
509-335-6000  
salc.wsu.edu/NSE

**The Ombudsman Office**
Wilson Hall, Room 2  
509-335-1195  
www.wsu.edu/~ombuds

**Registrar's Office**
French Administration Building, Room 346  
509-335-5346  
registrar.wsu.edu

**Scholarship Services**
Lighty Building, Room 380  
509-335-1059  
www.finaid.wsu.edu/scholar

**Scholastic Societies**
www.wsu.edu/NIS/StudentLife.html

**Student Accounts (Tuition and Fees)**
French Administration Building, Room 342  
509-335-9651  
www.wsu.edu/studacct/

**Student Government**
www.aswsu.edu Undergraduate Students  
www.gpsa.wsu.edu Graduate and Professional Students
**Student Recreation Center**
Student Recreation Center, Room 250
509-335-8732 (UREC)
www.urec.wsu.edu

**Student Support Services TRiO Program**
Lighty Building, Room 260
509-335-7324
www.sssp.wsu.edu

**Summer Session**
www.summer.wsu.edu

**Transfer Center**
Lighty Building, Room 260
509-335-6000, or 888-978-7252
salc.wsu.edu/transfer

**University Writing Center**
Center for Undergraduate Education, Room 403
509-335-3628
www.writingprogram.wsu.edu

**Women’s Resource Center**
Wilson Hall, Room 8
509-335-6849
www.women.wsu.edu
Admission

Lighty Building, Room 370
888-468-6978 or 509-335-5586
futurestudents.wsu.edu/admission

General Information
Admission to Washington State University is granted without regard to age, sex, race, religion, color, creed, handicap, national or ethnic origin, or marital status. Admission to the University is granted to eligible applicants based on space availability, prior to registration but not after census day for each semester.

The following information relates to admission of new students only. It is not applicable to students previously enrolled in Washington State University during the regular school year.

It is the practice of Washington State University to admit all applicants if the total evidence indicates a reasonable probability of success. The total number of new students admitted for any one semester or in any specific department or program will be based on the number of students for whom facilities and resources can be made available.

Applications are available at www.apply.wsu.edu or from the Office of Admissions, PO Box 641067, Pullman, WA 99164-1067.

Any freshman applicant planning to compete in intercollegiate athletics must submit scores on the College Board SAT to meet National Collegiate Athletic Association (NCAA) regulations.

The University reserves a limited number of spaces in the incoming class for students with exceptional talent or potential, as determined by the departmental/college representative making the recommendation.

Students who fail to meet the published admission requirements may contact the Office of Admissions for further information. Exceptions to the admission requirements may be made only by the Faculty Admissions Subcommittee.

Retention of Students
The grade point average for freshmen entering from high school in the fall semester 2008 was 3.48. Of the 3,411 freshmen who entered in the fall 2008, 3,210 were enrolled in the spring of 2009.

Freshman Admission Requirements
Freshman applicants will be considered for admission on the basis of their academic records and other supporting documents, which include transcripts, test scores (SAT or ACT), a personal statement, and other relevant materials as requested. The high school transcript must show completion of no less than the following course work in grades 9-12:

**English:**
Four credits (three of which must be composition and literature). Additional mathematics is strongly recommended.

**Mathematics:**
Three credits of college preparatory mathematics (one year of geometry and two years of algebra, including two year of algebra-based science including chemistry or physics).

**Science:**
Two credits of laboratory science, including one credit of algebra-based science (typically biology or chemistry). Additional mathematics is strongly recommended.

**Social Science:**
Three credits.

**World Languages:**
Two credits of the same world language, Native American language, or American Sign language.

**Fine Arts:**
One credit of fine, visual, or performing arts, or one additional credit of academic elective.

It is strongly recommended for students planning to major in science or science-related fields to complete at least three years of science (including at least two years of laboratory science).

Applicants who have not graduated from high school at the time of application must maintain a satisfactory record, complete all required courses specified for admission to WSU, and provide evidence of graduation, higher credential such as an Associate of Arts or Associate of Science degree, or completion of the GED prior to enrollment. WSU reserves the right to withdraw an offer of admission if there is a significant drop in the applicant's academic performance following the offer of admission.

Graduates of unaccredited high schools may contact the Director of Admissions for further information.

Applicants must apply with a full and complete application packet by January 31 for priority consideration for the fall semester, as space is limited. Applicants for spring semester should apply by November 15 for priority consideration.

A complete application includes the application form, the official high school transcript provided in a sealed envelope, the SAT or ACT score report from the testing agency, the personal statement, and the nonrefundable application fee. Students may apply online at www.apply.wsu.edu.

Factors considered in freshman admission include grade point average, standardized test scores, the strength of the high school course work (including senior year course work), grades the student has earned and any improvements they have made in their academic performance, and their personal statement. Although letters of recommendation are not required, they are taken into consideration if they are helpful in speaking to the student's academic potential and abilities. Refer to the website for additional information.

Students who have applied to the University may apply to WSU's Honors College if they have shown unusual scholastic ability and intellectual achievement in high school. Application materials may be obtained from the Honors College website at honors.wsu.edu. Transfer and international students may apply to the Honors College on an individual basis after eligibility has been determined. Questions should be directed to the University Honors College, PO Box 642012, Pullman, WA 99164-2012, or call 509-335-4505.

Transfer Admission Requirements
Transfer applicants who have successfully completed a Direct Transfer Associate (DTA) from a regionally accredited post-secondary institution at the time of application will be admitted as space allows.

Transfer applicants without a DTA but with at least 27 semester (40 quarter) hours of transferable college credit from a regionally accredited post-secondary institution normally will be admitted as space allows, provided they have at least a 2.5 cumulative grade point average. Transfer students with a 2.0-2.49 cumulative grade point average will be admitted as space allows. Applicants with fewer than 27 semester (40 quarter) hours of transferable credit will be considered for admission if they also meet the freshman admission requirements.

For fall semester, qualified students who apply with a complete application packet by January 31 will be offered admission until the class is filled. For spring semester, qualified students who apply by November 15 will be offered admission on a space available basis until the class is filled.

A complete application includes the application form, an official transcript sent directly from each college or university attended showing work completed at the time of application, and the nonrefundable application fee. Applicants with fewer than 27 semester (40 quarter) hours of transferable credit earned and posted at the time of application must also provide freshman credentials including high school transcripts and test scores for consideration.

Transfer Credit Policy
College-level work completed at institutions that are regionally accredited is given appropriate credit upon transfer to Washington State University.

The maximum transfer credit allowed from accredited two-year community or junior colleges, or from CLEP, AP, IB, or military credit shall be 73 semester (110 quarter) hours toward a baccalaureate degree irrespective of when those credits were earned. The maximum allowable credit toward a four-year degree from a four-year institution or from a combination of all institutions shall be 90 semester (135 quarter) hours of credit, of which no more than 73 semester credits may be lower division hours of credit. For a five-year degree program, the maximum credit allowed for transfer from a four-year institution or a combination of all institutions shall be 120 semester (180 quarter) hours of credit, of which no more than 73 semester credits may be lower division hours of credit.

Completion of lower-division General Education Requirements will be granted to students who have completed all of the lower-division General Education Requirements at another regionally accredited Washington baccalaureate institution, provided the sending institution so certifies.
Associate Degree Transfer

Students who have completed a Direct Transfer Associate (DTA) degree at a Washington community college, including a course pattern which approximates the General Education Requirements (GERs) for graduation from Washington State University, as determined by the Office of Admissions at Washington State University, will be considered to have fulfilled the lower-division General Education Requirements for graduation. The Associate of Arts-Oregon transfer degree from an Oregon community college guarantees completion of the lower-division General Education Requirements, but does not guarantee junior standing. Certain approved Associate’s degrees from Arizona, California, Hawaii, and Idaho may also be considered to have fulfilled the lower division GERs for graduation, but do not guarantee junior status (60 semester credits). For details on specific degrees view WSU’s web site. In all cases, students will also be required to meet the upper-division General Education Requirements as well as any departmental and college graduation requirements.

Students who have completed the Associate of Science Transfer Degree (A.S.T.) from a Washington community college will receive the same priority consideration for admission to the baccalaureate institution as they would for completing the direct transfer associate degree and will generally be given junior status. Additional general education and college graduation requirements, as required by Washington State University, must be met prior to the completion of a baccalaureate degree. Students are responsible for checking specific major requirements in the year prior to transferring.

Washington State University recognizes academic credits earned at other regionally accredited institutions which are essentially equivalent in academic level and content to work offered at WSU. Toward this end, the University subscribes to the “Policy on Inter-College Transfer and Articulation Among Washington Public Colleges and Universities” endorsed by the public colleges and universities of Washington and the State Board for Community and Technical Colleges and published by the Higher Education Coordinating Board. The policy deals with the rights and responsibilities of students and the review and appeal process in transfer credit disputes.

Students who have completed at least 70 quarter credit hours toward completion of an approved A.A. degree may complete the Direct Transfer Associate (A.A.) degrees from a Washington or Oregon two-year college after their initial enrollment at WSU.

Transfer students are encouraged to contact the Office of Admissions at 888-468-6978 with any questions regarding the transfer of credit or to access transfer articulation information at www.wsu.edu/advising/transfer-courses or www.wsu.edu/transfer/TRACS, or to call the Transfer Center at 509-335-6000.

Adult Student Admission

Washington State University recognizes that students who have been away from the classroom for extended periods of time may have special needs. Therefore, in accordance with the policies set forth by the Higher Education Coordinating Board, applications from students who are 25 years of age or over may be considered for admission on the basis of alternative criteria. Students are encouraged to contact the Office of Admissions for details.

Admission of Students with Extraordinary Talents

Washington State University wishes to make educational opportunities available to students whose extraordinary talents have the potential to enrich our intellectual, cultural, and social environments, but whose overall academic credentials may not qualify them for regular admission.

WSU departments, colleges, or programs may request special consideration for students who possess such extraordinary talents provided the talent is of a nature that would not normally be reflected or assessed during the regular admission process. The current admission process considers the curriculum, grades, and standardized scores of the applicant. Examples of evidence of extraordinary talents that might not be apparent in the applicant’s file include: exceptional music, athletic accomplishment, awards in science, math, or artistic competitions or similar measures of talent.

There are two tracks for admission under this policy. The first admits students who are minimally qualified with an AIN of 28 or above, but whose index scores do not meet the criteria set by the university for admission that year. Such students may be admitted upon the written recommendation of the chair/director of the relevant academic department, school, or program or the head coach of the relevant athletic team and the approval of the Vice President for Enrollment Management or designee. In the case of student athletes, the concurrence of the Faculty Athletic Representative is also required. Letters of recommendation must detail how the student’s skills will contribute to the University.

A three-person panel consisting of the Chair of the Faculty Senate, Chair of the Academic Affairs Committee of the Faculty Senate and the Vice President for Enrollment Management or designees will further review students identified as having extraordinary talent but whose AIN scores are below a 28. A written recommendation of the relevant chair/director or head coach will be required to support the student’s admission. In the case of student athletes, the students who are assessed to have potential to contribute to the university through their special skills and advance themselves through the university experience will be considered for admission. Students who fail to meet the university’s minimum core requirements or in the case of student athletes who fail to meet NCAA requirements will not be admitted to the university under this policy.

The University will carefully monitor the number and progress of students admitted under rules 1-c and 1-e. Every fall, the Vice President for Enrollment Management will provide a written report to the Provost, Chair of the Faculty Senate and the President on the number of students admitted, their academic qualifications, extraordinary talents, or the basis for their admission. The report will also assess the academic progress of students previously admitted under these rules to insure that the program is functioning to the advantage of the students and the university community as a whole.

Admission to WSU Spokane, WSU Tri-Cities, and WSU Vancouver

The WSU Spokane, Tri-Cities, and Vancouver campuses offer a variety of undergraduate and graduate degree programs. All three campuses have graduate education; WSU Tri-Cities and WSU Vancouver also offer baccalaureate degrees.

Academic programs offered by each campus are listed separately in this catalog. Applications may be obtained from each campus or at its Web site. A complete transfer application includes the application form, official transcripts provided in a sealed envelope from each college or university attended showing work completed at the time of application, and the nonrefundable application fee. Applications will not be considered or processed after the tenth day of classes for any semester. Final and complete transcripts to date must be submitted prior to the student’s initial enrollment.

The policies regarding the transfer of credit are described within the Transfer Admission Requirements as explained above.

Former Students Returning (FSR) Not Enrolled the Previous Academic Semester

If you previously enrolled at any Washington State University campus and you were absent for more than one semester (excluding summer), you are considered a former student and you need to reapply for admission.

Preference will be given to applications received by January 31 for fall semester and November 15 for spring semester. Applications submitted after census day of classes will not be considered.

FSR applicants will be granted admission if they are in good academic standing. FSR applicants whose previous academic record at Washington State University is unsatisfactory will be required to follow established academic reinstatement procedures prior to admission.

FSR applicants who have attended other institutions since their last enrollment at Washington State University are required to submit an official transcript directly from each institution attended. Applicants are required to have at least a 2.0 GPA in transfer work.

Apply at www.apply.wsu.edu or contact the Office of Admissions for a FSR application.

International Student Admission Requirements

Washington State University encourages the application of qualified students from other nations to complement its student community. Applicants must submit evidence of English proficiency (example: TOEFL or other recognized proficiency exam (see www.ip.wsu.edu/enroll/faq for list); evidence of adequate financial resources to meet the costs of the proposed study; an International
Undergraduate Application for Admission along with application fee; and secondary and post-secondary transcripts of all course work taken. Please contact the Office of Admissions at 509-335-5586 or at futurestudents.wsu.edu/admission for further information.

**Non-Degree Admission**

futurestudents.wsu.edu/admission

Individuals may enroll at Washington State University as non-degree students for personal enrichment, professional development, or other reasons. Enrollment in courses for non-degree students is limited to space availability, and non-degree students register for courses after degree-seeking students. Students who are interested in applying as a non-degree-seeking student may apply at www.apply.wsu.edu.

**International Student Non-Degree Admission Requirements**

futurestudents.wsu.edu/admission

International non-degree students come to Washington State University for a variety of reasons, as do domestic non-degree students. However, often these students are having a study abroad experience at WSU, much like WSU students have when they go overseas to study for a short while at foreign institutions. The goals of the experience usually include improving language capabilities, taking transferable credit-bearing course work, making new friends, learning about American culture, and seeing a little of the USA. Conversely, these students enrich WSU by exposing students and faculty alike to a broader world view in and outside of the classroom.

Most of the students return to their home institutions to complete degrees after they attend classes at WSU. Since the purpose of the non-degree status is not for the student to ultimately attain a degree from WSU, the period of study is usually expected to be one year or less. However, non-degree students have been known to return to WSU for post-baccalaureate or graduate study after learning about the fine facilities, high-quality faculty, and many resources we have to offer.

**Whitman County High School Students Enrolling at Washington State University**

For fall and spring semesters, eligible Whitman County high school students may enroll through Running Start. For more information on the Running Start program, please contact the Registrar's Office at 509-335-1693.

**Limited Enrollment Programs**

Since academic departments may establish additional requirements for admission or certification to specific programs, eligibility for admission to Washington State University does not ensure acceptance into any department or program as a certified major and degree candidate. Several academic programs, including but not necessarily limited to architecture, business administration, communication, computer science, construction management, economics, education, engineering, fine arts, hospitality business management, interior design, landscape architecture, mathematics, music, nursing, psychology, pharmacy, and veterinary medicine, are unable to accept all interested students. In these situations, and others which may arise in the future, the most highly qualified students will be selected up to the enrollment limits in the specific programs. Students applying for admission to selective programs should contact the program or check its web site for application details. Application deadlines are subject to change.

**Credit by Examination**

Recognizing the natural ability and education experience of many of its applicants, Washington State University has developed a broad program of credit by examination.

In consultation with academic departments, credit may be granted to entering or enrolled undergraduate students via external examinations, institutional examinations, and approved military service schools. WSU does not accept credit by examination granted by other institutions. Credit by examination shall yield no grade points. Such credits may partially fulfill General Education Requirements for graduation. External examinations include but are not limited to: Advanced Placement (AP) examinations; general and subject College Level Examination Program (CLEP); and International Baccalaureate (IB). Acceptable scores for receiving credit may be found at www.wsu.edu/advancedcredit.

The maximum combined lower-division transfer credit allowed from regionally accredited institutions, AP, CLEP, IB and military credit shall be 73 semester hours toward a baccalaureate degree irrespective of when those hours were earned.

Matriculated students who are currently registered may take a special examination for university credit in a course in which they are not registered. Such credits yield no grade points but may yield credit toward completion of General Education Requirements for graduation. For further information contact the Registrar's Office.

**Advance Payment on Tuition and Fees**

All undergraduate applicants, except former students returning and non-degree students, are required to submit a nonrefundable advance payment on tuition and fees in the amount of $200 prior to final admission. The advance payment will be requested of those applicants who are eligible for admission and should not be submitted until an official offer of admission is received by the applicant.

**Graduate Admission Requirements**

Applicants for admission to the Graduate School must meet the special requirements of the Graduate School and the particular program desired. For complete information, refer to the Graduate School listing in this catalog.
### Colleges and the Graduate School

**COLLEGE OF AGRICULTURAL, HUMAN, AND NATURAL RESOURCE SCIENCES**

Daniel J. Bernardo, Dean  
Hulbert Hall, Room 423  
509-335-4562  
www.cahnrs.wsu.edu

The College of Agricultural, Human, and Natural Resource Sciences generates and disseminates knowledge about physical, biological, social, and economic aspects of agriculture, natural resources, human, consumer, and family sciences that is vital to the well-being of our state and nation. The college also offers formal classroom instruction, ongoing research programs, and outreach programs through Extension. All of these contribute to the development of Washington’s human and natural resources.

The college offers approximately 20 majors that prepare professionals for careers in agricultural systems, natural resource management, food production, processing, and distribution, as well as in areas of health, apparel and textiles, and interior and landscape design. Students receive a solid base in science with a technological grounding that enables them to remain abreast of the dynamic fields of agricultural, human, and natural resource sciences. Study programs also help prepare graduates to live and work in our environmentally conscious and globally focused economy and society. All degree programs provide students with opportunities for interactions with researchers in the classroom and in their labs/studios, and with hands-on experiences in their fields through internships.

Agriculture and natural resources are two of the most important industries in the state of Washington. Although the number of individuals directly involved in production agriculture has declined, the overall agricultural industry remains Washington’s number one industry economically and offers an increasing number of job opportunities. Programs in agriculture and natural resource sciences prepare students for a wide variety of careers, including business and finance, economics, communications, food processing, natural resource management, pest and plant disease management, and sales and distribution of food products. Graduates are qualified to be agricultural producers, land managers, agriculture teachers, landscape architects, or industry representatives for agriculture or natural resources. Students who earn graduate degrees are prepared to follow scientific careers in research, college teaching, Extension, and highly technical pursuits in industry and government.

The College of Agricultural, Human, and Natural Resource Sciences offers unique opportunities to prepare students interested in pursuing a career in veterinary medicine. Animal Sciences and Natural Resource Sciences have programs that allow students to prepare for admission to veterinary school and earn a baccalaureate degree simultaneously.

College programs in the human sciences prepare students for positions as pre-school to third grade educators, teachers of family and consumer sciences, human science and community agency managers, and directors of aging programs. Other careers include apparel design and merchandising, interior design, consumer services, or commercial food service. Students who graduate are prepared to teach in public schools, to work in adult education, and to administer and supervise preschool and child care centers. Those who earn advanced degrees are educationally qualified to fill positions in research, extension, governmental agencies, foreign services, college teaching, and business.

### Admission

The requirements for admission to the College of Agricultural, Human, and Natural Resource Sciences are the same as those for WSU. High school students planning to enroll in the college are urged to work closely with their counselors and with representatives from WSU in developing an appropriate background of high school courses in biological, physical, and social sciences, mathematics, and other elective areas.

### Transfer Students

Most transfer students who have completed one year in another college or university ordinarily will have no difficulty in completing the requirements for one of the bachelor’s degrees in three additional years.

Some students who have completed two years before transferring could have some difficulty in completing requirements in two additional years because of required courses and course sequences. To avoid this difficulty, students enrolled in other colleges or universities but planning to transfer to the College of Agricultural, Human, and Natural Resource Sciences should concentrate as much as possible on general education, science, and other departmental requirements normally scheduled during the freshman and sophomore years, with particular attention to those subjects required for the intended majors. Students at community colleges in the state should check to see whether there is an articulation agreement between their institution and the WSU program of interest. Students should also contact a College of Agricultural, Human, and Natural Resource Sciences advisor in their area of interest.

### Requirements for Graduation

Requirements for graduation in the College of Agricultural, Human, and Natural Resource Sciences vary according to the major and the degree to be granted, as described in the departmental sections of this catalog. The student and the advisor jointly have the responsibility of selecting courses to fit the student’s native ability and professional interests, consistent with departmental and general education requirements. Students are encouraged to do more than satisfy the minimum requirements.

### Agriculture and Natural Resource Science Degrees

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<td><strong>CAHNRS Academic Programs</strong></td>
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<td>(including Agricultural and Food Business Economics, Agricultural Education, Agricultural Technology and Production Management, Agriculture and Food Security, and Organic Agriculture Systems)</td>
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### Degree

#### Bachelor of Landscape Architecture
- Landscape Architecture
  - Department: Horticulture and Landscape Architecture

#### Bachelor of Arts
- **Apparel, Merchandising, and Textiles** *(including Apparel Design, and Merchandising)*
  - Department: Apparel, Merchandising, Design, and Textiles
- **Human Development** *(including Adolescence, Gerontology, Early Childhood and Family Studies Certificates, teacher certification in Early Childhood Education and Family and Consumer Sciences Education)*
  - Department: Human Development
- **Interior Design** *(Interdisciplinary Degree)*
  - Department: Interior Design

#### Master of Regional Planning
- **Regional Planning** *(Interdisciplinary Degree)*
  - Department: Earth and Environmental Science

#### Master of Science
- **Agriculture**
  - Department: Crop and Soil Sciences
- **Animal Sciences**
  - Department: Animal Sciences
- **Biological and Agricultural Engineering**
  - Department: Biological Systems Engineering
- **Crop Science**
  - Department: Crop and Soil Sciences
- **Entomology**
  - Department: Entomology
- **Food Science**
  - Department: Food Science
- **Horticulture**
  - Department: Horticulture and Landscape Architecture
- **Landscape Architecture**
  - Department: Horticulture and Landscape Architecture
- **Molecular Plant Sciences**
  - Department: Molecular Plant Sciences
- **Natural Resource Sciences**
  - Department: Natural Resource Sciences
- **Plant Pathology**
  - Department: Plant Pathology
- **Soil Science**
  - Department: Crop and Soil Sciences
- **Statistics** *(Interdisciplinary Degree)*
  - Department: Statistics

#### Master of Arts
- **Apparel, Merchandising, and Textiles** *(Interdisciplinary Degree)*
  - Department: Apparel, Merchandising, Design, and Textiles
- **Applied Economics**
  - Department: Economic Sciences
- **Human Development**
  - Department: Human Development
- **Interior Design**
  - Department: Interior Design

#### Doctor of Philosophy
- **Agricultural Economics**
  - Department: Economic Sciences
- **Animal Sciences**
  - Department: Animal Sciences
- **Biological and Agricultural Engineering**
  - Department: Biological Systems Engineering
- **Crop Science**
  - Department: Crop and Soil Sciences
- **Economics**
  - Department: School of Economic Sciences
- **Entomology**
  - Department: Entomology
- **Food Science**
  - Department: Food Science
- **Horticulture and Landscape Architecture**
  - Department: Horticulture and Landscape Architecture
- **Molecular Plant Sciences**
  - Department: Molecular Plant Sciences
- **Plant Pathology**
  - Department: Plant Pathology
- **Soil Science**
  - Department: Crop and Soil Sciences
- **Statistics** *(Interdisciplinary Degree)*
  - Department: Statistics

### COLLEGE OF BUSINESS

**Eric R. Spangenberg, Dean and Maughmer Freedom Philosophy Chair**
**Todd Hall, Room 570**
**509-335-3596**
**www.business.wsu.edu**

The College of Business (CB) is dedicated to innovative teaching and learning, world-class research, and the pursuit of excellence in all levels of business education. The CB spans four campuses of Washington State University with the largest campus in Pullman and regional campuses located in Spokane, Vancouver, and the Tri-Cities. The CB conducts scholarly and applied research offering degree programs in a variety of business disciplines including hospitality business management as well as wine business management, and supplements these offerings through innovative online learning and exchange programs throughout the world.

The CB is among two percent of business schools worldwide to be accredited by the Association to Advance Collegiate Schools of Business (AACSB) at the bachelor, master, and doctoral levels, and is ranked 11th among business programs at public universities in the Western United States by US News and World Report 2007. In addition, the account programs maintain an additional specialized AACSB accreditation.

The College of Business is developing globally competent business leaders who will successfully drive the commercialization of innovation across disciplines. Through the College’s annual business plan competition and national venture forums, students drive the execution and delivery of transformational innovations. Students develop global competencies in study-abroad programs and international internships facilitated by the CD International Business program.

With over 50 years of excellence in graduate education, the MBA curriculum focuses on the management of innovation to develop leaders who can successfully take new products to market. The WSU MBA program was named one of Princeton Review’s “Best Business Schools.” Graduate program offerings include an Executive MBA program, Online MBA, Full-time MBA, Professional MBA, Master of Accounting, and a Ph.D in Business Administration. The doctor of philosophy in business prepares its graduates for careers in teaching and research positions and places students at prestigious research institutions.

Additionally, the Scott and Linda Carson Center for Professional Development equips students with the skills and knowledge necessary for personal and professional success.

### Areas of Study

The college departments—accounting; information systems; finance, insurance and real estate; marketing; and management and operations—offer the following majors for the Bachelor of Arts in Business Administration degree:

- Accounting
- Accounting and Information Systems
- Business Administration (Vancouver and Tri-Cities campuses only)
- Entrepreneurship
- Finance (six career tracks include Risk Management/Insurance and Real Estate)
- International Business
- Management Information Systems (Operation or Organization tracks)
- Management and Operations
- Marketing

Within the college a specialized Bachelor of Arts degree is offered in the area of Hospitality Business Management, with a major in Hospitality Business Management and a major in Wine Business Management.

Graduate work may be taken in business administration and accounting leading to Master and Doctor of Philosophy degrees.

### Minors

Minors are available in the following business administration fields: accounting, business administration [only non-business majors are eligible], entrepreneurship, finance, human resource/personnel, international business, management information systems, and marketing. A minor in hospitality business management is also available. For specific information regarding minor requirements, see the Business Administration and Hospitality Business Management sections of this catalog.
Admission
Admission is competitive and based on capacity. Students should certify into hospitality business management or a particular business major upon completion of 60 hours of credits and specific course and GPA requirements (see the certification requirements in the Business Administration section of this catalog). To be eligible to enroll in 300-400-level business or HBM courses, business and hospitality business management students must have certified in their respective majors upon completion of 60 hours of course work and meeting GPA and other certification requirements.

For specific information regarding the acceptability of college courses taken at other institutions in areas of study offered by the departments of the College of Business, prospective students should communicate with the appropriate department chair or the CB Advising Center.

Diversity, Recruitment, and Retention
The College of Business is strongly committed to diversifying its student body as well as to improving its retention and graduation rates of underrepresented students. The College strives to create an environment that is supportive and inclusive and where all students can succeed academically and professionally.

Business Degrees
The curricula of the College of Business lead to the following degrees:

Pullman Campus Degrees
- Bachelor of Arts, Business Administration
- Bachelor of Arts, Hospitality Business Management
- Master of Accounting
- Master of Business Administration
- Doctor of Philosophy, Business Administration

Spokane Campus Degrees
- Master of Business Administration, Executive Program

Tri-Cities Campus Degrees
- Bachelor of Arts, Business Administration
- Master of Business Administration

Vancouver Campus Degrees
- Bachelor of Arts, Business Administration
- Master of Business Administration

COLLEGE OF COMMUNICATION
Lawrence Pintak, Founding Dean
Communication Addition, Room 101
509-335-7333
www.communication.wsu.edu

Communication is central both to a democratic society and to membership in the global community. The faculty of the Edward R. Murrow College of Communication is dedicated to creating knowledge and facilitating learning about the production and interpretation of messages. Combining programs that integrate fundamental communication domains, we are uniquely positioned to disseminate knowledge in a world where interpersonal and mediated communication converge.

We are dedicated to educating professional, ethical, and socially responsible citizens. Such an education shall provide students with an understanding of the social, political and ethical implications of communication. We are committed to developing in students a dedication to lifelong learning, communication skills, analytical and critical thinking skills, appreciation of diversity, and professional excellence. Our students learn through traditional teaching methods, innovative approaches to learning and application of professional skills and knowledge. In addition to undergraduate instruction, graduate education is an important component of our mission. Thus, we are also dedicated to guiding exceptional students’ development as teachers, researchers, and leading professionals.

Research is necessary to fully serve our constituencies including students, industry, policy makers, and the communication discipline. As active members of a Research I institution, we are dedicated to the pursuit of knowledge regarding the complex and multifaceted nature of communication. We pursue quality research that respects and is informed by diverse disciplines, perspectives, and methods and strive to contribute knowledge with both theoretical and practical implications. Because research enhances teaching, we aim to develop and maintain a mutually beneficial relationship between research and instruction.

As citizens, we endeavor to share our expertise and abilities with the broader community. We are committed to the advancement of the University and local, national and international communities through service activities beyond research and instruction. Such activities are exemplified by faculty outreach to various community and industry groups, and by faculty participation in decision making at all levels of the University.

Seeking understanding of communication and its role in society, teaching that understanding in the classroom and beyond, and applying our knowledge in the broader community thus comprise the mission of the College of Communication.

Named for its most illustrious alumnus, the Edward R. Murrow College of Communication is highly regarded nationwide by educators and professionals. It has won national and regional Emmys for student television productions, is nationally ranked 4th in television news and first in the Northwest for its public relations sequence, and has a faculty and student body with good gender and racial diversity.

Study in the College provides exposure to new computer-based technologies. The Edward R. Murrow College of Communication has three computer labs, including a writing lab, an advanced graphics and data analysis lab, and a broadcast news lab; television production studios and TV editing suites; a radio station and radio/audio labs; and a state-of-the-art news production/broadcast lab with NewStar computer system.

The Edward R. Murrow College of Communication offers sequences in communication fields: advertising, broadcasting, journalism, and public relations. It offers the only comprehensive broadcast program in the state of Washington. The School is noted for combining professional skill building and theory and is one of only a few programs in the nation that airs a daily, student-produced television newscast.

Admission
To certify a major in communication a student must meet the following minimum requirements:

(1) Complete Communication 101, 245, 265, 295 and Communication Studies 102
(2) Earn a grade no lower than C in Communication 295.

The Communication GPA and the cumulative GPA are averaged together. Students will then be placed in rank order. The top students then are certified based on how many spots are available that semester, approximately 140 spots in Fall; 115 spots in Spring; and 40 spots in the Summer. Limitation is imposed because of limited space, equipment and faculty resources. Students transferring into the department with 55 or more hours should complete the certification requirements within two semesters.

All students should apply to certify before earning 90 credit hours. COM 295 - All students must apply for Communication 295 Media Writing. Entrance to Communication 295 is based on cumulative GPA, for transfer students it is based on your transfer GPA. The course should be taken your second semester sophomore year or first semester junior year to graduate in four years. Applications are available outside of the Main Office in October for the Spring semester, and in March for the Summer and Fall semesters. A student should have at least 40 credits before applying. Upon completion of Communication 295 a student must apply for certification.

Requirements for Graduation
Requirements for graduation in the College of Communication vary according to the major and the degree to be granted, as described in the departmental sections of this catalog. The student and the advisor jointly have the responsibility of selecting courses to fit the student’s native ability and professional interests, consistent with departmental and general education requirements.

Degrees
The College of Communication offers programs of study leading to the following degrees:

Degree
Bachelor of Arts, Communication
Emphasis
Advertising
Applied Intercultural Communication
Broadcast News
Broadcast Production
The College of Education consists of the Department of Educational Leadership and Counseling Psychology and the Department of Teaching and Learning. The college has both degree and certification programs. The College of Education offers degree programs which prepare teachers for elementary school, secondary school, and college instruction; specialists and researchers in a variety of educational fields; administrators for schools, colleges, and universities; and sport-related specialists for private and community agencies. The college also provides professional training in movement studies, athletic training, counseling, and counseling psychology. It offers a variety of educational services to local school systems.

At the baccalaureate level, the General Education Requirements provide a foundation for professional work in the College of Education through offerings in the arts and humanities and in the social and natural sciences. Practical experiences are integrated with course work throughout professional preparation curricula.

The mission of the certification programs in the College of Education is to furnish intensive preparation for persons who serve or aspire to serve in teaching, supervisory, special services, or administrative fields at all levels of education as well as in related areas of professional services. Candidates for certification must demonstrate knowledge and competencies at qualified levels of professional practice.

Graduate programs in the College of Education offer advanced course work and field experience in education and human services. Certification programs in administration and counseling are available at the graduate level. Doctoral programs focus on preparation of administrative personnel for the schools, counselors, and community colleges, as well as teacher educators and educational researchers. Graduate programs stress scholarship as a basis for all professional endeavors.

School-focused curricula at all degree levels in the College of Education are accredited by the National Council for Accreditation of Teacher Education. The doctoral program in counseling psychology is accredited by the American Psychological Association. The College of Education is a member of the American Association of Colleges for Teacher Education and the University Council on Educational Administration.

The College of Education also functions as a service institution for schools and communities in the state of Washington. Applied research services are provided to education and health-related agencies throughout the United States and internationally. Services of faculty are available for consultant purposes, school studies, professional development programs, school seminars, and community conferences in the departmental specialties.

Degrees

Degrees offered in the College of Education are as follows:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department</th>
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</thead>
<tbody>
<tr>
<td>Bachelor of Arts Education</td>
<td>Teaching and Learning</td>
</tr>
<tr>
<td>Bachelor of Arts, Sport Management</td>
<td>Educational Leadership</td>
</tr>
<tr>
<td>Bachelor of Science, Kinesiology</td>
<td>Counseling Psychology</td>
</tr>
<tr>
<td>(Movement Studies or Health and Fitness)</td>
<td>Educational Leadership</td>
</tr>
<tr>
<td>Bachelor of Science, Athletic Training</td>
<td>Counseling Psychology</td>
</tr>
<tr>
<td>Master of Education</td>
<td>Counseling</td>
</tr>
<tr>
<td></td>
<td>Curriculum and Instruction</td>
</tr>
</tbody>
</table>

COLLEGE OF ENGINEERING AND ARCHITECTURE

Candida Claiborn, Dean
Dana Hall, Room 146
509-335-5593
www.cea.wsu.edu

The College of Engineering and Architecture provides instruction, research, and public service in engineering, architecture, construction management, computer science, and materials science. Academic units in the college offering engineering degree programs are chemical engineering and bioengineering, civil and environmental engineering, electrical engineering and computer science, mechanical and materials engineering, and mechanical engineering and computer science in Vancouver. The School of Architecture and Construction Management offers degrees in architecture and construction management. The PhD in Materials Science is offered through an interdisciplinary program through the College of Engineering and Architecture and the College of Sciences.

The college's undergraduate degree programs prepare graduates for both professional careers and advanced study and are known for their practical, hands-on components coupled with a strong foundation of basic principles. The college's programs use formal classroom instruction, coupled with individual and group projects, seminars, and individually directed studies to prepare students to develop solutions that are technically, socially, and economically appropriate. Many students also gain work experience in their fields of interest through employment on college research projects or internships in industry.

Faculty, graduate students, and staff in the college perform basic and applied research addressing problems of state, national, and international importance. Research projects are designed to enhance economically, ecologically, and culturally sound use of our material resources and to promote well-balanced industrial and professional development. Research is an integral part of graduate degree programs, providing graduate project topics and opportunities for graduate student interactions with outside professionals. The college's research also strengthens its undergraduate programs by involving undergraduate students in relevant creative exploration and by keeping undergraduate course content current with the latest research developments.

The college provides important educational services to industries, professions, and the general public. Short courses, conferences, and workshops taught by
Degrees offered in the College of Engineering and Architecture at the Pullman campus are listed below (exceptions are listed in parentheses):

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department or Area</th>
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<tbody>
<tr>
<td>Bachelor of Arts</td>
<td>Computer Science (also Tri-Cities) Architectural Studies</td>
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<td></td>
<td>Bioengineering</td>
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<td></td>
<td>Chemical Engineering</td>
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<td></td>
<td>Civil Engineering</td>
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<td></td>
<td>Computer Engineering</td>
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<tr>
<td></td>
<td>Computer Science (also Tri-Cities and Vancouver)</td>
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<tr>
<td></td>
<td>Construction Management</td>
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<tr>
<td></td>
<td>Electrical Engineering</td>
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<tr>
<td></td>
<td>Materials Science and Engineering</td>
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<tr>
<td></td>
<td>Mechanical Engineering</td>
</tr>
<tr>
<td></td>
<td>(also Tri-Cities and Vancouver)</td>
</tr>
<tr>
<td></td>
<td>Architecture</td>
</tr>
<tr>
<td>Master of Architecture</td>
<td>Engineering and Technology Management (Spokane, Tri-Cities, and Vancouver only)</td>
</tr>
<tr>
<td>Master of Engineering and</td>
<td>Architecture</td>
</tr>
<tr>
<td>Technology Management</td>
<td>Biological and Agricultural Engineering</td>
</tr>
<tr>
<td>Master of Science</td>
<td>Chemical Engineering</td>
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<tr>
<td></td>
<td>Civil Engineering</td>
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<tr>
<td></td>
<td>Computer Science (also Tri-Cities and Vancouver)</td>
</tr>
<tr>
<td></td>
<td>Electrical Engineering</td>
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<tr>
<td></td>
<td>(also Tri-Cities)</td>
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<td></td>
<td>Engineering</td>
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<tr>
<td></td>
<td>Environmental Engineering (also Tri-Cities)</td>
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<tr>
<td></td>
<td>Materials Science and Engineering</td>
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<tr>
<td></td>
<td>Mechanical Engineering</td>
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<td></td>
<td>(also Tri-Cities and Vancouver)</td>
</tr>
<tr>
<td></td>
<td>Biological and Agricultural Engineering</td>
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<td></td>
<td>Chemical Engineering</td>
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<td></td>
<td>Civil Engineering</td>
</tr>
<tr>
<td></td>
<td>Computer Science (also Tri-Cities)</td>
</tr>
<tr>
<td></td>
<td>Electrical and Computer Engineering (also Tri-Cities)</td>
</tr>
<tr>
<td></td>
<td>Engineering</td>
</tr>
<tr>
<td></td>
<td>Materials Science (Interdisciplinary Program)</td>
</tr>
<tr>
<td></td>
<td>Mechanical Engineering (also Tri-Cities)</td>
</tr>
</tbody>
</table>

Engineering

Engineering practice is based on sound fundamental and practical knowledge of mathematics, the sciences, and liberal arts. Basic sciences and mathematics form the foundation on which engineering science and engineering design courses are built. Engineering courses prepare students to solve problems in society by quantitatively analyzing alternatives and making decisions guided by economics and an awareness of social and ethical issues.

The established undergraduate engineering programs offered by the college are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, 410-347-7700. Accreditation for the bioengineering program and the Vancouver mechanical engineering and computer science programs has been applied for and is currently under consideration by ABET.

Graduate degrees in engineering, listed previously, are offered at the master's and doctoral levels. Students desiring graduate degrees in areas not listed may arrange with the program of interest to pursue a Master of Science in Engineering or Doctor of Philosophy in Engineering Science, allowing their programs of study to be designed for their particular needs and interests. Admission to engineering graduate programs is open to qualified students with a recognized degree in engineering, mathematics, a physical science, or a biological science. Additional information about specific areas of active research may be obtained by contacting the Associate Dean for Research or the appropriate department chair or school director.

Strong supporting courses are available from the Departments of Mathematics, Physics, Chemistry, and the Program in Biology. The graduate programs are also supported by many excellent University facilities such as the Water Research Center, Albrook Hydraulics Laboratory, Laboratory for Atmospheric Research, Wood Materials and Engineering Laboratory, Electron Microscopy Center, Food Engineering Pilot Plant, National Science Foundation Center for Design of Analog/Digital Integrated Circuits, Power Systems Engineering Research Center, Center for Multiphase Environmental Research, Center for Integrated Biotechnology, Bioengineering Research Center, Center for Materials Research, Center for Intelligent and Networked Systems, Center for Asphalt Technology, Washington State Transportation Research Center, and Engineering Education Research Center.

Computer Science

Computer science is the scientific foundation for computing, with roots in mathematics, the sciences, and engineering. Computer science encompasses the theory and techniques by which information is represented, processed, stored, and communicated. It deals particularly with the theory of algorithm and the step-by-step procedures for creating software to solve a problem or accomplish some goal. Students study computer software and hardware systems for efficient solution of practical problems. The Bachelor of Science program in computer science, offered through the School of Electrical Engineering and Computer Science, is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, 410-347-7700. Curricular specializations available include computer engineering, databases, distributed computing, networks, network security, operating systems, and software engineering. Students use a variety of scientific workstations, graphic workstations, and microcomputer laboratories, all of which are networked to each other and to national networks.

The Bachelor of Arts in Computer Science emphasizes breadth by requiring expertise in computer science and another area. The latter is accomplished through the requirements of a formal minor. The areas of specialization within computer science are the same as those listed for the Bachelor of Science degree. The degree is accredited by the Computing Accreditation Commission of ABET, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012, 410-347-7700.

Architecture and Construction Management

The School of Architecture and Construction Management offers programs of study in architecture and construction management. Practice in these fields relies on studies of the arts and humanities as well as the sciences and technologies. Courses are designed to provide both professional fields with the breadth and depth of knowledge necessary to respond to the environmental and cultural forces that continually shape the decision-making processes associated with each field.

Programs of study in the school lead to the following degrees: a Bachelor of Science in Architectural Studies (a four-year degree) followed by a three-semester
Master of Architecture degree that is accredited by the National Architectural Accreditation Board (NAAB), a Bachelor of Science in Construction Management (a four-year degree) that is accredited by the American Council for Construction Education (ACCE) and a non-accredited Master of Science in Architecture with emphasis on design theory or design-build management.

Admission
Students must apply and be accepted (certified) into the undergraduate programs in the college before they may enroll in 300-400-level courses in the major. When admitted to Washington State University, students are assigned advisors in their indicated major for the period prior to their being certified in a major. Students may certify into a major after they have completed at least 24 semester credit hours and a prerequisite set of courses for the specific major.

Prospective students in engineering or computer science may apply for certification into the major of their choice upon completion of the applicable program requirements. Prospective students should contact the department or school administering their choice of majors to determine specific courses to be completed, application procedures, and application deadlines for certification. Factors considered in certification decisions include grades in science and math courses, grades in the major, overall grade point average, course repeats, professional experience and goals, and other indicators of the student’s potential for successful completion of the curriculum. Students denied certification into an engineering program may appeal to the Dean of the College of Engineering and Architecture for a review to ensure that departmental procedures were followed.

Prospective students in architecture are assigned to an architecture advisor and go through a step-by-step screening process scheduled at the end of the first year of study.

Prospective students in construction management are assigned to a construction management advisor and go through a step-by-step screening process scheduled at the end of the first year of study.

THE GRADUATE SCHOOL
Howard Grimes, Vice President for Research and Dean
French Administration Building, Room 324
509-335-6424
www.gradschool.wsu.edu

A graduate school has been described as a select community of scholars, faculty, and students dedicated to the extension of scholarship and the advancement of knowledge for the ultimate common good of mankind. The fields of intellectual and scholarly activity are numerous, and the student who contemplates graduate study should select a graduate school that offers a superior program in the chosen field. The student should study the accomplishments of the members of the graduate faculty, the adequacy of the research facilities, and the appropriateness of the curricula. For many, the Graduate School of Washington State University will provide advantageous and attractive opportunities.

Prospective graduate students should prepare themselves adequately, both in the fundamental subject matter necessary for their advanced work and in the other branches of learning, so that they may intelligently fulfill their responsibilities of leadership and service to society.

In a graduate program, a student is required to complete appropriate advanced courses, to participate in seminars, and to make an original contribution to knowledge. At least one academic year of graduate study, or the equivalent, is necessary for the completion of a program leading to a master’s degree. A doctor’s degree is awarded in recognition of distinctive scholarship. The period of study for the Doctor of Philosophy degree is at least three years (six semesters) beyond the baccalaureate degree. The period of study for the Doctor of Education degree is at least three years (six semesters) beyond the baccalaureate degree. Most advanced degree programs emphasize the preparation of students for careers as productive scholars, and accomplishments in research constitute an important part of the training. It is recognized also that those who earn advanced degrees often become the teachers in our institutions of learning. For this reason, in many departments special attention is given to the preparation of students for careers in the teaching profession.

Except as they apply to undergraduate students only, graduate students are subject to the usual procedures and regulations of the institution and to Graduate School rules and procedures as outlined on the following pages and in the Graduate School Policies and Procedures.

Opportunities for advanced study and research with members of the faculty are offered in the Graduate School. Graduate instruction and research are carried on in most of the regularly organized departments. Programs of study leading to advanced degrees are under the governance of the Graduate Studies Committee.

The faculty involved in graduate education consists of the president of Washington State University, the deans of the various academic units, the chairs of the academic departments and programs in which advanced degree programs are offered, and selected other members of the faculty. Members of the faculty involved in graduate education have the responsibility of offering courses limited to graduate students, guiding graduate seminars, serving as thesis advisors and members of thesis committees, administering Graduate School examinations (master’s, preliminary, and doctoral) and, from time to time, serving as members of the Graduate Studies Committee. Graduate students have opportunities for studying and working in a close professional relationship with these faculty members who have been selected because of their special competence and interest.

The overview below outlines the basic policies and procedures for the Graduate School at Washington State University; however it is not meant as a comprehensive discussion. Detailed policies and procedures may be found at www.gradsch.wsu.edu.

Degrees and Certificates Granted

Doctor of Philosophy

Programs leading to this degree are available in the following fields of study: agricultural economics, American studies, animal sciences, anthropology, biological and agricultural engineering, botany, business administration, chemical engineering, chemistry, civil engineering, communication, computer science, criminal justice, crop science, economics, education, electrical and computer engineering, engineering science, English, entomology, environmental and natural resource sciences, food science, geology, history, horticulture, individual interdisciplinary studies, materials science and engineering, mathematics, mechanical engineering, molecular biosciences, molecular plant sciences, neuroscience, nursing, nutrition, pharmacology and toxicology, physics, plant pathology, political science, psychology, sociology, soil science, veterinary science, and zoology

Master of Arts and Master of Science

The appropriate degree may be earned in most departments. (See the paragraph on degrees under the descriptive material for each department or other unit of the institution.)

Additional Degrees

Courses of study leading to the Doctor of Education and Master of Education degrees are offered in the Department of Educational Leadership and Counseling Psychology and the Department of Teaching and Learning.

A student may undertake a program for the degree of Doctor of Design, Master of Accounting, Master of Architecture, Master of Business Administration, Master of Engineering and Technology Management, Master of Fine Arts, Master of Health Policy and Administration, Master of Nursing, Master of Public Affairs, or Master in Teaching.

Graduate Certificates

Formal graduate certificates convey that students have developed mastery of course material. Requirements for the Graduate Certificate vary with Department or Program. They typically consist of 9 to 12 credits of graded coursework. Certificate programs offered at WSU include Graduate Certificate in Agribusiness, Graduate Certificate in Biotechnology Management, Graduate Certificate in Constraints Management, Graduate Certificate in Construction Project Management, Graduate Certificate in Engineering Nanotechnology, Graduate Certificate in Exercise Science, Graduate Certificate in General Engineering and Technology Management, Graduate Certificate in Global Justice and Security Studies, Graduate Certificate in Interdisciplinary Environmental Biogeochemistry, Graduate Certificate in Manufacturing Leadership, Graduate Certificate in Optoelectronics, Graduate Certificate in Project Management, Graduate Certificate in Protein Biotechnology, Graduate Certificate in Reproductive Biology, Graduate Certificate in Six Sigma Quality Management, Graduate Certificate in Supply Chain Management, Graduate Certificate

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in Sustainable Agriculture, Graduate Certificate in Systems Engineering Management.

Admission

Graduates of Washington State University and other colleges and universities whose degrees are recognized by this institution and who meet the requirements for graduate admission may be admitted to the Graduate School. For necessary interpretations, inquiries should be directed to the dean of the Graduate School. Prospective graduate students who have established superior academic records and whose degree interests are compatible with the programs offered at Washington State University are invited to apply for admission to the Graduate School.

Students who contemplate entering the Graduate School should apply online from the Graduate School Web site at www.gradschool.wsu.edu. For admission to the Graduate School, Washington State University requires official transcripts from each of the following: (1) colleges or universities attended for any undergraduate course work; (2) colleges or universities from which any degrees have been granted or are expected; (3) colleges or universities showing graded graduate-level (including doctoral) course work taken after the bachelor’s degree. Note: Students intending to request transfer credit for their program of study will need to submit official transcripts from colleges or universities showing such credit. Departments and programs are free to request additional transcripts as deemed appropriate. Official transcripts are those mailed directly to the Graduate School from the registrar of the institution attended. Complete credentials should be on file at least one month before registration. Transcripts from other institutions cannot be returned. Records of previous work at Washington State University need not be submitted.

In general, admission to the Graduate School on regular student status requires at least a B (3.00 on a 4.00 scale) cumulative grade point average for graded undergraduate work. Admission is to be on the basis of graduate study elsewhere, when it has been accomplished in a recognized graduate school with at least a B (3.00) average in 12 or more semester hours of graded graduate work beyond the bachelor’s degree. Provisional admission may be granted to those students recommended by a department whose average is below 3.00, provided their total record indicates a high probability of success.

Admission of a student from a foreign university may be approved by the dean of the Graduate School if the student presents a superior academic record, furnishes satisfactory evidence of adequate ability in English, and has sufficient financial resources. Such applications should be completed at least six months in advance of the proposed date of enrollment in the Graduate School. International students who have undertaken graduate study in other institutions will be accepted only after evaluation of their undergraduate records, as well as their performance in graduate study, and the minimum criteria, as described above, will apply.

Because of limitations within certain departments, it may be necessary to deny admission to some qualified applicants. Students who come to Washington State University before receiving the admission certificate do so at their own risk.

Transfer of Graduate Credits

Appropriate credits (with a grade of B or higher) earned in other accredited graduate schools may be applied to a limited extent toward an advanced degree. The number of such hours is limited to no more than half of the total graded course credits required by the program that is listed on the Program of Study. Individual departments/programs may choose to limit transfer credits to an amount less than what is specified above. Use of WSU credit earned prior to formal admission to the Graduate School is restricted. For necessary interpretations, inquiries should be sent to the dean of the Graduate School.

Summer Sessions

Credit earned during summer sessions of Washington State University may be applied in the same manner and subject to the same rules and regulations as credit earned during fall and spring semesters.

In a number of departments there are unusually good opportunities for research during the summer months. Summer work in the College of Education is planned especially to meet the needs of teachers and administrators.

Graduate Work Through Distance Degree Programs

Credit earned in graduate-level courses taken through the WSU Distance Degree Programs will be accepted on graduate student programs without limit, subject only to customary admission and program approvals.

No extension credits from other institutions, or work done by correspondence with this or any other institution, or credit earned by special examination may be used to meet advanced degree requirements.

Graduate Study by Seniors

Seniors who have at least a 3.00 grade point average in the last 60 hours of their undergraduate work at Washington State University may register for up to 6 semester hours of work in the Graduate School in excess of the number of hours required to complete the bachelor’s degree. Graduate School approval is required at the time of registration. Only grades of B or higher may be applied toward an advanced degree. Work done by an undergraduate under other conditions may not be applied toward an advanced degree.

Seniors who wish to enroll in 500-level courses must obtain approval of the major advisor and the chair of the department or program in which the course is offered.

Select Graduate Admission Program

The SGA Program is to encourage outstanding undergraduate students with top academic records to remain at WSU for a graduate degree by (1) extending an early offer of admission and support to outstanding candidates, (2) removing financial and other costs associated with regular application, and (3) potentially reducing the total number of combined semesters required to complete the undergraduate/graduate degree (without reducing the credit requirements for either).

Registration

All graduate students must maintain continuous enrollment in the Graduate School, registering for each semester excluding summer session from the time of first enrollment until all requirements for the degree are completed. Continuous enrollment may be maintained by registering in one of the following categories: 1) full-time enrollment, 2) part-time enrollment, 3) continuous enrollment status, or 4) approved leave of absence.

Degree-seeking students who fail to maintain continuous enrollment or official leave status for up to two consecutive semesters (excluding summer) must complete a reenrollment form to reenroll and will be assessed a fee. Degree-seeking students who fail to reenroll after two consecutive semesters (excluding summer) will be dropped from the University. Students who want to be readmitted to the program will be required to reapply and pay an application fee. Readmission is not guaranteed.

Non-degree-seeking students who are not enrolled for up to four consecutive semesters (excluding summer) must complete a reenrollment form and pay a reenrollment fee. After four consecutive semesters (excluding summer) of non-enrollment, students will be dropped from the university. Students who want to be readmitted to the program will be required to reapply and pay an application fee. Readmission is not guaranteed.

Special Projects or Independent Study (600), Master’s Research, Thesis, and/or Examination (700), Master’s Special Problems, Directed Study, and/or Examination (702), and Doctoral Research, Dissertation, and/or Examination (800) shall have as prerequisite regular or provisional student status in the Graduate School.

Registration Policy for Graduate Students Completing Degree Requirements

Graduate students must register for a minimum of two 700, 702, or 800 credits during the semester or summer session in which they take their final examinations. Fall and spring semesters and summer session officially end at the time final grades are due in the Registrar’s Office. Examinations are not normally scheduled between regular terms. However, students who have received special permission from the Graduate School to schedule final master's or doctoral oral examinations in the interim nonclass period after the end of a term will be required to register for the following semester or summer session.
Scholarship Standards
A student must earn a 3.00 grade point average for all course work (including all courses listed on the program and other graduate upper- and lower-division courses). No work of B- grade or less may be dropped from a program, nor can a course be repeated for a higher grade if the final grade is C or higher. Any course listed on the program in which a grade of C-, D, or F is earned must be repeated.

Any graduate student who fails to maintain a cumulative grade point average of 3.00 or higher for all course work subsequent to admission to the Graduate School will be dropped from the University. A student who is dropped may be permitted to re-enroll if a special recommendation is made by the chair of the major department with the concurrence of the dean of the Graduate School.

Requirements for a Graduate Degree
The Graduate School's graduation requirements necessary for the completion of a graduate degree are those as published in the Graduate School Policies and Procedures Manual in effect at the time of the student's initial admission as a regular or provisional graduate student. Departmental requirements for graduation are those in effect at the time the student files a program of study.

Subsequent changes in degree requirements of the Graduate School or in departmental requirements may be substituted at the option of the student upon approval by the master's or doctoral committee, the department chair, and the dean of the Graduate School.

If a student is dropped from the University for failure to maintain continuous enrollment, the graduation requirements of the Graduate School are those in effect at the time of readmission to the Graduate School.

Time Limit
The time limit for the use of graduate credits toward a master's degree is six years from the beginning date of the earliest course applied toward the degree.

Work for the doctoral degree should be completed within three years of the date of the satisfactory completion of the preliminary examination, and within ten years of the earliest course applied toward the degree. At least four months must elapse between preliminary and final examinations for doctoral degrees.

Assistantships, Fellowships, and Scholarships
Teaching and research assistantships are available in most departments offering advanced degrees, and research fellowships are granted in some departments. For the student personnel program, staff assistants are appointed each year. The Graduate Catalog and Graduate School Policies and Procedures should be consulted concerning qualifications, eligibility, and application procedures. Assistantship appointments require part-time service. Students on appointment must maintain regular full-time enrollment in graduate school for the duration of their appointments. Stipends vary according to the amount of required service, the extent of the student's training, and other factors. Graduate students appointed to assistantships of half-time service or more and who reside in the state of Washington while attending WSU may qualify for some form of tuition waiver. Forms for assistantship or fellowship applications are included as part of the general application for admission to the Graduate School. Most appointments are made by April 15 for the following academic year. Washington State University subscribes to the following resolution of the Council of Graduate Schools in the United States regarding scholars, fellows, trainees, and graduate assistants:

Acceptance of an offer of financial support (such as a graduate scholarship, fellowship, traineeship, or assistantship) for the next academic year by a prospective or enrolled graduate student completes an agreement that both student and graduate school expect to honor. In that context, conditions affecting such offers and their acceptance must be defined carefully and understood by all parties.

Students are under no obligation to respond to offers of financial support prior to April 15; earlier deadlines for acceptance of such offers violate the intent of this Resolution. In those instances in which a student accepts an offer before April 15, and subsequently desires to withdraw that acceptance, the student may submit in writing a resignation of the appointment at any time through April 15. However, an acceptance given or left in force after April 15 commits the student not to accept another offer without first obtaining a written release from the institution to which a commitment has been made. Similarly, an offer by an institution after April 15 is conditional on presentation by the student of the written release from any previously accepted offer. It is further agreed by the institutions and organization subscribing to the above Resolution that a copy of this Resolution should accompany every scholarship, fellowship, trainee, and assistantship offer.

For information about special scholarships and fellowships, write to the dean of the Graduate School or the chair of the department concerned.

UNIVERSITY HONORS COLLEGE
Libby Walker, Interim Dean
Honors Hall, Room 130
509-335-4505
honors.wsu.edu

The University Honors College at Washington State University is one of the oldest and most well-known honors colleges in the nation. The mission of the Honors College is to offer students of high ability and initiative an enriched, four-year core curriculum that satisfies University graduation requirements for general education. Students in the University Honors College are not required to complete General Education Requirements (GERs) because the Honors curriculum fulfills the graduation requirements.

The Honors curriculum is designed to be compatible with any major. Through small classes taught by experienced and enthusiastic faculty dedicated to scholarship and learning, the Honors College helps students develop a lifelong love of learning, as well as skills in critical thinking, writing, public presentation, information literacy, and cultural competency. By completing an enriched series of small classes, and a thesis, students admitted into the Honors College acquire the broad foundations of liberal learning in the natural and social sciences, the arts and humanities, and cultures of the world. In addition, the Honors College emphasizes study of foreign languages and education abroad as premier vehicles for gaining key competencies for an increasingly globalized society and economy. The Honors College offers a number of advantageous opportunities for education abroad.

Admission to the University Honors College
High school students who have shown outstanding scholastic ability, intellectual achievement, motivation, and extracurricular and community involvement may apply to the Honors College for admission. The Honors College welcomes students from diverse cultural and academic backgrounds who are willing to take risks and want to engage in this special academic opportunity. Students who are currently freshmen (by credits) at Washington State University, and achieve a grade point average of at least 3.5 their first semester, can also apply to join by completing the Honors College application. Transfer and international students may apply to the Honors College. However, we recommend talking with an advisor first to see whether the Honors curriculum is a good fit with the student's program. For more information on the Honors College, please refer to the departmental section of this catalog and our website.

COLLEGE OF LIBERAL ARTS
Douglas Epperson, Dean
Thompson Hall, Room 309
509-335-4581
www.libarts.wsu.edu

The college contributes to a liberal education through courses in the arts, communication, humanities, and social sciences for undergraduate students in all colleges at WSU, regardless of major. As a bearer of the tradition of liberal education, the College of Liberal Arts places much importance upon soundly conceived and well-taught courses developed to give a properly balanced presentation of the basic areas of human endeavor. Undergraduate students are assured a nucleus of courses in arts, communication, humanities, and social sciences; knowledge of at least one foreign language; and selection of a concentration from a broad array of major and minor fields. Graduate students are assured of advanced study and research in their selected fields.

The College of Liberal Arts offers programs that prepare students for professions and careers. Graduate as well as undergraduate degrees are offered by most departments.

A number of curricula are offered to give preprofessional training (such as pre-law) to students who will then enter professional schools.

Washington State University’s graduate training program in clinical psychology is accredited by the American Psychological Association. The
speech-language pathology and audiology programs are accredited by the State Board of Education and the American Speech-Language-Hearing Association Educational Standards Board. The Music Program is a full member of the National Association of Schools of Music.

The college, in cooperation with the Department of Teaching and Learning, prepares teachers for all levels of educational work. Students preparing for teaching at the elementary, secondary, and college levels usually complete the course work in their chosen subject-matter field within the College of Liberal Arts. The specific requirements for certification and teaching majors and minors for K-12 teachers are listed under the Department of Teaching and Learning.

Admission

The general requirements for admission to the College of Liberal Arts are the same as those for Washington State University. Some departments have selective admissions criteria requiring demonstration of artistic achievement and/or completion of specific courses with specific grades prior to certification of the respective major.

High school students should include the following subjects as preparation for work in the college: at least four years of English, at least two years of one foreign language, three years of mathematics, two years of science, and three years of social sciences; participation in music, art, speech, and communication is also recommended.

Visit our Web site at libarts.wsu.edu.

Requirements for Graduation

The requirements for graduation include the University requirements for graduation plus additional College of Liberal Arts requirements in the humanities, social sciences, and sciences. See graduation requirements of the catalog.

Departmental units offering degrees and majors include anthropology, comparative ethnic studies, English (includes DTC), fine arts, foreign languages and cultures, history (includes social studies), music, philosophy, political science, psychology, sociology, speech and hearing sciences, theatre arts and drama, and women's studies. Additional degree curricula offered, listed alphabetically in this catalog, include American studies, Asia program, criminal justice, and general studies (classics, humanities, international area studies, liberal arts, linguistics, religious studies, and social sciences).

The Pre-Law Advising Center is located in the Department of Political Science. Other pre-law curricula are offered through such departments and programs as communication, comparative ethnic studies, English, history, philosophy, and sociology.

Degrees

The College of Liberal Arts offers programs of study leading to the following degrees:

Bachelor of Fine Arts
Bachelor of Music
Bachelor of Science
Bachelor of Arts

Master of Fine Arts
Master of Public Affairs
Master of Science

Doctor of Philosophy

COLLEGE OF NURSING

Patricia Butterfield, Dean
W. 2917 Ft. George Wright Drive
Spokane, WA 99224-5291
509-324-7337
www.nursing.wsu.edu

The College of Nursing is a college of nursing shared in common by three institutions of higher education: Eastern Washington University, Washington State University, and Whitworth University. Instructional programs are conducted at the baccalaureate and master's degree levels to develop responsible citizens and to provide the professional knowledge, skills, and values essential to the practice of nursing society. The undergraduate curriculum includes both liberal arts education and preparation as a generalist in the practice of nursing. The curriculum at the graduate level provides preparation for advanced and specialized nursing practice.

Undergraduate Program

WSU College of Nursing’s undergraduate program is approved by the Washington State Nursing Care Quality Assurance Commission, is accredited by the Commission on Collegiate Nursing Education, and is approved by the American Association of Colleges of Nursing. Approximately 700 generic and registered nurse students are enrolled in the baccalaureate nursing program at Spokane, the outreach site in Yakima, the branch campuses in Tri-Cities and Vancouver, and throughout Eastern Washington.

The program is open to students beginning a nursing career and to registered nurses who wish to obtain a baccalaureate degree in nursing. Graduates practice in a variety of settings, including hospitals, community health agencies, schools, long-term care facilities, occupational health programs, home health care, and community mental health centers.

The curriculum for students initiating the study of nursing consists of lower- and 300-400-level components and is four academic years in length. The first two years of the curriculum (lower-division component) are completed on the Pullman campus, one of the consortium schools, or at any institution offering courses equivalent to those taught at Washington State University.

The last two years of the professional curriculum (300-400-level component) are provided at the Intercolligate College of Nursing building in Spokane, the outreach site in Yakima, and the WSU branch campuses in Tri-Cities and Vancouver.
Admission

All students planning to major in nursing must apply to the Office of Admissions at WSU and be admitted to the University. Requirements may be met at WSU or may be transfer credits from another institution of higher education. Applications to the 300-400-level nursing major in Spokane and Yakima are obtained from the Office of Admissions at WSU. Tri-Cities applicants should contact the Admissions Office on the Tri-Cities campus. Applications must be completed by January 15 for fall admission and August 5 for spring admission.

All registered nurses planning to apply to the nursing major at WSU Tri-Cities or WSU Vancouver must do so through the Admissions Office at the respective sites. Applications are available throughout the year. Students are encouraged to contact an advisor at their campus for lower-division advising.

Registered nurse applicants must be graduates of an approved community college or hospital school of nursing and be currently licensed or eligible for licensure to practice in the state of Washington at the time of application. Admission to the 300-400-level nursing major is based upon evaluation of the student’s entire application. Applicants for admission to the college must present at least 60 semester hours or 90 quarter hours of acceptable credit from an accredited college or university. The credits must include those courses which are prerequisite to nursing.

Since the number of applicants to the Intercollegiate College of Nursing/WSU College of Nursing may exceed the number that can be admitted, there is no assurance that all persons meeting the admission criteria will be selected.

Graduate Program

Established in 1983, the Master of Nursing program prepares nurses for leadership in psychiatric/mental health nursing, community-based population focused nursing, and family nurse practitioner positions. The program is accredited by the National League for Nursing and approved by the American Association of Colleges of Nursing. Degree requirements can be completed in four semesters of full-time study. Individualized programs can be arranged to facilitate part-time study. Applications must be complete by March 15 for fall admission and by November 1 for spring admission.

Professional Development

The Professional Development Program focuses on specific learning needs of registered nurses and other professional health care workers. The technology and resource strengths of the Intercollegiate College of Nursing/WSU College of Nursing are used to provide cost effective opportunities to prepare individuals for professional certification, recertification, and/or relicensure. Contracted partnerships with health care agencies/organizations and with other WSU entities are arranged to design and offer specific professional offerings. For further information, visit www.nursing.wsu.edu.

Degrees

The degrees offered through the Intercollegiate College of Nursing/WSU College of Nursing are as follows:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science in Nursing</td>
<td>Generalized practice of professional nursing</td>
</tr>
<tr>
<td>Master of Nursing</td>
<td>Community-based population-focused nursing</td>
</tr>
<tr>
<td></td>
<td>Family nurse practitioner</td>
</tr>
<tr>
<td></td>
<td>Psychiatric/mental health nurse practitioner</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>Nursing</td>
</tr>
</tbody>
</table>

COLLEGE OF PHARMACY

William Campbell, Interim Dean
Wegner Hall, Room 105
509-335-5901
www.pharmacy.wsu.edu

Admission

The College of Pharmacy offers a course of study leading to a Doctor of Pharmacy (PharmD) degree. The PharmD schedule of studies involves four professional years. The third professional year of the PharmD curriculum is delivered in the Health Sciences building located on the Washington State University Spokane campus. The fourth professional year of the PharmD curriculum consists of advanced experiential training in which students will be assigned to one of the following geographic locations: Spokane, Yakima, Vancouver, Tri-Cities, or Pullman. They will be expected to complete the majority of their rotations in their assigned geographic locations. Students will gain experience in a variety of health care environments, including community, institutional, and long-term care settings. Ninety-four students are enrolled annually in the fall in the first professional year of the PharmD program. Pre-pharmacy requirements are listed under Pharmacy in this catalog.

The application period each academic year is from October 1 to February 1. Although a bachelor's degree is not required for admission, prerequisites for admission require more than two years of pre-pharmacy education. Because the number of applicants to the professional program exceeds the number that can be admitted, no assurance can be given that those who successfully complete the pre-pharmacy requirements will be admitted to the Doctor of Pharmacy program. For additional information regarding the Doctor of Pharmacy curriculum, please see the College of Pharmacy home page at www.pharmacy.wsu.edu, or contact the College of Pharmacy Office of Student Affairs at 509-335-1402.

Degrees

The College of Pharmacy offers the following degree programs:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Master of Science</td>
<td>Pharmacology and Toxicology</td>
</tr>
<tr>
<td>Master of Health Policy</td>
<td>Health Policy and Administration</td>
</tr>
<tr>
<td>and Administration</td>
<td></td>
</tr>
<tr>
<td>Doctor of Pharmacy</td>
<td>Pharmacy</td>
</tr>
<tr>
<td>Doctor of Philosophy</td>
<td>Pharmacology and Toxicology</td>
</tr>
</tbody>
</table>

COLLEGE OF SCIENCES

Michael D. Griswold, Dean
Morrill Hall, Room 208
509-335-5548
www.sci.wsu.edu

Faculty and curricula within the College of Sciences provide a sound and challenging education for students in disciplines covering the life sciences, physical sciences, environmental science, and mathematics. Both undergraduate and graduate degree programs within the college include classroom instruction, seminars, special projects, and research, which together provide first-rate training to meet the demands of our diverse technological society.

Undergraduate students planning to pursue advanced work in graduate or professional schools are advised to plan curricula to meet admission requirements for advanced study.

One of the major service functions of the college is to provide course work in the sciences and mathematics for students majoring in other disciplines. Many of the college’s faculty have attained national and international reputations and have received numerous honors and awards. These include National Academy of Science membership, state and national teaching awards, Guggenheim Fellowships, Fulbright Scholarships, national career development awards, National Institutes of Health Merit Awards, and an Eli Lilly Award. Faculty frequently serve on national review panels of granting agencies for instructional and research support and on editorial boards of international journals.
Many undergraduate majors conduct research projects under supervision of a faculty member. This hands-on introduction to the scientific method is facilitated by the high quality of the teaching and research laboratories, computer facilities, and other infrastructure within the college. The Franceschi Microscopy and Imaging Center, Nuclear Magnetic Resonance Center, Geonanlytical Laboratory, Ownbey Herbarium, Conner Zoological Museum, Hudson Biological Reserve, and Meyer’s Point Biological Study Site are all facilities within the college. A strong technical services unit provides instrument shops, electronics construction and repair, and graphics. The college shares support and use of several University-wide facilities such as the Laboratories for Bioanalysis and Biotechnology, and the Environmental Research Center.

Major research areas in the college include biotechnology, shock physics, molecular and atomic interactions on surfaces, continuum mechanics, avian environmental physiology, regulation of cellular growth and differentiation, genetic engineering, cytogenics, photosynthesis, mechanisms of chemical reactions, biological evolution and ecology, environmental remediation, mathematical modeling of biological and physical processes, numerical analysis, reliability and fatigue studies, resource management, protein synthesis and export, repair of DNA, biochemical mechanism of muscle contraction, chemotaxis, coevolution of plants and animals, and reproductive biology.

Admission

Admission requirements for the College of Sciences are the same as those for Washington State University.

High school students should include the following subjects as preparation for work in the College of Sciences: four years of English, at least two years of one foreign language, three (and preferably four) years of mathematics, three (and preferably four) years of science, and three years of social science.

Requirements for Graduation

Graduation requirements for a bachelor’s degree include the University General Education Requirements plus additional College of Sciences requirements in arts and humanities, social sciences, and sciences. Each academic department or program has additional graduation requirements which are included in the departmental descriptions in this catalog.

Degrees

The College of Sciences offers programs of study leading to the following degrees:

<table>
<thead>
<tr>
<th>Degree</th>
<th>Department or Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor of Science</td>
<td>Biology, Biotechnology, Chemistry, Environmental Science, Exercise Physiology and Metabolism, Genetics and Cell Biology, Geology, Mathematics, Microbiology, Physics, Sciences—General Studies (Includes Basic Medical Science; Biological Sciences; Mathematics; and Physical Sciences), Zoology.</td>
</tr>
</tbody>
</table>

Doctor of Philosophy Botany Chemistry Environmental and Natural Resource Sciences Geology Materials Science Mathematics Molecular Biosciences Molecular Plant Sciences Physics Plant Physiology Zoology

Some of the graduate degree programs are jointly supported by the Colleges of Agricultural, Human, and Natural Resource Sciences; Engineering and Architecture; and Veterinary Medicine, thus providing a broad base for graduate training.

COLLEGE OF VETERINARY MEDICINE

Brian Slinker, Dean
Bustad Hall, Room 110
509-335-9515
www.vetmed.wsu.edu

The curriculum of the College of Veterinary Medicine prepares students for positions in many areas of veterinary medicine, e.g., private practice, U.S. Public Health Service, federal and state disease regulatory programs, industry, teaching, research, and military medicine. Fields of study include animal health, disease eradication, comparative pharmacology and toxicology, environmental sciences, laboratory animal medicine, and comparative biomedical studies to help resolve human disease problems.

The professional degree, Doctor of Veterinary Medicine, is recognized by all state and territorial licensing boards, as well as those in foreign countries.

The College of Veterinary Medicine is accredited by the Council of Education of the American Veterinary Medical Association.

Complete information on admission and program requirements may be found in this catalog under departmental listings and on our web site.

Degrees

The College of Veterinary Medicine offers courses of study leading to the following degrees:

- Doctor of Veterinary Medicine
- Bachelor of Science in Neuroscience
- Master of Science in Veterinary Science
- Master of Science in Neurosciences
- Doctor of Philosophy (Neuroscience and Veterinary Science)

Western Regional Higher Education Compact

The College of Veterinary Medicine at Washington State University has entered into a regional educational program with the states of Arizona, Hawaii, Montana, New Mexico, Nevada, North Dakota, Utah and Wyoming. Under the terms of this compact, a certified student admitted from one of these states is sponsored financially by the home state and is subject to the same fees as Washington resident students.

Students must apply to their home state for certification in addition to making application to the College of Veterinary Medicine, Washington State University. Additional information regarding regional veterinary education may be obtained from The Executive Director, Western Interstate Commission for Higher Education, 3035 Center Green Dr., Suite 200, Boulder, CO 80301-2204, 303-541-0214, www.wiche.edu.

Regional Program in Veterinary Medical Education

Washington State University has agreed to engage in a regional program in veterinary medicine with the University of Idaho. The regional program involves instruction on the WSU campus and at the Caine Center (UI). Specific quotas of students from Idaho have been established under the terms of this agreement.
Online Education  
and Regional Campuses

CENTER FOR DISTANCE 
AND PROFESSIONAL EDUCATION

Muriel Oaks, Dean  
106 Van Doren Hall, Pullman, WA 99164-5210  
online.wsu.edu

The Center for Distance and Professional Education (CDPE) provides leadership for academic outreach activities at Washington State University through online degree programs and continuing education for professionals. Most programs are delivered entirely online, while others are conducted face-to-face in locations around Washington and nationwide. All reflect the WSU commitment to excellence in both content and support services.

CDPE includes two programming units that have separate responsibilities but shared support services. Distance Degree Programs (DDP) offers degree programs delivered in online formats. Conference Management provides professional development non-credit programs in both face-to-face and online formats. Certificate programs are available through both units.

Program Strengths—  
• The research and academic expertise of Washington State University stand behind the institution’s online programs.
• WSU’s distance and professional programs, faculty, and students have received national awards for innovation and excellence.
• Academic programs and degrees offered through online learning carry credit that is identical to that offered on all WSU campuses.
• The institution’s renowned faculty develop and teach these courses, and significant interaction among students and faculty are built into all online programs.

Opportunities for students and alumni to connect to the WSU community are an integral part of the online programs. These include online student government, events at sites around Washington, the Alumni Association, and mentoring programs. In addition, on-campus experiences are offered several times each year for students to visit the WSU Pullman campus and interact with faculty, support staff, and fellow students.

Non-credit continuing Education programs also offer students a connection with real world audiences and issues of importance to society. Professional education programs delivered through CDPE showcase the strengths of WSU research and instruction and raise awareness of important societal issues for professional audiences beyond the campus. For all CDPE programs, support services assure that students and professional clients receive the help they need to succeed in their programs.

Distance Degree Programs—Working in partnership with WSU academic departments and colleges, DDP delivers undergraduate online degree completion programs that are an ideal choice for working adults who are seeking a program that offers both flexibility and high quality. Distance degree programs are provided in nine academic areas: social sciences, criminal justice, entrepreneurship, humanities, management and operations, management information systems, accounting, human development, and women’s studies. Online graduate programs are available in agriculture and in engineering and technology management; an online MBA is also offered. A combination of online and on-site delivery options are used to provide graduate and undergraduate education programs related to teaching. Additional programs are currently under development.

Staff provide course delivery, admissions and registration, and advising services. Call 800-222-4978 or visit our Web site at online.wsu.edu for more information.

Conference Management—CDPE provides educational programs for professionals in the workplace throughout the state, region, and nation through its Conference Management unit. Programs are offered through a variety of delivery methods such as seminars, conferences, and hands-on workshops. An experienced and creative staff provides a full range of conference support services, including marketing and publicity, registration and financial management, and vendor contract negotiation and coordination. Customized programs are created by WSU faculty and outside content experts, in partnership with Conference Management staff, to provide up-to-date knowledge and skills to professionals in business, industry, education, government, non-profit organizations, and trade associations. WSU students are frequently offered opportunities to attend and participate in these educational programs for working professionals, providing connections to real world experiences to enhance the students’ learning environment at WSU. Call 800-942-4978 or visit our Web site at conferences.wsu.edu for information about available programs.

Certificate Programs—Certificate programs provide a series of related courses leading to the development of new professional skills. CDPE offers a number of these programs through online and other formats:
• The online Professional Writing Certificate allows students to develop a base of skills and knowledge for effective communication in the professional worlds they want to enter or have already entered.
• The online Early Childhood Development and Care Certificate focuses on the impacts of educational approaches, social policies, and prevention/intervention strategies on children, youth, and families.
• The online Organic Agriculture Certificate supports the development of knowledge and skills applicable to all industries and agencies involved in the food chain.
• Other customized, non-credit, certificate programs in both online and face-to-face formats are available, and new programs are under development.

SPOKANE CAMPUS

www.spokane.wsu.edu  
Brian Pitcher, Chancellor  
WSU Spokane Admissions  
PO Box 1495  
Spokane, Washington 99210-1495

Physical address: Academic Center, Suite 130, 600 N. Riverpoint Blvd., Spokane, Washington 99210-1495  
509-358-7978

WSU Spokane provides graduate and upper-division undergraduate programs in a number of specialty fields, including health sciences, design, education, management, and criminal justice. It combines the resources of a nationally ranked public research university with the opportunities provided by its urban setting to create an ideal learning atmosphere. WSU Spokane’s 50-acre Riverpoint Campus in the University District is immediately adjacent to the vibrant downtown area and bordered by the Spokane River and Centennial Trail. The developing campus features modern buildings that house state-of-the-art classrooms, design studios, labs, and clinics. Nationally and internationally recognized faculty enrich the student learning experience.

There is a growing focus on the health sciences at WSU Spokane. The campus is the site of the final stages of professional education for all WSU students enrolled in pharmacy, and since the completion of the new Nursing Building in late 2008, has been home to more than 600 undergraduate and graduate nursing students. Since fall 2008, WSU Spokane houses a cohort of 20 first-year medical students who are part of the WWAMI program, a partnership between universities and governments of the five participating states (Washington, Wyoming, Alaska, Montana and Idaho) to make medical education accessible to Northwest students. Other health sciences programs offered by WSU at the Spokane Campus include baccalaureate completion degree programs in exercise physiology and metabolism and speech and hearing sciences, as well as graduate programs.
in exercise science and speech and hearing sciences.

Health sciences students enjoy opportunities to participate in the world-class research being conducted at WSU Spokane in the areas of sleep and neuro-science, chromosome biology, and substance abuse, among others. Through campus partnerships with the medical community in the Spokane area—considered to be the Inland Northwest’s premier health care center—they also have a wide choice of sites for clinical placements and internships.

Created to foster collaborative learning among the design disciplines, the Interdisciplinary Design Institute at WSU Spokane brings together undergraduate students in interior design and graduate students in architecture, interior design, and landscape architecture to advance knowledge that enhances the quality of people’s lives in the built and natural environment. As part of their experience, students tackle real-life design challenges that build their professional skills while serving the community.

Education offerings at WSU Spokane focus on educational leadership and include master’s and doctoral programs and certificate programs for aspiring principals, program administrators, and superintendents. Spokane program options also include a Master of Teaching. The College of Education is a key player in the Riverpoint Partnership for Math and Science, a collaboration between Spokane area high schools and colleges to help all students become proficient in math and science.

Managers and other business professionals can build on their skills through one of three graduate programs offered on the Spokane Campus: an 18-month executive MBA program, a master of health policy and administration program, and a master of engineering and technology management program. Master’s and doctoral degrees in criminal justice are also available.

Students at WSU Spokane range from full-time, traditional students to working adults balancing family responsibilities and community involvement with their studies. More than 1,500 students from across the nation and around the world choose WSU Spokane as their destination. An active student government and a number of student clubs provide leadership and service opportunities.

TRI-CITIES CAMPUS

www.tricity.wsu.edu
Vicky Carwein, Chancellor
WSU Tri-Cities
2710 University Drive
Richland, WA 99354-1671
509-372-7250

Situated on 300 acres along the banks of the Columbia River in Richland, Washington State University Tri-Cities delivers undergraduate and graduate education to approximately 1,200 students in the Mid-Columbia Basin and surrounding region. Undergraduate degrees may be earned in business administration, computer science, digital technology and culture, elementary education, English, environmental science, humanities, general science, general physical science, history, horticulture (viticulture and enology), mechanical engineering, nursing, and psychology. The campus works very closely with the region’s community colleges to ensure that students can easily transfer to WSU Tri-Cities and a community college.

Students may earn degrees in biology, business administration, chemistry, computer science, education (principal & administration, counseling, educational leadership, elementary, secondary, and literacy), electrical engineering, environmental engineering, environmental science, mechanical engineering, and nursing. Doctoral degrees are offered in computer science, electrical engineering, environmental science, and mechanical engineering.

Much of the research conducted at Washington State University Tri-Cities responds to the unique needs of the region. The Bioproducts, Sciences and Engineering Laboratory, operated jointly with the Pacific Northwest National Laboratory, conducts world class research in bioproducts, bioenergy and the development of technologies to convert biomass to products and fuels. The WSU Center for Bioproducts and Bioenergy on the Tri-Cities campus provides a joint partnership with the Pacific Northwest National Laboratory, statewide, national and international industry in bioproducts and bioenergy research and education. The Food and Environmental Quality Laboratory and the Washington State Pest Management Resource Service are also located on the campus. This laboratory conducts research to assist farmers, orchardists, and other pesticide users with residue analyses and risk-benefit assessments. The University’s Southeast Regional Extension offices provide a variety of service-based expertise to the citizens of the region. The administrative offices for the United States Transuranium and Uranium Registries are housed on the campus. Cooperative research and internship opportunities are available with the U.S. Department of Energy’s Pacific Northwest National Laboratory and other Hanford Site contractors. The site contractors provide valuable expertise, facilities, and equipment not available at most universities. The WSU Tri-Cities’ library and the Hanford Technical Library are co-located on campus in the Consolidated Information Center, providing greater access to library material for WSU students and faculty and Hanford Site personnel.

Public radio and television programs serve the Mid-Columbia Basin region via KFAE-FM and KTNW-TV. The Yakima Valley/Tri-Cities Mathematics, Engineering, Science Achievement (MESA) program prepares youth in underrepresented groups for college education, and engineering, and science. The Center for Volunteer Service provides students and community members opportunities to volunteer to serve others through community service projects.

Located on 351 scenic acres about 10 miles north of Portland, Oregon, Washington State University Vancouver provides quality education to residents of local Southwest Washington and Oregon communities. With a student population of more than 2,500, WSU Vancouver offers a small college atmosphere with public university access. Since its establishment in 1989, WSU Vancouver has graduated more than 6,000 alumni, many of whom currently live and work in the region.

Degree Programs—Sixteen bachelor’s, 10 master’s degrees, and one doctorate degree are attainable through freshman, sophomore, junior, senior, and graduate-level courses in more than 36 fields of study. Bachelor’s degrees include anthropology, biology, business administration, computer science, digital technology and culture, education, electrical engineering, English, environmental science, human development, humanities, mechanical engineering, nursing, psychology, public affairs, and social sciences. Within these degree programs, students may concentrate their studies in a variety of areas, from anthropology to women’s studies.

Master’s degrees include accounting (MACC), business administration (MBA), computer science (MS), education (EdM), environmental science (MS), history (MA), mechanical engineering (MS), nursing (MN), public affairs (MPA), and teaching (MIT).

WSU Vancouver also offers a doctorate degree in education (Ed.D.).

The WSU Vancouver University Scholars Program offers alternative coursework to meet General Education Requirements (GERs) through seminars, lecture series, and a senior project. It offers highly motivated and high-achieving students the opportunity for small classes and personalized attention to research projects on campus and in the community.

CAMPUS AND STUDENT LIFE—The campus features eight academic buildings as well as a bookstore, cafeteria, student commons and student services center, study hall areas, sports court, fitness center, art galleries, and a system of biking and pedestrian trails, all framed in a beautiful campus setting between scenic views of Mt. Hood and Mt. St. Helens. Facilities also include computer, engineering, multimedia, nursing, psychology, and science laboratories, as well as a library carrying more than 25,000 books, access to more than 100 databases, 9,000 full-text online journals, and extensive Web connections that make the library a personal gateway to worldwide research materials.

Student life centers around a variety of activities, including an active student government and more than 40 recognized student organizations. In addition, a child development program on campus provides on-site childcare opportunities for students, faculty, and community members with children.

FACULTY AND RESEARCH—More than 130 Ph.D. faculty provide WSU Vancouver with academic expertise spanning a variety of subjects. Faculty are actively involved in research in such areas as global climate change, domestic violence, criminal justice, child psychology, education, public affairs, and
genetics, among others. Diverse topics such as artificial intelligence, marine ecology, environmental regulation, workplace behaviors, and computer-aided engineering are taught by professors with expertise in their respective fields. Quality instruction and an emphasis on individual attention also characterize the WSU Vancouver student experience, with a faculty student ratio of approximately 14 to 1.

Community Partnerships—WSU Vancouver's involvement in the many communities it serves ranges from the extension of its academic programs to the WSU Learning Center in Longview to partnerships with other universities and community colleges.

Some of WSU Vancouver's community activities include:

The Co-Admission Program: The Co-admission program provides an early bridge for students from Clark College in Vancouver and Lower Columbia College in Longview who plan to complete their bachelor's degree at WSU Vancouver. Co-admission students fill out a single application, have their transcripts automatically transferred from one school to the other at no charge, and take advantage of services at both the community college and WSU Vancouver.

Partnerships for Elementary Science Education: Grants from the National Science Foundation have been instrumental in advancing science education in the region's elementary schools. WSU faculty serve as science resources for classroom teachers, working to strengthen their understanding of science principles and processes.

The Center for Columbia River History: A cooperative effort between WSU Vancouver, Portland State University, and the Washington State Historical Society, the center focuses on research and public education on the history of the Columbia River Basin.

Solid partnerships with the local business community, health and human services and other public agencies, local school districts, and community foundations enable WSU Vancouver to maintain a vital link to the community and the public it is serving.
Summary of Academic Policies

Registration

Instructions for registration and policies and procedures for dropping and adding classes are included in the Schedule of Classes, available at www.registrar.wsu.edu. See Appendix, Rules 47-69.

Class Attendance

Students who have not attended class and laboratory meetings during the first week of the semester may be dropped from the course by the department. (Students should not assume that they have been dropped without verification from the department or Registrar’s Office). Students having extenuating circumstances which prevent their attendance during the first week should notify the Office of Student Affairs. Student Affairs will notify instructors of the absence and the reason for it. Valid reasons for missing classes do not relieve the student of making up the work missed. See Appendix, Rules 71-73.

Enrollment Limit

The average semester credit load for undergraduate students is 15 or 16 credit hours. Students are not normally advised to enroll for more than 18 credit hours. When warranted, students may enroll for credits in excess of this limit. Students will not be allowed to enroll for 23 or more hours (10 hours for summer session) without written overload approval from their major department chair or Student Advising and Learning Center advisor. (See Tuition and Fees for additional credit hour charge over 18 hours.)

CougarCard

The CougarCard is the official WSU photo ID card. New students receive their CougarCard during New Student Orientation. The CougarCard is required for library privileges, obtaining and cashing checks, riding Pullman Transit and commuter buses, entry to the Student Recreation Center, access to WSU athletic events with a valid sports pass, and admission to many other University events and activities. Additional uses include Cougar CASH accounts, University dining accounts and access to certain campus buildings and offices.

Credit

Washington State University operates on the semester calendar. Each semester is 15 weeks long, plus one week of final examinations. One semester hour of credit is assigned in the following ratio of component hours per week devoted to the course of study: (1) lecture—one hour of lecture per week for each credit hour; (2) laboratory—three hours of laboratory per week for each credit hour; (3) studio—two hours of studio work per week for each credit hour; (4) ensemble—four hours of ensemble work per week for each credit hour. The proportion of time in each course assigned to lecture, studio, laboratory, or ensemble is recommended by the faculty of the department offering the course. The term “semester hour” corresponds with “credit,” “hour,” or “credit hour” and is abbreviated to “hour” in the description of courses in this catalog. See Appendix, Rules 27-30, 33, 34, 121, 123.

Credit Hour Requirements for Full-time Enrollment

The normal load for an undergraduate student is 15 or 16 credit hours per semester. Twelve credit hours per semester is considered a full load for undergraduate students. Ten credit hours is considered a full load for graduate students. (Six hours in summer session is full time for undergraduates; five hours for graduate students.) Part-time students do not share in certain student body privileges such as participation in recognized activities, WSU Health and Wellness Services, and student publications.

Graduate students on half-time teaching or research assistantships are expected to carry 10-14 credits per semester with no more than 12 hours of graded credit (3-6 in the eight-week summer session). The Graduate School Policies and Procedures Manual explains in detail the requirements for graduate students on appointment or taking examinations.

Tuition and Fees: Based on credit hour enrollment. See “Tuition and Fees” in this catalog.

Financial Aid: For financial aid purposes, full-time enrollment for an undergraduate student is 12 credit hours and half-time enrollment is considered to be 6-11 credit hours. For graduate students, full-time enrollment is 10 credit hours and half-time enrollment is considered to be 5-9 credit hours. Aid programs and policies require a student to be enrolled full-time. Students planning to enroll less than full-time should contact the Financial Aid Office. In order to maintain financial aid eligibility, students must meet Satisfactory Academic Progress (SAP) requirements for credit hour completion and cumulative grade point average (GPA). The complete SAP policy regarding credit hour completion, GPA, and degree completion time frame is available at www.finaid.wsu.edu.

Loan Deferments: Deferments on Perkins Loans and Federal Family Education Loans require at least half-time enrollment (6 credit hours) for undergraduate and graduate students. Five credit hours constitute half-time enrollment for a graduate student on a half-time assistantship.

Federal Family Education Loans deferments, after a break in enrollment, require full-time enrollment (12 credit hours for undergraduates; 10 for graduate students). For this purpose, ten credit hours constitute full-time for a graduate student on half-time assistantship.

Student Government: In order to be qualified for election and tenure as a student member of the ASWSU Senate, a candidate shall be a full-fee-paying student and must be and remain in good academic standing.

Veterans Benefits: For veterans benefits, full-time enrollment for a semester for an undergraduate student is 12 hours, three-quarter-time is 9-11 hours, half-time is 6-8 hours, less than half-time is 4-5 credits, and quarter-time is 1-3 credits. For graduate students, full-time enrollment for a semester is 10 hours, three-quarter-time is 7-9 hours, half-time is 5-6 hours, less than half-time is 3-4 credits, and quarter-time is 1-2 credits. Full time enrollment for summer session for undergraduate students and graduate students is based on the number of credits taken and the length of the class. Detailed information on training time eligibility can be obtained from the WSU Veterans Affairs Office.

International Students Holding F-1 and J-1 Visas: The Immigration and Naturalization Service requires that nonimmigrant F-1 and J-1 students be enrolled in a full course of study for the entire semester. (Twelve semester hours for undergraduate students and 10 semester hours for graduate students per semester excluding summer session is considered full-time.) Additional information on these requirements may be obtained from International Programs/International Students and Scholars, Bryan 108, 509-335-4508.

Auditing

No University credit will be allowed for auditing courses. To visit a class more than three times requires official approval and written permission of the instructor is required. An audit fee is charged for other than regularly enrolled full-fee-paying students. See Appendix, Rules 20, 21.

Cancellation of Enrollment

Students wishing to cancel their enrollment must do so during the first five days of the semester to avoid further financial obligation. Cancellation of enrollment (withdrawal from the University) is initiated through the Registrar’s Office. See Appendix, Rule 70.

Classification of Students

Undergraduate students who have completed less than 30 semester credits are classified as freshmen, 30-59 1/2 semester credits as sophomores, 60-89 1/2 semester credits as juniors, and 90 and above as seniors.

Post-baccalaureate students are those who have received the baccalaureate degree but have not been admitted to the Graduate School. Sometimes called post-graduates, these students include those completing requirements for a second baccalaureate degree, those taking courses for personal enrichment, and those working toward teacher certification.

Graduate degree students are those admitted to a graduate program in a degree classification on the basis of a specific application to the Graduate School. See Appendix, Rule 25.
Numbering System of Courses

Lower-division
Courses numbered 100-199 inclusive are normally taken by freshmen.
Courses numbered 200-299 inclusive are normally taken by sophomores.

Upper-division
Courses numbered 300-399 inclusive are normally taken by juniors and seniors.
Courses numbered 400-499 inclusive are normally taken by juniors and seniors. These courses may be included in graduate programs provided they are published in the Graduate Study Bulletin and provided they are not specific requirements in preparation for graduate study.

Graduate
Courses numbered 500-599 inclusive are primarily for graduate students. Qualified seniors may take these courses for graduate credit during their final year or summer session. Other qualified seniors may take these courses for undergraduate credit with permission of their department chair.
Courses numbered 600-800 have as a prerequisite regular student status in the Graduate School.

Professional
Courses numbered 500-800 and designated with a P following the course number are professional courses.

Course Prerequisites

When applicable, prerequisites are listed in this catalog with the specific course prefix and number, preceded by the abbreviation: prereq. Prerequisites may be levels of competence, or courses which a student must have completed, or the standing a student must have achieved before enrolling for a specific course. For example, Calculus (Math 171) requires a prereq of Precalculus Algebra (Math 107), meaning that the student may not enroll for Math 171 until successfully completing Math 107. Prereqs may also be as general as two semesters of biology or concurrent enrollment. (See Biol 107.) Concurrent enrollment is indicated by the symbol c/. Prereqs may include a level of expertise or a specified major, e.g., students may not enroll in Spanish 324 without first being fluent in Spanish, or students may not enroll in an advanced seminar before achieving senior standing in the major. Recommended prerequisites are listed as well, preceded by the abbreviation: rec.

Questions concerning prerequisites should be referred to the instructor of the course. Students who have not met all prerequisites may be excluded from the course, or the instructor may waive prerequisites based on demonstrated competence or equivalent academic experience.

Field Trip Guidelines

For classes or other instances in which students are expected to participate in field trips, this expectation should be included in the catalog and/or course syllabus. For classes, the reference to the field trip listed in the course syllabus should include any required fees, how travel would be accomplished, alternatives (if any), and the consequences of not participating in the required field trip. When travel is required, the responsible faculty or staff member should arrange for the transportation. If classes are to be missed, the responsible faculty or staff member should also provide the student participants with a statement concerning absence from classes that can be given to the students’ instructors. Transportation can be scheduled through the University motor pool in accordance with section 95.35, Business Policies and Procedures Manual. The University’s liability coverage is provided by Chapter 4.92 of the Revised Code of Washington (RCW). In those instances where students are permitted to drive their own cars and other students are permitted to ride with them, the responsible faculty or staff member, acting as the University’s representative, should request the student drivers to verify that:

1. They have valid driver’s licenses
2. They have minimum liability insurance required by the state of Washington ($25,000 bodily injury per person, $50,000 per accident, $10,000 property damage)
3. The student drivers’ vehicles meet the state’s standard safety requirements
4. The passenger capacity of the vehicles will not be exceeded

The supervising University representative should also ensure that participants are appropriately dressed and properly advised as to safety requirements for the activity involved.

Certification of a Major

An undergraduate may certify an academic major upon completion of 24 semester hours with the approval of the appropriate department chair and notification to the Student Advising and Learning Center.

A student who has completed 60 semester hours should be certified in a major. The student initiates the certification procedures at the Student Advising and Learning Center (SALC), acquires the signatures of the academic advisor and the department chair, and returns the signed documents to the SALC Office. Certified majors who wish to transfer to another academic major do so by requesting from the Registrar’s Office a change of major card, and obtaining the approval and signature of the department chairs of the former major and the new major.

Students who satisfy the minimum University requirements plus any departmental core requirements with a 2.0 cumulative GPA are qualified for certification except in those departments whose majors are impacted or whose certification requirements are higher. Consult the departmental section of this catalog for specific departmental requirements.

SPECIAL NOTE ON UNDERGRADUATE CERTIFICATION: Since academic departments may establish additional requirements for those seeking admission to specific programs, students are reminded that admission to Washington State University does not ensure acceptance into any department or program as a certified major and degree candidate. Several academic programs, including architecture, business, communication, computer science, construction management, digital technology and culture, economics, education, engineering, environmental science, fine arts, hospitality business management, interior design, landscape architecture, mathematics, music, neuroscience, nursing, pharmacy, psychology, and sport management are unable to accept all qualified students. In these situations, and others which may arise in the future, the most highly qualified students will be selected up to the enrollment limits in the specific program.

Departments and programs designated as impacted or those units directed to raise certification standards by external or certifying agencies may require more than the minimum 24 hours for certification and a GPA higher than the minimum 2.0. Academic units may also require completion of one or more specific courses prior to certification. Units must include in their certification requirements a mechanism whereby qualified transfer students can be certified upon admission. These requirements for immediate certification may include standards more rigorous than the minimum requirements, but prior enrollment per se at WSU cannot be a condition for certification of transfer students. See Appendix, Rule 53, 55, 56.

Minor, Second Major, or Second Baccalaureate Degree

A student who has completed 60 semester hours and is certified in a major may certify a second major or a minor with the approval of the department concerned. The student should consult with the department concerning hours and grade point requirements and an approved schedule of studies to meet such requirements.

A second major requires completion of departmental requirements for the major, exclusive of General Education Requirements. A minor requires a minimum of 16 semester hours, 9 of which must be in upper-division coursework and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Upon completion of the requirements, the department will notify the Registrar’s Office, and the minor or second major will be posted on the student’s permanent record (transcript).

A student who desires to complete a second baccalaureate degree shall satisfy the second degree program and college requirements and present not less than 150 semester hours of credit. The first bachelor’s degree, whether at WSU or at another accredited institution, is understood to fulfill all University requirements for graduation, including the 300-400 level requirements, University Writing Portfolio, the minimum hours for the first degree, as well as the requirements of the General Education Program. See Appendix, Rule 54.1
Certificates
An officially recorded undergraduate certificate is a document issued by WSU, displaying the WSU seal and president's signature. Certificates are issued to students who have completed a course of study that meets the guidelines and has been approved by the Faculty Senate. To have the undergraduate certificate recorded on the official transcript, the student must apply for the certificate through the Registrar's Office and pay the $50 fee.

Grading System
Washington State University uses letter grades and the four-point maximum grading scale. The grade A is the highest possible grade, and grades below D are considered failing. Plus or minus symbols are used to indicate grades that fall above or below the letter grades, but grades of A+ and D- are not used. For purposes of calculating grade points and averages, the plus (+) is equal to .3 and the minus (-) to .7 (e.g., a grade of B+ is equivalent to 3.3, and A- is 3.7). Guidelines for grading may be found in Rule 90, listed in the Appendix.

For undergraduates who entered WSU in fall 1998 or before, the maximum number of WSU withdrawals is 6, not counting withdrawals that result from the cancellation of enrollment. For undergraduates who enter WSU in fall 1998 or later, the maximum number of WSU withdrawals is 4, not counting withdrawals that result from the cancellation of enrollment. After the 4th or 6th withdrawal, a student may, in exceptional circumstances, submit a petition through the Registrar's Office for an exception to the withdrawal limit. See Appendix, Rule 68, 69.

Grade Point Average
The student's grade point average (GPA) is computed by dividing grade points earned by the number of credit hours attempted. Grades P and S do not carry grade points, and the credit hours are not calculated into the GPA. Credits attempted for F grades are calculated into the GPA. Transfer and other nonresident credit is not computed in the Washington State University grade point average.

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
<th>Grade</th>
<th>Grade points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 301</td>
<td>3</td>
<td>A</td>
<td>12.0</td>
</tr>
<tr>
<td>Bio S 422</td>
<td>3</td>
<td>C+</td>
<td>5.1</td>
</tr>
<tr>
<td>Soc 420</td>
<td>3</td>
<td>B+</td>
<td>9.9</td>
</tr>
<tr>
<td>Mus 491</td>
<td>2</td>
<td>P</td>
<td></td>
</tr>
<tr>
<td>Soc 499</td>
<td>4</td>
<td>S</td>
<td></td>
</tr>
</tbody>
</table>

Credit hours attempted (9) divided into total grade points earned (27) = GPA (3.00) Total hours earned: 15

Note: P and S grades yield no grade points, thus are excluded from the GPA calculation.

Grade Reports
Midsemester grades are issued to freshmen students with fewer than 28 semester hours of credit and to transfer students with less than 90 hours in their first semester at WSU and are made available over the Web. Final grades for all students are available online at myWSU.

Transcripts
An official copy of a student's academic record at Washington State University that bears the official seal of the University and the signature of the Registrar is referred to as a transcript. The transcript must include all work taken at Washington State University. Requests for transcripts must be accompanied by the student's signature and a form of payment for the per copy fee. Order forms are available on the Web at www.transcript.wsu.edu. Phone orders for transcripts cannot be accepted. For rush service, call 509-335-5330. NOTE: Financial indebtedness to the University will prevent the release of a student's transcript.

Transcripts of secondary or higher education study that have been submitted to WSU as a requisite for admission cannot be returned to the student. Students desiring transcripts from other institutions must order official transcripts directly from the institution at which the work was taken. WSU does not issue or certify copies of transcripts from other institutions. Copies of international transcripts in which WSU possesses the original copy may be requested using the International Transcript Request form, also available online.

Repetition of Courses
Courses completed with a grade of C or above may not be repeated for credit or grade points.

Students may repeat courses in which they have received a grade of C- or below one time at WSU during fall or spring semesters. If a student repeats a course in which an I (incomplete) grade was received, the I grade will be changed to F.

When a student repeats a course and earns another grade, the series of repeats and grades will be retained on the student's official record. However, the last grade only shall be calculated in the cumulative grade point average and contribute to the total number of hours required for graduation.

In determining scholarship for graduation honors, the first grade only shall be used. Repeats by correspondence, extension, or in residence at other institutions must be reported orally or in writing to the Registrar's Office. See Appendix, Rule 34.
Courses Approved for Repeat Credit
Some courses have been approved for repeat credit, i.e., the student may enroll in the same course during a subsequent semester and additional credit and grade points will be accumulated. An example of such a course would be Special Topics in which the course content may vary from semester to semester. Courses approved for additional credit, with maximum credit allowable, if any, will be indicated in the catalog, e.g., may be repeated for credit; cumulative maximum 6 hours. See Appendix, Rule 34.

Cooperative Courses with the University of Idaho
Cooperative courses between Washington State University and the University of Idaho provide enriched educational opportunities for students of both universities and allow better utilization of supporting resources such as libraries and laboratories. The sharing of faculty and facilities fosters the exchange of ideas and enhances academic ties between the two communities.

Approved cooperative courses are listed in the departmental section of this catalog and include the University of Idaho (UI) equivalent course prefix and number within the course description. Courses are identified as (1) cooperative course taught by UI, open to WSU students; (2) cooperative course taught by WSU, open to UI students; and (3) cooperative course taught jointly by WSU and UI.

Cooperative courses taught by the University of Idaho are footnoted with an "I" in the Schedule of Classes. WSU students desiring to enroll in cooperative courses taught by UI will register for the course at WSU but attend class at UI in accordance with the dates and times listed in the WSU Schedule of Classes. Students will follow the regular WSU registration procedure and will be charged according to the WSU fee structure. Upon completion of the course, the credit and grade will be recorded on the student's official WSU transcript.

Pass, Fail Grading Options
Pass, fail options are available for undergraduate and graduate students. Specific characteristics of the two options are listed below. During registration, students indicate that they wish to enroll in the course on a pass, fail basis. The advisor's approval is required for undergraduates. Information indicating which students are enrolled on a pass, fail basis will not appear on class lists transmitted to instructors. Instructors turn in regular letter grades for all students, and the Registrar's Office will change all grades of A through D to P for those enrolled pass, fail. The F grades earned by pass, fail enrollees will not be included in computing the GPA; however, F grades earned by pass, fail enrollees will be included in GPA computations. Courses approved for S, F grading (Rule 90f) are excluded from the pass, fail option. Courses approved for S, F grading are footnoted in the Schedule of Classes.

A student may change a pass, fail enrollment to a regular letter-graded enrollment, or vice versa, during the first three weeks of classes. After the third week and through the last day of instruction in a semester (end of the 15th week), a letter-graded enrollment cannot be changed to a pass, fail enrollment.

Undergraduate Pass, Fail Option: A total of six courses may be taken on a pass, fail basis by students initiating and completing work for a baccalaureate degree at Washington State University. No courses designated as meeting General Education Requirements for graduation may be taken pass, fail. No more than two courses may be taken on a pass, fail basis during any given semester. Two courses is the limit for summer session. Students in the College of Veterinary Medicine with advisor approval may enroll for a total of six courses in the professional curriculum on a pass, fail basis, subject to the equitations listed above. Allowances for transfer students are as follows:

<table>
<thead>
<tr>
<th>Credit Hours</th>
<th>Pass, Fail Allotment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-44</td>
<td>six courses</td>
</tr>
<tr>
<td>45-59 credits</td>
<td>five courses</td>
</tr>
<tr>
<td>60-74 credits</td>
<td>four courses</td>
</tr>
<tr>
<td>75-89 credits</td>
<td>three courses</td>
</tr>
<tr>
<td>90 and above credits</td>
<td>two courses</td>
</tr>
</tbody>
</table>

Departments and programs may deny their majors permission to take courses on a pass, fail basis in their major field or courses needed to meet departmental requirements.

Departments and programs may refuse to accept courses needed to meet the above requirements if the courses were completed on a pass, fail basis before the student was accepted into the department or program.

Graduate Pass, Fail Option: Class 5 (except those working on a second baccalaureate degree) and Class 6 (graduate) students are eligible to take courses on a pass, fail basis, but such work cannot be in the student's official degree program or used for removal of a specific undergraduate deficiency. Credit hours earned under pass, fail are counted toward assistantship minimum hour requirements. There is no limit on the number of hours a graduate student may take on a pass, fail basis. See Appendix, Rules 50, 90.

Honors
President's Honor Roll. An undergraduate student will be named to the President's Honor Roll under either of the following conditions:
(a) By achieving a grade point average of 3.75 in at least 9 graded hours in a single term at Washington State University.
(b) By achieving a cumulative grade point average of 3.50 based on at least 15 cumulative hours of graded work at Washington State University.

Graduation Honors. Candidates for baccalaureate degrees who have completed at least 30 hours of graded work (grades in which grade points are awarded) at Washington State University will graduate summa cum laude if the cumulative grade point average for work completed at Washington State University is 3.90 or better, will graduate magna cum laude if cumulative grade point average is 3.70 to 3.89, and will graduate cum laude if the minimum cumulative grade point average is 3.50 but less than 3.70. The appropriate Latin phrase will be printed on the diploma and on the final transcript. Qualified students electing to participate in the Honors College who complete its requirements satisfactorily, regardless of whether they qualify to graduate summa cum laude, magna cum laude, or cum laude, will receive a certificate of completion and a printed notation on the final transcript.

Computation of graduation honors will be done prior to the final semester to allow for publication of the appropriate honors in advance of graduation. However, following the student's final semester, the Registrar's Office will recompute the student's GPA including the last semester's work, and only this computation will determine official graduation honors. See Appendix, Rules 133, 137.

Academic Complaint Procedure
Students having complaints about instruction or grading should refer them first to the instructor. If not resolved, the student may refer the complaint in writing to the chairperson of the department in which the course is offered by the end of the last day of the following semester (excluding summer term). After the chair's decision, the student or the instructor may appeal to the Dean's Office within 20 business days of the chair's decision. The decision of the dean is the final step. The University Ombudsman is available at any stage for advice or assistance in resolving academic complaints. See Appendix, Rule 104.

Academic Deficiency
Washington State University expects students to maintain academic standards of excellence and make satisfactory academic progress toward their degree objectives. Undergraduate students are in good academic standing if both their current WSU semester and cumulative grade point averages are 2.00 or above. Students not meeting the criteria above are considered academically deficient. An undergraduate student who, the first time has failed to maintain a 2.00 semester or cumulative grade point average, must complete an application and complete an interview through the Student Advising and Learning Center on the Pullman campus, the Distance Degree Program or the designated office on other campuses (Rule 38). An undergraduate student who, at the end of any two semesters has failed to maintain a 2.00 semester or cumulative GPA will be dismissed from the University (Rule 39). For process, see Rule 40. Students who are dismissed from the University are required to remain out of WSU for at least one academic year. Students seeking future reinstatement may apply for reinstatement by applying to a Review Board and must provide, as part of the application for reinstatement, additional documentation that demonstrates improved academic performance at the college level and/or a readiness for academic success at WSU. All academic coursework during the time away from WSU is required to be documented and transcripts submitted. An undergraduate student who has been reinstated will be on academic probation for one semester. The interviewer or a Review Board will determine the specific conditions of academic probation. Students on academic probation who fail to comply with the conditions will be dismissed from the University.

Decertification
The department may decertify a certified major who is academically deficient. The department may also decertify a certified major undergraduate student after two semesters where the student's GPA has fallen below the minimum departmental requirements. See Appendix, Rules 56, 38-43.
Student Rights Regarding Education Records

Federal law requires Washington State University to annually notify students currently in attendance at the University of their rights under the Family Educational Rights and Privacy Act (FERPA). Under FERPA, a student has the right to:

1. Inspect and review his or her education records. “Education records” means those records that are directly related to a student and are maintained by Washington State University or by a party acting for Washington State University.
2. Request the amendment of the student’s education records to ensure that they are not inaccurate, misleading, or otherwise in violation of the student’s privacy or other rights.
3. Consent to disclosures of personally identifiable information contained in the student’s education records, except to the extent that FERPA authorizes disclosure without consent.
4. File with the Department of Education a complaint concerning alleged failures by Washington State University to comply with the requirements of FERPA.

Washington State University may release directory information contained in a student’s education records. “Directory information” means information contained in an education record which would not generally be considered harmful or an invasion of privacy if disclosed. Directory information includes name (including any former name); local and permanent addresses and telephone numbers; electronic mail address(es); major and minor fields of study; class; participation in officially recognized activities in sports; weight and height of members of athletic teams; dates of attendance; enrollment status (e.g., undergraduate or graduate, full-time or part-time); degrees, certificates, and awards received, including the President’s Honor Roll; and the most recent previous educational institution attended by the student. Students may request that the University not release directory information by filing a request with the Office of Payroll Services or online through my.wsu.edu.

The Washington State University policy on student records can be found in the Washington Administrative Code 504-21. A complete text of this policy is available upon request from the Registrar’s Office, 346 French Administration Building.

Application for Graduation

A student who has (a) completed any of the four-year collegiate curricula, and (b) satisfied the University Requirements for Graduation and any additional departmental or college requirements with a minimum 2.00 GPA may become a candidate for the bachelor’s degree, depending upon the field of study. NOTE: Financial indebtedness to the University will prevent the release of a student’s diploma. The award of a degree is conditioned upon the student’s good standing in the University and satisfaction of all University graduation requirements.

“Good standing” means the student has resolved any unpaid fees or acts of academic or behavioral misconduct, and complied with all sanctions imposed as a result of the misconduct. The University shall deny the award of a degree if the student is dismissed from the University based on his or her misconduct (See Rule 45 and the Student Conduct Code).

Application for an undergraduate or professional degree should be made at the Registrar's Office near the end of the junior year and at least 60 days prior to the expected graduation date. Students must have 70 credit hours and be certified in their major and option before applying. A graduation application must be on file in the Registrar’s Office before a student can graduate. A graduation fee must be paid at the time of application.

Candidates must present a minimum of 120 semester hours of credit for graduation, including a minimum of 40 semester hours of credit in upper-division courses and a minimum of 30 hours earned at WSU for a four-year degree. 500-level courses will count toward the upper-division requirements, but an undergraduate may not be required to enroll in or complete a 500-level course as a requirement for a baccalaureate degree.

A student desiring a second bachelor's degree shall satisfy the second degree program and college requirements and present not less than 150 semester hours of credit to receive the second degree. Credits applied toward a graduate degree may not be used for a baccalaureate degree.

A student who has completed any of the five-year curricula, earned a minimum of 150 semester hours of credit, and met the requirements in the paragraphs above may become a candidate for the bachelor's degree in that field of study.

Students are required to do their senior work under the direction of the college in which the degree is to be granted. The degree granted and the schedule of studies for a given curriculum will be found in the material for the college or department concerned.

Students are required to earn a C average or better in all work taken at this institution. Any deficiency on transfer credit must be removed by work taken through Washington State University.

For otherwise qualified students with disabilities, individual course requirements or specific requirements within courses may be waived. Waivers of departmental requirements must be approved by the major department. Waivers of specific requirements within courses must be approved by the department teaching the course. A request for waiver of University requirements must be made directly to the General Education Director and be approved by the student’s department chair and college dean. Petition forms for waiving University and college requirements are available in the Registrar’s Office. See Appendix, Rule 106.

Catalog Options and Limitations

The University requirements for graduation as published in the catalog in effect at the time of the student's initial enrollment are those which must be met for completion of an undergraduate degree program. University requirements for graduation include the General Education Requirements. For transfer students, the initial enrollment date shall be that upon which the student entered postsecondary education. Subsequent changes in degree requirements, as published in the catalog or amended by the Faculty Senate, may be substituted at the option of the student.

This policy does not apply to major and specific college requirements. All major program and college requirements (including those in a college which does not have separate departmental requirements) are set at the time the student initially certifies the major. Changes in major requirements after the time of certification may apply to all students, provided they neither require a student to enroll in more than a normal complement of credit hours in any semester nor prolong the time necessary to complete degree requirements. Department and program chairs have authority to waive or provide substitute course work for major requirements.

Undergraduates who will not graduate within the normal minimum degree time frame (four years for four-year baccalaureate programs, five for a five-year, and six for a six-year program) have a total of eight years in four-year programs and ten in five- and six-year programs to complete their degrees under their original catalog listing of University graduation requirements. Those who take longer to complete their degrees must meet the University and General Education requirements for graduation as published in the catalog four years prior to the date of graduation. In addition, if more than four years elapses between certification and graduation, the major and specific college requirements in place four years prior to graduation will apply.

Official name changes in degree titles will go into effect automatically for all students according to the effective date approved by the Faculty Senate. Students currently enrolled and certified in a degree program at the time of a name change will have the privilege of graduating with either the old or the new degree title. The option of selecting the old degree title will originate with the student, and it will be the responsibility of the department, in signing the degree application, to determine whether or not the student is eligible (i.e., when the student certified).

General Catalog

The General Catalog is a comprehensive reference guide for Washington State University students. It provides an overall view of the programs and courses at the University and the rules that pertain to admissions, registration, and graduation. The General Catalog is published annually online in July, at the web site catalog.wsu.edu. In addition, a catalog is published by the Graduate School on the web site www.gradsch.wsu.edu/future-students/academics/catalog. Most academic departments and colleges maintain their own web pages with additional information.

All announcements in the General Catalog are subject to change without notice and students assume the responsibility of consulting the appropriate academic unit or advisor for more current or specific information.

The Schedule of Classes is published each semester on the web site www.schedules.wsu.edu.ASP and gives additional detailed information on courses offered, class hours, and classroom locations, and contains the latest calendar dates, fees, and details on registration.
The Office of the Registrar coordinates the updates and revisions to the printed General Catalog and to the information from the General Catalog that is published on the web site. The Graduate School coordinates the updates and revisions to the printed Graduate Catalog and to the information from the Graduate Catalog that is published on the web site.

**Statement of Institutional Responsibility**

As a general rule, undergraduate students who are certified majors or graduate degree candidates can assume that a degree will be granted if they maintain continuous enrollment and meet all requirements as listed in Academic Regulations, Rules 114-118. However, because of serious reductions in financial support, loss of faculty, or for other significant reasons, the University may from time to time find it necessary to discontinue a degree program. When this occurs, further admission into the degree program will be frozen effective with the official action dropping the degree, and every effort will be made to allow currently enrolled majors and graduate degree candidates to complete their degrees within a reasonable period of time. To facilitate this process, department and program chairs (or the appropriate dean) have the obligation to provide for the individual needs of these students: e.g., (1) students may be encouraged to complete their requirements in similar or related degree tracks; (2) although University Requirements for Graduation and the minimum total hours for the degree may never be waived, the student’s major department may waive or substitute departmental degree requirements; (3) undergraduate students may be allowed to complete remaining requirements at another institution under Rule 114(a); (4) graduate students may be allowed to take courses or conduct research at another institution when approved by the student’s graduate committee and the Graduate School. In all cases, all financial obligations are the responsibility of the individual student involved, except as otherwise noted in this catalog or the Graduate Studies Bulletin.

**University Requirements for Graduation**

University requirements for the baccalaureate degree have been established by the faculty as an expression of the common degree expectations for all Washington State University graduates. The faculty has established minimum standard terms of credit hours, grade points, and distribution requirements within the General Education Program. For complete listing of all the rules pertaining to graduation, see the Appendix, Rules 106-137.

1. Hours and grade points—A minimum of 120 semester hours with a grade point average of 2.0 or better.
2. Upper-Division (300-400-level)—A minimum of 40 semester hours
3. The University Writing Portfolio (Mid-Career Assessment)—Successful completion of the University Writing Portfolio is a requirement for graduation at WSU. Students must satisfy this requirement once they have earned 60 credit hours. To complete the University Writing Portfolio, students must submit three papers they have written as a result of previously assigned college course work and take a Timed Writing Exam consisting of two writing exercises. Upon completion of 60 credit hours, students are given two semesters to satisfy the University Writing Portfolio. The University Writing Portfolio must be completed before a student enrolls in an [M] course (see below). Visit www.writingportfolio.wsu.edu for more information.
4. Writing in the Major [M]—Two courses identified as writing in the major [M] must be included in course work taken to meet departmental requirements. Consult the requirements in the department in which you intend to major.
5. General Education Program requirements—All students, regardless of major, must fulfill the minimum requirements of WSU’s General Education Program, which are described below, or University Honors College. See Appendix, Rules 106-137.
6. The award of a degree is conditioned upon the student’s good standing in the University and satisfaction of all University graduation requirements. “Good standing” means the student has resolved any unpaid fees or acts of academic or behavioral misconduct, and complied with all sanctions imposed as a result of the misconduct. The University shall deny the award of a degree if the student is dismissed from the University based on his or her misconduct (See Rule 45 and the Student Conduct Code).

**College of Liberal Arts**

**College of Sciences**

**Graduation Requirements**

In order to provide a broad-based education in the humanities, social sciences, and sciences, the College of Liberal Arts and the College of Sciences require the following in addition to University Requirements for Graduation. The additional college graduation requirements have already been incorporated in the departmental requirements listed in this catalog.

**Arts and Humanities [H][G], Social Sciences [S][K], and Intercultural Studies [I][G][K]—6 credits in addition to the General Education Program requirement.**

**Sciences [B][P][Q]—2 credits (including a 1-credit laboratory [L]) in addition to the General Education Program requirement.**

**Foreign Language—** One year (two semesters or three quarters) of one foreign language at the University level or two years of one foreign language at the high school level. Demonstrated proficiency by means of a Foreign Language Examination may substitute for actual course work.

Transfer students are responsible for meeting the above College of Liberal Arts and College of Sciences requirements. This includes those students holding the approved Associate of Arts or Associate of Science degree from Washington community colleges or Associate of Arts—Oregon Transfer degree from an Oregon community college.
Achieving Academic Success

Academic Advising

Academic advising is an educational relationship in which students and advisors are partners in planning academic, personal, and career goals. It fosters intellectual and personal development that leads to academic success and self-directed life-long learning.

The Center for Advising and Career Development (CADC) at Washington State University (WSU) assists students in creating short and long-term plans in building the foundation to their education and future career. All students are required to meet with an academic advisor each semester to discuss their academic and career direction. The CADC offers students a variety of services, programs, and resources to aid them in completing their academic courses, cultivating skill sets, and gaining experience to become marketable to future employers.

The CADC academic advisors along with career counselors engage students in critical thinking about their career development and the required components to obtain a degree at WSU. The CADC recommends that students also gain experiential learning, which is learning by doing. Students can participate in an internship, summer position, volunteering/community service, and/or study abroad. This equates to structuring a strong professional background that will enable students to move beyond WSU and toward a career with confidence in their ability to function in a complex, global, and diverse world of work.

WSU academic advisor responsibilities:

- Be accessible, knowledgeable, informed and demonstrate care and respect.
- Guide students as they define and develop realistic goals.
- Teach students decision-making skills and to assume responsibility to explore their educational plans, options, and achievements.
- Understand and effectively communicate the curriculum, graduation requirements, and university and college policies and procedures.
- Teach and support students with information about and strategies for utilizing the available resources and services on campus and in the community.
- Teach students to understand the purposes and goals of higher education and its effects on their lives and personal goals.

WSU student responsibilities:

- Schedule regular appointments with your advisor (minimum one per semester).
- Clarify your personal values and goals and provide your advisor with accurate and truthful information regarding your interests and abilities.
- Gather all relevant decision-making information and necessary materials (Degree Audit Report -DARS, tentative course selections, forms, etc.) to aid in decision making and to build a schedule free of conflicts.
- Prepare a list of questions or concerns before meeting with your advisor. Continue to ask questions until you understand.
- Discuss any problems that effect academic performance, for example: study skills, difficulties in your course work, personal concerns.
- Find out where help is available.
- Know where to access accurate information about educational options, requirements, policies, and procedures.
- Discuss why and how to add or drop courses or to take a course pass-fail or audit.
- Discuss career considerations, changing directions/major/interests.
- Keep a personal record of your progress toward your academic goals. Be proactive in checking the electronic resources (DARS) to keep track of your academic progress.
- Accept responsibility for your decisions and your actions that affect your educational progress and goals.

You are encouraged to take advantage of the skill and knowledge of the advising professionals available to you. The responsibility of making decisions about personal goals and educational plans ultimately rests with you.

Choosing a Major

Washington State University has ten colleges that grant degrees. The colleges are divided into various departments that offer majors. A major is a set of courses that introduces you to an academic area of study in depth. Choosing a major is one of the most important things you do at college. In general, it is best to major in an area that you like, and where you have the ability to do well. If you major in a subject that you like, you will feel more motivated to study. The more you enjoy studying, the better your grades are likely to be, especially if you have some ability in the subject as well. These days, many employers look carefully at grades when they recruit on college campuses, so the higher your grades, the more competitive you may be in the job market. If you plan to pursue a graduate degree, you will want your undergraduate grades to represent the best work you are capable of doing.

The CACD is here to assist all students with choosing a major, either through individual counseling, through courses such as College Majors and Career Choice (Univ 100/101), or through the resources at the center.

University Certification Requirements

Entering students may identify an area of interest. You will be assigned an advisor in your major interest area by the Student Advising and Learning Center. This advisor can be changed if your original interest should change. If you choose not to specify a major interest area, you will be assigned to a general advisor.

An undergraduate may certify an academic major upon completion of 24 semester hours with a 2.0 or better cumulative GPA, with the approval of the department chair and notification to the Student Advising and Learning Center. Please note that some departments have additional certification requirements and may require a higher minimum cumulative GPA than 2.0 and require specific courses. Consult the departmental section of the catalog for specific departmental requirements. Also note that admission to Washington State University does not ensure acceptance into any department or program.

Some students choose to complete a minor or second major to enhance their degree program. Formal certification of a minor or second major is completed after you have finished 60 semester hours. Approved minors are identified in the departmental section of this catalog. Consult with your advisor or the department concerned.

How is a major related to a career?

Today's workplace is changing rapidly. Twenty years from now, you may find yourself working in a field that has not yet been invented! In fact, most adults change careers several times over the course of their working lives. A well-chosen major will prepare you to do well in many occupations, because it will give you the problem-solving, critical thinking, and communication skills you will need to succeed. Some jobs require specific college majors; others do not.

Nevertheless, the courses you will complete for your degree will give you skills and knowledge to last a lifetime, no matter how much the workplace may change. As you complete the General Education Requirements and major courses, you will learn skills that apply to any career:

- Communication skills: how to read, write, speak, and listen effectively.
- Analytical reasoning skills: how to break problems down into their component parts and find solutions.
- Cross-cultural skills: how to assess information about other cultures from a critical and comparative perspective.
- Research skills: how to use the scientific method to explore change and development in the natural world.
- Ethical skills: how to discuss questions of value.
- Aesthetic understanding: how to appreciate works of art.

Your academic advisor will work with you to construct an academic program tailored to your needs and interests.

Take a good look at what's out there

The Career Development Program in Career Services has many resources and programs to teach students the life-long skills of career planning. A staff of experienced counselors is available to help with academic major and career decisions. They can help you to examine values, interests, and abilities, locate current career information, and identify the various influences that affect decision making. Vocational testing can also be arranged. The center also provides information about internships and student employment opportunities which will enhance your academic major.

Use this catalog and other resources to identify departments that offer courses that sound interesting to you. Select your GER courses based on an informed decision. Consult with various departments regarding what they have to offer you to meet your interests and abilities. You may also access departmental information through the WSU homepage at www.wsu.edu. Finally, work carefully with your advisor as you select courses each semester to measure your progress toward the degree you plan to earn. Use the resources available to you.
Undergraduate Degrees, Majors, and Options

The following are the undergraduate degrees offered at Washington State University. Following the degree, majors are listed with bullets, and any options offered within the major are noted in parenthesis. Degrees that are offered exclusively at the regional campuses (Spokane, Tri-Cities, Vancouver, or through the Distance Degree Programs) are noted. Not all degrees or majors listed are offered at every WSU campus. Students with questions about degree programs should consult with a representative at the specific campus for additional information.

College of Agricultural, Human, and Natural Resource Sciences

Agricultural and Food Systems, Bachelor of Science
- Agricultural and Food Business Economics
- Agricultural Education
- Agricultural Technology and Production Management
- Agriculture and Food Security
- Organic Agriculture Systems

Animal Sciences, Bachelor of Science
- Animal Sciences (options: Industry, Production Management, and Science/Pre-Veterinary Medicine)

Apparel, Merchandising, and Textiles, Bachelor of Arts
- Apparel, Merchandising, and Textiles (options: Apparel Design, and Merchandising)

Economic Sciences, Bachelor of Science
- Agricultural Economics
- Business Economics
- Economic Analysis and Policy
- Environmental and Resource Economics
- Financial Markets
- Graduate School Preparation
- International Trade & Development

Food Science, Bachelor of Science
- Food Science

Human Development, Bachelor of Arts
- Human Development (options: General, Family and Consumer Science, and Preschool through 3rd Grade Certification)

Integrated Plant Sciences, Bachelor of Science
- Pending state approval - to replace Crop Science, Horticulture, and Soils Science.
- (will include Agricultural Biotechnology, Field Crop Management, Fruit and Vegetable Management, Nursery and Greenhouse Management, Landscape Design and Implementation, Turfgrass Management, and Viticulture and Enology)

Interior Design, Bachelor of Arts
- Interior Design

Landscape Architecture, Bachelor of Landscape Architecture
- Landscape Architecture

Natural Resource Sciences, Bachelor of Science
- Natural Resources
- Wildlife Ecology (options: Pre-Veterinary, and Directed Studies)

College of Business

Business Administration, Bachelor of Arts
- Accounting
- Accounting and Information Systems
- Business Administration (Vancouver, Tri-Cities, and DDP)
- Entrepreneurship
- Finance
- International Business
- Management Information Systems
- Management and Operations
- Marketing

Hospitality Business Management, Bachelor of Arts
- Hospitality Business Management
- Wine Business Management

College of Communication

Communication, Bachelor of Arts
- Communication (options: Advertising, Applied Intercultural, Broadcast News & Broadcast Production, Journalism, Organizational, Public Relations)

College of Education

Education, Bachelor of Arts
- Elementary Education
- Specific Subject Secondary Teacher Certificate (primary majors – biology; Chinese language and culture; English; French; German; history; mathematics; music education; physics; social studies; and Spanish)

Kinesiology, Bachelor of Science
- Health and Fitness
- Movement Studies

Athletic Training, Bachelor of Science
- Athletic Training

Sport Management, Bachelor of Arts
- Sport Management

College of Engineering and Architecture

Architectural Studies, Bachelor of Science
- Architectural Studies

Bioengineering, Bachelor of Science
- Chemical Engineering, Bachelor of Science
- Civil Engineering (options: General, and Pre-Med)

Civil Engineering, Bachelor of Science
- Civil Engineering (options: General, Environmental Engineering, and Water Resources)

Construction Management, Bachelor of Science
- Construction Management

Computer Engineering, Bachelor of Science
- Computer Engineering

Computer Science, Bachelor of Arts
- Computer Science (BA)

Computer Science, Bachelor of Science
- Computer Science (BS)

Electrical Engineering, Bachelor of Science
- Electrical Engineering

Materials Science and Engineering, Bachelor of Science
- Materials Science and Engineering

Mechanical Engineering, Bachelor of Science
- Mechanical Engineering

College of Liberal Arts

American Studies, Bachelor of Arts
- American Studies

Anthropology, Bachelor of Arts
- Anthropology

Asian Studies, Bachelor of Arts
- Asian Studies

Comparative Ethnic Studies, Bachelor of Arts
- Comparative Ethnic Studies

Criminal Justice, Bachelor of Arts
- Criminal Justice

Digital Technology and Culture, Bachelor of Arts
- Digital Technology and Culture

English, Bachelor of Arts
- English (options: Literary Studies, Rhetoric and Professional Writing, Creative Writing, and Teaching)

Fine Arts, Bachelor of Arts
- Fine Arts (BA) (options: Art History, and Studio Fine Arts)

Fine Arts, Bachelor of Fine Arts
- Fine Arts (BFA)

Foreign Languages and Cultures, Bachelor of Arts
- Chinese Language and Culture (options: General, and Teaching)
- French (options: General, and Teaching)
- Spanish (options: General, and Teaching)

History, Bachelor of Arts
- History (options: General, Pre-Law, and Teaching)

Humanities, Bachelor of Arts
- Humanities (options: Classical Studies, International Area Studies, Linguistics, Religious Studies)

Liberal Arts, Bachelor of Liberal Arts
College of Pharmacy

Doctor of Pharmacy
- Pharmacy - (Six year program only)

Exercise Physiology and Metabolism, Bachelor of Science (Pullman/Spokane)
- Exercise Physiology and Metabolism (option: Dietetics)

College of Sciences

Biochemistry, Bachelor of Science
- Biochemistry (options: Biochemistry/Biophysics, and Biochemistry / Molecular Biology)

Biology, Bachelor of Science
- Biology (options: General, Botany, Ecology and Evolutionary Biology, Entomology, and Physical Therapy/Pre-Occupational Therapy/Pre-Physician's Assistant, and Teaching)

Biotechnology, Bachelor of Science
- Biotechnology

Chemistry, Bachelor of Science
- Chemistry (options: General, Environmental, Materials, and Teaching)

Environmental Science, Bachelor of Science
- Environmental Science

Exercise Physiology and Metabolism, Bachelor of Science (advising only)
- Exercise Physiology and Metabolism

Genetics and Cell Biology, Bachelor of Science
- Genetics and Cell Biology

Geology, Bachelor of Science
- Geology

Mathematics, Bachelor of Science
- Mathematics

Microbiology, Bachelor of Science
- Microbiology (options: General, and Medical Technology)

Physics, Bachelor of Science

Science, Bachelor of Science
- General Studies, Science (options: Basic Medical, Biological, Mathematical, and Physical)

Zoology, Bachelor of Science
- Zoology (options: General, Pre-Medicine/Pre-Dentistry, and Pre-Veterinary/Animal Care)

College of Veterinary Medicine

Neuroscience, Bachelor of Science
- Neuroscience (options: Neuroscience, Computational Neuroscience, PreMed/PreDent, Pre-Veterinary)

Doctor of Veterinary Medicine (DVM)
- Undergraduate majors that prepare for the DVM include, but are not limited to: Animal Science, Biology, Biochemistry, Biosystems Engineering, Genetics and Cell Biology, Neuroscience, Microbiology, or Zoology.

Undergraduate Minors

The following are the undergraduate minors offered at Washington State University. The department offering the minor is noted. Minors that are offered exclusively at the regional campuses are noted. Not all minors listed are offered at every WSU campus. Students with questions about degree programs should consult with a representative at the specific campus for additional information.

A minor requires a minimum of 16 semester hours, 9 of which must be in upper-division course work and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Upon completion of the requirements, the department will notify the Registrar's Office, and the minor will be posted on the student's permanent record (transcript).

Minor

Accounting
- Accounting

Addiction Studies (Vancouver only)
- Addiction Studies (Vancouver only)

Aerospace
- Aerospace

Aging
- Aging

Agribusiness
- Agribusiness

Agricultural Economics and Management
- Agricultural Economics and Management

American Indian Studies
- American Indian Studies

American Studies
- American Studies

Animal Sciences
- Animal Sciences

Anthropology
- Anthropology

Architectural Studies
- Architectural Studies

Art
- Art

Art History
- Art History

Asian Studies
- Asian Studies

Astronomy
- Astronomy

Biochemistry
- Biochemistry

Biography
- Biography

Business Administration
- Business Administration

Chemistry
- Chemistry

Chinese
- Chinese

Communication
- Communication

Community Studies
- Community Studies

Comparative Ethnics Studies
- Comparative Ethnics Studies

Computer Engineering
- Computer Engineering

Computer Science
- Computer Science

Construction Management
- Construction Management

Criminal Justice
- Criminal Justice

Crop Science
- Crop Science

Digital Technology and Culture
- Digital Technology and Culture

Disability Studies
- Disability Studies

Economics
- Economics

Electrical Engineering
- Electrical Engineering

Engineering
- Engineering

English
- English

Entomology
- Entomology

Entrepreneurship
- Entrepreneurship

Environmental and Resource Economics
- Environmental and Resource Economics

Economics and Management
- Economics and Management

Environmental Science
- Environmental Science

Ethics
- Ethics

Film Studies
- Film Studies

Finance
- Finance

Forestry
- Forestry

Department

Accounting
- Accounting

Psychology
- Psychology

Aerospace Studies
- Aerospace Studies

Human Development
- Human Development

Economic Sciences
- Economic Sciences

Economic Sciences
- Economic Sciences

General Studies, Liberal Arts
- General Studies, Liberal Arts

American Studies
- American Studies

Animal Sciences
- Animal Sciences

Anthropology
- Anthropology

Architecture and Construction Management
- Architecture and Construction Management

Fine Arts
- Fine Arts

Asia
- Asia

Physics
- Physics

Molecular Biosciences
- Molecular Biosciences

Biological Sciences
- Biological Sciences

Management and Operations
- Management and Operations

Chemistry
- Chemistry

Foreign Languages and Cultures
- Foreign Languages and Cultures

Communication
- Communication

Community and Rural Sociology
- Community and Rural Sociology

Comparative Ethnic Studies
- Comparative Ethnic Studies

Electrical Engineering and Computer Science
- Electrical Engineering and Computer Science

Electrical Engineering and Computer Science
- Electrical Engineering and Computer Science

Architecture and Construction Management
- Architecture and Construction Management

Criminal Justice
- Criminal Justice

Crop and Soil Sciences
- Crop and Soil Sciences

Digital Technology and Culture
- Digital Technology and Culture

Speech and Hearing Sciences
- Speech and Hearing Sciences

Economic Sciences
- Economic Sciences

Electrical Engineering and Computer Science
- Electrical Engineering and Computer Science

Engineering and Architecture
- Engineering and Architecture

English
- English

Entomology
- Entomology

Entrepreneurial Studies
- Entrepreneurial Studies

Economic Sciences
- Economic Sciences

Earth and Environmental Sciences
- Earth and Environmental Sciences

Philosophy
- Philosophy

Foreign Languages and Cultures
- Foreign Languages and Cultures

Finance, Insurance, and Real Estate
- Finance, Insurance, and Real Estate

Natural Resource Sciences
- Natural Resource Sciences
A certificate requires a minimum of 15 credit hours with the exact number specified by the department or Program offering the certificate. The minimum GPA to earn a certificate is 2.0.

**Certificate**
- Abnormal Child Psychology
- Adolescence
- Agribusiness
- American Indian Studies
- Child Development & Care
- East Asian Studies for Business Majors
- East Asian Studies for Engineering and Architecture Majors
- Family Studies
- Gerontology
- Global Competencies
- Helping Skills
- Organic Agriculture
- Professional Writing
- Quantitative Biology
- Teaching English as a Foreign Language

**Department**
- Psychology
- Human Development
- Economics
- General Studies
- Human Development
- Asian Program
- Human Development
- Human Development
- Honors
- Psychology
- CAHNRS
- English
- Biology/Mathematics
- English

### Learning Enrichment Opportunities

Several departments at Washington State University work closely together to offer support to students as they develop their research and writing abilities—key components of a WSU education. From the freshman to the senior year, students may take advantage of all or part of these learning enrichment courses and services, which include:

- **Freshman Focus**—Freshman Focus is the residential living/learning community program in which first-semester students are co-enrolled in two General Education courses with other freshman students who live in the same residence hall. Students form classroom connections, instant study groups, and social networks. Freshman Focus makes the transition to college life easier because there is a solid academic focus that is enhanced by interaction with faculty and residence hall peers. Contact: Office of Undergraduate Education, CUE 305, 509-335-5488.

- **The Pathways to Academic Success Seminar (PASS)**—PASS is a small interactive learning community facilitated by graduate level peers. Students are co-enrolled in a seminar linked to a course which fulfills a general education requirement. Students who enroll in the two-credit Pathways to Academic Success Seminar, GenEd 104, participate in discussion, activities and projects that introduce them to research, writing, and critical thinking thereby assisting in the preparation for and transition to university life and academic expectations. Faculty from the shared GE course and an instructional librarian help assist students one-on-one with their seminar projects. Contact: Student Advising and Learning Center, Lighty Building Room 260, 509-335-6000, pass. wsu.edu.

- **Writing Tutorial**—Eng 102, a one-credit course, offers students an opportunity to improve their ability to write in a student-centered group tutorial setting. The tutorial is usually connected to freshman writing courses. Contact: WSU Writing Center, Center for Undergraduate Education, Room 403, 509-335-3628.

- **Accessing Information for Research**—With sophomore standing and above, students may enroll in GenEd 300, a one-credit course intended to assist them in exploring the technological resources available for conducting academic research. Transfer students who may not be familiar with the resources of the research library are also encouraged to enroll. Contact: Library Instruction Office, Holland Terrell Library, 509-335-7735.

- **Advanced Writing Tutorial**—GenEd 302 can be taken concurrently with an M course or upper-division writing intensive course in the student’s major. This advanced course also employs a small-group, student-centered approach focusing on students’ discipline-specific needs. Grammar in Context-English 202 can be taken concurrently with an M course or upper-division writing intensive course. This course also employs a small-group, student-centered approach focusing on supporting issues of grammar and syntax as students are writing assignments for various courses. This tutorial is open to multilingual and native speakers of English. Contact: WSU Writing Center, Center for Undergraduate Education, Room 403, 509-335-3628.

- **Service Learning**—Students in academic courses across the curriculum are provided with opportunities to learn through engagement in community-based service. Service learning experiences such as child and youth mentoring and
environmental restoration inform classroom learning, enhance civic awareness, promote personal growth, and foster skill development. Contact: Center for Civic Engagement, 509-335-7708, cce@wsu.edu, /cce.wsu.edu.

**Study Abroad** – Education Abroad is responsible for advising students who wish to study abroad and helping incoming exchange students settle into WSU campus and community life. With many program choices available for WSU students going abroad to study, students are encouraged to incorporate an overseas experience into their major or minor field of study. The EA office will assist students in finding the best program for them, whether it is through a third-party provider, an exchange program, a faculty-led program, or an academic internship. Over 500 students each year take advantage of the opportunity to engage in academic and culturally enriching experiences. The EA Office assists students with all aspects of studying abroad: identifying a program, applying, obtaining financial aid or scholarships, selecting courses, obtaining travel documents and so on. Contact: Education Abroad, Bryan Hall, Room 105, 509-335-6204, www.ip.wsu.edu/education_abroad.

**Learning Assistance**

The Student Advising and Learning Center (SALC) provides learning assistance programs for all WSU students.

**College Success Workshops** – College Success Workshops are scheduled throughout each semester and are open to all WSU students. These workshops focus on academic topics such as tips for test-taking, note-taking, and learning skills for science. Other topics include stress and time management, deciding on a major, and making the most of academic advising. The skills needed to succeed in high school are much different than those needed to succeed in college. You may benefit from the more in depth look at the tips and strategies covered in these workshops. There are also on-line tools designed to get you organized and ready for the challenges you may be facing academically. We encourage you to browse through the Learning Assistance website www.salc.wsu.edu/Learning and familiarize yourself with the variety of services available to help you.

**Supplemental Instruction (SI)** – The objectives of SI are to: increase student skills in comprehension, analysis, critical thinking, and problem solving; integrate review of course content with study skills and learning strategies; model collaborative learning; reduce drop rate in high-risk courses; increase re-enrollment and persistence by participating students. SI sessions are usually 50 minutes long and held at least twice a week throughout the semester. Many SI leaders also hold extra sessions before exams. Student attendance at all sessions is free and voluntary. The SI leader’s primary goal is to connect course content with study skills. In SI, students connect what-to-learn with how-to-learn.

**Tutoring** – Tutoring should be sought immediately when additional help is needed or anytime any grade is lower than desired. The goal of tutoring is to provide assistance that enables you to develop academic mastery and independence. During tutorial appointments, you can get help on your homework, help with understanding the concepts necessary to pass your exams, and useful study techniques. Tutoring helps you master course information by providing alternate explanations, techniques and examples. Tutors cannot substitute for attending class. Students who have taken advantage of tutoring have found that their grades improved. Tutoring should be in addition to the help that you can get from your professors’ and TAs’ office hours. If you don’t find what you are looking for on our site www.salc.wsu.edu/Learning, please contact us at 335-6000. One of our trained academic advisors can assist you in locating academic resources aimed at improving your academic success.

**The Peer Tutorial Program** provides one-on-one assistance or small group tutoring in a wide range of subjects for an hourly fee. Students must meet with their tutors at least once a week for an hour in order to ensure that tutoring is not seen as a “rescue mission” approach to education.

SALC tutors are trained to meet the requirements of the College Reading and Learning Association’s International Tutor Program Certification. New to the WSU menu of tutoring services is eTutoring.org, an online tutoring resource for popular subjects such as Math, Accounting and writing. The tutoring website www.salc.wsu.edu/learning/tutoring also hosts a list of all free drop-in tutoring services available throughout the university. Contact: Student Advising and Learning Center, Lighty Building, Room 260, 509-335-9603.

**Other Learning Assistance Programs**

**Student Support Services Program (SSS)** – SSS is a federally funded TRIO program that serves first-generation, low-income, and/or disabled students. Services include: Academic/financial advising, workshops, counseling, tutoring, mentoring, skills training, scholarship opportunities, cultural enrichment activities, technical support, and referrals. Interested students should contact SSS in the Student Advising and Learning Center, Lighty Building, Room 260, 509-335-7324, www.sssp.wsu.edu.

**The College Assistance Migrant Program (CAMP)** – The College Assistance Migrant Program (CAMP) is a federally funded program that provides services to eligible students from migrant and seasonal farmworker backgrounds. We offer services such as recruitment to WSU and provide a structured first year experience which entails academic support services and personal counseling to enhance the retention and graduation rates for CAMP participants. Academic, personal, and financial services include: financial aid stipends at $1,500; academic, career, and personal counseling; free tutoring; academic workshops and seminars; and referral services. For more information, visit us at camp.wsu.edu.

**Washington Achievers Scholars/Governor’s Scholars** – Washington Achievers Scholars and Governor’s Scholars are low-income, and often first generation students who receive a scholarship from the College Success Foundation. Achievers and Governor’s scholars are supported on campus with faculty/staff mentors, academic success workshops, counseling, tutoring, advising, referral services and social events. Contact the College Mentor Coordinator in the Student Advising and Learning Center, Lighty 260, www.salc.wsu.edu, 335-8065.

**Achieving Academic Success**

**Washington Achievers Scholars/Governor’s Scholars**

- **Achieving Academic Success**

**Other Learning Assistance Programs**

**Student Support Services Program (SSS)**

**The College Assistance Migrant Program (CAMP)**

**Washington Achievers Scholars/Governor’s Scholars**
Writing Proficiency Requirements

WSU faculty, administration, and regents have identified writing proficiency as a priority at WSU. Accordingly, all students will satisfy specified requirements to meet WSU’s writing proficiency standards for graduation. The requirements are outlined below:

1. Writing Experience within General Education
   a. All students must satisfy the Communication Proficiency requirement by passing 6 hours of written and oral communication courses, including at least 3 in written communication [W] at Tier I, and 3 of either [W] or [C] at Tier II.
   b. Prior to enrollment in freshman writing courses, all students must take a Writing Placement Examination for the purpose of placement in appropriate writing courses. These placements are mandatory. The Writing Placement Examination is administered during summer New Student Orientation, at the beginning of fall semester, and prior to spring registration. Examination results will place students in the core writing course, Engl 101, Introductory Writing (or Engl 198), or in Engl 101 plus one hour of Engl 102, Writing Tutorial. Students whose first language is not English may be placed in Engl 105, Composition for ESL Students, or Engl 104, Intermediate Grammar and Basic Skills ESL. In some instances, students may be exempted from Engl 101 on the basis of their performance in the Placement Examination. For more information, contact the Writing Assessment Office in CUE 305, or call 509-335-7959 or visit us at www.writingprogram.wsu.edu.
   c. All Honors College students are required to take the Honors College Writing Diagnostic for placement into Honors 298—Honors Writing and Research. The Honors College Writing Diagnostic is offered during the first and third sessions of Alive!, during a session scheduled during the Week of Welcome in conjunction with the Honors College Orientation, and in conjunction with spring semester priority registration. All students who have been admitted to WSU’s Honors College must take the Honors College Writing Diagnostic unless they have credit for a 200-level composition course from another college or university. An AP score of 4 or higher in English composition does NOT fulfill this requirement. For more information, contact the Writing Assessment Office in CUE 305, or call 509-335-7959 or visit us at www.writingprogram.wsu.edu.
   d. General Education courses require student writing of various kinds, both formal and informal, in order to provide adequate instruction in writing skills and to provide a wide range of student experiences in writing for many purposes and audiences.

2. The University Writing Portfolio—Writing Assessment at Mid-Career
   Successful completion of the University Writing Portfolio is a requirement for graduation at WSU. Students must satisfy this requirement once they have earned 60 credit hours. To complete the University Writing Portfolio, students must submit three papers they have written as a result of previously assigned college course work and take a timed writing exam consisting of two writing exercises. Upon completion of 60 credit hours, students are given two semesters to satisfy the Junior Writing Portfolio. The University Writing Portfolio must be completed before a student enrolls in an [M] course (see below). Visit www.writingportfolio.wsu.edu for more information.

3. Writing in the Major [M]
   Two courses identified as writing in the major [M] must be included in course work taken to meet departmental requirements. Consult the requirements in the department in which you intend to major. Students must complete the University Writing Portfolio before enrolling in an [M] course.
   Transfer students who have completed an approved Associate of Arts (AA) or Associate of Science (AS) degree at a Washington or Oregon community college are considered to have fulfilled the lower-division General Education Requirements. These students will still be responsible for meeting the other requirements for graduation, including those in the college and major departments. The University Writing Portfolio and the upper-division capstone course are not lower-division requirements and therefore cannot be satisfied by the approved associate degrees.
University Graduation Requirements

(Note: Students attending Washington State University Vancouver should refer to the Vancouver Campus section of this catalog for information on general education requirements. See catalog.wsu.edu/Catalog/Content/VancouverCampus.pdf).

IMPORTANT: Students with initial postsecondary enrollment prior to fall 1993 should consult with the Registrar's Office. University Honors College students do not complete GEs. Contact the Honors College for additional information.

**General Education Requirements**

**Communication Proficiency [W] [C]**
At least 3 must be Written [W]
- Engl 101 or 105 3 cr
- choose one 3 cr

**World Civilization [A]**
- GenEd 110 3 cr
- GenEd 111 3 cr

**Mathematics Proficiency [N]**
- choose one 3 or 4 cr

**Arts and Humanities [H][G]**
- choose one 3 cr

**Social Sciences [S][K]**
- choose one 3 cr

**Arts and Humanities [H][G] or Social Sciences [S][K]**
- choose one 3 cr

**Intercultural Studies [I][G][K]**
- choose one 3 cr

**Sciences [B][P][Q]**
10 semester credits including 1 hour of lab (L). At least 3 credits must be Biological Sciences [B] and 3 credits must be Physical Sciences [P].
- choose one lab science (L) 4 cr
- choose one 3 or 4 cr
- choose one 3 or 4 cr

**American Diversity [D]**
(For students with Initial Postsecondary Enrollment beginning Fall Semester 2000.) Meets both the [D] requirement and another GER course designation.
- choose one

**Additional graduation requirements**

**COLLEGE OF SCIENCES**

**COLLEGE OF LIBERAL ARTS**

All students, including community college transfer students with an approved transferable AA degree from Washington, Oregon, Idaho, California, Arizona, or Hawaii, or students pursuing a second bachelor's degree in the majors in these colleges, will be held to the following requirements:

**Foreign Language**
Complete 2 years high school or 1 year of college in a single foreign language.

**Additional 6 semester credits of [H,G,I,S,K]**
For a total of 18 semester credits in [H,G,I,S,K] courses.
- choose one [H,G,I,S,K] 3 cr
- choose one [H,G,I,S,K] 3 cr

**Additional 2 semester credits and 1 additional lab science**
For a total of 12 semester credits of GER sciences and 2 lab (L) courses.

**Upper-Division Requirements**

All community college transfer students with an approved transferable degree will be held to these requirements:

**Tier III Course (GER)**
(For students with Initial Postsecondary Enrollment beginning Fall Semester 1995.)
- choose one 3 cr

**University Writing Portfolio/Qualifying Exam**
Students must satisfy this requirement once they have earned 60 credit hours.

**Writing in the Major [M]**
Required for all majors. Consult your major department for details.
- choose one
- choose one

Minimum University graduation requirements: 120 total hours, 40 upper-division credit hours, and a 2.0 overall grade point average.

- Initial postsecondary enrollment is established by matriculation through a formal admission process, after high school graduation, to an accredited institution of higher education.
- An approved transferable AA degree from Washington, Oregon, Idaho, California, Arizona or Hawaii completes all lower division GER requirements except for the additional requirements in the College of Liberal Arts and the College of Sciences.
- [G] meets a GER in either Intercultural Studies or Arts and Humanities; [K] meets a GER in either Intercultural Studies or Social Sciences; (L) course includes a lab; [D] meets the American Diversity requirement and another GER course designation.

Prepared by the Student Advising and Learning Center
The General Education Program

The General Education Program is the core of the undergraduate curriculum. While the greater part of students' courses of study will be devoted to their major fields, the General Education curriculum provides a degree of balance between the narrow focus of the major and the broader traditional objectives of higher education. General Education is intended to accommodate needs and objectives not adequately served by academic specialization. Accordingly, the program offers a wide variety of elective choices and provides many individual pathways through the curriculum. General Education is designed to serve the following aims:

Providing a Foundation for the Major
To function well in the workplace, it is necessary to see beyond it. The General Education curriculum therefore encourages integration of students' anticipated careers within larger, more encompassing, and multiple contexts. Exposure to different values, perspectives, and cultural traditions is a valuable preparation for the kinds of work that college graduates do, and this knowledge can significantly enrich students' awareness of the context and meaning of their careers.

Realizing Individual Student Potentials
A traditional purpose of higher education is to foster and develop potentials in the individual; hence, General Education offers opportunities for personal enrichment and serves a variety of intellectual, aesthetic, and creative interests. The curriculum provides opportunities for introspection and testing one's own values as well as for enlarging one's vision. The several kinds of study required in General Education are designed to contribute to the development of higher intellectual skills, such as critical thinking and essential communications skills.

Preparation for Membership in the Community
General Education prepares students for citizenship in a free society. For these purposes, the curriculum represents an effort to define the ever-changing body of valuable common knowledge. Shared knowledge and values growing out of common educational experience help to bind society together and make communication possible. Writing proficiency and information literacy are accordingly high priorities at WSU, and the foundation of these skills is laid in the General Education courses. The curriculum also provides opportunities for hands-on service learning and emphasizes study of the relevant past as a way for students to understand and engage contemporary issues.

Integration of Knowledge
The breadth requirements in General Education reflect our historical experience of how new knowledge has been acquired and how it is likely to be acquired in the future. Consequently, the curriculum facilitates the acquisition of a working knowledge of a broad range of scholarly methods, from the arts and humanities to the sciences. One of the goals of General Education is to assist students to understand the characteristic ways of acquiring knowledge in different fields of study and their methods of verification and communication. Increasingly, higher education is about learning how to learn; the General Education curriculum therefore prepares students for continued life-long learning, equipping them with research skills and a general competence in evaluating information and constructing knowledge.

Pursuant to these aims, the faculty has established minimum standards in terms of credit hours, grade points, distribution requirements, and has organized the curriculum to help students achieve the following learning goals:

**General Education Learning Goals**

As outcomes of their education, WSU students should be able to:

1. **Reason critically and creatively**
   - Define, analyze, and solve problems
   - Integrate and synthesize knowledge from multiple sources
   - Assess the accuracy and validity of findings and conclusions
   - Understand how one thinks, reasons, and makes value judgments, including ethical and aesthetic judgments
   - Understand diverse viewpoints, including differing philosophical and cultural perspectives

2. **Use quantitative and symbolic reasoning**
   - Understand and apply quantitative principles and methods in the solution of problems
   - Draw conclusions from computational and symbolic representations in order to check the logic and validity of statements and models
   - Employ symbolic reasoning to understand and interpret the variety of discourses in the arts, humanities, and social sciences

3. **Conduct self-directed learning projects (i.e., attain information literacy)**
   - Effectively frame and solve problems
   - Demonstrate knowledge of research and information retrieval strategies in the library and on the Internet
   - Evaluate sources and data

4. **Communicate clearly, concisely and effectively**
   - Critically analyze written information
   - Show awareness of contexts, audiences, styles, and conventions
   - Use correct Standard English

5. **Demonstrate knowledge of self in diverse cultural contexts and understand the relationship of one's own society to other societies and groups**
   - Understand how people think, reason, and make value judgments
   - Understand distinctions between value assertions and statements of fact
   - Demonstrate broad knowledge of the human past, including the historical development of human knowledge in global contexts
   - Demonstrate broad knowledge of differing philosophical and cultural perspectives
   - Demonstrate knowledge of historical and contemporary systems of political, religious, ethical, and aesthetic values
   - Understand perspectives linked to race, gender, ethnicity in American society and in international contexts
   - Understand the interactions of society and the environment
   - Recognize one's responsibilities, rights, and privileges as a citizen

6. **Acquire knowledge in a variety of scholarly modes and contexts and recognize diverse disciplinary viewpoints and methods**
   - Understand and apply scientific principles and methods
   - Understand and apply quantitative principles and methods
   - Understand and apply the principles and methods of the arts and humanities
   - Understand and apply the principles and methods of the social sciences

The General Education Requirements (GERs) are a subset of the University Requirements (see below) and apply to all undergraduate students except those in the Honors College. The goals of the program derive from WSU's Six Goals for the Baccalaureate.
The General Education Program

Students are required to take a minimum of 40 credit hours distributed among the categories listed below.

<table>
<thead>
<tr>
<th>Tier I: 15 semester credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>World Civilizations [A] GenEd 110 and 111</td>
</tr>
<tr>
<td>Written Communication [W]</td>
</tr>
<tr>
<td>Mathematics Proficiency [N]</td>
</tr>
<tr>
<td>Sciences [Q]</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier II: 22 semester credit hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Communication Proficiency [W], [C]</td>
</tr>
<tr>
<td>Arts and Humanities [H], [G]</td>
</tr>
<tr>
<td>Social Sciences [S], [K]</td>
</tr>
<tr>
<td>Arts and Humanities/Social Sciences [H], [G], [S], [K]</td>
</tr>
<tr>
<td>Intercultural Studies [I], [G], [K]</td>
</tr>
<tr>
<td>Sciences [B], [P]</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Tier III: 3 semester credit hours</th>
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</thead>
<tbody>
<tr>
<td>American Diversity course [D]</td>
</tr>
<tr>
<td>total hours</td>
</tr>
</tbody>
</table>

1A total of 9 hours of Arts and Humanities and Social Sciences with a minimum of 3 in either.

2At least 3 hours in Biological Science and 3 hours in Physical Science plus 1 additional hour for three clock hours per week of laboratory.

3To complete the General Education Requirements, students must choose one course that is also designated as an American Diversity [D] course. This course adds no credit hours to the General Education Requirements as American Diversity courses also fulfill GER requirements in another area.

The Tiers in the General Education Program

Courses satisfying the General Education requirements are organized in three tiers. Tier I is designed for first-year students and addresses essential knowledge and skills needed for success in the rest of the undergraduate curriculum. Tier I consists of core courses required of all entering first-year students in World Civilizations (GenEd 110 and 111) and English composition (Engl 101); broad introductory courses in the sciences (designated [Q]); and a selection of courses in mathematics (designated [N]).

Tier II courses are typically introductions to the scholarly disciplines and constitute the bulk of the distribution requirements in the several academic areas: Arts and Humanities, Social Sciences, Biological and Physical Sciences, and Communication Proficiency. Some more advanced (300-level) Tier II courses provide further experience with scholarly approaches, methods, and issues. Courses in this tier will commonly be taken in the student’s first two years of study. Tier I and Tier II courses may be taken concurrently. Tier II courses are designated at the 100, 200, or 300 level to indicate the level of academic challenge.

Tier III provides the final component of study in general education. Tier III courses are 400-level and have as a general prerequisite 60 hours of course work; there may be additional prerequisites for specific courses. Tier III courses are intended to engage students in significant writing and research projects outside of their majors.

General Education and Graduation Requirements

In addition to meeting the requirements of the major programs, students are required to earn a minimum of 120 total semester credits, with a grade point average of 2.0 or better; and earn a minimum of 40 semester credits at the 300-400 level.

Students are also required to take a minimum of 40 semester credit hours distributed among the General Education categories listed below and to fulfill the Writing Program requirements (i.e. University Writing Portfolio and Writing in the Major), that are integrated with or that supplement the General Education Program. (For a more detailed account of the requirements, policies on transfer credit and catalog limitations, etc., see the "Summary of Academic Policies" section of this catalog.)

1. Communication Proficiency [C]—6 hours including at least 3 in written communication [W] and 3 of [W] or [C]. Prior to enrollment in freshman writing courses, all students must take a mandatory writing placement examination for the purpose of placement in appropriate writing courses. The Writing Placement Examination is administered during summer New Student Orientation, at the beginning of fall semester, and prior to spring registration. Examination results will place students in the core writing course, Engl 101, Introductory Writing (or equivalent), or in Engl 101 plus 1 hour of Engl 102, Writing Tutorial. Students whose native language is not English may be placed in Engl 105, Composition for ESL Students. In some instances, students may be exempted from Engl 101 on the basis of their performance in the Placement Examination. Questions should be directed to the WSU Writing Assessment Office, CUE 305, 509-335-7959.

2. World Civilizations [A]—6 hours (GenEd 110 and 111).

3. American Diversity [D]—The American Diversity requirement must be met by passing a designated [D] course which also meets a GER requirement in another category, such as social sciences or arts and humanities.

4. Mathematics Proficiency [N]—This requirement can be satisfied by passing a designated course or courses in mathematics, through satisfactory performance on an Advanced Placement examination, or by passing a calculus course beyond Math 171.

5. Arts and Humanities [H], [G]—3 hours minimum; a total of 9 hours must be completed within Arts and Humanities and Social Sciences.

6. Social Sciences [S], [K]—3 hours minimum; a total of 9 hours must be completed within Arts and Humanities and Social Sciences.

7. Intercultural Studies [I], [G], [K]—3 hours of designated course work.

8. Sciences [B], [P], [Q]—10 hours including at least 3 hours in Biological Sciences and 3 hours in Physical Sciences, plus 1 credit hour of laboratory [L] in either. Students may elect to fulfill the science requirement by taking all 10 credits in Tier II. Non-science majors are encouraged to take a Tier I science course as an elective.

9. Tier III [T]—3 hours of designated upper-division work outside the major. Tier III courses for General Education credit must be taken outside a student’s major. Students may take Tier III courses only after earning approximately 60 total hours and meeting specific course prerequisites.

10. The University Writing Portfolio—Successful completion of the WSU Writing Portfolio is a requirement for graduation at WSU. Students must fulfill this requirement—sometimes called the “Junior Writing Portfolio”—once they have earned 60 credit hours or junior standing. To complete the Writing Portfolio, students must submit three papers they have written in response to college course assignments and also take a timed writing examination consisting of two writing exercises. The Writing Portfolio is a mid-career assessment of student progress and a diagnostic about student readiness for upper division writing challenges. Therefore the Portfolio must be completed before a student enrolls in Writing in the Major [M] courses. This is an upper-division requirement not satisfied by approved AA/AS degrees. For more information, visit www.juniorportfolio.wsu.edu.

11. Writing in the Major [M]—The Writing in the Major requirement is a universal major requirement. While not formally part of the General Education Program, the Writing in the Major requirement builds upon and extends the learning acquired in General Education. The “M” courses further develop students’ communication skills by preparing them for the special challenges of communicating within the disciplines and career areas of their chosen specialty. Once they have certified in a major, all undergraduates must complete at least two Writing in the Major courses in their major fields of study. [Consult the catalog description of your anticipated major for details.]

Total hours of General Education: 40+
General Rules

No course designated as a General Education Requirement (GER) can be taken on a pass, fail basis. Courses in, or crosslisted with, a student's major field may not be used to satisfy General Education Requirements, except in Written Communication Proficiency (English majors may use English composition).

Transfer Students: Two full years of credit and completion of lower-division General Education Requirements normally will be granted to students who have been awarded the Direct Transfer Associate (AA) degree from a Washington community college. The associate of Arts—Oregon transfer degree from an Oregon community college guarantees completion of the lower-division General Education Requirements, but does not guarantee junior standing or 60 semester credits. Certain approved associate's degrees from Arizona, California, Hawaii, and Idaho may also be considered to have fulfilled the lower division GERs for graduation, but do not guarantee junior status (60 semester credits). For details on specific degrees consult the Office of Admissions. These students will still be responsible for meeting the other requirements for graduation, including those in the college and major department. The University Writing Portfolio and the upper-division Tier III course are not lower-division requirements and therefore cannot be satisfied by the approved AA or AS degrees. Please note that other kinds of degrees from community colleges, or degrees from states other than Washington and Oregon, do not automatically fulfill General Education Requirements.

Foreign Language Fluency Track: To encourage the attainment of fluency in a foreign language, students who have completed both the second year of a foreign language (e.g., Span 203 and 204) and an approved study abroad program in the same language may substitute 6 hours of study abroad credit for 3 hours of Arts and Humanities and 3 hours of Intercultural Studies general education credit. Students majoring in foreign languages are not eligible. See the Department of Foreign Languages and Cultures or International Programs for details.

General Education Categories and Course Lists

COMMUNICATION PROFICIENCY [W, C] (6 hours, including at least 3 in written communication [W] and 3 in either [W] or [C])

The Communication Proficiency requirement prepares students to communicate effectively orally or in writing in a variety of circumstances and occasions; to understand and respond appropriately to specific audiences; and to know and be able to use specific genres and conventions, including those of academic discourse. Writing or speaking from sources requires a general understanding of how information is created and organized, as well as the ability to access, evaluate, synthesize and incorporate information into presentations or documents. Communication in higher education requires students to master the elements of information literacy. Courses in this category provide extensive practice in those skills as well as experience in self-evaluation, revision, and critiquing the work of peers.

This requirement supports the communication proficiency, critical thinking, and information literacy goals outlined in the Six Learning Goals for the Baccalaureate. Other General Education courses also support these learning goals by providing opportunities for writing and revision.

WRITTEN COMMUNICATION PROFICIENCY [W]

<table>
<thead>
<tr>
<th>Tier I</th>
<th></th>
<th>Tier II</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101</td>
<td>Introductory Writing</td>
<td>Engl 200</td>
<td>Expository Writing</td>
</tr>
<tr>
<td>Engl 103</td>
<td>Rhetorics of Change</td>
<td>Engl 201</td>
<td>Writing and Research</td>
</tr>
<tr>
<td>Engl 105</td>
<td>Composition for ESL Students</td>
<td>Engl 298</td>
<td>Writing and Research Honors</td>
</tr>
<tr>
<td>Engl 198</td>
<td>English Composition Honors</td>
<td>Engl 301</td>
<td>Writing and Rhetorical Conventions</td>
</tr>
<tr>
<td>Engl 302</td>
<td>Writing About Literature</td>
<td>Engl 302</td>
<td>Technical and Professional Writing</td>
</tr>
<tr>
<td>Engl 402</td>
<td>Technical and Professional Writing ESL</td>
<td>Engl 403</td>
<td>Writing and Reasoning</td>
</tr>
<tr>
<td>Phil 200</td>
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</tbody>
</table>

COMMUNICATION PROFICIENCY [C]

<table>
<thead>
<tr>
<th>Tier II</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>ComSt 102</td>
<td>Public Speaking: Theory, Models, and Practice</td>
<td>ComSt 235</td>
<td>Principles of Group Communication</td>
</tr>
<tr>
<td>ComSt 235</td>
<td>Advanced Public Speaking</td>
<td>ComSt 302</td>
<td>Argumentation</td>
</tr>
<tr>
<td>ComSt 324</td>
<td>Multimedia Authoring: Exploring New Rhetorics</td>
<td>Engl 355</td>
<td>Communication in Human Relations</td>
</tr>
<tr>
<td>H D 205</td>
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</tbody>
</table>

WORLD CIVILIZATIONS [A] (6 hours)

The World Civilizations Tier I core courses provide an overview of the human past and an introduction to the academic culture of the University, including the fundamentals of academic discourse. Course work is designed to engage students in integrated study of the social, political, philosophical, and religious systems of the major world civilizations, along with their interactions, achievements, and common problems. The World Civilizations courses introduce students to methods of historical inquiry and engage them in the processes of constructing interpretations of the past. These courses build foundational skills in communication, interpretation, information literacy, and critical thinking, while establishing a knowledge base for students to understand themselves in relation to society.

Students may explore the various emphases in the sections of World Civilizations by visiting the World Civilizations home page.

Note: Transfer students entering the University with junior standing (60 semester credits or more) may choose to substitute designated 200- and 300-level courses from the Intercultural Studies course list for one or both of the World Civilizations courses (GenEd 110 and 111), provided that the subject matter of the courses addresses non-U.S. culture(s).

<table>
<thead>
<tr>
<th>Tier I</th>
<th></th>
<th>Tier II</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>GenEd 110</td>
<td>World Civilizations I</td>
<td>GenEd 111</td>
<td>World Civilizations II</td>
</tr>
</tbody>
</table>

AMERICAN DIVERSITY [D]

Courses addressing American Diversity seek to engage students in critical inquiry into contemporary and historical issues of social and cultural diversity in the United States. Understanding our complexly constituted American community is the focus of this requirement; thus, “D” courses explore the construction of differences in American society and provide an overview of the social, economic, and political forces that have shaped the experience of diverse communities throughout U.S. history. Coursework introduces students to issues of power and privilege, systems of inequality, and forms of institutionalized discrimination within American society. Courses in this category provide conceptual frameworks for analysis of these topics; they are designed to raise questions, stimulate thought and reflection, and challenge stereotypes and myths.

Many D courses are grounded in specific social science or humanities disciplines, while others employ integrated and multidisciplinary approaches. In acquiring knowledge about themselves and American society, students will learn to think critically and to construct knowledge through a variety of scholarly methods and approaches, and to expand their communication and interpretive skills.

Note: Courses meeting the American Diversity requirement are distributed in several of the General Education categories and are double-designated with other distribution requirements, such as Humanities, Social Sciences, or Tier III.

<table>
<thead>
<tr>
<th>Tier I</th>
<th></th>
<th>Tier II</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Am St/Engl/Hist/W St 216</td>
<td>[S] American Cultures</td>
<td>Am St 473</td>
<td>[T] Arts in American Cultures</td>
</tr>
<tr>
<td>Am St 473</td>
<td>[T] Social Movements and US Culture</td>
<td>Am St 474</td>
<td>[T] Digital Diversity</td>
</tr>
<tr>
<td>Am St/Engl 475</td>
<td></td>
<td>AMT 417</td>
<td>[T] Social and Psychological Aspects of Dress</td>
</tr>
<tr>
<td>Anth/W St 214</td>
<td>[S] Gender and Culture in America</td>
<td>Anth 327/CES 378</td>
<td>[S] Contemporary Native Peoples of the Americas</td>
</tr>
<tr>
<td>Anth 334</td>
<td></td>
<td>CES 111</td>
<td>[S] Introduction to Asian/Pacific American Studies</td>
</tr>
<tr>
<td>CES 131</td>
<td>[S] Introduction to Black Studies</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
The purpose of the Mathematics Proficiency requirement is to establish a foundation of understanding of mathematics beyond arithmetic and algebraic manipulations and an understanding of the uses of mathematics in applications to real-world problems. Courses in this category assist students in understanding and applying quantitative principles and methods in the solution of problems and drawing conclusions from computational and symbolic representations. Courses in mathematics help students acquire concepts and skills in abstract, logical, and quantitative thinking. Students learn to reason critically and creatively to solve problems.

**Note:** This requirement can be satisfied by passing a designated course or courses in mathematics (see below), through satisfactory performance on an Advanced Placement examination, or by passing a calculus course beyond Math 171.

### Tier I

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 105</td>
<td>(210) Exploring Mathematics</td>
</tr>
<tr>
<td>Math 140</td>
<td>Mathematics for Life Scientists</td>
</tr>
<tr>
<td>Math 171</td>
<td>Calculus I</td>
</tr>
<tr>
<td>Math 202</td>
<td>Introduction to Mathematical Analysis</td>
</tr>
<tr>
<td>Math/Stat 205</td>
<td>Statistical Thinking</td>
</tr>
<tr>
<td>Math 206</td>
<td>Mathematical Analysis for Architects</td>
</tr>
<tr>
<td>Math 251</td>
<td>Mathematics for Elementary School Teachers I</td>
</tr>
<tr>
<td>Math 252</td>
<td>Mathematics for Elementary School Teachers II</td>
</tr>
<tr>
<td>Stat/Math 212</td>
<td>Introduction to Statistical Methods</td>
</tr>
</tbody>
</table>

### ARTS AND HUMANITIES [H, G*] (3-6 hours)

The production of art, creative expression, and the use of symbol systems and conventions to explore value and meaning are fundamental human activities. Similarly, interpretation of such systems or products is also an essential human skill—and one of our primary ways of making sense of experience. Music, theatre, the visual and kinetic arts offer direct participation in these activities while providing contexts and perspectives by which the arts acquire meaning. The humanities disciplines—philosophy, literature, history, and the study of language—offer multiple methods of interpretation and analysis. These disciplines also engage students in the history of ideas, acquaint them with significant cultural traditions, and give them direct experience of important cultural achievements. Study in the arts and humanities encourages students to explore their own cultural traditions and enables them to participate more fully in their own or other cultures.

Students who engage in these disciplines learn to use various modes of rational inquiry to understand complex human artifacts and, ultimately, to raise questions about the nature of rational inquiry itself. Thus, study in these disciplines develops students' communication abilities and interpretive and critical thinking skills.

### Tier II Arts and Humanities [H]

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>Arch/F D 202</td>
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<td>Arch 220</td>
<td>Architectural History I</td>
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<tr>
<td>CES/Engl 220</td>
<td>[D] Introduction to Multicultural Literature</td>
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<tr>
<td>CES 235/Hist 205/W St 235</td>
<td>[D] African American History</td>
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<tr>
<td>CES 336</td>
<td>[D] Black Popular Culture</td>
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<tr>
<td>CES 338</td>
<td>[D] African American Cinema</td>
</tr>
<tr>
<td>CES 379</td>
<td>[D] Native Americans and Film</td>
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<td>DTC 375</td>
<td>Language, Texts, and Technology</td>
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<td>Engl 108</td>
<td>Introduction to Literature</td>
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<td>Engl 110</td>
<td>Reading Now</td>
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<td>Engl 199</td>
<td>English Composition and Literature Honors</td>
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<td>Engl 205</td>
<td>Introduction to Shakespeare</td>
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<tr>
<td>Engl 210</td>
<td>Readings in American Literature</td>
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<td>Engl 305</td>
<td>Shakespeare</td>
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<tr>
<td>Engl 306</td>
<td>Shakespeare</td>
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<tr>
<td>Engl 308/W St 306</td>
<td>Introduction to Literary Criticism</td>
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<td>Engl 317</td>
<td>Gay and Lesbian Literature</td>
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<td>Engl 361</td>
<td>Everyday Rhetorics</td>
</tr>
<tr>
<td>Engl/W St 309</td>
<td>Women Writers</td>
</tr>
</tbody>
</table>
SOCIAL SCIENCES [S, K#] (3-6 hours)

The Social Sciences apply scientific principles and methods to understand individual and collective human behavior. These disciplines cover a broad range of subjects, from psychology to sociology and political science, to history and anthropology and economics. Generally speaking, the social sciences examine mental processes, culture, and behavior; study the structures of society and how individuals, groups, institutions, and societies interact with each other and with their environments; and reconstruct how societies functioned in the past. The Social Sciences employ diverse methods and approaches, both qualitative and quantitative, as well as a variety of explanatory theories and models.

Course work in the Social Sciences offers valuable perspectives on individual and collective human behavior within a variety of social contexts and environments, while providing analytical tools for understanding these processes. In acquiring knowledge about themselves and society, students will learn to think critically, to use quantitative methods to assess validity, and to construct knowledge through a variety of scholarly methods and approaches. They also assist students to expand their communication skills in self-directed learning projects.

Tier II Arts and Humanities or Intercultural Studies [G]

- Anth 201 Art and Society
- Anth 301 Arts and Media in Global Perspective
- Asia 131 Masterpieces of Asian Literature in Translation
- Asia 220 Global Theory/Regional Reality through Culture
- CES 151 Introduction to Chicano/Latino Studies
- CES 171 Introduction to Native American Studies
- CES 313/Engl 311 Asian Pacific/American Literature
- CES 331/Engl 321 African American Literature
- CES 353/Engl 345 Chicana/o – Latina/o Literature
- CES 373/Engl 341 Native American Literature
- Chin/Asia/Japn 111 Asian Film
- Chin 121 Modern Chinese Culture
- Chin/Japn 131 Masterpieces of Asian Literature
- F A 301 Arts of Native North America
- F A/Asia 302 The Arts of Asia
- For L 101 Introduction to the World of Languages
- For L 120 Introduction to Foreign Cultures
- For L 220 Global Theory/Regional Reality through Culture
- Fren 311 Francophone Film
- Fren 351 Introduction to Francophone Literature
- GenEd 200 Studying World Civilizations Abroad
- Hist/Asia 273 Foundations of Islamic Civilization
- Hist/Asia 370 Civilization of Classical India
- Hist/Asia 373 Chinese Civilization
- Hist/Asia 374 Japanese Civilization
- Hum 350 Sacred Texts and Cultures of World Religions
- Mus 265/CES 271 Native Music of North America
- Mus/W St 363 Women and Music
- Phil/Asia 280 Philosophy and Religion of Islam
- Phil/Asia 314 Philosophies and Religions of India
- Phil/Asia 315 Philosophies and Religions of China and Japan
- Rus 121 Contemporary Russian Culture
- Span 111 Latin American Film
- Span 121 Latin American Culture
- Theat 145 Contemporary World Theatre

Tier II Social Sciences [S]

- Ag Ec 201 Economics in Agriculture
- Ag Ec/Hist 320 American Agriculture and Rural Life
- Am St/Engl/Hist/W St 216 [D] American Cultures
- Anth 198 Anthropology Honors
- Anth/W St 214 [D] Gender and Culture in America
- Anth 327/CES 378 [D] Contemporary Native Peoples of the Americas
- Anth 330 Origins of Culture and Civilization
- Anth 334 [D] Time and Culture in the Northwest
- Anth/For L 350 Speech, Thought, and Culture
<table>
<thead>
<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>CES 111</td>
<td>[D] Introduction to Asian/Pacific American Studies</td>
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<tr>
<td>CES 131</td>
<td>[D] Introduction to Black Studies</td>
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<tr>
<td>CES 204</td>
<td>Critical Studies in Whiteness</td>
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<tr>
<td>CES 205</td>
<td>[D] Farm Workers</td>
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<tr>
<td>CES 254</td>
<td>[D] Comparative Latino/a Cultures</td>
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<tr>
<td>CES/Anth 255</td>
<td>[D] Chicana/o History</td>
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<tr>
<td>CES 260</td>
<td>[D] Race and Racism in US Popular Culture</td>
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<td>CES/History 280</td>
<td>[D] Race and the Law in American History</td>
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<tr>
<td>CES 302</td>
<td>[D] Social Psychology of Prejudice</td>
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<tr>
<td>CES 335/Anth 313</td>
<td>Civil Rights Movement in America</td>
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<td>CES 337</td>
<td>[D] Black Social Psychology</td>
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<td>CES/W St 372/Anth 312</td>
<td>[D] Native American Women in Traditional and Contemporary Societies</td>
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<td>CES 380</td>
<td>[D] Immigration and Citizenship in the Global Economy</td>
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<td>Com 101</td>
<td>Mass Communications and Society</td>
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<td>Crm J 205</td>
<td>Realizing Justice in a Multicultural Society</td>
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<tr>
<td>CRS/H D 334</td>
<td>Principles of Community Development</td>
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<tr>
<td>CRS 335</td>
<td>Cross-National Perspectives on Community</td>
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<td>CRS 336</td>
<td>Agriculture, Environment, and Community</td>
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<tr>
<td>DistSoc 250</td>
<td>[D] Perspectives on Disability</td>
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<tr>
<td>Econ/Soc 101</td>
<td>Fundamentals of Microeconomics</td>
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<td>Econ/Soc 102</td>
<td>Fundamentals of Macroeconomics</td>
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<td>Econ 198</td>
<td>Economics Honors</td>
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<td>H D 101</td>
<td>Human Development Across the Lifespan</td>
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<tr>
<td>H D 204</td>
<td>Family Systems: Understanding Family Interaction</td>
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<tr>
<td>H D 350</td>
<td>[D] Diversity in Contemporary Families</td>
</tr>
<tr>
<td>Hist 110</td>
<td>American History to 1877</td>
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<tr>
<td>Hist 111</td>
<td>American History Since 1877</td>
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<td>Hist 150</td>
<td>[D] Peoples of the United States</td>
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<td>Hist 198</td>
<td>History Honors</td>
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<td>Hist 290</td>
<td>Honors History II</td>
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<tr>
<td>Hist/W St 298</td>
<td>[D] History of Women in American Society</td>
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<tr>
<td>Hist 315</td>
<td>[D] Poverty and Policy in American History</td>
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<tr>
<td>Hist 326</td>
<td>Abraham Lincoln and the Lincoln Legacy</td>
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<tr>
<td>Hist/W St 350</td>
<td>European Women's History, 1400-1800</td>
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<tr>
<td>Hist 381</td>
<td>Science in Western Civilization Through Newton</td>
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<tr>
<td>Hist 382</td>
<td>Science in Western Civilization from Newton to Einstein</td>
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<td>NATRS 312</td>
<td>[D] Natural Resource and Society</td>
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<tr>
<td>Pol S 101</td>
<td>American National Government</td>
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<tr>
<td>Pol S 102</td>
<td>Introduction to Comparative Politics</td>
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<td>Pol S 103</td>
<td>International Politics</td>
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<td>Pol S 198</td>
<td>Political Science Honors</td>
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<td>Pol S/W St 305</td>
<td>Gender and Politics</td>
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<td>Pol S 333</td>
<td>Development of Marxist Thought</td>
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<td>Psych 105</td>
<td>Introductory Psychology</td>
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<td>Psych 198</td>
<td>Psychology Honors</td>
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<td>Psych 309</td>
<td>[D] Cultural Diversity in Organizations</td>
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<td>Psych/W St 324</td>
<td>[D] Psychology of Women</td>
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<td>Psych/Soc 350</td>
<td>Social Psychology</td>
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<td>Psych 361</td>
<td>Principles of Developmental Psychology</td>
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<td>Soc 101</td>
<td>[D] Introduction to Sociology</td>
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<td>Soc 102</td>
<td>[D] Social Problems</td>
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<td>Soc/W St 150</td>
<td>[D] Marital and Sexual Life Styles</td>
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<td>Soc 198</td>
<td>Introduction to Sociology Honors</td>
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<td>Soc 315</td>
<td>Ecology of Human Societies</td>
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<tr>
<td>Soc 331</td>
<td>Population, Resources, and the Future</td>
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<tr>
<td>Soc 340</td>
<td>[D] Social Inequality</td>
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<td>Soc 341</td>
<td>Sociology of Religion</td>
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<tr>
<td>Soc 343</td>
<td>[D] Sociology of Professions and Occupations</td>
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<tr>
<td>Soc 345</td>
<td>[D] Sociology of Sport</td>
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<tr>
<td>Soc 346</td>
<td>[D] Sociology of Education</td>
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<tr>
<td>Soc/W St 351</td>
<td>[D] The Family</td>
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<tr>
<td>Soc 360</td>
<td>Theories of Deviance</td>
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<tr>
<td>Soc 362</td>
<td>Juvenile Delinquency</td>
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<tr>
<td>Soc 373</td>
<td>[D] Media, Culture, and Society</td>
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<tr>
<td>Soc/W St 384</td>
<td>[D] Sociology of Gender</td>
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<tr>
<td>W St 200</td>
<td>[D] Gender and Power: Introduction to Women's Studies</td>
</tr>
<tr>
<td>W St 204</td>
<td>Family Systems: Understanding Family Interactions</td>
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<td>W St 220</td>
<td>[D] Women, Science, and Culture</td>
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<tr>
<td>W St/CES/Soc 300</td>
<td>Intersections of Race, Class, and Gender</td>
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<tr>
<td>W St/Soc 302</td>
<td>[D] Contemporary Masculinity and Men's Issues</td>
</tr>
<tr>
<td>W St/MgtOp 315</td>
<td>[D] Women in Management and Leadership</td>
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<tr>
<td>W St 383</td>
<td>[D] Sociology of Sexuality</td>
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<td>W St/Soc 390</td>
<td>[D] Gender and Work</td>
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<td>W St 220</td>
<td>[D] Sociology of Gender</td>
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</tbody>
</table>

**Tier II Social Sciences or Intercultural Studies, [K]**

- Anth 101 General Anthropology
- Anth 203 Peoples of the World
- Anth 302 Childhood and Culture
- Anth/Asia/History 306 Cultures and Peoples of the Middle East
- Anth 307 Contemporary Cultures and Peoples of Africa
- Anth 309 Cultural Ecology
- Anth/W St 316 Gender in Cross-Cultural Perspective
- Anth 320/CES 377 Native Peoples of North America
- Anth 331/CES 376 America Before Columbus
- Anth 390 Maya, Aztec and Inca Civilizations
- Asia 301 East Meets West
- CES 211/History 201 Asian Pacific/American History
- Hist 230 Latin America, The Colonial Period
- Hist 231 Latin America, The National Period
- Hist/Asia 270 Introduction to South Asian Culture
- Hist/Asia 271 Southeast Asian History: Vietnam to Indonesia
- Hist/Asia 275 Introduction to East Asian Culture
- Hist 308/CES 375 North American Indian History, Precontact to Present
- Hist 331 Cultural History in Latin America
- Hist/W St 335 Women in Latin American History
- W St 220 Women, Science, and Culture

**INTERCULTURAL STUDIES [I, G*, K#] (3 hours)**

The Intercultural Studies requirement complements the study of diversity in American society and is intended to enlarge students' international perspectives and increase their sensitivity to cultural differences around the globe. Intercultural Studies courses foster an awareness of the diversity of human values and encourage a coherent view of cultures different from our own. Courses in this category encourage students to understand the histories, cultures, values, and politics outside of the United States and Europe. Course work addresses non-Western experiences, identities, and institutions, and fosters critical engagement with the economic, political, and social processes that have created our global community. Some Intercultural Studies courses focus on U.S. ethnic minorities of non-Western origin as a way to global understanding.

Many Intercultural Studies courses are grounded in specific social science or humanities disciplines, while others employ integrated and multidisciplinary approaches. In acquiring knowledge about global society, students will learn to think critically and to construct knowledge through a variety of scholarly methods and approaches, and to expand their communication and interpretive skills.

**Note:** Substitution policy for transfer students or students in approved study abroad programs: only equivalent, formal academic course work which focuses on the study of non-Western cultures or the experiences of American ethnic minorities may satisfy the Intercultural Studies requirement. Non-Western culture must be the formal subject of the academic course. Non-academic work, academic work on other topics, foreign travel, or life-experience abroad cannot qualify.

*[^G] designates courses which meet General Education Requirements in either Arts and Humanities or Intercultural Studies.

*[^K] designates courses which meet General Education Requirements in either Social Sciences or Intercultural Studies.*
Tier II Inter Tribal Studies [I,G,K]

Anth 101 [K] General Anthropology
Anth 130 [K] Great Discoveries in Archaeology
Anth 201 Art and Society
Anth 203 [K] Peoples of the World
Anth 301 [G] Arts and Media in Global Perspective
Anth 302 [K] Childhood and Culture
Anth/Asia/Hist 306 [K] Cultures and Peoples of the Middle East
Anth 307 [K] Contemporary Cultures and Peoples of Africa
Anth 309 [K] Cultural Ecology
Anth/W St 316 [K] Gender in Cross Cultural Perspective
Anth 320/CES 377 [K] Native Peoples of North America
Anth 331/CES 376 [K] America Before Columbus
Asia 301 [K] East Meets West
CES 101 Introduction to Comparative American Cultures
CES 151 [G] Introduction to Chicano Studies
CES 171 [G] Introduction to Native American Studies
CES 198 Introduction to Comparative American Cultures - Honors
CES 211/ Hist 201 [K] Introduction to Asian American History
CES 227 Introduction to African Studies
CES 240 Global Indigenous Issues
CES 313/Engl 311 [G] Asian Pacific/American Literature
CES 325 Traveling Cultures: Tourism in Global Perspective

CES 331/Engl 321 [G] African American Literature
CES 353/Engl 345 [G] Chicano/Chicana Literature
CES 373/Engl 341 [G] Native American Literature
Chin/Asia/Japn 111 [G] Asian Film
Chin/Asia/Hum 120 [G] Traditional Chinese Culture
Chin/Japn 131 [G] Masterpieces of Asian Literature
Com 321 Intercultural Communication
Crop/Soil 360 World Agricultural Systems
CRS 335 [K] Cross-National Perspectives on Community
Engl 222 [G] World Literature in English
Engl [G] South Asian Film
FA 301 [G] Arts of Native North America
FA/Asia 302 [G] The Arts of Asia
For L 101 [G] Introduction to the World of Languages
For L 120 [G] Introduction to Foreign Cultures
For L 220 [G] Global Theory/Regional Reality through Culture
Fren 351 [G] Introduction to Francophone Literature
Hist 230 [K] Latin America, The Colonial Period
Hist 231 [K] Latin America, The National Period
Hist/Asia 270 [K] Introduction to South Asian Culture
Hist/Asia 271 [K] Southeast Asian History: Vietnam to Indonesia
Hist/Asia 272 Introduction to Middle Eastern History
Hist/Asia 273 [G] Foundations of Islamic Civilization
Hist/Asia 275 [K] Introduction to East Asian Culture
Hist 308/CES 375 [K] North American Indian History, Precontact to Present
Hist 331 [K] Cultural History in Latin America
Hist/W St 335 [K] Women in Latin American History
Hist/Asia 370 [G] Civilization of Classical India
Hist/Asia 373 [G] Chinese Civilization
Hist/Asia 374 [G] Japanese Civilization
Hum 350 [G] Sacred Texts and Cultures of World Religions
Mus 265/CES 271 [G] Native Music of North America
Mus/W St 363 [G] Women and Music
Phil/Asia 280 [G] Philosophy and Religion of Islam
Phil/Asia 314 [G] Philosophies and Religions of India
Phil/Asia 315 [G] Philosophies and Religions of China and Japan
Rus 321 [G] Contemporary Russian Culture
Span 111 [G] Latin American Film
Span 121 [G] Latin American Culture
Theat 145 [G] Contemporary World Theatre
W St 220 [K] Women, Science, and Culture
W St 332/Anth 317 Global Feminisms
W St 340 Third World Women and Film

SCIENCE [Q, B, P] (10 hours)

Science is the application of critical and systematic thinking to empirical observation and experiment. The scientific approach is our fundamental way of understanding matter and the universe, the Earth, and living things. It is also the basis of most new technological developments. Familiarity with the scientific method encourages adoption of views about the world that are subject to revision on the basis of additional information. Accordingly, intellectual integrity and honesty are integral to scientific study, while the ability to distinguish between testable and non-testable ideas is an essential skill. Courses in the science categories provide students with an understanding of particular scientific terms, methods, concepts, and theories, and introduce them to recent scientific and technological developments and their implications.

Students in these courses learn ways of taking measurements, gathering data, and organizing information; they learn to use mathematics to construct scientific models and to test hypotheses and models.

Science courses teach students to think critically, to assess the accuracy and validity of findings and conclusions, to understand and apply quantitative principles to solve problems, and to acquire knowledge through a variety of scholarly methods and approaches.

Tier I [Q]

Astr 150 Science and the Universe
Biol 150 Evolution
Entom 150 Insects, Science, and World Cultures
Host 150 Plants and Society
Phys 150 Physics and Your World
PL 150 Molds, Mildews, Mushrooms: The Fifth Kingdom
Sci 101 Origins in the Natural World
Sci 102 Dynamic Systems in the Natural World

[B] BIOLOGICAL SCIENCES (Tier II)

Anth 260 [L] Introduction to Physical Anthropology
A S 205 Companion Animal Nutrition
Biol 101 Direction in Biological Sciences
Biol 102 [L] General Biology
Biol 105 [L] Biological Science Laboratory
Biol 106 [L] Introductory Biology: Organismal Biology
Biol 107 [L] Introductory Biology: Cell Biology and Genetics
Biol 120 [L] Introduction to Botany
Biol 135 Animal Natural History
Biol 201 Contemporary Biology
Biol 298 [L] Biological Science Honors
Biol 308 Marine Biology
Biol 390 [L] Stream Monitoring
Entom 101 Insects and People: A Perspective
Entom 102 Entomology in Human Health
ES/ RP 101 [L] Environment and Human Life
MBio 101 [L] Introductory Microbiology
MBio 105 [L] Introductory Microbiology Laboratory
MBio 130 [L] Nutrition for Living
MBio 320 DNA and Society
NATRS 303 Conservation of Renewable Resources
NATRS 300 Natural Resource Ecology
Psych 265 Biopsychological Effects of Alcohol and Other Drugs
Psych 372 Introduction to Physiological Psychology
Sci 220 [L] DNA Today
SoilS 201 Soil: A Living System

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The General Education Program

**[P] PHYSICAL SCIENCES (Tier II)**

<table>
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<tr>
<th>Course Code</th>
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<tbody>
<tr>
<td>Astr 135</td>
<td>(L) Astronomy</td>
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<tr>
<td>Astr 345</td>
<td>Principles of Astronomy</td>
</tr>
<tr>
<td>Astr 390</td>
<td>(L) The Night Sky</td>
</tr>
<tr>
<td>Chem 101</td>
<td>(L) Introduction to Chemistry</td>
</tr>
<tr>
<td>Chem 102</td>
<td>(L) Chemistry Related to Life Sciences</td>
</tr>
<tr>
<td>Chem 105</td>
<td>(L) Principles of Chemistry I</td>
</tr>
<tr>
<td>Chem 106</td>
<td>(L) Principles of Chemistry II</td>
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<tr>
<td>Chem 116</td>
<td>(L) Chemical Principles Honors</td>
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<tr>
<td>Chem 350</td>
<td>(L) Chemistry in Contemporary Society</td>
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<td>Geol 101</td>
<td>(L) Introduction to Geology</td>
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<td>Geol 102</td>
<td>(L) Physical Geology</td>
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<td>Geol 210</td>
<td>(L) Earth’s History and Evolution</td>
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<td>Geol 230</td>
<td>Introductory Oceanography</td>
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<td>Geol 322</td>
<td>Geology of the Pacific Northwest</td>
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<td>Geol 323</td>
<td>(L) Geology of the Pacific Northwest</td>
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<td>Geol 390</td>
<td>Living on the Edge: Global Climate Change and Earth History</td>
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<td>Ph S 298</td>
<td>(L) Physical Science Honors</td>
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<td>Planets and Planetary Systems</td>
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<td>Phys 201</td>
<td>(L) Physics for Scientists and Engineers</td>
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<td>Phys 202</td>
<td>(L) Physics for Scientists and Engineers</td>
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<tr>
<td>Phys 205</td>
<td>(L) Physics for Scientists and Engineers I - Honors</td>
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<tr>
<td>Phys 206</td>
<td>(L) Physics for Scientists and Engineers II - Honors</td>
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<tr>
<td>Phys 380</td>
<td>Physics and Society</td>
</tr>
<tr>
<td>Sci 230</td>
<td>Introduction to Ocean Science</td>
</tr>
</tbody>
</table>

**TIER III COURSES [T] (3 hours)**

This upper-division requirement is designed to assist students in integrating information from diverse sources and to construct knowledge in a subject and discipline apart from their majors. Tier III courses teach students how to approach a new field of knowledge, as they will most likely be required to do in their future professional lives, and to find their way successfully. Tier III courses require students to gather, synthesize, and think critically about information, and to write about topics previously unfamiliar to them. The aim is to help students become lifelong, self-directed learners.

Many Tier III courses employ an interdisciplinary or multidisciplinary approach to topical issues or other subject matter, while others are grounded in specific methodologies from the sciences, social sciences, arts and humanities.

Tier III courses may address all six of the learning goals or focus on only a few. Students engage in challenging learning projects in which they effectively frame and solve problems, demonstrate knowledge of research and information retrieval strategies, and evaluate sources and data outside the familiar knowledge domains of their majors.

Tier III courses have as a general prerequisite 60 hours of course work; students should be aware that specific courses may carry additional prerequisites.

[D] designates courses which also fulfill the American Diversity Requirement.

**TIER III COURSES USING SOCIAL SCIENCE METHODS**

These courses address many current issues as well as topics of perennial interest. Preparatory work for these courses should include study of social science methods of analysis and some familiarity with historical and cultural studies. Basic understanding of the roles of class, gender, and ethnicity, of the nature and functions of social institutions, and of political and economic processes is also useful.

<table>
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<th>Course Code</th>
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<tbody>
<tr>
<td>Ag Ec 420</td>
<td>Growth and Change in the American West (Prereq EconS 101)</td>
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<tr>
<td>Am St 474</td>
<td>[D] Social Movements and US Culture (Prereq CES 101, W St 200)</td>
</tr>
<tr>
<td>AMT 417</td>
<td>[D] Social and Psychological Aspects of Dress</td>
</tr>
<tr>
<td>Anth 404</td>
<td>The Self in Culture (Prereq 100-level Anth, Psych, or Soc)</td>
</tr>
<tr>
<td>Anth 405</td>
<td>Medical Anthropology</td>
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<tr>
<td>Anth 417</td>
<td>Anthropology and World Problems (Prereq 3 hours Anth)</td>
</tr>
<tr>
<td>Anth 468</td>
<td>Sex, Evolution, and Human Nature (Prereq 3 hours Anth or Biol)</td>
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<tr>
<td>Anth 469</td>
<td>Genes, Culture, and Human Diversity</td>
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<tr>
<td>Asia/Hist 479</td>
<td>History of East Asian Economic Development Since 1945</td>
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<td>CES 403</td>
<td>Cultural Issues in Psychology</td>
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<td>CES 405/Engl 410</td>
<td>Cultural Criticism and Theory</td>
</tr>
<tr>
<td>CES/W St 411</td>
<td>[D] Asian Pacific American Women (Prereq CES or W St course)</td>
</tr>
<tr>
<td>CES 426</td>
<td>Workers Across North America</td>
</tr>
<tr>
<td>CES/W St 435</td>
<td>[D] African American Women in US Society (Prereq CES 101, W St 200; Rec CES 131)</td>
</tr>
<tr>
<td>CES 440</td>
<td>[D] Social Justice and American Culture</td>
</tr>
<tr>
<td>CES 444</td>
<td>White Power Movements and Ideologies</td>
</tr>
<tr>
<td>CES 453</td>
<td>[D] Health Issues for Chicanos/as</td>
</tr>
<tr>
<td>CES/W St 454</td>
<td>La Chicana in U.S. Society (Prereq junior standing)</td>
</tr>
<tr>
<td>CES 465</td>
<td>Race, Science, and Society</td>
</tr>
<tr>
<td>CES 470</td>
<td>Federal Native American Resource Settlement Models</td>
</tr>
<tr>
<td>CES 475</td>
<td>[D] Indians of the Northwest</td>
</tr>
<tr>
<td>Com 471/CES 404</td>
<td>[D] Stereotypes and the Media</td>
</tr>
<tr>
<td>ComSt/CES 421</td>
<td>Intercultural Processes in Global Contexts</td>
</tr>
<tr>
<td>Cpt S 401</td>
<td>Computers and Society (Prereq Phil 260 or Soc 101; completion of writing portfolio)</td>
</tr>
<tr>
<td>Crm J/W St 403</td>
<td>Violence Toward Women (Prereq Crm J 101 or W St 200)</td>
</tr>
<tr>
<td>CRIS 431</td>
<td>[D] The Demographics of American Diversity (Prereq junior standing)</td>
</tr>
<tr>
<td>DisSt 489</td>
<td>[D] Disability and Society</td>
</tr>
<tr>
<td>EconS 428</td>
<td>Global Capitalism Today: Perspectives and Issues (Prereq GenEd 111; EconS 101 or 102)</td>
</tr>
<tr>
<td>EconS 430</td>
<td>Managing the Global Environment</td>
</tr>
<tr>
<td>H D 403</td>
<td>Families in Poverty (Prereq H D 101, 204 or 6 hours in H D or social sciences)</td>
</tr>
<tr>
<td>Hist 409</td>
<td>American Environmental History</td>
</tr>
<tr>
<td>Hist 425</td>
<td>The City in History</td>
</tr>
<tr>
<td>Hist 426</td>
<td>Workers Across North America</td>
</tr>
<tr>
<td>Hist 435</td>
<td>European Expansion Overseas, 1400-1800</td>
</tr>
</tbody>
</table>

**TIER III COURSES GROUNDED IN SCIENTIFIC METHODOLOGIES**

Preparatory work for these courses should include study of the basic scientific principles of the physical and biological sciences, as well as a solid background in mathematics. Students are expected to understand the fundamental structures of matter and the principles governing the transformations of matter and energy. Familiarity with intellectual history or the history of science may also be useful.

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>Astr 450</td>
<td>Life in the Universe (Prereq Math proficiency)</td>
</tr>
<tr>
<td>Biol 401</td>
<td>Plants and People (Prereq Biol 102, 106, or 120)</td>
</tr>
<tr>
<td>Biol 408</td>
<td>Contemporary Genetics</td>
</tr>
<tr>
<td>C E 401</td>
<td>Global Climate Change</td>
</tr>
<tr>
<td>CES 403</td>
<td>Cultural Issues in Psychology</td>
</tr>
<tr>
<td>Entom 401</td>
<td>Biology and Society, Past and Present (Prereq Biol 106; Rec Biol 130)</td>
</tr>
<tr>
<td>Mfg E 476</td>
<td>Industrial Ecology and Sustainable Manufacturing</td>
</tr>
<tr>
<td>MSE 440</td>
<td>Materials: The Foundation of Society and Technology</td>
</tr>
</tbody>
</table>
The General Education Program

Hist 436 Imperialism in the Modern World
Hist 444 The Renaissance
Hist 455 The Great War 1914 - 1920
Hist/Rus 466 History of the Cold War, 1944-present
Hist/Asia 473 The Middle East and the West
Hist/Asia 479 History of East Asian Economic Development Since 1945
Hist 483 Technology and Social Change to 1950
Hist 491 History of World Trade
Hist 492 Cultural Appetites: Food in World History
Hist 494 Global Environmental History
Hist 495 Space, Place, and Power in History:
Jour 405 The Costs of Free Speech (Prereq junior standing)
Pol S 428 Issues in Political Psychology (Prereq Pol S 101 or Psych 105)
Pol S 430 The Politics of Natural Resource and Environmental Policy
Psych 492 Psychology of Language (Prereq Psych 105)
Psych 403 Cultural Issues in Psychology
Soc 415 Ecology of Human Societies (Prereq Anth 101 or Soc 101; ES/RP 101)
Soc 430 Society and Technology
Soc 433 Urbanization and Community Organization (Prereq 3 credits 300-400-level social science)
Soc 474 Collective Behavior and Social Movements (Prereq three 300-400-level Soc or Pol S courses)
W St 406 Women and Work (Prereq W St 200)
W St/CES 408 [D] Introduction to Critical Race Feminism (Prereq W St 200 or CES 101)
W St 460 Gender, Race, and Nature in America (Prereq W St 200 or 300)
W St/Soc 484 [D] Lesbian and Gay Studies (Prereq Soc 101, 102, or W St 200)

TIER III COURSES EMPLOYING THE METHODS OF THE ARTS AND HUMANITIES

These courses represent the variety of disciplines in the arts and humanities and the huge range of subject matter addressed in them. Useful preparatory work includes the history, criticism, and practice of the arts. Students are expected to have some historical perspective on the major cultural traditions of the world and to be familiar with common forms of analysis and interpretation in these disciplines.

Am St Cultural Politics Since World War II
Am St/Engl 472 Ecological Issues and American Nature Writing
Am St/Engl 475 Digital Diversity
Am St 473 [D] Arts in American Cultures
Am St 475 [D] Digital Diversity
Arch 428 Architecture and Culture in the Islamic World
Engl/W St 409 Women Writers in the American West
Engl 415 Traditions of Comedy and Tragedy
Engl 419 The Twentieth Century Novel
Engl/Am St 470 Literature and Culture of the American West
For L 410 Issues in World Film and Literatures
Fren 410 French Film in Translation
Fren 430 Topics in French/Francophone Literature (Prereq three literature or humanities courses)
Hum 410 Love in the Arts
Hum 450 Representations of the Holocaust
Phil 413 Mind of God and the Book of Nature: Science and Religion
Phil 415 The Experience of Illness in Society: Moral Problems in Health Care
Phil/W St 425 Aesthetics and Philosophy of Art
Phil 431 East/West Philosophy of Architecture
Rus 410 Russian Film
Rus 430 St. Petersburg
Span 420 Cultural Topics
Department of Aerospace Studies

www.det905.com
Kruegel 417
509-335-5598

Colonel M. Dorchel; Major T. Unzicker; Captain P. Brewer; Captain G. Mendoza.

The Department of Aerospace Studies (Air Force Reserve Officer Training Corps) offers eligible students education and training which lead to commissions as second lieutenants in the U.S. Air Force. Air Force ROTC students may major in any degree program offered at Washington State University. They supplement their major curriculum with the specialized aerospace studies courses in order to prepare for active commissioned service.

Students may participate in either the four-year or three-year program. The four-year student completes the General Military Course (two years), four-week summer training (Aero 291), and the Professional Officer Course (two years). The three-year student attends a special six-week summer field training (Aero 292) and then completes the Professional Officer Course.

General Military Course (GMC). This sequence of courses consists of four 1-credit academic and 2-credit lab courses normally taken during the freshman and sophomore years. The GMC sequence prepares the student for field training and the Professional Officer Course, and forms the basis for the four-year program. The sequence may be adapted to fit individual schedules.

Professional Officer Course (POC). This sequence, beginning with Aero 311, consists of four 3-credit academic courses and 2-credit lab courses normally taken during the student’s last two years in the university. Entry into the POC is competitive. Students must normally complete field training the summer before they enter the POC. Four-year students compete for entry during their last year in the GMC. Other students should begin the application process early in the fall semester before they plan on attending field training.

Financial Aid and Scholarships. Air Force ROTC offers enrolled GMC students the opportunity to compete for three-and-one-half-, three-, two-and-one-half-, and two-year scholarships which pay tuition, fees, and a $450 per semester book allowance, as well as $300 per month for contracted Freshman, $350 per month for contracted Sophomores, $450 per month for contracted Juniors, and $500 per month for contracted Seniors.

A minor in aerospace studies requires at least 16 hours, nine of which must be 300-400-level, from: Aero 101, 102, 201, 202, 311, 312, 411, 412.

Description of Courses

AEROSPACE STUDIES

Aero

101 The Foundations of USAF I 1 Prereq c// in Aero 103 required. Introduces students to the Air Force and AFROTC.

102 The Foundations of USAF II 1 Prereq c// in Aero 103 required. Introduces students to the Air Force and AFROTC.

103 Leadership Laboratory I 2 (0-4) May be repeated for credit; cumulative maximum 4 hours. Leadership principles, military experience, and management practice; 2 hours laboratory and 2 hours required physical training.

201 The Evolution of USAF Air and Space Power I 1 Prereq c// in Aero 203 required. Examines general aspects of air and space power through a historical perspective. Leadership Laboratory is mandatory for AFROTC.

202 The Evolution of USAF Air and Space Power II 1 Prereq c// in Aero 203 required. Examines general aspects of air and space power through a historical perspective. Leadership Laboratory is mandatory for AFROTC.

203 Leadership Laboratory II 2 (0-4) May be repeated for credit; cumulative maximum 4 hours. Leadership principles, military experience, and management practice; 2 hours laboratory and 2 hours required physical training.

291 Four-Week Field Training Course 2 (0-6) Prereq junior standing: Aero 101, 102, 201, 202; by interview only. Intensive study of military education, experience in leadership and management at an active Air Force installation. S, F grading.

292 Six-Week Field Training Course 6 (0-18) Prereq junior standing; by interview only; applicants must apply at least six months in advance. Intensive study of academic core course work and military education at an active Air Force installation. S, F grading.

Minors

Aerospace

A minor in aerospace studies requires at least 16 hours, 9 of which must be 300-400-level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses, from: Aero 101, 102, 201, 202, 311, 312, 411, 412.

299 Directed Studies V 1-4 May be repeated for credit. By interview only. Cooperative course taught jointly by WSU and UI (AERO 299), S, F grading.

311 Air Force Leadership Studies I 3 Prereq c// in Aero 313 required. Examines general aspects of air and space power through a historical perspective.

312 Air Force Leadership Studies II 3 Prereq c// in Aero 313 required. Examines general aspects of air and space power through a historical perspective.

313 Leadership Laboratory III 2 (0-4) May be repeated for credit; cumulative maximum 4 hours. Leadership principles, military experience, and management practice; 2 hours laboratory and 2 hours required physical training.

391 Private Pilot Ground School 2 All aspects of preparation for the FAA private pilot written test. Cooperative course taught by UI, open to WSU students (AERO 391).

392 Instrument Pilot Ground School 2 Prereq Aero 391 or by interview only. All ground-based aspects of instrument flying to prepare students to take the FAA instrument pilot written test. Cooperative course taught by UI, open to WSU students (AERO 392).

411 National Security Affairs/Preparation for Active Duty I 3 Prereq c// in Aero 413 required. Examines general aspects of air and space power through a historical perspective.

412 National Security Affairs/Preparation for Active Duty II 3 Prereq c// in Aero 413 required. Examines general aspects of air and space power through a historical perspective.

413 Leadership Laboratory IV 2 (0-4) May be repeated for credit; cumulative maximum 4 hours. Introduces students to leadership principles, military experience, and management practice; 2 hours laboratory and 2 hours required physical training.

485 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Program in Aging

Johnson Tower 501
509-335-9540

Chair, M. Young.

The Program in Aging offers an interdisciplinary curriculum in gerontology, including courses in the
social and health sciences, and offers a minor in aging and a certificate in gerontology. The program is designed to achieve the following objectives:

1. To provide a body of knowledge which individuals may use in better understanding the processes and implications of aging in their own lives and for participation in community decision making regarding the scope, structure, and nature of programs for the elderly;
2. To enhance the qualifications of students in the helping services, health sciences, communication, education, and business, who are planning careers which involve working with or providing services to older persons;
3. To prepare students for graduate and professional training in gerontology; and
4. To further university and societal goals of equity for persons of all ages.

Minors

Aging

The minor in aging requires a minimum of 18 hours of credit including H D 203 or 305; MBioS 130; Psych 363; Soc 356, and approved aging-related courses (6 hours) to be selected from a list of recommended courses available from the program chair. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students must obtain approval of their course selection from the program chair. To register for the Program in Aging, students need to contact the program chair, M. Young at (509) 335-9203.

Certificates

Gerontology

A certificate in Gerontology is granted to students who complete the minor in aging with a GPA of at least 2.5 and an internship experience. The internship with a focus on aging must be completed either in human development or alcohol studies and may require additional prerequisites. All internships must be approved by the chair of the program prior to their initiation.

Description of Courses

AGING

Aging

275 Special Topics in Aging: Study Abroad
V 1-6 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

363 Psychology of Aging 3 Prereq Psych 105. Same as Psych 363.

486 Special Topics in Aging: Study Abroad
V 1-15 May be repeated for credit; cumulative maximum 15 hours. Prereq 6 hours in Anth, H D, Psych, or Soc. S, F grading.

Agricultural and Food Systems

afs.wsu.edu
Hulbert Hall 423
509-335-8406


Feed the world. Power the planet. Save the environment. It’s a tall order by any measure, but especially when you consider that experts predict that by 2035, the world population will grow to more than 8 billion human beings. At the center of the issue is the agricultural enterprise of the 21st Century. WSU’s Agricultural and Food Systems Degree Program focuses on vital aspects of agricultural and food systems ranging from plant and animal production to marketing and education. This innovative program provides students with what they need to build or work in a modern food system that is productive, competitive and sustainable.

Delivered collaboratively by departments within the College of Agricultural, Human, and Natural Resource Sciences, the AFS program provides foundational education in a wide array of disciplines including crop and soil sciences, horticulture, entomology, plant pathology, and economics. Students can choose among five Bachelor of Science degree majors: Agricultural Education, Agricultural Technology and Production Management, Agricultural and Food Business Economics, Agriculture and Food Security, and Organic Agriculture Systems. The college offers a minor in Agricultural Systems, which is specifically designed to complement a major in Communications, for students interested in careers in the communications sector of the agricultural industry. The college also offers an interdisciplinary Masters of Science in Agriculture degree, an Undergraduate Certificate in Organic Agriculture, and a Graduate Certificate in Sustainable Agriculture.

Bachelor of Science in Agricultural and Food Systems (Pullman campus)

Systems not silos. The AFS degree program emphasizes the highly integrated nature of the science disciplines involved in growing food. All students take a core set of courses designed to provide them with a broad interdisciplinary background as well as the decision making skills they’ll need to succeed and excel in the workplace. In addition to WSU’s Six Learning Goals of the Baccalaureate, graduates with a major in AFS will be able to:
- Identify, describe, and solve problems within complex scientific systems associated with agricultural and food production
- Identify and navigate through the cultural, political, ethical, and human issues within agricultural and food systems
- Apply the technological skills needed to work within conventional and/or organic food production systems, emphasizing food production, technology, communication, and/or education
- Describe and navigate through the domestic and international aspects of agricultural and food systems in relation to government policies
- Apply the analysis and management skills needed to work in agribusiness
- Use critical thinking and problem solving skills to identify and resolve issues
- Demonstrate strong communication, leadership, and interpersonal skills.

The hands-on possibilities with the AFS degree are numerous. Students are encouraged to participate in undergraduate research projects, work as part-time employees with research and extension personnel, and/or participate in professional internships to put their classroom training to work. Student clubs also provide a variety of ways to interact with peers, faculty, and staff within the college, yet another way to enrich the educational experience.

Scholarships for AFS majors are available on a competitive basis, and are awarded based on ability, need, and interest in a career path in associated professions. In order to certify in an AFS major, a student must have a minimum of 24 credits with a minimum cumulative GPA of 2.0. For complete information about all majors within the AFS degree programs, please see the AFS webpage at: afs.wsu.edu.

Transfer Students

Students planning to transfer into the AFS program should take courses that meet the university’s general education requirements (GERs) and are encouraged to consult with an advisor within the AFS program for further guidance. Transfer articulation agreements have been developed with several Washington community colleges degree programs.

Master of Science in Agriculture (Pullman and Distance Delivery)

This advanced degree program focuses on the agricultural professional, practitioner, and educator to meet the growing need for prepared individuals to apply new and emerging technologies and science to the advancement of agriculture. This degree offers professionals already working in the field the opportunity to continue their education while they continue employment either inside or outside of the Pullman area. Both thesis and non-thesis options are available. Access complete program description on-line at: http://www.m sag.wsu.edu/.

Schedules of Studies

AGRICULTURAL AND FOOD BUSINESS ECONOMICS (120 HOURS)

The Agricultural and Food Business Economics major gives students what they need to succeed in the food and agricultural business world – knowledge of business and economics practices as well as a deep understanding of animal, plant, and food systems. Graduates in this major are highly qualified to fill positions ranging from market researcher to product analyst to food broker in a variety of venues, including private industry, commercial farms and ranches, government agencies, production agriculture, and universities.

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Agricultural and Food Systems

**First Year**

*First Term*  
A S 101 3  
EconS 101 [S] or 102 [S] (GER) 3  
GenEd 110 [A] or 111 [A] (GER) 3  
Hort 102 3  
Math 201 3

*Second Term*  
EconS 101 [S] or 102 [S] (GER) 3  
Engl 101 [W] (GER) 3  
GenEd 110 [A] or 111 [A] (GER) 3  
Hort 202 3  
Math 202 [N] (GER) 3

**Second Year**

*First Term*  
A S 101 3  
Biol 120 [B] (GER) 4  
Chem 101 [P] (GER) 4  
Stat 212 [N] (GER) or MgtOp 215 4

*Second Term*  
Acctg 230 3  
A S 201 3  
Biol 106 [B] (GER) 4  
Chem 102 [P] (GER) 4  
Complete Writing Portfolio

**Third Year**

*First Term*  
CropS 360 [I] (GER) 3  
CRS 336 [I, N, G] (GER) 3  
EconS 301 3  
EconS 350 3  
EconS 351 3

*Second Term*  
Arts & Humanities [H,G] (GER) 3  
EconS 311 [M] 3  
Fin 325 or EconS 335 3  
SoilS 201 [B] (GER) 3

**Fourth Year**

*First Term*  
A S 452 [M] 3  
Tier III [T] (GER) 3  
Electives 9

*Second Term*  
A S 401 3  
EconS 450 [M] or 453 3  
EconS 451 (AFS Core Systems Elective) 3  
EconS 490 [M] 3  
Electives 3

**Agricultural Education (126 HOURS)**  
Combining the best of both agriculture and teaching, the Agricultural Education major prepares students to educate the next generation of agricultural leaders and consumers. Highly sought after by employers, they teach high school and middle school agricultural science classes, as well as serve as FFA advisors, adult education instructors, community outreach coordinators, university extension agents, etc.

**AGRICULTURAL EDUCATION (126 HOURS)**

This major requires students to complete the AFS core courses and agricultural education required courses, as well as a series of teaching and learning courses to meet initial teacher certification requirements. Students also spend a semester teaching in an agricultural education program in a Washington high school.

Students electing a major in Agricultural Education must complete at least 6 hours in Communication Proficiency, 3 hours in Arts and Humanities, 6 hours in Social Sciences, 3 hours in Mathematics, 8 hours in Biological Sciences, 8 hours in Physical Sciences, 42 hours in professional education. The program requires a minimum of 134 semester hours for graduation. Students must take all core agriculture courses plus 15 additional credits in agriculture from the College of Agricultural, Human, and Natural Resource Sciences. Students also spend a semester teaching in an agriculture program in a Washington high school.

**AGRICULTURAL AND FOOD SYSTEMS PRODUCTION MANAGEMENT (121 HOURS)**

Students in this hands-on major gain a science-based overview of agriculture and food systems, with an emphasis on the practical application of technology to agricultural production systems. The program combines students' inherent creativity and interest in physical and biological sciences, technology, mathematics, business, and related subjects with their desire to develop innovative solutions to a variety of agricultural problems.

Areas of application include precision agricultural operations and services, management of agricultural businesses, production operations, sales, and promotional work in domestic and international agricultural communities. Graduates are prepared to own, operate, and manage their own enterprises or to provide services for private or governmental entities.

**First Year**

*First Term*  
A S 101 3  
Chem 101 [P] (GER) 3  
Engl 101 [W] (GER) 3  
GenEd 110 [A] or 111 [A] (GER) 3  
Hort 102 3

*Second Term*  
CropS 360 [I, G, K] (GER) 3  
EdPsy 468 3  
T & L 467 [M] 3  
T & L 469 2  
T & L 470 3

**Second Term**

*First Term*  
Ag Ed 342 3  
Ag Ed 440 [M] 2  
Ag Ed 471 2  
Ag Elective (300-400 level) 3  
Tier III Course [T] (GER) 3

*Second Term*  
Ag Ed 407 6  
Ag Ed 442 2  
AgTM 402 3  
T & L 415 6

1 EconS 352, which is only offered in the spring, may be used as an alternative for EconS 350.

2 The Tier III [T] course should be double-designated as a Diversity [D] (GER).

**Agricultural Technology and Production Management (121 Hours)**

Students in this hands-on major gain a science-based overview of agriculture and food systems, with an emphasis on the practical application of technology to agricultural production systems. The program combines students' inherent creativity and interest in physical and biological sciences, technology, mathematics, business, and related subjects with their desire to develop innovative solutions to a variety of agricultural problems.

Areas of application include precision agricultural operations and services, management of agricultural businesses, production operations, sales, and promotional work in domestic and international agricultural communities. Graduates are prepared to own, operate, and manage their own enterprises or to provide services for private or governmental entities.

**First Year**

*First Term*  
A S 101 3  
Chem 101 [P] (GER) 3  
GenEd 110 [A] or 111 [A] (GER) 3  
Hort 102 3  
Elective or Math 201 3

*Second Term*  
Chem 102 [N] (GER) 3  
ComS 102 [C] or H D 205 [C] (GER) 3  
Engl 101 [W] (GER) 3  
GenEd 110 [A] or 111 [A] (GER) 3  
State 212 [N], Math 140 [N], 171 [N], or 202 [N] (GER) 3 or 4

**Third Year**

*First Term*  
Ag Elective (300-400 level) 3  
AgTM 305 (AFS Core Systems Elective) 3  
EconS 350 3  
T & L 464 3

1 EconS 352, which is only offered in the spring, may be used as an alternative for EconS 350.

2 The Tier III [T] course should be double-designated as a Diversity [D] (GER).
farmers’ market. Students have the opportunity
to tailor their program of study to specific areas
of emphasis, such as organic animal and dairy
production, economics and marketing, crop
production, food science, pest management,
soil management, etc. in consultation with their
advisor.

The Organic Agriculture Program at WSU prepares
students to work on or develop their own organic
farm. It also prepares students for employment
opportunities with nonprofit organizations and
government agencies involved in environmental
and food safety, as well as private-sector food
processing, marketing, organic certification, and
product development industries.

First Year

First Term

AgTM 314 3
Biol 120 [B] (GER) 4

Second Term

Arts & Humanities [H,G] (GER) 2
Biol 106 [B] (GER) 4
CRS 336 [S] 3
EconS 101 [S] (GER) 3
SoilS 201 [B] (GER) 3
Complete Writing Portfolio

Third Year

First Term

AgTM 330 3
CropS 305, CropS 403, Entom 340, or Pl P 429 3
CropS 360 [I] (GER) 3
EconS 350 3
MgtOp 301 or Elective 1 3

Second Term

400-Level Business or Elective 1 3
AFS 201 3
AgTM 315 3
AgTM 412 3
EconS 450 or Elective 1 3

Fourth Year

First Term

400-Level Business or Elective 1 3
AFS Core Systems Elective 3 or 4
AgTM 451 1
Mktg 360 or Elective 1 3
Tier III [T] (GER) 2 3

Second Term

400-Level Business or Elective 1 3
AFS 401 3
AgTM 405 2
AgTM 416 3
AgTM 436 2
EngL 402 [W] (GER)

Third Year

First Term

CropS 305, Entom 340, or Pl P 429 3
CropS 360 [I] (GER) 3
FS 130 [B] (GER) 3
IPM 201 2
SoilS 301 [M] 3

Second Term

AFS 445 3
EconS 352 2
IPM 462 [M] 3
SoilS 498 3
Elective 3

Fourth Year

First Term

CropS 403 3
CRS 336 [S] (GER) 3
NATRS 300 (AFS Core Systems Elective) 3
Tier III Course [T] (GER) 1 3
Elective 3

Second Term

AFS 401 3
CropS 412 1

Certificates

Organic Agriculture (Pullman and Distance Delivery)
The Certificate in Organic Agriculture is an 18-credit
undergraduate program that can be taken along
with a major in another field, or as a stand-alone
educational experience. Working professionals,
other non-degree-seeking students, as well as current
students in other majors at WSU will be able to learn
the fundamentals in a highly focused program
through on-line and classroom venues. Holders of
the Certificate in Organic Agriculture will be well
prepared to work on or develop their own farm,
will be qualified for employment opportunities with
non-profit organizations and government agencies
involved in environmental and food safety, as well
as private sector food processing, marketing, organic
certification, and product development industries.

The 18-credit certificate program is designed
with two core courses required for all students, a
minimum of 3 credits of “ experiential learning”,
plus a minimum of nine additional credits selected
from a range of courses. All courses already exist
as permanent courses, and the certificate can be
fulfilled through in-class participation on the
Pullman campus or through on-line delivery.

Requirements: Core: 6 hours from SoilS 101/AFS
105 and SoilS 201; Experimental Learning: 3 hours
from SoilS 480 (for on-campus students) or CropS,
EconS 497, Hort 399, SoilS 498 (for off-campus
students). Food, Farming, and Ecosystem Electives;
9 credits from : EconS 101, 102, CropS 102, CropS
360, CRS 336, CRS 435, FSHN 130, FSHN 220, NATRS
300, SoilS 301, 441, 445, 490, or Stat 412.

Sustainable Agriculture

The Graduate Certificate in Sustainable Agriculture
provides post-baccalaureate students with an
interdisciplinary understanding of practices and
current issues in sustainable agriculture, along with
the science that makes it work. Students who earn
the Graduate Certificate in Sustainable Agriculture
may take these skills into all industries and agencies
involved in the food chain; from production,
processing, and delivery to policy, regulation, and
education. Students in any WSU graduate degree
program are eligible for the certificate if they meet
the prerequisites of the courses needed for the
certificate. Students pursuing a graduate certificate
may only accumulate 6 credits toward a master’s
degree and 9 credits towards a Ph.D. degree.

Students not in degree programs are also
eligible to earn the certificate by enrolling as non-
degree students, again providing that they meet
the prerequisites of the courses needed for the
certificate. Apply for admission to an academic
department, indicating your intention to be classified
as a part-time, certificate graduate student.
Description of Courses

AGRICULTURAL AND FOOD SYSTEMS

AIS

101 Introduction to Agricultural and Food Systems 3 Introduction to the disciplines and integration of the fields of agriculture, food production, manufacturing and distribution to define and solve real-world problems.

115 Introduction to Agricultural Communications 3 Agricultural communications and target media aimed specifically at agricultural producers and the agricultural industry.

201 Systems Skills Development for Agricultural & Food Systems 3 (2-2) Prereq AIS 101; Math 107 or Stat 212; Chem 101 or 105; Biol 102 or 106. Development of tools and skills in building, evaluating and applying model systems in agricultural production, food manufacturing and distribution in rural society and society as a whole; focus on the types of systems, construction and analysis.

401 Advanced Systems Analysis and Design in Agricultural & Food Systems 2-2 Prereq AIS 101; Stat 212 or 412; senior standing. Rec Engl 402. Problem solving methodologies as applied to integrated agricultural systems analysis and design problems; strong emphasis on teamwork.

445 (SoilS 0) Field Analysis of Sustainable Food Systems 3 Experiential course visiting farms, food processing and marketing facilities to develop understanding of issues and relationships of sustainable food systems. Cooperative course taught jointly by WSU and UI (AG 445).

545 (SoilS 545) Field Analysis of Sustainable Food Systems 3 Graduate-level counterpart of AIS 445; additional requirements. Credit not granted for both AIS 445 and 545. Cooperative course taught jointly by WSU and UI (AG 545).

AGRICULTURAL EDUCATION

Ag Ed

342 Methods of Teaching Agriculture 3 Prereq T & L 303 and admitted to College of Education. Methods and strategies for teaching agricultural science.

407 Student Teaching in Agricultural Education V 4-16 Prereq Ag Ed 342, 442, 471; make application; pay certification fees; complete all other coursework for degree and teacher certification; receive fingerprint clearance from WSP, FBI, and Office of Professional Practices; maintain 2.5 gpa overall and in endorsement and professional core classes; placement by interview only. Supervised teaching in public schools including seminars reflecting effective teaching. S, F grading.

440 [M] Principles of Career and Technical Education 2 or 3 Prereq 9 hours in Educ. Local, state, and national vocational technical educational legislation, policies, programs, and organizations.

442 Program Planning in Agricultural Education 2 Prereq Ag Ed 342. Organization and management of a total vocational agricultural program.

471 Student Organizations in Agricultural Education 2 Prereq certified College of Education major. Role of Future Farmers of America (FFA) in student organizations; role of advisor; principles of leadership; characteristics of successful FFA chapters. Course equivalent to OSU’s Ag 421/521.

497 Internship in Agricultural Education V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Off-campus professional experience. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

504 Special Topics in Vocational Education V 1-3 Special topics in agricultural education or agriculture that will provide advanced training for teachers of agriculture.

508 Foundations of Vocational Education 2 Historical, philosophical, social, political and economic factors that influence education in vocational environments.

511 Seminar in Career and Technical Education V 1-2 Prereq graduate standing. Seminar addressing new and emerging legislation and educational programs in vocational education.

536 Microcomputers in the Vocational Classroom 3 (2-3) Implications and applications of microcomputers for experienced classroom teachers.

GENERAL AGRICULTURE

Agri

501 Agriculture Master's Practicum V 2-3 May be repeated for credit; cumulative maximum 6 hours. Prereq admission to graduate program, advisor approval. Course individually designed to provide practical participation/experience under professional supervision in areas related to student's specialization.

502 Graduate Seminar 3 Prereq admission to graduate program. Presentations and discussions of contemporary issues, trends, and recent research and development by graduate students, faculty, and visiting scholars.

560 Advanced Agricultural Topics V 1-3 May be repeated for credit; cumulative maximum 4 hours. Prereq admission to graduate program. Directed group study of selected advanced topics in agriculture and related areas.

562 Advanced Topics V 1-3 May be repeated for credit; cumulative maximum 4 hours. Prereq admission to graduate program. Directed group study of selected advanced topics in agriculture and related areas.

587 Research in Agriculture 3 Prereq admission to graduate program. Exploration and assessment of current issues associated with domestic and international agriculture programs.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

AGRICULTURAL TECHNOLOGY AND MANAGEMENT

AgTM

201 Metal Fabrication 3 (1-6) Theory, applications, and practices of welding, machining, and associated techniques in fabricating with metals. Cooperative course taught by WSU, open to UI students (AGMEC201).

305 Agricultural Precision Systems 3 (2-3) Prereq junior standing or permission of instructor. Systems for precision agriculture, equipment, software uses, principles, construction, care, tillage, planting, spraying, harvesting, and materials handling machinery. Field trips required. Cooperative course taught jointly by WSU and UI (AGMEC305).

314 Agricultural Power Units and Mobile Electrical Systems 3 (2-3) Principles of thermodynamics, engine cycles, transmissions, electrical, starting, braking, steering, suspension systems, differentials and hydraulic systems.


330 Electrical Power Systems for Agriculture 3 (2-3) Prereq sophomore standing. Methods of selecting and installing electrical power circuits in agricultural operations; light frame construction; motor and control circuits; Programmable Logic Controllers (PLCs).

402 Methods, Materials, and Machines for Teaching Ag Mechanics 3 (1-6) Prereq AgTM 201; 9 hours in Educ. Development of shop programs in project planning, demonstrations, and skills performance; safety and management of materials, tools, and machines.

405 Advanced Agricultural Precision Systems 2 (1-3) Prereq AgTM 305 or instructor approval. Advanced principles of precision agricultural systems, software uses, management of controllers on equipment, geographical information systems and global positioning systems.

412 Human and Machinery Risk Management 3 Prereq junior standing or permission of instructor. History and current status of farm worker injury prevention programs in the US including worker's compensation insurance.

416 Fluid Power Systems 3 (2-3) Fluid power principles applied to the selection, design, operation, and management of agricultural and industrial machinery. Field trips required. Cooperative course taught by WSU, open to UI students (AGMEC416).

436 Agricultural Technology Design 2 Prereq junior standing, AgTM 305, 405, or permission of instructor. C/AgTM 437. Design applications to methodologies as applied to precision agricultural systems; group problem solving activities, data analysis utilizing computers, and team design efforts. Credit not granted for both AgTM 436 and 536.
The program offers a rich, rigorous approach combining the best intellectual insights from literature, historical studies, women’s studies, ethnic studies, the fine arts, environmental studies, and the social sciences.

Rather than restricting students to a single department's offerings, the undergraduate major and minor, and the graduate program, allow students the freedom to build their understanding of U.S. culture by combining knowledge from courses in more than a dozen departments across the campus, in addition to our own courses.

The American Studies Program of Washington State University was founded in 1962, and is the recognized leader in this field in the Northwest. Our program is the only one in the Northwest authorized to offer all undergraduate and graduate degrees, from the B.A. to the M.A. and the Ph.D.

Graduate Opportunities

While most American studies graduate students enter careers in university and college teaching, an advanced degree can also be useful preparation for government service, museum and archive work, community activism, and traditional or electronic publishing, among other careers.

Positions Held by Recent Graduates

University and college teaching positions; NGOs; community organizing.

Related Programs: Comparative Ethnic Studies, Women's Studies and English.

Expected Learning Outcomes: Graduate Students

- broad, critical knowledge of American cultural history
- capacity to write clear, publishable analytic prose
- ability to read and assess documentary evidence from a variety of written genres
- capacity to compare and integrate knowledge from several disciplinary perspectives
- ability to think critically about the limits of disciplinary knowledge domains
- developed research skills, including handling of primary and secondary sources, library use and online scholarly search tools
- developed sense of engaged, critical citizenship
- professional competency in a discipline and in an interdisciplinary area of specialization
- high level of competency as a teacher of undergraduate students

For more information, contact Jean Wiegand, Washington State University, PO Box 644013, Pullman, WA 99164-4013, 509-335-1560, wiegandj@wsu.edu.

Schedules of Studies

AMERICAN STUDIES REQUIREMENTS (120 HOURS)

The undergraduate major consists of a core curriculum of 30 hours (with some options available within the core) plus an additional 12-hour area of concentration which permits students to investigate particular aspects of American culture.

Core Requirements, in suggested order: Hist 110, 111, Am St/Engl/Hist/W St 216, W St/CES/Soc 300; Engl 380, 381, or 382; 300-400-level American history; 300-400-level CES or W St; Am St/Engl 470, 471, 472, 473, 474, or 475.

Areas of Concentration

A series of approved, linked courses in various departments have been established in the following interdisciplinary areas to satisfy the 12-hour requirement for an area of concentration:

1. Environment and Culture
2. Multicultural American West
3. Popular Culture, Film, and Mass Media
4. The Arts, Culture, and Social Change

The intention of the American studies faculty is to encourage students, with the approval of their advisors, to investigate areas not officially approved in the foregoing list. By designing their own programs and taking courses that will aid in their research, students can investigate the effects...
of agriculture, engineering, education, architecture, folklore, theatre, or mass communications, to name only a few, on American culture.

### First Year

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<tr>
<th>Term</th>
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<tbody>
<tr>
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<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Math Proficiency [N]</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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<tr>
<td>Science Elective (GER)</td>
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### Second Year

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<td>Hist 110</td>
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<tr>
<td>Foreign Language of Elective</td>
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<tr>
<td>Hist 111</td>
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<td>Physical Sciences [P] (GER)</td>
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<td>Complete Writing Portfolio</td>
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### Third Year

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<td>Engl 380, 381, or 382</td>
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<td>W St 300</td>
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<td>Engl 380, 381, or 382</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Elective</td>
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<td><strong>Second Term</strong></td>
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<tr>
<td>300-400-level American Hist Elective</td>
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<tr>
<td>Am St 470, 471, 472, 473, 474, or 475</td>
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<td>Major Concentration Area Electives</td>
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<td>Tier III Course [T] (GER)</td>
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### Minors

#### American Studies

A minor in American studies requires 21 hours which includes:Am St/Engl/Hist/W St 216, two courses from Am St/Engl 470, 471, or 472, two courses in an area of concentration, one course in 300-400-level American literature, and one course in 300-400-level American history. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

### Description of Courses

#### AMERICAN STUDIES

Am St

<table>
<thead>
<tr>
<th>Course ID</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>216 [S,D]</td>
<td>American Cultures</td>
<td>3</td>
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</table>

#### 470 [T] Literature and Culture of the American West

May be repeated for credit; cumulative maximum 6 hours. Prereq completion of one Tier I and three Tier II courses. Same as Engl 470.

#### 471 [T] Cultural Politics Since World War II

American popular culture, politics and culture of the 1960s, or topics in recent cultural politics.

#### 472 [T] Ecological Issues and American Nature Writing

Prereq completion of one Tier I and three Tier II courses. Representation of nature in American fiction and nonfiction; role of culture in shaping environmental problems and solutions.

#### 473 [T,D] Arts in American Cultures

Prereq completion of one Tier I and three Tier II courses. Exploration of visual culture—from fine arts to advertising—as a political, sociological, psychological, and philosophical influence in 20th-century American cultures.

#### 474 [T,D] Social Movements and US Culture

Prereq junior standing. Cultural impact of selected social movements such as abolition, populism, labor, women's, ethnic power, gay/lesbian and anti-globalization.

#### 475 [T,D] Digital Diversity

Prereq junior standing; completion of one Tier I and three Tier II courses. Cultural impact of electronic media, especially the World-Wide Web; issues of race, class, gender, sexuality online.

#### 500 Colloquium

May be repeated for credit; cumulative maximum 12 hours. Current research in American studies. S, F grading.

#### 501 Readings in American Studies I

May be repeated for credit; cumulative maximum 6 hours. Readings in key texts in American culture, beginnings to 1865.

#### 502 Readings in American Studies II

May be repeated for credit; cumulative maximum 9 hours. Readings in key texts in American culture, 1865 to present.

#### 503 Contemporary Theories of Race and Ethnicity

Prereq graduate standing. Major theoretical readings and key recent texts in U.S. and transnational ethnic studies scholarship.

#### 504 Contemporary Feminist Theories and Practices

Prereq graduate standing. Major theoretical readings and key recent texts in U.S. and transnational feminist scholarship.

#### 513 Theory and Method in American Studies

Major theories and methods currently used by American studies scholars; key concepts in cultural analysis.

#### 514 Interdisciplinary Research Methods

Major methods used in interdisciplinary cultural analysis including critical ethnography, oral history, rhetorical and textual analysis and other qualitative approaches.

#### 520 Colonization, Globalization and Decolonization

Topics in the critical study of colonialism, neo-colonialism, imperialism, globalization and resistance to these forces.

#### 521 Critical Studies in Sexuality

Topics in the critical analysis of normative sexualities and forces shaping US and global cultures.

#### 522 Digital Cultures, Digital Divides

Critical analysis of the social and cultural dimensions of the "digital divide" and use of digital technologies by dominant and subaltern communities.

#### 523 Environmental Justice Cultural Studies

Critical analysis of the cultural dimensions of environmental justice and injustice.

#### 524 Culture Studies in Popular Culture

Interdisciplinary approaches to historical and contemporary trends and issues in US popular culture.

#### 525 Social Movements in American Studies

Theoretical and historical study of the role of social movement in United States culture.

#### 590 Seminar in American Studies

May be repeated for credit; cumulative maximum 9 hours. Interdisciplinary topics in American culture.

#### 596 Topics in American Studies

May be repeated for credit; cumulative maximum 9 hours. American Studies Summer Institute.

#### 600 Special Projects or Independent Study

1-18 May be repeated for credit. S, F grading.

#### 700 Master’s Research, Thesis, and/or Examination

1-18 May be repeated for credit. S, F grading.

#### 702 Master’s Special Problems, Directed Study, and/or Examination

May be repeated for credit. S, F grading.

#### 800 Doctoral Research, Dissertation, and/or Examination

1-18 May be repeated for credit. S, F grading.

### Department of Animal Sciences

[www.ansci.wsu.edu](http://www.ansci.wsu.edu)

Clark 116

509-335-5523

The department offers courses of study leading to the degrees of Bachelor of Science in Animal Sciences, Master of Science in Animal Sciences, and Doctor of Philosophy (Animal Sciences). The department participates in the Joint Program for Animal Sciences and Veterinary Medicine, leading to the degrees of Bachelor of Science in Animal Sciences and Doctor of Veterinary Medicine. The department also participates in the graduate Program in Nutrition which offers a Doctor of Philosophy degree and in the Genetics and Cell Biology program which offers Master of Science and Doctor of Philosophy degrees.

**Bachelor of Science Degree Program**

Animal sciences students learn the biological and economic principles and practices associated with agricultural animal production, and companion and laboratory animal care. This training prepares graduates for a wide variety of career opportunities. These opportunities include animal production and food processing (meats, dairy products, etc.); animal research, biomedical research; zoos; companion animal services; the agricultural service industries (including feed manufacturing and sales, pharmaceuticals, artificial insemination, agricultural equipment, financial institutions, etc.), and government agencies. Continued education leading toward graduate or professional degrees is available for students from the animal sciences program. Employers seek out graduates in animal sciences because of their practical and technical knowledge of animal care and production.

Students in animal sciences take a wide variety of agricultural and non-agricultural courses, receiving in-depth training in the biology of farm and companion animals. Core courses include animal nutrition, animal reproduction, and animal breeding. The curriculum is designed to provide students with the scientific, practical, and people skills to make them productive members of the food production, animal care and related industries. Prior to their junior year, students select an option to coincide with their interests. These options have required courses and electives which allow individual program specialization in areas such as dairy, beef or swine production, companion animal management, aquaculture, animal nutrition, growth, reproduction, genetics, biotechnology, meat science, sustainable agriculture, and animal behavior and well-being.

We expect that students graduating with a B.S. in Animal Sciences will have acquired: 1) a knowledge and understanding of the sciences associated with the biological systems of animals; 2) a knowledge of sound business, environmental, and well-being management practices associated with animal production; 3) the ability to think critically and solve real-world problems; 4) the ability to communicate effectively using oral, written, and electronic communication forms; and 5) leadership and teamwork skills with application to diverse career paths.

The Animal Management Option emphasizes the business, economics and practical management aspects of animal production and care of animals. This option is recommended for students preparing to work in agricultural animal production, companion animal care, or agribusiness.

The Pre-veterinary Medicine/Science Option places emphasis on basic science courses. This option is recommended for students planning to attend graduate school, apply to the professional program leading to the Doctor of Veterinary Medicine, or work in technical or specialized areas of animal science, such as extension, academia, research, technical consulting or laboratory work.

Many opportunities outside the classroom are available for students to further their educational experiences. Animal sciences students are encouraged to participate as part-time employees in the livestock production centers, or in research and teaching programs within the department. Many opportunities are available to students for on-the-job training in professional internships with different segments of the agricultural, companion animal or research sectors. Active student clubs within the Department of Animal Sciences, the College of Agricultural, Human, and Natural Resource Sciences, and the university community provide students with both professional and social contacts with faculty and other students. Departmental and college scholarships are available based on ability, financial need and interest area.

Animal sciences courses are attractive to students in many other majors and from any background. Animal sciences courses broaden a student's knowledge of applied biology, agriculture and the environment, and society in general. Many students find a minor in animal sciences complements and adds depth to other majors.

**Transfer Students**

Students planning to transfer to the Department of Animal Sciences, Washington State University, from community colleges or other institutions should complete as many of the required courses in chemistry, biological sciences, physics, mathematics and general education as possible prior to transfer.

**Schedules of Studies**

**INDUSTRY OPTION REQUIREMENTS**

(121 HOURS)

At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400 level courses. One of the following degree programs must be chosen and completed.

**First Year**

**First Term**

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<td>A S 180</td>
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<td>Chem 101 [P]</td>
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<tr>
<td>Engl 101 [W]</td>
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<tr>
<td>Math 107, 140, 171, 201, or 202 [N]</td>
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**Second Term**

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<td>Bio 106 [B]</td>
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<td>Chem 102 [P]</td>
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<tr>
<td>ComSt 102 [C] or H D 205 [C]</td>
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<td>GenEd 110 [A] or 111 [A]</td>
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**Second Year**

**First Term**

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**Second Term**

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<td>GenEd 110 [A] or 111 [A] (GER)</td>
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**Third Year**

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<td>Acctg 230</td>
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<td>B Law 210</td>
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<td>CropS 101, 302, 303, or NATRS 351</td>
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<td>Engl 201 [W] (GER)</td>
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<td>A S 330</td>
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<td>A S 350</td>
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<td>A S 351</td>
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<td>A S 440</td>
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<td>A S 454</td>
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<td>A S 472 or 478 [M]</td>
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<td>A S 466, 468, 474 [M], or 476 ²</td>
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<td>A S 488 [M] or NATRS 351 ³</td>
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<td>Elective ⁴</td>
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¹ Some courses offered fall or spring term only.
² Take Stat 212 unless math proficiency GER has been taken.
³ Strongly recommended.

**JOINT PROGRAM IN ANIMAL SCIENCES AND VETERINARY MEDICINE**

In order to meet the increasing demand for food-animal veterinarians, the Department of Animal Sciences and the College of Veterinary Medicine have created a combined program designed to train selected, highly qualified students to earn both a Bachelor of Science in Animal Sciences and a Doctor of Veterinary Medicine degree within a seven-year program. Students will take a three-year animal science program, completing all General Education Requirements, the animal sciences core and pre-veterinary medicine requirements. This program includes mathematics, chemistry, including organic and biochemistry; general biology; physics; and the core of animal sciences courses, including an introduction to farm animals; then further education in animal feeds and nutrition, breeding and genetics, reproduction and the economics of animal production management. Students will
then enter the College of Veterinary Medicine and complete the requirements for total hours and 300-400-level hours before earning the BS in Animal Sciences. Students will continue the curriculum, leading to the DVM degree after a total of seven years of college work. Students will enter the university under normal procedures and must be advised in the Department of Animal Sciences. Qualified students will be invited to apply for the program. A high scholastic achievement and the promise of the same and demonstrated experience and interest in working with farm animals will be the primary criteria for initial invitation. Selected students will be identified and invited to apply for the AS-DVM program in the second semester of the first year. Students would then declare animal sciences as a major in the first semester of the sophomore year and enter the joint program in that year. The procedures for acceptance into the DVM program will be the same as those for other applicants. Successful participants will complete the three-year animal sciences program and begin the veterinary medicine curriculum in their fourth year of study. A 3.0 or higher grade point average for the first year and a 3.5 gpa upon completion of the third year will be required for the program. If the student is not accepted or withdraws from the AS-DVM program, the student could earn the BS in Animal Sciences and/or apply to the College of Veterinary Medicine under normal procedures.

**Fourth-Seventh Years**

Those students finishing all required classes would complete only the DVM curriculum from this point on, with the exception of V MS/A S 414. Students who still need either A S 406 or 408 would enroll in one of those in lieu of V MS/A S 414. If two 400-level animal production courses (A S 466, 472, 474, 476, or 478) were not completed, then students would enroll in one of them. Students will receive the BS in Animal Sciences upon successful completion of at least 120 credit hours and the final two 400-level A S classes. Most students will meet these requirements after one year of the DVM program. Successful completion of the College of Veterinary Medicine program will earn the Doctor of Veterinary Medicine.

**First Year**

**First Term**

- A S 101 3
- A S 172, 174, or 180 1
- Biol 106 or GER 3 or 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) or GER 3
- Math 107, 171 [N], or GER 3

**Second Term**

- A S 176, or 178 1
- Arts & Humanities [H, G] or Intercultural Studies [I, G, K] GER 3
- Biol 106 or 107 [B] [GER] 4
- Chem 106 [P] (GER) 4
- GER 3
- H D 205 [C] (GER) 3

**Second Year**

**First Term**

- Biol 107 [B], MBioS 301, or GER 3 or 4
- Chem 345 4

**Second Term**

**Hours**

- A S 313 4
- Biol 402 [W] (GER) 3

**Third Year**

**First Term**

- GenEd 110 [A] (GER) 3
- Elective 3

**Second Term**

- A S 330 3
- A S 350, 351 3
- GenEd 111 [A] (GER) 3
- Phys 101 [P] (GER) 4
- Stat 212 [N] (GER) 4

**Fourth Year**

**First Term**

- MBioS 303 3

**Second Term**

- A S 380 1
- A S 408 3
- A S 466, 474, or 476 3
- EconS 350 3
- GER 3

- Complete Writing Portfolio 3

**Pre-Veterinary Medicine/Science Degree Program** (121 Hours)

At least 40 of the total hours required for the bachelor’s degree in this program must be in 300-400-level courses.

**First Year**

**First Term**

- A S 101 3
- A S 180 1
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) or GER 3
- Math 107, 140 [N], 171 [N], 201 or 202 [N] (GER) 3 or 4

**Second Term**

- Arts & Humanities [H, G] (GER) 3
- Biol 106 [B] (GER) 4
- Chem 106 [P] (GER) 4
- ComSt 102 [C], or H D 205 [C] or (GER) 3

**Second Year**

**First Term**

- Biol 107 [B] (GER) 4
- Chem 345 4
- GenEd 110 [A] or 111 [A] (GER) 3
- Phys 101 [P] (GER) 4

**Second Term**

- Arts & Humanities [H, G] or Social Sciences [S, K] (GER) 3
- EconS 101 [S] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Intercultural Studies [I, G, K] (GER) 3
- MBioS 301
- Complete Writing Portfolio

**Third Year**

**First Term**

- A S 313 4
- Engl 402 [W] (GER) 3

**Fourth Year**

**First Term**

- V MS 361 3
- Biol 106 [B] (GER) 4
- Chem 102 [P] (GER) 4
- ComSt 102 [C], or H D 205 [C] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3

- Elective 1

- Tier III Capstone (GER) 3
- A S 466, 468, 472, 474, 476, or 478 3

1 Take Stat 212 unless math proficiency GER has been taken.


3 Some courses offered fall or spring term only.

**Production Management Degree Program** (120 Hours)

**First Year**

**First Term**

- A S 380 1
- A S 408 [M] 3
- A S 440 3
- A S 441 1
- MBioS 303 4
- Elective 2 3

**Second Term**

- A S 172, 174, 175, or 176 1
- Biol 106 [B] (GER) 4
- Chem 102 [P] (GER) 4
- ComSt 102 [C], or H D 205 [C] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3

**Second Year**

**First Term**

- A S 260 or 272 3
- Arts & Humanities [H, G] (GER) 3
- GenEd 110 or 111 [A] (GER) 3
- Elective 2 5

**Second Term**

- Intercultural Studies [I, G, K] (GER) 3
- Social Sciences [S, K] (GER) 3
- SoilS 201 3
- Stat 212 [N] (GER) or 412 3 or 4
- V MS 361 3

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174 Beef Cow Calf Management Laboratory 1 (0-3) Management practices associated with a beef cow calf enterprise. Field trip and special clothing required. Cooperative course taught by WSU, open to UI students (AVS 174), S, F grading.

178 Swine Management Laboratory 1 (0-3) Management practices associated with a swine enterprise. Field trip and special clothing required. Cooperative course taught by WSU, open to UI students (AVS 178), S, F grading.

180 Animal Sciences Orientation 1 Animal sciences as a profession; career opportunities, curriculum, advisement, internships, externships, animal centers, special services centers, and course requirements.

205 [B] Companion Animal Nutrition 3 Information on nutrient use by the animal body and factors governing companion animal nutrient requirement including basic and practical aspects.

260 Live Animal and Carcass Evaluation 3 (1-6) Basic principles of live animal and carcass evaluation. Cooperative course taught jointly by WSU and UI (AVS 203).

274 Feedlot Management 2 (1-3) Concepts used in the cattle feeding industry. Cooperative course taught by UI, open to WSU students (AVS 204).

285 Rights and Welfare of Animals 3 Prereq Biol 102 or 106; MC 102 or 106. Ethical considerations and welfare of animals used as companions, for food, and in scientific research. Cooperative course taught by WSU, open to UI students (AVS 204).

303 Ruminant Nutrition 4 (3-3) Prereq A S 204, 260. Basic principles of ruminant nutrition. Field trip required. Cooperative course taught jointly by WSU and UI (AVS 303).

330 Animal Genetics 3 (2-3) Prereq Stat 212. Basic genetic concepts and methods for the genetic improvement of Mendelian and polygenic traits in animals. Cooperative course taught jointly by WSU and UI (AVS 330).

345 Introduction to Animal Growth and Development 3 Prereq A S 101; Biol 106. Animal structure, composition, whole body and factors governing companion animal nutrition requirement including basic and practical aspects.

346 Introduction to Skeletal Muscle Physiology 3 Structure, function and regulation of skeletal muscle; embryonic, neonatal, postnatal growth/atrophy; muscle-specific proteins. Cooperative course taught by WSU, open to UI students (AVS 346).

350 Physiology of Reproduction 3 Prereq Biol 106; Biol 107; Chem 102 or 106. Anatomy and physiology of reproductive organs; hormones of reproduction; production of gametes; artificial insemination; fertilization; prenatal development; fertility and infertility. Cooperative course taught jointly by WSU and UI (AVS 350).

351 Physiology of Reproduction Laboratory 1 (0-3) Prereq A S 350 or c//. Laboratory and field techniques used in animal reproduction involving hormones, artificial insemination, semen evaluation and pregnancy.


380 Careers in Animal Science 1 Issues and preparation for careers in animal sciences.

398 Cooperative Education Externship V 2-8 May be repeated for credit; cumulative maximum 12 hours. Cooperative education externship in livestock production or related field. S, F grading.

400 Practicum V 1-8 May be repeated for credit; cumulative maximum 12 hours. Directed internship in livestock production and related fields conducted at WSU centers on or off campus. S, F grading.


440 [M] Physiology of Domestic Animals 3 Biol 106; Biol 107. Basic animal functions; relationship and difference between domestic animals; measurement of functional processes.

451 Endocrine Physiology 3 Prereq Biol 106; Biol 107; MBioS 303. Anatomy, physiology, and biochemistry of endocrine systems and hormone action; emphasis on comparative, veterinary, and biomedical models. Credit not granted for both A S 451 and 551. Cooperative course taught jointly by WSU and UI (ANSC 451).

452 Physiology of Lactation 3 Prereq A S 350. Anatomy, physiology, and endocrine control of mammary gland development and milk secretory process. Cooperative course taught jointly by WSU and UI (ANSC 452).

454 Artificial Insemination and Pregnancy Detection 2 (1-3) Prereq A S 351. Techniques in semen handling, insemination and pregnancy detection in cattle. Special clothing required. Cooperative course taught jointly by WSU and UI (AVS 218).

464 [M] Companion Animal Management 3 (2-3) Prereq FSHN course; Biol course; Stat course. Care and management of companion animal species throughout the life cycle, including nutrition, reproduction, exercise and behavior. Cooperative course taught by WSU, open to UI students (AVS 464).

466 Horse Production 3 Prereq A S 313; A S 330; A S 350. Principles of breeding, feeding, and management of horses. Field trip required. Cooperative course taught by UI, open to WSU students (ANSC 388).

472 Dairy Cattle Production 3 (2-3) Prereq A S 313; A S 330; A S 350. Principles of breeding, feeding, and management of dairy cattle. Field trip required. Cooperative course taught jointly by WSU and UI (ANSC 323).

474 [M] Beef Cattle Production 3 (2-3) Prereq A S 313; A S 330; A S 350. Breeding, feeding, and management; commercial and purebred enterprises; management of beef cattle on ranges, pastures and in the feedlot. Field trip required. Cooperative course taught jointly by WSU and UI (ANSC 321).

476 Sheep Science 3 (2-3) Prereq A S 313; A S 330; A S 380. Application of principles of genetics, reproduction, nutrition, health, marketing to management; and use of wool. Cooperative course taught by UI, open to WSU students (AVS 476).

478 [M] Swine Production 3 (2-3) Prereq A S 313; A S 330. Principles of breeding, feeding, management, and marketing of swine. Field trips and special clothing required. Cooperative course taught by WSU, open to UI students (ANSC 326).

480 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

488 [M] Perspectives in Biotechnology 3 Prereq MBioS 301 or A S 330. Theory and application of biotechnology in agriculture, industry, and medicine; methodological, environmental, social, and economic concerns. Cooperative course taught by WSU, open to UI students (AVS 488).

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Seminar in Animal Sciences 1 May be repeated for credit. Current developments in animal sciences.

504 Special Topics V 1-4 May be repeated for credit; cumulative maximum 12 hours. Cooperative course taught by UI, open to WSU students (AVS 504).

507 Advanced Nutrient Metabolism 3 Prereq FSHN course; MBioS 303. Advanced topics in metabolic regulation of carbohydrate, fat and amino acid use by animals. Cooperative course taught by WSU, open to UI students (ANSC 512).

510 Digestion and Nutrient Utilization in Animals 3 (2-3) Prereq FSHN course. Gastrointestinal physiology, rate of passage, feed intake regulation, measures of digestibility, starch, fat and nonstarch polysaccharide, and digestion and utilization of nutrients.

513 Mineral and Vitamin Metabolism 4 Prereq FSHN course; MBioS 303. Absorption, excretion, metabolism, dietary requirements and interactions of minerals and vitamins in animals and humans. Cooperative course taught by WSU, open to UI students (FCS 513).

520 Preparation of Scientific Literature in Animal Sciences 2 Preparation of grant proposals, manuscripts, and literature reviews on research topics.

528 Topics in Animal Breeding 2 May be repeated for credit; cumulative maximum 4 hours. Prereq graduate standing. Systems of selection and mating for genetic improvement in farm animals.

551 Endocrine Physiology 3 Graduate-level counterpart of A S 451; additional requirements. Credit not granted for both A S 451 and 551. Cooperative course taught jointly by WSU and UI (ANSC 551).

558 Molecular and Cellular Reproduction 3 (2-2) Same as MBioS 528.

582 Seminar in Reproductive Biology 1 Prereq graduate standing. Current developments in reproductive biology. Cooperative course taught by WSU, open to UI students (BIOL 551). S, F grading.

588 Perspectives in Biotechnology 3 Prereq MBioS 301. Graduate-level counterpart of A S 488; additional requirements.

598 Advanced Topics in Animal Sciences 1 or 2 May be repeated for credit. Recent research in various disciplines of animal sciences. Cooperative course taught by WSU, open to UI students (AVS 598).

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

**Department of Anthropology**

libarts.wsu.edu/anthro/ College Hall 150 509-335-3441


The curriculum includes courses in the four major subfields of anthropology: archaeology, cultural/social anthropology, linguistic anthropology, and physical/biological anthropology. These courses familiarize students with current issues in human evolution, linguistics, the prehistoric development of culture, and cultural theory. Undergraduate majors are required to gain a background in all four of these major subfields. Graduate students may specialize in archaeology, cultural anthropology, or evolutionary anthropology. The program in archaeology emphasizes the prehistory of western North America as well as ecological archaeology, past environments, quantitative methods, modeling and simulation, and lithic analysis, and includes courses taught by faculty with specialties in each of these areas. The department also conducts summer archaeological field schools in the Pacific Northwest and the Southwest. The program in cultural anthropology emphasizes globalization, historical ethnography, psychological anthropology, medical anthropology, gender and culture, biocultural perspectives, and environmental anthropology. The environmental anthropology emphasis is part of the Peace Corps Master’s International Program. Faculty research is based in North and South America, Polynesia, Sub-Saharan Africa, and South Asia. The program in evolutionary anthropology emphasizes evolutionary psychology, behavioral ecology, evolutionary cultural anthropology, evolutionary archaeology and paleoanthropology. Evolutionary faculty have research interests that span several continents including the Americas, Europe and Africa. The department also emphasizes research and training in Psychological/Medical Anthropology and Ethnobiology.

Department offices and laboratories are located in College Hall near the center of campus. Physical facilities include special laboratories for physical anthropology, lithic analysis, paleoecology, geoarchaeology, and zooarchaeology, as well as research laboratories for faculty and advanced students. The Museum of Anthropology, with permanent and temporary exhibits, and ethnographic and archaeological research collections, is also housed in College Hall.

The department offers courses of study leading to the degrees of Bachelor of Arts in Anthropology, Master of Arts in Anthropology, and Doctor of Philosophy (Anthropology). Positions open to anthropologists include those in teaching, research, museum work, state and federal agencies, private consulting firms, and international business. In addition, anthropology provides a strong general foundation for a pre-professional education.

We expect that our graduating students will have:
1. Familiarity with the basic principles and findings of ethnology, archaeology, physical anthropology, and linguistics, the four subfields of American anthropology as well as the ways in which these four subfields are interrelated;
2. Awareness of the basic research and analytical methods and underlying theories of the four subfields of anthropology;
3. Ability to read critically and synthesize information produced by professional anthropologists and published in academic books and journals;
4. Ability to write in accessible, standard, academic prose narratives that are marked by: a framework of clear, general statements; specific, concrete evidence that supports these statements; analysis and discussion of the material presented; and a coherent summary conclusion, indicating the significance of the work;
5. Ability to apply the principles, findings, and research and analytical methods of anthropology to new situations and data, including those of everyday life.

**Schedules of Studies**

**ANTHROPOLOGY DEGREE PROGRAM (120 HOURS)**

A minimum of 34 hours in anthropology courses are required. Grades of C- or higher are considered passing grades for all anthropology classes. D- and lower are failing grades. No required course can be taken pass, fail.

The anthropology major must complete a core: Anth 203, 230, 260, 490, and one course from each of the following: a) Anth 300, 301, 303, 304, 306, 307, 309, 316, 320, 327, 401, 402, 403, 404, 405, 418, 419, or 428; b) Anth 350, 355, or 450; c) Anth 463, 465, 466, or 468; d) Anth 300, 330, 331, 334, 336, 370, 430, or 436.
Anthropology

First Year

First Term  
Anth 203  3
Engl 101 [W] (GER)  3
Foreign Language, if necessary, or Elective  3 or 4
GenEd 110 [A] (GER)  3
Science Elective [B,P] (GER)  4

Second Term  
Anth 260  4
Biological Sciences [B] (GER)  4
Communication Proficiency [C,W] (GER)  3
Foreign Language, if necessary, or Elective  3 or 4
GenEd 111 [A] (GER)  3

Second Year

First Term  
Anth 230  3
Math Proficiency [N] (GER)  3 or 4
Physical Sciences [P] (GER)  4
Social Sciences [S,K] (GER)  3

Second Term  
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)  6
Biological Anth Elective  3
Cultural Anth Elective  3
Intercultural Studies [I,G,K] (GER)  3
Complete Writing Portfolio

Third Year

First Term  
Anth 390  3
Archaeology Anth Elective  3
Arts & Humanities [H,G] (GER)  3
Arts & Humanities [H,G] or Social Sciences [S,K] (GER)  3
Electives  3

Second Term  
Anth Electives  6
Consider study abroad or summer field school  300-400-level Electives  9

Fourth Year

First Term  
Anth 340 [M], 390 [M], 401 [M], 403 [M], 405 [M], or 430 [M]  3
Linguistic Anth Elective  3
300-400-level Electives  9

Second Term  
Anth 490 [M]  3
Tier III Course [I] (GER)  3
300-400-level Electives  9

Minors

Anthropology

A student with 60 semester hours may certify a minor. A minor requires a minimum of 18 semester hours in anthropology, including three of the following: Anth 101 or 198, 203, 230, and 260. At least 9 hours must be 300-400-level work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A minimum grade of C- is required in each course contributing to the minor.

Description of Courses

ANTHROPOLOGY

Anth

101 [K] General Anthropology  3 Major subfields of anthropology; physical (human evolution and race), cultural-social, archaeology, and linguistics.

130 [I] Great Discoveries in Archaeology  3 Impact of great archaeological discoveries and the work of archaeologists on our sense of the past.

198 [K] Anthropology Honors  3 Open only to students in the Honors College.

201 [G] Art and Society  3 Art as an expression of social and cultural systems in non-Western societies.

203 [K] Peoples of the World  3 Principles of cultural anthropology through study of various ethnic groups from different parts of the world.

214 [S,D] Gender and Culture in America  3 Exploration or variation in gender relations, relationships, values, and institutions among men and women in US, ethnic, and other subcultures.

230 Introduction to Archaeology  3 Development of a dynamic picture of past human behavior from archaeological evidence.

260 [B] Introduction to Physical Anthropology  4 (3-3) Evidence for human evolution; processes of racial differentiation; techniques of physical anthropometry.

275 Special Topics: Study Abroad  3 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

300 Field Methods  3 Prereq permission by application. Practice in methods of archaeological, ethnological, or linguistic field research.

301 [G] Arts and Media in Global Perspective  3 Contemporary arts and media around the world, and their impact on identity, society, and culture.

302 [K] Childhood and Culture  3 Anthropological theory and methods applied to the study of infant, child, and adolescent development.

303 Gods, Spirits, Witchcraft and Possession  3 Non-Western religions; religion as a cultural system.

306 [K] Cultures and Peoples of the Middle East  3 Contemporary Arab cultures in a historical perspective within the framework of Western-Middle Eastern relations.

307 [K] Contemporary Cultures and Peoples of Africa  3 Introduction to family, social, political, economic and religious institutions of African cultures in context of African social issues.

309 [K] Cultural Ecology  3 Sophomore standing; rec Anth 101 or 203. Major findings of ecological anthropology relating to problems of population, resources, and environment in small-scale cultures.

312 [S,D] Native American Women in Traditional and Contemporary Societies  3 Prereq one of Anth 101, 214, GenEd 110, 171, or W St 200. Same as CES 372.

316 [K] Gender in Cross Cultural Perspective  3 Prereq Anth 101, Psych 105, Soc 101, or W St 200; sophomore standing. Cross-cultural examination of the status and roles of women and men, sexuality and marriage, and folk concepts of sexual anatomy in traditional cultures in Western science; concepts of nature and culture are explored through a variety of perspectives.

317 [I] Global Feminisms  3 Same as W St 332.


327 [S,D] Contemporary Native Peoples of the Americas  3 Prereq Anth 101 or GenEd 110. Cultures and environments of North/Middle America from the arrival of the earliest hunter-gatherers to the complex Mayan and Aztec civilizations.

334 [S,D] Time and Culture in the Northwest  3 Prereq Anth 101 or permission of instructor. The archaeologically reconstructed environmental and cultural past of the Northwest including contemporary scientific and social approaches.


340 [K,M] Maya, Aztec and Inca Civilizations  3 Prereq Anth 101, 330, or 336. Examination of the great prehistoric civilizations of Mesoamerica and South America.

350 [S] Speech, Thought and Culture  3 The role of language in social situations and as a reflection of cultural differences.

370 Past Environments and Culture  3 People and their environments from the Ice Age to modern time; archaeological, ecological, and biological data.

1 Two years of one foreign language from high school or one year at college required.

2 Math 212 preferred.


4 Concentrating electives beginning in the junior year in one subarea of anthropology or in a minor discipline in consultation with the adviser is recommended.

5 Select courses from the four subdisciplines.
Introduction to Osteology 3 Introduction to the field of osteology including molecular analysis, paleopathology, taphonomy and forensic analysis.

Primate Behavioral Ecology 3 Prereq Anth 101 or Biol 101, 102 or 150. Evolution of primate behavior from ecological and phylogenetic perspective emphasizing methods for understanding primate adaptations and diversity.

History of Anthropological Thought 3 Prereq junior standing. Development of theories in anthropology including contributions of significant individuals, representative classics and influential current movements.

Topics in Anthropology V 3-6 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing. Examination of selected topics in contemporary anthropological theory and practice.

Archaeological Field School V 2-8 Prereq permission of instructor by application. Training in methods of archaeological data recovery and analysis.


The Self in Culture 3 Prereq 100, 200, and 300-level (one of each) in Anth, Hist, Psych, Literature, or Soc; completion of one Tier I and three Tier II courses. Survey of anthropological theories exploring self in Western/non-Western cultures through dreams, history, and human development.

Medical Anthropology 3 Prereq completion of one Tier I and three Tier II courses. Relationships among disease, curing, culture and environment; non-Western medical systems; political economy of health care.

Anthropology of Epidemic Disease and Bioterrorism 3 Human and world response to epidemics, cultural contexts terrorism, biocultural approaches to epidemic disease, bioterrorism in human history.

History of American Indian Sovereignty and Federal Indian Law 3 Same as Hist 410.

Anthropology and World Problems 3 3 credits Anth, completion of one Tier I and three Tier II courses. Data and methods of cultural anthropology applied to the solution of contemporary human problems, emphasizing sustainable development.

Human Issues in International Development 3 Interdisciplinary analysis of complex interaction between tradition and modernity in Third World societies.

Introduction to Archaeological Method and Theory 3 Prereq Anth 230; 330 or 331. Archaeological theory in anthropological perspective; current trends in method and theory in American archaeology.

Ethnoarchaeology 3 Multidisciplinary approach (archaeology, ethnography and history) to the interpretation of past human cultures.

Descriptive Linguistics 3 Introduction to analysis and description of natural languages; phonological, syntactic, and semantic analysis of data from a variety of languages. Credit not granted for both Anth 450 and 550. Cooperative course taught by WSU, open to UI students (ANTHR450).

Anthropology of Life and Death 3 Prereq Anth 260. Demography, dynamics of evolution, human ecology, and their relationships to the biology of living, historical, and archaeological populations. Credit not granted for both Anth 463 and 563. Cooperative course taught jointly by WSU and UI (ANTH 412).

Human Evolution 3 Prereq Anth 260. Human origins in the light of the fossil record and evolutionary theory. Credit not granted for both Anth 465 and 565. Cooperative course taught jointly by WSU and UI (ANTH 411).

Sex, Evolution, and Human Nature 3 Prereq Anth 260; completion of one Tier I and three Tier II courses. Human sexuality, male-female relations, cooperation, violence and parent-child relations examined cross-culturally and in nonhuman primates utilizing evolutionary and biocultural perspectives.

Genes, Culture and Human Diversity 3 Prereq completion of one Tier I and three Tier II courses. Relationships between genes, language and culture are explored as a means to understanding world history, genetic and cultural diversity and unity.

Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

Integrative Themes in Anthropology 3 Prereq Anth 203, Anth 230, Anth 260; Anth 390. Current research crosscutting traditional subdisciplines of anthropology.

Anthropology Internship V 1-15 May be repeated for credit; cumulative maximum 15 hours. Prereq junior standing. Participation as archaeological or cultural anthropological intern in public or private sectors; requires special arrangement with faculty advisor. S, F grading.

Special Problems V 1-4 May be repeated for credit. S, F grading.

Field Methods V 2-8 Prereq permission by application. Training in gathering and analyzing field data.

Cross-cultural Gender and Kinship 3 Graduate-level counterpart of Anth 402; additional requirements. Credit not granted for both Anth 402 and 502.

Tribal Peoples and Development 3 Global and historic perspectives on the complex issues surrounding the problem of tribal peoples and development.

Advanced Studies in Culture Theory 3 May be repeated for credit; cumulative maximum 6 hours. Prereq 6 hours in social sciences. Evaluation of major theories and methods and their relationship to problems in cultural-social analysis.

Fundamentals of Cultural Anthropology 3 Overview of basic concepts and theory in cultural anthropology based on in-depth analysis of selected theoretical and ethnographic materials.

Lithic Technological Organization 4 (3-3) Methods and theory of lithic technology.

Ceramic Analysis 4 (3-3) Prereq graduate standing or permission of instructor. Basic concepts, methods, and approaches used in the analysis of archaeological pottery.

International Development and Human Resources 3 History of and recent changes in international development emphasizing anthropological perspectives.

Historical Ethnography 3 May be repeated for credit; cumulative maximum 9 hours. Culture history, ethnography, theoretical, and contemporary problems of selected culture areas.

Seminar in Ethnography 3 Prereq graduate standing. Methodological, stylistic and craft issues in the process and product of ethnography.

Archaeological Method and Theory 3 History of anthropological method and theory; analysis of current literature.

Cultural Resource Management 3 Prereq graduate standing. Role of archaeology in historic preservation and resource conservation; legal and institutional frameworks; research and interpretation in a CRM context. Cooperative course taught by WSU, open to UI students (ANTHR535).

Quantitative Methods in Anthropology 4 (3-3) May be repeated for credit; cumulative maximum 8 hours. Prereq undergraduate Stat course. Sampling, exploratory data analysis, inferential statistics, and use of SAS in anthropological research with emphasis on archaeology.

Prehistory of the Southwest 3 Prehistory of the American Southwest; emphasis on Pueblo, Mogollon and Hohokam traditions and relationships to historic native groups.

Prehistory of the Northwest Coast 3 Prehistoric cultures, chronologies, and interrelationships on the northwest coast of North America.

Prehistory of the Plateau and Basin 3 Prereq graduate standing. Archaeology of the interior Northwest and Great Basin.

Historical Archaeology 3 Excavation and analysis of historical archaeological sites; acculturational implications. Cooperative course taught by UI, open to WSU students (ANTH 531).

Complexity in Small Scale Societies 3 Prereq Anth 530; graduate standing. Seminar focused on classic literature and current issues relevant to complexity in small scale societies, predominately covering hunter-gatherer systems.

Models and Simulation 3 Models and model-building as an anthropological approach to present and past cultures.
548 Hunters and Gatherers: Past and Present
3 Prereq graduate standing. Introduction to hunter-gatherer studies in anthropology and archaeology exploring uses of evolutionary approaches to modeling and reconstructing hunter-gatherer behavior in contemporary and prehistoric contexts.

549 Settlement and Agro-Pastoralism 3 Prereq Anth 350; graduate standing. Development of settled communities and food production through evaluation of their social, economic and spatial configurations.

550 Descriptive Linguistics 3 Graduate-level counterpart of Anth 450; additional requirements. Credit not granted for both Anth 450 and 550. Cooperative course taught by WSU, open to UI students (ANTH550).

554 Anthropological Field Methods Seminar 3 Prereq Anth 450 or 550. Elicitation, recording techniques and analysis of sociocultural and linguistic field data.


562 Evolutionary Method and Theory in Anthropology and Archaeology 3 Prereq permission of instructor. A graduate-level seminar-based course focusing on the evolutionary analysis of past and present human behavior.

563 Anthropology of Life and Death 3 Prereq Anth 260. Graduate-level counterpart of Anth 463; additional requirements. Credit not granted for both Anth 463 and 563. Cooperative course taught jointly by WSU and UI (ANTH 512).

564 Advances in Evolution and Human Behavior 3 Prereq one biology or biological anthropology course; one upper-division behavioral science course; graduate standing. Recent trends in the study of evolution and human behavior.

565 Human Evolution 3 Prereq Anth 260. Graduate-level counterpart of Anth 465; additional requirements. Credit not granted for both Anth 465 and 563. Cooperative course taught jointly by WSU and UI (ANTH 511).

567 Primate Behavioral Ecology 3 Prereq one biology or biological anthropology course; junior or graduate standing. Seminar-based course focusing on evolutionary analysis of primate behavior, morphology and ecology.

569 Evolutionary Cultural Anthropology 3 Prereq graduate standing. Evolutionary nature of culture and its interactions with human biology (genes) and ecology.

570 Sediments in Geoarchaeology 4 (3-3) Sediment-forming processes, sedimentological techniques, reconstruction of Quaternary environments, and sedimentology of site-forming processes.

573 Zooarchaeology 4 (2-6) Identification of animal bones from archaeological sites, methodological and theoretical techniques for interpreting faunal remains. Cooperative course taught by WSU, open to UI students (ANTHR573).

576 Palynology 4 (3-3) Pollen and spore morphology, evolution, production, dispersal, and preservation; index fossils, dating, archaeology, and vegetational history. Field trip required.

581 Comparative Biology of Social Traditions 3 Prereq Anth 260 or Biol 106; senior or graduate standing. Phylogenetic and modeling perspectives used to examine the evolution of social learning and cultural transmission in humans and other animals.

591 Special Topics in Anthropology 3 May be repeated for credit; cumulative maximum 9 hours. Examination of special areas of anthropological theory and research.

593 Publishing and Professional Communication 3 Preparation of original research reports; survey of types of professional communication, and of standards and techniques.

596 IPEM Seminar 1 Prereq IGERT fellow. Symposia and project work sessions for the WSU/UW IGERT: Program in Evolutionary Modeling. S, F grading.

598 Advanced Anthropology Internship V 1-15 May be repeated for credit; cumulative maximum 15 hours. Prereq graduate standing. Participation as archaeological or cultural anthropological intern in public or private sectors; requires special arrangement with faculty advisor. S, F grading.

599 Archaeological Field School V 2-8 Prereq graduate standing and permission of instructor by application. Training in methods of archaeological data recovery and analysis.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Department of Apparel, Merchandising, Design And Textiles
amdt.wsu.edu
Kruegel 51
509-335-1233

Chair, K. Leonas; Professor, L. Arthur; Associate Professors, C. Black, J. Ellis, C. Salusso; Assistant Professors, T. Chi, M. Chida, Y. Kwon; Senior Instructor, P. Fischer.

Apparel, Merchandising, Design and Textiles offers Bachelor and Master of Arts degrees, and also participates in the Interdisciplinary Doctoral Program.

The Department of Apparel, Merchandising, Design, and Textiles has no peers in the state when considering the range and depth of programs at the undergraduate and graduate levels. The Washington textile and apparel industry is global, massive, multi-faceted and in close competition with California for level of productivity and profit. Washington is ranked as one of the top five apparel and manufacturing centers in the U.S. Apparel, merchandising, design, and textiles graduates are thoroughly prepared for exciting and challenging careers in the textile and apparel industry through coursework designed to develop both professional and personal expertise. The curriculum options are designed to:

- Explore textile and apparel industry issues and practices encompassing historic and futuristic global technological and economic trends, challenges, and opportunities.
- Develop an understanding of the societal, psychological, and cultural factors that influence consumer response to apparel and textile products.
- Provide opportunities for students to practice methods and skills required for developing and evaluating apparel and textile products, merchandising those products, analyzing consumer uses and mediating consumer responses to apparel and textile products.
- Develop analytical, evaluative, communication, teamwork and leadership skills necessary to succeed in today’s work environment.

Areas of Study
All apparel, merchandising, design, and textile majors complete core courses that introduce fundamental concepts and methods. Students then develop an area of expertise by selecting an option in apparel design or merchandising, and are encouraged to take courses or obtain a minor in related areas of interests.

Internships
Students in the merchandising option must complete an internship while apparel design option students are also highly encouraged to complete an internship in the apparel, merchandising, and textiles industry. Opportunities exist within the apparel, merchandising and textile complex throughout Washington, across the U.S. and through our active study abroad program. Internships provide a competitive edge and yield higher-level positions upon graduation as well as significantly better entry salaries.

Preparation for Graduate Study
Normally the applicant for graduate study should have an undergraduate major in apparel, merchandising, design, and textiles. However, candidates with a good record in related fields may be well prepared for certain areas of advanced study. Students from related disciplines are required to take some courses required of undergraduate majors in these fields. Please refer to WSU Graduate catalog and web site at http://www.wsu.edu:8080/~gradsch/.

Schedules of Studies

APPAREL DESIGN REQUIREMENTS (120 HOURS)
Apparel design focuses on the interaction between design and merchandising and offers depth in apparel design. Students typically complete a minor in Fine Art and/or Business Administration.

Students wishing to certify in apparel merchandising, design, and textiles must have a
minimum 2.70 cumulative GPA. Students must receive a C or better grade in all AMT courses and Mktg 360. A course may only be repeated once. Courses required in these programs cannot be taken on a pass, fail basis. To maintain certification, a 2.70 cumulative GPA is required each semester. Independent study and internship courses (490, 495, 498) will not be included in GPA calculations. Students dropping below a 2.70 GPA will be de-certified and can reapply when the GPA is 2.70 or above. Students interested in the apparel design option are accepted through a portfolio review process. Applications are available in the main office and need to be submitted during the spring semester of the second year. Transfer students who have completed two years of college may submit an application during the summer prior to the first semester of attendance at WSU for consideration.

**First Year**

**First Term**
- AMT 108  
- Eng 101 [W] (GER)  
- FA 101 [H] (GER) recommended  
- GenEd 110 [A] (GER)  
- Soc 101 [S,D] or Psych 105 [S] (GER) recommended  

**Second Term**
- AMT 210  
- AMT 211  
- AMT 220  
- Stat 212 [N] (GER) recommended  

**Second Year**

**First Term**
- AMT 315  
- AMT 368  
- Physical Sciences [P] (GER)  
- EconS 101 [S] or 102 [S] (GER)  
- Elective  
- Complete Writing Portfolio  

**Third Year**

**First Term**
- AMT 311  
- AMT 314  
- AMT 410  
- AMT Elective  
- Intercultural Studies [I,G,K] (GER)  

**Second Term**
- Biological Sciences [B] (GER)  
- AMT 420 [M]  
- Mktg 360  
- Electives  

**Fourth Year**

**First Term**
- AMT 318  
- AMT 411  
- AMT 490 or AMT Electives  

**Second Term**
- AMT 412  
- AMT 413 [M]  
- AMT 417 [M]  
- AMT 496  
- Electives  

**MERCHANDISING REQUIREMENTS (120 HOURS)**

Merchandising includes courses designed to allow students to develop competence in the planning, buying, and selling of merchandise in either manufacturing or retail organizations. Curriculum includes a focus on marketing. Students often pursue one of the minors in Business.

Students wishing to certify in apparel merchandising, design, and textiles must have a minimum 2.70 cumulative GPA. Students must receive a C or better grade in all AMT courses, Mktg 360, and EconS 352. A course may only be repeated once. Courses required in these programs cannot be taken on a pass, fail basis.

**First Year**

**First Term**
- AMT 108  
- ComSt 102 [C] or H D 205 [C] (GER) recommended  
- F A 110 or 111  
- GenEd 111 [A] (GER)  
- MBioS 130 [B] (GER) recommended  

**Second Term**
- AMT 208  
- AMT 211  
- AMT 210  
- Stat 212 [N] (GER) recommended  

**Second Year**

**First Term**
- AMT 315  
- AMT 368  
- Physical Sciences [P] (GER)  
- EconS 101 [S] or 102 [S] (GER)  
- Elective  

**Third Year**

**First Term**
- AMT 311  
- AMT 314  
- AMT 410  
- AMT Elective  
- Intercultural Studies [I,G,K] (GER)  

**Second Term**
- Biological Sciences [B] (GER)  
- AMT 420 [M]  
- Mktg 360  
- Electives  

**Fourth Year**

**First Term**
- AMT 318  
- AMT 411  
- AMT 490 or AMT Electives  

**Second Term**
- AMT 412  
- AMT 413 [M]  
- AMT 417 [M]  
- AMT 496  
- Electives  

**Tier III Course**
- AMT 492  

**Tier III Capstone Course**
- AMT 490  

**Electives**
- AMT 417 [M]  
- AMT 413 [M]  
- AMT 496  
- Electives  

**APPAREL, MERCHANDISING, DESIGN & TEXTILES**

**AMT**

**108 Introduction to Apparel, Merchandising, Design and Textiles**
- Prereq AMT 108 or permission of instructor. Examination of fashion promotion components of visual display and store layout; application of principles and elements of design and concept development.

**210 Textile Specifications**
- Examination of basic textile components including fibers, yarns, structure, coloration, and finishes relative to performance standards and expectations for intended use.

**211 Apparel and Textile Product Development**
- Problem solving approach to apparel and textile product assembly with emphasis on product development process.

**212 Apparel Quality and Product Analysis**
- Prereq AMT 210. Analysis of apparel manufacturing including product development, product management and production and analysis of overall quality assessment.

**220 Historic Costumes and Textiles**
- Historical survey of world dress and textiles from prehistory to mid-1800s.

**311 Draping and Flat Pattern**
- Prereq AMT 211 and certification in Apparel Design. Introductory draping, drafting, and flat pattern techniques for apparel patternmaking.

**312 Fitting the Human Form**
- Prereq AMT 311. Advanced level exploration of draping and flat pattern techniques; industry specification practices and fitting techniques are emphasized.

**314 Fashion Forecasting**
- Prereq AMT 208, 210; and certification in Apparel Design or Merchandising. Developing forecasting expertise needed to work in merchandising environment; examined through influences on acceptance and rejection of apparel/textile products.

318 Merchandising Buying and Planning 3 (2-2) Prereq EconS GER, Math GER; and certification in Apparel Design or Merchandising. In-depth study of apparel buying and planning, application of buying and planning principles, problem solving skill development.

368 Illustration and Rendering Techniques 3 (0-6) Prereq F A 110. Illustration and rendering used for costume and fashion design.

408 [T] Visual Analysis and Aesthetics 3 Prereq AMT 368, Com 321, F A 204 or Mktg 360; completion of one Tier I and three Tier II courses. In-depth analysis of the visual interaction among apparel, accessories and the body; identifying effective visual communication.

410 Advanced Assembly Techniques 3 (0-6) Prereq AMT 210; certification in Apparel Design. Advanced assembly techniques for a range of textiles and multi-layer garments; emphasis of high-quality execution on final products.

411 Fashion Line Pre-development 3 (0-6) Prereq AMT 311. Exploration of design inspiration and development of theme and strategy for a fashion line presented in an annual fashion show event.

412 Fashion Line Development 3 (0-6) Prereq AMT 410, 411, and certification in Apparel Design. Development of original fashion lines for an annual fashion event.

413 [M] International Trade in Textiles and Apparel 3 Prereq Mktg 360 and certification in Apparel Design or Merchandising. Economic/social conditions influencing apparel trade and consumption; comparison of production, distribution, and consumption of apparel in the global economy.

417 [T,D] Multicultural Perspectives on the Body and Dress 3 Prereq 6 hours social science; completion of one Tier I and three Tier II courses. Engagement in multidisciplinary approaches that explore the social importance of the body, gender and dress.

419 Regional Experience in Apparel/ Textiles Field V 1-3 May be repeated for credit; cumulative maximum 6 hours. Field trip to experience the textile and apparel industry from the perspective of professionals within a wide range of careers. Additional cost associated with trip. See department for details.


429 National Experience in Apparel/ Textiles Field V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing. Field trip to experience national culture integrated with the field of textiles and apparel in industry centers in the US. Additional cost associated with trip. See department for details.

439 International Experience in Apparel/ Textiles Field V 1-3 May be repeated for credit; cumulative maximum 6 hours. Field trip to experience international culture integrated with the field of textiles and apparel in industry centers worldwide. Additional cost associated with trip. See department for details.

440 Advanced Retail Management 3 Prereq AMT 318; EconS 352. Advanced application of management principles and theory in the retail world.

450 Strategy Planning and Decision Making 3 Prereq AMT 318. Examination and synthesis of advanced merchandising theory; strategic planning, decision-making and the role of technology in the textile and apparel industry.


480 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

490 Cooperative Education Internship V 1-10 May be repeated for credit; cumulative maximum 12 hours. Prereq certification in Apparel Design or Merchandising. Experience with business, industry or government unit.

492 Computer Applications in Apparel, Textile, and Design 3 (1-4) Prereq AMT 312; AMT 368. Computer-aided design techniques in fashion graphics; portfolio development and presentation.

495 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq by interview only.

496 Special Event Production V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq AMT 208 or 211, department major and permission of instructor. Producing, exhibiting, and promoting product lines/special events or apparel, textiles and illustrations exhibits.

498 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Current issues, trends, and merchandising strategies in apparel and textiles.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

508 Theoretical Frameworks Underlying Scholarship 3 Exploration of current topics through readings in apparel, merchandising, and textiles.

519 Research Methods 3 Prereq graduate standing; AMT 508; graduate course in statistics or permission of instructor. Analysis and understanding of research methods, exploration of thesis topic as applicable to the fields of apparel, merchandising, design and textiles.

520 Aesthetic Analysis of Fashion Design 3 Prereq graduate standing. In-depth analysis of apparel fashion design provided through exploration of aesthetic and human perception theories within a socio-historic context.

596 Advanced Instructional Practicum 3 Prereq Univ 590 or c/f. Information and direction for graduate student teaching assistants seeking professional development in classroom teaching. S, F grading.

598 Topics in Apparel and Textiles V 1-3 May be repeated for credit; cumulative maximum 8 hours. Current topics in apparel and textile theory and research.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination V 1-18 May be repeated for credit. S, F grading.

School of Architecture and Construction Management

www.arch.wsu.edu
Carpenter Hall
509-335-5639


The School

The School of Architecture and Construction Management offers courses of study leading to two baccalaureate degrees, the Bachelor of Science in Construction Management and Bachelor of Science in Architectural Studies. Students graduating in Architecture and Construction Management are able to: 1) understand the role of architecture and construction management within current cultural and global conditions, 2) understand the role of architecture and construction management in the enhancement and preservation of natural resources, 3) understand the role of history and its transformations over time, 4) develop a desire and passion for life-long learning, and 5) develop intellectual and analytical skills that will be the foundation for future leaders.

The School of Architecture and Construction Management is a member of the Association of Collegiate Schools of Architecture (ACSA) and the Associated Schools of Construction (ASC). Student
chapters of the American Institute of Architects (AIA) and the Associated General Contractors (AGC) provide linkages with their professional counterparts.

**Architecture**

The School offers as its professional degree in Architecture the Master of Architecture. This degree is the professional degree accredited by the National Architectural Accrediting Board (NAAB) which allows students to take state exams and become licensed architects. Students must successfully complete a four-year undergraduate degree in architecture or a previous five-year Bachelor of Architecture degree to be eligible for entry to the Master of Architecture program. Please consult the WSU Graduate Catalog for specific information regarding this degree as well as admission requirements and course descriptions.

The School of Architecture and Construction Management also offers a post-professional course of study leading to a Master of Science in Architecture. This degree is available at the Spokane campus. It should be noted that this degree is not a professional accredited degree.

Most states require that an individual intending to become licensed as an architect hold an accredited degree. There are two types of degrees that are accredited by NAAB: (1) the Bachelor of Architecture, which requires a minimum of five years of study, and (2) the Master of Architecture. As stated above WSU offers the Master of Architecture as the professional accredited degree.

The four-year, pre-professional degree at WSU is not accredited by NAAB. This degree provides a thorough foundation in the field of architecture, as preparation for either continued education in a professional degree program or for employment in the architecture profession with a licensed architect and employment options in fields related to architecture.

The architecture curriculum is planned so that foreign study and other off-campus programs can be incorporated in the fourth year of study or during the summer. Foreign studies options include WSU sponsored programs, and programs offered by other institutions. Coordination is through the WSU Education Abroad Office.

**Construction Management**

The management of construction projects has become more complex due to the shortage of resources, specialized materials, sophisticated delivery methods and the financial and legal responsibilities encountered during the project life cycle. From construction management to project management and program management, the needs of the industry and the built environment are expanding at an unprecedented rate. At the heart of the building process is the construction professional.

The Construction Management Program provides students with the tools and skills necessary to develop strong administrative, leadership and management expertise to be successful in today's construction industry. Students pursuing a degree in Construction Management will be expected to understand a wide variety of topics that make up the built environment. This expertise includes understanding properties of materials and construction systems required for the construction professional. Concepts regarding contract administration, sustainability, risk management, estimating and scheduling are critical skills. Students in this program are encouraged to develop an inquisitive and inventive mind in order to understand the management techniques, methods and sequencing. It is also important that the graduate in construction management be knowledgeable in the field of business. Courses offered in a variety of departments are required to assure this breadth of understanding. The Bachelor of Science in Construction Management degree program is accredited by the American Council for Construction Education (ACCE). Once certified in the major, students must maintain an overall minimum GPA of 2.5 or will be dismissed from the program.

**Transfer Students**

Students planning to transfer into the Construction Management discipline at Washington State University are subject to the same requirements as all other non-certified students. Transfer students must fulfill all first year course requirements and apply for certification before admittance into the program.

**Schedules of Studies**

**ARCHITECTURE (PRE-PROFESSIONAL PROGRAM)**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arch 101</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 107, if necessary, or Electives</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

**Second Term | Hours**

| Arch 103 | 3 |
| Arch 202 | 3 |
| F A GER Elective [H,G] | 3 |
| GenEd 110 [A] or 111 [A] (GER) | 3 |
| Math 171 [N] or 206 [N] (GER) | 3 or 4 |

1. 3 hours of American Diversity [D] are required and can be combined with Humanities and Fine Arts, Social Sciences, or Tier III GER.
2. 3 hours of Fine Arts Electives are required. Fine Arts GERs will fulfill this requirement.
3. Students who are not adequately prepared for Math 171 or 206 should take Math 107 as needed during the fall semester of their first year. All freshmen must take the math placement exam.

**BACHELOR OF SCIENCE IN ARCHITECTURAL STUDIES (2ND THROUGH 4TH YEARS) (127 HOURS)**

The Bachelor of Science in Architectural Studies is a program primarily for those who want a foundation in the study of architecture. This degree was designed for students who want to pursue a career in architecture or to work in an architecturally related discipline such as planning, technology, project and community development or within government agencies. On successful completion of the B.S. Architectural Studies program, an individual can work as an unlicensed architect in a professional architecture practice. In order to be eligible to license as an architect, a professional Master of Architecture program must also be completed. This degree may also be used as a preparation for professional, accredited graduate education. Students who pursue this option at WSU must complete all university requirements in addition to School requirements listed below.

**Pre-Architecture**

Students who enter WSU and have an interest in architecture will be assigned an advisor in the School of Architecture and Construction Management. Students interested in architecture should enroll in Arch 101 fall of their freshman year, as this is the first prerequisite in an eight-semester sequence.

**Certified Program**

The School of Architecture and Construction Management accepts 50-55 students into the second year. WSU students who wish to enroll in second year must submit an application to the School of Architecture and Construction Management during the freshman spring semester. To be considered, a student must have completed at least 26 semester credit hours of architectural program requirements, including the following courses, or their equivalents from other institutions: Arch 101, 103, 202, Engl...
101, GenEd 110 or 111; Math 171 or 206 or Phys 101 or 201; 7-8 credits of GER. A grade of C or better must be achieved in Arch 101 and 103. Selection is based on the student’s GPA in the 26-hour semester credit hours of required course work. If students do not complete Arch 101, 103 and 202 at WSU, they will be required to submit visual evidence of their architectural graphic and design work for review by the Admissions Committee. Most of the students will be selected at the end of the WSU spring semester but some positions will be held open until summer for transfer students.

Transfer Students

Students who wish to transfer into the second year must demonstrate equivalent course work from another institution. Transfer students must make application to Washington State University, the School of Architecture and Construction Management, and submit a portfolio of design work (see schedule below). Transfer students will be evaluated based upon grades from coursework that is equivalent to first-year requirements at WSU. Portfolios will be judged relative to content that is equated to Architecture 101 and 103.

Application/Portfolio/Notification Deadlines:
- May 1: All second-year applications due.
- May 1: Portfolios due from applicants who did not complete Arch 101, 103, 202 at WSU.
- June 1: Screening complete: Applicants will be classified as accepted or denied. Applicants will be notified by mail in June.

WSU Spokane

The School sends 15 fourth-year and 1/3 of the graduate students to the WSU Spokane urban campus. Students are given the option of selecting either Pullman or Spokane for their fourth year of studies when they apply for certification. In the event that there are not enough requests to fill positions at either location, a selection process will be implemented to fill remaining positions. Second year acceptance letters will notify students as to whether they will spend their fourth year in Pullman or Spokane. Students accepting admission to the second year also accept the conditions of their place of study during the fourth year. Selection of graduate students to either Pullman or Spokane will be made at the time of acceptance to the Graduate School.

NOTE:
Students offered positions in the second-year courses must promptly notify the School of their acceptance of the position or the next alternate will be offered the position.

Students that are admitted must be registered for the fall semester and attend the first day of classes or lose their position.

Second Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arch 201</td>
<td>4</td>
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<tr>
<td>Arch 220</td>
<td>3</td>
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<tr>
<td>Arch 330</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Phys 101 [P] or 201 [P] (GER)</td>
<td>4</td>
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<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arch 203</td>
<td>4</td>
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<tr>
<td>Arch 209</td>
<td>3</td>
</tr>
<tr>
<td>Arch 324 [M]</td>
<td>3</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
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</table>

Physical Sciences [P] (GER) 3 or 4
Social Sciences [S,K] (GER) 3
Complete Writing Portfolio

Third Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arch 301</td>
<td>5</td>
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<tr>
<td>Arch 309</td>
<td>3</td>
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<td>Arch 351</td>
<td>3</td>
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<td>Arch 353</td>
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<td>Arch 432</td>
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<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arch 303</td>
<td>5</td>
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<tr>
<td>Arch 352</td>
<td>3</td>
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<tr>
<td>Arch 354</td>
<td>3</td>
</tr>
<tr>
<td>Arch 433</td>
<td>3</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
<td>3 or 4</td>
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Fourth Year

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<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Arch 401</td>
<td>5</td>
</tr>
<tr>
<td>Arch 409 [M]</td>
<td>3</td>
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<tr>
<td>Arch 463</td>
<td>3</td>
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<tr>
<td>Arch 472</td>
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<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 403</td>
<td>5</td>
</tr>
<tr>
<td>Arch Emphasis Electives1</td>
<td>6</td>
</tr>
<tr>
<td>Tier III Course [T] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

1. At least 3 hours of Physical Science Electives from the school’s approved list are required for graduation.
2. At least 8 hours of Architectural Emphasis Electives from the school’s approved list are required for graduation.

CONSTRUCTION MANAGEMENT (PRE-PROFESSIONAL PROGRAM)

Construction management is a four-year program structured into one year of preconstruction management and three years of construction education.

The degree of Bachelor of Science in Construction Management is for those students who wish to work in the profession of construction management or in a management capacity in other facets of the construction industry.

Upon completion of the preconstruction management program requirements, or their equivalent for transfer students, application must be made for certification into the Construction Management program at the end of the first year. Beginning Fall 2006, all students admitted into the second year will be required to purchase laptop computers. Please contact the school for details and specifications.

Certification Requirements:

The School of Architecture and Construction Management has separate admissions and certification policies and procedures for its different degree programs. Admission to the Construction Management program will be considered for those who have qualified for admission to WSU and fulfill the requirements outlined below.

The undergraduate Construction Management program has a one-step screening process leading to certification. The screening process takes place between the first and second year. Qualified students will be certified at this time and allowed to take upper-level coursework as well as construction management courses. This limitation is imposed because of limited space, equipment and faculty resources. Students may transfer to the school during the two-year process or apply directly for second-year certification.

Application Requirements and Deadlines:

All second-year applications due by May 1.

Course and GPA Requirements for Screening:

Because the school receives more applications from qualified students than can be accommodated, screening for entry into the second year is based on the applicant fulfilling the minimum requirements listed in the applicant’s overall GPA. To be considered for admission, an applicant must:
1. Qualify for admission into Washington State University.
2. Complete the first year as listed herein under preconstruction management.
3. Earn a grade of C or better in ComSt 102 or H D 205, Cst M 102, GenEd 110, 111, EconS 101, 102, Engl 101, Geol 101, Math 171, and another course that meets a General Education Requirement other than those previously listed. For applicant screening, the highest grade will be used.
4. Complete and submit an application to the Construction Management program by May 1.
5. Maintain an overall minimum GPA of 2.5.

First Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ComSt 102 [C] or H D 205 [C] (GER)</td>
<td>3 or 4</td>
</tr>
<tr>
<td>EconS 101 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Geol 101 [P] (GER)</td>
<td>4</td>
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</table>

<table>
<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 102</td>
<td>2</td>
</tr>
<tr>
<td>EconS 102 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111[A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] (GER)</td>
<td>4</td>
</tr>
</tbody>
</table>

CONSTRUCTION MANAGEMENT DEGREE PROGRAM (2ND THROUGH 4TH YEARS) (123 HOURS)

Second Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 351</td>
<td>3</td>
</tr>
<tr>
<td>B Law 210</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 201</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 254</td>
<td>2</td>
</tr>
<tr>
<td>Phys 101 [P] (GER)</td>
<td>4</td>
</tr>
</tbody>
</table>
Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Accct 230</td>
<td>3</td>
</tr>
<tr>
<td>Arch 352</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 202</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 252</td>
<td>4</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
<td></td>
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</tbody>
</table>

Third Year

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 432</td>
<td>3</td>
</tr>
<tr>
<td>C E 301</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 356</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 370</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 451</td>
<td>3</td>
</tr>
</tbody>
</table>

Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 433</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Cst M 357</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 362 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 371</td>
<td>3</td>
</tr>
</tbody>
</table>

Fourth Year

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arch 463</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 460</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 462</td>
<td>3</td>
</tr>
<tr>
<td>Cst M Elective</td>
<td>3</td>
</tr>
<tr>
<td>MgtOp 301</td>
<td>3</td>
</tr>
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Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>300-400-level Business Elective</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 473</td>
<td>3</td>
</tr>
<tr>
<td>Cst M 475 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Cst M Elective</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Course [T] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

Description of Courses

### ARCHITECTURE

#### Arch

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>101 Graphics Communication 3 (1-6)</td>
<td>3</td>
<td>Prereq Math 107, 171, or 206 or c// or ID 101 or c//. Drawing to perceive three-dimensional space; freehand (architectural) drawing, drafting, isometric and orthographic drawing; perspective, shades and shadows, lettering, and rendering techniques.</td>
</tr>
<tr>
<td>103 Visual Design 3 (0-6) Prereq Arch 101. Two- and three-dimensional design and spatial studies; abstract studies in form, color and texture; introduction to architectural design processes.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>201 Architectural Design I 4 (0-8) Prereq Arch 103. Introduction to architectural design focusing on composition, conceptual design and principles of organization, scale, proportion, rhythm and 3-D development.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>202 [H] The Built Environment 3 Design and planning of the built environment: products, interiors, structures, landscapes, cities, regions, earth; human-environmental interactions, sustainability, and quality.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>203 Architectural Design II 4 (0-8) Prereq Arch 201. Introduction to architectural design focusing on the art and aesthetics of structural expression and principles of structure as an ordering system.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>209 Design Theory I 3 Prereq certified Arch major; c// in Arch 203. Design theory relating to building technology, systems and crafts which influence design decisions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>220 [H] Architectural History I 3 Prereq certified Architecture majors with c// in Arch 201, graduate standing, or students pursuing non-Architecture degrees. Historic development of world architecture from prehistory to late medieval; social, technical and scientific influences.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>301 Architectural Design III 5 (0-10) Prereq certified Arch major; Arch 203. Introduction of architectural design focusing on environmental and social issues.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>303 Architectural Design IV 5 (0-10) Prereq certified Arch major; Arch 301; c// in Arch 309. Continuation of study of architectural design/form as influenced by cultural, spiritual and symbolic issues.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>309 Design Theory II 3 Prereq certified Arch major; Arch 220; Arch 324; Arch 203 and c// in Arch 301. Continuation of study of architectural theory. Design theory relating to cultural and symbolic issues which influence design decisions.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>324 [M] Renaissance to Baroque Architecture 3 Prereq certified Arch major; Arch 220. Western architecture from the Renaissance to Baroque to pioneers of modern architecture.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>330 Materials and Construction I 3 Prereq certified Arch or Cst M major. Wood, steel, concrete, and masonry systems materials; introduction of materials related to building systems; frame bearing wall and roof systems, skin systems.</td>
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</tbody>
</table>

#### Structures

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
<th>Prerequisites</th>
</tr>
</thead>
<tbody>
<tr>
<td>351 Architectural Structures I 3 Prereq certified major in Arch or Cst M. Introduction to statics and mechanics; analysis and design of statically determinate architectural structures using timber, steel, and reinforced concrete systems.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>352 Architectural Structures II 3 Prereq certified major in Arch or Cst M; Arch 351. Continuation of Arch 351.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>353 Structures Studio I 1 (0-2) Prereq certified major in Arch or Cst M; Arch 351 or c//. Design principles of architectural structures systems; available systems for spanning and enclosing architectural space.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>354 Structures Studio II 1 (0-2) Prereq certified major in Arch or Cst M; Arch 352 or c//. Continuation of Arch 353.</td>
<td></td>
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</tr>
<tr>
<td>401 Architectural Design V 5 (0-10) Prereq certified Arch major; Arch 401; c// in Arch 409 (Pullman campus). Advanced architectural design focusing on technology, systems and crafts of buildings.</td>
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</tr>
<tr>
<td>403 Architectural Design VI 5 (0-10) Prereq certified Arch major; Arch 403; c// in Arch 409. Advanced design study relating to design issues applied to large-scale developments.</td>
<td></td>
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</tr>
<tr>
<td>409 [M] Design Theory VI 3 Prereq certified Arch major; Arch 409; c// in Arch 401 or 403. Advanced design study relating to social and environmental issues which influence housing design for the urban environment.</td>
<td></td>
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</tr>
<tr>
<td>425 [M] Architectural Theory I 2 Prereq certified Arch major; Arch 209. Architectural criticism and theory as viewed from contemporary and historical precedents.</td>
<td></td>
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</tr>
<tr>
<td>428 [T] Architecture and Culture in the Islamic World 3 Prereq completion of one Tier I and three Tier II courses. A thematic course exploring the relationship between architecture and culture in the context of Islamic civilization.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>432 Environmental Control of Buildings I 3 Prereq certified Arch or Cst M major. Mechanical systems for buildings; building heating, ventilating, and air conditioning systems, heat flow concepts.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>433 Environmental Control of Buildings II 3 Prereq certified Arch or Cst M major; Arch 432. Water supply, drainage, electrical and lighting systems for buildings.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>436 Contemporary Furniture Design 3 (1-4) Prereq certified Arch or Cst M major. Investigation of issues related to the design and fabrication of furniture; students design and fabricate projects in the school shop.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>440 Architectural Acoustics for Construction Management 2 Prereq Phys 101 or higher; Math 107 or higher. Introduction to the art and science of architectural acoustics with emphasis on understanding construction performance specifications.</td>
<td></td>
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</tr>
<tr>
<td>446 Computer Animation I 3 (1-4) Introduction to computer animation production and building simulation; applicable for all majors.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
496 Seminar in Computer Applications V 1-4 May be repeated for credit. S, F grading.
497 Seminar in Construction Management V 1-4 May be repeated for credit. S, F grading.
498 Seminar in Urban and Regional Planning V 1-4 May be repeated for credit. S, F grading.

451 Computer-aided Design I 3 (2-2) Prereq certified Arch or Cst M major; basic CAD course. Computer-aided design related to 3D modeling and construction documents.
452 Computer-aided Design II 2 (1-2) Prereq certified Arch or Cst M major; Arch 451. Continuation of Arch 451.
456 Field Sketching/Journal Keeping 3 (2-2) Prereq certified Arch or Cst M major. Field-sketching/journal-keeping strategies to facilitate investigation and comprehension of the built environment.
463 Architectural Structures III 3 Prereq certified Arch or Cst M major; Arch 351; Arch 352. Wind and seismic loads on architectural structures; high-rise systems; reinforced concrete and masonry structures. Credit not granted for both Arch 463 and 563.
464 Architectural Structures IV 3 Prereq certified Arch or Cst M major; Arch 352. Deflection theory; classical and computer analysis for statically indeterminate architectural structure systems. Credit not granted for both Arch 464 and 564.
472 Codes and Acoustics 3 Prereq certified Arch or Cst M major. Building codes and specifications; sound theory, control, and acoustic systems applied to buildings.
480 Architecture Internship V 1-16 May be repeated for credit; cumulative maximum 16 hours. Prereq certified Arch or Cst M major. Placement in an approved industrial, professional, or governmental situation for specialized or general experience.
490 Seminar in Architectural Design V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major. Advanced study in architectural design. Cooperative course taught by WSU, open to UI students (ARCH 490).
491 Seminar in Architectural Communications V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major. Advanced study in graphic communication.
492 Seminar in Architectural History V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major. Advanced study in architectural history.
493 Seminar in Environmental Control V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch or Cst M major. Advanced study in environmental control of buildings.
494 Seminar in Urban and Regional Planning V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major. Advanced study in urban and regional planning.
495 Seminar in Construction Management V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Arch major. Advanced study in construction practice management.
496 Seminar in Computer Applications V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq Cpt S 151, 153, 154, or 203. Architectural and construction applications of computer graphics, management, computer-aided design.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.
510 Architectural Design Studio 6 (0-12) Graduate studio experience researching a single topic of architectural relevance (i.e. geology, material science, biological systems engineering). Field trip required.
511 Design VIII/Graduate Design Project 6 (0-12) Prereq Arch 403. Studio course divided between urban design and preliminary design on graduate project.
513 Graduate Design Project 6 (0-12) Prereq Arch 511, 515. Final graduate design studio focusing on individualized topics.
515 Research Methods and Programming 3 Prereq graduate standing; Arch 403. Exploration of traditional research methods and investigations for architects.
520 Directed Topics in Architecture V 1-3 May be repeated for credit; cumulative maximum 6 hours. Topics related to areas of emphasis in the program and student specialization.
525 History and Theory 3 Prereq graduate standing; Arch 409. History and theory of 20th century architecture focusing on cultural and philosophical principles related to design.
527 Site and Landscape Design 3 Prereq graduate standing; Arch 403. Exploration of issues of site context analysis, topography, planning, and landscape design.
530 Philosophies and Theories of the Built Environment 3 Prereq graduate standing in Arch/I D/L A. Focus on systematic thought which may describe behavior of the built environment.
531 Advanced Tectonics 3 Prereq graduate standing; Arch 330; Arch 403. Tectonic theory of concrete and metal construction with focus on skin design and technology as formative elements in architecture.
540 Research Methods 3 Prereq graduate standing. Research methods, from quantitative to technical to philosophical, directed toward qualitative research.
542 Issues in Architecture 3 Prereq graduate standing; Arch 409, 525. Examination of issues in architecture related to society, culture, environment, politics, and philosophy.
560 Interdisciplinary Seminar 3 Prereq graduate standing. Explores approaches to design thinking in the topic areas of people and place, history, theory and criticism, and physical design.
563 Architectural Structures III 3 Prereq Arch 515 or c/c. Graduate-level counterpart of Arch 463; additional requirements. Credit not granted for both Arch 463 and 563.
564 Architectural Structures IV 3 Prereq graduate standing; Arch 515 or c/c. Graduate-level counterpart of Arch 464; additional requirements. Credit not granted for both Arch 464 and 564.
570 Advanced Architectural Studio/Laboratory 6 (0-12) In-depth study of design problems relating to cultural, environmental, technological and other issues as related to the student’s area of emphasis.
571 Advanced Architectural Studio II 6 (0-12) Prereq Arch 570; graduate standing. Drawing from architectural historical and theoretical research, urban architectural design case study, research in the arts, humanities and social sciences.
573 Ethics and Practice 3 Prereq graduate standing. Ethical and professional practice issues related to the business and practice of architecture; investigations into marketing client and business orientation.
577 Theories and Methods of Urban Construction 3 Prereq graduate standing or certified Arch major with senior standing. Morphology, theoretical concepts, planning and spatial structure of cities and analysis of the transformation of the city core in Europe and America.
580 Architecture Internship V 1-4 May be repeated for credit. Prereq graduate student in M Arch degree program. Placement in an approved industrial, professional, or governmental situation for specialized or general experience.
600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.
700 Master’s Research, Thesis, and/or Examination. V 1-18 May be repeated for credit. S, F grading.
702 Master’s Special Problems, Directed Study, and/or Examination V 1-6 May be repeated for credit. S, F grading.

CONSTRUCTION MANAGEMENT
Cst M
102 Introduction to the Built Environment 2 Introduction to the construction industry; reviewing contract documents, methods of project management and current issues pertaining to the industry.
201 Materials I 3 Prereq certified Cst M major. Introduction to construction materials; primary materials used in below-grade substructures and above-grade superstructures using Construction Specification Institute (CSI) format.
202 Materials II 3 Prereq Cst M 201; certified Cst M major. Introduction to primary materials in construction of building envelopes, interiors, interior surfaces and finishes using Construction Specification Institute (CSI) format.
252 Construction Administration and Documentation 4 (3-2) Prereq certified Cst M major; Cst M 102. Study and understanding of administrative procedures found within construction projects and respective documentation.
356 Sub-Structures 3 Prereq Arch 352, Cst M 262; certified Cst M major. Methods and procedures for site work, excavation, dewatering, building foundation and equipment, productivity, finance and safety requirements.
357 Super Structures 3 Prereq Cst M 356; certified Cst M major. Methods, procedures and requirements for constructing a commercial structure from ground elevation up.

362 [M] Legal Aspects of Construction and Design 3 Prereq Cst M 252; certified construction management major. Statutory and common law governing the practice of design and construction in the US; emphasis in architecture and construction project contract administration.

370 Estimating I 3 (2-1) Prereq certified Cst M major; Cst M 252. Certified civil engineering majors may take by permission. Applications of quantity survey, techniques in creation of unit costs, introduction of job expenses and bid presentation.

371 Estimating II 3 (2-3) Prereq certified Cst M major; Cst M 370. Bidding application, advance concepts in the creation of imot cpst and computer software applications.

440 Architectural Acoustics for Construction Management 2 Prereq Phys 101 or higher; Math 107 or higher. Same as Arch 440.

451 Delivery Systems 3 Prereq certified Cst M major; Cst M 371. Design/construction process and project delivery systems/approaches; analysis of construction management: the construction management process.

458 Methods and Procedures of Heavy Construction 3 Prereq junior standing; certified construction management major. Methods and procedures for site work, heavy equipment, cranes, productivity; finance and safety requirements.

460 Construction Cost Accounting 3 (2-3) Prereq certified Cst M major; Cst M 451. Examination of cost accounting utilized for specific project control as well as overall company control.

462 Planning and Scheduling 3 (2-3) Prereq Cst M 371; certified Cst M major. Planning construction projects including terminology, scheduling development and techniques, activity identification, calculations and resource planning; introduction to software.

466 Heavy/Civil Estimating 3 Prereq certified major in construction management or junior certified in civil engineering. Estimating in quantity survey, price extension and bidding in civil projects.

467 Ethics and Construction Management 3 Prereq Cst M 252, 370; senior standing; certified construction management major. Ethics and morality relating to the construction profession including common decisions.

468 Safety and Health 3 Prereq junior standing; certified major in construction management. Role and function of safety and health in the construction industry including OSHA compliance, requirements and regulations.

469 Residential Green Building 3 Prereq certified construction management major; senior standing. Residential construction segments; sustainable products and practices applicable to residential construction.

473 Human Productivity in Construction 3 Prereq MgtOp 301; certified Cst M major. Leadership and management concepts and methods applied to human behavior to enhance motivation, productivity and safety in construction.

475 [M] Senior Capstone Project 3 Prereq Cst M 460, MgtOp 301; certified Cst M major. Simulation of real world competition for CM at Risk (CM/GC) format.

482 Conceptual Estimating for Architects 3 Prereq junior standing; certified major in architecture or construction management. Quantity survey, price extension and bidding as applied to architecture; concepts of pricing, value engineering, and ethics.

495 Seminar in Construction Management V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq certified Cst M major. Advanced study in construction practice management. May be repeated for credit; cumulative maximum 4 hours.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Asia Program

libarts.wsu.edu/asia
Wilson 310
509-335-3267

Program Director and Associate Professor D. Pietz (History, East Asia); Professors, P. Tansuhaj (International Business, South East Asia), M. Tolnacheva (History, Middle East), M. Myers (Philosophy and Religion, South Asia, East Asia, Asia), C. S. Ivory (Art History, the Pacific), R. A. Jussaume (Community and Rural Sociology, Japan); Associate Professors, N. Kawamura (History, East Asia), C. Lupke (Chinese), H. Ono (Sociology, Japan), R. Sun (History, East Asia), P. Thiers (Political Science, East Asia); Assistant Professors, W. Brecher (Japanese), N. Nanayan (English, South Asia), X. Wang (History), C. Wilkinson-Weber (Anthropology, South Asia); Instructors, W. Cao (Chinese), R. Chu (History, East Asia), L. Gerber (History, China), K. Niimi (Japanese), L. Rahman-Turner (History/Anthropology, South Asia), R. Snyder (Philosophy, East Asia, South Asia), R. Staub (History, Middle East); Emeritus, T. Kennedy (History, China), A. Spitzer (Library).

The WSU Asia Program promotes teaching, research, and outreach to prepare present and future leaders for the opportunities and challenges of Asia’s increasing presence in global and regional affairs.

The WSU Asia Program offers a Bachelor of Arts in Asian Studies, a minor in Asian Studies, Certificate of Advanced Study in Asian Studies, a minor in Asian Studies, Certificate of Advanced Study in Asia. To train those interested in governmental and various private career opportunities related to Asia.

Upon completion of the Asia Program curriculum, graduates will be able to: 1) identify, locate, and critically evaluate resources for the study of Asia; 2) understand the commonalities, complexity, and diversity of Asia; 3) understand disciplinary approaches to the study of Asia; 4) identify problems and questions related to Asia and place in appropriate context; 5) understand traditions and transformations of Asian cultures; and 6) have competency in an Asian language equivalent to 2nd year level.

Schedules of Studies

ASIAN STUDIES REQUIREMENTS (120 HOURS)

A minimum of 40 hours of courses on Asia, including 16 hours of an appropriate language and 18 hours at the 300 level or above, are required. 18 of the 40 credits of the Asia major must be earned at WSU.

First Year

First Term

Biological Sciences [B] (GER) 4
Eng 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Foreign Language Elective 4

Second Term

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Asia 270 or 314 3
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3
Foreign Language Elective 4

Second Year

First Term

Asia 131, 275, or 315 3
Asia 272, 273, or 306 3
Foreign Language Elective 4
Physical Sciences [P] (GER) 4

Second Term

Arts & Humanities [H,G], Intercultural Studies [J,G,K], or Social Sciences [S,K] (GER) 3
Foreign Language Elective 4
Major Coursework 3
Social Sciences [S,K] (GER) 3
Elective 3
Complete Writing Portfolio

Third Year

First Term

Communication Proficiency [C,W] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
Major Coursework 3
Science Elective (GER) 4
Elective 3
The Certificate in East Asian Studies is designed for students who wish to develop a deeper understanding of the East Asian world. It provides a solid foundation in the languages, cultures, and societies of East Asia, including China, Japan, Korea, and other East Asian countries. The certificate prepares students for careers in a variety of fields, including business, law, teaching, and government service.

### Description of Courses

**ASIA PROGRAM**

- **Asia**
  - 111 [G] Asian Film 3 Same as Chin 111. Cooperative course taught jointly by WSU and UI (CHIN 111).
  - 120 [G] Traditional Chinese Culture 3 Same as Chin 120.
  - 121 [G] Modern Chinese Culture 3 Same as Chin 121.
  - 122 Traditional Japanese Culture 3 Same as Jpn 120.
  - 131 [G] Masterpieces of Asian Literature 3 Same as Chin 131. Cooperative course taught by WSU, open to UI students (CHIN 320).

- **Special Topics:**
  - 201 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.
  - 270 [K] India: History and Culture 3 Same as Hist 270.
  - 271 [K] Southeast Asian History: Vietnam to Indonesia 3 Same as Hist 271.
  - 272 [I] Introduction to Middle Eastern History 3 Same as Hist 272.
  - 275 [K] Introduction to East Asian Culture 3 Same as Hist 275.
  - 280 [G] Philosophy and Religion of Islam 3 Same as Phil 280.
  - 301 [K] East Meets West 1 May be repeated for credit; cumulative maximum 3 hours. Interdisciplinary course on the encounter between Asia and the West taught as a multicultural symposium.
  - 306 [K] Cultures and Peoples of the Middle East 3 Same as Anth 306.
  - 314 [G,M] Philosophies and Religions of India 3 Same as Phil 314.
  - 315 [G,M] Philosophies and Religions of China and Japan 3 Prereq 3 hours Phil. Same as Phil 315.
  - 320 Issues in East Asian Ethics 3 Same as Jpn 320.
  - 330 [M] The Art of War 3 (2-2) Prereq Chin 111, 121 or 131. Same as Chin 330.
  - 370 [G] History of Ancient and Medieval India 3 Same as Hist 370.
  - 373 [G] Chinese Civilization 3 Same as Hist 373.
  - 387 World War II in Asia and the Pacific 3 Same as Hist 387.
  - 472 [M] The Middle East Since World War I 3 Same as Hist 472.
  - 473 [T] The Middle East and the West 3 Same as Hist 473.
  - 474 Modern South Asia: Community and Conflict 3 Same as Hist 474.
  - 476 [M] Revolutionary China, 1800 to Present 3 Same as Hist 476.
  - 479 History of East Asian Economic Development Since 1945 3 Same as Hist 479.
  - 499 Special Problems V 1-4 May be repeated for credit. S, F grading.

### Minors

**Asian Studies**

A minor in Asian Studies requires 23 hours, including one year of a single Asian language or 8 hours of Asian study abroad credit. Of the 23 required credits, at least half must be upper division, and at least 9 credit hours must be earned at WSU. Native speakers of an Asian language are exempt from the language requirement for the minor (they instead take 8 additional credit hours of Asian courses).

**Certificates**

**Certificate in East Asian Studies for Business Majors**

The Certificate in East Asian Studies for College of Business Majors requires a total of 17 credit hours and is open to any declared College of Business undergraduate major in good standing.

The requirements are: Chin 101 and 102 or Jpn 101 and 102 or other East Asia Language available through study abroad; one from Asia 121, 275, 315, 373, 374, 475, 476, or 477; Asia 479, and one from IBus 380, HBM/Bus 435, MgtOp/IBus 453, Econ/IBus 470, Fin/IBus 481 or MKtg/IBus 482.

Students who complete two semesters of foreign language beyond the one-year requirement may waive three credits required from Asia 121, 275, 315, 374, 475, or 477. Study abroad is encouraged and appropriate credit toward completion of certificate will be accepted at the discretion of the Asia Program Director. No more than 4 hours earned at other institutions that may apply towards the certificate and no more than 4 hours may be pass/fail. Native speakers of an East Asia language may waive the foreign language requirement, but must take eight additional hours from the list of “cultural survey” courses (see department for an approved list). A minimum cumulative GPA of 2.0 is required for successful completion of the certificate.

**Certificate in East Asian Studies for Engineering and Architecture Majors**

The Certificate in East Asian Studies for College of Engineering and Architecture Majors requires a total of 17 credit hours and is open to any declared College of Engineering and Architecture undergraduate major in good standing.

The requirements are: Chin 101 and 102 or Jpn 101 and 102 or other East Asia Language available through study abroad; two from Asia 121, 274, 315, 373, 374, 476, or 477; and Asia 479.

Students who complete two semesters of foreign language beyond the one-year requirement may waive three credits required from Asia 121, 275, 315, 373, 374, 475, or 477. Study abroad is encouraged and appropriate credit toward completion of certificate will be accepted at the discretion of the Asia Program Director. No more than 4 hours earned at other institutions that may apply towards the certificate and no more than 4 hours may be pass/fail. Native speakers of an East Asia language may waive the foreign language requirement, but must take eight additional hours from the list of “cultural survey” courses (see department for an approved list). A minimum cumulative GPA of 2.0 is required for successful completion of the certificate.

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1 16 hours of college level study of a single Asian language (e.g., Chin/Japn 101, 102, 203, 204). Languages not taught at WSU may be studied through distance learning programs, intensive summer courses, etc. For the second year of languages not taught at WSU, students may substitute 8 hours of any Asian study abroad credit. Although native speakers of an Asian language may be exempt from the language requirement and take 16 additional credit hours of Asian courses, they are encouraged to complete a minimum of one year college level study of a different Asian language.

Geographic Distribution: 9 hours (3 hours minimum from EACH the following groups): East Asia (Asia 131, 275, or 315); South Asia (Asia 270 or 314); and Middle East (Asia 272, 273, or 306).

Disciplinary Distribution: 12 hours (6 hours minimum from each of the following groups): Asia humanities courses (H or G GER); and Asia social science courses ($ or K GER).

Additional requirements: A minimum of 18 hours of 300-400 level Asian courses; and 6 hours of Writing in the Major (M GER). Note: Courses may be used to satisfy requirements in more than one of the above categories. Students should consult their advisor to determine when courses are offered. Relevant 300-400 level courses not cross-listed with Asia may be counted toward a major or minor if approved by the Director of the Asia Program.

Study Abroad is very strongly encouraged. Contact your advisor and the Education Abroad Office for more information.
School of Biological Sciences

sbs.wsu.edu
Abelson 312
509-335-3553

Professor and Director, G. Thorgaard; Professor and Director of Sciences, S. Bollens (Vancouver); Professor and Associate Director of Graduate Program, R. Black; Professor and Associate Director of Undergraduate Program, C. Omoda; Regents Professor, G. Edwards; Professors, D. Evans, R. Gonulakiewicz, L. Hufford., R. Mack, D. Moffett, C. Robbins, H. Schwabl; Associate Professors, J. Bishop (Vancouver), P. Carter, D. Dwydahl, M. Knoblauch, R. Lee, J. Mallatt, A. McCubbin, S. Moffett, C. Portfors (Vancouver), E. Rowdson, C. Schultz (Vancouver), A. Storfer, M. Tegeder, P. Verrell; Assistant Professors, J. Busch, A. Cousins, H. Hellmann, B. Kemp, E. Schwartz; Clinical Associate Professor, D. Banker (Vancouver); Clinical Assistant Professors, D. Conley, C. Davitt, G. Rollwagen-Bollens (Vancouver); Research and Adjunct Faculty, M. Alfaro, D. Holmes, D. Monk, R. Phillips; Instructors, B. Marshall, A. Brown; Lecturers, K. Marlowe, K. Simokat; Professors Emerit, H. Hosick, R. Johnson, K. Kardong, L. Kirschner, M. Ku, J. Larsen, D. Miller, J. Pazzonka, P. Schroder, E. Urbe.

The School of Biological Sciences offers training in cellular, organismal, population and environmental biology, with an emphasis on plants and animals. The School offers Bachelor of Science programs in biology and zoology, Master of Science programs in biology, botany, and zoology, and Ph.D. programs in botany and zoology. The School also offers undergraduate minors in zoology and biology.

Facilities

There are modern facilities for study of cell and developmental biology, genetics, plant and animal physiology, anatomy and ultrastructure, functional morphology, ecology, molecular systematics, and behavioral, environmental, and evolutionary biology. The university’s location is conducive to field studies at sites such as the 800 acre George E. Hudson Biological Preserve at Smoof Hill. Special facilities include the Francischi Microscopy and Imaging Center, plant growth facilities, a laboratory for Bioanalysis and Biotechnology with facilities for both DNA genotyping and stable isotope analyses, and the collections of the Charles R. Conner Museum, the Marion Ownby Herbarium.

Cooperation with many other campus units extends research opportunities. Cooperative arrangements with faculty in units such as Molecular Biosciences, Animal Sciences, Natural Resource Sciences, and the College of Veterinary Medicine are readily achieved.

Undergraduate Programs

Introductory biological sciences courses provide background in the concepts common to life sciences and an overview of the diversity of animals, plants, and microorganisms. Advanced biological sciences courses probe specific areas in depth.

Undergraduate preparation in either Biology or Zoology provides a student with a basis for pursuing career opportunities in ecology, laboratory research and technology, human health, animal health and welfare, and a variety of other biological specializations.

Candidates for the Bachelor of Science in Biology or Zoology must fulfill the university and the College of Sciences requirements for graduation as described elsewhere in this catalog. Honors students complete honors requirements in place of general education requirements. The math and science components of those requirements are fulfilled as part of the departmental requirements below. Other university requirements include 120 total credit hours of which 40 must be 300-400-level credits, the writing portfolio, and two writing in the major courses (identified by [M] in the course listings). College requirements include one year of foreign language if two years were not taken in high school. The Schedule of Studies below provides a sample curriculum for each of the degree options offered by the School of Biological Sciences. A 2.00 overall minimum gpa is required in all coursework for all college and departmental requirements. A maximum of 4 credits of coursework that are graded S, F (i.e., 490, 491, 495, 496, 499) may be used toward fulfilling departmental requirements or program options, and no courses taken P, F can be applied toward fulfilling departmental requirements or program options. Students may not double major in both biology and zoology.

Biology

Six options are available for the Bachelor of Science degree in Biology: general biology, biology education, botany, ecology/evolutionary biology, entomology, and pre-physical therapy / pre-occupational therapy / pre-physician’s assistant. The general biology option provides very appropriate, broad training in the life sciences, particularly for students seeking to continue in professional or graduate school. The biology education option is particularly suitable for students who would like to teach biology at the high school level. The botany option is available for students with a special interest in plants and is particularly suitable for those who would like to pursue graduate studies. The ecology/evolutionary biology program provides the graduate with a broad-based ecological understanding applicable to such fields as environmental and wildlife biology. The entomology option is available for students who wish to focus on insect biology. The pre-physical therapy / pre-occupational therapy / pre-physician’s assistant option is designed for students who would like to pursue studies in physical therapy, occupational therapy, or physician assistant programs.

We expect that students graduating with a B.S. in biology will have acquired: (1) an understanding of the biology of both invertebrate and vertebrate animals at all levels of biological organization, from genes to ecosystems; (2) a capacity for and interest in continued learning; (3) the ability to apply critically their knowledge and practical skills to real-life problems, and (4) the ability to communicate effectively with diverse audiences, both orally and in writing.

Transfer Students

Science courses taken at other institutions will be evaluated and credits accepted where possible. Inquiries should be directed to the Associate Director of Undergraduate Program.

Graduate Programs

At the graduate level, the school awards Masters of Science degrees in biology, botany, and zoology, and doctoral degrees in botany and zoology. Faculty interests and research programs are diverse, ranging from cellular and developmental biology, through various aspects of organismal biology to ecology and evolutionary biology. A list of specific faculty interests can be obtained at http://sbs.wsu.edu or by writing to the school.

Preparation for Graduate Study in Botany or Zoology

Students with undergraduate majors in such fields as microbiology, biology, botany, zoology, genetics and cell biology, and plant or animal sciences may be prepared for graduate study in the School of Biological Sciences. Graduate Record Examination scores from the general aptitude section are required.

Schedules of Studies

**BIOLOGY - BOTANY OPTION (120 HOURS)**

**First Year**

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Term</td>
<td></td>
</tr>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>Biol 107 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
<td>4</td>
</tr>
</tbody>
</table>
Second Year

First Term
- Arts & Humanities [H,G] (GER) 3
- Biol 301 4
- Chem 345 4
- Phys 101 [P] or 201 [P] (GER) 4

Second Term
- Communication Proficiency [C,W] (GER) 3
- Phys 102 [P] or 202 [P] (GER) 4
- Social Sciences [S,K] (GER) 3
- Electives 6
- Complete Writing Portfolio

Third Year

First Term
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Biol 320 4
- Biol 372 [M] 4
- Stat 212, 412, or Psych 311 3 or 4

Second Term
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Biol 332 4
- Biol 460, 462, or 469 4
- Intercultural Studies [I,G,K] (GER) 3
- Program Option Courses or Electives 2 or 3

Fourth Year

First Term
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Biol 405 3
- Biol 409 4
- Program Option Courses or Electives 6 or 7

Second Term
- Program Option Courses or Electives 12
- Tier III Course [T] (GER) 3

BIOLOGY - ECOLOGY AND EVOLUTIONARY BIOLOGY OPTION (142 HOURS)

First Year

First Term
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

Second Term
- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 [N] or 171 [N] (GER) 4

Second Year

First Term
- Arts & Humanities [H,G] (GER) 3
- Chem 345 4
- Communication Proficiency [C,W] (GER) 3
- Phys 101 [P] or 201 [P] (GER) 4

Second Term
- Biol 301 4
- Phys 102 [P] or 202 [P] (GER) 4
- Program Option Courses or Electives 3
- Social Sciences [S,K] (GER) 3
- Complete Writing Portfolio

Third Year

First Term
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 6
- Biol 372 [M] 4
- Program Option Courses or Electives 7

Second Term
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- Program Option Courses or Electives 6 or 7
- Stat 212, 412, or Psych 311 3 or 4

Fourth Year

First Term
- Biol 405 3
- Biol 409 4
- Program Option Courses or Electives 11

Second Term
- Program Option Courses or Electives 13 or 14
- Tier III Course [T] (GER) 3

Fifth Year

First Term
- Biol 415 16

BIOLOGY - ENTOMOLOGY OPTION (120 HOURS)

First Year

First Term
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

Second Term
- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 [N] or 171 [N] (GER) 4

Second Year

First Term
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Chem 345 4
- Phys 101 [P] or 201 [P] (GER) 4

Second Term
- Biol 301 4
- Phys 102 [P] or 202 [P] (GER) 4
- Program Option Courses or Electives 3
- Social Sciences [S,K] (GER) 3
- Complete Writing Portfolio

Third Year

First Term
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 6
- Biol 301 4
- Program Option Courses or Electives 7

Second Term
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- Program Option Courses or Electives 6 or 7
- Stat 212, 412, or Psych 311 3 or 4

Fourth Year

First Term
- Biol 405 3
- Biol 409 4
- Program Option Courses or Electives 11

Second Term
- Program Option Courses or Electives 13 or 14
- Tier III Course [T] (GER) 3

Fifth Year

First Term
- Biol 415 16

1 A minimum of 3 credits of biological science courses should be selected from the following courses or chosen in consultation with an advisor: Biol 325, 393, 406, 417, 429, 431, 440, 352, 460, 462, 463, 469, 470, 499, 504, 512, 513, 516, 518, 586, MBioS 401 (Biol 500-level courses may be taken with approval of the advisor and instructor).

1 21 hours from a minimum of four of the following five areas: physiology / biochemistry, ecology, evolution, animal, plant, conservation / management. See advisor.


BIOLOGY - ENTOMOLOGY OPTION (120 HOURS)

First Year

First Term
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

Second Term
- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 [N] or 171 [N] (GER) 4

Second Year

First Term
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Chem 345 4
- Phys 101 [P] or 201 [P] (GER) 4

Second Term
- Biol 301 4
- Phys 102 [P] or 202 [P] (GER) 4
- Program Option Courses or Electives 3
- Social Sciences [S,K] (GER) 3
- Complete Writing Portfolio
### Second Year

**First Term**  
- Arts & Humanities [H,G] (GER) 3
- Chem 345 4
- Entom 343 [M] 3
- Entom 344 [M] 2
- GenEd 111 [A] (GER) 3

**Hours**

### Second Term

- Biol 120, 320, or 332 4
- Biol 301 4
- Phys 101 [P] or 201 [P] (GER) 4

**Complete Writing Portfolio**

### Third Year

**First Term**  
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Biol 372 [M] 4
- Program Option Courses or Electives 8 or 9

**Hours**

### Second Term

- Arts & Humanities [H,G], Intercultural Studies [I,G,K] (GER) 3
- Stat 212, 412, or Psych 311 3 or 4
- Program Option Courses or Electives 9

### Fourth Year

**First Term**  
- Arts & Humanities [H,G], Intercultural Studies [I,G,K] (GER) 3
- Program Option Courses or Electives 12

**Hours**

**Second Term**  
- Arts & Humanities [H,G], Intercultural Studies [I,G,K] (GER) 3
- Program Option Courses or Electives 10
- Tier III Course [T] (GER) 3

**Hours**

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### Biology - General Option (120 Hours)

#### First Year

**First Term**  
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Hours**

### Second Term

- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 [N] or 171 [N] (GER) 4

**Hours**

#### Second Year

**First Term**  
- Arts & Humanities [H,G] (GER) 3
- Chem 345 4
- Communication Proficiency [C,W] (GER) 3
- Phys 101 [P] or 201 [P] (GER) 4

**Hours**

### Second Term

- Biol 301 4
- MBioS 303 4
- Phys 102 [P] or 202 [P] (GER) 4
- Social Sciences [S,K] (GER) 3
- Complete Writing Portfolio 3

**Hours**

### Third Year

**First Term**  
- Biol 315 4
- Biol 393 [M] or 490 [M] 2

**Hours**

### Fourth Year

**First Term**  
- Arts & Humanities [H,G], Intercultural Studies [I,G,K] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- MBioS 305 3
- MBioS 306 2

**Program Option Courses or Electives 1**  
- Psych 333 3

**Hours**

### Second Term

- Biol 405 3
- Tier III Course [T] (GER) 3

**Program Option Courses or Electives 10**

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1 A minimum of 4 credits of Biological Science courses should be selected from the following courses or chosen in consultation with an advisor: Anth 260; Biol 324, 352, 491, 495, MBioS 303, 423, 440; or Neuro 301, 404, 430.

### Zoology - General Option (122 Hours)

#### First Year

**First Term**  
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Hours**

### Second Term

- Biol 107 [B] (GER) 4
- Chem 106 [P] (GER) 4
- GenEd 111 [A] (GER) 3
- Math 140 [N], 171 [N], or 202 [N] (GER) 4

**Hours**

#### Second Year

**First Term**  
- Arts & Humanities [H,G] (GER) 3
- Chem 345 4
- Communication Proficiency [C,W] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3

**Program Option Courses or Electives 7**

**Hours**

### Second Term

- Arts & Humanities [H,G], Intercultural Studies [I,G,K] (GER) 3
- Program Option Courses or Biology Electives 7
- Tier III Course [T] (GER) 3

**Hours**

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### Third Year

**First Term**  
- Biol 315 4
- Biol 393 [M] or 490 [M] 2

**Hours**

**Hours**

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1 Biological Sciences
### Second Term Hours

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or</td>
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</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
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</tr>
<tr>
<td>Biol 321, 322, or 324</td>
<td>4</td>
</tr>
<tr>
<td>Biol 372 [M]</td>
<td>4</td>
</tr>
<tr>
<td>Phys 102 [P] or 202 [P] (GER)</td>
<td>4</td>
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### Fourth Year

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Biol 350 or 353</td>
<td>4</td>
</tr>
<tr>
<td>Biol 405</td>
<td>3</td>
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Note: Program Option Courses or Electives¹ 6-8

### Second Term Hours

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Program Option Courses or Electives¹</td>
<td>9</td>
</tr>
<tr>
<td>Tier III Course [T] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

### ZOOLOGY - PRE-MEDICINE/PRE-DENTISTRY OPTION (121 HOURS)

#### First Year

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 301</td>
<td>4</td>
</tr>
<tr>
<td>Chem 345</td>
<td>4</td>
</tr>
<tr>
<td>Phys 101 [P] or 201 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
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</table>

#### Second Year

<table>
<thead>
<tr>
<th>Course Description</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 107 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
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### Minors

#### Biology

A minor in biology requires a minimum of 20 hours in Biology coursework including Biol 106, 107, 301 and 8 additional hours at the 300-level or above. No more than 2 hours in Biol 495, 496 or 499 may be included in the 20 hours. 10 credit hours must be earned in residence at WSU. Students who major in biology or zoology cannot be granted a minor in biology.

#### Zoology

Requirements for a minimum of 20 hours, including Biol 106, 107, and one of 321, 322, or 324; and 8 additional hours of biological sciences courses focused on animals. No more than 2 hours of Biol 496, 497, 498, or 499 may be included in the 20 hours. Credit hours for the minor must include 9 hours taken in residence at WSU and/or approved education abroad or educational exchange courses.

### Certificates

#### Certificate in Quantitative Biology

The certificate in quantitative biology requires 28 credit hours including Math/Biol 340 and Math/Biol 494. In addition to the two required courses, students must take at least 12 hours of courses in mathematics, statistics, or computer science of which at least 8 hours must be at the 300-level or above and at least 12 hours of life sciences courses.
of which at least 8 hours must be at the 300-level or above. A list of recommended courses is provided in the departments. The requirement for 300-level or above may include independent research credits. However, no more than 4 hours of S, F graded coursework (including Math/Biol 494 and 499) may count towards the 28 credits. No more than 7 out of the 28 credits may be transfer credits. Students must earn a cumulative GPA of 2.5 and no less than a C for graded courses used to fulfill the requirements of the certificate. A faculty coordinator shall be designated to oversee the certificate approval process.

Description of Courses

BIOLOGY

Biol

101 [B] General Biology Lecture 3 Understanding biology as a science and its effect on issues within society. Lecture only; not for students majoring in the life sciences. Credit granted only to students who have not completed Biol 102. Credit not granted to students who have already completed Biol 106 and/or 107. Students who declare a major requiring Biol 106 and/or 107 will need to complete those courses for credit toward their major.

102 [B] General Biology 4 (3-3) Understanding biology as a science and its effect on issues within society. Lecture and laboratory; not for students majoring in the life sciences. Credit granted only to students who have not already completed Biol 101, 105, or Biol 101 and 105. Credit not granted to students who have already completed Biol 106 and/or 107. Students who declare a major requiring Biol 106 and/or 107 will need to complete those courses for credit toward their major.

105 [B] General Biology Laboratory 1 (0-3) Prereq college-level nonlaboratory general biology course; junior standing or permission of instructor. Understanding biology as a science and its effect on issues within society. Laboratory only; not for students majoring in the life sciences. Credit granted only to students who have not already completed Biol 102. Credit not granted to students who have already completed Biol 106 and/or 107. Students who declare a major requiring Biol 106 and/or 107 will need to complete those courses for credit toward their major.

106 [B] Introductory Biology: Organismal Biology 4 (3-3) First or second semester of a one-year sequence (Biol 106/107 or Biol 105/106) for science majors and pre-professional students. Biology of organisms; plants, animals, ecology and evolution.

107 [B] Introductory Biology: Cell Biology and Genetics 4 (3-3) Prereq one semester of chemistry or c/; first or second semester of a one-year sequence (Biol 106/107 or Biol 105/106) for science majors and pre-professional students. Cell biology and genetics of prokaryotes and eukaryotes.

120 [B] Introduction to Botany 4 (3-3) A survey of the plant kingdom; structure and function of vascular plants.

135 [B] Animal Natural History 3 Identification, life history, habitat relations, ecology, behavior, and conservation of animals commonly found in the Pacific Northwest.


201 [B] Contemporary Biology 1 Prereq Biol 101, 102, 107, 120, or MBioS 101. Biological information that provides a framework for understanding life processes; impact of biological information on human affairs.


220 Medical Terminology 1 Prereq Biol 315; Biol 251 or 353 rec; permission of instructor. Terms and word constructions for health care occupations; format and function of medical records.

251 Introductory Human Physiology 4 (3-3) Rec one semester general biology and one semester chemistry. Basic physiological processes in humans from the cellular to the organ level.

301 General Genetics 4 Prereq Biol 106 and 107; two semesters Chem. Same as MBioS 301. Credit not normally granted for MBioS 301/ Biol 301 and Biol 408.

308 [B] Marine Biology 3 Prereq college-level biology or chemistry. Introduction to the marine environment including oceanic, near-shore and estuarine communities of organisms and their roles and interactions.

315 Gross and Microanatomy 4 (3-3) Prereq one semester biology; sophomore standing; cumulative WSU gpa 2.5; or permission of department. Gross and microscopic anatomy of the human body.

318 Introductory Plant Physiology 3 Prereq Biol 106 or 120; organic chemistry or c/. Water relations, mineral nutrition, photosynthesis, respiration, and growth of plants. Via WHETS; not open to Pullman Campus students.

319 Introductory Plant Physiology Laboratory 1 (0-3) Prereq Biol 106 or 120; organic chemistry or c/; Biol 318 or c/. Introductory plant physiology laboratory. Not open to Pullman Campus students.

320 Introductory Plant Physiology 4 (3-3) Prereq Biol 106 or 120; org chem or c/. Water relations, mineral nutrition, photosynthesis, respiration, and growth of plants. Lecture and laboratory.


322 Invertebrate Biology 4 (3-3) Prereq Biol 106. Phylogenetic relationships, development, and functional ecology of the invertebrate animals.

324 Comparative Vertebrate Anatomy 4 (2-6) Prereq Biol 106. Evolution of vertebrates and their organ systems; correlation of structural modification with function. Cooperative course taught by WSU, open to all students.


332 Systematic Botany 4 (2-6) Prereq Biol 102, 106 or c/c, or 120. Identification and classification of vascular plants with emphasis on the local flora.

340 Introduction to Mathematical Biology 3 Prereq Math 140, 172 and 3 hours of biology. Same as Math 340.

350 Comparative Physiology 4 (3-3) Prereq Biol 106. Analysis of systems and integrative physiology with an emphasis on evolutionary adaptation among mammalian and non-mammalian vertebrates.

352 Cell Physiology 3 Prereq Biol 107, organic chemistry, certified major. Function and control at the cell-tissue level.

353 Mammalian Physiology 4 (3-3) Prereq Biol 106; Biol 352; Rec c/c in organic chemistry. Function and control at the organ-organismic level with emphasis on mammals, including humans; emphasis on human health science applications.

354 Human Anatomy for Health Occupations 4 (3-3) Prereq one semester college-level biology. History and anatomy of humans with non-cadaver-based laboratory utilizing preserved and histological specimens, models and software.

372 [M] General Ecology 4 (3-3) Prereq Biol 106, one semester chemistry. Relationship of organisms with physical and biotic components of their environment at the population, community, and ecosystem level.

390 [B] Stream Monitoring 1 (0-3) Prereq Biol 101 or 106, Chem 101 or 105, or equivalent. Principles and methods of water quality monitoring, including habitat assessment, water chemistry, and biological assessment. Field work and independent research required.

393 [M] Seminar I 2 Literature investigation, oral presentation and written reports of selected topics in biology.

394 Medicine as a Career 1 Prereq junior standing, by interview only. Current issues in medicine; ethical, financial, and personal aspects of medical practice. S, F grading.

401 [T] Plants and People 3 Prereq Biol 102, 106, or 120; completion of one Tier I and three Tier II courses. Relationships between plants and people, especially cultural and economic applications of plants.

403 Evolutionary Biology 3 Prereq Biol 301. The survey of evidence for evolution and operation of evolutionary processes that influence adaptation, diversification and speciation in organisms.

407 [T] Biology of Women 3 Prereq Biol 102 or 106; Biol 107 or Chem 105; Chem 106; junior standing; completion of one Tier I and two Tier II courses. Biological basis of sex and its relationship to body function, women and health care, and the impact of social and cultural perspectives on the experience of being female.

408 [T] Contemporary Genetics 3 Prereq junior standing; one Tier I and three Tier II courses. Genetics as it relates to current events; inquiry into the impact of genetic technology on today's society. Credit not normally granted for MBioS 303/Biol 301 and Biol 408.

409 Plant Anatomy 4 (2-6) Prereq Biol 120 or 106. Developmental anatomy and morphology of vascular plants; economic forms. Credit not granted for both Biol 409 and 509.

410 Marine Ecology 3 Prereq Biol 106; Biol 107; 6 hours of physical and/or biological science. The ecology and conservation of marine organisms, communities, and ecosystems.


413 Fish Ecology 3 Prereq Biol 106, 107. Examination of physical, chemical, and biological factors that affect fish populations and communities, with emphasis on environmental stressors. Cooperative course taught by UI, open to WSU students (FISH 314).

416 Principles of Fisheries Management 4 (3-3) Prereq UI Fish 314, 411; Stat 251. Same as NATRS 416. Cooperative course taught by UI, open to WSU students (FISH 419).


430 Methods of Teaching Science 3 (2-3) Prereq admission to secondary teacher prep; 36 hours science. Methods, philosophy, and structure of science; application in teaching middle and secondary school science courses. Taken during last semester prior to student teaching.


456 Neuroethology 3 Prereq Biol 301, MBioS 303, or an introductory neuroscience course; Stat 412 or c/. Introduction to neural mechanisms underlying natural animal behaviors from the cellular level to the organizational level.

462 Community Ecology 3 Prereq Biol 106. Assembly, essential properties, levels of interactions, succession, and stability of natural communities; emphasizes an experimental approach to community investigation.

465 Field Stream Ecology 2 Prereq general ecology. Ecological roles of immature insects in different size streams; pattern changes along the stream continuum; other ecological characteristics.

480 [M] Writing in Biology 2 Discussion and practice in relating thinking and writing; popular and professional communication in biology.

486 Marine Invertebrate Communities 2 (0-6) Biol 106, 107; 6 hours of physical and/or biological science. Survey of marine invertebrates and their habitats. One-week field/lab course at a marine station.


491 Clinical Experience V 1-4 May be repeated for credit; cumulative maximum 20 hours. Prereq Psych 105; Biol 315; major in biology or zoology; junior standing; by interview only. Work experience under supervision of a qualified professional in a clinical setting. S, F grading.

492 Topics in Biology V 1-3 May be repeated for credit; cumulative maximum 6 hours.

494 Seminar in Mathematical Biology I May be repeated for credit; cumulative maximum 4 hours. Prereq one course in math and one course in biology. Same as Math 494. S, F grading.

495 Internship in Biology, Botany, and Zoology V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq major in Biol or Zool, by interview only. Experience in work related to specific career interests. S, F grading.


497 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 8 hours. Academic training in laboratory teaching and tutoring.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Seminar 1 May be repeated for credit. Prereq 20 hours Biol. S, F grading.


504 Experimental Methods in Plant Physiology 3 (2-3) Rec Biol 320. Advanced techniques and instrumental methods applicable to research in plant physiology.

509 Plant Anatomy 4 (2-6) Graduate-level counterpart of Biol 409; additional requirements. Credit not granted for both Biol 409 and 509.

511 Reproductive Biology of Fishes 2 Prereq graduate standing. A graduate-level course covering all aspects of the reproductive biology of fishes. Cooperative course taught by UI, open to WSU students (BIOL 558).

512 Molecular Mechanisms of Plant Development 3 Prereq Biol 320. Physiology of growth; metabolism during development and reproduction.

513 Plant Metabolism 3 Prereq Biol 320, MBioS 303. Metabolic processes unique to plants, including the primary incorporation of nitrogen, sulfur, carbon dioxide and phosphate into bio-molecules.

514 Fish Genetics 2 Prereq Biol 301. Chromosomal, biochemical, quantitative, and ecological aspects of fish genetics with emphasis on applications to aquaculture and fish management. Cooperative course taught by WSU, open to UI students (FISH 519).

515 Fish Physiology 2 Prereq Fish 511 and permission. Principles and methods used to study vital organs, organ systems, growth, and reproduction of fishes; emphasis on osmoregulation, metabolism, endocrinology, and respiration. Cooperative course taught by UI, open to WSU students (FISH 511).

517 Stress Physiology of Plants 3 Prereq graduate standing. Temperature, light, salinity, water effects on physiological processes; mechanistic understanding of stress.

519 Introduction to Population Genetics 3 Prereq Biol 301. Survey of basic population and quantitative genetics. Cooperative course taught by WSU, open to UI students (GENE 505).

520 Conservation Genetics 2 Prereq Biol 301. Genetic studies and approaches relevant to efforts to conserve threatened and endangered populations of organisms.

521 Quantitative Genetics 3 Prereq Biol 519 or permission of instructor. Fundamentals of quantitative genetics; evolutionary quantitative genetics.

523 Advanced Fishery Management 3 Contemporary management of marine and freshwater fish and shellfish populations; commercial, recreational and subsistence fisheries; policy interface of biological systems. Cooperative course taught by UI, open to WSU students (FISH 510).

531 Principles of Systematic Biology 3 Prereq graduate standing. Systematic theory; history and current views; approaches to phylogenetic analysis and classification.

537 Plant Cell Biology 3 Prereq graduate standing. Structure and function of plant cells including membrane biology, protein targeting and molecular signaling with emphasis on current research.

540 Stable Isotope Theory and Methods 3 (2-3) Prereq graduate standing. Theory and practice of measuring stable isotope ratios of biologically important elements; training in the use of isotope mass spectrometers.

548 Evolutionary Ecology of Populations 3 Rec Biol 372, 405. Evolutionary dynamics of natural populations and the co-evolution of species. Cooperative course taught by WSU, open to UI students (WLF 548).

556 Biochemical Adaptation 3 Prereq graduate standing. Relationships between enzyme/macromolecule adaptation and animal performance.

559 Hormones, Brain and Behavior 3 Prereq upper-division biology, psychology or anthropology course. Classical behavioral endocrinology from molecular to whole organisms, integrating evolutionary ecology, neuroethology and behavioral neuroendocrinology.

560 Plant Ecophysiology 3 Prereq graduate standing. Relationships of biotic and abiotic environment to plant distribution and evolution through study of physiological processes.

561 Environmental Physiology 3 Prereq graduate standing. Individual and evolutionary adaptations to changing environments with emphasis on recent literature.

563 Field Ecology 2 (0-6) Prereq Biol 562. Field implementation of descriptive and experimental techniques to quantify the structure, composition, and interactions within natural communities. Field trips required. Cooperative course taught by WSU, open to UI students (Biol 537).

564 Molecular Ecology and Phylogeography 3 Prereq Biol 301 or equivalent; Biol 405 or equivalent. Use of genetic markers for the study of ecological phenomena, including kinship, population structure, and phylogeography.

566 Mathematical Genetics 3 Prereq Math 273; MBioS 301; Stat 412, 430, or 443. Same as Math 566.

567 Ecological Restoration 3 Prereq graduate standing or by permission. Introduction to major issues in restoration ecology; major ecological dimensions of restoration.

568 Conservation Ecology 3 Prereq Graduate standing. Diagnosis of endangered species, population viability analysis, invasive species ecology, landscape ecology and ecosystem management.

569 Ecosystem Ecology and Global Change 3 Prereq graduate standing. Same as ES/RP 569.

570 Diversity of Plants 3 Prereq graduate standing. Morphological, life history, and ecological diversity of major plant clades; emphasis on principles of homology, character transformation, and macroevolution.

581 Comparative Biology of Social Traditions 3 Prereq Anth 260 or Biol 106; senior or graduate standing. Same as Anth 581.

582 Professional Communication in Biology 2 Prereq graduate standing. Mechanics and style of publishing biological findings; adaptation of writing to various venues and audiences.

589 Advanced Topics in Zoology V 1-3 May be repeated for credit; cumulative maximum 10 hours. Recent advances in zoology.

591 Seminar in Molecular Plant Sciences 1 May be repeated for credit. Same as MPS 515.

593 Seminar 1 1 May be repeated for credit. Literature and problems.

597 Teaching Practicum V 1-4 May be repeated for credit; cumulative maximum 4 hours. Zoology laboratory teaching internship. S, F grading.

598 IPEM Seminar 1 Prereq IGERT fellow. Same as Anth 596. S, F grading.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

E Mic

586 Special Projects in Electron Microscopy V 2-3 May be repeated for credit. Practical training in one or more areas of electron microscopy; TEM, SEM, ultramicrotomy, specimen processing; confocal fluorescence microscopy.

587 Special Topics in Electron Microscopy 1 May be repeated for credit; cumulative maximum 4 hours. S, F grading.

Department of Biological Systems Engineering

www.bsysc.wsu.edu

Smith Hall 213

509-335-1578

Professor and Department Chair, C. O. Stöckle; Professors, G. V. Barbosa-Cánovas, R. P. Cavalieri, S. Chen, L. G. James, F. Pierce, J. Tang; Associate Professors, M. J. Pitts, J. Q. Wu; Assistant Professors, R. M. Nideya, M. García-Pérez, R. T. Peters, S. S. Sablani, J. L. Ulman, Q. Zhang.

BOLOGICAL SYSTEMS ENGINEERING

Only graduate degrees are offered. See department for more information.

Description of Courses

BSysE

512 Research and Teaching Methods 2 (1-3) Prereq graduate standing. Analysis and scientific communication.

541 Instrumentation and Measurements 3 (2-3) Prereq Math 172; Phys 102 or 202. Instrumentation systems and measurement concepts, electronic signal-conditioning components and circuitry, digital electronics and microprocessor basics. Cooperative course taught by UI, open to WSU students (AGE 441).

551 Advanced Biological Systems Engineering Topics V 1-4 May be repeated for credit; cumulative maximum 6 hours. Directed group study of selected advanced topics in biological systems engineering. Cooperative course taught by WSU, open to UI students (AGE 561).

552 Advanced Biological Systems Engineering Topics V 1-4 May be repeated for credit. Directed group study of selected advanced topics in biological systems engineering. Cooperative course taught by WSU, open to UI students (AGE 561).

555 Natural Systems for Wastewater Treatment 3 Same as C E 555.

556 Surface Hydrologic Processes and Modeling 3 (2-3) Fundamental hydrologic processes, governing equations and solution methods, GIS techniques commonly used in hydrology, class project on modeling surface hydrology.

581 Advanced Physical Properties of Foods 3 Prereq BSysE 481, Math 315. Analysis, modeling, and experimental procedures to measure physical properties for use in food processing system design.

582 Food Process Engineering I 3 Prereq BSysE 481 or Ch E 330. Design of food processing systems; design and simulation of sterilization and pasteurization processes in foods. Cooperative course taught by WSU, open to UI students (AGE 587).

583 Food Process Engineering II 3 Prereq BSysE 582. Design of food separation unit operations including concentration, dehydration, and membrane processes.

584 Thermal Processing of Foods 3 (2-3) Prereq Ch E 332 or M E 404; graduate standing. Principles and practices of food preservation methods based on application of heat.

594 Design and Analysis of Biomass Conversion Processes and Systems 3 Analysis of bioprocessing and biotreatment processes including energetics, stoichiometry, species competition, process infiltration, product separation and optimization.

598 Graduate Seminar 1 May be repeated for credit. Required of all graduate students in biological systems engineering. S, F grading.
WSU business studies are available in Pullman; at urban campuses in Vancouver, Tri-Cities, and Spokane; and, through the University’s Distance Degree Program. Full-time professional advisors assist with academic planning. Scholarships, fellowships, and assistantships are often available. For more information and news about the college, its students, and programs, visit the Web site at: www.cbe.wsu.edu.

The faculty in the College of Business have identified six competencies our students should have upon completion of an undergraduate degree in business: 1) mastery of core business knowledge and skills; 2) critical thinking, the ability to think about problems in a structured way; 3) innovative and entrepreneurial thinking; unstructured critical thinking and ability to translate ideas into action; 4) the ability to write clearly and concisely without sacrificing content; 5) the ability to communicate well orally; and 6) the ability to work effectively in and lead work teams.

Certification Requirements

Given high demand for business courses and strict accreditation requirements, certifying as a business major is competitive and course enrollments are limited. A student must meet the following minimum requirements to be eligible to apply to certify a major in business: 1) Complete the following certification courses with an average gpa of 2.50 or higher: Acctg 230, 231; B Law 210; MgtOp 215; EconS 101, 102; Engl 101; Math 201, 202; and MIS 250; 2) Have a WSU cumulative gpa of at least 2.5; and 3) Have earned at least 60 credit hours. Students will then be placed in rank order based on cumulative gpa and other performance criteria. The top students then are certified based on the number of spots available that semester.

To be eligible to apply to certify a business minor, a student must be certified in a major, have a cumulative gpa of at least 2.5, and have earned at least 60 credit hours. Students will then be placed in rank order based on cumulative gpa and other performance criteria. The top students then are certified based on the number of spots available that semester.

Students on the Pullman campus must apply online for enrollment into the Business and Hospitality Business Management degree programs at www.business.wsu.edu/advising to be considered in the applicant pool.

Graduation Requirements

A minimum business gpa of 2.5 is required for graduation.

General Program Requirements

General course requirements, core courses, and fields of specialization are presented below. Requirements vary depending upon the field of specialization selected. For a detailed description of degree requirements (with changes approved since publication of the latest catalog), see current degree requirements for BA majors, available in the College of Business.

By the completion of 60 hours of credit, all students, including transfer students, must have completed English, Math and 100-200-level CBE core courses: Acctg 230, 231; B Law 210; MgtOp 215; EconS 101, 102; Engl 101; Math 201, 202; and MIS 250. Enrollment in 300-level business courses is restricted to those students who have met these requirements and have certified as BA or HBM majors. Students certified in non-business majors may enroll in required 300-400-level business courses as space permits.

All students majoring in business must complete 60 credit hours of their course work outside of the College of Business.

WSU Course Requirements: At least 50% of business core and major specialization courses and at least nine 300-400-level business/economics courses must be WSU courses. A WSU course is a course that does not require evaluation for transfer credit.

The chair of the department and/or the associate dean of the college must approve in writing any business courses to be satisfied by transfer, correspondence, independent study, or other credit. Additional transfer, correspondence, and independent study credit (within University limits on these credits) may count toward the 120 hours required for the degree and/or satisfy requirements other than major courses.

Only general elective courses that are not GERs, not core/major requirements, and not offered by the CB may be taken pass, fail.

An honors senior project is required for Honors students.

Global Learning Requirement

Students within the College of Business must complete one of the following Global Learning requirements:

1. Study abroad for 6 or more credit hours. Two smaller study abroad programs may be cumulated to meet the entire six credit hour requirement. International students in the College of Business (not including DDP students) will meet their study abroad requirement through their study in the United States.
2. Complete a major or minor in a foreign language, Global Studies, or International Business. Honors College students that meet their demonstrated proficiency in a foreign language will also be deemed to have met the College of Business Global Learning requirement.
3. Complete a certificate with a major international component such as the Asia Program certificate.
4. Complete any two of the following requirements:
   a. A brief study abroad program of less than 6 credit hours.
   b. An international internship approved by the International Business Institute (maximum of three credit hours).
   c. An accepted international course (G, K, Tier III Capstone course as approved through the International Business Institute**). See your advisor for classes.
   d. A College of Business international course including BUS 380, any International Business Institute 300 or 400 level course, any cross-listed course offered by the International Business Institute, (see your advisor for classes)** or
   e. An accepted petition to the International Business Institute to allow the use of extensive international travel experiences at the collegiate level for up to three credit hours towards the Global Learning Requirement. Normally such an experience will be at least 3 months in duration. Credit for I Bus 498 or 499 may be given upon pre-approval.
5. Complete a minimum of one year international experience in any of the following areas: military service, Peace Corps, Volunteer work with an organization, missionary work, or other. Documentation is required for approval.

* Interpretations regarding the proposed policy will be made by the administrative head of the International Business Institute.

** Students may choose to enroll in the course prefix of their preference. For example, either MKTG 482 or IBUS 482 may be used equivalently to satisfy this requirement.

*** Other courses may also be used under this guideline if approved through the International Business Institute.

Second Bachelor’s Degree

Students who have received a bachelor’s degree in another area may obtain a Bachelor of Arts degree in Business Administration by presenting total credits of at least 150 hours and by fulfilling the following departmental requirements: ACCTG 230, 231; B Law 210; CMST 101, 102; ENGL 201 [W] or 403 [W]; FIN 235; Math 201, 202; MGT 302, 310; MGT 491 or 492; MIS 250; MKTG 360; Pol S elective; Soc or Psych [S]; and the courses required for the student’s chosen major in business.

The second degree can usually be completed in less than two years, depending on the number of business requirements completed as part of the first undergraduate degree. Second degree students must also go through the certification process (see Certification Requirements above) before they can enroll in 300-400-level business courses. Students should consult the CB Advising Office for specific requirements.

Transfer Students

Students planning to transfer to Washington State University at the end of the freshman or sophomore year should follow, as closely as possible, the general and core course requirements set forth above. If this is done, there should be no difficulty in completing the requirements for the bachelor’s degree within the normal period of four years. It should also be noted that courses taken at community colleges are not accepted as transferable equivalents to 300-400-level courses at WSU.

Description of Courses

BUSINESS ADMINISTRATION

596 Doctoral Topics V 1-4 May be repeated for credit; cumulative maximum 15 hours. Advanced topics in management and operations.

598 Research and Professional Development I May be repeated for credit; cumulative maximum 6 hours. Ph.D.-level professional development colloquium designed to improve research, teaching, and presentation skills and to provide professional socialization. S, F grading.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Department of Accounting

www.business.wsu.edu/accounting

Todd 242
509-335-8541


Schedules of Studies

ACCOUNTING AND INFORMATION SYSTEMS DEGREE PROGRAM (121 HOURS)

The objectives of the Bachelor of Arts in Business Administration with a major in accounting and information systems are to provide knowledge about practical and conceptual accounting, management information systems, and the use of accounting information for managerial decision-making purposes. This provides preparation for careers in private, governmental, and non-profit accounting and information systems, consulting in public accounting and management consulting firms.

First Year

First Term

EconS 101 [S] or EconS 102 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 201 3
Science Elective [B,P,Q] (GER) 3

Second Term

Biological Sciences [B] (GER) 3 or 4
EconS 101 [S] or EconS 102 [S] (GER) 3
GenEd 111 [A] (GER) 3
Math 202 [N] (GER) 3
MIS 250 3

Second Year

First Term

Acctg 230 3
Arts & Humanities [H,G] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
MIS 171 3
Physical Sciences [P] (GER) 3 or 4

Second Term

Acctg 231 3
B Law 210 (GER) 3
CMST 102 [C], 235 [C] or H D 205 [C] (GER) 3
MgtOp 218 4
Soc or Psych [S] (GER) 3
Complete Writing Portfolio

Third Year

First Term

Acctg 330 3
Acctg 335 or 338 3
Fin 325 3
MgtOp 301 3
Mktg 360 3

Second Term

Acctg 331 3
Acctg 335 or 338 3
MgtOp 340 3
MIS 322 3
Pol S Elective 3

Fourth Year

First Term

300-400-level Electives 3
Acctg 433 [M] 3
EconS 305, 320, or 322 3
MIS 372 3
Tier III Course [T] (GER) 3

Second Term

Acctg 438 [M] or 439 [M] 3
Engl 402 [W] or 403 [W] (GER) 3
MgtOp 491 or 492 3
Two of MIS 271, 325, 374, 375, 426 6

1 For a total of 7 hours of Biological and Physical Sciences

ACCOUNTING DEGREE PROGRAM (120 HOURS)

The objectives of the Bachelor of Arts in Business Administration with a major in accounting are to provide knowledge about practical and conceptual accounting, basic accounting information systems, and the use of accounting information for managerial decision-making purposes. This provides preparation for careers in private, governmental, and non-profit accounting. It also provides a foundation to enter the Master of Accounting program for those interested in a professional career in public accounting or consulting.

First Year

First Term

EconS 101 [S] or EconS 102 [S] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 201 3
Science Elective [B,P,Q] (GER) 3

Second Term

Biological Sciences [B] (GER) 3 or 4
EconS 101 [S] or EconS 102 [S] (GER) 3
GenEd 111 [A] (GER) 3
Math 202 [N] (GER) 3
MIS 250 3

Second Year

First Term

Acctg 230 3
Arts & Humanities [H,G] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
MIS 171 3
Physical Sciences [P] (GER) 3 or 4

Second Term

Acctg 231 3
B Law 210 (GER) 3
CMST 102 [C], 235 [C] or H D 205 [C] (GER) 3
MgtOp 218 4
Soc or Psych [S] (GER) 3
Complete Writing Portfolio

Third Year

First Term

Acctg 330 3
Acctg 335 or 338 3
Fin 325 3
MgtOp 301 3
Mktg 360 3

Second Term

Acctg 331 3
Acctg 335 or 338 3
MgtOp 340 3
MIS 322 3
Pol S Elective 3

Fourth Term

300-400-level Electives 3
Acctg 433 [M] 3
EconS 305, 320, or 322 3
MIS 372 3
Tier III Course [T] (GER) 3
Third Year

First Term
Acctg 230 3
Acctg 335 or 338 3
Fin 325 3
MgtOp 301 3
Mktg 360 3

Second Term
Acctg 331 3
Acctg 335 or 338 3
Elective 3
MgtOp 340 3
Tier III Course [T] (GER) 3

Fourth Year

First Term
Acctg 420, 430, 435, 438 [M], 439 [M], 443, B Law 487 or EconS 305 3
Acctg 433 [M] 3
Electives 8

Second Term
Acctg 438 [M] or 439 [M] 3
Engl 402 [W] or 403 [W] (GER) 3
MgtOp 491 or 492 3
Two of Acctg 420, 430, 434, 435, 438 [M], or 439 [M], 445, B Law 487 or EconS 305 6

Minors

Accounting

The minor in accounting requires Acctg 230, 231, 330, and 331. In addition, 6 hours from Acctg 335, 338, 433, 435, 438, 439. Students seeking a College of Business minor must take at least nine of the required credits at the 300-400 level as WSU credits. Up to six credits may be transferred from another institution.

Description of Courses

ACCOUNTING

Acctg

230 Introduction to Financial Accounting 3
Prereq sophomore standing. Introduction to corporate financial reporting via the preparation and interpretation of financial statements.

231 Introduction to Managerial Accounting 3

330 Intermediate Accounting I 3
Prereq Acctg 231. Theory underlying the determination of income; analysis of financial statements.

331 Intermediate Accounting II 3
Prereq Acctg 330. Continuation of Acctg 330.

335 Introduction to Taxation 3

338 Cost Accounting 3
Prereq Acctg 231; MgtOp 215; Math 107 or 201; Math 202. Management uses of cost information; cost systems and system design; cost analysis.

420 Accounting and Culture 3
Prereq Acctg 231. Cultural differences and how they affect accounting practices and standards in a variety of countries. Not an accounting technical course.

430 Advanced Accounting 3
Prereq Acctg 331. Enrollment limited to certified Acct or AIS majors or minors, Pullman and Vancouver campuses only. Partnership equities and extended forms of corporate ownerships and entities.

433 [M] Accounting Systems and Auditing 3
Prereq Acctg 330. Accounting systems design; internal control and computerization.

435 Individual Income Taxes 3
Prereq Acctg 335. The study of individual income taxes from both compliance and planning perspectives. Credit not granted to those taking Acctg 335 prior to Fall 1999.

438 [M] Advanced Cost Accounting and Management 3
Prereq Acctg 338. Cost/managerial accounting as it is used for decision making and planning; emphasis on budgeting, product cost, and performance measurement.

439 [M] Auditing 3
Prereq Acctg 433 or c//. Nature of auditing; generally accepted auditing standards, and audit procedures as related to auditing of financial statements by independent accountants.

443 Business Processes and Controls 3
Prereq Acctg 231. Introduction to business processes and internal controls, including risk assessment and internal audit.

498 Accounting Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Accounting Theory 3
Prereq Acctg 331. Recent developments with respect to the determination of income and the valuation of assets.

532 Contemporary Accounting Cases and Problems 3
Prereq Acctg 331. Accounting theory applied to external financial reporting practices.

533 Administrative Control 3
Prereq enrollment in the MBA program. Managerial evaluation of budgeting, cost accounting, and financial analysis techniques; their utilization in control of operations.

535 Advanced Taxation 3
Prereq Acctg 335. Federal income tax impact on corporations, S corporations, partnerships, estates, trusts and their beneficial owners.

537 Professional Research 3
Prereq Acctg 331; Acctg 335. Methodology used by accounting professionals to research applied problems in taxation, accounting, and auditing; communicate results.

538 Seminar in Cost/Managerial Accounting 3
Cost concepts, cost and managerial accounting systems; current issues and research in cost and managerial accounting.

539 Seminar in Public Accounting and Auditing 3
Prereq Acctg 439. Public accounting and auditing to present; current issues including statistical sampling and computers.

540 Corporate Taxation 3
Prereq admission to Master of Accounting program. Application of federal tax provisions and rules pertaining to corporations, including "S" corporations; tax planning and consequences of corporate decisions.

541 Flow Through Entities 3
Prereq admission to Master of Accounting program. Tax law and preparation requirements for entities in which tax elements passes thorough to the owner's individual income tax return.

542 Gifts, Estates and Trusts 3
Prereq admission to Master of Accounting program. Estate and gift tax law.

543 Special Topics in Taxation 3
Prereq admission to Master of Accounting program. Critical topics in taxation including new developments.

550 Introduction to Financial and Managerial Accounting 3
Prereq enrollment in the MBA program. Fundamentals of financial and managerial accounting; primarily for graduate students who wish to meet the MBA core requirements in accounting.

596 Doctoral Topics 3
May be repeated for credit; cumulative maximum 15 hours. Advanced topics in accounting.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

BUSINESS LAW

B Law

210 Law and the Legal Environment of Business 3
Fundamentals of business law; the legal system, legal reasoning, public, commercial, managerial and property law, and government regulation.

411 Managerial Law 3
Prereq B Law 210. Law of agency, partnerships, limited liability companies and corporations; and securities regulation.

415 [M] Law of International Trade 3
Prereq B Law 210. Legal organization of the international community; international aspects of trade and development, economic cooperation, and technical, social, and cultural cooperation.

416 [M] Public International Law 3
Prereq B Law 210. Law governing states, intergovernmental organizations, and nongovernmental organizations (including multinational enterprises); human rights law; environmental law; and dispute settlement.
Schedules of Studies

ENTREPRENEURSHIP DEGREE PROGRAM (120 HOURS)

The entrepreneurship major has been developed for students interested in venture management, new venture startups and small business and the management of family firms.

First Year

First Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
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<tbody>
<tr>
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<td>Entp 426</td>
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<td>Entp 492</td>
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Second Term

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<td>EconS 101 [S] or EconS 102 [S] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Math 201</td>
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<td>Science Elective [B,P,Q] (GER)</td>
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Second Year

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Third Year

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<td>Mktg 360</td>
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<th>Course Code</th>
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<td>Entp 375</td>
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<td>Entp 426</td>
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Fourth Year

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<tr>
<td>MgtOp 491</td>
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Minors

Entrepreneurship

Three courses from EconS 305; Fin 325; MgtOp 301, Mktg 360; and three from Entp 375, 426, 485, 490, 492, 495 [M], 496, 498 (no more than 3 hours), or 499 (no more than 3 hours). Students seeking a College of Business minor must take at least nine of the required credits at the 300-400-level as WSU credits. Up to six credits may be transferred from another institution.

Description of Courses

ENTREPRENEURSHIP

Entrp 426 Entrepreneurial Finance 3 Prereq Acctg 231, Fin 325. Same as Fin 426.

441 (375) Global E-Commerce 3 Prereq MIS 250. Same as MIS 441.

485 Topics in New Venture Business Planning 3 Prereq Fin 325; Mktg 360; MgtOp 301; MIS 375. Business competition to understand new venture creation utilizing technology breakthroughs, entrepreneurial business functions, and business plan development.

486 Topics in New Venture Business Planning 3 Prereq Fin 325; Mktg 360; MgtOp 301; MIS 375. Business competition to understand new venture creation utilizing technology breakthroughs, entrepreneurial business functions, and business plan development.

Entrepreneurial Management 3 Prereq EconS 101, 102, Fin 325, MgtOp 301, MIS 250, Mktg 360. Same as MgtOp 489.

490 [M] Entrepreneurship 3 Prereq Mktg 360. Same as Mktg 490.


Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Course covers new or time-sensitive topics in entrepreneurship.

Entrepreneurship Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government, or nonprofit organization. S, F grading.

Special Problems V 1-4 May be repeated for credit. Individualized study for students with special interests or needs. S, F grading.

Technology Entrepreneurship 3 Basic business concepts and processes applied to technology commercialization and venture creation.
## Schedules of Studies

### FINANCE DEGREE PROGRAM (120 HOURS)

Preparation for careers in financial management, investment analysis, financial institutions management, financial services, real estate, or risk management and insurance.

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<td>Acctg 231</td>
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### Description of Courses

#### FINANCE

**Fin**

223 **Personal Finance** 3 For nonbusiness majors. Consumer credit, financial institutions, investments, mutual funds, insurance, social security, home ownership, taxes, estate planning. Credit not granted for both Fin 223 and 325.

325 **Introduction to Financial Management** 3 Prereq Acctg 231; EconS 101; MgtOp 215. Financial decision making, financial strategies, investment in current and fixed assets, financial instruments, and capital markets.

345 **Real Estate** 3 Prereq B Law 210, EconS 102 and Fin 325 or c//. Relationships between location and value; patterns of urban land use; legal, financial, and organizational framework of the real estate business.

346 **Washington Real Estate Regulations** 1 Washington real estate regulations found in the Revised Code of Washington (RCW) and the Washington Administrative Code (WAC). S, F grading.

350 **Risk and Insurance** 3 Prereq B Law 210; EconS 102. Concepts in risk management and insurance; personal risks and treatment methods; legal principles in risk and insurance; overview of the insurance industry, company operations, and insurance regulation.

421 **Financial Institutions and Intermediation** 3 Prereq Fin 325. Characteristics of financial markets and institutions; analysis of fixed-income securities; and introduction to financial risk management.

422 **Financial Institutions Management** 3 Prereq Fin 325. Problems facing financial institution managers and solution techniques; credit risk analysis and management; financial institutions structure and regulation.


426 **Entrepreneurial Finance** 3 Prereq Acctg 231; Fin 325. Raising capital for new enterprises; venture capital, IPOs, debt financing, leasing and valuing start-up ventures.

427 **Investment Analysis** 3 Prereq Fin 325. Investment objectives, modern portfolio theory, valuation, equilibrium, market efficiency and principles of security analysis.

428 **Portfolio Theory and Financial Engineering** 3 Prereq Fin 427 or 437. The theory of portfolio management and the use of derivative securities in portfolio risk management.

429 **Advanced Financial Modeling** 3 Prereq Fin 325; Fin 421, 425, or 427, or c//. Corporate finance, portfolio, option pricing, risk management and fixed income modeling.

437 **Cougar Investment Fund** 3 Prereq Fin 325. Students manage a portion of the university's endowment; including security analysis, valuation, equilibrium, market efficiency, and modern portfolio theory.

438 **Cougar Investment Fund** 3 Prereq Fin 325, Fin 437 (or Fin 427 with instructor permission). Students manage a portion of the university's endowment. Topics include portfolio risk management, return attribution, private equity, and hedge funds.

445 **Real Estate Valuation** 3 Prereq Fin 325; Fin 345. Principles and practices of real property valuation; factors affecting real property values and income; appraisal and location theory.

447 **Real Estate Finance and Investments** 3 Prereq Fin 325. Instruments and institutions of real estate and financing: decision-making tools, mortgage financing analysis, mortgage securities and real estate portfolios.
### Department of Information Systems

**www.business.wsu.edu/information systems**

**Todd 442**

**509-335-5319**

*Philip L. Kays Distinguished Professor and Department Chair, M. Fuller; George and Carolyn Hubman Distinguished Professor in MIS, J. Valacich; Associate Professors, T. Hess, K. D. Joshi, G. Rose, S. Sarker, J. Wells; Assistant Professors, P. Clay, M. Featherman, S. U. Sarker.*

### Schedules of Studies

#### MANAGEMENT INFORMATION SYSTEMS DEGREE PROGRAM (120 HOURS)

Preparation for careers in every field of business, using information systems technology to solve business problems. Provides excellent training in systems design, development, networking, and support to meet the demands of this fast-growing occupational area.

#### First Year

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<td>Econs 101 [S] or Econs 102 [S] (GER)</td>
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#### Second Year

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<tr>
<td>Acctg 230</td>
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<td>B Law 210</td>
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Complete Writing Portfolio

#### Third Year

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#### Fourth Year

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<td>MIS 420</td>
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<td>Electives</td>
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1 For a total of 7 hours of Biological and Physical Sciences.
Minors

Management Information Systems

The minor in management information systems requires MIS 171, 230, 271, 322; and two of the following: MIS 325, 372, 374, 424, or 441. Students seeking a College of Business minor must take at least nine of the required credits at the 300-400-level as WSU credits. Up to six credits may be transferred from another institution.

Description of Courses

MANAGEMENT INFORMATION SYSTEMS

MIS

171 Web Technologies and Innovation 3 Effects of web-based technologies and modern development environments on organizations.

250 Managing Information Technology 3 (2-2) Comprehensive overview of the role of management information systems in business, principles and application of MIS, and hands-on computer labs.

271 Intermediate Business Programming 3 Top-down program design, structured programming techniques, and program testing.

322 [M] Systems Analysis and Design 3 Prereq MIS 250. The role of the systems analyst, and the application of systems analysis and design techniques in information systems development.

325 Enterprise Business Programming 3 Prereq MIS 250, 271. Basic principles of designing and developing enterprise-level business applications.


374 Information Technology Infrastructure 3 Prereq MIS 250. Designing, managing, and securing corporate information technology infrastructures.

420 Business Intelligence 3 Prereq MIS 250. Fundamentals of using information systems for business intelligence and decision support.

426 Emerging Technologies 3 May be repeated for credit; cumulative maximum 12 hours. Prereq MIS 250. Special and advanced topics in MIS.

441 (375) Global E-Commerce 3 Prereq MIS 250. Capabilities of the Internet to support and enable global electronic commerce; effective design and implementation; managerial issues.

448 Global IS Project Management 3 Prereq MIS 322. Principles and techniques related to managing information systems projects in global business environments.

498 Management Information Systems Internship V 2-15 May be repeated for credit. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

572 Database Management Systems 3 Prereq admission to MBA program. Database management, data modeling, system design and implementation; the application of DBMS technologies to organizational and business problems.

574 Telecommunications and Networking in Business 3 Prereq admission to MBA program. Business applications of data communications, infrastructure, protocols, topologies and management, the design of wired and wireless solutions, and related research issues.

575 Electronic Commerce and the Internet 3 Prereq admission to the MBA Program. Technologies underlying electronic commerce and the internet; strategies and implementation plans for managing the implementation of electronic commerce systems.

576 Emerging Technologies 3 Prereq enrollment in the MBA Program. Special and advanced topics in MIS.

580 Information Systems Management 3 Prereq enrollment in the MBA program. Data processing organization; operations, application development, computer selection, management of computer personnel and systems.

582 Systems Analysis and Design 3 Prereq admission to MBA program. Research on and application of systems analysis, design, development and management of information systems; systems development life cycle.

595 MIS Research Foundations 3 Prereq graduate standing. Seminar works in MIS, philosophy of science and theory development.

596 Doctoral Topics 3 May be repeated for credit; cumulative maximum 9 hours. Prereq graduate standing. Advanced topics in management information systems.

597 MIS Research Methods 3 Prereq MIS 596. Study and application of research methods used in MIS research.

598 MIS Research Topics 3 Major streams of research in MIS.

599 MIS Research Proposal Development 3 Prereq MIS 598. Seminar on the process of creating a MIS research proposal.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

International Business Institute

www.business.wsu.edu/international

business

Todd Hall 570

509-335-2180


The International Business Institute (IBI) was established to coordinate international activities in the College of Business. The IBI draws faculty, staff, and students together to achieve excellence in the internationalization of business education, research, and service. It administers the international business curriculum and advises all international business majors. The IBI aims at encouraging the business faculty, staff, and students to be involved in interesting and exciting activities in the global business.

Schedules of Studies

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

INTERNATIONAL BUSINESS DEGREE PROGRAM (120 HOURS)

Preparation for careers with multinational corporations, governmental and intergovernmental agencies both domestic and international. Students must complete 9 credits of foreign study except for students studying at WSU who reside outside the US and who attended at least one year of secondary school in a foreign country. One year of foreign language is required except for non-native speakers of English from outside the US who may substitute satisfactory TOEFL scores. Bilingual Americans may substitute satisfactory ETS scores or certification by a WSU faculty member who is a native speaker of the target language.

First Year

First Term Hours

EconS 101 [S] or EconS 102 [S] (GER) 3

Engl 101 [W] (GER) 3

GenEd 110 [A] (GER) 3

Math 201 3

Science Elective [B,P,Q] (GER) 3

Second Term Hours

Biological Sciences [B] (GER) 3 or 4

EconS 101 [S] or EconS 102 [S] (GER) 3

GenEd 111 [A] (GER) 3

Intercultural Studies [I,G,K] (GER) 3

Math 202 3

Second Year

First Term Hours

Acctg 230 3

Arts & Humanities [H,G] (GER) 3

MIS 250 3

Physical Sciences [P] (GER) 3 or 4

Pol S Elective 3

Second Term Hours

Acctg 231 3

B Law 210 3

ComSt 102 [C], 235 [C] or H D 205 [C] (GER) 3

MtgOpt 215 4

Soc or Psych [S,K] (GER) 3

Complete Writing Portfolio
### Third Year

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### Fourth Year

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### Minors

**International Business**

The minor in international business requires 1 Bus 380; one of I Bus 435, 453, 496, 498, or 499 (3 credits only of 498 or 499); two of the following pairs of courses: B Law 210, I Bus 415 or 416 [M]; I Bus 482, Mktg 360; EconS 102, I Bus 375, 470, or 472; Fin 325, I Bus 481 [M]. Students seeking a College of Business minor must take at least nine of the required credits at the 300-400-level as WSU credits. Up to six credits may be transferred from another institution.

### Description of Courses

**INTERNATIONAL BUSINESS**

1 Bus

380 **International Business** 3 International political economy; business relationships between nations; corporations and economic institutions.

399 **Foreign Study** V 1-15 May be repeated for credit; cumulative maximum 15 hours. Prereq program approval required. Participation in approved programs of study at a foreign educational institution. S, F grading.


416 **[M] Public International Law** 3 Prereq B Law 210. Same as B Law 416.

420 **Accounting and Culture** 3 Prereq Acctg 231. Same as Acctg 420.

435 **International Tourism** 3 Same as HBM 435.

441 **Global E-Commerce** 3 Prereq MIS 250. Same as MIS 441.

453 **[M] International Management** 3 Same as MgtOp 453.

470 **International Trade and Finance** 3 Prereq EconS 101; EconS 102. Same as EconS 327.

481 **[M] International Finance** 3 Prereq Fin 325. Financial problems of multinational businesses; international financial environment, long-term capital commitment to an international venture, financial techniques for firm operation, and international investment.

482 **[M] International Marketing** 3 Prereq Mktg 360. Opportunities, characteristics, trends in foreign markets; alternative methods; organizational planning, control; problems of adapting American marketing concepts and methods.

492 **Small Business Policy** 3 Prereq Acctg 230, B Law 320, Fin 325, MgtOp 301, Mktg 360. Same as MgtOp 492.

496 **Special Topics** V 1-3 May be repeated for credit; cumulative maximum 6 hours.

498 **International Business Internship** V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 **Special Problems** V 1-4 May be repeated for credit. S, F grading.

580 **International Business Management** 3 Decision making in the international environment; political, cultural, and economic risk management.

581 **International Finance** 3 Prereq Fin 325 or 525. Principles of international finance; financial management of multinational corporations; international investments.

582 **International Marketing Management** 3 Prereq Mktg 305. Principles of international marketing, marketing decision making in international environments, problems of adapting marketing programs to international markets.

600 **Special Projects or Independent Study** V 1-18 May be repeated for credit. S, F grading.

### Department of Management and Operations

**www.business.wsu.edu/management_operations**

**Todd 342**

**509-335-7527**

Professor and Department Chair, S. Ahn; Professors, J. Cullen, S. Fotopoulos, J. Goodstein, T. Tripp, M.C. Wang; Associate Professors, T. Baker, K. Butterfield, K. Kahn, C. Munson, S. Shin; Assistant Professors, J. Arthurs, K. Liu, V. Miskin (clinical), A. Sahaym, R. Portnoy.

### Schedules of Studies

**MANAGEMENT & OPERATIONS DEGREE PROGRAM (120 HOURS)**

Students may emphasize preparation for one of three careers in this major: (1) careers as production executives in manufacturing and enterprises and for other administrative positions in business and government for which production training is useful and desirable; (2) careers for which an understanding of international business is desirable; and (3) careers in management which require an understanding of people in organizations as well as the production function.

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**Complete Writing Portfolio**

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81
315 Women in Management and Business minor must take at least nine of the 450, 455, and 456 required credits at the 300-400 level as WSU credits.

Up to six credits may be transferred from another institution.

Business Administration
Not more than three from Acctg 230, 231; B Law 210; EconS 101, 102; MgtOp 101, 215. Not less than three from Fin 325, 345, 350; I Bus 380; MgtOp 301, 340; MIS 372; Mktg 360. Students seeking a College of Business minor must take at least nine of the required credits at the 300-400 level as WSU credits. Up to six credits may be transferred from another institution.

Human Resources/Personnel
The minor in human resource/personnel requires MgtOp 215 or Psych 311; and MgtOp 301, 401[M], 450, 455, and 456[M]. Students seeking a College of Business minor must take at least nine of the required credits at the 300-400 level as WSU credits. Up to six credits may be transferred from another institution.

Description of Courses

MgtOp

101 Introduction to Business 3 Introduction to the practice of business with explanations of business environments, strategy, organization, functional areas, terminology, processes, tasks and ethics. Credit not allowed for MgtOp 101 if credit already earned in MgtOp 301 and/or Mktg 360.

215 Statistics 4 (3-2) Prereq Math 201; MIS 250 or c/. Data presentation, probability, distributions, inferences, and linear regression as applied to business and economics.

301 Principles of Management and Organization 3 Principles of management and administration aimed at improving effectiveness of all types of organizations. Credit not allowed for MgtOp 101 if credit already earned in MgtOp 301.

315 [S, D] Women in Management and Leadership 3 Same as W St 315.


401 [M] Leadership Skills for Managers 3 Prereq MgtOp 301. Leadership, motivation, team building, group dynamics, interpersonal and group conflict, and job design


418 Quality Improvement for Management 3 Prereq MgtOp 215. Total quality management as used in industries; philosophy of Deming and others, control charts, process capability analysis, team tools.

450 Personnel and Human Resources Management 3 Prereq MgtOp 215; 301. Policy and practice in human resource utilization, selecting, training, motivating, evaluating, and compensating employees; labor relations; EEO legislation.


453 [M] International Management 3 Cross-cultural implications of management theories and approaches; the role of national culture in management theory and practice.

455 [M] Staffing 3 Prereq MgtOp 450 or c/. Selection issues; methods of forecasting, planning, recruitment, selection; analysis of psychometric properties of tests; techniques for assessing reliability and validity.

456 Compensation Administration 3 Prereq MgtOp 450 or c/. Theoretical, research, and applied issues related to the compensation of employees.

470 Business Modeling with Spreadsheets 3 Prereq Math 202 or 220; MIS 250. Spreadsheet modeling and solution of business problems with emphasis on operations management and logistics applications.


485 Negotiation Skills 3 Bargaining skills across a broad range of business settings; experiential work. Credit not granted for both MgtOp 485 and 585.

487 Business Ethics 3 Prereq MgtOp 301. The nature and sources of ethical conflicts and dilemmas individuals and organizations confront in the business context.

489 Entrepreneurial Management 3 Prereq EconS 101, 102, Fin 325, MgtOp 301, MIS 250, Mktg 360. Philosophy and nature of entrepreneurship for all business organizations; analytical, financial and interpersonal entrepreneurial skills.


492 Small Business Policy 3 Prereq Acctg 230, B Law 210, Fin 325, MgtOp 301, Mktg 360. Application of management theory and principles to small firms; applied consulting experience with operating businesses.

496 Seminar 3 May be repeated for credit.

498 Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or non-profit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

516 Time Series 3 Prereq MgtOp 515 or Stat 443. ARIMA models; identification, estimation, diagnostics, and forecasting; seasonal adjustments, outlier detection, intervention analysis and transfer function modeling.

519 Applied Multivariate Analysis 3 Prereq MgtOp 591 or Stat 443. Principal components, factor analysis, discriminant function, cluster analysis, multivariate normal distribution, Hotelling’s T2 and MANOVA.

540 Deterministic Business Models 3 Prereq MgtOp 340. Decision analysis, linear optimization models, nonlinear models, network analysis including PERT, and dynamic programming as applied to business.

581 Operations Management 3 Prereq enrollment in the MBA program. Analytical approach to solving problems in production and operations management.

582 Personnel and Human Resource Management 3 Human resources and personnel administration; selection, training, compensation, performance appraisal, labor relations, health and safety, EEO legislation.

585 Negotiation Skills 3 Graduate counterpart of MgtOp 485; additional requirements. Credit not granted for both MgtOp 485 and 585.

587 Professional Ethics and Practice in Business 3 Prereq MgtOp 451 or 591. Ethical issues faced by businesses in the current environment; traditional sources for discerning professional and ethical practices.

588 Management of Innovation 3 Prereq Graduate standing. Technological transitions and technology strategy; knowledge and creativity in organizations; managing innovation processes, technical employees, and cross-functional cooperation.

589 Seminar in Management 3 May be repeated for credit; cumulative maximum 6 hours. Prereq admission to MBA program. Special topics in management, organization behavior, organization theory, human resource management and strategic management.

590 Strategy Formulation and Organizational Design 3 Prereq enrollment in the MBA program. Relationship between the formulation of strategy and the selection of effective organizational structures and systems.

591 Statistical Analysis for Business Decisions 3 Prereq enrollment in the MBA program. Analytical skills for decision-making; data collection and analysis, sampling, inferential regression methodologies, experimental design, time series, forecasting analysis.

593 Managerial Leadership and Productivity 3 Prereq enrollment in the MBA program. Organizational behavior and human motivation in the workplace; organization and leadership theories, studies, projects and models leading to improved productivity.
596 **Doctoral Topics** V 1-4 May be repeated for credit; cumulative maximum 15 hours. Advanced topics in management and operations.

597 **Doctoral Topics** 3 May be repeated for credit; cumulative maximum 9 hours. Advanced topics in management and operations.

598 **Research and Professional Development** I May be repeated for credit; cumulative maximum 6 hours. Ph.D.-level professional development colloquium designed to improve research, teaching, and presentation skills and to provide professional socialization. S, F grading.

600 **Special Projects or Independent Study** V 1-18 May be repeated for credit. S, F grading.

702 **Master's Special Problems, Directed Study, and/or Examination** V 1-18 May be repeated for credit. S, F grading.

800 **Doctoral Research, Dissertation, and/or Examination** V 1-18 May be repeated for credit. S, F grading.

---

**Department of Marketing**

www.business.wsu.edu/marketing

Todd 367

509-335-0924

Professor and Department Chair, D. Muehlb; Professors, J. Cote, J. Johnson, E. Spangenberg, P. Tansuhaj, U. Uniesh; Associate Professors, J. Jorenman, D. Sprott; Assistant Professors, Y. Gregoire, B. John Mariadoss, C. Plouffe; Professor Emeritus, D. Stem.

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**Schedules of Studies**

**MARKETING DEGREE PROGRAM (120 HOURS)**

Preparation for careers in marketing management, sales, retail management, marketing research, brand management, and promotion.

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<td>Engl $402$ [W] or $403$ [W] (GER)</td>
<td>3</td>
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<tr>
<td>Group A Elective</td>
<td>3</td>
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<tr>
<td>Group B Elective</td>
<td>2</td>
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<tr>
<td>Mktg $495$ [M]</td>
<td>1</td>
</tr>
<tr>
<td>Elective</td>
<td>2</td>
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</tbody>
</table>

1 For a total of 7 hours of Biological and Physical Sciences.
2 Group A electives are: Four from Mktg $379$, $450$, $461$ [M], $468$, $470$, $477$, $478$ [M], $480$, $482$ [M], $487$, $490$, $496$, $498$. No more than 3 hours of 498 may be used.
3 Group B electives are: Two from Acctg $338$; Econ $305$, $321$; I Bus $380$ [M]; MIS $441$; Mktg $499$; additional courses with advisor approval.

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**Minors**

**Marketing**

Mktg $360$; $407$ or $417$; four of Mktg $368$, $379$, $450$, $461$ [M], $468$, $470$, $477$, $478$ [M], $480$, $482$ [M], $487$, $490$ [M], $496$, $498$. No more than 3 hours of 498 may be used.

**Description of Courses**

**MARKETING**

**Mktg**

360 **Marketing** 3 Functions, methods, and middlemen used in marketing the principal types of goods; price policies, cost of marketing, government regulation. Credit not allowed for MgtOp $101$ if credit already earned in Mktg $360$.

368 **Marketing Research** 3 Prereq MgtOp $215$; Mktg $360$. Survey and experimental methods as they relate to marketing research.

379 **Professional Sales** 3 Theory and principles of professional sales with special attention to the business-to-business market.

407 **Consumer Behavior** 3 Prereq Mktg $360$. The investigation of social-psychological phenomena affecting consumer decision processes; learning theory and communication.

417 **Consumer Behavior and E-Commerce** 3 Prereq Mktg $360$ or equivalent. Theories of social science explaining the mental, emotional, and physical activities underlying consumer behavior in traditional physical and digital environments.

450 **Internet Marketing** 3 Prereq Mktg $360$. Case and project-based course exploring marketing’s role in the Internet and electronic commerce.


468 **Public Policy and Marketing** 3 Prereq Mktg $360$. Productivity and efficiency in marketing; government regulation of marketing structure and of marketing policies and practices; consumer protection and welfare.

470 **Retail Management** 3 Prereq Mktg $360$. Retailing system; organization, merchandising models, pricing, promotion, location, and control procedures; management decision processes.

477 **Promotion Management** 3 Prereq Mktg $360$. Text and case approach to integrating promotion into the marketing plan; methods, organization, communications, media selection, and campaigns.

478 **M Sales Management** 3 Prereq Mktg $360$. The role of selling in the marketing mix; problems in planning, organizing, evaluating and controlling the sales force.

480 **Business to Business Marketing** 3 Prereq Mktg $360$. Case and project-based course exploring business-to-business marketing in traditional and electronic environments.

482 **M International Marketing** 3 Prereq I Bus $380$; Mktg $360$. Same as I Bus $482$.

487 **Independent Research** 3 Prereq Mktg $368$, $457$. Independent research project with faculty member including problem statement, literature review, hypotheses, data collection, and reporting of results.

490 **M Entrepreneurship** 3 Prereq Mktg $360$. Concepts, issues, and techniques of new venture creation and entrepreneurship.

495 **M Marketing Management** 3 Prereq Mktg $360$; 6 hours Mktg. Analysis of marketing policy; approaches to solutions of marketing problems.

496 **Special Topics** V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq Mktg $360$. May be repeated for credit; cumulative maximum 6 hours.
Marketing Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Prereq Mkts 360. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

Special Problems V 1-4 May be repeated for credit. Prereq Mkts 360. S, F grading.

Survey of Marketing 3 Prereq enrollment in the MBA program. Marketing management; relevance of marketing to company profitability and consumer satisfaction; decision regarding price, product, promotion, and distribution.

Marketing Management and Administrative Policy 3 Prereq enrollment in the MBA program. Marketing management and administrative policies as they relate to concepts, strategies, and decision making.

Research Methodology 3 Prereq MgtOp 215 or 591. Types of data needed and available, collection and analysis of data as they relate to decisional research.

Technology and New Product Marketing 3 Prereq Mkts 360 or 505. Introduction of new products that are based on new technology; exploration of actual products in the market.

Seminar in Marketing 3 May be repeated for credit; cumulative maximum 9 hours. Marketing structure and behavior from economic and behavioral perspectives; social evaluation and behavioral implications of marketing strategy.

Seminar in Consumer Behavior 3 Advanced, doctoral-level topics in consumer behavior.

Seminar in Marketing Management 3 Advanced, doctoral-level topics in marketing management.

Seminar in Marketing Theory 3 Advanced, doctoral-level topics in marketing theory.

Seminar in Research Design 3 Advanced, doctoral-level topics in research design.

Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Bioengineering

Bioengineering is an engineering discipline that integrates engineering and life sciences to address issues important to human and animal well-being and to society at large. As such, the educational objective of the BS Bioengineering degree is to prepare graduates for productive employment, advanced study, or professional programs where they apply principles and methods of both engineering and life sciences to solve problems affecting human and animal health and well-being. Graduates may apply their expertise in human and animal medicine, biotechnology, or related biotechnology-based engineering fields.

Bioengineering is one of the fastest growing disciplines in the nation. Graduates are prepared to apply engineering methods to fields of biology and medicine and to utilize biological understanding in engineering problem solving and design. With these integrated science and engineering skills, bioengineering graduates are able to make valuable contributions to human and animal health care and environments, bio-based product development, and biotechnology. At Washington State University, bioengineering cooperates with and finds applications in numerous disciplines of engineering, veterinary medicine, medical sciences, and the Spokane medical community. The bioengineering curriculum easily accommodates pre-medical, pre-dental and pre-veterinary requirements for those students wishing to apply to professional schools in health care fields.

Bioengineering graduates are to demonstrate educational outcomes (abilities, skills, and attributes) listed below. 1) Application of Math/Science/Engineering: Students demonstrate an ability to use foundational knowledge in mathematics, physics, chemistry, biology, physiology, and engineering sciences. 2) Critical Thinking: Students demonstrate ability to analyze and evaluate scientific and engineering arguments or claims and to critically relate such claims to global, economic, environmental, professional, and societal issues. 3) Independent Learning: Students demonstrate awareness of a need for ongoing professional growth and ability to learn independently to address challenges they encounter. 4) Systems Solutions: Students demonstrate ability to use analogous thinking, synthesis and analysis, integrative systems approaches, and associated tools to solve engineering problems. 5) Teamwork: Students demonstrate an ability to work in teams comprised of engineers and others to produce joint work products. 6) Bioengineering Design: Students demonstrate ability to design engineering solutions to meet needs with biological considerations and constraints of producers, users, investors and society. 7) Experimentation: Students demonstrate ability to design and conduct experiments, make measurements, analyze data, and interpret results and interactions between living systems and nonliving materials and systems. 8) Career Awareness: Students demonstrate awareness of career opportunities and contemporary issues that influence their choices of entry-level
jobs and advanced training. 9) Professional Ethics: Students demonstrate understanding of professional and ethical responsibility and reasoning suitable for professional decision-making. 10) Communication: Students demonstrate ability to communicate effectively in written and oral forms to interdisciplinary audiences.

Certification

Students may apply for certification into the BS Bioengineering degree program after completion of the following courses: Math 171, 172; Chem 105, 106; Phys 201; CH 201; BE 210; Biol 107. Students must be certified in bioengineering before being allowed to enroll in other 300-level or 400-level required BE courses.

Transfer Students

Students who are planning to transfer to Chemical Engineering or Bioengineering at Washington State University from other institutions should coordinate their programs with the school to establish a schedule of studies leading to the bachelor's degree. This is desirable because of sophomore professional requirements and course sequences. A strong preparation in chemistry, mathematics, and physics is necessary prior to transfer to minimize the time required at Washington State University to complete bachelor's degree requirements. Inquiries concerning specific questions are welcomed. Since there is a restriction on the total number of majors in the school, transfer students should make application for admission as soon as possible. The curriculum in Bioengineering is accredited by ABET.

Preparation for Graduate Study

As preparation for work toward an advanced degree, a student should have completed substantially the equivalent of the above schedule of studies. A Bachelor of Science degree in Chemical Engineering from an institution accredited by ABET normally will satisfy this requirement. Special programs are also available for students with bachelor's degrees in chemistry or other areas of science who wish to obtain the Master of Science degree in Chemical Engineering.

Schedules of Studies

BIOENGINEERING, GENERAL OPTION
(130 HOURS)

Students who plan to pursue pre-med studies should consult their advisor for further information about appropriate courses.

Criteria for Certification – Bioengineering Program

1) In September of each year, the faculty of the School of Chemical Engineering and Bioengineering will establish the total number of students (June and January) to be certified into the bioengineering program.

2) Each student will be considered for certification during the semester after he/she has completed all of the following courses: Math 171, Math 172, Chem 105, Chem 106, Biol 107, Phys 201, CH 201, B E 210

3) To be certified, each student must meet the following minimum standards:

a. 2.0 cumulative GPA
b. A "C" grade or better in each of the courses listed in 2) above
4) Certification decisions will be made at the end of Fall and Spring semesters, and those being certified at the end of Spring semester will be notified by June 1, while those being certified at the end of Fall semester will be notified by January 15.

5) If the number of students seeking certification exceeds the program capacity, as determined in 1) above, additional criteria will be used to select those who are certified. Those criteria include: (a) average gpa received in the courses listed in 2) above; (b) average gpa earned in all the engineering/math/science courses which have already been completed; and (c) the gpa earned during the previous semester.

6) Students who have completed all the courses listed in 2) above, but who are not certified will be notified of the decision according to the time table described in 4) above. Such students who are not certified may appeal the decision. This appeal should describe any special circumstances that should be considered. A faculty committee will consider the appeal, the special circumstances described, and trends in the grades (e.g. trends in grades and/or withdrawals, typical course load attempted and typical course load completed) and make a final decision regarding certification. The appeal must be submitted within 2 weeks of the notification described in 4) above. The appeal will be considered and a decision made by July 1 and February 15.

7) Students who are deficient under the University's Educational Policies and Procedures are subject to decertification.

a. The first semester that a student is deficient, she/he must apply for recertification, stating changes that will be made to ensure success and explaining extenuating circumstances, any of which may prevent success. The student must provide sufficient information so that a reasonable individual will assume that the student will likely be able to successfully complete the program.

b. The second time that a student is deficient, she/he may apply to be recertified. However, such recertification will be granted only under rare, extenuating conditions.

First Year

First Term
Chem 105 [P] (GER) 4
Eng 101 [W] (GER) 3
Engr 120 2
GenEd 110 [A] (GER) 3
Math 171 [N] (GER) 4

Second Term
B E 140 1
Biol 107 [B] (GER) 4
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math 172 4

Second Year

First Term
B E 205 1
Ch E 201 3
Chem 345 4
Math 220 2
Math 273 2
Phys 201 [P] (GER) 4

Second Term
B E 210 2
C E 211 3
Math 315 3
Math 370 or 423 3
Phys 202 [P] (GER) 4

Complete Writing Portfolio

Third Year

First Term
B E 320 [M] 4
B E 350 3
Ch E 310 3
E E 261 3
MBioS 303 4

Second Term
B E 330 3
B E 340 4
Bioengineering elective 2 3
EconS 101 [S] or 102 [S] (GER) 3
Intercultural Studies [I,G,K] (GER) 3

Fourth Year

First Term
B E 410 3
B E 440 4
Bioengineering electives 2 6
Eng 402 [W] (GER) 3

Second Term
B E 411 3
Bioengineering electives 2 9
Tier III Course [T], Humanities or Social Sciences (GER) 3

1 A total of 18 credits of arts and humanities, social sciences, intercultural studies, and world civilization are required. For engineering majors, the Tier III requirement must be satisfied with a course in the arts and humanities or social sciences. Tier II courses should be selected so that any prerequisites for the Tier III course are satisfied.

2 Must be approved by advisor prior to enrollment in the class.

Note: Students interested in the professions of medicine, veterinary medicine, or dentistry have only two Bioengineering electives free to select. Four of them are already selected (Biol 106, MBioS 301, Chem 346, and Chem 348) to give the necessary foundation for the MCAT examination required for medical school application. Note also that the two remaining electives must be 400-level AND Engineering Topics totaling six credits.

BIOENGINEERING, PRE-MED OPTION
(131 HOURS)

First Year

First Term
Chem 105 [P] (GER) 4
Eng 101 [W] (GER) 3
Engr 120 2
GenEd 110 [A] (GER) 3
Math 171 [N] (GER) 4

Second Term
B E 140 1
Biol 107 [B] (GER) 4
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math 172 4

Third Year

First Term
B E 205 1
Ch E 201 3
Chem 345 4
Math 220 2
Math 273 2
Phys 201 [P] (GER) 4

Second Term
B E 210 2
C E 211 3
Math 315 3
Math 370 or 423 3
Phys 202 [P] (GER) 4

Complete Writing Portfolio

Fourth Year

First Term
B E 320 [M] 4
B E 350 3
Ch E 310 3
E E 261 3
MBioS 303 4

Second Term
B E 330 3
B E 340 4
Bioengineering elective 2 3
EconS 101 [S] or 102 [S] (GER) 3
Intercultural Studies [I,G,K] (GER) 3

1 A total of 18 credits of arts and humanities, social sciences, intercultural studies, and world civilization are required. For engineering majors, the Tier III requirement must be satisfied with a course in the arts and humanities or social sciences. Tier II courses should be selected so that any prerequisites for the Tier III course are satisfied.

2 Must be approved by advisor prior to enrollment in the class.

Note: Students interested in the professions of medicine, veterinary medicine, or dentistry have only two Bioengineering electives free to select. Four of them are already selected (Biol 106, MBioS 301, Chem 346, and Chem 348) to give the necessary foundation for the MCAT examination required for medical school application. Note also that the two remaining electives must be 400-level AND Engineering Topics totaling six credits.
Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math 172 4

Second Year
First Term  Hours
B E 205 1
Biol 106 [B] (GER) 4
Ch E 201 3
Math 220 2
Math 273 2
Phys 201 [P] (GER) 4

Second Term  Hours
Arts & Humanities [H,G] (GER) 3
B E 210 2
C E 211 3
Math 315 3
Math 370 or 423 3
Phys 202 [P] (GER) 4
Complete Writing Portfolio

Third Year
First Term  Hours
B E 320 [M] 4
Ch E 310 3
Chem 345 4
E E 261 3
MBios 301 4

Second Term  Hours
B E 330 3
B E 340 4
Chem 346 3
Chem 348 1
MBios 303 4

Fourth Year
First Term  Hours
B E 350 4
B E 410 3
B E 440 3
Engl 402 [W] (GER) 3
Intercultural Studies [L,G,K] (GER) 3

Second Term  Hours
B E 411 3
Bioengineering Electives 6
EconS 101 [S] or 102 [S] (GER) 3
Tier III Course [T] (GER) 3

1 A total of 18 credits of arts and humanities, social sciences, intercultural studies, and world civilization are required. For engineering majors, the Tier III requirement must be satisfied with a course in the arts and humanities or social sciences. Tier II courses should be selected so that any prerequisites for the Tier III course are satisfied.

2 Must be approved by advisor prior to enrollment in the class.

CHEMICAL ENGINEERING - GENERAL (131 HOURS)

At least 66 of the total hours required for this degree must be in 300-400-level courses.

Criteria for Certification – Chemical Engineering Program
1) In September of each year, the faculty of the School of Chemical Engineering and Bioengineering will establish the total number of students (June and January) to be certified into the chemical engineering program.

2) Each student will be considered for certification during the semester after she/he has completed all of the following courses: Math 171, Math 172, Math 273; Chem 106, Chem 345, Phys 201, Ch E 201.

3) To be certified, each student must meet the following minimum standards:
   a. 2.0 cumulative GPA
   b. A “C” grade or better in each of the courses listed in 2) above

4) Certification decisions will be made at the end of Fall and Spring semesters, and those being certified at the end of Spring semester will be notified by June 1, while those being certified at the end of Fall semester will be notified by January 15.

5) If the number of students seeking certification exceeds the program capacity, as determined in 1) above, additional criteria will be used to select those who are certified. Those criteria include: (a) average gpa received in the courses listed in 2) above; (b) average gpa earned in all the engineering/math/science courses which have already been completed; and (c) the gpa earned during the previous semester.

6) Students who have completed all the courses listed in 2) above, but who are not certified will be notified of the decision according to the time table described in 4) above. Such students who are not certified may appeal the decision. This appeal should describe any special circumstances which should be considered. A faculty committee will consider the appeal, the special circumstances described, and trends in the grades (e.g. trends in grades and/or withdrawals, typical course load attempted and typical course load completed) and make a final decision regarding certification. The appeal must be submitted within 2 weeks of the notification described in 4) above. The appeal will be considered and a decision made by July 1 and February 15.

7) Students who are deficient under the University’s Educational Policies and Procedures are subject to decertification.
   a. The first semester that a student is deficient, she/he must apply for recertification, stating changes that will be made to ensure success and explaining extenuating circumstances, if any, that hindered success. The student must provide sufficient information so that a reasonable individual will assume that the student will likely be able to successfully complete the program.
   b. The second time that a student is deficient, she/he may apply to be recertified. However, such recertification will be granted only under rare, extenuating conditions.

First Year
First Term  Hours
Chem 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Intercultural Studies [L,G,K] (GER) 3
Math 171 [N] (GER) 4

Second Term  Hours
Biol 106 or 107 [B] (GER) 4
Ch E 110 2
Chem 106 [P] (GER) 4
### CHEMICAL ENGINEERING - PRE-MED (135 HOURS)

Specific requirements for certification in chemical engineering can be obtained from the school although eligibility usually occurs at the middle of the sophomore year. Criteria for certification include overall GPA, grades earned in mathematics and physical science courses, and performance in the Ch E 201 course. A certified student earning a GPA of less than 2.0 for any two semesters is subject to decertification.

#### First Year

**First Term**
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- Math 171 [N] (GER) 4

**Second Term**
- Biol 106 [B] or 107 [B] (GER) 4
- Chem 110 2
- GenEd 111 [A] (GER) 4
- Math 172 2

#### Second Year

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Chem 201 3
- Chem 345 4
- Math 273 2
- Phys 376 3
- Phys 201 [P] (GER) 4

**Second Term**
- Ch E 211 3
- Chem 346 3
- EconS 101 [S] or 102 [S] (GER) 3
- Math 315 3
- Phys 202 [P] (GER) 4

Complete Writing Portfolio

#### Third Year

**First Term**
- Ch E 301 3
- Ch E 310 3
- Ch E 398 3
- Chem 331 3
- MBioS 301 or 305 4
- MSE 302 3

**Second Term**
- Ch E 321 3
- Ch E 332 3
- Ch E 334 2
- Ch E 398 1
- Chem 333 1
- E E 304 2
- Math 423 3
- MBioS 303 4

#### Fourth Year

**First Term**
- Ch E 432 [M] 3
- Ch E 441 3
- Ch E 450 3

### Description of Courses

#### BIOENGINEERING

**B E**

- **140 Introduction to Bioengineering** 1 Seminar on current topics and issues in bioengineering; career options in bioengineering. S, F grading.
- **205 Bioengineering Professional Preparation and Ethics** 1 Professional preparation for careers in bioengineering; ethical, social, and professional issues in bioengineering. S, F grading.
- **210 Bioengineering Analysis** 2 (1-3) Prereq Ch E 201; Math 172, 220 or permission of instructor. Analytical problem solving, modeling and computer methods for bioengineering applications.
- **320 [M] Mechanics of Biomaterials** 4 (3-3) Prereq C E 211; Math 423 or c//; certified B E major or instructor's permission. Composition of biological materials, mechanical and thermal properties, chemical and biological changes.
- **321 (320) Mechanics of Biological Materials** 3 Prereq C E 211; certified bioengineering major. Mechanical behavior of biological and engineering materials; relationships between external loads and internal stresses and strains within a structure.
- **322 (320) [M] Mechanics of Biological Materials Lab** 1 (0-3) Prereq C E 211; Math 370 or 423 or c//; certified bioengineering major. Laboratory experiments focused on mechanics of biological and engineering materials; experimental design and statistical analysis of data; scientific writing.
- **330 Bioinstrumentation** 3 (2-3) Prereq E E 261; certified B E major. Principles of instrumentation applicable to bioengineering systems; experimental design for measurement systems.
- **340 Unified Systems Bioengineering I** 4 (3-3) Prereq E E 261 or c//; Math 315; certified B E major or instructor's permission. Foundation for dynamic modeling and design of physiological systems; part one of two-semester course.
- **350 Introduction to Cellular Bioengineering** 3 Prereq Biol 107; Chem 345; Math 315; Phys 202; MBioS 303 or c//; certified B E major. Integrating cellular biology and engineering science by applying quantitative engineering principles for development of cellular-based materials, diagnostic devices and sensor designs.

**CHEMICAL ENGINEERING**

Only certified chemical engineering majors may enroll in upper-division (300-400-level) Ch E courses. Exceptions must be made with permission of the director of the school.
Ch E

110 Introduction to Chemical Engineering
2 Prereq Chem 105 and Math 171 or c/w.
Introduction to chemical engineering; development of problem solving skills.

201 Chemical Process Principles and Calculations
3 Prereq Chem 106; Math 172 or c/w. Fundamental concepts of chemical engineering; problem-solving techniques and applications in stoichiometry, material and energy balances, and phase equilibria.

211 Process Simulation
3 Prereq Chem 106; Math 172; Math 315 or c/w. Computer solutions to problems in chemical engineering processing.

301 Chemical Engineering Thermodynamics
3 Prereq Ch E 201; Chem 331 or c/w; major in Ch E. Basic concepts and laws; property relationships; compression and liquefaction; phase equilibrium; reaction equilibria; applications in stagewise processing.

310 Introduction to Transport Processes
3 Prereq Ch E 201; Math 315 or c/w; major in Ch E. Fundamentals of the phenomena governing the transport of momentum, energy, and mass.

321 Kinetics and Reactor Design
3 Prereq Ch E 301; Chem 331; Math 315; major in Ch E. Chemical reaction kinetics applied to the design of reactors, non-ideal flow, mixing, and catalysis.

332 Fluid Mechanics and Heat Transfer
2 Prereq Ch E 201, 310, Ch E major. Design calculations, operations, and evaluation of equipment used in fluid flow, heat transfer, and evaporation.

334 Chemical Engineering Separations
2 Prereq Ch E 301, 310; 332 or c/w. Design and evaluation of equipment used in continuous contacting.

398 Technical Seminar
1 May be repeated for credit; cumulative maximum 2 hours. May be repeated for credit; cumulative maximum 2 hours. S, F grading.

432 [M] Chemical Engineering Lab I
3 1-6 Prereq Ch E 310, 321, 332, 334. Statistical design and analysis of experiments; safety; experiments in heat and mass transfer; separations, other unit operations, kinetics, control; technical reports and presentations.

433 [M] Chemical Engineering Lab II
2 0-6 May be repeated for credit; cumulative maximum 4 hours. Prereq Ch E 432. Laboratory experiments in heat and mass transfer; separations, other unit operations, kinetics, control; design calculations; technical reports and presentations.

435 Modern Separation Processes
3 Prereq Ch E 301, 310, 332, 334; Ch E major. Design and operation of separation processes important to emerging technologies; bioseparations, supercritical extraction.

441 Process Control
3 Prereq Ch E 211 or Ch E 310. Measuring instruments, automatic control, process and instrument characteristics and theory applied to industrial control problems.

450 Chemical Process Analysis and Design
I 3 Prereq Ch E 301, 321, 334. Chemical engineering design; computer tools; safety and environmental constraints; cost and equipment optimization.

451 [M] Chemical Process Analysis and Design II
3 Prereq Ch E 450. Development, design, and economic evaluation of chemical and related processes as practiced in industry.

461 Introduction to Nuclear Engineering
3 Prereq junior in engineering or physical science. Same as M E 461.

465 Integrated Envirochemical Engineering
3 Prereq Ch E 334. Application of chemical engineering principles in assessment and remediation of industrial problems in air pollution, water pollution, and solid and hazardous waste.

475 Introduction to Biochemical Engineering
3 Prereq Ch E 310, 332. Application of chemical engineering principles to the processing of biological and biochemical materials.

476 Biomedical Engineering Principles
3 Prereq Ch E 301, 310. The application of chemical engineering principles to biomedical processes.

481 Special Topics in Chemical Engineering
V 1-3 Interfacial phenomena, high temperature material processing, integrated circuit manufacturing, in situ destruction of hazardous waste.

495 Chemical Engineering Internship
2 (0-6) May be repeated for credit; cumulative maximum 4 hours. Students work full time in engineering assignments in approved industries with prior approval of advisor and industrial supervisor. S, F grading.

498 Technical Seminar
1 May be repeated for credit; cumulative maximum 2 hours. For juniors and seniors in Ch E. S, F grading.

499 Special Problems
V 1-4 May be repeated for credit. S, F grading.

510 Transport Processes
3 Transport of mass, energy, and momentum; unsteady and steady states as applied to chemical processing: macroscopic and microscopic analyses. Cooperative course taught jointly by WSU and UI (CHE 515).

527 Macroscopic Thermodynamics
3 Same as M E 527, Cooperative course taught jointly by WSU and UI (CHE524).

529 Chemical Engineering Kinetics
3 Interpretation of kinetic data and design of nonideal chemical reactors; fundamentals of heterogeneous catalysis, catalyst preparation, characterization, and theory. Cooperative course taught jointly by WSU and UI (CHE 529).

541 Chemical Engineering Analysis
2 Mathematical analysis of chemical engineering operations and processes; mathematical modeling and computer application.

560 Biochemical Engineering
3 Chemical engineering applied to biological systems; fermentation processes, biochemical reactor design, downstream processing, transport phenomena in biological systems, biochemical technology. Cooperative course taught jointly by WSU and UI (CHE 560).

574 Protein Biotechnology
3 Same as MBioS 574.

581 Advanced Topics in Chemical Engineering
V 1-3 May be repeated for credit; cumulative maximum 9 hours. Filtration, reaction engineering, two-phase flow, non-Newtonian fluids, interfacial phenomena, fluidization, novel separations, biomedical engineering.

585 Interfacial Phenomena
3 Prereq Ch E 301; Ch E 310; graduate standing. Chemical and physical nature of the interface including the molecular basis for interfacial forces and resulting macroscopic phenomena.

596 Research Methods and Presentation I
2 Prereq graduate standing. Establish sound practices for graduate research and presentation of results; techniques used for performing through literature searching and establishing and testing research hypotheses.

597 Research Methods and Presentation II
2 Prereq graduate standing. Establishing sound practices for presentation of research programs and research results.

598 Research Seminar
1 May be repeated for credit. Seminar presentations on current topics in chemical engineering research. S, F grading.

700 Master's Research, Thesis, and/or Examination
V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination
V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination
V 1-18 May be repeated for credit. S, F grading.

Department of Chemistry

www.chemistry.wsu.edu
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509-335-1516

Professor and Department Chair, K. Hipps; Professors, C. Berkman, S. Clark, P. Garner, H. Hill, J. Hurst, J. Jones, A. Li, D. Mattheson, U. Mazur, J. McHale, K. Nash, K. Peterson, B. Ronald, J. Satterlee, J. Schenk, S. Wherden; Associate Professors, J. Brozik, P. Meier; Assistant Professors, P. Benny, A. Clark, M. Xian; Clinical Associate Professors, G. Crouch, J. Lessmann, L. Scudiero; Clinical Assistant Professors, X. Tang; Assistant Research Professor, N. Wall; Adjunct Faculty, J. Futsell, C. Kang, L. Wang; Scientist, B. Siems; Instructor, M. Finnegon; WSUTC Coordinator, K. Grant.

Chemistry is the fundamental science of matter, the nature of substances, and the changes occurring in them. Chemical reactions are the basis of all life on earth. Everything we are or do depends on one way or another on chemistry. A major in chemistry prepares you for a variety of careers in industry, education, and public service, or for graduate study and research in chemistry and many related fields.

The department has excellent facilities and special equipment for study and research at both the undergraduate and graduate level. There are active
research programs in both traditional and emerging areas of chemistry. Students in chemistry at WSU are encouraged to take advantage of its excellent facilities and faculty by beginning research projects as early as possible. Research expands experience beyond the classroom into the realm of new knowledge.

We expect that our graduating students will: 1) demonstrate their knowledge of the principals of the major subfields of chemistry, organic, analytical, physical, inorganic, and biochemistry, and be able to use it in the solution of the daily needs and future problems of the workplace and society; 2) demonstrate independence and creativity through individual work in the research laboratory; 3) be able to access, read, and critically evaluate the chemical and general scientific literature; 4) apply their skills and knowledge of chemistry within the context of a strong, fundamental general education; and 5) communicate effectively both orally and in writing.

Typical areas for research include:

- Analytical chemistry focuses on the identification and measurement of chemical species wherever they are found. It involves the development and application of new methods of detection and measurement, the application of analytical methods in biological environments, and the use of nuclear and radio-chemical techniques in a wide range of applications.

- Environmental chemistry applies knowledge of chemical interactions to the study of the environment, is fundamental to any efforts to protect and improve environmental integrity. It involves the analysis of any materials found in the environment, whether as the result of human activity or as the result of natural processes. It focuses on the identification and measurement of chemical materials in rocks and minerals, in natural waters, and in the atmosphere.

- Inorganic chemistry has as its center the study of the vast majority of the known elements and especially the transition metals; it includes investigations into the mechanisms of electron transfer processes. It is closely related to bioinorganic chemistry which includes the study of metal containing proteins, radiopharmaceuticals, and investigations of the role of reactive small molecule oxidizing agents in biological processes.

- Materials chemistry brings the knowledge and understanding of chemistry to the study of the structure and properties of materials. It involves the study of chemical reactions occurring at surfaces by both experimental and theoretical means. It includes important phenomena such as energy transfer in light absorbing and emitting materials and it extends to the synthesis of new and improved materials.

- Organic chemistry deals with the many compounds of carbon and how these compounds interact in biological systems. It includes the study of medicinal, bioorganic, mechanistic, and synthetic chemistry and how these areas may be used in areas such as elucidation of metabolic pathways, drug development in the treatment of diseases, and environmentally benign synthesis of important chemicals.

- Physical chemistry applies the methods and theories of physics to the study of chemical materials. It involves theoretical studies of chemical bonding using advanced computational methods and the investigation of the structures of solids and surfaces by a variety of instrumental methods including photon spectroscopies, X-ray techniques, and surface characterization.

The Department of Chemistry is on the approved list of the American Chemical Society and offers courses of study leading to the degrees of Bachelor of Science in Chemistry, with options in general chemistry, materials chemistry, and environmental chemistry. In addition, graduate study programs leading to the Master of Science in Chemistry and Doctor of Philosophy (Chemistry) are also offered.

The Department of Chemistry offers a program leading to both a Bachelor of Science and Master of Science in Chemistry within a period of five years. Students wishing to enroll in the program must declare their intentions at the end of the junior year and begin research for the MS thesis while still undergraduates. The program is designed so that the BS degree will normally be awarded at the end of four years and the MS approximately 15 months later. In order to enter this program the student’s undergraduate record must show that the final transcript will satisfy the requirements for admission to the WSU Graduate School. Further information on this program can be obtained from the Department of Chemistry.

A student beginning undergraduate work will begin with Chem 105. Student without high school chemistry will begin their study with Chem 101 prior to taking Chem 105. Additionally, if a student has completed one year of Advanced Placement high school chemistry and has scored 5 on the Advanced Placement Exam, credit is granted for the Chem 105 / 106 sequence. If a student has completed one year of advanced placement high school chemistry and has scored 3 or 4 on the Advanced Placement Exam, credit is granted for Chem 105. Students who complete an International Baccalaureate program with a high level pass and a grade of 4 or more on the exam are given credit for Chem 101.

The Department of Chemistry provides major parts of the course work leading to degrees in the Department of Biochemistry and Biophysics and the Program in Materials Science. Students whose interests span chemistry and biology or chemistry and physics should see the section on the appropriate program in this catalog.

Certification Requirements

A student may certify as a chemistry major after completing 30 credit hours, including Chem 105 and 106 (or 116), each with a grade of C or better and Math 171.

LAB FEES

Charges for expendable laboratory supplies and computing are made in each laboratory course.

Chemistry Options

After the beginning of the freshman year, a student interested in majoring in chemistry should consult with chemistry advisors to arrange a schedule which will permit completion of required courses in proper sequence. The Department of Chemistry offers three BS degree options depending on the career goals of the student. These options are general chemistry, environmental chemistry, and materials chemistry. Each of these options leads to a degree for which students will be certified to the American Chemical Society and prepared for entry into the workforce or to pursue a graduate degree. Regardless of which option is chosen, a grade of C or better is required in all chemistry courses to fulfill requirements for the chemistry degree.

Schedules of Studies

CHEMISTRY - ENVIRONMENTAL OPTION

(125 HOURS)

The requirements for all chemistry options are the same through the first semester of the junior year.

First Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105 [P] (GER) or 115</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] (GER)</td>
<td>4</td>
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Second Year

<table>
<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106 [P] (GER) or Chem 116</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 172</td>
<td>4</td>
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</table>

Third Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Chem 345</td>
<td>4</td>
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<tr>
<td>Math 220</td>
<td>2</td>
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<tr>
<td>Math 273</td>
<td>2</td>
</tr>
<tr>
<td>Phys 201 [P] (GER)</td>
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</table>

<table>
<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 220</td>
<td>2</td>
</tr>
<tr>
<td>Chem 346 / 348</td>
<td>2</td>
</tr>
<tr>
<td>Phys 202 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
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</table>

Fourth Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>6</td>
</tr>
<tr>
<td>Chem 332</td>
<td>3</td>
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<tr>
<td>Chem 333</td>
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<td>Chem 425</td>
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<tr>
<td>Chem 499</td>
<td>1</td>
</tr>
<tr>
<td>Environmental Electives</td>
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</table>

<table>
<thead>
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<th>Second Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 489</td>
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<tr>
<td>Chem 495</td>
<td>1</td>
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<tr>
<td>Environmental Electives</td>
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<tr>
<td>Tier III [T] Course (GER)</td>
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</tbody>
</table>
CHEMISTRY - GENERAL OPTION
(120 HOURS)

The requirements for all chemistry options are the same through the first semester of the junior year.

First Year

**First Term**
- **Chem 105 [P] (GER) or 115**
- **Engl 101 [W] (GER)**
- **GenEd 110 [A] (GER)**
- **Math 171 [N] (GER)**
- **Hours**: 4
- **Credits**: 3

**Second Term**
- **Biol 106 [B] (GER)**
- **Chem 106 [P] (GER) or 116**
- **GenEd 111 [A] (GER)**
- **Math 172**
- **Hours**: 4
- **Credits**: 3

Second Year

**First Term**
- **Arts & Humanities [H,G] (GER)**
- **Chem 345**
- **Math 220**
- **Phys 202 [P] (GER)**
- **Hours**: 4
- **Credits**: 3

**Second Term**
- **Chem 346 / 348**
- **Chem 347**
- **Phys 202 [P] (GER)**
- **Social Sciences [S,K] (GER)**
- **Complete Writing Portfolio**
- **Hours**: 3
- **Credits**: 3

Third Year

**First Term**
- **Chem 222**
- **Chem 330**
- **Chem 331**
- **Chem 398**
- **Intercultural Studies [I,G,K] (GER)**
- **MBioS 303**
- **Hours**: 6
- **Credits**: 3

**Second Term**
- **Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)**
- **Chem 332**
- **Chem 333**
- **Chem 425**
- **Chem 499**
- **Elective**
- **Hours**: 3
- **Credits**: 3

Fourth Year

**First Term**
- **Arts & Humanities [H,G] or Social Sciences [S,K] (GER)**
- **Chem 334 [M]**
- **Chem 401**
- **Hours**: 3
- **Credits**: 3

**Second Term**
- **Chem 401 [M]**
- **Chem 495**
- **Chem Electives**
- **Engl 301 [W] or 402 [W] (GER)**
- **Tier III [T] Course (GER)**
- **Elective**
- **Hours**: 3
- **Credits**: 3

CHEMISTRY - MATERIALS OPTION
(122 HOURS)

The requirements for all chemistry options are the same through the first semester of the junior year.

First Year

**First Term**
- **Chem 105 [P] (GER) or 115**
- **Engl 101 [W] (GER)**
- **GenEd 110 [A] (GER)**
- **Math 171 [N] (GER)**
- **Hours**: 4
- **Credits**: 3

**Second Term**
- **Biol 106 [B] (GER)**
- **Chem 106 [P] (GER) or 116**
- **GenEd 111 [A] (GER)**
- **Math 172**
- **Hours**: 4
- **Credits**: 3

Second Year

**First Term**
- **Arts & Humanities [H,G] (GER)**
- **Chem 345**
- **Math 220**
- **Phys 202 [P] (GER)**
- **Social Sciences [S,K] (GER)**
- **Complete Writing Portfolio**
- **Hours**: 3
- **Credits**: 3

**Second Term**
- **Chem 346 / 348**
- **Chem 347**
- **Phys 202 [P] (GER)**
- **Social Sciences [S,K] (GER)**
- **Complete Writing Portfolio**
- **Hours**: 3
- **Credits**: 3

Third Year

**First Term**
- **Chem 222**
- **Chem 330**
- **Chem 331**
- **Chem 398**
- **Intercultural Studies [I,G,K] (GER)**
- **MBioS 303**
- **MSE 302**
- **Hours**: 6
- **Credits**: 3

**Second Term**
- **Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)**
- **Chem 332**
- **Hours**: 3
- **Credits**: 3

Minors

Chemistry

The minor in chemistry requires at least 16 hours selected from the courses below. All courses used for the minor must be completed with a grade of C or better. At least 9 of the hours must be upper-division taken in residence at WSU. Courses must be selected from at least two of the following areas (note that some courses have prerequisites): Organic: Chem 345, 346, 347, 348, 349, 350. Analytical: Chem 220, 222, 425, 426, 520. Physical/Inorganic: Chem 330, 331, 332, 333, 334, 336, 401, 480, 501, 531. Chem 499/495 – may be used for up to 4 hours. MBioS 303 and other MBioS courses may be substituted with approval.

Description of Courses

CHEMISTRY

Chem

101 [P] Introduction to Chemistry
- **Hours**: 4 (3-3)
- **Prereq**: Satisfactory math placement score. Basic chemical concepts; atomic theory, periodicity, reaction stoichiometry, gases, solutions, acids, basis, pH, equilibrium, kinetics, energy applications to life sciences.

102 [P] Chemistry Related to Life Sciences
- **Hours**: 4 (3-3)
- **Prereq**: Chem 101, 105, or 115 with a grade of C or better. Organic functional groups and their reactions; polymers, macro-molecules carbohydrates, lipids, proteins, enzymes, nucleic acids, hormones, applications to life sciences.
105  [P] Principles of Chemistry I  4 (3-3) Prereq one year high school chemistry or Chem 101; Math 107 or c//. Stoichiometry, structure, gases, liquids, solids, solutions, thermodynamics, kinetics, equilibria, volumetric and gravimetric analysis. Credit not granted for both Chem 105 and 115.

106  [P] Principles of Chemistry II  4 (3-3) Prereq Chem 105 or 115 with a grade of C or better; Math 107 with a C or better or placement into Math 140 or higher. Acid-base, ionic, molecular, solubility, oxidation/reduction equilibria; kinetics, electrochemistry; systematic chemistry of the elements; coordination compounds. Credit not granted for both Chem 106 and 116.

116  [P] Chemical Principles Honors II  4 (3-3) Prereq Chem 115 with a grade of C or better or permission of dept. Descriptive inorganic chemistry, organic chemistry principles, acid/base, ionic and molecular equilibria, electrochemistry, thermodynamics, kinetics. Laboratory interfaced with computers. Credit not granted for both Chem 116 and 106.

191  Independent Study in Modern Chemistry  V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq Chem 101, 105, 115, or c//. Independent study in the theory and practice of modern chemistry; written report required. S, F grading.

220  Quantitative Analysis  2 Prereq Chem 106 or 116. Rec c// in Chem 222. Theories of quantitative chemical analysis; statistical evaluation of data; chemical equilibria; volumetric and gravimetric methods of analysis; introduction to electrochemistry.

222  Quantitative Analysis Laboratory 2 (0-6) Prereq Chem 220 or c//. Application of classical methods in volumetric and gravimetric analysis; acid-base, redox and EDTA titrations; ion-exchange chromatography; introduction to spectrophotometry.

330  Problem Solving in Physical Chemistry 1 Prereq Chem 106 or 116; Math 172 each with a grade of C or better. Quantitative methods of data analysis and chemical concept development; emphasis on multivariable, matrix, and computer methods.

331  Physical Chemistry 3 Prereq Math 273; Phys 202 each with a grade of C or better. Concepts of physical chemistry; basic thermodynamics; free energy and entropy; phase equilibria; properties of solutions of electrolytes and non-electrolytes.

332  Physical Chemistry 3 Prereq Math 220; Chem 331 each with a grade of C or better. Elementary quantum theory; molecular structure and spectra; bonding theory; reaction rates; photochemistry and radiation chemistry; energy states and statistical thermodynamics.

333  Physical Chemistry Laboratory for Chemists 1 (0-3) Prereq Chem 331 with a grade of C or better or c//. Experiments selected to meet the individual needs of students in biology, civil engineering, chemistry, or materials science.

334  [M] Physical Chemistry Laboratory 2 (0-6) Prereq Chem 332 with a grade of C or better or c//; Chem 333 with a grade of C or better. Continuation of Chem 333. Experiments in molecular structure, atomic molecular spectroscopy, chemical kinetics including computational methods.

335  Physical Chemistry Laboratory for Chemical Engineers 1 (0-3) Prereq Chem 331 with a grade of C or better or c//. Experiments selected to meet the needs of students majoring in chemical engineering.

345  Organic Chemistry I  4 (3-3) Prereq Chem 102 or 106 with a grade of C or better. Survey of organic chemistry providing an overview of the chemistry of the functional groups.

346  Organic Chemistry II  3 Prereq Chem 345 with a grade of C or better. Advanced concepts in organic chemistry including mechanisms and multistep-synthesis.

347  Organic Qualitative Analysis Laboratory 2 (0-6) Prereq Chem 345 with a grade of C or better. Isolation, purification and identification of unknown compounds; for chemistry and biochemistry majors.

348  Problem Solving in Organic Chemistry 1  (0-2) Prereq c// with Chem 346. Problem analysis and critical thinking development in organic chemistry; to be taken with Chem 346.


398  Undergraduate Seminar 1 Rec BC/FP or Chem major. S, F grading.

401  Modern Inorganic Chemistry 3 Prereq Chem 332 with a grade of C or better or c//. Properties of substances; periodic systems; oxidation-reduction and acid-base characteristics interpreted on the basis of atomic and molecular structure.

410  [M] Advanced Synthesis and Characterization 3 (1-6) Prereq Chem 346 and Chem 332 each with a grade of C or better. Synthesis and characterization of organic and inorganic compounds and solid-state materials; modern synthetic technology; characterization methods, and laboratory techniques.

425  Quantitative Instrumental Analysis 2 Prereq Chem 332 or 336 with a grade of C or better or c//. Computer interfacing applicable to chemical instrumentation; principles and applications of modern chromatography, spectrophotometry and electrochemical techniques.

426  Quantitative Instrumental Analysis Laboratory 2 (0-6) Prereq Chem 425 with a grade of C or better or c//. Laboratory experience in modern analytical methods.

480  Solid State Chemistry 3 Prereq Chem 332 with a grade of C or better. Properties, bonding and synthesis of solid state material; crystalline and amorphous solids and coatings.

490  Current Topics in Chemistry  V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq consent of instructor. Recent advances in the understanding and application of chemical systems.

495  Directed Research 1 Prereq permission of instructor. Poster presentation of final research project.

499  Special Problems  V 1-4 May be repeated for credit. S, F grading.

501  Advanced Inorganic Chemistry I  3 Rec Chem 332. Periodic table survey, typical compounds and their reactivity; models and reactivity, acid-base, oxidation-reduction, and electronic structure contributions.

503  Advanced Topics in Inorganic Chemistry  2 (3-3) Prereq Chem 501. Recent significant developments. Cooperative course taught by WSU, open to UI students (CHEM 503).

509  Chemical Group Theory  3 Rec Chem 332. Mathematical definitions of groups and representations, applications to chemical structure and spectra, ligand field theory, chemical reactions and selection rules.

510  Introduction to Proteomics 2 Prereq graduate standing or permission of the instructor; introductory biochemistry, MBioS 303 or equivalent. Techniques and applications for the analysis of the proteome.

512  Bioanalysis 2 Rec Chem 220 or 425. Methods for the measurement of biological compounds.


517  Chromatography  2 Prereq Chem 425.

518  Electrochemistry  2 Prereq Chem 425.

520  Advanced Analytical Chemistry  3 Prereq Chem 425. Statistics in chemical analysis; sampling; control of contamination and losses in analysis; electrochemical methods; separation in analysis; spectroscopic techniques.

521  Radiochemistry and Radiotracers  2 Prereq Chem 331 with a grade of C or better. Graduate-level counterpart of Chem 421; additional requirements. Credit not granted for both Chem 421 and 521.

522  Radiochemistry Laboratory 1 (0-3) Prereq Chem 222, 331; Phys 202 each with a grade of C or better. Graduate-level counterpart of Chem 422; additional requirements. Credit not granted for both Chem 422 and 522.

527  Environmental Chemistry  2 Natural water chemistry, Agri processes, kinetics, thermodynamics, modeling in lake, river, and sea water.

529  Selected Topics in Analytical Chemistry  V 1-3 May be repeated for credit. Selected current developments.

531  Advanced Physical Chemistry I  3 Prereq Chem 331. Rec Chem 332 Classical physical chemistry including basic thermodynamics and kinetics; an introductory discussion of surface chemistry and electrochemistry.

534 Chemical Statistical Mechanics 3 Rec Chem 531, 532. Statistical theory of thermodynamic variables and chemical equilibrium; calculation of equilibrium properties from spectral data; fluctuations about equilibrium; quantum statistics.

536 Quantum Chemistry 3 Prereq Chem 532 or equivalent. Rec Chem 332 or 531. Quantum mechanics applied to chemical problems; states of atoms and molecules, transitions and spectra, ladder operators and many electron methods.

537 Advanced Topics in Physical Chemistry V 1-3 May be repeated for credit. Selected subjects: irreversible thermodynamics; chemical bonding: NMR; ligand field theory; x-ray diffraction; neutron diffraction. Cooperative course taught by WSU, open to UI students (CHEM 537).

540 Organic Reaction Mechanisms 3 Rec Chem 331, 346. The major classes of organic reaction mechanisms and their significance; kinetics and introductory theory.


543 Bioorganic Chemistry 3 Rec Chem 540. Chemistry of biological systems, medicinal chemistry, protein chemistry, enzyme mechanisms and inhibitors.

544 Advanced Topics in Organic Chemistry V 1-3 May be repeated for credit. Rec Chem 540. Current research in organic chemistry. Cooperative course taught by WSU, open to UI students (CHEM 544).

545 Chemistry of Functional Groups 3 Prereq graduate standing. Modern synthetic reactions and physical methods used in exploring reaction mechanisms.

546 Spectroscopic Identification of Organic Compounds 3 Structural interpretation of mass spectrometry and IR, UV-VIS and NMR spectrometry of small molecule organic compounds.

550 Special Topics in Nuclear Processes and Radioactive Waste Management V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq permission of instructor. Fundamental chemistry of the nuclear industry, chemical processing and waste management.

555 Teaching Chemistry 1 Teaching chemistry; workshops for new graduate teaching assistants in chemistry focusing on tutorials and labs.

564 Molecular Phenomena 3 Rec Chem 461 or 561, 509; Phys 450. Phenomena which yield information on structures, energy levels, and interactions of molecules in solid, liquid, and gaseous phases.

581 Environmental Chemistry I 3 Prereq graduate standing. Chemistry of natural and polluted species and their reactions in the atmospheric environment.

590 Introduction to Research Topics 1 Presentation and description of research areas and projects of current interest to faculty. S, F grading.

592 Seminar in Analytical Chemistry 1 May be repeated for credit; cumulative maximum 6 hours. Presentation and discussion of topics in analytical chemistry taken from research in progress or current literature.

593 Seminar in Physical Chemistry and Materials Science 1 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Presentation and discussion of topics in physical chemistry and materials science taken from research in progress or current literature.

594 Seminar in Organic Chemistry 1 May be repeated for credit; cumulative maximum 6 hours. Presentation and discussion of topics in organic chemistry taken from research in progress or current literature.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Department of Civil and Environmental Engineering

www.ce.wsu.edu
Sloan 101
509-335-2576


Civil engineers plan, design, construct, and operate the physical works and facilities essential to modern life. Civil engineers are responsible not only for creating the facilities required by a modern civilization, but also are committed to the conservation and preservation of the environment. Examples of these facilities include bridges, highways, buildings, airports, flood control structures, purification plants for drinking water, waste treatment and disposal facilities, offshore structures, tunnels, irrigation systems, space satellites, and launching facilities.

The program leading to the Bachelor of Science degree in Civil Engineering is accredited by the Engineering Accreditation Commission (EAC) of the Accreditation Board for Engineering and Technology (ABET).

The mission of the undergraduate program of the Department of Civil and Environmental Engineering is to provide a broad and comprehensive education that prepares our students to be successful in professional practice and advanced studies. The objectives of our undergraduate program are as follows: 1) to educate and equip a new generation of civil engineers to meet future challenges and needs of our profession; 2) to foster an environment that stimulates learning, provides excellence in instruction, and provides leadership in the development of new teaching methods; 3) to promote interdisciplinary education and integration of new technology and research within the undergraduate experience; 4) to provide our students with a high quality education in basic principles and practical applications; and 5) to instill a sense of social and ethical responsibility among our graduates. Courses can be selected to provide in-depth studies in environmental, geotechnical, hydraulic, structural, and/or transportation engineering.

Design and planning are essential in the civil engineering profession. Accordingly, these activities are introduced in early C E courses. As students advance, they face open-ended assignments with alternative solutions, feasibility studies, safety considerations, economics, social and environmental impacts and other concerns that test their creative ability. All students complete a senior design class in which much of earlier course work is applied.

All seniors are required to take the Fundamentals of Engineering (FE) exam prior to graduation. Two purposes of this exam are: (1) It is a required step in becoming a professional engineer; (2) It serves as an assessment tool for meeting the department's objectives.

Because of the ever-increasing knowledge required to practice at high levels of competence in the specialized branches of civil engineering, an educational preparation of five or more years of college study is becoming more important. By an appropriate choice of electives the undergraduate curriculum may be integrated with a graduate program to provide a continuous schedule of studies leading to both the bachelor's and master's degrees.

The department offers courses of study leading to the degrees of Bachelor of Science in Civil Engineering, Master of Science in Civil Engineering, Master of Science in Environmental Engineering, and Doctor of Philosophy (Civil Engineering). The department participates in interdisciplinary programs leading to the degrees of Master of Science in Environmental Science, and Master of Regional Planning.

Computer Requirement

All incoming Civil and Environmental Engineering students are required to purchase laptop computers. Please contact the department for details and specifications and/or visit http://www.ce.wsu.edu.

Transfer Students

Students who are planning to transfer to civil engineering at Washington State University from other institutions should coordinate their program with the department chairperson to establish an integrated program leading to the bachelor's degree. Inquiries concerning specific questions are welcome. A strong preparation in mathematics and physics is necessary prior to transfer to minimize the time required to complete the degree requirements. The requirements for direct entry into the Department of Civil and Environmental Engineering upon transfer are the same as listed above for certification. The Admissions Office will handle admissions.
applications from transfer students and the Department of Civil & Environmental Engineering will handle certification applications.

**Preparation for Graduate Study**

As preparation for academic work toward an advanced degree in civil engineering or environmental engineering, a student should have completed substantially the equivalent of the schedule of studies.

**Schedules of Studies**

**CIVIL ENGINEERING DEGREE PROGRAM (129 HOURS)**

At least 50 of the total hours required for this degree must be in 300-400-level courses. None of the courses listed below may be taken on a pass, fail basis and a grade of C or better in all C E courses is required for graduation.

**Certification Requirements:**

Students who will be completing at least 45 semester hours of course work at the end of the semester including C E 211, Math 171, 172, and Phys 201 or equivalents are eligible to apply for certification into the Department of Civil and Environmental Engineering. The number of students certified into the department depends upon the available resources and facilities. The best qualified students, based on cumulative gpa and grades in the prerequisite courses listed above, as well as all math, science and engineering courses taken to date, will be certified into the department until the carrying capacity is reached.

**Experiential Requirement**

Students within the Department of Civil and Environmental Engineering must complete one of the following experiential requirements:

1. An internship of at least eight weeks duration, with at least one credit of CE 495.
2. A research position of at least eight weeks duration under the supervision of a departmental faculty member or approved mentor, with at least one credit of CE 499.
3. Study abroad for six or more credit hours. International students in the Department of Civil and Environmental Engineering will meet this requirement through their study in the United States.
4. Participation in a recognized ROTC program. Veterans in the Department of Civil and Environmental Engineering will have met this requirement through their prior service in the armed forces.
5. A leadership or service experience of at least one semester, subject to departmental approval, with at least one credit of CE 499.

**First Year**

**First Term**

- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- Engr 120 2
- GenEd 110 [A] (GER) 3
- Math 171 [N] (GER) 4

**Second Term**

- Biol 102 [B] or MBioS 101 [B] (GER) 4
- EconS 101 [S] or 102 [S] (GER) 3
- GenEd 111 [A] (GER) 3
- Math 172 4
- Math 220 2

**Second Year**

**First Term**

- C E 211
- ComSt 102 [C], ComSt 235 [C], or H D 205 [C] (GER) 3
- E E 221 2
- Intercultural Studies [L,G,K] (GER) 3
- Math 273 2
- Phys 201 [P] (GER) 4

**Second Term**

- C E 215 3
- Chem 106 [P], Geol 102 [P], or Phys 202 [P] (GER) 4
- Cst M 254 2
- M E 212 3
- M E 220 1
- Math 315 3
- Complete Writing Portfolio

**Third Year**

**First Term**

- C E 301 4
- C E 315 3
- C E 317 [M] 3
- C E 330 3
- C E 341 3

**Second Term**

- C E 322 3
- C E 351 3
- C E 463 3
- E E 304 or M E 301 2
- Engl 402 [W] (GER) 3
- Math 360 or 370 3

**Fourth Year**

**First Term**

- Arts & Humanities [H,G] (GER) 3
- C E Electives 9
- C E Laboratory 3

**Second Term**

- C E 465 [M] 3
- C E 480 [M] 1
- C E Elective 9
- Tier III Humanities or Social Sciences Course [T] (GER) 3

1. **Certification Requirements:**

1. Either course may be selected, but C E 465 is required.

**ENVIRONMENTAL EMPHASIS (ALTERNATE SENIOR YEAR)**

The alternate senior year schedule shown below is offered to those students interested in studying with an environmental engineering emphasis. This would substitute for the senior year above and complete the study schedule for the Bachelor of Science degree in Civil Engineering.

**Fourth Year**

**First Term**

- Arts & Humanities [H,G] (GER) 3
- C E 404 3
- C E 409 3
- C E 415 3
- C E 418 3

**Second Term**

- C E 408 or 419 3
- C E 442 3
- C E 465 [M] 3
- C E 480 [M] 3
- C E Elective 3
- Tier III [T] Humanities or Social Sciences Course [G] (GER) 3

1. **Certification Requirements:**

1. Either course may be selected, but C E 465 is required.
STRUCTURAL ENGINEERING (ALTERNATE SENIOR YEAR)

The alternate senior year schedule shown below is offered to those students interested in studying with a structural engineering emphasis. This would substitute for the senior year above and complete the study schedule for the Bachelor of Science degree in Civil Engineering.

Fourth Year

First Term  Hours
Arts & Humanities [H,G] (GER)  3
C E 430  3
C E 433  3
C E 436 or 4651  3
C E Elective  3

Second Term  Hours
C E 414  3
C E 431  3
C E 434 or 465  3
C E 435  3
C E 480 [M]  1
Tier III Humanities or Social Sciences Course [T] (GER)  3

1 Either course may be selected, but C E 465 is required.

WATER RESOURCES EMPHASIS
(AlTERNATE SENIOR YEAR)

The alternate senior year schedule shown below is offered to those students interested in studying with a water resources emphasis. This would substitute for the senior year above and complete the study schedule for the Bachelor of Science degree in Civil Engineering.

Fourth Year

First Term  Hours
Arts & Humanities [H,G] (GER)  3
C E 430  3
C E 433  3
C E 436 or 465  3
C E Elective  3

Second Term  Hours
C E 414  3
C E 431  3
C E 434 or 465  3
C E 435  3
C E 480 [M]  1
Tier III Humanities or Social Sciences Course [T] (GER)  3

1 Elective courses: The total credit hours for elective courses must be distributed such that at least three courses, not including the lab, are DES (design emphasis) in order for a student to qualify for a degree. C E electives including C E laboratory will be selected from at least two different areas (environmental, geotechnical, hydraulic, structural, and transportation/pavement).

Description of Courses

CIVIL ENGINEERING

C E 174 Introduction to Meteorology and the Atmospheric Environment 3 Introduction to meteorology, the atmospheric processes; weather, air pollution, and environmental topics.

211 Statics 3 Prereq Math 172 or c//; Phys 201 or c//. Engineering mechanics concepts; force systems; static equilibrium; centroids, centers of gravity; shear and moment diagrams; friction; moments of inertia. Cooperative course taught jointly by WSU and UI (ENGR 210).

215 Mechanics of Materials 3 Prereq C E 211 with a C or better. Concepts of stress, strain, and their relationships; axial loads, torsion and bending; combined stress; properties of materials; columns, repeated loadings. Cooperative course taught jointly by WSU and UI (ENGR 250).

302 (C E 301) Introduction to Surveying 2 (1-3) Prereq Math 171, certified civil engineering or construction management major. Surveying data collection, analysis and application; measuring distances and angles using total stations and global positioning systems; analysis of errors in measurements.

303 (C E 301) Civil Engineering Computer Applications 2 (1-3) Prereq Cst M 254; certified civil engineering major. Advanced civil engineering computer applications including Geographical Information Systems, CIVIL3D and Excel.

315 Fluid Mechanics 3 Prereq M E 212; certified major in C E or instructor approval. Fluid statics, laminar and turbulent flow, similarity, pipe flow, boundary layer, lift and drag and measurement techniques.

317 [M] Geotechnical Engineering I 3 (2-3) Prereq C E 215 with a C or better; C E 315 or c//; certified major in C E or instructor permission. Structure, index properties, and classification of soils; compaction; effective stress; seepage; consolidation and shear strength.

322 Transportation Engineering 3 Prereq Math 360, 370 or c//; C E 302 or c//; certified major in C E or instructor permission. Road-vehicle interaction, geometric design, traffic flow and queueing theory, highway capacity and level of service, and introduction to pavement design and materials.

330 Introduction to Structural Engineering 3 Prereq C E 215 with a C or better; certified major in C E or instructor permission. Introduction to structural analysis and design; structural modeling; design philosophies; deflections; indeterminate analysis by the Force Method.

341 Introduction to Environmental Engineering 3 Prereq Biol 102 or MBioS 101; Chem 105. Impact of pollutants on the environment; pollution sources and sinks; engineering aspects of air and water quality; introduction to pollution control.

351 Water Resources Engineering 3 Prereq C E 315 with a C or better; certified major in C E or instructor permission. Application of fluid mechanics to hydraulic infrastructure, principles of open channel flow, and introduction to surface and ground water hydrology.

400 Highway Materials Engineering 3 (2-3) Prereq Engl 402; senior standing; certified major in C E or instructor permission. Basic properties and mix designs of aggregates, asphalt, concrete and recycled materials; quality assurance, quality control.

403 Environmental Geology 3 Prereq Geol 101 or 102. Same as Geol 403.

404 Sustainability Engineering I 3 Prereq senior standing in the College of Engineering and Architecture. Low impact development (stormwater), sustainable site selection, alternative transportation, heat island effect, light pollution and water use/efficiency. Credit not granted for both C E 404 and 504.

405 Sustainability Engineering II 3 Prereq senior standing in the College of Engineering and Architecture. Topics focusing on energy efficiency/use, regional and global climate/air issues, use/reuse of various material and resources and indoor environmental quality. Credit not granted for both C E 405 and 505.

408 Air Pollution Control Engineering 3 Prereq senior in engineering or physical sciences. Measurement and control of air pollution; engineering design calculations; equipment and process. Credit not granted for both C E 408 and 508. Cooperative course taught jointly by WSU and UI (CH E 475).

409 Air Quality Modeling 3 Prereq one semester calculus and physics. Theory and practice of air quality modeling with an emphasis on use of EPA regulations; principles of atmospheric pollutant dispersion and air quality models.

414 Structural Design Laboratory 3 (1-6) Prereq either C E 431, 433, 434, 436, or c//; Engl 402; certified major in C E or instructor permission. Senior laboratory requiring integration of previous coursework into the execution of design projects and the assessment of experimental test data; design codes and standards, load determination, load path, influence lines; applications in concrete, masonry, steel, and wood.

415 Environmental Measurements 3 (1-6) Prereq C E 341, Engl 402; certified major in C E or instructor permission. Theory and laboratory measurement techniques used in analyzing environmental quality parameters.

416 Hydraulic Engineering Laboratory 3 (1-6) Prereq C E 315, Engl 402; certified major in C E or instructor permission. Experiments related to fluid flow principles and their application to hydraulic engineering.

418 Hazardous Waste Engineering V 3-4 Prereq C E 341 with a C or better; certified major in C E or instructor permission. Hazardous waste properties, chemo-kinetics, and health effects; introduction to risk assessment and hazardous waste remediation. Credit not granted for both C E 418 and 518. Cooperative course taught by WSU, open to UI students (C E 435).
419 Hazardous Waste Treatment 3 Prereq C E 418 with a C or better; certified major in C E or instructor permission. Principles of operation and application of processes in design of technologies used in hazardous waste treatment and remediation. Credit not granted for both C E 419 and 519.

425 Soil and Site Improvement 3 Prereq C E 317 with a C or better; certified major in C E or instructor permission. Compaction theory and methods; deep densification of soils; advanced consolidation theory, preloading, vertical drains, chemical stabilization, grouting; design with geosynthetics. Credit not granted for both C E 425 and 525. Cooperative course taught by WSU, open to UI students (CE 567).

430 Analysis of Indeterminate Structures 3 Prereq C E 330 with a C or better; Math 220; E E 221; certified major in C E or instructor permission. Stiffness methods for the analysis of trusses, beams, and frames; matrix models; and computer applications.

431 Structural Steel Design 3 Prereq C E 330 with a C or better; certified major in C E or instructor permission. Design of steel structures by load and resistance factor design (LRFD); behavior and design of beams, columns, tension members and connections.

433 Reinforced Concrete Design 3 Prereq C E 330 with a C or better; certified major in C E or instructor permission. Behavior, analysis, and design of reinforced concrete structures; flexure; shear; bond; serviceability requirements; design of beams, columns, and slabs.

434 Prestressed Concrete and Reinforced Masonry Design 3 Prereq C E 433 with a C or better; certified major in C E or instructor permission. Behavior, analysis, and design of prestressed concrete structures; flexure; shear; bond; serviceability requirements; design of beams, columns, and slabs.

450 Hydraulic Engineering Design 3 Prereq C E 351 with a C or better; certified major in C E or instructor permission. Hydraulic design and planning of facilities associated with gravity controlled and pressurized flow. Cooperative course taught jointly by WSU and UI (CE 422).

451 Open Channel Flow 3 Prereq C E 351 with a C or better; certified major in C E or instructor permission. Steady, non-uniform flow; controls and transitions in fixed-bed channels. Credit not granted for both C E 451 and 551.

456 Sustainable Development in Water Resources 3 Prereq C or better in C E 351; certified civil engineering major. Sources of freshwater in Pacific Northwest; water demands; climate change impacts on water availability; approaches for developing sustainable water yield.

460 Advanced Hydrology 3 Prereq C E 351 with a C or better; certified major in C E or instructor permission. Components of the hydrologic cycle; conceptual models; watershed characteristics; probability/statistics in data analysis; hydrographs; computer models; and design applications. Credit not granted for both C E 460 and 560.

463 Engineering Administration 3 Engineering economy; annual cost, present worth, rate of return, and benefit-cost ratio in engineering decision making; basic contract law.

465 [M] Integrated Civil Engineering Design 3 (1-6) Prereq senior in C E, Arch, B E, M E, or E; registered for FE/EIT exam. Civil engineering applications to planning and design; problem synthesis, data analysis, decision making and reporting; design of complete projects that include local and world wide problems through interdisciplinary teams.


473 Pavement Design 3 Prereq C E 317; Econ 101 or 102; C/ or C in C E 322. Pavement performance evaluation, material characterization, traffic analysis, pavement structural response analysis, transfer function application, and pavement design procedures for both flexible and rigid pavements including MEPDG design procedure. Cooperative course taught jointly by WSU and UI (CE 475).

474 Traffic Systems Design 3 (2-3) Prereq C E 322 or instructor permission. Analysis and design of network traffic systems, system evaluation using computer optimization and simulation; development and testing of alternative system design. Two lectures and one 3-hour lab a week; field data collection and field site visits. Cooperative course taught by UI, open to WSU students (CE 474).

475 Groundwater 3 (2-3) Prereq BSysE 351, C E 317 or Geol 315; and Math 140 or 172 or c/. Same as Geol 475.

480 [M] Ethics and Professionalism 1 Prereq senior status; certified major in C E or instructor permission. Professional aspects of civil engineering.

495 Engineering Internship V 1-4 May be repeated for credit; cumulative maximum 4 hours. By interview only. Placement in a professional, governmental, or industrial situation for specialized or general experience. S, F grading.

498 Special Topics in Civil Engineering V 1-4 May be repeated for credit; cumulative maximum 6 hours. Contemporary topics in civil engineering.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Advanced Topics in Transportation Engineering V 2-4 May be repeated for credit; cumulative maximum 9 hours. Prereq C E 322; statistics course. Special topics course in transportation engineering. Cooperative course taught jointly by WSU and UI (CE 571).

504 Sustainability Engineering I 3 Graduate-level counterpart of C E 404; additional requirements. Credit not granted for both C E 404 and 504.

505 Sustainability Engineering II 3 Graduate-level counterpart of C E 405; additional requirements. Credit not granted for both C E 405 and 505.

507 Seepage and Earth Dams 3 Principles of earth-dam design, failures, considerations in construction; principles governing flow of water through soils. Cooperative course taught by UI, open to WSU students (CE 563).

508 Air Pollution Control Engineering 3 Prereq graduate standing. Graduate-level counterpart of C E 408; additional requirements. Credit not granted for both C E 408 and 508.

509 Numerical Modeling of Geomaterials 3 Prereq graduate student in geotechnical engineering or related field, or by interview. Modeling of the response of geomaterials to changes in imposed stresses or strains under both static and dynamic conditions.

510 Advanced Geomaterial Characterization 3 Advanced mechanics of geomaterials; compressibility, concept of stress and strain; shear strength, stress/strain and time-dependent behavior; dynamic properties.

511 Advanced Topics in Geotechnical Engineering V 2-4 May be repeated for credit; cumulative maximum 9 hours. Prereq C E 317. Soil dynamics, theoretical soil mechanics, numerical methods in soil mechanics, and geohydrology, engineering geology, cold regions geoenineering. Cooperative course taught jointly by WSU and UI (CE 569).

512 Dynamics of Structures 3 Equations of motion, free vibration, damping mechanisms, harmonic, impulse, and seismic loading; shock and seismic response spectra, time and frequency domain analysis, modal analysis, structural dynamics in building codes. Cooperative course taught jointly by WSU and UI (CE 543).

514 Advanced Mechanics of Materials 3 Elastic stress-strain relations, shear center, unsymmetrical bending, curved beams, elastic stability, elastically supported beams, energy methods, thin plates, shells. Cooperative course taught jointly by WSU and UI (CE 510).
517 Mechanics of Sediment Transport 3 Cohesive and non-cohesive sediments; initiation of sediment motion; sediment transport; suspended and bed load entrainment; models of sediment transport for alluvial and gravel bed streams, sediment-flow interaction; river morphology and ecological restoration. Cooperative course taught jointly by WSU and UI (CE 521).

518 Hazardous Waste Engineering V 3-4 Prereq graduate standing. Graduate-level counterpart of CE 418; additional requirements. Credit not granted for both CE 418 and 518.

519 Hazardous Waste Treatment 3 Prereq C E 518. Graduate-level counterpart of CE 419; additional requirements. Credit not granted for both C E 419 and 519.


524 Geotechnical Earthquake Engineering 3 Faulting and seismicity; site response analysis; influence of soil on ground shaking; soil liquefaction; probabilistic seismic hazard assessment; seismic earth pressures; seismic slope stability. Cooperative course taught by WSU, open to UI students (CE 566).

525 Soil and Site Improvement 3 Prereq C E 317. Graduate-level counterpart of C E 425; additional requirements. Credit not granted for both C E 425 and 525. Cooperative course taught by WSU, open to UI students (CE 567).

527 Advanced Soil Mechanics 3 Prereq C E 317. Effective stresses and lateral earth pressures; interrelationships of applied stresses, permeability, strain and shear strength of soils. Cooperative course taught by UI, open to WSU students (CE 561).

528 Advanced Foundation Engineering 3 Prereq C E 317. Consolidation theories, bearing capacity, and settlements of foundations, pile group behavior, theory of subgrade reaction, materials foundations, laterally loaded piles. Cooperative course taught by UI, open to WSU students (CE 562).

530 Advanced Design of Steel Structures 3 Prereq C E 431. Plate girders design; local and global buckling; plastic collapse analysis; shear and Moment-resisting connections; eccentrically-loaded connections. Cooperative course taught jointly by WSU and UI (CE 542).

531 Probability and Statistical Models in Engineering 3 Engineering applications of probability and statistics; Monte Carlo simulation; model estimation and testing; probabilistic characterizations of loads and material properties; risk and reliability analyses. Cooperative course taught jointly by WSU and UI (CE 545).

532 Finite Elements 3 Theory of finite elements; applications to general engineering systems considered as assemblages of discrete elements. Cooperative course taught jointly by WSU and UI (CE 546).

533 Advanced Reinforced Concrete Design 3 Prereq C E 433. Composite design; slab design; limit state design; footings; retaining walls; deep beams; brackets and corbels; torsion; seismic design; shear walls. Cooperative course taught by WSU, open to UI students (CE 547).

534 Prestressed Concrete and Reinforced Masonry Design 3 Graduate-level counterpart of C E 434; additional requirements. Credit not granted for both C E 434 and 534. Cooperative course taught by WSU, open to UI students (CE 442).

535 Advanced Finite Elements 3 Prereq graduate standing. Plate and shell analysis; nonlinear solution methods for finite strain/rotation and nonlinear materials.

536 Nondestructive Testing of Structural Materials 3 Principles of nondestructive testing applied to wood-based materials, steel, concrete, and masonry.

537 Advanced Topics in Structural Engineering 3 May be repeated for credit; cumulative maximum 9 hours. Elastic stability, plates and shells, other relevant topics.

538 Earthquake Engineering 3 Prereq C E 512. Seismology, size of earthquakes, seismic ground motion, seismic risk, behavior of structures subjected to earthquake loading seismic response spectra, seismic design codes, lateral force-resisting systems, detailing for inelastic seismic response.

539 Advanced Design of Timber Structures 3 Prereq CE 436. Engineering properties of wood materials; theory and design of wood composites, connections and load-sharing systems; performance criteria and durability.

540 Instrumental Analysis of Environmental Contaminants 3 (1-6) Prereq C E 415. Theory and methods of analysis of water and water suspensions for contaminants using spectrophotometric, and chromatographic techniques.

541 Environmental Engineering Unit Operations 3 Prereq C E 442; Math 315. Theory and design of physical and chemical unit operations of water and wastewater treatment systems. Cooperative course taught jointly by WSU and UI (CE 531).

542 Environmental Engineering Unit Processes 3 Prereq C E 541. Biochemical energetics and kinetics; biological waste treatment processes; nutrient removal; advanced wastewater treatment design. Cooperative course taught jointly by WSU and UI (CE 534).

543 Advanced Topics in Environmental Engineering Practice V 1-4 May be repeated for credit; cumulative maximum 9 hours. Analysis and evaluation of air/water/soil pollution problems, new measurement methods, hazardous waste treatment, global climate change, and water/wastewater treatments.

549 Instrumentation and Measurements 3 (2-3) Prereq Math 172; Phys 102 or 202. Same as BSysE 541.

551 Open Channel Flow 3 Prereq C E 351. Graduate-level counterpart of C E 451; additional requirements. Credit not granted for both CE 451 and 551.

552 Advanced Topics in Hydraulic Engineering V 1-3 May be repeated for credit; cumulative maximum 9 hours. Prereq C E 315. Cavitation, air entrainment, hydraulic machinery, similitude, mixing in rivers and estuaries, hydraulic design.

555 Natural Treatment Systems 3 Prereq senior or graduate standing. Principles and design procedures of natural systems for wastewater treatment for agricultural and non-agricultural applications.

560 Advanced Hydrology 3 Prereq C E 351. Graduate-level counterpart of C E 460; additional requirements. Credit not granted for both C E 460 and 560.

567 Advanced Characterization of Highway Materials 3 Basic and advanced level of the fundamentals of material response to static and repeated loading; emphasis on the deformation and fatigue behavior of asphalt mixes. Cooperative course taught jointly by WSU and UI (CE 556).

571 Meteorology 3 Prereq Math 273, Phys 201 or comparable. Basic meteorology; atmospheric thermodynamics; cloud physics, synoptic meteorology; radiative processes; climate change. Cooperative course taught jointly by WSU and UI (GEOG 504).

572 Advanced Pavement Analysis 3 Prereq C E 473. Fundamentals of pavement-vehicle interaction and the mechanics of pavement response and damage. Cooperative course taught jointly by WSU and UI (CE 575).

580 Graduate Seminar 1 May be repeated for credit; cumulative maximum 2 hours. Lectures and reports on current developments in research and practice.

583 Engineering Aspects of Environmental Chemistry V 2-4 Prereq C E 442; instructor permission. Chemical principles as applied to environmental systems, water supply and pollution control engineering.

584 Environmental Microbiology 3 Prereq graduate standing; instructor permission. Provides a fundamental understanding of microbiology to engineering and environmental science students; cell structure and metabolism; microbial ecology and diversity.

585 Aquatic System Restoration 3 (2-3) Prereq Chem 345 or C E 583; MBioS 101 or C E 581. Study of natural and damaged water systems with emphasis on water quality protection and restoration.

586 Bioremediation of Hazardous Waste 3 Prereq C E 584. Applications of bioremediations to in situ subsurface treatment of hazardous waste; subsurface microbial degradation as related to microbial ecology.

588 Atmospheric Turbulence and Air Pollution Modeling 3 Prereq C E 571. Physical aspects of atmospheric turbulence, theoretical developments in atmospheric diffusion, and applied computer modeling with regulatory and research models.
### Atmospheric Chemical and Physical Processes
- 3 Prereq: 3 Processes of removal of pollutants from the atmosphere; radical chain reactions, particle formation, model calculations.

### Spectroscopy and Radiative Transfer of the Atmosphere
- 3 Prereq: By interview only. Concepts of radiative transfer and molecular spectra in the troposphere and stratosphere with applications to trace gas measurements.

### Aerosol Dynamics and Chemistry
- 3 Prereq: Graduate standing. Chemical and physical properties of atmospheric aerosols; sources, sinks, and transformation processes.

### Polymer Materials and Engineering
- 3 Prereq: MSE 402. Preparation and structure-property relationship of polymer materials with emphasis on fracture mechanics and toughening.

### Natural Fibers
- 3 Prereq: Graduate standing. Structural aspects and properties of natural fibers including anatomy, ultrastructure, and chemistry.

### Polymer and Composite Processing
- 3 Prereq: Graduate standing. Polymer and composite processing from fundamental principles to practical applications.

### Engineered Wood Composites
- 3 Prereq: Graduate standing. Theory and practice of wood composite materials, manufacture and development. Cooperative course taught by WSU, open to UI students (MSE 550).

### Polymers and Surfaces for Adhesion
- 3 Prereq: MSE 402 or 404. Physical chemistry of polymers and surfaces needed to understand interface morphology, adhesion mechanisms and bond performance. Cooperative course taught by WSU, open to UI students (FORPR 532).

### Natural Fiber Polymer Composites
- 3 Prereq: Graduate standing. Fundamentals, development and application of composite materials produced from polymers reinforced with natural fibers and wood as major components. Cooperative course taught by WSU, open to UI students (FORPR 533).

### Special Projects or Independent Study
- V 1-18 May be repeated for credit. S, F grading.

### Master's Research, Thesis and/or Examination
- V 1-18 May be repeated for credit. S, F grading.

### Doctoral Research, Dissertation, and/or Examination
- V 1-18 May be repeated for credit. S, F grading.

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**Edward R Murrow College of Communication**

[www.communication.wsu.edu](http://www.communication.wsu.edu)

**Murrow Add 124**

509-335-7333


Communication is a vital force in society. New practices and techniques in communication require that instruction and research explain these phenomena and prepare students to take their place in this field.

The curricula of the Edward R. Murrow College of Communication lead to the degrees of Bachelor of Arts in Communication, Master of Arts in Communication and Doctor of Philosophy (Communication). Students may major in communication, with an emphasis in advertising, applied intercultural communication, broadcast news, broadcast production, journalism, organizational communication, or public relations. Students also may fashion a general communication curriculum. The undergraduate program reflects a blending of professional, liberal arts, and theory and research courses.

The Graduate school cooperates with the College of Agricultural, Human, and Natural Resource Sciences in support of the agricultural communications option.

Supplementing the classrooms and laboratories of the Murrow College are the professional internships programs, campus radio and television facilities, and Student Publications, including a daily newspaper.

Students graduating from The Edward R. Murrow College of Communication will be able to:
- 1) effectively and efficiently collect and evaluate information utilizing traditional methods and new techniques and technology;
- 2) communicate (written and verbal) clearly and succinctly to varied audiences;
- 3) carefully observe, interpret and accurately portray events, information, and activities to a diverse society;
- 4) shape messages to reflect the differing demands and strengths of different and developing media;
- 5) consider the legal, social, and economic contexts in which media operate and evolve;
- 6) examine the role and effects of media in contemporary society;
- 7) understand the ethical and civic responsibilities that accompany a life long career in communication in a democratic society;
- 8) understand the professionalism required to be successful in a highly competitive industry, and
- 9) compete successfully in regional and national job markets.

### Certification Requirements

To certify a major in communication, a student must meet the following minimum requirements:

1. Complete Com 101, 245, 265, 295 and ComSt 102; (2) Earn a grade no lower than C in Com 295.
2. The Communication GPA and the cumulative GPA are averaged together. Students will be placed in rank order. The top students then are certified based on how many spots are available that semester.
3. Students transferring into the College with 55 or more hours should complete the certification requirements within two semesters. All students should certify before earning 90 credit hours.

### General School Requirements

Each student will complete the requirements of one of the following programs and accumulate an emphasis of 18 hours (9 upper-division hours) in a second department. At least 75 of the 120 hours required for the Bachelor of Arts degree in Communication must be taken in other departments. Transfer students, in meeting the requirements of their chosen program, must take a minimum of 15 credit hours in the School.

### Agricultural Communications

See Agricultural and Food Systems for complete information under the Agricultural Business and Technology Systems, Communication Option.

### Schedules of Studies

**COMMUNICATION - ADVERTISING OPTION (120 HOURS)**

All degree programs require a minimum of 39 semester hours in communication. Students have three options to meet the enrichment/internship requirements: 6 hours of internship credit; 3 hours of internship credit and 3 hours of upper-division communication courses; or 6 hours of upper-division communication courses.

#### First Year

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<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tr>
<td>First Term</td>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3</td>
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<td>Com 101 [S] (GER) 3</td>
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<td>Engl 101 [W] (GER) 3</td>
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<td>3</td>
<td>GenEd 110 [A] (GER) 3</td>
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<td>3</td>
<td>Social Sciences [S,K] (GER) 3</td>
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#### Second Year

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<td>Second Term</td>
<td>3</td>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3</td>
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<td>3</td>
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#### Third Year

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<td>Physical Sciences [P] (GER) 4</td>
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</tbody>
</table>

#### Apply for Certification

Complete Writing Portfolio

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**Advising Information**

1. **Certification Requirements**
   - **Minor in Communication:** Not recommended for transfer students.
   - **General School Requirements:** Not recommended for transfer students.
   - **Advising Information:** Available at [communication.wsu.edu](http://communication.wsu.edu)

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**Note:**

- **GER:** General Education Requirement
- **W:** Writing Intensive
- **M:** Math Proficiency
- **N:** Math Proficiency
- **I,G,K:** Intercultural Studies
- **H,G:** Humanities
- **S,K:** Social Sciences
- **L,G,K:** Languages, Literature, and Cultures

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**Communication**

- **First Term**
  - Hours
  - Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
  - Com 101 [S] (GER) 3
  - Engl 101 [W] (GER) 3
  - GenEd 110 [A] (GER) 3
  - Social Sciences [S,K] (GER) 3
- **Second Term**
  - Hours
  - Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
  - Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
  - ComSt 102 [C] (GER) 3
  - GenEd 111 [A] (GER) 3
  - Science Elective (GER) 4
- **Third Year**
  - Hours
  - Adver 380 3
  - Arts & Humanities [H,G] (GER) 3
  - Com 295 3
  - Intercultural Studies [L,G,K] (GER) 3
  - Physical Sciences [P] (GER) 4

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**Apply for Certification**

- **Complete Writing Portfolio**

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**Advising Information**

- **Certification Requirements**
  - **Minor in Communication:** Not recommended for transfer students.
  - **General School Requirements:** Not recommended for transfer students.
  - **Advising Information:** Available at [communication.wsu.edu](http://communication.wsu.edu)

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**Communication**

- **First Term**
  - Hours
  - Adver 381 [M] 3
  - Foreign Language, if necessary, or Electives 6
  - Mktg 360 3
  - Emphasis Elective 3
- **Second Term**
  - Hours
  - 300-400-level Emphasis Electives 6
  - Adver 382 3
### Fourth Year

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<td><strong>Tier III [T] Course (GER)</strong></td>
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<sup>1</sup> 18 credits in another department, 9 of which are 300-400-level.

<sup>2</sup> Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.


<sup>4</sup> Any seminar numbered 475 in communication.

### COMMUNICATION - APPLIED INTERCULTURAL OPTION (120 HOURS)

#### First Year

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<td><strong>Engl 101 [W] (GER)</strong></td>
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#### Second Year

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<td><strong>Math Proficiency [N] (GER)</strong></td>
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#### Third Year

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### Fourth Year

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### COMMUNICATION - BROADCAST NEWS/ BROADCAST PRODUCTION OPTION (120 HOURS)

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<td><strong>Com 101 [S] (GER)</strong></td>
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<td><strong>Engl 101 [W] (GER)</strong></td>
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<td><strong>Arts &amp; Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER)</strong>&lt;sup&gt;3&lt;/sup&gt;</td>
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<td><strong>GenEd 111 [A] (GER)</strong></td>
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<td><strong>Intercultural Studies [L,G,K] (GER)</strong></td>
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<td><strong>Math Proficiency [N] (GER)</strong></td>
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<td><strong>Emphasis Elective</strong>&lt;sup&gt;1&lt;/sup&gt;</td>
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<td><strong>Com 295</strong></td>
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<td><strong>Foreign Language, if necessary, or Electives</strong>&lt;sup&gt;2&lt;/sup&gt;</td>
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### COMMUNICATION - JOURNALISM OPTION (120 HOURS)

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<td><strong>Com 101 [S] (GER)</strong></td>
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<td><strong>Engl 101 [W] (GER)</strong></td>
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<td><strong>GenEd 110 [A] (GER)</strong></td>
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1. 18 credits in another department, 9 of which are 300-400-level.
2. Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
4. Any seminar numbered 475 in communication.

### COMMUNICATION - ORGANIZATIONAL OPTION (120 HOURS)

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<td>Second Term</td>
<td>Hours</td>
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<td>Hours</td>
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Physical Sciences [P] (GER) | 4 |  |
Social Sciences [S,K] (GER) | 3 |  |
Apply for Certification  |
Complete Writing Portfolio |

### Third Year

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1. 18 credits in another department, 9 of which are 300-400-level.
2. Students must take one year of foreign language if two years of a foreign language was not taken at the high school level.
4. Any seminar numbered 475 in communication.

### COMMUNICATION - PUBLIC RELATIONS OPTION (120 HOURS)

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<th>First Term</th>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K] or Social Sciences [S,K] (GER)</td>
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#### Second Year

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<td>Com 265</td>
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<td>Emphasis Elective&lt;sup&gt;1&lt;/sup&gt;</td>
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#### Second Term | Hours |  |
| Arts & Humanities [H,G] (GER) | 3 |  |
| Com 295    | 3     |  |
| Foreign Language, if necessary, or Elective<sup>2</sup> | 3 |  |
| Physical Sciences [P] (GER) | 4 |  |
| Social Sciences [S,K] (GER) | 3 |  |
| Apply for Certification  |
| Complete Writing Portfolio  |

### Minors

#### Communication

The minor in communication requires a minimum of 18 hours, 9 of which must be at the 300-400 level and selected from the following courses: Adver 380, Bdcst 481, Com 101, 245, 295*, 321, 335, 340, 403, 409, 410, 415, 420, 440, 450, 460, 470, 471, 481, ComSt 324, 335, 385, 401, 421, 435, 485, 488, Jour 405, 425)

*Students must apply to enroll in Com 295; entrance into other courses by permission.
Description of Courses

ADVERTISING

Upper-division Course EnrollmentEnrollment in 300-400-level School of Communication courses is restricted to those students who have certified as a communication major or minor. (Exceptions include Com 321, ComSt 302, Com St 342, ComSt 421, Com 471, and Jour 405, for students certified in a major requiring these courses.)

Adver

380 Advertising Principles and Practices 3 Advertising history, theory and practice by advertising agencies and organizations.


382 Media Planning 3 Prereq Adver 380; certified major in communications. Media planning strategies, theories, strategies, and practices.

475 Seminar in Advertising 3 May be repeated for credit; cumulative maximum 9 hours. Prereq certified major in communications.

480 Advertising Agency Operation and Campaigns 3 Prereq Adver 380; Adver 381; Adver 382; certified major in communications. Principles and functions of advertising management: campaign planning, execution, presentation and evaluation.

495 Advertising Professional Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Adver 381 or 382; Mktg 360; certified major in communications; by interview only. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

BROADCASTING

Bdcst

150 Introduction to Broadcast Equipment 1 By interview only. Orientation to broadcast equipment; audio, studio television, and field television, as applied to various functions. S, F grading.

350 Introduction to Telecommunications 3 (2-3) Prereq Com 295; certified major in communications. Fundamentals of the history, structure, economics and operations of broadcasting and cable.

355 Studio TV Production 3 (1-6) Prereq Bdcst 350; certified major in communications.

360 Writing for Television 3 (2-3) Prereq certified major in communications. Theory and practice of writing scripts: analysis of dramatic, comedic, commercial, documentary scripts; writing scripts for each genre.


455 Field TV Production 3 (1-6) May be repeated for credit; cumulative maximum 6 hours. Prereq Bdcst 350; Bdcst 355; certified major in communications. Field production; editing; advanced studio production.

465 [M] Broadcast News Writing, Reporting, and Editing 3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Prereq Bdcst 365; certified major in communications. Writing, reporting, and editing broadcast news; development and production of documentaries.

466 Digital Video Editing for News Reporting and Documentary 3 (2-3) Prereq Bdcst 455 or 456; certified major in communications. Video editing for news reporting; feature-length editing for news and public affairs topics; documentaries; visual storytelling.

475 [M] Seminar in Broadcasting 3 May be repeated for credit; cumulative maximum 9 hours. Prereq certified major in communications; senior or graduate standing.

481 Broadcast Management 3 Prereq certified major in communications; senior standing.

495 Broadcasting Professional Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Bdcst 365, 455, or 465; certified major in communications; by interview only. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

COMMUNICATION

Com


138 Freshman Special Topics 1 May be repeated for credit; cumulative maximum 2 hours. Introduces new students to individual faculty research interests and helps students link personal interests to academic majors. S, F grading.

245 Language and Human Behavior 3 Prereq sophomore standing. Theories of language as it influences human behavior in meaning production, problem solving and construction of social reality.

265 The Murrow Legacy 3 Prereq sophomore standing. Foundational and contemporary readings and media presentations highlighting Edward R. Murrow's career including ethics, integrity, democracy; social responsibility, intercultural/international communication and understanding.

295 Media Writing 3 (2-3) Prereq Com 101; application. Writing for the media; journalistic and persuasive writing. (The typewriting proficiency may be waived on an individual basis for otherwise qualified students.)

321 [I] Intercultural Communication 3 Prereq certified in a major. Culture and communication.

409 Quantitative Research 3 Prereq certified major in communications. Measurement, questionnaire construction, sampling, data collection techniques, analysis and hypothesis testing in communication research.

410 History of Mass Communications 3 Prereq certified major in communications; junior standing or graduate student. For seniors and graduate students.

415 Law of Mass Communications 3 Prereq certified major in communications; junior standing.

420 New Communication Technologies 3 Prereq certified major in communications; junior standing. New communication technologies, their impact on communication processes, access, regulation, and communication in organization/professional contexts.

440 Media Ethics 3 Prereq certified major in communications; junior standing. Foundations and frameworks of media ethics; case studies in assessing media performance.

460 Mass Media Criticism 3 Prereq certified major in communications; junior standing. Theoretical and philosophical basis for critical analysis of mass communication.

464 Gender and the Media 3 Prereq Com 101 or W St 200; certified major in communications. How news and entertainment media shape and reinforce societal expectations of gender; consideration of race, age, class, and sexual orientation.

470 Mass Communications Theories and Theory Construction 3 Prereq certified major in communications; senior standing. Theories of mass communication and the process of theory construction.

471 [I,D] Stereotypes and The Media 3 Prereq completion of one Tier I course; three Tier II courses. Examines portrayals of social groups in the media and the impact portrayals have on perceptions, expectations, and aspirations of members of portrayed groups and nonmembers.

495 Communication Professional Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq by interview only. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Introduction to Graduate Study 1 Prereq Graduate Standing, Permission of Instructor. Introduces graduate students to the pragmatics of graduate education and to research being conducted in the School of Communication. S, F grading.

501 Theory Building in Communication 3 Prereq graduate standing. Relationship of research to theory development; evaluation of current theory and research; planning and executing research within specified theoretical frameworks.

504 Instructional Practicum 1 May be repeated for credit; cumulative maximum 4 hours. Prereq graduate standing; by interview only. S, F grading.

506 Persuasion and Social Influence 3 Prereq graduate standing. Theories, concepts strategies and processes of persuasion and social influence.

507 Communication Ethics Seminar 3 Prereq graduate standing. Topics in communication ethics.
509 Quantitative Research 3 Prereq graduate standing. Introduction to quantitative research in communication; hypothesis development, testing; basic statistics, interpretation; field surveys, laboratory and field experiments, content analysis.

514 Health Communication Theories and Campaigns 3 Health communication theories with a focus on campaign construction and evaluation.

516 Health Communication and Society 3 3 Reviews, critiques and applications of research regarding the impact of social and cultural environments on health communication.

517 Health Communication and Social Development 3 Prereq graduate standing. Explores and tests role of mediated communication in the causes of and solutions for health problems, particularly among young people.

521 Foundational Perspectives in Intercultural Communication 3 Prereq graduate standing. Overview of three current foundational research perspectives in intercultural communication; functionalist (post-positivist), interpretive and critical.

522 Theoretical Perspectives on Intercultural Communication 3 Prereq graduate standing. Advanced readings in intercultural communication theory and methods; paradigms in current theorizing.

524 Intercultural / International Communication and Social Change 3 Prereq graduate standing. Application of communication theory, research and technologies aimed at fostering social change in intercultural and international contexts.

526 Current Topics in Intercultural Communication 3 Prereq graduate standing. Topics in current intercultural communication research.

536 Organizational Communication Theory 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Traditional and emerging theories in organizational communication.

537 Organization and Society 3 Prereq graduate standing. Historical foundations, theoretical developments, contemporary issues and practical implications of communicative processes of organizations within society.

535 Media Processes and Effects: Theory and Practice 3 Physiological, psychological and social effects of media messages and technologies upon individuals and societies.

536 Current Issues in Media Processes and Effects 3 Prereq graduate standing. Current issues in media processes and effects.

540 Communication Theory 3 Prereq graduate standing. Relevant theories and research from mass and interpersonal communication.

541 Theoretical Perspectives on Media and Society 3 Prereq graduate standing. Theories explaining the social and cultural environments of communication processes emphasizing in mass communication.

542 Mass Media, Social Control, and Social Change 3 Prereq graduate standing. Study of the forces that influence the media’s role as an agent of social control or social change.

543 Media and Public Discourse 3 Prereq graduate standing. Historical and contemporary concepts, questions and dynamics constituting the role of media and discourse among various publics.

544 Topics in Communication 3 May be repeated for credit; cumulative maximum 12 hours. Prereq graduate standing; by interview only. Contemporary, specialized, or technical topics in communication.

545 Qualitative Research Methods 3 Prereq graduate standing. Historical, textual, and legal methodologies for theory-based evaluative and discourse studies in communication.

546 Seminar in Communication 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing; by interview only. Special topics in rhetoric, communication, and public address.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. Prereq by interview only. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. Prereq by interview only. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. Prereq by interview only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. Prereq by interview only. S, F grading.

COMMUNICATION STUDIES


235 [C] Principles of Group Communication 3 Theoretical and practical aspects of communication in groups; classroom exercises and films demonstrate principles and develop skills.

302 [C] Advanced Public Speaking 3 Prereq ComSt 102; certified in a major. Advanced principles of public speaking and their practical implementation for effective communication.

324 [C,M] Argumentation 3 Prereq ComSt 102; certified in a major. Theory, analysis and application of written and oral arguments in everyday use.

335 Organizational Communication 3 Prereq certified major in communications. Communication theory and organizational functions; communication influences on organizational behavior, managerial effectiveness, corporate culture, organizational power and politics.

351 Broadcast Performance/Interpretation 3 Prereq certified major in communications. Voice and diction, interpretation of copy for broadcast.

401 Persuasion 3 Prereq certified major in communications. Theories of persuasion and social action; study of strategies and techniques for the persuasive use of language and other symbols.

421 [T] Intercultural Processes in Global Contexts 3 Prereq completion of one Tier I course; three Tier II courses. Global cultural changes and their influences on intercultural communication including perspectives and readings from different disciplines.

435 Advanced Organizational Communication 3 Prereq ComSt 335; certified major in communications. Advanced concepts, models and methods for in-depth analysis of contemporary organizations.

475 Seminar in Communication Studies 3 May be repeated for credit; cumulative maximum 9 hours. Prereq certified major in communications; senior or graduate standing.

485 Organizational Consulting 3 Develop and practice consulting skills relevant to a practical situation and apply organizational literature to a client.

495 Communication Studies Professional Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq by interview only. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. Prereq certified major in communications; by interview only. S, F grading.

JOURNALISM

305 [M] Reporting 3 Prereq Com 295; certified major in communications.

330 News Editing 3 (2-3) Prereq Jour 305; certified major in communications. Basic copy editing and design skills for print media.

425 [M] Reporting of Public Affairs 3 Prereq Jour 305; certified major in communications. Research covering public and private sectors.

431 Advanced Editing 3 (2-3) Prereq Adver 381, Jour 330, or PR 313; certified major in communications. Advanced copy editing and design techniques; emphasis on visual communication.

475 Seminar in Journalism 3 May be repeated for credit; cumulative maximum 9 hours. Prereq certified major in communications.

495 Journalism Professional Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Jour 305; Jour 330; or Jour 425; by interview only. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

PUBLIC RELATIONS

312 Principles of Public Relations 3 Prereq Com 295; certified major in communications. Principles, theories, methods and objectives of public relations; public relations problems and practices.
313 [M] Public Relations Techniques and Media Usage 3 (3-2) Prereq Com 295; Jour 305; P R 312; certified major in communications. Practical applications of public relations theory and techniques with emphasis on writing and media use.

412 Public Relations Management and Campaign Design 3 Prereq Com 409, P R 312, Jour 305 or P R 313; certified major in communications. Application of public relations principles, management, persuasion theory and research methods to public relations issues.

475 Public Relations Seminar 3 May be repeated for credit; cumulative maximum 9 hours. Prereq certified major in communications; senior or graduate standing. Theory, methods, and applications of communication and campaign management; political communication, health communication, freedom of expression, special audiences.

495 Public Relations Professional Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Jour 305; P R 313; certified major in communications; by interview only. May be repeated for credit; cumulative maximum 12 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. Prereq certified major in communications. S, F grading.

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Community and Rural Sociology

www.crs.wsu.edu

Wilson-Short 23

509-335-8623


Description of Courses

COMMUNITY AND RURAL SOCIOLOGY

CRS

275 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours.

334 [S] Principles of Community Development 3 Prereq 3 credits S or K GER; sophomore standing. Factors influencing how communities grow and decline and the ways in which social interventions influence these outcomes.

336 [S] Agriculture, Environment and Community 3 Prereq Prereq 3 credits S or K GER; sophomore standing. Examines interdependencies between farming/ranching, the natural environment and human communities including perspectives on sustainable agriculture.

416 Sustainable Small Farming and Ranching Overview 3 Introduction to small acreage production systems, evaluation of personal and family goals, land evaluation, business planning, marketing options, regulations, and community resources. Cooperative course taught by UI (Ag 404), open to WSU students.

417 Agricultural Entrepreneurship 3 Designed for students who are interested in starting an agricultural enterprise or gaining knowledge of the process.

423 Fundamentals of Participatory Research 3 Prereq 6 credits S or K GER; sophomore standing. Principles/methods of involving community/interest group members in knowledge generation to understand local issues while building local capacity. Credit not granted for both CRS 423 and 523.

431 [T,D] The Demographics of American Diversity 3 Prereq junior or senior standing; completion of all GERs. How trends in diversity in American society are changing over time; the demographic forces underlying these trends and debates on these.

435 Resolving Environmental Conflicts 4 (3-3) Prereq 6 credits S or K GER; junior standing. Introduction to environmental conflict resolution via readings, discussions, simulation role plays and required papers; emphasis on interest-based approaches. Credit not granted for both CRS 435 and 535.

441 Local Impacts of Global Commodity Systems 3 Prereq 6 credits S or K GER; junior standing. Theories of globalization, its social, political and economic dimensions, and its impact on people and communities. Credit not granted for both CRS 441 and 541.

445 Field Analysis of Sustainable Food Systems 3 Same as AFS 445.

523 Fundamentals of Participatory Research 3 Prereq graduate standing. Graduate-level counterpart of CRS 423; additional requirements. Credit not granted for both CRS 423 and 523.

535 Resolving Environmental Conflicts 4 (3-3) Prereq graduate standing. Graduate-level counterpart of CRS 435; additional requirements. Credit not granted for both CRS 435 and 535.

541 Local Impacts of Global Commodity Systems 3 Prereq graduate standing. Graduate-level counterpart of CRS 441; additional requirements. Credit not granted for both CRS 441 and 541.

545 Field Analysis of Sustainable Food Systems 3 Same as AFS 545. Graduate-level counterpart of CRS 445; additional requirements. Credit not granted for both CRS 445 and 545.

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Department of Comparative Ethnic Studies

http://libarts.wsu.edu/ces

Wilson Hall 111

509-335-2605


Vision Statement

Comparative Ethnic Studies (CES) participants challenge the unequal distribution of power and privilege within and between ethnic and racial groups in the United States and around the world. CES provides the knowledge and the tools to realize social justice.

Mission Statement

The Department of Comparative Ethnic Studies (CES) offers a multidisciplinary, comparative and, ultimately, transformative approach to the study of the social, cultural, political, historical, and economic expressions and experiences of racialized groups in the United States and interconnected global communities. Through their excellence in teaching, research, and community service, CES scholars facilitate understanding of how the social constructions of race impact the fabric of our historical and contemporary world while preparing community members to actively and critically engage in their civic responsibilities, especially with respect to social justice.

Application of Comparative Ethnic Studies

CES offers an undergraduate major and minor. Some students choose to double-major in CES. A major in CES prepares students to apply their education in any number of occupations including the areas of business, service, education, employment abroad, and politics. The curriculum engages students in thinking and communicating critically and analytically, thereby preparing them to continue learning in a rapidly changing technological and global world. The CES curriculum is also excellent preparation for advanced educational programs including law, counseling, and medicine. Most importantly, CES prepares students to live and work in an increasingly global and diverse world, and to critically and actively engage in their civic responsibilities.

Role of CES within Washington State University

The Department of Comparative Ethnic Studies (CES) has a distinct function within the larger structure of Washington State University. It is responsible for providing critical understanding of the contemporary and historic developments of racialized communities. CES fosters an in-depth understanding of the complexities of the United States culture and its intersections with global perspectives, while examining social justice concerns and movements. The teaching, research, and service components of CES, examine the scholarly aspects of social justice with an eye toward sophisticated awareness, comprehension, communication, activism, and transformation. The Department of CES facilitates students’ and the larger campus community’s understanding of today’s racial problems and serves as consultant for university and community concerns related to race.
Overarching Learning Goals
At the completion of their baccalaureate degree in the Department of Comparative Ethnic Studies, students will have the skills to:
1. Be conversant in the field of Ethnic Studies. Understand and articulate its historical development, key concepts, theories, methods, central debates, problems, and possibilities in an increasingly global context.
2. Critique Eurocentrism and understand prevailing Eurocentric formations on race and ethnicity as they have contributed to social conflict, economic issues and political inequalities.
3. Advocate for social justice for Communities of Color in the Pacific Northwest, especially, with respect to tribal nations and recent immigrants. Show an understanding of the regional articulations of race, gender, sexuality, class, and ability.
4. Critically and responsibly engage in their civic responsibility as global citizens with an enhanced appreciation of the processes and consequences of colonization, empire, and of nationalism in the US and its consequences to other groups across the globe.
5. Reflect on their experiences in a complex, unequal, and often contradictory world, while understanding and articulating their privileges and the implications of their race/ethnicity and socio-economic status.
6. Think critically about the social constructions of race over time, having a broad understanding about the relationship between race and institutional structures; individual and collective identities; ideologies and images; individual and institutional/structural racism; and issues of power, appropriation, and essentialism.
7. Appreciate the histories, implications, and possibilities of marginalized and racialized people.
8. Demonstrate knowledge of major developments in ethnic formations and relations as they shape U.S. culture.
9. Be literate about popular culture, demonstrating the ability to decode racial meanings of media texts, films, television, music, sports and other forms utilized for the deployment of race.
10. Engage the world around them critically, defining and challenging normative views and values, especially with respect to whiteness, maleness, and heterosexuality as normative systems.
11. Effect and understand the processes of resistance and social change; conceptualize and articulate the history and processes of resistance against systems of oppression; challenge the paradigmatic assumptions of progress; and understand the connection between social change and struggle.
12. Apply curricular knowledge by serving in internships which demonstrate preparation for careers and/or educational pursuits in graduate and professional schools.

CES Programs and Activities that support and enhance the curriculum.
1. Internships
   In an effort to institutionalize our commitment to applied education, especially with respect to social justice, foster stronger relations within the community at large, and enhance our desire in breaking down the barriers between the campus and community, CES launched an internship program in fall 2004. This program allows students to apply their education through service in an organization most suited to their interests. Through collaboration with community organizations, CES will be able to better prepare students for the application of their skills outside the university and the critical engagement of their civic responsibility.
2. CES Undergraduate Student Symposium
   This is an annual showcase of original work by CES majors and minors and students enrolled in CES classes. It also features a keynote speaker of national renown. The day includes presentations in the form of posters, visual displays, art, and spoken word.
3. CES Encuentros
   The Encuentros Speaker Series began in the Spring of 1997 as a way of providing mentorship for Chicanas/o and Latinas/o graduate students. These students compose one of the most underrepresented groups in academia. By providing professional development, Encuentros covers two of the most critical areas in establishing successful academic careers. Presenters come from different departments and colleges throughout WSU, allowing Encuentros to expose the entire WSU community, and more importantly, graduate students to the importance of inter- and multidisciplinary scholarship in academia. The series also serves to educate the WSU community about the work of our graduate students.
4. CES Faculty Colloquia Series
   CES scholars share their most recent work with the WSU community and facilitate discussion after their presentations.
5. Structured Student Advising
   Advising is central to the mission of CES. All faculty members in CES guide students through the nuances of registration, often serving as mentors for our majors and minors. All faculty engage in advisor training and meet to discuss procedures and problems. Currently, the faculty is working directly with students to enhance and facilitate student advising.
6. CES Website
   The CES Website is a source of information about the department, courses, faculty, staff, and activities/events. It is also an important resource for academic and other opportunities related to the CES program. It provides numerous links to informative Websites and databases. Most course syllabi will be posted here by semester and instructor. Additional course material is added as courses require.

Schedules of Studies

COMPARATIVE ETHNIC STUDIES (120 HOURS)

Students majoring in Comparative Ethnic Studies complete 39 hours in CES, as outlined below, with at least one/half of all CES courses taken at the 300-400 level.

First Year

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Second Term

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Second Term

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Comparative Ethnic Studies

Students may complete a minor in Comparative Ethnic Studies (CES). For the minor, students are expected to fulfill all the university’s requirements for graduation. CES 201, as well as 18 hours of coursework in CES, nine hours of which must be 300-400 level courses taken at WSU or through WSU-approved education abroad or educational exchange courses.

Minors

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1 Please see CES Website, http://libarts.wsu.edu/ces/, for cluster I and II course list.
Description of Courses

COMPARATIVE ETHNIC STUDIES

CES

101 [I] Introduction to Comparative Ethnic Studies 3 Comparative issues in Asian American, African American, Chicana/o, and Native American cultures in the United States.

111 [S,D] Introduction to Asian Pacific American Studies 3 Examination of the social, political, economic, and cultural experiences of Asian/Pacific Americans in the historical and contemporary period.

131 [S,D] Introduction to Black Studies 3 An introduction to general knowledge concerning African Americans in the US.

151 [G] Introduction to Chicano/Latino Studies 3 Examination of the history, culture, political and economic status of Chicano/as and Latino/as in the US.

171 [G] Introduction to Native American Studies 3 Introduction to Native American studies; introductory course to contemporary native America.

198 [I] Introduction to Comparative Ethnic Studies - Honors 3 Prereq admission to Honors College. Introductions to critically analytic ethnic studies.

201 Foundations of Comparative Ethnic Studies 3 Critical examination of the history, methodology and theoretical concepts of ethnic studies.

204 [S] Critical Studies in Whiteness 3 Political and cultural practices that define whiteness through history, popular culture and everyday life.

205 [S,D] Farm Workers 3 Historical and contemporary experiences of farm workers in the US and their relationship to the farm labor system including immigration and free trade policies, unions and advocacy organizations.

209 Hip Hop Around the Globe 3 Prereq CES 101; CES 201 or 131. Diversity and complexity of hip hop at a local, national and global level.

211 [K] Asian Pacific American History 3 Historical experience of Asian/Pacific Americans since the 19th century.

220 [H,D] Introduction to Multicultural Literature 3 Survey of multicultural literature including European American, African American, Asian American, Chicana/o, and Native American authors.

222 Race in Sport Films 3 (2-2) Examination of racial politics through critical discussions of sport film.


244 Critical Globalizations 3 Critical examination of the historical trajectory and contemporary practices, institutions and policies that make up "globalization".

254 [S,D] Comparative Latino/a Cultures 3 Comparison of the contemporary and historical experiences of Latinos and Latinas in the United States, and their relations with other ethnic minority groups and the majority populations.

255 [S,D] Chicana/o History 3 The historical development of the Chicano/a community in relation to the dynamics of race relations, class structure, ethnic identity, gender, and sexuality in American society from 1521 to the 20th century.

260 [S,D] Race and Racism in US Popular Culture 3 Examines images, ideologies, and identities; introduces key concepts and methods; focuses on race, gender, sexuality and class.


300 [S,M] Intersections of Race, Class, Gender and Sexuality 3 Prereq CES 101, Soc 101, or W St 200. Same as W St 300.


302 [S,D] Social Psychology of Prejudice 3 Causes and nature of prejudice from social, psychological, and cultural theoretical perspectives.


305 [S,D] Contemporary Masculinity and Men's Issues 3 Same as W St 302.

308 [M] Cultural Politics of Sport 3 A critical examination of US sports through class, race, gender, sexuality, nationalism and criminality.

309 [H,D] Queer Identities in Contemporary Cultures 3 Same as W St 369.

311 Asian Diaspora Across the Americas 3 Prereq CES 101, 111 or 211 Migration of Asian populations across the Pacific, North and South America and the Caribbean.

313 [G] Asian Pacific American Literature 3 Asian American fiction, drama, poetry, and other arts, 1900 to present; impact of Asian/Pacific American culture and experience upon these works.

314 [M] Topics in Asian Pacific American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Trends, themes, major writers.


325 [I] Traveling Cultures: Tourism in Global Perspective 3 Social relations and cultural practices central to tourism with examples from around the world.

330 From Malcolm X to the Black Panthers 3 Prereq CES 101 or 201. Complex understanding of the history of black politics in the 1960's.

331 [G] African American Literature 3 Introduction to major issues and major works in the African American literary tradition.

332 [M] Topics in African American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Same as Engl 332.

335 [S] Black Freedom Struggle 3 Historic exploration of black resistance focusing on nationwide movement that developed following World War II.


337 [S,D] Black Social Psychology 3 Prereq CES 101 or 131. Approaches and perspectives in contemporary psychology that lead to a broader understanding of the social psychological functioning of African Americans.

338 [H,D] Cinematic Images of Blackness 3 Prereq CES 131 or 101. Critical perspectives on the history of cinematic images of blackness; traces experiences of blacks within Hollywood as actor or artist, subject or image.

340 Empire and Race 3 Prereq CES 244 or 301. Analysis of historical and contemporary manifestations of Empire and their effect on race and the international racialized division of labor.


357 Chicana/os and Popular Culture 3 Representation of Chicanas in US popular culture.


359 Chicana/o and Latina/o Politics 3 Character, role, and goals of Chicano/Latino politics; contemporary Chicano/Latino issues.

372 [S,D] Native American Women in Traditional and Contemporary Societies 3 Prereq one of Anth 101, 214, CES 101, 171, or W St 200. Exploration of roles and activities of women in Native American societies; how traditional gender roles have developed and changed.

373 [G,M] Native American Literature 3 Native American literature, by and about the original inhabitants, image and counter-image, with emphasis on the 20th century.

375 [K] North American Indian History, Precontact to Present 3 Same as Hist 308.

376 [K] America Before Columbus 3 Prereq Anth 101 or GenEd 110. Same as Anth 331.

377 [K] Native Peoples of North America 3 Same as Anth 320.

378 [S,D] Contemporary Native Peoples of the Americas 3 Prereq Anth 101 or CES 171. Same as Anth 327.

379 [H,D] Native Americans in Film 3 Critical examination of films and videos featuring American Indians; traces the history of the Indian as subject of films and as filmmaker.
380 [S,D] Immigration and Citizenship in the Global Economy 3 Examination of past and current notions of immigration and citizenship in North American, Asian, and European countries as defined by government officials, political organizations, community groups, and popular culture.

401 Seminar in Culture and Power 3 Complex power relations that develop among competing local, regional, national, and global cultures.

403 [T,D] Cultural Issues in Psychology 3 Prereq 3 hours cultural psychology; completion of one Tier I and three Tier II courses. Multidisciplinary analyses of the relationship between social-ecological and political contexts and individual and collective psychology.

404 [T,D] Stereotypes and The Media 3 Prereq completion of one Tier I and three Tier II courses. Same as Com 471.

405 [T] Cultural Criticism and Theory 3 Prereq completion of one Tier I and three Tier II courses. Major critiques and theories of colonialist and imperialist formations of culture.

406 Philosophy and Race 3 Prereq 3 hours in Phil or CES 201. Examination of race within western philosophy including work of philosophers of color and analysis of the category “race”.

407 Race, Gender and the Prison Industrial Complex 3 Prereq CES 131 or 201. Race, gender and nationality and how they affect the organization and maintenance of the prison industrial complex.

408 [T,D] Introduction to Critical Race Feminism 3 Same as W St 408.

411 [T,D] Asian Pacific American Women 3 Prereq CES or W St course; completion of one Tier I and three Tier II courses. Rec CES 101 or W St 200. Intersection of ethnicity, race, class, gender and sexual orientation in the lives of Asian Pacific American women.

413 Asian Pacific Americans and Popular Culture 3 Prereq CES 101 or 111. Examines the racial politics that have developed around the representation of Asian Pacific Americans in US popular culture.

421 [T] Intercultural Processes in Global Contexts 3 Prereq completion of one Tier I and three Tier II courses. Same as ComSt 421.

426 [T] Workers Across North America 3 Prereq completion of one Tier I and three Tier II courses. International interactions between workers and labor unions in Mexico, Canada and the US.

435 [T,D] African American Women in US Society 3 Prereq completion of one Tier I and three Tier II courses; CES 101, W St 200; rec CES 131. Critical terms and models for understanding the experiences of African American women in antebellum America to the present; an interdisciplinary forum concerned with the national experience of the African American woman experience.

436 Black Masculinities 3 Prereq CES 131 or W St 300. Historical, political and cultural constructions of images of black manhood and the effects on black male subjectivity.

440 [T,D] Social Justice and American Culture 3 Prereq completion of one Tier I and three Tier II courses. Social justice issues in relation to diverse American cultures in both an historical and contemporary context.

442 Nation, Ethnicity, and Modernity 3 Prereq CES 244 or 301. Relationship between modernity and nation-making in relation to dominant constructions of race and ethnicity and histories of colonialism.

444 [T] White Power Movements and Ideologies 3 Prereq completion of one Tier I and three Tier II courses. Critical assessment of white supremacist and nationalist movements and ideologies around the globe.

446 Racism and Anti-Racism in Global Context 3 Prereq CES 101 or 201. Theory and practice of anti-racism; history and scope; strategies to transform racist systems.

454 [T] La Chicana in US Society 3 Prereq junior standing, completion of one Tier I and three Tier II courses. Intersections of race, class, gender and sexual orientation in the experience of a marginalized group - Chicanas.

465 [T] Race, Science and Society 3 Prereq completion of one Tier I and three Tier II courses. Racial thinking in science tracing the impact of scientific racism on policy, popular thought and social movements.

470 [T] American Indian Politics 3 Prereq completion of one Tier I and three Tier II courses. Issues involving indigenous ownership of natural resources within the US.

475 [T,D] Indians of the Northwest 3 Prereq Anth 320, CES 171, 375, 377, or Hist 308; completion of one Tier I and three Tier II courses. History and ethnography of Native Americans of the Coast and Plateau; historic relationship with Europeans and Euro-Americans, and other Native Americans, Asian Americans, and Chicanas/os.

485 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

491 [M] Theories of Racism and Ethnic Conflicts 3 Prereq CES 101. Provides general knowledge of the history of racist ideas and the social, political, and cultural contexts underlying ethnic conflicts.

494 Advanced Topics in Ethnic Studies 3 May be repeated for credit; cumulative maximum 9 hours. Prereq course in CES. A reading and discussion course that explores special topics in ethnic studies.

495 Special Topics in Comparative Ethnic Studies 3 May be repeated for credit; cumulative maximum 6 hours. Prereq course in CES. Cross-cultural studies on Asian Pacific Americans, Blacks, Chicanas/os, and Native Americans.

498 Internship in Comparative Ethnic Studies V 1-3 Prereq junior standing, 6 hours of CES core course sequence, 6 hours in CES areas of emphasis. Internship component for CES majors and minors. S, F grading.

499 Directed Independent Study V 1-4 May be repeated for credit; cumulative maximum 100 hours. S, F grading.
bachelor’s degree within the normal period of four years. It should also be noted that courses numbered 300 or above at Washington State University and taken at other institutions during the freshman or sophomore years will not be accepted for major requirements.

**Preparation for Graduate Study**

Undergraduates who are pursuing their studies at other institutions or through other curricula at this institution and who contemplate graduate work in this program will do well to elect courses similar to those required in the above schedule of studies.

**Schedules of Studies**

**CRIMINAL JUSTICE DEGREE PROGRAM (120 HOURS)**

Students who major in criminal justice must complete the 15 hour criminal justice core (Crm J 101, 201, 330, 420 and 450; 6 hours in research methods and quantitative analysis (selected from an approved list); 6 hour in criminal justice institutions courses (Crm J 365, 370, 380, 385); 9 hours in criminal justice electives; 9 hours from specified political science courses; and 3 hours in specified College of Liberal Arts electives. Students must also pass a writing proficiency test.

**First Year**

**First Term**

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**Third Year**

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<td>Crm J Elective</td>
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<td>7</td>
<td>Electives</td>
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**Minors**

**Criminal Justice**

The criminal justice major requires 18 credits of course work in criminal justice, including Crm J 101, 201, 330, 420, and 450 [M]. Half of the courses must be taken at the 300-400 level and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students wishing to minor in criminal justice should contact the Criminal Justice Program for details.

**Description of Courses**

**CRIMINAL JUSTICE**

**Crm J**

101 Introduction to the Administration of Criminal Justice 3 Agencies and processes in the administration of criminal justice. Cooperative course taught jointly by WSU and UI (CJ 101).

201 Introduction to Criminological Theory 3 Prereq Crm J 101. Analysis of conceptions of crime and seriousness as determined by societal factors.


275 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

276 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

277 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

287 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

311 Research Methods for Criminal Justice 3 Prereq Crm J 101. Discussion of research methods appropriate for the study of crime and criminal justice policies and institutions.

**320 Criminal Law** 3 Substantive criminal law; principles, functions, and limits; basic crime categories, state and national legal research materials. Cooperative course taught jointly by WSU and UI (CJ 325).

**321 Quantitative Methods for Criminal Justice** 3 Prereq Crm J 311. Critical discussion of skills and methods needed for the analysis of implementation and impact of criminal justice policies.


**370 Introduction to Policing in America** 3 Prereq Crm J 101. Development, organization, policies, and performance of the police. Cooperative course taught by WSU, open to UI students (CJ 370).

**380 Criminal Courts in America** 3 Prereq Crm J 101. Structure and process of the prosecution and adjudication of individuals charged with crimes in the criminal court system.

**381 Crime and Justice in the Movies** 3 (2-2) Prereq Crm J 101 or Pol S 101. Mass media as both refector and shaper of public attitudes and opinions about crime, criminals, law, order, and justice; using films.

**385 Institutional Corrections** 3 Prereq Crm J 101. Ideologies of punishment and correction, intermediary sanctioning and reintegration policies in the criminal justice system.

**400 [M] Issues in the Administration of Criminal Justice** 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Crm J 101. Selected topics in criminal justice. Cooperative course taught jointly by WSU and UI (CJ 401).

**403 [T] Violence Toward Women** 3 Prereq Crm J 101 or W St 200; completion of one Tier I and three Tier II courses. Violence toward women and its relationship to broader social issues such as sexism and social control.


**420 [M] Criminal Procedure** 3 Principal court decisions concerning standards of conduct and rights in the criminal process. Cooperative course taught by WSU, open to UI students (CJ 420).

**424 Community Corrections** 3 Prereq Crm J 150. Theory practice and human impact of treating criminal offenders in the community. Cooperative course taught by WSU, open to UI students (CJ 424).

**426 Victimization and Public Policy** 3 Prereq Crm J 101. Examination of victimization; policy responses to victims; victim’s rights.

428 Drug and Alcohol Use and Abuse 3 Prereq Crm J 101. Drug use, impact on behavior and drug control policies.


480 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

481 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

482 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

490 Criminal Justice Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Crm J 101. On/off-campus internship in criminal justice institutions (police, FBI, jails, law firms, etc.); written assignments and readings will be required. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

503 Research Methods in Political Science and Criminal Justice 3 Same as Pol S 503. Cooperative course taught by WSU, open to UI students (POLSC531).

504 Quantitative Methods in Political Science and Criminal Justice 3 Prereq introductory statistics course. Same as Pol S 504.

505 Comparative Criminal Justice 3 Comparative study of crime laws and criminal justice systems in selected foreign countries. Cooperative course taught by WSU, open to UI students (CJ 505).

530 Criminal Justice: Process and Institutions 3 Processes of criminal justice in the context of the social, political, and economic environments. Cooperative course taught by WSU, open to UI students (CJ 530).

540 Seminar in Evaluation Research 3 Interrelationship of ideology, data, policy development, and policy implementation in public policy analysis. Cooperative course taught by WSU, open to UI students (CJ 540).

541 Seminar in Corrections 3 Prereq Stat course. Current issues related to the control, management, and sanctioning of criminal offenders. Cooperative course taught by WSU, open to UI students (CJ 541).

555 Seminar in Criminological Theory 3 Prereq graduate standing. Individual, situational and ecological correlates of criminal behavior; data sources and empirical research.

560 Prosecution and Adjudication 3 Prereq graduate standing. The function of courts and the behavior of prosecutors, defense attorneys and judges within the criminal justice system.

570 The Police and Society 3 Community and selected social institutional factors as related to their influence on police systems. Cooperative course taught by WSU, open to UI students (CJ 570).

572 Seminar in Comparative Policing 3 Study of the history, organization, and policies of policing systems in selected countries and of transnational policing. Cooperative course taught by WSU, open to UI students (CJ 572).

580 Gender and Justice 3 Criminal justice system's treatment of women offenders, victims, and professionals.

591 Seminar in the Administration of Criminal Justice 3 May be repeated for credit; cumulative maximum 6 hours. Current issues, problems, and critical concerns within the field of administration of criminal justice. Cooperative course taught by WSU, open to UI students (CJ 591).

592 Proseminar in Administration, Justice, and Applied Policy Studies 3 May be repeated for credit; cumulative maximum 6 hours. Same as Pol S 542.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Department of Crop and Soil Sciences

www.css.wsu.edu
Johnson Hall 291D
509-335-3475


The department offers programs of study leading to the degrees of Bachelor of Science in Integrated Plant Sciences (pending final state approval), Bachelor of Science in Agricultural and Food Systems, Master of Science in Crop Science, Master of Science in Soil Science, Doctor of Philosophy (Crop Science), and Doctor of Philosophy (Soil Science). The science of plant life from molecule to market is the focus of the new Integrated Plant Sciences (IPS) Degree program. Delivered collaboratively by departments within the College of Agricultural, Human, and Natural Resource Sciences, the IPS degree provides students with an exciting depth and breadth of knowledge that crosses a variety of plant science disciplines, including crop and soil sciences, horticulture and landscape architecture, entomology, plant pathology, and food science. Students pursuing a Bachelor of Science degree in Integrated Plant Sciences may choose among seven majors highly sought by employers in the state and nationally: Agricultural Biotechnology, Field Crop Management, Fruit and Vegetable Management, Nursery and Greenhouse Management, Landscape Design and Implementation, Turfgrass Management, or Viticulture and Enology. More information regarding IPS is available under the Integrated Plant Sciences catalog section and http://ips.wsu.edu.

The Department is also involved with the College of Agricultural, Urban and Natural Resources Sciences interdisciplinary Agricultural and Food Systems Degree Program. The Agricultural and Food Systems (AFS) program is an exciting, college-wide, interdisciplinary program that offers a Bachelor of Science degree with five majors and a Master of Science degree. Majors available through AFS include Agricultural Business and Technology Systems, Agricultural Education, Organic Agriculture Systems, and Agriculture and Food Security. More information regarding AFS is available under the Agricultural and Food Systems catalog section and http://afs.wsu.edu.

Students are encouraged to participate as part-time employees in research programs and seek professional internships for applied learning experiences. Departmental and collegial scholarships are available based on ability, need, and interest. Students gain professional and social contacts with the faculty and other students through student club activities.

Field Crop Management

The Integrated Plant Sciences degree, Field Crop Management major is ideal for students interested in agronomy, crop production, and plant, soil, and pest management. Crop scientists (or agronomists) are involved in improving food, feed, and fiber production. Graduates qualify for careers in agribusiness, corporate and technical farm management, professional consulting, research, and sales positions.

Agricultural Biotechnology

The Integrated Plant Sciences degree, Agricultural Biotechnology major is a designed for students interested in careers such as laboratory or research technicians in plant biotechnology, breeding, genetics, entomology, plant pathology, molecular biology, or physiology, as well as for students...
preparing for advanced degrees in these areas. The program emphasizes the development and application of new technology to ensure a safe and abundant food and fiber supply. Students may find employment in industry, government, or university labs.

Turfgrass Management

The Integrated Plant Sciences degree, Turfgrass Management major is geared toward students interested in pursuing careers as golf course managers, athletic field managers, or personnel managers in those venues. Students will take courses in turf management, turf production, plant pathology, entomology, soil fertility, and plant breeding to learn how to maintain healthy turfgrass systems. Additionally, students gain hands-on experience at the Palouse Ridge Golf Course, a new 18-hole championship golfing facility at the Pullman campus.

Undergraduate Transfer Students

Students planning to transfer to Washington State University should take courses which meet general university and Integrated Plant Sciences or Agricultural and Food Systems core requirements.

Preparation for Graduate Studies in Crop and Soil Sciences

Preparation for graduate study requires the selection of courses that will benefit later work toward a Master of Science or a Doctor of Philosophy degree. Normally, preparation for an advanced degree in crop science includes course work outlined under one of the majors with a strong emphasis in plant sciences, chemistry, computer science, mathematics, and statistics. Preparation for an advanced degree in soil science includes course work outlined under one of the majors plus completion of additional elective courses in soil science as well as Math 171, Phys 102 or 202, and, if not specified in the major, Chem 345.

Minors

Crop Science

A minor in crop science may be obtained by students from this and other departments. A minimum of 16 credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. See crop science advisor.

Soil Science

A minor in soil science may be obtained by students from this and other departments. Sixteen semester hours in soils is required, at least 9 of which must be in 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. See soil science advisor.

Description of Courses

CROP SCIENCE

CropS

102 Cultivated Plants 3 Production strategies, innovative research, utilization and processing techniques of Washington’s major agronomic and horticultural crops.

104 Introduction of Turfgrass Science and Industry 1 (0-3) Introduction to turfgrass science and industry including golf, sports, lawn, sod and related facilities. Field trip required.

202 Crop Growth and Development 4 (3-3) Same as Hort 202.

301 [M] Turfgrass Management 3 (2-3) Prereq one semester of Biology or Horticulture. Principles of establishment and management of turf for lawns, parks, and golf courses. Field trip required. Cooperative course taught by WSU, open to UI students (PLSC 301).

302 Forage Crops 3 (2-3) Prereq Biol 106 or 120. Adaptation, production, and utilization of forage crops. Field trip required.

305 Ecology and Management of Weeds 3 (2-3) Prereq Biol 106, 120, (currently requires CropS 101, 201, or Hort 101 or 201 now both courses are listed as 102, 202). Weed ecology, management in crop and non-crop systems; weed growth/development, identification, weed control (chemical, mechanical, biological), and environmental issues

317 Golf Course Management 1 Prereq CropS 301. Specific management practices for golf courses in the Pacific Northwest.

318 Athletic Field Management 1 Current athletic field management practices (BMPs) for turfgrass students and turfgrass industry professionals.

360 [I] World Agricultural Systems 3 Prereq two semesters physical or biological sciences. Study of agro-environmental characteristics of world agriculture; historical and contemporary features of world food production. Cooperative course taught by WSU, open to UI students (PLSC 360).

401 Turfgrass Science 3 Prereq CropS 301. Integration of the principles of turfgrass science into turf management for environmental stewardship of turf systems.

403 Advanced Cropping Systems 3 Prereq CropS 201; Pl P 429 or c//; or graduate standing. Undergraduate-level counterpart of CropS 403; additional requirements. Credit not granted for both CropS 403 and 503. Cooperative course taught by WSU, open to UI students (PLSC 512).

504 Plant Transmission Genetics 3 Prereq MBioS 301. Transmission of genes across generations; detailed study of the basic laws of genetics to predict and describe inheritance. Cooperative course taught by WSU, open to UI students (PLSC 507).

505 Advanced Classical and Molecular Breeding 3 Prereq Biol 320 or MBioS 303; CropS 445. Characterization and principles of improving crop quality and adaptation traits with emphasis on molecular breeding strategies. Cooperative course taught by WSU, open to UI students (PLSC 515).

510 Seminar 1 May be repeated for credit. Literature review; preparation and presentation of reports in crop science.

511 Research Proposal and Development 2 Develop research proposal and give oral presentation to demonstrate ability to employ strategy and procedures to address objectives. S, F grading.

512 Topics in Crop Science V 1-2 May be repeated for credit. Concepts of plant breeding, seed physiology, and technology; crop physiology and management.

513 Biology of Weeds 3 Prereq graduate standing. Biology, ecology, and physiology of weeds; crop and weed interactions and interference.

520 Plant Cytogenetic Techniques 3 (1-6) Prereq MBioS 301. Plant genes and chromosomes. Cooperative course taught by UI, open to WSU students (PLSC 520).

539 Herbicide Fate and Mode of Action 4 Prereq CropS 305, Biol 320, MBioS 303. Fate of herbicides in plants, soil, and water; physiological and biochemical mode of herbicide action; mechanisms of herbicide resistance. Cooperative course taught jointly by WSU and UI (PLSC 539).
554 Chromosome Structure and Function
3 Prereq MBioS 301 or equivalent. Structural and functional organization of eukaryotic chromosomes. Cooperative course taught by WSU, open to UI students (PLSC 554).

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

SOIL SCIENCE

Soils

101 Organic Gardening and Farming 3 Principles and production practices of organic gardening and farming. Field trip required. Cooperative course taught by WSU, open to UI students (SOIL 101).

201 [B] Soil: A Living System 3 Biological, chemical, and physical properties of soils; fundamentals of soil ecology; soil-water-plant relations, soil fertility, and soil genesis.

301 [M] Ecological Soil Management 3 Prereq Soils 201. Soil and water conservation and management; land classification and reclamation; soils and environmental quality; sustainable agroecosystems.

360 [I] World Agricultural Systems 3 Prereq two semesters physical or biological sciences. Same as CropS 360.

368 Introduction to ArcGIS 3 (1-6) Prereq one course in biology, geology, or soils. Introduction to geographic information systems applied to landscape data; geographic coordinate systems and projections, make maps and use geodatabases.

374 Remote Sensing and Airphoto Interpretation 3 (2-3) Physical basis of remote sensing, fundamentals of aerial photography and image analysis applied to agriculture, forestry, wildland management problems.

412 Seminar 1 May be repeated for credit. Same as CropS 412.

413 Soil Physics 3 (2-3) Prereq Math 107; Geol 101, 102 or Soils 201. Characterization of soil properties including water content and potential and hydraulic conductivity; modeling water, solute transport, erosion and contamination of groundwater.

414 Environmental Biophysics 2 Prereq Math 107. Physical environment of living organisms (temperature, humidity, radiation, wind); heat and mass exchange and balance in plant and animal systems. Credit not granted for both Soils 414 and 514. Cooperative course taught by WSU, open to UI students (BOT 435).

415 Environmental Biophysics Laboratory 1 (0-3) Prereq Soils 414 or c//. Experimental methods and procedures in environmental measurements; temperature, wind, radiation, and humidity measurements in biological environments. Credit not granted for both Soils 415 and 515. Cooperative course taught by WSU, open to UI students (BOT 533).

421 Environmental Soil Chemistry 3 Prereq two semesters of Chem; Soils 201. Soil constituents; soil solutions: mineral equilibria; absorption reactions; acid/base reactions; oxidation-reduction; soil contaminants.

431 Soil Microbiology and Biochemistry 3 (2-3) Prereq MBioS 101 or 201; Soils 201. Biology and significance of organisms inhabiting soil; roles in nutrient cycling, ecosystem function, agriculture and bioremediation. Credit not granted for both Soils 431 and 531.

441 Soil Fertility 3 Prereq Soils 201. Nutrient management impacts on crop productivity, soil and water quality; mineral requirements; soil testing; plant analysis; inorganic and organic fertilizers.


468 ArcGIS and Geospatial Analysis 4 (2-6) Prereq Biol 120, Geol 101 or Soils 201. Geographic information systems applied to analysis of landscape data; maps, geographic coordinate systems and projections, geodatabases. Cooperative course taught by WSU, open to UI students (SOIL 468).

480 Practicum in Organic Agriculture V 1-6 May be repeated for credit; cumulative maximum 12 hours. Prereq by permission. Applied principles and practices of organic agriculture; immersion and participation in all required farming/gardening activities.

495 Research Experience V 1-4 May be repeated for credit; cumulative maximum 12 hours. Same as CropS 495.

497 Special Topics: Study Abroad V 1-15 May be repeated for credit. S, F grading.

498 Professional Internship V V 1-6 May be repeated for credit; cumulative maximum 9 hours. Planned and supervised professional work experience. S, F grading.

499 Special Problems V V 1-4 May be repeated for credit. S, F grading.

501 Seminar 1 May be repeated for credit. Same as CropS 501.

502 Advanced Topics in Soils V 1-3 May be repeated for credit; cumulative maximum 6 hours. Interpretation, presentation, and discussion of current research on soils, uses, and management.

503 Advanced Soil Analysis V 1-3 May be repeated for credit; cumulative maximum 6 hours. By interview only. Soil research techniques; application of modern instrumentation to soil analysis.

504 Research Presentation Techniques 1 Preparation of visual aids and oral presentation of research findings. S, F grading.

505 Teaching Practicum 1 May be repeated for credit; cumulative maximum 4 hours. Supervised experience in classroom teaching; classroom preparation for lectures, discussions, laboratories; preparation and grading of exams. S, F grading.

511 Research Proposal and Development 2 Same as CropS 511. S, F grading.

514 Environmental Biophysics 2 Prereq Math 107. Graduate-level counterpart of Soils 414; additional requirements. Cooperative course taught by WSU, open to UI students (BOT 435).

515 Environmental Biophysics Laboratory 1 (0-3) Prereq Soils 414 or c//. Graduate-level counterpart of Soils 415; additional requirements. Credit not granted for both Soils 415 and 515.

525 Landscape Modeling 3 (1-6) Same as L A 525.

526 Soil Mineralogy 2 (1-3) Prereq Soils 421, 451. Distribution and significance of soils minerals; weathering and reactivity of mineral structures; techniques of mineral identification including x-ray diffraction, chemical dissolution, optical and electron microscopy. Cooperative course taught by UI, open to WSU students (SOILSS26).

533 Advanced Vadose Zone Hydrology 2 Prereq Soils 413. Methods and models for water, heat, vapor and solute transport in the vadose zone; transfer functions to describe solute transport; non-linear parameter estimation. Cooperative course taught by WSU, open to UI students (SOILSS33).

537 Soil Biochemistry 3 Prereq MBioS 303; Micro 201; Soils 421. Enzyme activity; microbial activity/biomass; rhizosphere; carbon, nitrogen phosphorus, sulfur, and micronutrient cycles. Cooperative course taught by UI, open to WSU students (SOILSS37).

541 Soil-Plant-Microbial Interactions 3 Prereq Soils 421, 431, or 441. Soil-plant-microbial relationships to plant nutrition, plant health, and environmental cleanup; rhizosphere chemistry and microbial ecology. Cooperative course taught by WSU, open to UI students (SOILSS41).

547 Soil Fertility Management 3 Prereq Soils 441. Philosophy of fertilizer recommendations based on soil and plant tissue testing; principles of fertilizer manufacture, placement and use. Cooperative course taught by UI, open to WSU students (SOILSS47).

557 Advanced Soil Genesis and Classification 3 (2-3) Prereq Soils 451. Genesis, classification and interpretation of soils, including field investigation emphasizing existing interrelationships. Cooperative course taught by UI, open to WSU students (SOILSS57).

568 ArcGIS and Geospatial Analysis 4 (2-6) Graduate-level counterpart of Soils 486; additional requirements. Credit not granted for both Soils 468 and 568.

574 Remote Sensing and Geospatial Analysis 3 (1-4) Prereq Soils 374; 476 or equivalent. Digital image processing theory and geographic information systems applied to landscape analysis. Cooperative course taught jointly by WSU and UI (FOR 572).
Digital Technology and Culture

Professors, B. Condon; Associate Professors, P. Ericsson, D. Grigar; Assistant Professors, K. Arola, J. Farmann; Instructor, R. Goodrich; Coordinators: P. Ericsson (Pullman), J. Farmann (Tri-Cities), D. Grigar (Vancouver).

Digital technology and culture is an interdisciplinary degree program that combines studies in language and culture, rhetoric, fine arts, cognition and learning, language and society, design and visual communication, and information science to prepare students for careers in a wide range of fields. In completing this degree, students:

- Acquire a historically grounded understanding of the role of digital technology as media for cultural transmission.
- Learn to develop persuasive, culturally appropriate content for digital environments.
- Develop a sophisticated understanding of hypertext and multimedia rhetorics.
- Work individually and in teams to design, compose, and complete digital products.
- Gain insight into how digital environments transform the exchange of ideas and how information is used.
- Master the tools of electronic research and the skills of invention, analysis, synthesis, organization, and delivery.

The DTC major requires 39 credits composed of a 24-credit core, a concentration of 12 additional credits, and an internship of at least 3 credits.

The DTC core includes five courses that introduce multimedia rhetorics, research and information technology, the relationship between language and technology, art and technology, and digital diversity. The core also includes interdisciplinary choices in Anthropology, Computer Science, English, Fine Arts, and Sociology. The 12-credit DTC concentration is designed to meet individual interests and strengths. Concentrations are available in Technology and Culture, Media Authoring, and Informatics.

Schedules of Studies

DIGITAL TECHNOLOGY AND CULTURE (120 HOURS)

DTC Certification Requirements, Pullman Campus

Certification will take place each semester approximately one month before registration for the following semester begins. To apply for certification a student must have the following: 24 hours; a minimum 2.2 GPA; one credit of ENGL 300 with evidence of projects or sufficient evidence of facility in web authoring, animation, video production, and/or graphic design; and a written statement of purpose (approximately 500-750 words) explaining how the DTC major supports the student's career goals. Certification applications will be reviewed by a committee that includes the DTC Coordinator, one DTC faculty member, the Director of Undergraduates Studies, and one DTC instructor or a graduate student teaching DTC courses. Students will be placed in rank order and the top students will be certified based on how many spots are available. Transfer students with 55 or more hours should complete the certification requirements within two semesters. All students should certify before earning 90 hours.

First Year

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<tr>
<td>Tier III Course [T]</td>
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Electives 12

1 Prerequisite to F A 331.
2 Consult with an advisor for a list of approved courses and prerequisites.

Minors

Digital Technology and Culture

A student may certify in a DTC minor after the completion of 60 semester hours. A minimum of 18 semester hours of approved, upper-division is required for the minor from the following: DTC/Engl 355 and 375, F A 331 and three from Anth 350, AmSt/Engl./DTC 475, DTC/Engl 356, 478, Engl 301, 336, 402, 405, F A 332, 363, 434, Soc 373 or 430. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

DIGITAL TECHNOLOGY AND CULTURE

DTC

335 Digital Animation: Story, Narration and Production 3 (2-2) 3-D digital animation for creative and professional presentations using Maya software, art skills, story-telling and team problem-solving techniques.

336 [H] Composition and Design 3 Prereq junior standing. Design practices and processes for composing for a multimedia environment including color, pattern and shape.

338 Special Topics in Digital Technology and Culture 3 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing. Major trends or artists in digital technology and culture.

354 Digital Storytelling 3 Nonlinear, multi-linear, and interactive narrative using elements of creative writing such as character, dialog, setting, plot and image.


356 Electronic Research and the Rhetoric of Information 3 Social and cultural role of information; research with electronic sources; production, validation, storage, retrieval, evaluation, use, impact of electronic information.

375 [H,M] Language, Texts and Technology 3 Prereq junior standing. Relationship between technology and communication; writing practices from a historical point of view.

475 [T,D] Digital Diversity 3 Prereq junior standing; completion of one Tier I and three Tier II courses. Same as Am St 475.
and ethics. The interdisciplinary study of earth and environmental science, involving, in addition, biological and social science, is concerned with the study of natural and modified environments and their interactions with biological (including human) systems with an emphasis on the comprehensive understanding of the environmental/ecological context, assessment of beneficial and disruptive impacts, and methodologies to analyze, interrelate, and resolve these complex systems. The regional planning curriculum provides an understanding of basic issues, methods, and processes in rural, land use, planning, and environmental planning with comprehensive studies of natural and human systems. Students of both fields acquire the holistic and interdisciplinary perspectives and ecological understanding necessary to prepare them for a variety of roles in the study, planning, and management of resources and the environment.

All graduating students in environmental science will: 1) have a well-rounded, general science background in the physical and life sciences, with solid training in the social sciences; 2) have developed an in-depth, interdisciplinary expertise in an area of concentration within the field (these would include but not be limited to environmental assessment, hazardous waste management, ecosystem science and management, environmental planning, or systems analysis); 3) have developed an interdisciplinary cognizance of the field and practice of environmental science through the study of public policy and planning; 4) have developed effective oral and written communication skills; and 5) have developed skills in problem-solving and management.

The program offers courses of study leading to the degrees of Bachelor of Science in Environmental Science, Master of Science in Environmental Science, Master of Regional Planning, and Doctor of Philosophy (Environmental and Natural Resource Sciences). The Masters and Bachelors degrees in environmental science are offered at WSU Tri-Cities. A Bachelor of Science in Environmental Science is offered at WSU Vancouver. Because of the diversity of these fields, the course of study for each student is flexibly designed in a unique, multi-optional interdisciplinary context.

Environmental Science and Regional Planning

The program coordinates two closely related fields of study: environmental science and regional planning. Environmental science is concerned with the study of natural and modified environments and their interactions with biological (including human) systems with an emphasis on the comprehensive understanding of the environmental/ecological context, assessment of beneficial and disruptive impacts, and methodologies to analyze, interrelate, and resolve these complex systems. The regional planning curriculum provides an understanding of basic issues, methods, and processes in rural, land use, and environmental planning with comprehensive studies of natural and human systems. Students of both fields acquire the holistic and interdisciplinary perspectives and ecological understanding necessary to prepare them for a variety of roles in the study, planning, and management of resources and the environment.

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Environmental science majors can specialize in agricultural ecology, biological science, human or cultural ecology, environmental education, environmental quality control, hazardous waste management, natural resource management, physical science, systems and environmental land-use planning. Regional planning majors can specialize in a variety of areas including land-use planning, ecological planning, geographic assessment and planning, and environmental policy and planning. Environmental science majors specializing in environmental education may work toward senior high school teaching certificates with endorsements for the major and minors in physical and biological science.

The program is closely coordinated with the Environmental Research Center and other university research units. It is administratively supported by the Colleges of Agricultural, Human and Natural Resource Sciences, Engineering and Architecture, Sciences and Liberal Arts. The participating faculty resource list for the program includes some 65 members representing many disciplines.

Preparation for Graduate Study

Before applying for admission to the graduate programs, a student should have completed an undergraduate curriculum that included examination of a physical, biological, or social science system in sufficient depth to serve as background for advanced investigation of one or more of these systems in an ecological context and a minimum GPA of 3.0. For graduate study in environmental science, previous coursework in sociology or cultural anthropology, conservation of natural resources, biological science, chemistry or physics, calculus, and ecology is required. Students interested in assistantships should provide Graduate Record Examination scores. General requirements for the Master of Science degree in Environmental Science include 300-400-level or graduate-level courses in ecology; mathematics, statistics, or computer science; applied physical, biological, or social science; environmental impact assessment; graduate seminar; and special topics in environmental science. An option (an area of specialization) with a minimum of 10 credit hours of courses; and a thesis or special project. A minimum of 32 hours of graduate credit is required. The program has been successful in placing MS graduates in a variety of positions with federal, state, and local agencies, industries, and academia, as environmental and resource management specialists. Students entering the Master of Regional Planning (MRP) program are expected to have previous course work in economics, sociology or cultural anthropology, natural science, quantitative skills such as mathematics, and communication skills. Applicants are expected to have a minimum GPA of 3.0 in their undergraduate field and to present evidence of commitment to the field of planning. Prior work experience in planning or related fields is considered in evaluating applicants. Students are required to complete no fewer than 35 graduate credit hours, including a minimum of 9 hours of core planning courses, and 6 hours of thesis or 4 hours of project credit. MRP candidates are expected to develop a specialization through course work in an allied discipline, but the philosophy of the program is oriented toward preparing graduates for practice in public agencies, tribal agencies, or as consultants in the private sector.

Students entering the PhD program should have a GPA of at least 3.0, 10 semester hours of basic biological and/or physical sciences, and a faculty member to act as advisor. A total of 72 hours is required beyond the bachelor's degree, 34 of which must be in graded course work.

Geology

Geology is the study of the earth, its composition, structure, origin and evolution. Virtually every aspect of modern life is in some way dependent on the science of geology. For example it is the geologist's job to discover new reserves of energy and raw materials, evaluate groundwater quality and quantity for drinking water supply, assess geologic hazards in land-use planning and unravel the mechanisms of continental drift and biological evolution.

Both general and advanced training is offered in most specializations in geology. The lower-division courses are designed to provide a strong foundation for those who major in geology as well as a stimulating introduction to earth science for the non-major. The 300-400-level courses provide...
training for professional geological work as well as preparation for postgraduate study.

The department has modern teaching facilities and special equipment, including an electron microprobe, X-ray diffraction and fluorescence instrumentation, inductively coupled plasma mass spectrometer, isotope extraction lines and isotope mass spectrometer, gas chromatographs and carbon analyzer, drilling rig, groundwater field demonstration site, transmitted and reflected light microscopes. There are active research programs in igneous petrology, geochemistry and mineralogy, structural geology and tectonics, groundwater and contaminant hydrology, sedimentology and stratigraphy.

The department offers courses leading to the degrees of Bachelor of Science in Geology, Master of Science in Geology; and Doctor of Philosophy (Geology).

Geology majors are expected to graduate with a complete understanding of earth, including its constituent materials, the environments and processes through which these materials form and interact, and its physical, chemical, and biological evolution. The students are expected to be capable of examining and interpreting relations among geologic materials in the field. Problem solving and critical thinking will be applied in the classroom, laboratory, and field, and effective communication skills will be expected. The students will demonstrate quantitative understanding of earth materials and processes.

Honors Students
A senior thesis or enrollment in Geol 499 is required

Preparation for Graduate Study
As preparation for work toward an advanced degree in geology, a student should have completed, or plan to take without graduate credit, the following or their equivalents: Geol 102, 210, 308, 320, 340, 350, 355, 356, 362; one year of general physics; one year of general inorganic chemistry; mathematics through one semester of calculus.

Schedules of Studies

ENVIRONMENTAL SCIENCE DEGREE PROGRAM (120 HOURS)

This course of study for the bachelor's degree is organized around the requirements listed below. A sequence will be designed by each student and the major advisor to provide an individualized area of specialization. The program has identified seven optional areas of specialization: agricultural ecology and soils, biological science, hazardous waste management, environmental education, air and water quality, natural resources management, and environmental analysis. (Fact sheets on each option are available from the ES/RP Program Office.) Students may also, in consultation with their advisor, develop an area of specialization outside of those identified. Eighteen hours are required in the chosen area of specialization (normally in not more than two departments). Each major must also complete 8 hours in a modern foreign language unless he/she has completed two years of such language in high school (or one year in high school and 4 hours in the same language at WSU). The program provides a strong foundation for advanced study in many professional and basic research fields.

Requirements for certification into the Bachelor of Science Program in Environmental Science:
1. Completion of 30 semester hours of course work with a gpa of 2.00, and
2. Completion of the courses listed in the catalog in the freshman year of the environmental science curriculum with a grade of C- or better. (Courses not required to fulfill university requirements for graduation may be waived for certification.)

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First Term Hours | Arts & Humanities [H,G] or Social Sciences [S,K] (GER) |
| Third Term Hours | EconS 102 [S] (GER) |
| Third Term Hours | Geol 340 [M] |

1. Math 107 or concurrent enrollment is the prerequisite for Chem 105 and Math 140/171.
2. An alternative is Engl 402 [W] which has a prerequisite of junior standing.
3. The remaining GERs should include paired introductory and 300-400-level courses in economics, agricultural economics, and either sociology or cultural anthropology. Consult advisor.
4. Select one from Pol S 430, NATRS 438, or ES/RP 335.

GEOLOGY DEGREE PROGRAM (120 HOURS)

A 2.0 minimum gpa in the major is required.

First Year

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First Term Hours | Arts & Humanities [H,G] or Social Sciences [S,K] (GER) |
| Third Term Hours | EconS 102 [S] (GER) |
| Third Term Hours | Geol 340 [M] |

1. Math 107 or concurrent enrollment is the prerequisite for Chem 105 and Math 140/171.
2. An alternative is Engl 402 [W] which has a prerequisite of junior standing.
3. The remaining GERs should include paired introductory and 300-400-level courses in economics, agricultural economics, and either sociology or cultural anthropology. Consult advisor.
4. Select one from Pol S 430, NATRS 438, or ES/RP 335.
Geology Electives 6
Elective 3

Second Term Hours
Arts & Humanities [H,G], Intercultural Studies [J,G,K], or Social Sciences [S,K] (GER) 3
Foreign Language, if necessary 4
Geology Elective 3
Tier III Course (GER) 3

1 B or better required; if less than a B, Engl 402 is required.
2 C or better required.

Minors

Environmental Science
A minor in environmental science requires 18 hours, including ES/RP 101, 335, 444, and elective courses to be chosen in consultation with an ES/RP advisor. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Geology
A student with 90 semester hours may certify a minor. A minor requires a minimum of 16 semester hours of letter-graded geology coursework, 9 hours of which must be in 300-400-level course work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A minimum 2.0 gpa in geology minor course work is required.

Description of Courses

ENVIRONMENTAL SCIENCE & REGIONAL PLANNING

ES/RP
174 Introduction to Meteorology and the Atmospheric Environment 3 Same as C E 174.
285 Climate Change: Planning for a Sustainable Environment 3 Prereq ES/RP 101. Ideas and information necessary to integrate environmental viability and sustainable development with other concerns of environmental planning.
301 Forest and Range Plant Resources I 3 (2-3) Prereq NATRS 300 or c/. Same as NATRS 301.
310 Modeling the Environment 4 (3-3) Construction and testing of computer simulation models of environmental systems. Cooperative course taught by WSU, open to UI students (ENVS 210).
311 Natural Resource Economics 3 Rec EconS 101. Same as EconS 330.

385 GIS Primer 3 (2-2) Introduction to basic concepts and applications of geographic information systems (GIS), lab exercises on PC-based GIS packages. Cooperative course taught by UI, open to WSU students (GEOG 385).
403 Environmental Geology 3 Prereq Geol 101 or 102. Same as Geol 403.

406 Introduction to Radiological Science 2 Prereq one course each in biology, calculus, chemistry, and physics. Fundamentals of atomic physics; interactions of radiation with matter; radiation dosimetry and biology, radiocology and radiological health protection.
411 [M] Limnology and Aquatic Ecosystem Management 3 (2-3) Prereq Biol 102 or 120; Chem 101. Same as Natrs 411.
412 Natural Resource and Environmental Policy and Law 3 Prereq junior standing or permission of instructor. Same as NATRS 438.
414 Environmental Biophysics 2 Prereq Math 107. Same as Soils 414. Cooperative course taught by WSU, open to UI students (BIOL 415).
415 Environmental Biophysics Laboratory I 1 (0-3) Prereq Soils 414 or c/. Same as Soils 415. Cooperative course taught by WSU, open to UI students (BIOL 436).
416 Radiation Biology 4 (3-3) Prereq introductory radiological physics, or one course each in biology and radiological physics; Rec ES/RP 406. Effects of ionizing radiation at the molecular, cellular, organ and organism level. Credit not granted for both ES/RP 416 and 516.
420 Field and Laboratory Techniques in Environmental Science 2 (1-3) Prereq Biol 372; Chem 105. Fundamentals and hands-on experience on the use of field and laboratory techniques and instruments utilized in environmental science. Field trips required.
425 Economic Analysis of Environmental Policies 3 Prereq Ag Ec 201 or Econ 101. Same as EconS 431.
435 Resolving Environmental Conflicts 4 (3-3) Prereq junior standing, two social science courses. Same as CRS 435. Credit not granted for both ES/RP 435 and 535.
445 Hazardous Waste Management 3 Environmental, technical, and political aspects of hazardous waste management; evaluative methods, risk assessment, and current management requirements. Credit not granted for both ES/RP 445 and 545. (EnvS 445) Cooperative course taught by WSU, open to UI students (EnvS 445).
466 Environmental Psychology 3 Prereq Psych 105. Same as Psych 466.

Earth and Environmental Sciences

380 Advanced Resource Economics 3 Prereq Math 201, 202. Same as Ag Ec 480.
481 Economics of Environmental Issues 3 Prereq Econ 101; Rec Econ 301. Same as Econ 481.
482 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.
490 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.
491 Senior Seminar 1 Prereq senior in environmental science and regional planning.
492 Special Topics V 1-3 May be repeated for credit; cumulative maximum 3 hours.
495 Undergraduate Internship V 1-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Practical experience in appropriate agencies; for career students in environmental science.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
504 Ecosystem Management 3 Analysis of ecosystem processes; dual emphasis on ecological principles and development of methods and concepts to evaluate policies for management.
514 Environmental Biophysics 2 Prereq Math 107. Same as Soils 514. Graduate-level counterpart of ES/RP 414; additional requirements. Credit not granted for both ES/RP 414 and 514. Cooperative course taught by WSU, open to UI students (BOT 532).
516 Radiation Biology 4 (3-3) Prereq introductory radiological physics, or one course each in biology and radiological physics; Rec ES/RP 406. Graduate-level counterpart of ES/RP 416; additional requirements. Credit not granted for both ES/RP 416 and 516.
519 International Development and Human Resources 3 Same as Anth 519.
524 Environmental Health Assessment 2 Prereq one course each in biology, calculus, chemistry, general ecology and physics. Environmental transport, fate and effects of radioactive and hazardous materials.
532 Applied Environmental Toxicology 3 Prereq ES/RP 531 or P/T 505. Overview of the field of environmental toxicology; interactions of xenobiotics with natural systems.
535 Resolving Environmental Conflicts 4 (3-3) Prereq graduate standing, two social science courses. Same as CRS 535. Graduate-level counterpart of ES/RP 435; additional requirements. Credit not granted for both ES/RP 435 and 535.
544 Environmental Assessment 4 Rec Biol 372. Graduate-level counterpart of ES/RP 444; additional requirements. Credit not granted for both ES/RP 444 and 544. Cooperative course taught by WSU, open to UI students (ENSG 544).

545 Hazardous Waste Management 3 Graduate-level counterpart of ES/RP 445; additional requirements. Credit not granted for both ES/RP 445 and 545. (Envs 545) Cooperative course taught by WSU, open to UI students (ENVS 545).

548 Environmental Law 3 By interview only. Environmental planning and protection, regulation of air and water pollution, waste disposal, use of pesticides and other toxic chemicals, and remedies for environmental injury. Cooperative course taught by UI, open to WSU students (LAW 947).

550 System Dynamics Models of Environmental Systems 3 Prereq graduate standing. Analysis of environmental system dynamics; development and uses of simulation models using the Stella software on Macintosh. Cooperative course taught by WSU, open to UI students (ENVS 550).

555 Environmental Planning 3 State, local and federal approaches to environmental planning and their interactions in private and public land use and development decisions. Cooperative course taught jointly by WSU and UI (ENVS 555).

558 Pesticide Topics 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Same as Entom 558.

569 Ecosystem Ecology and Global Change 3 Prereq Biol 372; Chem 106. Historic and current factors controlling the function of ecosystems and their response to natural and human-caused global change.

571 Meteorology 3 Basic meteorology; atmospheric thermodynamics; cloud physics; synoptic meteorology; radiative processes; climate change.

585 Aquatic System Restoration 3 (2-3) Prereq Chem 345 or C E 583; MBioS 101 or C E 581. Aquatic System Restoration 3 (2-3) Same as C E 585.

586 ArcGIS and Geospatial Analysis 4 (2-6) Same as SoILS 568.

590 Special Topics 2 May be repeated for credit; cumulative maximum 6 hours. Cooperative course taught by WSU, open to UI students (GEOG 590).

592 Special Topics V 1-4 May be repeated for credit; cumulative maximum 4 hours. May be repeated for credit; cumulative maximum 4 hours.

593 Seminar in Environmental Science and Regional Planning 1 May be repeated for credit; cumulative maximum 8 hours. May be repeated for credit, cumulative maximum 8 hours.

594 Environmental and Natural Resources Issues and Ethics V 2-3 May be repeated for credit; cumulative maximum 7 hours. Prereq senior standing. Same as NATRS 594.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

GEOLOGY

Geol

101 [P] Introduction to Geology 4 (3-3) Introductory physical geology for non-science majors; emphasis on western US Credit not granted for more than one of Geol 101, 102, 180.

102 [P] Physical Geology 4 (3-3) For science majors and honors students. Modern concepts of earth science; mineral rock, resource, and map study. Field trip required. Credit not granted for more than one of Geol 101, 102, 180.

103 The Solar System 3 Overview of the results of modern planetary exploration, geological processes and environments on planets and moons in our solar system. Field trip required.

210 [P] Earth's History and Evolution 4 (3-3) Rec Biol 102. Introduction to earth's history and evolution through observations, data collection and analysis, readings and exercises. Two field trips required.

221 Field Trip 1 (0-3) May be repeated for credit. Prereq Geol 210. One-week field trip to study the geology of a selected area of the western United States. S, F grading.

230 [P] Introductory Oceanography 3 Basic physical, chemical, geological and biological principles underlying oceanic phenomena; for both science and non-science majors.

307 Geology Field Camp 3 (0-9) Prereq Geol 101, 210. Introduction to geologic field methods; basic geologic mapping.

308 [M] Field Geology 3 (0-9) Prereq Geol 307, 340, 350. Advanced field problems and methods; interpretation of field data, preparation of reports based on field observations and interpretations. Cooperative course taught jointly by WSU and UI (GEOL 301).

315 Water and the Earth 3 (2-3) Prereq Chem 106, Geol 101 or 260; Math 140, 171, or c//; Phys 102 or 202. Global hydrologic cycle, including rivers and weathering, groundwater, rainwater and the atmosphere, oceans, human impacts. Field research required.

320 Sedimentary Petrology and Sedimentation 3 (2-3) Prereq Geol 210; Geol 350. Sedimentary rock composition and origins applying fundamental principles of sedimentology. Field trip required.

322 [P] Geology of the Pacific Northwest 3 Prereq Geol 101 or 102. Physical geology of the Pacific Northwest focusing on geological processes important in its evolution. Field trips required. Credit not granted for both Geol 322 and 323.

323 [P] Geology of the Pacific Northwest 4 (3-3) Prereq Geol 101 or 102. Physical geology of the Pacific Northwest focusing on geological processes important to its evolution. Field trips required. Credit not granted for both Geol 322 and 323.


350 Mineralogy and Crystallography 4 (2-6) Prereq Chem 101 or 105; Geol 101, 102, 180, 206, 210, or 230. Composition, physical properties, structure, crystallography, identification, and origin of minerals. Field trip required.


390 [P] Living on the Edge: Global Climate Change and Earth History 3 Prereq junior standing. Global earth system: ocean, earth, atmosphere, biosphere, and cryosphere; human impact on the climate system; climate change data predictions; debates.

403 Environmental Geology 3 Prereq Geol 101 or 102. Geological hazards and geologic problems associated with human activities. Optional field trip.

405 Geophysics 4 (3-3) Prereq Geol 340. Theory and application of geophysical methods for hydrology, environmental, engineering, exploration, and structural geology; review of techniques. Credit not granted for both Geol 405 and 505.

406 Basin Analysis 3 3 Prereq Geol 320. Characteristics of sedimentary basins and methods for studying them. One two-day field trip required. Cooperative course taught by UI (Geol 405); open to WSU students. Cooperative course taught by UI, open to WSU students (GEOL 405).

418 Geomicrobiology 3 Explore the interactions of microorganisms with the environment, particularly soil rock-water interaction and how microorganisms are important to our understanding of geological and hydrological processes; topics include ground water microbiology, subsurface microbiology and the microbiology of extreme environments. Additional work required for graduate credit. Credit not granted for both Geol 418 and 518.

428 Geostatistics 3 Prereq Stat 360. Same as Stat 428. Cooperative course taught by UI, open to WSU students (GEOE 428).

445 Astrobiology 3 Prereq completion of biological and physical science GER and junior standing. Origin, evolution, distribution and future of life in the universe; fundamental concepts of life and habitable environments on Earth and other planetary bodies with in and outside of the solar system. Credit not granted for both Geol 445 and 545.

467 Volcanology 3 (2-3) Prereq Geol 320; Geol 356. Volcanic process, eruption mechanisms, volcanic deposits, hazard assessment. Field trip required. Credit not granted for both Geol 467 and 567.
470 Introduction to Economic Geology 3 (2-3) Prereq Geol 340, 350. Genesis, evolution and tectonic setting of ore deposits combining theory, description, and detailed hand specimen analysis. Field trip to major mining districts. Cooperative course taught by WSU, open to UI students (GEOL 470).

475 Groundwater 3 (2-3) Prereq BSysE 351, C E 317 or Geol 315; and Math 140 or 172 or c/c/. Introduction to groundwater occurrence, movement, quality, and resource management; emphasizing physical and biogeochemical principles. Field trip required.

480 Introductory Geochemistry 3 Prereq Chem 106, Geol 350. The chemistry of Earth materials and processes.

490 Undergraduate Research V 1-3 Prereq Geol 101, 210. Research and advanced laboratory experience with a geology faculty member; oral presentation and written thesis.

498 Seminar 1 May be repeated for credit; cumulative maximum 3 hours. Prereq major in geology or related field. Research papers presented by students, faculty, and visiting scientists on geological research. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

505 Geophysics 4 (3-3) Prereq Geol 340. Graduate-level counterpart of Geol 405; additional requirements. Credit not granted for both Geol 405 and 505.

506 Basin Analysis 3 Characteristics of sedimentary basins and methods for studying them. Field trip required. Cooperative course taught by UI, open to WSU students (GEOL 506).

518 Geomicrobiology 3 Graduate-level counterpart of Geol 418; additional requirements. Credit not granted for both Geol 418 and 518.

520 Advanced Topics in Sedimentary Rocks 3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Prereq Geol 320. Modern aspects of sedimentary rocks. Field trip required. Cooperative course taught by WSU, open to UI students (GEOL 520).

521 Clastic Depositional Systems 3 (2-3) Prereq Geol 320. Clastic sedimentary environments; architectural elements and facies analysis. Field trip required. Cooperative course taught by WSU, open to UI students (GEOL 528).

523 Advanced Topics in Stratigraphy 3 May be repeated for credit. Prereq Geol 421. Cooperative course taught by WSU, open to UI students (GEOL 523).

525 Carbonate Depositional Systems 3 (2-3) Prereq Geol 320. Modern carbonate environments and processes; ancient carbonate rock sequences; carbonate platform-to-basin transition; diagenesis of carbonate rocks. Field trip required. Cooperative course taught by WSU, open to UI students (GEOL 529).

538 Orogenic Systems I 3 Prereq Geol 340. Fieldbase course examines tectonic processes active in the northern Cordillera. Field trip required and final research paper. Cooperative course taught jointly by WSU and UI (GEOL 538).

540 Tectonics 3 Prereq Geol 340. Nature and origin of the Earth's major tectonic features. Cooperative course taught by WSU, open to UI students (GEOL 548).

541 Structural Analysis 3 (2-3) Prereq Geol 340. Structural analysis of complexly deformed rocks in orogenic belts. Field trip required. Cooperative course taught by WSU, open to UI students (GEOL 541).

542 Geomechanics 3 Prereq Phys 102, Math 171. Concepts of linear elastic fracture mechanics as applied to the classification, origin and evolution of all types of rock fractures; continuum theory in rock mechanics; rock strength and failure criteria; stress tensors; elastic theory. Field trip required. Cooperative course taught by UI, open to WSU students (GEOL 542).

545 Astrobiology 3 Graduate-level counterpart of Geol 445; additional requirements. Credit not granted for both Geol 445 and 545.

550 Advanced Mineralogy 3 Prereq Chem 106, Geol 355. Elements of crystal chemistry and crystal physics. Cooperative course taught by WSU, open to UI students (GEOL 550).

552 X-ray Analysis in Geology 3 (2-3) Generation and use of X-rays for geological research; electron microprobe/SEM, X-ray fluorescence and X-ray powder diffraction. Cooperative course taught by WSU, open to UI students (GEOL 552).

554 Physical Petrology 3 Prereq Geol 356. The applications of continuum mechanics and fluid dynamics to the generation, rise, storage, and eruption of magmas. Cooperative course taught by UI, open to WSU students (GEOL 554).

560 Advanced Igneous Petrology 3 (2-3) Origin, evolution, and tectonic significance of igneous rocks. Field trip required.

567 Volcanology 3 (2-3) Prereq Geol 356. Eruption mechanisms, volcanic processes and landforms, hazard assessment, and volcanic deposits. Field trips required. Credit not granted for both Geol 467 and 567. Cooperative course taught by UI, open to WSU students (GEOL 567).

578 Groundwater Geobiology 3 (2-3) Prereq graduate standing. Interaction of groundwater geology and the environment including microbial populations with emphasis on microbial transport in the sub-surface and bioremediation approaches.

579 Groundwater Geochemistry V 2-4 May be repeated for credit; cumulative maximum 4 hours. Prereq Chem 331, Geol 475. Organic and inorganic aqueous geochemistry; controls on groundwater contaminant fate. Cooperative course taught by WSU, open to UI students (HYDRO566).

583 Radiogenic Isotopes and Geochronology 3 Prereq graduate standing. Radiogenic isotopes and their uses as chronometers (radiometric dating) and as tracers of earth evolution and differentiation.

584 Stable Isotope Geochemistry 3 Principles and applications of isotope geochemistry in the geological sciences. Cooperative course taught by WSU, open to UI students (GEOL 584).

588 Methods in Radiogenic Isotope Geochemistry 3 (1-6) Prereq Geol 480: Geol 583. Laboratory-based course in modern analytical methods in radiogenic isotope geochemistry.

595 Advanced Topics in Geology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Topics of current interest in geology.

596 Advanced Topics in Geology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Topics of current interest in geology.

597 Advanced Topics in Geology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Topics of current interest in geology.

598 Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Prereq major in Geol or related field. Graduate-level counterpart of Geol 498; additional requirements. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

School of Economic Sciences

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Hulbert 101
509-335-5555


The School of Economic Sciences (SES) offers programs leading to the degree of Bachelor of Science in Economic Sciences with options in International Trade & Development, Graduate School Preparation, Financial Markets, Environmental and Resource Economics, Business Economics, Agricultural Economics, and Economic Analysis and Policy. Graduate degrees offered include the Master of Arts in Applied Economics, Doctor of Philosophy (Economics and Agricultural Economics), and a Graduate Certificate in Agribusiness.

The School also advises the Bachelor of Science in Agricultural and Food Systems, the Agricultural and Food Business Economics major.
Undergraduate Program
The course of study for the Bachelor of Science in Economic Sciences is sufficiently broad to accommodate students with a variety of interests and career goals. It provides training for students interested in business, law, finance, agricultural markets, environmental policy and natural resources, and international trade and development. The program also gives students the preparation needed for graduate study in business, law, agricultural economics, and general economics. The program provides students the flexibility to choose courses outside the school of economic sciences while still meeting degree requirements and allows students to pursue double majors in such fields as business, political science, and pre-law.

The degree requires a set of core courses taken by all School of Economic Sciences undergraduate students. These courses develop a deep understanding of the basic principles of economics and the research methods needed for economic analysis in any field of economic sciences. Students then branch out to further apply the core tools in one of seven option areas:

- The agricultural economics option deals with economic issues related to food and fiber supply and demand and the natural resource base that supports agricultural production and societal needs. Applications to public decision making and private decisions of farms, ranches, and agribusinesses are considered.
- The business economics option trains students to use economic concepts to better understand the management, marketing, and finance problems faced by businesses operating in a market system.
- The financial markets option provides students with a solid, analytical training in the substantial overlap between economics and finance. The option requires coursework that focuses on the analysis of the financial markets.
- The international trade and development option applies economic and institutional analysis to the problems of international economics, economic growth and the special economic challenges faced by low income countries.
- The economic analysis and policy option emphasizes the analytical skills used in making decisions involving government programs and tax policy.
- The graduate school preparation option guides students to coursework in economic theory, history, and political science. The option requires coursework that focuses on the analysis of financial markets.
- The environmental and resource economics option trains students to make decisions while carefully weighing the trade-offs between protecting, restoring, developing, and allocating natural resources.

The business economics option trains students to use economic concepts to better understand the management, marketing, and finance problems faced by businesses operating in a market system.

The international trade and development option applies economic and institutional analysis to the problems of international economics, economic growth and the special economic challenges faced by low income countries.

The economic analysis and policy option emphasizes the analytical skills used in making decisions involving government programs and tax policy.

The graduate school preparation option guides students to coursework in economic theory, history, and political science. The option requires coursework that focuses on the analysis of financial markets.

The environmental and resource economics option trains students to make decisions while carefully weighing the trade-offs between protecting, restoring, developing, and allocating natural resources.

Students planning to transfer to Washington State University from other institutions should take courses that meet the 100- and 200-level course requirements in economics, mathematics, accounting, English, speech, and General Education Requirements. Students planning to transfer into economic sciences by the end of their sophomore year should have satisfactorily completed the introductory economics courses and 200-level mathematics courses if they plan to complete the required work for a degree in two additional years.

Preparation for Graduate Study
Students planning to pursue graduate study in economics or agricultural economics are urged to select the graduate school preparation option and consult with a faculty member in the School of Economic Sciences.

Students planning graduate study, whether in economics, agricultural economics, law, business, or public administration, are advised to develop strong skills through courses in English composition and additional work in statistics. Recommendations for specific graduate areas include:

- Law School: Acctg 230; B Law 210; Pol S 300; and, depending on legal interests, elective Econ courses from the following: EconS 322, 324, 327, 423, 425, 451; B Law 410, 411 suggested.
- Business School: Acctg 230, 231; MIS 250. Additional courses in business are not required for admission to most graduate schools of business. It might be useful, however, to take introductory courses in the major areas of business: B Law 210, Fin 325, MgtOp 301, MgtOp 340, Mktg 360, EconS 352 and EconS 452.

Economics and Agricultural Economics: Math 171 and 220 are recommended to satisfy the major’s math requirements. Calculus through Math 273 and EconS 408 are also useful.


Employment Opportunities
The undergraduate program provides the basic knowledge and tools necessary to secure professional positions in a wide range of industries and public organizations. A number of students take graduate work to broaden their career opportunities. School of Economics Sciences graduates compete favorably for jobs in government, business and charitable organizations, using their strong analytical skills to offer a different perspective for problem-solving and decision-making. Recent graduates have been employed in banking, agribusiness, finance, industry, non-profit organizations, government agencies, and at universities. Many are working in foreign countries.

Graduate Program
The Master of Arts in Applied Economics provides specialization and research experience appropriate for positions in private corporations and government service as management specialists, policy analysts, forecasters or economic consultants. Students can focus their studies in general economics, business economics or agribusiness, or environmental and resource economics by selecting supporting and elective courses.

The School of Economic Sciences offers two doctoral programs – the Ph.D. in economics and the Ph.D. in agricultural economics. Both degrees prepare students for careers as professional economists in academic, government, international organizations, or the private sector. The program provides students with an excellent foundation in the theory and methods of economics along with applications in their choice of at least two Ph.D. fields. To further strengthen their quantitative training, students may simultaneously pursue a Master of Science in statistics.

Schedules of Studies

**AGRICULTURAL ECONOMICS (120 HOURS)**

<table>
<thead>
<tr>
<th>First Year</th>
<th>Hours</th>
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<tbody>
<tr>
<td>First Term</td>
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<tr>
<td>EconS 101 [S] or 102 [S] (GER)</td>
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<thead>
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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<td>Math 202 [N] (GER)*</td>
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<td>EconS 301</td>
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<td>Physical Sciences [P] (GER)</td>
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<td>EconS 302</td>
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<tr>
<td>Complete Writing Portfolio</td>
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</table>
**Third Year**

First Term  
EconS 300-400-level Elective  3  
EconS 311 [M]  3  
EconS 351  3  
Electives  6  

Second Term  
EconS 300-400-level Elective  3  
EconS 350 or 352  3  
Electives  9  

**Fourth Year**

First Term  
EconS 450 or 452  3  
EconS 483, 497, or 499  3  
EconS 490 [M]  3  
Engl 402 [W] (GER)  3  
Electives  6  

Second Term  
EconS 400-level Elective  3  
EconS 451  3  
Tier III Course [T] (GER)  3  
Electives  6  

**ECONOMIC ANALYSIS AND POLICY** (120 HOURS)

First Year  
EconS 101 [S] or 102 [S] (GER)  3  
Engl 101 [W] (GER)  3  
GenEd 110 [A] or 111 [A] (GER)  3  
Math 201  3  
Science [B,P,Q] (GER)  3 or 4  

Second Year  
Arts & Humanities [H,G] (GER)  3  
Biological Sciences [B] (GER)  3 or 4  
EconS 101 [S] or 102 [S] (GER)  3  
GenEd 110 [A] or 111 [A] (GER)  3  
Math 202 [N] (GER)  3  

**Second Year**

First Term  
ComSt 102 [C], 324 [C], or H D 205 [C] (GER)  3  
EconS 301  3  
Intercultural Studies [I,G,K] (GER)  3  
Physical Sciences [P] (GER)  3 or 4  
Social Sciences [S,K] (GER)  3  

Second Term  
Arts & Humanities [H,G] or  
Social Sciences [S,K] (GER)  3  
EconS 302  3  
EconS Option Requirement  3  
Stat 212 [N] (GER) or MgtOp 215  4  
Elective  2  
Complete Writing Portfolio  

Third Year  
First Term  
EconS 300-400-level Elective  3  
EconS 311 [M]  3  
EconS 320  3  
EconS Option Requirement  3  
Electives  3  

Fourth Year  
First Term  
EconS 101 [S] or 102 [S] (GER)  3  
Engl 101 [W] (GER)  3  
GenEd 110 [A] or 111 [A] (GER)  3  
Math 201  3  
Science [B,P,Q] (GER)  3 or 4  

Second Term  
Arts & Humanities [H,G] (GER)  3  
Biological Sciences [B] (GER)  3 or 4  
EconS 101 [S] or 102 [S] (GER)  3  
GenEd 110 [A] or 111 [A] (GER)  3  
Math 202 [N] (GER)  3  

**Second Year**

First Term  
EconS 300-400-level Elective  3  
EconS 311 [M]  3  
EconS 330  3  
Electives  6  

Second Term  
EconS 326  3  
EconS 432  3  
Electives  9  

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1 Alternative to Math 201 and 202 is Math 171 and 220.  
2 At least one elective must satisfy the American Diversity [D] GER.

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**ENVIRONMENTAL AND RESOURCE ECONOMICS** (120 HOURS)

First Year  
EconS 101 [S] or 102 [S] (GER)  3  
Engl 101 [W] (GER)  3  
GenEd 110 [A] or 111 [A] (GER)  3  
Math 201  3  
Science [B,P,Q] (GER)  3 or 4  

Second Year  
Arts & Humanities [H,G] (GER)  3  
Biological Sciences [B] (GER)  3 or 4  
EconS 101 [S] or 102 [S] (GER)  3  
GenEd 110 [A] or 111 [A] (GER)  3  
Math 202 [N] (GER)  3  

Second Year  
First Term  
ComSt 102 [C], 324 [C], or H D 205 [C] (GER)  3  
EconS 301  3  
Intercultural Studies [I,G,K] (GER)  3  
Physical Sciences [P] (GER)  3 or 4  
Social Sciences [S,K] (GER)  3  

Second Term  
Arts & Humanities [H,G] or  
Social Sciences [S,K] (GER)  3  
EconS 302  3  
EconS Option Requirement  3  
Stat 212 [N] (GER) or MgtOp 215  4  
Elective  2  
Complete Writing Portfolio  

Third Year  
First Term  
EconS 300-400-level Elective  3  
EconS 311 [M]  3  
EconS 330  3  
Electives  6  

Second Term  
EconS 326  3  
EconS 432  3  
Electives  9  

---

1 Alternative to Math 201 and 202 is Math 171 and 220.  
2 At least one elective must satisfy the American Diversity [D] GER.
**Fourth Year**

<table>
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<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<td><strong>EconS 430</strong></td>
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<td><strong>EconS 497</strong></td>
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<tr>
<td></td>
<td></td>
<td><strong>Engl 402 [W] (GER)</strong></td>
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<td>Electives</td>
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<tr>
<td>Second Term</td>
<td></td>
<td><strong>EconS 300-400-level Elective</strong></td>
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<td></td>
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<td><strong>EconS 490 [M]</strong></td>
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<td><strong>EconS Option Elective</strong></td>
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<td><strong>Tier III Course [T] (GER)</strong></td>
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<tr>
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<td></td>
<td>Electives</td>
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</table>

1. Alternative to Math 201 and 202 is Math 171 and 220.
2. At least one elective must satisfy the American Diversity [D] GER.

**FINANCIAL MARKETS (120 HOURS)**

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<th>Courses</th>
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<tbody>
<tr>
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<td></td>
<td><strong>EconS 101 [S] or 102 [S] (GER)</strong></td>
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<tr>
<td></td>
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<td><strong>Engl 101 [W] (GER)</strong></td>
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<td><strong>GenEd 110 [A] or 111 [A] (GER)</strong></td>
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<td></td>
<td><strong>Math 201</strong></td>
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<td></td>
<td><strong>Science [B,P,Q] (GER)</strong></td>
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<tr>
<td>Second Year</td>
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<td><strong>EconS 101 [S] or 102 [S] (GER)</strong></td>
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<td><strong>GenEd 110 [A] or 111 [A] (GER)</strong></td>
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<td><strong>Math 202 [N] (GER)</strong></td>
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<tr>
<td>Third Year</td>
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<td><strong>Actg 230</strong></td>
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<td><strong>ComSt 102 [C], 324 [C], or H D 205 [C] (GER)</strong></td>
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<td><strong>Physical Sciences [P] (GER)</strong></td>
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<td><strong>Social Sciences [S,K] (GER)</strong></td>
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<tr>
<td>Fourth Year</td>
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<td><strong>Actg 231</strong></td>
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<td><strong>EconS 302</strong></td>
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<td></td>
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<td><strong>Stat 212 [N] (GER) or MgtOp 215</strong></td>
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<td></td>
<td>Electives</td>
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<tr>
<td>First Term</td>
<td></td>
<td><strong>EconS 311 [M]</strong></td>
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<tr>
<td></td>
<td></td>
<td><strong>Intercultural Studies [I,G,K] (GER)</strong></td>
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<td>Electives</td>
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<tr>
<td>Second Term</td>
<td></td>
<td><strong>EconS 300-400-level Elective</strong></td>
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<td></td>
<td><strong>Math 301 or Elective</strong></td>
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<td><strong>Math 315</strong></td>
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<td><strong>Math 401 or Elective</strong></td>
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<td>Electives</td>
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<td>Fourth Term</td>
<td></td>
<td><strong>EconS 430</strong></td>
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<td></td>
<td><strong>EconS 483, 497, or 499</strong></td>
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<tr>
<td></td>
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<td><strong>EconS 525, Stat 360, or 443</strong></td>
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**GRADUATE SCHOOL PREPARATION (120 HOURS)**

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<th>Courses</th>
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<tr>
<td>First Year</td>
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<td><strong>Engl 402 [W] (GER)</strong></td>
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<td>Electives</td>
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<tr>
<td>Second Year</td>
<td></td>
<td><strong>EconS 400-level Elective</strong></td>
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<td><strong>EconS 490 [M]</strong></td>
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<td><strong>EconS Option Elective</strong></td>
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<td><strong>Tier III Course [T] (GER)</strong></td>
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<td>Third Year</td>
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<td><strong>EconS 526</strong></td>
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<td><strong>EconS 527 or Math 420</strong></td>
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**INTERNATIONAL TRADE & DEVELOPMENT (120 HOURS)**

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<td><strong>EconS 101 [S] or 102 [S] (GER)</strong></td>
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<td><strong>Math 202 [N] (GER)</strong></td>
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<td><strong>ComSt 102 [C], 324 [C], or H D 205 [C] (GER)</strong></td>
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<td>Electives</td>
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</table>
Minors

Agricultural Economics and Management or Agribusiness

A minor is offered in agricultural economics and management which requires that a student complete 16 hours of course work in the School of Economic Sciences, of which 12 hours must be in 300-400-level courses. 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students must also complete one of three junior-senior program sequences, e.g., farm management, marketing or agribusiness management. A minor in Agribusiness requires EconS 351 and 451; 335; 352 and 452; and enough additional EconS electives to total 16 hours of course work in the School. A student wishing to declare a minor should consult with an advisor as early as possible to develop the required program.

Economics

To be eligible to certify in an economics minor, students must have a cumulative 2.0 GPA. A minor in economics requires 18 hours of EconS courses, nine of which must be at the 300-400-level with an overall 2.0 GPA in the required courses and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. EconS 101 and 102 (or 198 and a 300-400-level EconS course), and 302 or 320 are required. In addition, EconS 301 or 305, one 300-level or higher EconS elective and one 400-level or higher EconS elective are required (only three hours of EconS 497 or 499 may be used to fulfill the upper-division EconS electives requirement). Only EconS 497 or 499 may be taken pass/fail.

Environmental and Resource Economics and Management

The minor in Environmental and Resource Economics and Management requires 16 hours. The following courses are required: EconS 330, 431, 432 or 433; EconS 301 or 305 or 326; and 4 elective credits in EconS. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A student wishing to declare a minor should consult with an advisor as early as possible to develop the required program.

Sustainable Development

The program offers a minor in sustainable development. The minor is comprised of EconS 326, one course from each of the following four aspect areas: policy, history, theory; environmental; social/cultural; economic; and one additional course from any of the aspect areas. The minor requires 18 credit hours, with at least 9 hours at the 300-400 level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. All coursework for the minor must be graded and a minimum gpa of 2.0 shall be maintained. Students interested in the minor should consult with an advisor in one of the participating departments for an approved course listing. Students wishing to apply for the minor may do so with the Department of Economics.

Description of Courses

ECONOMIC SCIENCES

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Prerequisites</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>EconS 101</td>
<td>[S] Fundamentals of Microeconomics</td>
<td>3 Prereq course equivalent to Math 101 or equivalent Math Placement score. Theory and policy of human responses to scarcity; how this affects business competition, international trade, industrial organization, investment, and income distribution.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 102</td>
<td>Fundamentals of Macroeconomics</td>
<td>3 Prereq EconS 101 or equivalent Math Placement score. Theory and policy related to unemployment, inflation, foreign trade, government spending, taxation, and banking.</td>
<td>3</td>
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<tr>
<td>EconS 198</td>
<td>Economics Honors</td>
<td>Introduction to economic theory and policy issues. Open only to students in the Honors College.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 301</td>
<td>Intermediate Microeconomic Theory</td>
<td>3 Prereq EconS 101; Math 171 or 202. Calculus-based intermediate microeconomic theory for majors in the School of Economic Sciences.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 302</td>
<td>Intermediate Macroeconomic Analysis</td>
<td>3 Prereq EconS 102; Math 171 or 202. Income, employment, and inflation theory with policy implications.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 305</td>
<td>Theory of the Firm and Market Policy</td>
<td>3 Prereq EconS 101. Price determination and market behavior under different market structures and the problems posed for public policy; not calculus-based.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 311</td>
<td>[M] Introductory Econometrics</td>
<td>3 Prereq EconS 101; EconS 102; Stat 212 or MgtOp 215; Math 202. Methods of empirical analysis in the context of economic analysis and forecasting problems. Credit not granted for both Econ 311 and 411.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 320</td>
<td>Money and Banking</td>
<td>3 Prereq EconS 101; EconS 102. Analysis of banking institutions and monetary policy in the US, with comparison to abroad.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 321</td>
<td>Economics of Sports in America</td>
<td>3 Prereq EconS 101. Economic aspects of American sports; fan demand; advertising; team output decisions; league/conference organization; government and sports.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 322</td>
<td>[M] Public Economics</td>
<td>3 Prereq EconS 101. Theory and practice of the public sector; taxes, expenditures, and administration at local, state, and federal levels.</td>
<td>3</td>
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<tr>
<td>EconS 323</td>
<td>Labor Economics</td>
<td>3 Prereq EconS 101. Functioning of labor markets; introduction to collective bargaining and labor law.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 324</td>
<td>[M] The Economics of Health Care</td>
<td>3 Prereq EconS 101. The economics of allocating, financing and delivering medical care services. Cooperative course taught by WSU, open to UI students (ECON 450).</td>
<td>3</td>
</tr>
<tr>
<td>EconS 325</td>
<td>[M] The Economics of Organization, Contracting, and Law</td>
<td>3 Prereq EconS 101. Examination of the economic and legal aspects of contractual and non-contractual ways of organizing transactions by business.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 326</td>
<td>Aspects of Sustainable Development</td>
<td>3 Prereq EconS 101. Ecological, economical, and sociological aspects of sustainable development.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 327</td>
<td>International Trade and Finance</td>
<td>3 Prereq EconS 101; EconS 102. Analysis and description of international trade flows; commercial policy; multinational firms, foreign exchange markets; open economy macroeconomics; international monetary systems.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 330</td>
<td>Natural Resource Economics</td>
<td>3 Prereq EconS 101. The role of economics in natural resource management and policy. Course equivalent to OSU's AREC 351.</td>
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</tr>
<tr>
<td>EconS 335</td>
<td>Business Finance Economics</td>
<td>3 Prereq Acctg 230; EconS 101; Math 107 or 201; either Stat 212 or MgtOp 215. Financial management, decision making, and analysis for small businesses; capital market institutions and valuation processes.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 350</td>
<td>Introduction to Farm and Ranch Management</td>
<td>3 Prereq EconS 101. Decision making, planning, implementation and control of farms and ranches using economic principles, records, financial reports, budgeting and investment analysis.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 351</td>
<td>Introduction to Food and Agricultural Markets</td>
<td>3 Prereq EconS 101. Introduction to futures and options; selected topics related to markets for and the marketing of food and agricultural products.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 352</td>
<td>Business Management Economics</td>
<td>3 Prereq EconS 101. Introduction to the economic concepts, techniques and applications of organizational, marketing, financial, operations, and resource management in a firm.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 391</td>
<td>Special Topics in Economics</td>
<td>V 1-3 Prereq EconS 101 and 102. Current topics in economics.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 404</td>
<td>Economics for Managers</td>
<td>3 Permission of Vancouver or Tri-Cities MBA coordinator or the academic coordinator in the School of Economic Sciences required. Topics in the application of economics for business decision making with an introduction to calculus. Credit not granted to graduate students in the School of Economic Sciences.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 420</td>
<td>Monetary Theory and Policy</td>
<td>3 Prereq EconS 302. Current issues in monetary economics with a special emphasis on policy.</td>
<td>3</td>
</tr>
<tr>
<td>EconS 423</td>
<td>[M] Collective Bargaining</td>
<td>3 Prereq EconS 301; EconS 311. Collective bargaining from an economic perspective: union-management negotiations in the US private sector.</td>
<td>3</td>
</tr>
</tbody>
</table>
425 Industrial Organization 3 Prereq EconS 301; EconS 311. Economic theories of firm behavior and the influence of market industry parameters; buyer/seller concentration, information asymmetries, product differentiation, and entry conditions.

426 Transportation Economics 3 Prereq EconS 301; EconS 311. Transportation economics and relevant transportation modeling; policy issues and concerns.

427 Economic Development and Underdevelopment 3 Prereq EconS 301; EconS 302. Development theories, policies, and performance of Third World economies; population, land reform, foreign trade, aid, investment, debt, dependency.

428 [T] Global Capitalism Today: Perspectives and Issues 3 Prereq GenEd 111; EconS 101 or 102. Logic and consequences of capitalism as global system; multinational corporations; underdevelopment and overdevelopment; external debt, population, and environmental crisis.

430 [T] Managing the Global Environment 3 Study of policy and management tools to address environmental issues of global significance.

431 Economic Analysis of Environmental Policies 3 3 Prereq EconS 301; EconS 311; EconS 330. Nature and practice of environmental policy analysis using economics concepts and tools including benefit cost, social indicators and environmental accounts. Credit not granted for both EconS 431 and 531.

432 [M] Natural Resource Economics and Policy 3 Prereq EconS 301 or permission of instructor. Economic principles and models applied to natural resource problems, issues, and policies. Credit not granted for both EconS 432 and 532.

433 Topics in International Environmental Law, Policy and Institutions 3 Prereq permission of instructor. Interdisciplinary study of the political development of the European Union and its impact on modern Italy; natural resource, environmental and agricultural policy and law.


451 [M] Advanced Agricultural Marketing 3 Prereq EconS 301 or 305; EconS 351; Math 202 or 171; Stat 212 or MgtOp 215. Institutions, practices, policies, and problems in agricultural input and output marketing.

452 [M] Advanced Business Management Economics 3 Prereq EconS 301; EconS 352; Math 171 or 202; MgtOp 215 or Stat 212. Topics in business management economics and strategy, from demand and supply to bargaining, contracting, pricing strategies, and market structure.

453 International Trade and Marketing 3 Prereq EconS 301; EconS 311. Application of economic theory to the analysis of international trade and marketing.

483 Special Topics: Study Abroad V 1-15 May be repeated for credit.

490 [M] Economics Capstone 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Senior in School of Economic Sciences; EconS 301; EconS 302; EconS 311. Integration of economic theory and field courses; assessment.

491 Advanced Topics in Economics V 1-3 Prereq EconS 301, 302 and 311. Advanced topics in economics.

495 Instructional Practicum V 1-3 Prereq by interview only. Academic experience in teaching and tutoring undergraduate courses in economics. S, F grading.

497 Economics Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Permission of the instructor and the director of the School of Economic Sciences required. Professional off-campus internships arranged or coordinated by departmental faculty according to student’s field of specialization. May be repeated for credit; cumulative maximum 12 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. Permission of the instructor and the director of the School of Economic Sciences required. S, F grading.

500 Macroeconomic Theory I 3 Prereq EconS 302; one year of calculus. Introduction to dynamics, growth and investment, overlapping generations models, Ramsey model, consumption and investment.

501 Microeconomic Theory I 3 Prereq EconS 301 or 305; one year calculus. Microeconomic theory, multivariate optimization, consumer and producer theory, competitive partial equilibrium, introduction to imperfect competition.

502 Macroeconomic Theory II 3 Prereq EconS 500. Macroeconomic theory, short-run fluctuations and nominal rigidities, monetary economics and inflation, real business cycle models, unemployment international macroeconomics.

503 Microeconomic Theory II 3 Prereq EconS 501. General equilibrium, welfare economics and social choice, market failure, game theory, economics of information.

504 Production and Consumption Economics 3 Prereq EconS 502; EconS 503. Advanced duality topics, demand and supply system modeling, financial economics and risk.

510 Statistics for Economists 3 Prereq college calculus and matrix algebra. Statistical theory underlying econometric techniques utilized in quantitative analysis of problems in economics and finance.

511 Econometrics I 3 Prereq EconS 510. Single equation linear and nonlinear models; estimation, inference, finite and asymptotic properties, effects and mitigation of violations of classical assumptions.

512 Econometrics II 3 Prereq EconS 501; EconS 511. Econometric methods for systems estimation; simultaneous equations, discrete and limited dependent variable, panel data, and time series data.

513 Econometrics III 3 Prereq EconS 502; EconS 503; EconS 512. Linear and non-linear models and maximum likelihood estimation and inference; semi-parametric and parametric methods; limited dependent variable models.

514 Econometrics IV 3 Prereq EconS 502; EconS 503; EconS 513. Constrained estimation, testing hypotheses, bootstrap resampling, BNM estimation and inference, nonparametric regression analysis, and an introduction to Bayesian econometrics.

521 Topics in Economic Sciences V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq EconS 301; EconS 302; EconS 311. Current topics in the development and application of the economic sciences.

525 Master’s Econometrics 3 Prereq 3 hours in statistics. Theory and practice of multiple regression methods; applications to the study of economic and other phenomena; use of computer regression programs. Cooperative course taught jointly by WSU and UI (AGEC 525).

526 Master’s Microeconomic Analysis 3 Prereq EconS 301 or 305; Math 171 or 202. Masters-level, calculus-based producer and consumer theory with selected managerial economics topics. Cooperative course taught jointly by WSU and UI (AG ECS26).

527 Mathematics for Economists 3 Prereq graduate standing. Mathematical methods applicable to economic analysis and research. Cooperative course taught jointly by WSU and UI (AGEC 527).

529 Research Methods 1 Prereq graduate standing. Social science Master’s thesis as a research journey toward craftsmanship including elements of imagination, modeling, mindfulness, guidelines, and mentor experiences. Cooperative course taught by UI (AGEC 529); open to WSU students. Cooperative course taught by UI, open to WSU students (AGEC 529).

531 Economic Analysis of Environmental Policies 3 3 Prereq EconS 301; EconS 311; EconS 330. Graduate-level counterpart of EconS 431; additional requirements. Credit not granted for both EconS 431 and 531. Cooperative course taught by WSU, open to UI students (AG ECS31).

532 Natural Resource Economics and Policy 3 Prereq EconS 301 or permission of instructor. Graduate-level counterpart of EconS 432; additional requirements. Credit not granted for both EconS 432 and 532. Cooperative course taught jointly by WSU and UI (AG ECSC32).

533 International Trade and Policy 3 Prereq graduate standing. International trade theories, policies, and research issues related to world trade with emphasis on agricultural commodity markets. Cooperative course taught by UI, open to WSU students (AGEC 533).

555 Managerial Economics for Decision Making 3 Prereq admission to MBA program. Optimal economic decision making for business in a global environment. Not open to economics graduate students.

571 International Trade 3 Prereq EconS 302; EconS 305; EconS 311. Recent developments in trade theory and policy, including international factor movements, empirical analysis of trade flows and strategic trade policies.
572 International Development 3 Prereq EconS 502; EconS 503; EconS 511. Structural and two-sector growth models of developing countries and countries in transition; empirical estimation of sources of growth.

581 Natural Resource Economics 3 Prereq EconS 502; EconS 503; EconS 511. Economic dynamics of natural resource systems.

582 Environmental Economics 3 Prereq EconS 502; EconS 503; EconS 511. Economic theory for environmental issues; externalities, property rights, and welfare analysis; policy design and implementation; non-market valuation and cost/benefit analysis.

583 Public Sector Economics 3 Prereq EconS 502; EconS 503; EconS 511. Public sector and public choice economics, including government debt and tax policy, public decision making, bureaucratic behavior and rent-seeking, with applications.

593 Applications in Microeconomic Topics 3 Prereq EconS 502, 503, 511. Applied topics in healthcare, sports, transportation and other markets.

594 Theory of Industrial Organization 3 Prereq EconS 502, 503, 511. Theory of market structure and firm behavior, including price and non-price competition, information and strategic behavior, and technological change.

596 Advanced Topics in Financial Economics V 1-6 May be repeated for credit; cumulative maximum 12 hours. Prereq EconS 500; EconS 501. Same as Fin 596.

598 PhD Research Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Prereq graduate standing. Seminar focusing on PhD students presenting their own research and critically assessing the research of other PhD students. S, F grading.

599 Special Topics in Economics 3 Prereq graduate standing.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Department of Educational Leadership and Counseling Psychology

www.education.wsu.edu/ELCP
Cleveland 351


The department offers courses leading to a Bachelor of Arts in Sports Management, Bachelor of Science in Athletic Training, or Bachelor of Science in Kinesiology (with majors in movement studies, and health and fitness education); and an undergraduate minor in sport management. Masters degrees (Master of Education, Master of Arts in Education) are offered in the areas of educational leadership, higher education, counseling, educational psychology, and sport management. The Doctor of Philosophy (Education) is offered with specializations in educational leadership, higher education, student affairs, or counseling psychology. The Doctor of Education is offered with a specialization in educational leadership or higher education.

The Department of Educational Leadership and Counseling Psychology housed in the College of Education, has excellent facilities for undergraduate/graduate study and research. The department sponsors and hosts a number of state, national, and international programs. The Assessment and Evaluation Center serves school districts and state agencies by providing high-quality assessment and evaluation services through grant and contract agreements. Programs for superintendent, principal and program administrator certification are available at the Pullman, Spokane, Tri-Cities and Vancouver campuses. A state-wide cohort-based superintendent program is also available. Educational Staff Associate (ESA) school counselor certification program is offered at the Pullman and Tri-Cities campuses.

Application for Graduate Study

Students who plan to work towards an advanced degree should contact the Office of Graduate Studies in the College of Education. Individuals applying for admission to do graduate work must make application to the WSU Graduate School, and submit the following materials to the Department's Graduate Program Director: Academic transcripts; letters of recommendation; a statement of your professional objectives; official college transcripts; three (3) letters of recommendation from individuals qualified to comment on the applicant's academic and professional abilities; and see the program web page to determine if the desired graduate program requires completion of the Graduate Record Examination. Interested students should directly contact the Office of Graduate Studies for specific requirements of their program area.

Bachelor of Science in Kinesiology and Bachelor of Science in Athletic Training

The department offers the Bachelor of Science in Athletic Training. In addition, two kinesiology majors lead to the Bachelor of Science in Kinesiology (movement studies and health and fitness education) and share kinesiology and health courses. Athletic training and kinesiology majors are composed of a broad spectrum of courses designed to expose students to a variety of experiences, concepts, and philosophies centered on human movement. A grade of C or better must be obtained in all departmental core courses and in GEB courses used as prerequisites for departmental courses. All letter-graded courses specifically required for each major must be taken for letter grade (i.e., not pass/fail). In addition, each major has a specialized curriculum designed to meet the requirements of the appropriate professional experience in which the student is interested. Students interested in health and fitness education must be admitted to the teacher preparation program (see admission requirements under Teaching and Learning).

Graduates in the athletic training or kinesiology programs will be able to: 1) use knowledge of evidence and context to reason and reach conclusions as well as to innovate in imaginative ways; 2) analyze and communicate appropriately with mathematical and symbolic concepts; 3) use a disciplined and systematic approach to accessing, evaluating, and using information; 4) write, speak, and listen to achieve intended and meaningful understanding; 5) employ self-understanding and interact effectively with others of similar and diverse cultures, values, perspectives, and realities; and 6) hone a specialty for the benefit of themselves, their communities, their employers, and for society at large.
The general prerequisite for enrollment in 300 and 400-level movement studies courses is 60 hours of coursework and certification as an athletic training or kinesiology major. Students of junior or senior status in a certified major who require a 300- or 400-level movement studies course for their program will be allowed to enroll in the required course. Additional prerequisites for specific courses are listed in the course descriptions. The program director must approve any exceptions to these requirements.

Undergraduate Minor

The Department of Educational Leadership and Counseling Psychology offers an undergraduate minor in Sport Management. Courses for the minor may not be taken pass, fail. Students interested in declaring a minor in sport management should contact the Department of Educational Leadership and Counseling Psychology.

Schedules of Studies

ATHLETIC TRAINING DEGREE PROGRAM (120 HOURS)

The athletic training education program is currently accredited by the Commission on Accreditation of Athletic Training Education (CAATE). The athletic training major is designed to provide students with the necessary academic and clinical competencies required to be eligible for certification by the Board of Certification. All students majoring in athletic training will complete the kinesiology core, the athletic training major course work and a minimum of 1200 hours of clinical experience. Due to the intensity and availability of the clinical internship, the program admits a limited number of students. Acceptance into the athletic training education program (ATEP) is required to certify athletic training as a major and to complete the degree requirements for graduation.

Academic requirements for this application process include but are not limited to 1) a grade of C or better in MvtSt 262, Ath T 266, Ath T 267 and HF 263; 2) a minimum cumulative collegiate GPA of 2.75 or better including the current semester; and 3) current credentialing in CPR/AED for the Professional Rescuer. Students are advised to consult with athletic training advisors early in their academic careers for specific application procedures. Transfer students are welcome to apply for admission into the clinical internship prior to their attendance at WSU. Transfer students desiring admission into the clinical internship program must have been accepted to WSU, have completed the prerequisite course work, meet academic requirements and be of sophomore standing. Applicants who do not meet the required 2.75 cumulative GPA requirement but have had a semester 2.75 GPA the last two semesters at WSU may complete the application process and be provisionally admitted into the ATEP. Transfer students will also have to show two semesters at WSU with a 2.75 GPA to be eligible. Clinical internship experiences combine the theory and management of sport-related injury/illness under the direct supervision of certified athletic trainers. The clinical experience is guided by progressive clinical competencies and technical standards that assess the student's progress. A minimum of 1200 hands-on clinical experience hours are arranged over six consecutive semesters with a parallel educational cooperative partnership involving the Department of Intercollegiate Athletics and several off-campus sites including clinical experiences at high school and sport medicine facilities. Students are expected to maintain high academic standards and demonstrate progressive clinical competence to remain a part of the ATEP. Specific policies and procedures governing the clinical experience are available through the athletic training advisors and the ATEP Student Handbook.

Kinesiology Core courses required for athletic training, health and fitness teaching, and movement studies include: Ath T 311, HF 361, 484, MvtSt 199, 262, 264, 362, 380, 461, Biol 251.

First Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Chem 101 [P] (GER)</td>
<td>4</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>HF 263</td>
<td>2</td>
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<tr>
<td>MvtSt 199</td>
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Second Term

<table>
<thead>
<tr>
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<tr>
<td>Ath T 266</td>
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<td>Ath T 267</td>
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<td>ComSt 102 [C] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 105 or [N] (GER)</td>
<td>3</td>
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<tr>
<td>MvtSt 262</td>
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Apply to Clinical Internship

Second Year

<table>
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<tr>
<td>Ath T 270</td>
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<td>Ath T 291</td>
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<td>Ath T 311</td>
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<tr>
<td>Biol 251</td>
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<tr>
<td>FSHN 130 [B]</td>
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Second Term

<table>
<thead>
<tr>
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<tr>
<td>Ath T 271</td>
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<td>Ath T 275</td>
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</tr>
<tr>
<td>Ath T 291</td>
<td>3</td>
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<tr>
<td>Biol 102 [B] or 106 [B] (GER)</td>
<td>4</td>
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<tr>
<td>MvtSt 264</td>
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Complete Writing Portfolio

Third Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Ath T 305</td>
<td>3</td>
</tr>
<tr>
<td>Ath T 364 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Ath T 392</td>
<td>3</td>
</tr>
<tr>
<td>Psych 105 [S] (GER)</td>
<td>3</td>
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<tr>
<td>Soc 101 [S,D] (GER)</td>
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Second Term

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<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Ath T 365</td>
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<td>HF 361</td>
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Fourth Year

<table>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>Ath T 469 [M]</td>
<td>3</td>
</tr>
<tr>
<td>Ath T 493</td>
<td>2</td>
</tr>
<tr>
<td>MvtSt 380</td>
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</tr>
<tr>
<td>Psych 265</td>
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Second Term

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<tbody>
<tr>
<td>Ath T 493</td>
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<tr>
<td>HF 484</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<td>MvtSt 461</td>
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<tr>
<td>Tier III Course (GER)</td>
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HEALTH AND FITNESS TEACHER CERTIFICATE (BS KINESIOLOGY) (135 HOURS)

This major program prepares individuals to teach physical education, health and fitness at the elementary and/or secondary levels. At all levels of instruction, individuals will acquire knowledge and skills necessary to maintain an active life involving movement, physical fitness and proper nutrition. Students will participate in activities that are designed to help them understand and value important health and fitness concepts and the contributions they make to a healthy lifestyle.

Kinesiology Core courses required for athletic training, health and fitness teaching, and movement studies: Ath T 311, HF 361, 484, MvtSt 199, 262, 264, 362, 380, 415, 461, Biol 251.

Minimum Criteria for Certification

1. Minimum WSU cumulative GPA of 2.75.
2. Completion of the minimum criteria for admission to the undergraduate teacher preparation program (see Teaching and Learning for admission requirements).

First Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>MvtSt 199</td>
<td>3</td>
</tr>
<tr>
<td>PEACT 112</td>
<td>1</td>
</tr>
<tr>
<td>Psych 105 [S] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math Prerequisite, if needed</td>
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Second Year

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<th>Second Term</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>Biol 102 [B] or 106 [B] (GER)</td>
<td>4</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<td>MvtSt 264</td>
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<tr>
<td>PEACT Elective</td>
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Second Year

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<tr>
<th>First Term</th>
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<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>MvtSt 199</td>
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<tr>
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<td>Psych 105 [S] (GER)</td>
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<tr>
<td>Math Prerequisite, if needed</td>
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Second Term

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<tr>
<th>Second Term</th>
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<tbody>
<tr>
<td>Biol 251</td>
<td>4</td>
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<tr>
<td>FSHN 130 [B] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Psych 230</td>
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<tr>
<td>T &amp; L 317</td>
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Third Year

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<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Ath T 266</td>
<td>3</td>
</tr>
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</table>
**MINIMUM CRITERIA**

1. Completion of at least 30 semester hours of coursework.
2. A cumulative gpa of 2.75.
3. A grade of C or better in each of the following courses: ComSt 102, Eng 101, and Math [N] GER.
4. A written statement (maximum of two pages) describing relevant work experience/involvement in extracurricular activities related to Movement Studies. This statement will be evaluated on the basis of the breadth and depth of the experiences, as well as for clarity of expression.

Kinesiology Core courses required for athletic training, health and fitness teaching, and movement studies: Ath T 311, HF 361, 484, MvtSt 199, 262, 264, 362, 380, 415, 461, Biol 251.

**SPORT MANAGEMENT DEGREE PROGRAM (120 HOURS)**

WSU seeks to prepare the best possible sport management professionals and therefore seeks highly qualified individuals. Admission to, or continued enrollment in the sport management program may be denied to any candidate who does not meet the minimum criteria.

Applicants who meet the minimum requirements are eligible for consideration, but not assured admission. Enrollment is limited and admission competitive. Admission application deadlines are October 15, March 15, and August 5, with certification effective the following term. Candidates must complete formal admission procedures and be certified in the Sport Management major prior to taking any 300- or 400-level Sport Management coursework. The following minimum criteria must be met for consideration for admission:

**Minimum Criteria for Certification**

1. Completion of at least 30 semester hours of coursework.
2. Minimum WSU cumulative gpa of 2.50.
3. A grade of C or better in each of the following courses: ComSt 102, Eng 101, Math [N] GER and SpMgt 276.
4. A written statement (maximum of two pages) describing relevant work experience/involvement in extracurricular activities. This statement will be evaluated on the basis of the breadth and depth of the experiences, as well as for clarity of expression.

**First Year**

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<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>T &amp; L 415</td>
<td>16</td>
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</table>

1. PEACT electives are selected with advisor approval.

**MOVEMENT STUDIES DEGREE PROGRAM (122 HOURS)**

The Movement Studies major leads to the Bachelor of Science in Kinesiology. The major provides an interdisciplinary understanding of human movement through the study of anatomy, physiology, movement analysis, biomechanics, motor learning, exercise physiology, and sport psychology and ethics. In addition, students gain proficiency in four of five sport activity areas. Movement studies provides a foundation for personal training certification, health and fitness club employment, teaching, coaching, physical therapy, dance therapy, and sports medicine.

Because of the high demand for this program, students must meet minimum certification requirements, as listed below, in order to be admitted to the Movement Studies program. Applicants who meet the minimum requirements are eligible for consideration, but not assured admission. Enrollment is limited and admission competitive.

Admission application dates are October 15, March 15, and August 5, with certification effective the following term. Candidates must complete formal admission procedures and be certified in the Movement Studies major prior to taking any 300- or 400-level Movement Studies, Athletic Training, or Health and Fitness courses. The following minimum criteria must be met for consideration for admission:

**Minimum Criteria**

1. Completion of at least 30 semester hours of coursework.
2. A cumulative gpa of 2.75.
3. A grade of C or better in each of the following courses: ComSt 102, Eng 101, and Math [N] GER.
4. A written statement (maximum of two pages) describing relevant work experience/involvement in extracurricular activities related to Movement Studies. This statement will be evaluated on the basis of the breadth and depth of the experiences, as well as for clarity of expression.

Kinesiology Core courses required for athletic training, health and fitness teaching, and movement studies: Ath T 311, HF 361, 484, MvtSt 199, 262, 264, 362, 380, 415, 461, Biol 251.

**First Year**

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<tr>
<th>First Term</th>
<th>Hours</th>
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<tr>
<td>T &amp; L 415</td>
<td>16</td>
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1. PEACT electives are selected with advisor approval.

**Second Term**

| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) | 3 |
| MvtSt 362   | 3 |
| MvtSt 380   | 3 |
| MvtSt 461   | 3 |
| PEACT Elective | 1 |

**Tier III Course [T] (GER) | 3**

**Fifth Year**

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**Third Year**

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<tr>
<td>Biol 251</td>
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<td>HF 361</td>
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<tr>
<td>MvtSt 313</td>
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<td>Soc 345</td>
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Elective Core1 | 3

**Fourth Year**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Ath T 311</td>
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<tr>
<td>HF 393</td>
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<td>HF 484</td>
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<td>MvtSt 481</td>
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Elective Core1 | 6

**Second Term**

| MvtSt 415 | 3 |
| MvtSt 461 | 3 |
| Tier III Course [T] (GER) | 3 |
| Elective Core1 | 3 |
| Electives | 3 |
Second Term | Hours
---|---
Area of Specialization | 6
SpMgt 290 | 3
SpMgt 394 | 2
Electives | 5
Complete Writing Portfolio

Third Year

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<tr>
<td>SpMgt 365 or 367</td>
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<tr>
<td>SpMgt 374</td>
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<td>SpMgt 377</td>
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<td>SpMgt 394</td>
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<tr>
<th>Second Term</th>
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<tbody>
<tr>
<td>Area of Specialization</td>
<td>6</td>
</tr>
<tr>
<td>Engl 402 [W] (GER)</td>
<td>3</td>
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<tr>
<td>SpMgt 365 or 367</td>
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<tr>
<td>SpMgt 394</td>
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<td>SpMgt 489</td>
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<tbody>
<tr>
<td>First Term</td>
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<tr>
<td>SpMgt 464</td>
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<tr>
<td>SpMgt 488</td>
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<tr>
<td>SpMgt 490</td>
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<td>Tier III Course (GER)</td>
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<td>Elective</td>
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<table>
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<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>SpMgt 491</td>
<td>10-12</td>
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Minors

**Leadership Studies**

Students majoring in any academic area may also take a minor in Leadership Studies. The minor in Leadership Studies requires 18 semester hours, 13 of which must be from 300-400-level courses. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students must earn credits from courses in the core curriculum and the supporting interdisciplinary curriculum approved for the minor. Students must complete 9 and no more than 12 core curriculum credits from the following: 6 credits from: Ed Ad 389, 440; 3 credits from: either Ed Ad 497, 498, or 499.In addition to the 9 credits from the core curriculum, students must earn the balance of the 18 credits from courses listed in the interdisciplinary supporting curriculum; choose 9 credits from: CES 301, 335, 495, ComSt 185, 235, 302, 334, 475, H D 205, Mgt 401, 450, Pol S 455, 456, W St 315. For more detailed information, contact academics.wsu.edu/fields/study.asp?id=LEADR.

**Sport Management**

The minor in sport management requires 18 semester hours of course work and practical experience. The minor is designed for students with an interest in sport organizations or sport-related business. Sport management is an appropriate area for students with a variety of career interests, including business, communication, law, and social sciences. To be eligible to certify as a sport management minor a student must have earned at least 60 credit hours, have a minimum cumulative GPA of at least 2.5 and be certified in a major. Graded courses in the minor may not be taken pass/fail. The program director must approve any exceptions to these requirements. Required courses include SpMgt 276, 290, 365, and 377; and 6 hours from SpMgt 367 or Soc 345, SpMgt 394, 496, 497, 498. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Description of Courses**

**ATHLETIC TRAINING**

**Ath T**

266 Care and Prevention of Athletic Injuries 3 Prereq MvSt 262 or c//. Prevention, recognition, and management of common sport related injuries and illnesses.

267 Techniques in Athletic Injuries 2 (1-2) Prereq MvSt 266 or c//. Applied clinical approach to basic skills commonly used in the field of athletic training.

270 Examination for Lower Extremity in Athletic Training 3 Prereq Ath T 266. In-depth study of the lower extremities including physical examination, injury recognition, treatment, taping, bracing and rehabilitation.

271 Examination for Upper Extremity in Athletic Training 3 Prereq Ath T 270. In-depth study of the upper extremities including physical examination, injury recognition, treatment, taping, bracing and rehabilitation.

275 (468) Athletic Training Modalities 3 Prereq Ath T 266. Advanced theory and techniques of modality use in athletic training.

291 (491) Athletic Training Clinical Internship I 2 (0-4) May be repeated for credit; cumulative maximum 6 hours. By interview only. Beginning techniques in management of sport injury/illness under supervision of a certified athletic trainer.

293 (492) Athletic Training Clinical Internship II 2 (0-4) May be repeated for credit; cumulative maximum 4 hours. By interview only. Advanced techniques in management of sport injury/illness under supervision of a certified athletic trainer.

499 Special Problems V 1-4 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

**COUNSELING PSYCHOLOGY**

CoPsy 501 Historical and Philosophical Foundations of Counseling Psychology 3 Prereq admission to Counseling Psychology PhD program. History of counseling psychology; philosophical and psychological systems; current identity of counseling psychology as an academic discipline and a profession.

511 Theories, Research, and Techniques in Counseling Psychology I 3 Philosophical assumptions, theory of personality, counseling process, techniques and relevant research in the major theories of counseling and personality. Cooperative course taught by WSU, open to UI students (PEP 511).

512 Theories, Research, and Techniques in Counseling Psychology II 3 Prereq CoPsy 511. Advanced study of process techniques and outcome research in the field of counseling and psychotherapy; nonspecific process skills are presented and integrated into specific, empirically validated interviews. Cooperative course taught by WSU, open to UI students (PEP 512).

513 Career Counseling: Theories and Methods 3 Theories, concepts, methods and findings in career counseling; vocational assessment and prediction.

515 Ethics and Professional Problems in Counseling Psychology 3 Professional problems; ethical, legal, and training issues, practices, and new issues. Cooperative course taught by WSU, open to UI students (PEP 515).

516 Life Span Development and Counseling Issues 3 Prereq graduate standing. Major theories and issues in human development and their application to counseling practice including case conceptualization, treatment and intervention planning and psychological assessment and research.

517 Diagnoses, Psychopathology and Counseling Psychology 3 Prereq CoPsy 511 and 512; graduate standing. Psychopathology and the application of counseling theories to diagnoses, case conceptualization, assessments, treatment plans and research.
518 Theoretical Foundations of Group Counseling 3 Prereq CoPsy 512 or c/. History, philosophy and theoretical foundations; the group counselor, members, and issues in group counseling. Cooperative course taught by WSU, open to UI students (PEP 518).

523 Topics in Counseling Psychology V 1-4 May be repeated for credit; cumulative maximum 8 hours. Recent research, developments, issues, and/or applications in selected areas of counseling psychology. Collaborative course taught by UI, open to WSU students (PSYCH573).

525 Counseling Diverse Populations 3 Prereq CoPsy 512. Research and theories regarding the influence of culture, gender, and lifestyle on counseling processes; application of appropriate assessment/treatment strategies. Cooperative course taught by WSU, open to UI students (PEP 541).

527 Individual Appraisal I 3 Prereq EdPsy 508, 509. Cognitive assessment of individuals, with an emphasis on the theoretical background and practical skills needed to administer, score, and interpret individual intelligence tests; assessment of learning disabilities, AD/HD, and individual achievement.

528 Individual Appraisal II 3 Prereq CoPsy 527. Interpretation of representative personality assessment inventories and symptom checklists used in counseling practice; integration of results in psychological reports.

529 Counselor Supervision: Theory, Research, and Practice 3 Prereq admission to Counseling Psychology PhD program. Survey of major theoretical approaches, techniques, and research in models of counselor supervision and training.


532 Current Issues in School Counseling II 3 Prereq CoPsy 531. Additional coverage of contemporary issues of concern to school counselors: comprehensive developmental school programs, school community dynamics, parental involvement, consultation.

533 Master’s Internship in Community Counseling V 4-8 May be repeated for credit; cumulative maximum 8 hours. Prereq CoPsy 512, 513, 515; S27 or c/; or by interview only. Supervised experience in the application of counseling theory and techniques in an agency setting. May be repeated for credit; cumulative maximum 8 hours. S, F grading.

535 Master’s Internship in School Counseling V 4-8 May be repeated for credit; cumulative maximum 8 hours. Prereq CoPsy 512, 513, 518; S15 or c/; S27 or c/; or by interview only. Supervised experience in the application of guidance and counseling theory and techniques in a school setting. S, F grading.

537 Professional Development in Counseling Psychology 3 NBCC requirements; growth and development, social and cultural foundations, the helping relationship, group dynamics, career, appraisal and research.

541 Clinical and Experimental Hypnosis Seminar 3 Prereq PhD student in counseling, educational, experimental, or clinical psychology. Clinical and experimental hypnosis, emphasizing applied research and clinical methods. Cooperative course taught by WSU, open to UI students (PEP 541).

542 Cross-cultural Research in Counseling and Assessment 3 Cross-cultural research methods, concepts, and findings in counseling and assessment.


552 Doctoral Practicum in Counseling Psychology II 4 (2-6) Prereq CoPsy 551, by interview only. Supervised experiences in the application of counseling psychology theory and techniques. S, F grading.

553 Doctoral Practicum in Counseling Psychology III V 2-4 May be repeated for credit; cumulative maximum 12 hours. Prereq CoPsy 552, by interview only. Supervised experiences in the application of counseling psychology theory and techniques. S, F grading.

561 Continuing Counseling ESA Certification V 2-6 May be repeated for credit; cumulative maximum 6 hours. Prereq Initial Counselor Certification; equivalent of 180 full days of school counselor experience. Peer review requirements for continuing level ESA Counselor Certification. May be repeated for credit; cumulative maximum 6 hours.

590 Seminar in Research in Counseling Psychology 3 By interview only. Recent developments in counseling psychology research and design applied to PhD dissertation proposals. S, F grading.

597 Counseling Psychology Internship V 2-4 May be repeated for credit; cumulative maximum 8 hours. Supervised internship experience, individual and group counseling, evaluation, assessment, supervision, and teaching. S, F grading.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

602 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

604 Master’s Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

608 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

EDUCATIONAL ADMINISTRATION AND SUPERVISION

497 Peer Leadership V 1-4 May be repeated for credit. Development of leadership and interpersonal skills for specific peer leadership and paraprofessional positions. S, F grading.

498 Philosophy of Education 3 Development of American educational philosophy.

501 Values and Ethics for Educational Leaders 3 Study of ethical theories, the moral dilemmas of public schooling, and the skills of ethical reasoning; professional code of ethics.

506 Social Context of Education 2 The interpretation of social context issues including historical, legal and cultural factors as these influence policies and practice in education.

507 Social Foundations of Education 3 Educational adaptations to the economic and social trends and forces.

510 Improvement of Instruction 3 Rec teaching experience. Analysis and evaluation of instructional models with emphasis on information processing; implications for changing teaching style.

514 Basic Principles of Curriculum Design 2-3 Rec teaching experience. The application of theoretical concepts and approaches in the planning and design of curricula.

515 Curriculum Implementation 3 Rec teaching experience. Research and practice; innovation and change in curricular organization emphasizing implementation.

516 Instructional and Curricular Leadership V 2-3 Rec teaching experience. Theory, research, and practice of providing instructional and curricular leadership in schools and other educational settings.

518 Media Literacy and Educational Technology 3 Rec T & L 445 or 446. Relates research and theory of media literacy to instructional resources and current leadership practices; problems of planning and administering programs.

520 Seminar in Curriculum and Instruction V 2-3 Rec teaching experience. Contemporary issues, analyses and developments of educational programs.

521 Topics in Education V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of education.

522 Topics in Education V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of education.

531 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Topical issues in education responding to shifting demands and skills needed by parents, teachers, school administrators and community leaders.

532 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Topical issues in education responding to shifting demands and skills needed by parents, teachers, school administrators and community leaders.

534 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Topical issues in education responding to shifting demands and skills needed by parents, teachers, school administrators and community leaders.
536 Introduction to Qualitative Research in Education 3 Prereq EdPsy 505. Introduction to the theory and methods of qualitative research; field relations, data collections, data analysis, hypothesis development, and theory generation.

537 Advanced Qualitative Research in Education 3 Prereq EdRes 564. Advanced theory and methods of qualitative research; theoretical foundations, data collection and analysis, and reporting.

538 Special Topics in Qualitative Research in Education V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq Ed Ad 536. May be repeated for credit; cumulative maximum 6 hours.

561 Introduction to College Student Development 3 Student development theory, related research and the application of theory to practice in student affairs work.

562 Professional Issues in Student Affairs Administration 3 Prereq Ed Ad 560, 561. The organization, programs and professional issues related to selected student affairs programs and units.

563 Research in College Student Development 3 Prereq Ed Ad 561. Critique, understand, and apply college social identity models as they relate to teaching, advising, and working with diverse student populations.

564 Seminar in Student Affairs 3 Prereq graduate standing. Contemporary issues, analyses, and development of student affairs programs and institutions.

565 Practicum in Higher Education 3 (0-9) Prereq graduate student with 15 hours of completed course work in education. Selected supervised experiences in general higher education and student affairs settings provide for the investigation/application of theory/methods gained through formal course work.

567 Diversity in Higher Education 3 Prereq graduate standing. Reflection on experience and examination of the theory of practice or organizational leadership in the context of diversity.

568 Finance and Budgeting in Higher Education 3 Prereq undergraduate macro and microeconomics or by permission of instructor; graduate standing. Exposes students to the fundamentals of higher education budgeting and finance.

570 Community and Technical Colleges 3 For teachers and administrators. Development and function of community and technical colleges.

571 College Teaching 3 Rec Ed Ad 570 or 572. Concepts, principles, issues, and procedures in college curriculum development, and college teaching.

572 History of Higher Education 3 History, philosophy, objectives, and issues of colleges and universities as social institutions.

573 Issues in Higher Education 3 Selected contemporary issues in higher education.

578 Higher Education Law and Ethics 3 Legal and ethical aspects of higher education with special reference to administrators, faculty, and students in higher education institutions.

579 Administration of Higher Education 3 Organization, administration and leadership of universities, colleges, and community colleges.

580 School Organization and Administration 3 Rec teaching experience. Readings and discussions on the theories and practices of school organization and administration. Cooperative course taught jointly by WSU and UI (ED ADS 509).

581 Politics in Education 3 Prereq graduate standing. Examining the intrapersonal, organizational politics and political dilemma, particularly as they pertain to marginalized groups.

582 Policy Formation and Analysis in Education 3 Political and organizational policy formation processes in educational organizations; policy analysis in education.

583 Community and Communications 3 Social, political, and economic relationships between education and the community; methods of public polling and campaign strategy techniques.

584 Human Resource Management 3 Human relations in education; problems involved and practical solutions considered.

585 Financial Management in Education 3 Economics and financing of education; financial planning, budget development, investment analysis, bonding, cost effectiveness; current trends in educational finance. Cooperative course taught jointly by WSU and UI (EDAD 535).

587 Seminar in School Administration V 1-6 May be repeated for credit; cumulative maximum 6 hours. Interdisciplinary seminars; related studies; discussions in several areas by specialists.

588 The Law and Education 3 Fundamental legal principles within which public education functions; applicable school codes of Washington and other states; review important court cases.

589 Leadership Development Seminar 3 Improving knowledge and skills in strategic planning, decision making, leadership issues, conflict, motivation, staff development, productivity, and stress.

590 Internship V 3-6 May be repeated for credit; cumulative maximum 12 hours. By interview only. Internship in professional positions. S, F grading.

596 Preparing Grant Proposals 3 Identification of funding sources; analysis, evaluation, and production of grant proposals.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

EDUCATIONAL PSYCHOLOGY

EdPsy

401 Classroom Assessment, Elementary V 2-3 Prereq T & L 301. For candidates admitted to teacher preparation. Principles and practice of high-quality classroom assessment in the elementary schools.

468 (402) Classroom Assessment, Secondary 3 Prereq T & L 464, 465, 466(c)/T & L 467, 469; admission to the teacher preparation program. Principles and practice of high-quality classroom assessment in secondary schools.

502 Theoretical Foundations of Learning and Instruction 3 Historical and contemporary theories of learning and instruction; application of theory in counseling and teaching settings.

503 Advanced Educational Psychology 2 Theories of learning and development as applied to education.

504 Classroom-focused Research Methods 2 Methods, design, implementation, and application of results in classroom context.

505 Research Methods I 3 Research methods; literature review; design, implementation, and interpretation of results.

508 Educational Statistics 3 Prereq EdPsy 505. Introductory course for graduate students in applied statistics for the behavioral sciences. Cooperative course taught jointly by WSU and UI (EDAD 507).

509 Educational Measurements: Test Development and Assessment V 2-3 Rec EdPsy 508. Theory and use of standardized educational measurement instruments; intelligence, aptitude, and achievement tests; measurement of outcomes.

510 Assessment of Learning 3 Prereq graduate standing. Assessment of student learning, school and district evaluation; particularly appropriate for school administrators.

511 Large Scale Educational Assessment and Testing 3 Prereq EdPsy 508; 509. Large-scale educational assessment and test development and evaluation; history and policy uses of achievement tests.

521 Topics in Educational Psychology V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of educational psychology.

563 Principles of Research 3 Prereq EdPsy 508 or c//; rec CoPsy 501 or EdRes 562. Same as EdRes 563.

564 Qualitative Research 3 Same as EdRes 564.


568 Research Methods II 3 Prereq EdPsy 505, 565. Integration and application of research skills in writing proposals, dissertations, papers for publication; interpreting, critiquing, and synthesizing research studies.
569 Seminar in Quantitative Techniques in Education 2 or 3 May be repeated for credit; cumulative maximum 6 hours. Prereq EdPsy 565. Application of parametric and nonparametric statistics, data processing using computer packages in educational research.

570 Introduction to Program Evaluation 3 Prereq EdPsy 505. Introduction to strategies and techniques for evaluation of educational and social programs.

571 Advanced Program Evaluation 3 Prereq EdPsy 570. Advanced methods and techniques of program evaluation.

597 Educational Psychology Internship V 2-4 May be repeated for credit; cumulative maximum 8 hours. Supervised internship experience in educational psychology, measurement and evaluation. S, F grading.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

EDUCATIONAL RESEARCH

EdRes

562 Epistemology, Inquiry, and Representation 3 Prereq doctoral student. Epistemological assumptions and methodological strategies of research.

563 Principles of Research 3 Prereq EdPsy 508 or c/j; rec ColPsych 501 or EdRes 562. The centrality of literature review and the understanding of methods used in educational research; practice in designing research questions.

564 Qualitative Research 3 Prereq EdRes/EdPsy 563. Theoretical underpinnings of qualitative research; familiarity with published qualitative research in education; practical research skills.

565 Quantitative Research 3 Prereq EdPsy 508, EdRes 563. Statistical literacy in educational research; parametric and non-parametric methods.

566 Research Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Prereq doctoral student. Presentation and analysis of research; professional development in research presentation. May be repeated for credit; cumulative maximum 4 hours. S, F grading.

HEALTH AND FITNESS

HF

263 Emergency Response 2 (1-3) First aid and safety procedures, including CPR for the Professional Rescuer, AED training and prevention training.

361 Health and Wellness 3 Knowledge of the multi-dimensional aspects of wellness and concepts necessary for a positive lifestyle through self-assessment.

393 Practicum in Special Populations V 1-4 May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

481 Health Education Methods 3 Prereq certified teacher education major; HF 361; TskL 464 or c/j; TskL 465 or c/j. Basic principles, theory, and practices of public school health education teaching methods for K-12 public school pre-service teachers.

483 Fitness Education Methods 3 (2-3) Prereq certified teacher education major; TskL 464 or c/j; TskL 465 or c/j. Basic principles, theory, and practices of public school physical education teaching methods for K-12 public school pre-service teachers. Cooperative course taught by WSU, open to UI students (PE 320).

484 Principles of Movement for Individuals with Disabilities 3 Knowledge, understanding, and skills for teaching movement activities to individuals with disabilities.

490 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. Same as MvtSt 490. S, F grading.

496 Special Topics V 1-3 May be repeated for credit; cumulative maximum 9 hours. Special topics in health.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

KINESIOLOGY

Kin


MOVEMENT STUDIES

MvtSt


262 Human Anatomy 4 (3-3) Comprehensive survey of the structure and organization of the human body; emphasis on skeletal, cardiovascular, nervous, and respiratory systems. Cooperative course taught by WSU, open to UI students (PE 261).

264 Fitness 3 (2-3) Physiological, mechanical, and health-related basis of fitness practices.

313 [M] Behavioral Aspects of Human Movement 3 Prereq certified MvtSt major or Ath T major; Psych 105 or Soc 101. Psychological, sociological, and anthropological concepts which relate to human movement and human performance.

314 Philosophy of Human Movement 3 Prereq certified MvtSt major. The philosophical dimensions of physical education, sport, and dance.

362 Biomechanics 3 Prereq certified MvtSt, Ath T, or HF major; junior standing. MvtSt 262 or Biol 315; math proficiency requirement. Anatomical and mechanical influences on human movement.

380 Introduction to Exercise Physiology 3 Prereq certified MvtSt, Ath T, Biol, or HF major; Biol 251; junior standing. Introduction to exercise physiology as it relates to sport, physical training, and performance.

392 Practicum in Physical Education V 1-4 May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. Combined maximum for MvtSt 300-level practicum courses 8 hours. S, F grading.

415 Assessment 3 (2-3) Prereq certified MvtSt, Ath T, or HF major; Math GER, senior standing. Measurement and evaluation for human performance.

461 [M] Motor Skill Acquisition 3 Prereq certified MvtSt, Ath T, or HF major; Biol 251; senior standing; completion of writing portfolio. Motor learning and motor control areas; neural mechanisms, practice, feedback, retention, and transfer application of theoretical concepts.

481 Analysis of Human Movement 3 (2-3) Prereq certified MvtSt or Ath T major; MvtSt 362; senior standing. Application of biomechanical principles for movement analysis.

490 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours. S, F grading.

496 Special Topics 1 May be repeated for credit; cumulative maximum 4 hours. Physical education, leisure, recreation, dance, health sports.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

SPORT MANAGEMENT

Courses

The general prerequisite for enrollment in 300 and 400-level sport management courses is 60 hours of coursework and certification as a sport management major or sport management minor. Students of junior or senior status in a certified major who require a 300 or 400-level sports management course for their program will be allowed to enroll in the required course. Additional prerequisites for specific courses are listed in the course descriptions. The program director must approve any exceptions to these requirements.

SpMgt

276 Introduction of Sport Management 3 Prereq C or better in Engl 101, ComSt 102, and [N] GER; 2.5 cumulative gpa. Principles and concepts in sport management; overview of sport industries and career opportunities. Not open to seniors or first semester freshmen.

290 Sport Programs 3 (2-3) Prereq C or better in Engl 101, ComSt 102, and [N] GER; 2.5 cumulative gpa. Philosophy and program content of public/private sport programs; laboratory experiences in school, college, and community sport programs.
497 Special Topics
Prereq certified SpMgt major or minor; SpMgt 276; junior standing. Understanding and application of ethical theory and principles of moral reasoning to the analysis of issues and dilemmas in sport.

367 [M] Sport in American Society
Prereq certified SpMgt major or minor; SpMgt 276; junior standing. Examination of the role of sport in contemporary American society as well as the relationship between sport and other social institutions.

374 Sport Finance
Prereq certified SpMgt major or minor; SpMgt 276; Acctg 230; junior standing. Introduction to financial analysis, budgeting and revenue acquisition for both “for profit” and “not for profit” sport organizations.

377 Legal Aspects of Sport
Prereq certified SpMgt major, or Ath T major; SpMgt 276; junior standing. Legal aspects of the supervision, management and business of sport.

394 Practicum in Sport Management
V 1-4 May be repeated for credit; cumulative maximum 8 hours. By interview only. Supervised practicum. S, F grading.

399 Professional Work Experience
V 1-6 Prereq sophomore standing, by interview only. Paid or volunteer, off-campus work experience with a sport organization. S, F grading.

464 Sport Marketing
Prereq certified SpMgt major; SpMgt 365. An examination of sport as a consumer product and as a medium by which to sell consumer products.

468 [M] Managing Sport Organizations
Prereq certified SpMgt major; SpMgt 367. Analysis of management processes and structures of sport organizations.

488 Current Trends in Sport Management
2 Prereq certified SpMgt major; SpMgt 367; SpMgt 377; senior standing. Current trends and issues; research resources; professional presentations.

489 Theory and Application in Sports Event Management
Prereq certified SpMgt major; SpMgt 367; senior standing. Investigation and application of the components of the sport management profession.

490 Internship Seminar
Prereq certified SpMgt major; SpMgt 365; SpMgt 367; SpMgt 377; senior standing; by interview only. Overview of policies and requirements; guidance through site selection and application process; communication skills for the business/sport environment. S, F grading.

491 Internship
V 10-12 Prereq certified SpMgt major; SpMgt 488; SpMgt 490. By interview only. Supervised practicum in agency or business. S, F grading.

496 Special Topics
V 1-3 May be repeated for credit; cumulative maximum 6 hours. Special topics in sports studies.

497 Special Topics
V 1-3 May be repeated for credit; cumulative maximum 6 hours. Special topics in sports studies.
increasingly globalized society); 4) to meet the needs of life-long learning (Our graduates and live in a global, diversified society, instilling the value of life-long learning (Our graduates will have professional careers related to computer engineering); 2) to use computer systems and state-of-the-art tools and techniques to solve problems relevant to societal and economic needs (Our graduates can adapt to changes in technology as well as to the needs of society); 3) to work and live in a global, diversified society, instilling the value of life-long learning (Our graduates will continue to seek knowledge to thrive in an increasingly globalized society); 4) to meet the needs of industry for computer scientists or to pursue graduate studies (Our graduates will have options to pursue careers in industry or in academia); and 5) to communicate clearly and work effectively in teams (Our graduates can be team members or team leaders).

Students graduating with the BSEE degree in electrical engineering have: a) an ability to apply knowledge of mathematics, science and engineering; b) an ability to design and conduct experiments as well as analyze and interpret data; c) an ability to design a system, component, or process to meet desired needs; d) an ability to function on multidisciplinary teams; e) an ability to identify, formulate, and solve engineering problems; f) an understanding of professional and ethical responsibility; g) an ability to communicate effectively in written and oral formats; h) a broad education necessary to understand the impact of engineering solutions in global, economic, and societal context; i) a recognition of the need for, and the ability to engage in, life-long learning; j) a broad education and knowledge of contemporary issues; and k) an ability to use techniques, skills and modern engineering tools necessary for engineering practices.

Computer Engineering

Computer engineering is a field of study that encompasses the fundamental principles, methods, and modern tools for the design and implementation of computing systems. Advances in technology are yielding smaller and higher-performance computer systems permeating into a wide range of applications, from communication systems to consumer products and common household appliances. The computer engineering program provides a balanced perspective of both hardware and software elements of computing systems, and of their relative design trade-offs and applications. Computer engineering builds upon fundamental courses in mathematics, science, and the engineering disciplines to achieve a sound knowledge foundation and to develop breadth. Laboratory experiences are emphasized to provide students with background on experimental design and simulation techniques. Since core course sequences are completed in the junior year, students are able to pursue their career objectives with opportunities to select from a broad spectrum of elective courses. These include a wide range of computer engineering topics such as hardware design, VLSI design, embedded systems, computer architecture, networking, and operating systems.

The program culminates with a two-semester senior design project. The project involves industry cooperation and provides students with a major design experience addressing a broad range of issues, including technical subjects as well as economics, safety, and ethical and societal considerations.

The educational objectives of the degree program in Computer Engineering are to prepare students: 1) for a career in the field of computer engineering by offering a curriculum based on the principles of mathematics, science, fundamentals of engineering design and analysis, and professional ethics (Our graduates will have professional careers related to computer engineering); 2) to use computer systems and state-of-the-art technologies and tools to solve problems relevant to societal and economic needs (Our graduates can adapt to changes in technology as well as to the needs of the society); 3) to work and live in a global, diversified society, instilling the value of life-long learning (Our graduates will continue to seek knowledge to thrive in an increasingly globalized society); 4) to meet the needs of industry for computer engineering or to pursue graduate studies (Our graduates will have options to pursue careers in industry or in academia); and 5) to communicate clearly and work effectively in teams (Our graduates can be team members or team leaders).

In order to achieve the educational objectives our students will have acquired the following skill and knowledge outcomes by the time of graduation: a) an ability to apply knowledge of mathematics, science and engineering; b) an ability to design and conduct experiments as well as analyze and interpret data; c) an ability to design a system, component, or process to meet desired needs; d) an ability to function on multidisciplinary teams; e) an ability to identify, formulate, and solve engineering problems; f) an understanding of professional and ethical responsibility; g) an ability to communicate effectively in written and oral formats; h) a broad education necessary to understand the impact of engineering solutions in global, economic, and societal context; i) a recognition of the need for, and the ability to engage in, life-long learning; j) a broad education and knowledge of contemporary issues; and k) an ability to use techniques, skills and modern engineering tools necessary for engineering practices.

Computer Science

Computer science is a discipline that provides a scientific foundation for computing expertise and skills. The curriculum is geared to provide the fundamental computing concepts derived from mathematics and sciences, and the practical application of these concepts through substantial hands-on course project experiences. The coursework in computer science prepares students for a variety of careers that involve the extensive use of computers.

There are two major degrees offered within Computer Science: the BS in Computer Science, and the BA in Computer Science. Graduates in both degree programs will have a solid technical background in mathematics and sciences. The BS degree requires substantial basic and advanced computer science course work and is the traditional computer science degree. The BA degree is designed for multi-disciplinary students who wish to learn the basics of computer science and apply it to a different field. This degree requires a minor in another area, such as art, biochemistry, music, psychology, architecture, etc.

The program offers courses in a wide variety of topics including theory of computation, design and analysis of algorithms, software engineering, operating systems, computer networks, computer graphics, image processing, distributed systems, and database systems. The coursework is supplemented by several general purpose computing labs dedicated to computer science students, and specialized labs for courses such as operating systems, software engineering, and computer networking. Option area course sequences allow students to specialize in specific areas such as computer graphics, computer networking, computer systems software, software engineering, computer networking, or computer engineering.

The educational objectives of the degree programs in Computer Science are to prepare students: 1) for computer science or software engineering careers by offering a curriculum based on the principles of mathematics, computer science, and professional ethics, in the case of the BS degree, or, for computer science or software engineering careers in interdisciplinary fields by offering a curriculum based on the principles of mathematics, computer science, and professional ethics as well as the foundations of a minor subject area, in the case of the BA degree (Our graduates will have professional careers related to computer science or software engineering); 2) to use computer systems and state-of-the-art tools and techniques to solve problems relevant to societal and economic needs (Our graduates can adapt to changes in technology as well as to the needs of society); 3) to work and live in a global, diversified society, instilling the value of life-long learning (Our graduates will continue to seek knowledge to thrive in an increasingly globalized society); 4) to meet the needs of industry for computer scientists or to pursue graduate studies (Our graduates will have options to pursue careers in industry or academia); 5) to communicate clearly in oral and written forms (Our graduates communicate effectively); and 6) to work in teams (Our graduates can be team members or team leaders).

In order to achieve the educational objectives our students will have acquired the following skill and knowledge outcomes by the time of graduation: a) an ability to apply knowledge of computing and mathematics appropriate to the discipline. In particular, students should be able to apply this knowledge in a way that demonstrates comprehension of the tradeoffs involved in the modeling, design and development of software systems of various scales and complexity; b) an ability to analyze a problem, and identify and define the computing requirements appropriate to its solution; c) an ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs; d) an ability to function effectively on teams to accomplish a common goal; e) an understanding of professional, ethical and social responsibilities; f) an ability to communicate effectively; g) an ability to analyze the impact of computing on individuals, organizations, and society, including ethical, legal, security, and global policy issues; h) a recognition of the need for, and an ability to engage in, lifelong learning; i) an ability to use current techniques, skills, and tools necessary for computing practice.

Certification

Students interested in majoring in any of the school's bachelor degree programs should apply for certification as early as possible in their studies after completion of the respective courses listed under in the schedule of studies. Applications for certification are accepted prior to December 1 and May 1 for certification effective the following spring and fall, respectively. Qualification for initial certification, as well as continuation of certified status, will be evaluated based on several criteria including academic integrity, overall GPA, and GPA in mathematics, science, and electrical engineering or computer science courses. Acceptance will be made after the current semester grades are available and students will be notified of the decision as soon as possible.

Transfer Students

Students planning to transfer from other institutions should carefully note the sequence of courses. Transfers from community colleges should consult the information available on the web for transfer students at http://www.salc.wsu.edu/transfer or should write directly to the School of Electrical Engineering and Computer Science for specific information.
Schedules of Studies

BACHELOR OF ARTS, COMPUTER SCIENCE REQUIREMENTS (122 HOURS)

Students may apply for certification into the Bachelor of Arts in Computer Science degree program after completion of Cpt S 121, 122, 223; Math 201, 202, 216; Phil 201. Math 171, 172 may be substituted for Math 201, 202.

No courses listed in this schedule of study may be taken on a pass/fail basis. All listed E E and Cpt S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

First Year

First Term

First Term  Hours  Cpt S 121  4  Engl 101 [W] (GER)  3  GenEd 110 or GenEd 111 [A] (GER)  3  Math 201\(^1\)  3  Phil 201 [H] (GER)  3  Second Term  Hours  Cpt S 122  4  GenEd 110 or GenEd 111 [A] (GER)  3  Math 202 [N] (GER)\(^2\)  3  Math 216  3  Social Sciences and Diversity [S,K] [D] (GER)\(^3\)  3

Second Year

First Term

First Term  Hours  Cpt S 223  3  Cpt S 260  3  Lab Sciences [B,P] (GER)\(^3\)  4  Math 212  4  Second Term  Hours  Cpt S 224  2  Lab Sciences [B,P] (GER)\(^3\)  4  Math Elective\(^1\)  3  Minor Elective\(^4\)  6  Complete Writing Portfolio

Third Year

First Term

First Term  Hours  Cpt S 322 [M]  3  Cpt S 355  3  Engl 402 [W] or 403 [W] (GER)  4  Math 273 or 301  2 or 3  Stat 360  3  Second Term  Hours  Cpt S 317  3  Cpt S 323  3  Cpt S 360  4  Cpt S Option Courses\(^1\)  6

Fourth Year

First Term

First Term  Hours  Cpt S 421  3  Cpt S 422 [M]  3  Cpt S 450  3  Cpt S Option Courses\(^1\)  6  Intercultural Studies [I,G,K] (GER)  3  Second Term  Hours  Cpt S 402  3  Cpt S 423  3  Cpt S 460  3  Cpt S Option Course\(^3\)  3  Tier III Humanities or Social Sciences Course [T] (GER)  3

BACHELOR OF SCIENCE, COMPUTER SCIENCE REQUIREMENTS (122 HOURS)

Students may apply for certification into the Bachelor of Science in Computer Science degree program after completion of Cpt S 121, 122, 223, 260; Math 171, 172, 216; Phil 201; Phys 201.

No courses listed in this schedule of study may be taken on a pass/fail basis. All listed E E and Cpt S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

First Year

First Term

First Term  Hours  Cpt S 121  4  Engl 101 [W] (GER)  3  Math 171 [N] (GER)  4  Phil 201 [H] (GER)  3  Second Term  Hours  Cpt S 122  4  GenEd 110 or GenEd 111 [A] (GER)  3  Math 172  4  Math 216  3

Second Year

Advanced Cpt S Elective\(^5\)  3  Intercultural Studies [I,G,K] (GER)  3  Minor Elective\(^4\)  6

Tier III Humanities or Social Sciences Course [T] (GER)  3

Social Sciences and Diversity [S,K] [D] (GER)\(^2\)  3

Complete Writing Portfolio

Third Year

First Term

First Term  Hours  Cpt S 322 [M]  3  Cpt S 355  3  Engl 402 [W] or 403 [W] (GER)  3  Math 273 or 301  2 or 3  Stat 360  3  Second Term  Hours  Cpt S 317  3  Cpt S 323  3  Cpt S 360  4  Cpt S Option Courses\(^1\)  6

Fourth Year

First Term

First Term  Hours  Cpt S 421  3  Cpt S 422 [M]  3  Cpt S 450  3  Cpt S Option Courses\(^1\)  6  Intercultural Studies [I,G,K] (GER)  3  Second Term  Hours  Cpt S 402  3  Cpt S 423  3  Cpt S 460  3  Cpt S Option Course\(^3\)  3  Tier III Humanities or Social Sciences Course [T] (GER)  3

BACHELOR OF SCIENCE, COMPUTER ENGINEERING REQUIREMENTS (129 HOURS)

Students may apply for certification into the Bachelor of Science in Computer Engineering degree program after completion of Biol 102 or Chem 105; Cpt S 121, 122, EE 214; Math 171, 172, 216; Phys 201, 202.

No courses listed in this schedule of study may be taken on a pass/fail basis. All listed E E and Cpt S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

First Year

First Term

First Term  Hours  Chem 105 [P] (GER)  4  Cpt S 121  4  Engl 101 [W] (GER)  3  Math 171 [N] (GER)  4  Second Term  Hours  Cpt S 122  4  Math 172  4  Math 216  3  Phys 201 [P] (GER)  4

Second Year

First Term


1 EconS 101 or EconS 102 recommended.
2 Soc 101 recommended.
3 Fifteen credits (5 courses) of option area classes are required for completion of the degree program. The option courses are chosen from upper-level computer science related courses and must be approved by an advisor.

COMPUTER ENGINEERING REQUIREMENTS (129 HOURS)

Students may apply for certification into the Bachelor of Science in Computer Engineering degree program after completion of Biol 102 or Chem 105; Cpt S 121, 122, EE 214; Math 171, 172, 216; Phys 201, 202.

No courses listed in this schedule of study may be taken on a pass/fail basis. All listed E E and Cpt S courses, required electives, and prerequisites to these courses must be completed with a grade of C or better.

First Year

First Term

First Term  Hours  Chem 105 [P] (GER)  4  Cpt S 121  4  Engl 101 [W] (GER)  3  Math 171 [N] (GER)  4  Second Term  Hours  Cpt S 122  4  Math 172  4  Math 216  3  Phys 201 [P] (GER)  4

Second Year

First Term

First Term  Hours  Cpt S 223  3
Minors

Computer Engineering

18 semester hours of computer related courses in electrical engineering are necessary to earn a minor, 9 of which must be 300-400-level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. E E 214, 234, and 324 are required.

Computer Science

The minor in computer science consists of 20 credits which must include Cpt S 121, 122, 223, and three 300-400-level Cpt S courses excluding computer skills and literacy courses. All prerequisites for minor courses must be met. The minor program must be approved by the computer science undergraduate coordinator.

Electrical Engineering

18 semester hours of courses in electrical engineering are necessary to earn a minor, 9 of which must be 300-400-level and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Three courses (9 semester hours) in addition to E E 214, 261, and 262 are required.

Description of Courses

COMPUTER SCIENCE

With the exception of the Computer Skills and Literacy courses, enrollment in 300-400-level computer science courses is restricted to certified majors or minors in computer science, computer engineering, or electrical engineering, and to juniors and seniors officially certified into other degree programs requiring these computer science courses.

Cpt S

110 Introductory Seminar in Computer Science 1 (0-2) Prereq freshmen only. Introduction to the breadth of computer science providing exposure to its sub-disciplines and their interactions with society, economics, and engineering. S, F grading.

111 Introduction to Algorithmic Problem Solving 3 (2-3) Elementary algorithmic problem solving, computational models, sequential, iterative and conditional operations, parameterized procedures, array and list structures and basic efficiency analysis.

121 Program Design and Development 4 (3-3) Prereq Math 107, 201 or satisfactory math placement score. Formulation of problems and top-down design of programs in a modern structured language for their solution on a digital computer.

122 Data Structures 4 (3-3) Prereq Cpt S 121 or equivalent. Advanced programming techniques: data structures, recursion, sorting and searching, and basics of algorithm analysis.

223 Advanced Data Structures 3 Prereq Cpt S 122; Math 216 or equivalent. Advanced data structures, object oriented programming concepts, concurrency, and program design principles.
224 Programming Tools 2 Prereq Cpt S 122; rec 223 or equivalent. Debugging tools, scripting languages, UNIX programming tools, introduction to graphical user interface programming.

251 C Programming Language 3 Prereq Math 171 or c/l. Skills and literacy course. Comprehensive programming practice using C.

260 Introduction to Computer Architecture 3 Prereq Cpt S 223 or c/l. Computer systems architecture; logic, data representation, assembly language, memory organization and trends.

283 Topics in Computer Skills and Literacy V 1-3 May be repeated for credit; cumulative maximum 9 hours. Skills and literacy course. Current topics in computer skill development and computer literacy.

302 Unix System Administration 3 (2-3) Prereq Cpt S 121. Skills and literacy course. Functions and responsibilities of Unix system administrators; disks, networking, accounting and policy.

306 Programming for Engineers I 3 Prereq Math 220, 273, 315. Problem-solving methods, software development principles structured programming with engineering applications.

307 Programming for Engineers II 3 Prereq Cpt S 306. Continuation of Cpt S 306; advanced programming topics and data structures with engineering applications.

317 Automata and Formal Languages 3 Prereq Cpt S 122, Math 216. Finite automata, regular sets, pushdown automata, context-free language, Turing machines and the halting problem.

322 [M] Software Engineering Principles I 3 Prereq Cpt S 224, Math 216, c/l in Engl 402. Introduction to software engineering: requirements analysis, definition, specification including formal methods; prototyping; design including object and function oriented design.

323 Software Design 3 Prereq Cpt S 223; Cpt S 322 or c/l. Practical aspects of software design and implementation using object-oriented, aspect-oriented and procedural programming.

355 Programming Language Design 3 Prereq Cpt S 223, 224. Design concepts of high-level programming languages; survey of existing languages, experience using some languages.

360 Systems Programming 4 (3-3) Prereq Cpt S 223; Cpt S 260 or E E 234. Implementation of sys-tems programs, concepts of computer operating systems; laboratory experience in using operating system facilities.

401 [T] Computers and Society 3 Prereq Phil 260 or Soc 101; completion of one Tier I and three Tier II courses; completion of University Writing Portfolio. Skills and literacy course. Ethical and societal issues related to computers and computer networks; computers as enabling technology; computer crime, software theft, privacy, viruses, worms. Credit not granted for both Cpt S 401 and 402.

402 [M] Social and Professional Issues in Computer Science 3 Prereq Cpt S 121; certified in computer science; completion of University Writing Portfolio. Social, legal, ethical and professional issues that arise in the context of computing. Credit not granted for both Cpt S 401 and 402.

421 Software Design Project I 3 (0-9) Prereq Cpt S 322; Cpt S 323. Large-scale software development including requirements analysis, estimation, design, verification and project management.

422 [M] Software Engineering Principles II 3 Prereq Cpt S 322; Cpt S 323. Dependable software systems; software verification and validation, testing; CASE environments; software management and evolution.

423 Software Design Project II 3 (1-6) Prereq Cpt S 421; Cpt S 422. Laboratory/group design project for large-scale software development, requirements analysis, estimation, design, verification techniques.

425 Network Security 3 (1-6) Prereq Cpt S 360. Practical topics in network security; policy and mechanism; intrusion, detection, prevention, response, cryptography. Cooperative course taught by UI, open to WSU students (CS 425).

427 Computer Security 3 Prereq Cpt S 360, Math 216. Computer security concepts, models and mechanism; encryption technology, formal models, policy and ethical implications. Credit not granted for both Cpt S 427 and 527.

430 Numerical Analysis 3 Prereq FORTRAN, C, or other programming language; Math 315. Same as Math 448. Credit not granted for both Cpt S 430 and 530.

434 Neural Network Design and Application 3 Prereq Cpt S 122, Math 360. Hands-on experience with neural network modeling of nonlinear phenomena; application to classification, forecasting, identification and control. Credit not granted for both Cpt S 434 and 534.

438 Scientific Visualization 3 Prereq Math 172; Cpt S 223; Cpt S 224. Data taxonomy, sampling, plotting, using and extending a visualization package, designing visualization and domain-specific techniques. Credit not granted for both Cpt S 438 and 538.

440 Artificial Intelligence 3 Prereq Cpt S 122; Math 212 or 360. An introduction to the field of artificial intelligence including heuristic search, knowledge representation, deduction, uncertainty reasoning, learning, and symbolic programming languages.

442 Computer Graphics 3 Prereq Cpt S 223, 224; Math 220. Raster operations; transformations and viewing; geometric modeling; visibility and shading; color. Credit not granted for both Cpt S 442 and 542. Cooperative course taught by WSU, open to UI students (CS 404).

443 Human-Computer Interaction 3 Prereq junior standing. Concepts and methodologies of engineering, social and behavioral sciences to address ergonomic, cognitive, social and cultural factors in the design and evaluation of human-computer systems.

450 Design and Analysis of Algorithms 3 Prereq Cpt S 223, 317, Stat 360. Analysis of data structures and algorithms; computational complexity and design of efficient data-handling procedures.

451 Introduction to Database Systems 3 Prereq Cpt S 223, 224. Introduction to database concepts, data models, database languages, database design, implementation issues.


453 Graph Theory 3 Prereq Math 220. Same as Math 453. Credit not granted for both Cpt S 453 and 553.

455 Introduction to Computer Networks 3 Prereq Cpt S 360. Concepts and implementation of computer networks; architectures, protocol layers, internetworking and addressing case studies.

460 Operating Systems and Computer Architecture 3 Prereq Cpt S 360. Operating systems, computer architectures, and their interrelationships in micro, mini, and large computer systems.

464 Distributed Systems Concepts and Programming 3 Prereq Cpt S 360. Concepts of distributed systems; naming, security, networking, replication, synchronization, quality of service; programming middleware. Credit not granted for both Cpt S 464 and 564. Cooperative course taught by WSU, open to UI students (CS 404).

466 Embedded Systems 3 (2-3) Prereq Cpt S 360. The design and development of real-time and dedicated software systems with an introduction to sensors and actuators. Cooperative course taught by WSU, open to UI students (CS 404).

470 Concepts in Biotechnology 3 Prereq [B] GER; senior standing; certified major in engineering or computer science. Same as E E 470.

481 Python Software Construction 3 Prereq Cpt S 223, 224. Intensive introduction to the python language; user interface, building and using extension modules; C interfacing; construction of a major project.

483 Topics in Computer Science V 1-4 May be repeated for credit. Prereq Cpt S 322. Current topics in computer science or software engineering.

490 Work Study Internship V 1-9 May be repeated for credit; cumulative maximum 9 hours. Prereq Cpt S 224; E E 234; computer science major; by interview only. Experience in programming and systems analysis in a working environment under supervision of industrial or governmental professionals and faculty. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Proseminar 1 Faculty research interests, departmental computer systems, computer science research, report preparation. S, F grading.
511 Computational Structures 3 Prereq Cpt S 317 or Math 421; graduate standing. Categories as theories; formal approaches to specifications and homomorphisms of computational structures.

516 Algorithmics 3 Prereq Cpt S 450. Discrete structures, automata, formal languages, recursive functions, algorithms, and computability.

518 Programming Language Theory 3 Prereq Cpt S 516 or Math 421. Syntax; operational and denotational semantics. Cooperative course taught by WSU, open to UI students (CS 510).

527 Computer Security 3 Prereq Cpt S 360, Math 216. Graduate-level counterpart of Cpt S 427; additional requirements. Credit not granted for both Cpt S 427 and 527.

530 Numerical Analysis 3 Prereq FORTRAN, C, or other programming language; Math 315; graduate standing. Graduate-level counterpart of Cpt S 430; additional requirements. Credit not granted for both Cpt S 430 and 530.

531 Computational Linear Algebra 3 Prereq Math 448. Same as Math 544.

534 Neural Network Design and Application 3 Graduate-level counterpart of Cpt S 434; additional requirements. Credit not granted for both Cpt S 434 and 534.

538 Scientific Visualization 3 Prereq Cpt S 443. Data taxonomy; sampling; plotting; using and extending a visualization package; designing visualizations; domain-specific techniques.

540 Artificial Intelligence 3 Graduate-level counterpart of Cpt S 440; additional requirements. Credit not granted for both Cpt S 440 and 540.

541 Advanced Artificial Intelligence 3 Prereq Cpt S 440. Intelligent computer programs; simulation of cognitive processes.

542 Computer Graphics 3 Prereq Cpt S 223, 224; Math 220; graduate standing. Graduate-level counterpart of Cpt S 442; additional requirements. Credit not granted for both Cpt S 442 and 542.

548 Advanced Computer Graphics 3 Prereq Cpt S 442. Solid modeling, visual realism, light and color models, advanced surface generation techniques.

550 Parallel Computation 3 Prereq Cpt S 450. Parallel machine models, principles for the design of parallel algorithms, interconnection networks, systolic arrays, computational aspects to VLSI.

553 Graph Theory 3 Prereq Math 220; graduate standing. Graduate-level counterpart of Cpt S 453; additional requirements. Credit not granted for both Cpt S 453 and 553.

555 Computer Communication Networks 3 Prereq Stat 443. Same as E E 555.

557 Advanced Computer Networks 3 Prereq Cpt S 455 or 555. ATM networks, optical WDM networks, and wireless/mobile networks; access, transport, and routing protocols.

560 Operating Systems 3 Prereq Cpt S 460. Structure of multiprogramming and multiprocessing; efficient allocation of systems resources; design implementation and performance measurement.

561 Computer Architecture 3 Prereq E E 424. Parallel and distributed processors; multiprocessors; interconnection topologies; language-directed architecture; special-purpose architecture.

562 Fault Tolerant Computer Systems 3 Prereq Cpt S 460; Cpt S 464 or 564. Fault tolerance aspects involved in design and evaluation of systems; methods of detection and recovery; multicast, middleware, and reconfiguration.

564 Distributed Systems Concepts and Programming 3 Prereq Cpt S 360. Graduate-level counterpart of Cpt S 464; additional requirements. Credit not granted for both Cpt S 464 and 564. Cooperative course taught by WSU, open to UI students (CS 504).

566 Embedded Systems 3 (2-3) Prereq Cpt S 360; graduate standing. Graduate-level counterpart of Cpt S 466; additional requirements. Credit not granted for both Cpt S 466 and 566.

570 Machine Learning 3 Prereq Cpt S 512; graduate standing. Introduction to building computer systems that learn from their experience; classification and regression problems; unsupervised and reinforcement learning.

572 Numerical Methods in Computational Biology 3 Prereq cell biology, probability and statistics, graduate standing in computer science, or permission of the instructor. Computational methods for solving scientific problems related to information processing in biological systems at the molecular and cellular levels.

573 Bioinformatics Software Development 3 Prereq cell biology, probability and statistics, graduate standing in computer science, or permission of the instructor. Provides programming skills needed to address current computational problems in bioinformatics; emphasis on mathematical development and software design.

580 Advanced Topics in Computer Science 3 May be repeated for credit.

595 Directed Study in Computer Science V 1-3 May be repeated for credit; cumulative maximum 6 hours. Current topics in computer science.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

E E 214 Design of Logic Circuits 4 (3-3) Prereq Cpt S 121 or 251. Design and application of combinational logic circuits with exposure to modern methods and design tools; introduction to sequential logic circuits.

221 Numerical Computing for Engineers 2 Prereq Math 172; Math 220. Solutions to engineering problems using modern software tools such as Matlab.

234 Microprocessor Systems 4 (3-3) Prereq Cpt S 122 or E E 221; E E 214. Microprocessor system architecture, instruction sets, and interfacing; assembly language programming.

261 Electrical Circuits I 3 Prereq Math 315 or c//; Phys 202; c// in E E 262. Application of fundamental concepts of electrical science in linear circuit analysis; mathematical models of electric components and circuits.

262 Electrical Circuits Laboratory I 1 (0-3) Prereq E E 221; E E 261 or c//. Electrical instruments; laboratory applications of electric laws; transient and steady-state responses of electrical circuits.

304 Introduction to Electrical Circuits 2 Prereq Math 315 or c/. Basic DC and AC circuits.

311 Electronics 3 Prereq E E 214, 261. Fundamental device characteristics including diodes, MOSFETs and bipolar transistors; small- and large-signal characteristics and design of linear circuits.

321 Electrical Circuits II 3 Prereq E E 261. State space analysis, Laplace transforms, network functions, frequency response, Fourier series, two-ports, energy and passivity.


331 Electromagnetic Fields and Waves 3 Prereq E E 261, 262; Math 315; Phys 202; certification not required. Fundamentals of transmission lines, electrostatics, magnetostatics, and Maxwell’s Equations.

334 Computer Architecture 3 Prereq E E 234. Modern developments in digital system design, parallel structures, pipelining, input/output, high speed circuits, laboratory experience in digital system design; emphasis on CPU architecture.

341 Signals and Systems 3 Prereq E E 321; Stat 360 or 443 or c//. Discrete and continuous-time signals, LTI systems, convolution, sampling, Fourier transform, Z-transform, filtering, DFT, amplitude and frequency modulation.

351 Distributed Parameter Systems 3 Prereq E E 331. Plane waves, waveguides, resonators, antennas, numerical methods.

352 [M] Electrical Engineering Laboratory I 3 (1-6) Prereq E E 311, 321, or c//. Experiments in electrical circuits, measurements and electronics; principles of measurements and measuring instruments.
447 [M] Analog Integrated Circuits Laboratory 2 (3-0) Prereq CEE 476. Laboratory applications of EEE 476 including the computer-aided design of analog integrated circuits; emphasis on design documentation and reporting.

443 Topics in Electrical and Computer Engineering V 1-3 May be repeated for credit; cumulative maximum 3 hours. Current topics in electrical engineering and computer engineering.

486 Power Electronics 3 Prereq EEE 311, 321. High power semiconductor devices; analysis and design of linear and switching power supplies; high frequency magnetics, controller design. Cooperative course taught jointly by WSU and UI (EE 427).

449 Introduction to Control Systems 3 Prereq EEE 341. State variable models, system response, stability analysis, root locus analysis and design; frequency-response and state-space analysis and design.

491 Performance of Power Systems I 3 Prereq EEE 361, 362; Stat 360 or 443. Static and dynamic behavior of power systems, powerflow, and economic considerations.

493 Protection of Power Systems I 3 Prereq EEE 361. Analysis and equipment fundamentals of power system protection; symmetrical components, fault calculations; fuses; and relays including burden calculations.

494 Protective Relay Labs 2 (0-6) Prereq EEE 493 or c//. Experiments and measurements of protective relay equipment under test, simulated fault and fault conditions.

495 Internship in Electrical Industry V 2-4 May be repeated for credit; cumulative maximum 8 hours. Prereq EEE 341 or 361; for juniors and seniors in electrical engineering. Students work full time on engineering assignments in approved industries. S, F grading.

496 Introduction to Semiconductor Device Theory 3 Prereq EEE 311 or MSE 302; Stat 360 or 443. Equilibrium statistics of electrons and holes; carrier dynamics; p-n junctions, metal-semiconductor junctions, BJTs, Mosfets, LEDs.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Linear System Theory 3 Prereq EEE 489. Dynamic systems from the state variable approach; observability, controllability, stability, and sensitivity of differential and nondifferential systems. Cooperative course taught jointly by WSU and UI (EE 572).

502 Linear Multivariable Control 3 Prereq EEE 501. Optimal linear feedback control, optimal stochastic observers, LQG/LTR design methodology, modern Wiener-Hopf design, robust controllers. Cooperative course taught jointly by WSU and UI (EE 574).

503 Structure, Dynamics and Control of Large-scale Networks 3 Prereq EEE 501, 507. Introduction and development of computational and analytical methods required to characterize large-scale networks.

504 Modern Optics 3 Prereq EEE 341, 351, Stat 443. Diffraction theory, Fourier transforming and imaging properties of lenses, spatial filtering, holography, temporal and spatial coherence, imaging through random media. Cooperative course taught by WSU, open to UI students (EE 534).


507 Random Processes in Engineering 3 Prereq Stat 443. Functions of random variables; random sequences; stochastic processes; mean-square stochastic calculus; ergodicity; spectral density; linear transformations, filtering, dynamic systems. Cooperative course taught jointly by WSU and UI (EE 570).

508 Estimation Theory for Signal Processing, Communications, and Control 3 Prereq EEE 501, 507, or equivalent. Principles of statistical estimation; LLSE; Kalman filtering; smoothing; prediction; maximum-likelihood and Bayesian estimation.


511 Protection of Power Systems II 3 Prereq EEE 491 or c//. Protection of electrical equipment as related to electric power systems with emphasis on digital algorithms. Cooperative course taught jointly by WSU and UI (EE 526).

518 Advanced Electromagnetic Theory I 3 Prereq EEE 351. Electromagnetic waves, electromagnetic theorems and concepts, solutions to the wave equation in rectangular, cylindrical and spherical coordinates. Cooperative course taught jointly by WSU and UI (EE 530).

519 Advanced Electromagnetic Theory II 3 Prereq EEE 518. Exact solutions to canonical electromagnetic diffraction problems, high and low frequency limits, foundations of numerical solutions to electromagnetic scattering problems.

520 Plasma Engineering 3 Prereq EEE 351 or Phys 342. Electromagnetics, kinetic theory, and fluid mechanics of plasmas in space, arcs, plasma processing, coronas, and fusion reactors.

521 Analysis of Power Systems 3 Prereq EEE 491. Concepts and practices of modern power engineering, including steady-state and dynamic analysis, economics and control design.

524 Advanced Computer Architecture 3 Prereq EEE 424. Instruction set architectures, pipelining and super pipelining, instruction level parallelism, superscalar and VLIW processors, cache memory, thread-level parallelism and VLSI.

527 Antenna Theory and Design 3 Prereq EEE 351. Antenna fundamentals, analytical techniques, characteristics and design procedures for selected types of wire, broadband, and aperture antennas. Cooperative course taught jointly by WSU and UI (EE 532).
528 Advanced Topics in Electromagnetics
3 5 May be repeated for credit; cumulative maximum 6 hours. Prereq E E 351. Advanced topics of current interest in wave propagation (electromagnetics, acoustics, or optics).


535 Numerical Solutions to EM Problems
1 3 Prereq E E 351. Theory and use of finite-difference time-domain; numeric dispersion; absorbing boundary conditions; scattering; radiation; time-domain vs. frequency-domain.

545 Data Compression
3 Prereq E E 507, 543. Source coding with a fidelity criterion; quantization theory; predictive, transform and subband coding; noiseless source codes.

548 Information Theory and Channel Coding
3 Prereq E E 451, 507. Information theory; entropy; mutual information, source and channel coding theorems, channel capacity, Gaussian channels; channel coding: block and convolutional codes.

551 Data Communication Systems
3 Prereq E E 341, 507. Digital communications; multi-amplitude/phase signal constellations; probability of error performance; cutoff rate; Viterbi algorithm; trellis coded modulation.

555 Computer Communication Networks
3 Prereq Stat 443; 489. Packet switching networks; multi-access and local-area networks; delay models in data networks; routing and flow control.

562 Fault Tolerant Computer Systems
3 Prereq Cpt S 460; Cpt S 464 or 564. Same as Cpt S 562.

571 Advanced Wireless Integrated Circuits and Systems
3 Prereq E E 341 and 351 or 431. Analysis and design methodologies of state-of-the-art wireless integrated circuits and systems.

574 Optoelectronics
3 Prereq E E 496 or Phys 463. Methods of modulating, generating, and detecting light; display techniques; display devices; fiber optics.

576 Analog Integrated Circuits
3 Prereq graduate standing; E E 311; 351 or c//; 489 or c//; in 477 for capstone design credit. Graduate-level counterpart of E E 476; additional requirements. Credit not granted for both E E 476 and 576.

581 Advanced Topics in Power Systems
V 2-3 May be repeated for credit; cumulative maximum 6 hours. Prereq E E 521. Power system operations including AGC, economic dispatch and security; power system dynamics; intelligent systems applications. Cooperative course taught jointly by WSU and UI (EE 504).

582 Advanced Topics
V 1-3 May be repeated for credit.

586 VLSI Systems Design
3 Prereq E E 444. VLSI models, layout algorithms, design methodologies, simulation and layout tools, algorithm design for VLSI implementation.

587 System on Chip (SoC) Design and Test
3 Prereq E E 434, 466. System on Chip (SoC) and sub-micron integrated circuit design and testing.

595 Directed Study in Electrical Engineering
V 1-3 May be repeated for credit. Current topics in electrical engineering.

596 Advanced Analog Integrated Circuits
3 Prereq E E 476, 477. MOS and BiCMOS technologies; MOS and BiCMOS operational amplifiers; A/D, D/A converters; switched-capacitor filters; continuous-time filters. Cooperative course taught by WSU, open to UI students (E E 515).

600 Special Projects or Independent Study
V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination
V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination
V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination
V 1-18 May be repeated for credit. S, F grading.

Description of Courses

ENGINEERING

Engr

107 Introductory Mathematics for Engineering Applications
3 (2-3)
Application of mathematics principles to engineering problems across engineering disciplines; concepts from trigonometry to differential equations necessary for sophomore engineering courses.

120 Innovation in Design
2 Introduction to engineering disciplines, problem solving, design teamwork and ethics.

420 Multidisciplinary Engineering Design
I 3 (1-4) Prereq senior standing; certified engineering major. Needs analysis and conceptualization of technological products and business plan for target market; multidisciplinary team development.

421 [M] Multidisciplinary Engineering Design II
3 (1-4) Prereq senior standing; certified engineering major. Prototype solution developed and evaluated and business plan completed; presentation to stake holders; team development and assessment.

Engineering

www.ce.ca.wsu.edu
Dana Hall 148
509-335-5593

Dean, C. S. Claborn.

The College of Engineering and Architecture offers degree programs through its School of Architecture and Construction Management, School of Chemical Engineering and Bioengineering, Department of Civil and Environmental Engineering, School of Electrical Engineering and Computer Science and School of Mechanical and Materials Engineering. These degree programs are described under each unit’s separate description in the catalog. In addition, the college offers one course that is common to several degree program curricula and a minor that is available to all non-engineering majors at the university. The minor provides students with a background about how engineering can be applied to real-world problems.

Minors

Engineering

The College of Engineering and Architecture offers a minor in engineering. The minor in engineering requires 17 hours, 9 of which must be upper-division taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. The requirements are: 8 hours from Engr 120 or M E 103 or MEE 110; C E 211, Ch E 201, M E 212, E E 214, 361, 262; and 9 hours from C E 315, 351, 463, E E 304, 311, M E 301, 313. The engineering minor is not open to engineering majors. Please contact the College of Engineering and Architecture Undergraduate Programs and Students Services office at 509-335-0348 or ceainfo@wsu.edu for more information.

Engineering and Computer Science - Vancouver

www.vancouver.wsu.edu/encs
VELS 130, Vancouver Campus
360-546-9639


The School of Engineering and Computer Science (ENCS) is an academic unit of the WSU College of Engineering and Architecture that houses the engineering and computer science programs located at WSU Vancouver.

The undergraduate curricula provide students with a solid foundation upon which they can build to meet the challenges associated with their individual career paths and to adapt to rapidly changing technologies. We emphasize the fundamentals and give students significant choice in designing their academic agenda to meet their career goals. In Computer Science, students can choose from a variety of courses in areas such as intelligent systems, software and hardware systems, graphics and multimedia. In Mechanical Engineering, students can customize their study through three option areas: (1) Micro/nanotechnology; (2) Design and Manufacturing; and (3) Mechatronics (robotics and automation). In Electrical Engineering, three option areas are offered: (1) Digital Systems; (2) Electronic Devices and Materials; and (3) Networks and Communications Systems. Effective writing,
speaking and presentation skills, and ethics are also emphasized as important attributes of our graduates.

The School of ENCS is located at Washington State University's campus in Vancouver Washington and is intended to directly serve students in the southwest Washington region. The programs were established and designed to prepare students to satisfy the needs of regional companies and organizations for engineering and computing professionals. The curricula also prepare students for continued education at the graduate level in computer science and mechanical engineering.

The School offers courses of study leading to the degrees of Bachelor of Science in Mechanical Engineering (BSME), Bachelor of Science in Computer Science (BScS), Bachelor of Science in Electrical Engineering (BSEE), Master of Science in Mechanical Engineering (MSME) and Master of Science in Computer Science (MSCS).

**Computer Science Program Description**

It is the objective of the computer science program to provide a broad education in the science and application of computing. Students are expected to gain proficiency in the design and implementation of software systems, as well as the application of the theory of computing to that process. In addition, all students will develop a background in the hardware architectures that underlie software systems and the mathematics that provide the basis for science and computing. The degree program also requires students to obtain a background in other scientific disciplines and to develop effective communication skills.

**Educational Objectives**

As a graduate of the WSU Vancouver Computer Science program:

1. You will be a knowledgeable and skilled computer scientist. Each graduate's knowledge will span the fundamental principles of computer science and include an understanding of several advanced specialty areas. Graduates will have practical experience with tools, languages and systems which are representative of those used by regional industries. Analytical problem solving and well-crafted software solutions will be hallmarks of our graduates.
2. You will exhibit the workplace behaviors expected by employers. Employers can expect our graduates to communicate clearly, to maintain task commitment, to stay organized, and to overcome obstacles, while working individually or in a team. Graduates will demonstrate these behaviors in their jobs and careers.
3. You will be committed to high standards of professionalism. Graduates will embrace a professional code of ethics in their practice of computer science. They will recognize the social impact of their work and respect the intellectual property of others.
4. You will adapt to the changing landscape of computer science. Effective computer scientists must regularly update their knowledge and skills. WSU Vancouver graduates augment their knowledge and develop new skills with individual study, classes and other techniques. Some graduates will pursue advanced degrees; others will take advantage of professional development opportunities.

**Program Outcomes**

Graduates of WSU Vancouver Computer Science program will possess:

1. Firm foundation and knowledge of mathematics, statistics, science, and computing principles, and the ability to apply this knowledge to solving problems.
2. Foundational knowledge of computer engineering and the methods by which computers are constructed and organized.
3. Ability to design, implement, test and evaluate a computing system, software component, or algorithm to meet required needs and imposed constraints.
4. Ability to function on multidisciplinary teams.
5. Ability to identify and analyze problems, and synthesize computational solutions.
6. Understanding of professional and ethical responsibility.
7. Ability to communicate effectively in writing, orally, and visually.
8. Ability to understand the global and societal impacts of computing technology.
9. Recognition of the need for, and an ability to engage in, life-long learning and an ability to adapt to changes and advancements in the field of computer science.
10. Knowledge of contemporary problems and technologies related to computer science.
11. Ability to use modern software development tools and languages necessary for professional practice.

**Electrical Engineering Program Description**

Electrical Engineering is a diverse field of engineering study encompassing much of the underlying technology of our modern world. Electrical engineers lead the design of microelectronics, computers, communication networks, control systems and power generation and distribution. Aerospace and military systems include major subsystems conceived and designed by electrical engineers. The lower division electrical engineering curriculum covers the fundamental aspects of the field, emphasizing the theory, principles and knowledge expected of all electrical engineers. The upper division course of study permits students to focus on one of several option areas:

1. **Digital Systems**
2. **Electronic Devices and Materials**
3. **Networks and Communication Systems**

The digital systems area includes a mix of computer programming, computer architecture and integrated circuit design that enable a graduate to easily fit into the product development organization of the many companies designing digital products. The electronic devices and materials area concentrates on the theory, design and fabrication of micro- and nano-scale devices. These subjects are crucial to integrated circuit fabrication industry and its ability to increase the performance and density of IC technology. The networks and communications systems option area covers optical, wired and wireless systems design and the analysis skills needed to support and expand our increasingly connected world.

The curriculum incorporates extensive hands-on experiences through laboratory work and design projects. All electrical engineering students participate in a senior design project with a team of students, usually spanning multiple engineering disciplines.

**Educational Objectives**

The goal of the program is to prepare our graduates for successful professional practice and advanced studies by providing a broad education in electrical engineering and by offering the opportunity to deepen their technical understanding in a particular concentration area of related technical electives. Our graduates will:

1. Apply technical knowledge and skills as electrical engineers to provide optimal solutions in industrial and government organizations.
2. Utilize effective communication, team, and project management skills to work productively within their professions and communities.
3. Conduct themselves as responsible professionals making contributions in technology for the greater benefit of society.
4. Pursue professional development and/or graduate studies to meet the challenging demands and increasing responsibilities of a successful career.

**Program Outcomes**

Our students will have:

1. Knowledge of mathematics, science and engineering principles and the ability to apply this knowledge for solving problems.
2. Ability to design and conduct experiments as well as to analyze and interpret data.
3. Ability to design and realize electrical components, systems, or processes to meet desired needs and realistic constraints.
4. Ability to function on multidisciplinary teams.
5. Ability to identify, formulate and solve problems encountered in the practice of electrical engineering.
6. Understanding of professional and ethical responsibility.
7. Ability to communicate effectively.
8. Ability to understand the impact of engineering solutions in a global, economic, environmental and societal context.
9. Recognition of the need for, and an ability to engage in life-long learning.
10. Knowledge of contemporary issues.
11. Ability to use the techniques, skills and modern engineering tools necessary for electrical engineering practice.

**Mechanical Engineering Program Description**

Mechanical Engineering provides an excellent education for today's technological world. Mechanical engineers are the backbone of the engineering profession and work in every industry—from transportation, communications, and electronics to bioengineering, commerce, and manufacturing—in business, government, and universities. Mechanical engineers work with motion, energy, force and are involved with manufacturing the products they design. They develop robotic systems, design products, computer control systems for machinery, commercial jets, instruments for medicine, high performance sporting equipment, and supervise manufacturing operations.

Our undergraduate curriculum covers the fundamental aspects of the field, emphasizes basic principles and their use in solving engineering problems. The upper division course of study focuses on design, manufacturing process, robotics, computer-aided engineering, thermal and fluid
systems, mechanics of materials, micro and nano device design and manufacturing, and machine integration and control. The curriculum incorporates hands-on experiences through laboratory work and design projects. The program provides flexibility to students in customizing their study through three option areas:

- Micro/Nano Technology
- Design and Manufacturing
- Mechatronics

The micro/nano technology option provides education in micro device fabrication, nano-science and its impact on design of the next generation engineering systems. The design and manufacturing option emphasizes computer aided engineering and manufacturing, micro machining and rapid prototyping through industry-based projects. The mechatronics option concentrates on design of mechanical systems with electronic and computer controls, automation and robotics.

Educational Objectives

The goal of our program is to prepare our graduates for successful professional practice and advanced studies by providing a broad education in mechanical engineering and by offering the opportunity to deepen their technical understanding in a particular concentration area of related technical electives. Our graduates will:

- Apply technical knowledge and skills as mechanical engineers to provide optimal solutions in industrial and government organizations.
- Utilize effective communication, team, and project management skills to work productively within their professions and communities.
- Conduct themselves as responsible professionals making contributions in technology for the greater benefit of society.
- Pursue professional development and/or graduate studies to meet the challenging demands and increasing responsibilities of a successful career.

Program Outcomes

Our students will have:

1. Knowledge of mathematics, science and engineering principles and the ability to apply this knowledge for solving problems.
2. Ability to design and conduct experiments as well as to analyze and interpret data.
3. Ability to design and realize thermal and mechanical components, systems, or processes to meet desired needs and realistic constraints.
4. Ability to function on multidisciplinary teams.
5. Ability to identify, formulate and solve problems encountered in the practice of mechanical engineering.
6. Understanding of professional and ethical responsibility.
7. Ability to communicate effectively.
8. Ability to understand the impact of engineering solutions in a global, economic, environmental and societal context.
9. Recognition of the need for, and an ability to engage in life-long learning.
10. Knowledge of contemporary issues.

11. Ability to use the techniques, skills and modern engineering tools necessary for mechanical engineering practice.

Certification in the Major

Certification in a degree program is required by WSU prior to the granting of a baccalaureate degree. Qualification for initial certification, as well as continuation of certified status, will be evaluated based on several criteria including academic integrity, overall gpa, and gpa in mathematics, science, and major core courses; computer science or mechanical engineering. Certification will be initiated once the required courses have been completed. Students will be notified of the decision as soon as possible following their application for certification.

When it becomes necessary to limit enrollment, the overall gpa as well as the gpa for the prerequisite courses listed, will be important factors. Students who have not completed all of the prerequisite courses will be placed in a pre-engineering or pre-computer science major. Some courses require students to be certified in their major before enrollment is allowed in those courses. Additional details regarding certification in the major are available from the School of ENCS Academic Coordinator.

Students who have completed at least 30 semester hours of course work and who have completed CS 121, 122, 216, 214, 223; Math 171, 172; Phil 201; Phys 201 or their equivalents are eligible for certification into the Bachelor of Science in Computer Science program. All courses required for certification must be completed with a grade of C or better. Enrollment in 400-level computer science courses is restricted to certified majors or minors in computer science and to juniors and seniors certified in other degree programs requiring 400-level computer science courses.

Students who have completed at least 30 semester hours of course work and who have completed Chem 106; Engl 101; Math 220, 273, 315; Mech 211, 212, 215; and Phys 202 or their equivalents are eligible for certification into the Bachelor of Science in Mechanical Engineering program. All courses required for certification must be completed with a grade of C or better. Enrollment in many upper-division mechanical engineering courses is restricted to certified majors or minors in mechanical or electrical engineering.

Students who have completed at least 30 semester hours of course work and who have completed Chem 105; CS 251; Math 171, 172, 273; and Phys 201, 202 or their equivalents are eligible for certification into the Bachelor of Science in Electrical Engineering program. All courses required for certification must be completed with a grade of C or better. Enrollment in many upper-division electrical engineering courses is restricted to certified majors or minors in electrical or mechanical engineering.

Transfer Students

The School of Engineering and Computer Science cooperates closely with Washington community colleges to facilitate the transfer of students into its computer science and mechanical engineering programs. Students planning to transfer into the School of ENCS are strongly encouraged to contact the ENCS academic coordinator to evaluate the transfer course credits and to help plan the continuation of their academic career at Washington State University Vancouver.

Students will note that a number of the courses offered by the School of ENCS have identical course numbers and similar descriptions to courses offered by the School of Electrical Engineering and Computer Science and the School of Mechanical and Materials Engineering on the Pullman campus. The transfer of course credit between these Schools is not automatic or guaranteed. Students intending to take courses in one School for credit in another are advised to consult with the academic advisor for their degree program, in advance, to assess how the courses may fulfill their degree requirements.

Preparation for Graduate Study

The Master of Science in Computer Science program in the School of ENCS is a thesis program and requires 30 credit hours, including 21 hours of graded course work and 9 credits of thesis research (CS 700). The coursework and research are in the general areas of software engineering, artificial intelligence, computer networks and computer graphics. Sophisticated facilities are available for instruction and research. Teaching and research assistantships are available for qualified students.

Before undertaking graduate study in computer science, the student should have completed a baccalaureate degree substantially similar to the BSCS degree described below in the BSCS schedule of studies. Students from other academic disciplines are encouraged to apply; however such students will be required to take or have taken the equivalent of the following courses: CS 317, CS 450. An undergraduate grade point average of 3.0 is a minimum for admission to the MS program.

The Master of Science in Mechanical Engineering program in the School of ENCS is a thesis program and requires a minimum of 30 credit hours. This includes 21 hours of graded coursework beyond the bachelor’s plus minimum 4 thesis credits. The coursework and research are in the general areas of dynamics, robotics, solid mechanics, manufacturing and design, fluid dynamics, heat and mass transfer and micro and nanotechnology. Our laboratories are equipped with state-of-the-art equipment worth more than $4 million. Teaching and research assistantships are available for qualified students.

A Bachelor of Science degree from an accredited program in mechanical engineering provides a good background for the MSME graduate program. Students with bachelor degrees in other engineering disciplines, mathematics, and the physical sciences are routinely admitted, but may be required to make up requisite undergraduate deficiencies. An undergraduate grade point average of 3.0 is a minimum for admission to the MS program.

Schedules of Studies

BACHELOR OF SCIENCE, COMPUTER SCIENCE REQUIREMENTS (VANCOUVER ONLY)

(122 HOURS)

Students who have completed at least 30 semester hours of course work and who have completed CS 121, 122, 216, 214, 223; Math 171, 172; Phys 201; and Phys 201 or their equivalents are eligible for certification into the Bachelor of Science in Computer Science program. All courses required for certification must be completed with a grade of C or better. Enrollment in 400-level computer science courses is restricted to certified majors or minors in computer science and to juniors and seniors certified in other degree programs requiring 400-level computer science courses.
BACHELOR OF SCIENCE, ELECTRICAL ENGINEERING REQUIREMENTS  
(VANCOUVER ONLY)  (127 HOURS)

The certification into the program requires completion of at least 30 semester hours of graded course work with an overall minimum 2.0 GPA and having completed the following courses with a minimum grade of "C" in each course: Chem 105; Math 220, 273, and Phys 201, 202. A full-time student will have completed these requirements at the end of the fall semester of their sophomore year.

First Year
First Term
CS 121  4
GenEd 110 [A] (GER)  3
Math 171 [N] (GER)  4
Phil 201 [H] (GER)  3

Second Term
CS 122  4
CS 216  3
Engl 101 [W] (GER)  3
GenEd 111 [A] (GER)  3
Math 172  4

Second Year
First Term
CS 223  3
CS 260  3
EconS 101 [S] or 102 [S] (GER)  3
Math 220  2
Phys 201 [P] (GER)  4

Second Term
Biological Sciences [B] (GER)  4
CS 224  2
CS 261  3
Math 273  2
Phys 202 [P] (GER)  4
Complete Writing Portfolio

Third Year
First Term
CS 317  3
CS 320 [M]  3
CS Option Course  3
Engl 402 [W] or 403 [W] (GER)  3
Stat 360  3

Second Term
Arts & Humanities or Diversity [H,G,D] or Social Sciences and Diversity [S,K,D] (GER)  3
CS 351  3
CS 355  3
CS 360  4
CS Option Course  3

Fourth Year
First Term
CS 402 [M]  3
CS 450  3
CS Option Course  6
Intercultural Studies [I, G, K] (GER)  3

Second Term
CS 420 [M]  3
CS Option Courses  9
Tier III Humanities or Social Science Course [T] (GER)  3

1 Please see department for an approved list of option areas. Students are required to complete five courses in one option area and four elective courses selected from other option areas, from the list of elective courses, or they may obtain approval from their faculty advisor for other related coursework.

Tier III Humanities or Social Science/Diversity [T,D] (GER)  3

BACHELOR OF SCIENCE, MECHANICAL ENGINEERING REQUIREMENTS  
(VANCOUVER ONLY)  (125 HOURS)

Students who have completed at least 30 semester hours of course work and who have completed Chem 105; Math 220, 273; Mech 211, 212, 215; and Phys 201 or their equivalents are eligible for certification into the Bachelor of Science in Mechanical Engineering program. All courses required for certification must be completed with a grade of C or better.

Enrollment in many upper-division mechanical engineering courses is restricted to certified majors or minors in mechanical engineering.

No courses listed in this schedule of studies may be taken on a pass/fail basis. All upper-division mechanical engineering courses must be completed with a minimum 2.0 average GPA.

First Year
First Term
Chem 105 [P] (GER)  4
ECE 101  2
Engl 101 [W] (GER)  3
GE 101 [E] (GER)  1
Math 171 [N] (GER)  4

Second Term
CS 251  2
EconS 101 [S] or 102 [S] (GER)  3
GE 111 [A] (GER)  3
Math 172  4
Phys 201 [P] (GER)  4

Second Year
First Term
Biological Sciences [B] (GER)  4
ECE 214  3
Math 220  2
Math 273  2
Phys 202 [P] (GER)  4

Second Term
Arts & Humanities [H,G] (GER)  3
ECE 234  3
ECE 260  4
ECE Option Area Course  3
Math 315  3

Third Year
First Term
CS 321  3
ECE 325  4
ECE Option Area Course or Elective  3
Engl 402 [W] or 403 [W] (GER)  3
GE 303 [E] (GER)  1
Stat 360  3

Second Term
ECE 341  3
ECE 370  3
ECE Option Area Course or Elective  6
Intercultural Studies [I, G, K] (GER)  3

Fourth Year
First Term
ECE 405 [M]  3
ECE 411  3
ECE 451  3
ECE Option Area Course or Elective  6
GE 401 [E] (GER)  1

Second Term
ECE 452 [M]  3
ECE Option Area Course or Elective  9

Third Year
First Term
Mech 301  3
Mech 303  3
Mech 304  3
Mech 309  3
Mech 314 [M]  3

No courses listed in this schedule of studies may be taken on a pass/fail basis. All upper-division mechanical engineering courses must be completed with a minimum 2.0 average GPA.

121 credit hours of option area courses are required for completion of the degree program. The option courses are chosen from upper-division computer science and related courses and must be pre-approved by a faculty advisor.
Description of Courses

**COMPUTER SCIENCE - VANCOUVER**

Enrollment in 400-level computer science courses is restricted to certified majors or minors in computer science and to juniors and seniors officially certified in other degree programs requiring these computer science courses.

**CS**

121 Program Design and Development 4 (3-3) Prereq Math 107, 201 or satisfactory math placement score. Formulation of problems and top-down design of programs in a modern structured language for their solution on a digital computer.

122 Data Structures 4 (3-3) Prereq CS 121 or equivalent. Advanced programming techniques: data structures, recursion, sorting and searching, and basics of algorithm analysis.

216 Discrete Structures 3 Prereq Math 107; Phil 201; a programming course. Same as Math 216.

223 Advanced Data Structures 3 Prereq CS 122; CS 216 or equivalent. Advanced data structures, object oriented programming concepts, concurrency, and program design principles.

224 Programming Tools 2 Prereq CS 122. Debugging tools, scripting languages, UNIX programming tools, introduction to graphical user interface programming.

251 C Programming Language 2 Prereq Math 171 or c/. Comprehensive programming practice using C.

260 Computer Organization 3 Prereq CS 122. Introduction to computer architecture, data representation, design and analysis of instruction sets, implementation of machine instructions, virtual memory and multiprocessing.

261 C and Assembly Language Programming 3 Prereq CS 260. C language concepts, professional practices and C programming; module linkage; assembly language concepts and programming.

317 Automata and Formal Languages 3 Prereq CS 122; CS 216. Finite automata, regular sets, pushdown automata, context-free language, Turing machines and the halting problem.

320 [M] Fundamentals of Software Engineering 3 Prereq CS 224; CS 216; c/ in Engl 402. Introduction to software engineering; requirements analysis, definition and specification; software process models; prototyping; architecture; object-oriented design with UML.

330 Numerical Computing 3 Prereq CS 121 or 251; Math 172; Math 220. Power and limitation of numerical solutions; design, analysis and implementation of numerical algorithms; visualization and rendering.

351 (451) Introduction to Database Systems 3 Prereq CS 223; CS 224. Introduction to database concepts, data models, database languages, database design, implementation issues.

355 Programming Language Design 3 Prereq CS 223; CS 224. Design concepts of high-level programming languages; survey of existing languages, experience using some languages.

360 Systems Programming 4 (3-3) Prereq CS 223; CS 224; CS 234. Implementation of systems programs, concepts of computer operating systems; laboratory experience in using operating system facilities.

402 [M] Social and Professional Issues in Computer Science 3 Prereq CS 121; certified in computer science; completion of University Writing Portfolio. Social, legal, ethical and professional issues that arise in the context of computing.

420 [M] Software Engineering in Practice 3 Prereq CS 320. Development of software in a team environment; project management; unit and integration testing, bug tracking, configuration management, software process models; object-oriented design with UML.

425 Digital Forensics 3 Prereq CS 360. Use of computers in the investigation of criminal and civil incidents in which computers or computer technology play a significant or interesting role.

427 Computer Security 3 Prereq CS 216; CS 360. Computer security concepts, models and mechanism; encryption technology, formal models, policy and ethical implications. Credit not granted for both CS 427 and 527.

440 Artificial Intelligence 3 Prereq CS 320; Stat 360 or Math 212. Knowledge representation and automated problem solving; theory and application of agent programming.

442 Computer Graphics 3 Prereq CS 223; CS 224; Math 220. Raster operations; transformations and viewing; geometric modeling; visibility and shading; color. Credit not granted for both CS 442 and 542.

443 Human-Computer Interaction 3 Prereq junior standing. Introduction to the field of human-computer interaction; understanding the system user; user-centered design and evaluation techniques including heuristic evaluation and usability testing.

447 Computer Game Design 3 Prereq CS 223; CS 420 or c/. Design and implementation of computer games. Credit not granted for both CS 447 and 547.

450 Design and Analysis of Algorithms 3 Prereq CS 223; Stat 360. Analysis of data structures and algorithms; computational complexity and design of efficient data-handling procedures.

451 Web Data Management 3 Prereq CS 351. Introduction of concepts, data models, query and retrieval languages; implementation issues for management of web data.

452 Compiler Design 3 Prereq CS 317; CS 355. Design of lexical analyzers, syntactic analyzers, intermediate code generators, code optimizers and object code generators.

455 Introduction to Computer Networks 3 Prereq CS 360. Concepts and implementation of computer networks; architectures, protocol layers, internetworking and addressing case studies.
460 Operating Systems 3 Prereq CS 360. Role and purpose of operating systems, process and memory management, I/O device management and drivers, file system concepts and design.

466 Embedded Systems 3 (2-3) Prereq CS 360. Design and development of real-time and dedicated software systems with an introduction to sensors and actuators. Credit not granted for both CS 466 and 566.

471 Professional Programming Problems and Practice 3 Prereq CS 320; CS 360; senior standing. Application of OOP techniques to a variety of challenging, real world problems; industrial program development processes, peer reviews and interpersonal skills presented and exercised.

483 Topics in Computer Science V 1-4 May be repeated for credit. Prereq CS 320. Current topics in computer science or software engineering.

490 Work Study Internship V 1-9 May be repeated for credit; cumulative maximum 9 hours. Prereq CS 224; CS 234; computer science major; by interview only. Experience in programming and systems analysis in a working environment under supervision of industrial or governmental professionals and faculty. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Computer Science Seminar 1 Faculty research interests, departmental computer systems, computer science research, report preparation. S, F grading.

516 Theory of Computation 3 Prereq CS 450. Discrete structures, automata, formal languages, recursive functions, algorithms, computability, and complexity.

521 Software Engineering Analysis 3 Prereq CS 320. Research in software engineering; application of quantitative techniques in the software life cycle; current software engineering literature; exploration of techniques of mathematical modeling and solutions to software engineering problems.

527 Computer Security 3 CS 216; CS 360. Graduate-level counterpart of CS 427; additional requirements. Credit not granted for both CS 427 and 527.

541 Artificial Intelligence 3 Prereq CS 440. Intelligent computer programs; simulation of cognitive processes.

542 Computer Graphics 3 Prereq graduate standing. Graduate-level counterpart of CS 442; additional requirements. Credit not granted for both CS 442 and 542.

547 Computer Game Design 3 Prereq CS 223; CS 420 or c//. Graduate-level counterpart of CS 447; additional requirements. Credit not granted for both CS 447 and 547.

548 Advanced Computer Graphics 3 Prereq CS 442. Solid modeling, visual realism, light and color models, advanced surface generation techniques.

558 Wireless Sensor Networks 3 Prereq CS 455 or c//. Design and implementation of sensor networks.

566 Embedded Systems 3 (2-3) Prereq graduate standing. Graduate-level counterpart of CS 466; additional requirements. Credit not granted for both CS 466 and 566.

570 Machine Learning 3 Prereq CS 122; graduate standing. Introduction to building computer systems that learn from their experience; classification and regression problems; unsupervised and reinforcement learning.

580 Advanced Topics in Computer Science 3 May be repeated for credit.

595 Directed Study in Computer Science V 1-3 May be repeated for credit; cumulative maximum 3 hours. Current topics in computer science.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

ELECTRICAL ENGINEERING - VANCOUVER

Enrollment in many upper-level electrical engineering courses is restricted to certified majors or minors in electrical engineering.

ECE

101 Introduction to Electrical Engineering 2 (1-3) Prereq Math 171. Introduction to the field of electrical engineering and the fundamental concepts behind electronic devices and systems.

214 Design of Logic Circuits 3 (2-3) Prereq CS 121 or CS 251. Design and application of combinational logic circuits with exposure to modern methods and design tools; introduction to sequential logic circuits.

234 Microprocessor Systems 3 (2-3) Prereq CS 122; CS 214. Microprocessor system architecture, instruction sets and interfacing; assembly language programming.

260 Circuit Modeling and Analysis I 4 (3-3) Prereq Phys 202; Math 315 or c//. Circuit modeling, analysis, component models, theory and simulation tools; application of network theory to solve linear and nonlinear circuits under static and dynamic operation.

295 Digital Communications I 3 Hardware and protocols for digital communications systems; Ethernet, ATM, physical and media access layer; encoding and modulation techniques.

302 Properties of Electronic Materials 3 Prereq Chem 105; Phys 202. Schrodinger's wave equation, potential barrier problems, crystal structure and bonds, band theory of solids, semiconductors, super conductor, dielectric and magnetic material properties.

321 Circuit Modeling and Analysis II 3 Prereq ECE 260. Laplace transforms, Fourier analysis, state space analysis, two port networks.

324 Digital Design II 3 (2-3) Prereq ECE 234. Implementation of datapaths and controllers, use of HDLs and automated synthesis tools, field programmable gate arrays and simulation; integrated circuit layout.

325 Electronic Devices and Applications 4 (3-3) Prereq ECE 214; ECE 260. MOS small and large signal models, bipolar transistors, biasing and parasitics, amplifier design and feedback, frequency response; circuit simulation and device models.

341 Signals and Systems 3 Prereq ECE 321. Discrete and continuous systems, sampling, convolution, Fourier and Z transforms, modulation; introduction to distributed parameter systems.

345 Digital Communications II 3 Prereq ECE 295; Stat 360 or c//. Digitally modulated signals and their spectral characteristics, modulation/demodulation techniques, coherent/non-coherent detection methods; source and channel coding, spread-spectrum and multiple access techniques.

349 Principles of Solid State Devices 3 Prereq ECE 302; ECE 325. Semiconductor theory; carrier diffusion and drift, direct and indirect energy materials, homo and heterojunctions, operations principles of bipolar junctions and MOS field effect transistors, metal-semiconductor contacts.

366 Introduction to VLSI Design 3 (2-3) Prereq ECE 324; ECE 325. CMOS devices and deep-submicron fabrication technology; interconnect modeling, power and clock distribution, area, power and speed optimization.

370 Electromagnetic Fields and Waves 3 Prereq ECE 260. Electrostatic and magnetostatic fields; Faraday's laws, Maxwell's equations, electromagnetic properties of matter, uniform plane waves and transmission lines.

405 [M] Professional Issues and Ethics in Electrical Engineering 3 Prereq certified major in electrical engineering; completion of University Writing Portfolio. Social, legal and professional issues that arise in the context of electrical engineering.

411 Energy Systems 3 (2-3) Prereq ECE 321. Investigation and analysis of the design, tradeoffs and efficiency of conventional and alternative energy sources; energy transmission, storage and conversion systems.


424 Computer Architecture and Design 3 (2-3) Prereq ECE 324; ECE 366. Architectural approaches to computer instruction sets and organization; design, analysis and simulation of student computer designs; implementation and testing of designs in an FPGA.

425 RF Devices and Circuits 3 (2-3) Prereq ECE 341; ECE 370. Semiconductor devices and circuit design targeting wireless applications.

451 Electrical Engineering Project Management 3 (1-6) Prereq Engl 402 or 403; senior standing; certified major in electrical engineering. First of a two-course senior design project sequence; design for manufacture, schedule estimation and tracking, costing, ethics and proposal writing.

452 [M] Electrical Engineering Capstone Design Project 3 (1-6) Prereq ECE 451. Execution phase of the senior design project course sequence; independent or team project proposed in ECE 451 is designed and implemented.
Antenna Design and Analysis 3 (2-3) Prereq ECE 425. Antenna types and radiation, wire antennas, antenna arrays, broadband and aperture antennas; theory and simulation of antenna performance, laboratory testing and measurement.

Electro-optical Devices and Systems 3 Prereq ECE 370; Stat 360. Electromagnetic reflection and refraction, waveguide theory; theory and application of optical source and sensor devices; coupling, dispersion and loss in waveguides and optical fiber.

Computer-aided Design for VLSI 3 (2-3) Prereq ECE 366. Algorithms and design flows for VLSI design synthesis and verification.

VLSI Testing and Design for Test 3 (2-3) Prereq ECE 366. Test pattern generation for digital devices, controllability and observability; tester characteristics and capabilities; fault modeling and analysis of test coverage; built-in self-test techniques.

Topics in Electrical Engineering V 1-4 May be repeated for credit; cumulative maximum 9 hours. Prereq junior standing; certified major in electrical engineering. Current topics in electrical engineering.

Solid State Device Design and Modeling 3 (2-3) Prereq ECE 349. Cross-sectional design of CMOS devices; simulation and optimization of device design using CAD tools for process integration; device model extraction for circuit simulation and parametric testing.

Work Study Internship V 2-4 May be repeated for credit; cumulative maximum 8 hours. Prereq by interview only. Experience in electrical engineering and systems analysis in a working environment under supervision of industrial or governmental professionals and faculty. S, F grading.

Wireless and Mobile Communications Systems 3 (2-3) Prereq ECE 345; ECE 414; ECE 425. Wireless communication emphasizing cellular and multiple access communication; RF environment, duplexing and multiple access, cellular, mobile systems, standards and applications; wireless ad hoc networks.

Special Problems V 1-4 May be repeated for credit. Prereq by interview only. S, F grading.

MECHANICAL ENGINEERING - VANCOUVER

Enrollment in many upper-level mechanical engineering courses is restricted to certified majors or minors in mechanical engineering.

101 Introduction to Mechanical Engineering 2 Introduction to mechanical engineering profession, engineering problem solving, computers in engineering design methods.

103 Engineering Graphics 2 (1-3) Orthographic theory, conventions, and visualization; isometric and oblique pictorials; geometric dimensioning and tolerancing, computer-aided drafting and solid modeling.

211 Statics 3 Prereq Math 172 or c//; Phys 201 or c//. Static equilibrium analysis of particles and rigid bodies, free-body diagrams, moment diagrams, friction, center of gravity, moments of inertia.

212 Dynamics 3 Prereq Mech 211. Kinematics and kinetics of particles and rigid bodies; Newton's second law of motion; work-energy concept; impulse and momentum.

215 Mechanics of Materials 3 Prereq Mech 211. Concepts of stress, strain, and their relationships; axial, torsion, bending, and combined stresses; properties of materials; columns and strain energy method.

301 Thermodynamics 3 Prereq Phys 201. Rec Math 220, 315. Thermodynamic properties of matter, ideal and real gases, work and heat, first and second laws and their application to engineering systems.

303 Fluid Mechanics 3 Prereq certified Mech major; Mech 212; Mech 301 or c//. Physical properties, fluid statics, laminar and turbulent flow; impulse and momentum, similitude, pipe flow, boundary layers, lift, drag and measurement techniques, fluid experiments.

304 Instrumentation and Measurement 3 (2-3) Prereq CS 251; Math 220 or c//; Math 315 or c//; Phys 202. Introduction to DC and AC circuits, analog electronic components, digital circuits, computer data acquisition and engineering measurements.

309 Introduction of Engineering Materials 3 (2-3) Prereq Chem 106; Phys 201 or c//. Structure of materials, phase equilibrium, phase transformations, mechanical failure, and mechanical properties; materials testing laboratory.

310 Introduction to Design and Manufacturing 4 (3-3) Prereq certified Mech major; Mech 103; Mech 309. Basic mechanical engineering drawing; shaping and non-shaping manufacturing processes; exposure to 3D-CAD; manufacturing processes laboratory.

313 Engineering Analysis 3 (2-3) Prereq CS 251, Math 220; Math 315; major in engineering. Analysis and modeling of engineering problems utilizing numerical and mathematical techniques and computers.

314 [M] Design Process 3 Prereq Mech 215. Design process, design projects, engineering economics, and ergonomics; extensive use of CAD.

348 Dynamics Systems and Control 3 Prereq certified Mech major; Mech 212. Modeling and analysis of dynamic systems, including mechanical, electrical, fluid, and thermal systems. Fundamentals of vibration analysis, control systems.


404 Heat Transfer 3 Prereq Math 220; Math 315; Mech 301; Mech 303 or c//. Fundamentals of conduction, convection, and radiation heat transfer; analytical, numerical, and empirical modeling for solids, liquids, and gases.

405 Introduction to Microcontrollers 3 Prereq Mech 304. Microcontroller architecture, microcontroller programming, mechanical system design with embedded microcontrollers.

414 Machine Design 3 Prereq certified Mech major; Mech 215; Mech 309; Mech 314. Combined stresses, static and fatigue failure theory and analysis, design and selection of machine elements such as shafts, fasteners, springs, gears and bearings.

416 [M] Mechanical Systems Design I 3 Prereq Mech 414 or c//; senior standing; consent of academic coordinator. First term of the year-long capstone design; integrative design in mechanical engineering; multidisciplinary design project considering technical and nontechnical contexts.

417 Mechanical Systems Design II 3 Prereq Mech 416, senior standing; consent of academic coordinator. Second term of the year-long capstone design; integrative design in mechanical engineering; multidisciplinary design project considering technical and nontechnical contexts.

425 Introduction to Manufacturing Systems 3 Prereq Mech 310 or c//. Traditional and contemporary tools used to support direct manufacturing processes in a manufacturing enterprise.

431 Semiconductor Devices 3 Prereq Chem 106; Math 310. Crystal properties, energy bands, semiconductor charge carriers, p-n junctions, field-effect transistors, bipolar junction transistors, optoelectronic devices, integrated circuits.

438 Microfabrication Technology 3 Prereq Chem 106; Math 315; Phys 202. Microelectronic fabrication technology, semiconductor material, diffusion, thermal oxidation, ion implantation, lithography, etching, thin film deposition, CMOS integration and MEMS. Credit not granted for both Mech 438 and 538.

442 Advanced Thermal Systems 3 Prereq Mech 404. Analysis and design of advanced thermal systems at macro, mini and micro scales; applied design software packages; design projects. Credit not granted for both Mech 442 and 542.


467 Automation 3 (2-3) Prereq Mech 304; Mech 348. Automation systems, discrete event control using programmable logic controllers (PLC), robot programming, process control. Credit not granted for both Mech 467 and 567.

468 Robotics 3 Prereq Mech 304; Mech 348. Industrial robots, kinematics, control, robot programming, interfacing, sensors, actuators, vision systems and mobile robots. Credit not granted for both Mech 468 and 568.

476 Advanced Manufacturing Engineering 3 Prereq Mech 310. Advanced topics in manufacturing processes, including interrelationships between the properties of the material, the manufacturing process and design of components. Credit not granted for both Mech 476 and 576.
Computer-aided Engineering 3 Prereq Mech 310 or c/. Introduction to the use of finite element techniques in engineering product design and analysis; basic concepts and applications in CAE. Credit not granted for both Mech 485 and 585.

Material Failure in Mechanical Design 3 Prereq Mech 215; Mech 309. Analysis, design and prevention from failure of materials in mechanical design; mechanical behavior of materials such as fatigue, fracture and wear. Credit not granted for both Mech 489 and 589.

Internship in Industry V 3-6. May be repeated for credit; cumulative maximum 12 hours. Prereq major mechanical engineering. Students work full time on engineering assignment in approved industries with industrial and faculty supervision. S, F grading.

Special Problems V 1-4. May be repeated for credit. S, F grading.

MEMS Engineering 3 (2-3). Prereq graduate standing or permission of instructor. Introduction to the design, fabrication and application of microelectromechanical systems.

Advanced Heat Transfer 3 Prereq graduate standing; Mech 404 or c/. Energy conservation equations; forced convection with internal and external flow, free convection, boiling and condensation, mass transfer, numerical methods.

Fundamentals of Fluids 1 Prereq graduate standing; Math 315; Mech 303 or c/. Mass and momentum conservation equations, Navier-Stokes equations, compressible flows, inviscid-potential flows, advanced viscous flows including boundary layer numerical methods.

Finite Elements 3 Prereq graduate standing. Theory of finite elements; applications to general engineering systems considered as assemblages of discrete elements.

Microfabrication Technology 3 (2-3) Prereq Chem 106; Math 315; Phys 202; graduate standing. Graduate-level counterpart of Mech 438; additional requirements. Credit not granted for both Mech 438 and 538.

Advanced Dynamics 3 Prereq graduate standing; Mech 212. Newtonian dynamics, rotating coordinate systems; Lagrangian and Hamiltonian mechanics, gyroscopic mechanics, other applications.

Advanced Thermal Systems 3 Graduate-level counterpart of Mech 442; additional requirements. Credit not granted for both Mech 442 and 542.

Micro and Nano Technology 3 (2-3) Prereq graduate standing; Mech 431 or c/., Graduate-level counterpart of Mech 450; additional requirements. Credit not granted for both Mech 450 and 550.

Automation 3 (2-3) Prereq graduate standing; Mech 304; Mech 348. Graduate-level counterpart of Mech 467; additional requirements. Credit not granted for both Mech 467 and 567.

Robotics 3 Prereq graduate standing; Mech 304; Mech 348. Graduate-level counterpart of Mech 468; additional requirements. Credit not granted for both Mech 468 and 568.

Foundations of CAD 3 Prereq graduate standing. Topics fundamental to the creation of CAD, engineering visualization, and virtual reality based engineering software.

Geometric Modeling 3 Prereq graduate standing. Study of the mathematics behind the creation of complex shapes for CAD using curves, surfaces, and solids.

Advanced Manufacturing Engineering 3 Prereq graduate standing; Mech 310. Graduate-level counterpart of Mech 476; additional requirements. Credit not granted for both Mech 476 and 576.

Advanced Topics in Design and Manufacturing V 1-3. May be repeated for credit. Prereq graduate standing.

Material Failure in Mechanical Design 3 Graduate-level counterpart of Mech 489; additional requirements. Credit not granted for both Mech 489 and 589.

Seminar 1 May be repeated for credit. Prereq graduate standing. Current research interests. S, F grading.

Special Projects or Independent Study V 1-18. May be repeated for credit. Prereq graduate standing. S, F grading.

Master's Research, Thesis, and/or Examination V 1-18. May be repeated for credit. S, F grading.

Engineering and Technology Management Program

www.engrmgt.wsu.edu
ETRL 336
509-335-0125

Program Director, J. A. Ringo; Teaching Faculty, W. J. Gray, J. R. Holt, E. R. Ladd, H. A. Ramsey; Adjunct Instructors; R. Crick, G. Sudikatus.

Engineering management is a graduate program designed to help technical professionals become effective managers. The program is administered by the College of Engineering and Architecture. Management training is integrated with upgraded technical skills to meet industry needs for the management of technology and the management of technical professionals. Formerly one program with two options, the program now provides an integrated education in technical decision-making and leadership for industry employees and allows business and engineering employees to learn together in common courses.

This interdisciplinary master's degree is offered to industries in the Puget Sound area via remote classrooms or webstreaming and to other high-tech firms around the country and around the world via webstreaming; and live at WSU Spokane, WSU Tri-Cities, and WSU Vancouver. Classes are offered at times convenient for the working professional. Each ETL class is broadcast over the web at the same time the live session is presented in our studio classroom. The videotape for each class is also archived, and is available for review during the entire semester. Courses are presented and managed using Angel, a web-enabled course hosting platform. Students bring a significant amount of experience and diversity into the academic arena from a variety of engineering and management backgrounds.

The college also offers the following certificates: General Engineering Management; Six Sigma Quality Management; Project Management; Manufacturing Leadership; Constraints Management; Supply Chain Management; Systems Engineering Management; and Construction Project Management.

Program Requirements

The master's program with a nonthesis option consists of 32 credit hours including a minimum of 30 credit hours of approved graded course work and a minimum of 2 credit hours of Master's Special Problems. There is both a project and an exam option. The program of studies leads to a Master of Engineering and Technology Management degree. New Core Requirements effective Fall 2008 allow students to choose one course from each of the six core areas Managing Organizations and People (EM 501, 522), Managing Financial Resources (EM 505, 545, 590), Managing with Analytical Methods (EM 540, 460), Managing Projects (EM 564, 5 M 520), Managing Variability (Stat 430, EM 580, EM 585), and Managing Strategy (EM 540, 555, EM 575, EM 591). Four additional courses can be chosen as electives—from any area, both core and elective. Electives include EM 508, 517, 530, 534, 538, 555, 565, 566, 570.

Each certificate also requires 12 credits.

Admission Requirements

Students who apply to the Master of Engineering and Technology Management degree program will have earned a Bachelor of Science degree from an accredited school with a minimum gpa of 3.0. Applicants with undergraduate degrees in other fields, particularly mathematics, physics, or business, who are working in technical fields may be accepted for this program. Prospective students must provide three letters of recommendation, a resume showing relevant work experience, and a brief personal statement outlining the appropriateness of the program in light of career goals and work history.

For information on the certificate program, please contact the Pullman office, (509) 335-0125.

Description of Courses

ENGINEERING MANAGEMENT

Constraints Management 3 Identifies factors that block improvements in any system; effective breakthrough solutions; continual systems improvements for manufacturing, administration, projects. Credit not granted for both EM 426 and 526.

Applications of Constraints Management 3 Understanding and applying proved solutions developed by the theory of constraints in areas of production, project management, finance, and distribution. Credit not granted for both EM 430 and 530.
460 Integrated Supply Chain Management 3
Prereq junior standing. Concepts and techniques for design and managing manufacturing and service, operations intended to develop a world class organization.


480 Quality Control and Reliability 3 Rec Stat 430. Quality analysis, modeling process, product quality, statistical process control, process capability studies; sampling concepts, reality models, predictions, design testing. Credit not granted for both E M 480 and 580.

485 Quality Engineering Using Design of Experiments 3 Rec Stat 430. Design for quality improved products; processes and services using designed experiments, including robust/parameter design. Credit not granted for both E M 485 and 585.

490 Design for Product and Service Realization 3 Prereq junior standing. Techniques and tools to optimize cost, quality, time to market, and to improve comprehensive product design, manufacturability and service components. Credit not granted for both E M 490 and 590.

501 Management of Organizations 3 Exploration of issues related to individual behavior in work organizations, including motivation, leadership, team-building, and team management skills.

503 Applications of Constraints Management 3 Graduate-level counterpart of E M 430; additional requirements. Credit not granted for both E M 430 and 530.

534 Contemporary Topics in Constraints Management 3 May be repeated for credit; cumulative maximum 6 hours. Prereq E M 526 or 530. Contemporary teaching tools, software packages, current techniques and thought in managing complex systems using the theory of constraints.

538 Lean Agility 3 3 Prereq graduate standing. Integration of the best of Lean, Six Sigma, and Theory of Constraints to accelerate the continuous improvement process.

540 Operations Research for Managers 3 Rec Math 273. Applying linear, integer, goal programming; network optimization; queuing analysis; dynamic programming; simulation; Markov analysis; and forecasting to engineering management decisions.

545 Technical Decision Analysis 3 Prereq graduate standing. Decision analysis provides a structured discipline for describing, analyzing, and finalizing decisions involving uncertainty.

555 Enterprise Resource Management 3 Prereq graduate standing. Focusing the flow of quality, timely products and cooperative supply chain operations and planning using simulation and effective enterprise resource management.

560 Integrated Supply Chain Management 3 How technical managers analyze and manage the flow of materials, services, and information for products from inception to final customer.

564 Project Management 3 Rec basic statistics course. Planning, organizing, scheduling and controlling major projects; human dimensions, PERT and CPM scheduling models, resource allocation, and cost controls.

571 Simulation Modeling of Engineering Systems 3 Rec Stat 430; experience with computer programming. Analyzing and developing representative models for complex systems such as project or operations management using a variety of simulation styles.

580 Quality Control and Reliability 3 Prereq graduate standing. Concepts of quality control and reliability. Credit not granted for both E M 426 and 526.

585 Quality Engineering Using Design of Experiments 3 Prereq graduate standing; Rec Stat 430. Graduate-level counterpart of E M 485; additional requirements. Credit not granted for both E M 485 and 585.

590 Design for Product and Service Realization 3 Prereq graduate standing. Same as E M 490; additional requirements. Credit not granted for both E M 490 and 590.

591 Strategic Management of Technology and Innovations in Engineering 3 Prereq graduate standing. Management of technological innovation; integrating strategic, new product development, corporate entrepreneurship, and innovation; features action-oriented cases.

595 Advanced Topics in Engineering Management I V 1-3 May be repeated for credit; cumulative maximum 9 hours. A wide range of current high-interest engineering management topics.

596 Advanced Topics in Engineering Management II 3 May be repeated for credit; cumulative maximum 9 hours. A wide range of current high-interest engineering management topics.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Department of English

libarts.wsu.edu/english
Avery 202, Pullman campus
509-335-2581


Majors in English provide students with a broad critical and cultural understanding of literature and literary studies, and emphasize the writing and analytical skills that are vital to success in the university, in professional and graduate school, and in the workplace. The program of study is flexible and allows English majors to focus on particular areas of intellectual interest, to pursue electives, minors, and second majors in other departments, and to shape their academic careers in line with professional and personal interests. The curriculum is designed for (1) students who desire a broad education emphasizing language and literature, (2) students who wish to teach or to prepare for graduate studies in literature or rhetoric and composition, (3) students who intend to use
the background and skills learned in the major as a foundation for careers in writing, editing, law, business, or public service. The curriculum provides majors the opportunity to complete their studies with a small discussion seminar or senior project in their area of emphasis.

Majors in English are expected to learn to read literary and cultural texts carefully and critically; to produce a variety of high-quality creative and critical texts using appropriate technologies that contribute to literary and cultural discourses; to develop abilities in critical reading, writing, and thinking necessary to communicate successfully with audiences both within and outside the university; and to explore the record of the human experience in language.

Students who are preparing to teach English in the public schools of Washington should examine the summary of requirements for majors and minors listed in the Department of Teaching and Learning in this catalog, and they should confer with the College of Education concerning the requirements for certification.

The Department of English offers courses of study leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy (English). The department participates in the interdisciplinary programs in American Studies leading to the degrees of Bachelor of Arts, Master of Arts, and Doctor of Philosophy (American Studies). Students interested in the Bachelor of Arts in this interdisciplinary field should consult the requirements listed under Program in American Studies. English also participates in the Digital Technology and Culture program, which offers an interdisciplinary course of study leading to the Bachelor of Arts degree. Students interested in this field should consult the requirements listed under Digital Technology and Culture. Students interested in interdisciplinary degrees in areas such as linguistics, humanities, and classical studies should consult the requirements within the Program in General Studies. Students may now also do an English degree consisting primarily of international literature, philosophy, art, architecture, and music courses from the Humanities sequence offered jointly by the departments of Foreign Languages and English, within the Literary Studies option described below.

English Major Options

Four programs are offered for the English major, all leading to the degree of Bachelor of Arts in English.

Option I: Literary Studies is for students who desire a general liberal arts education emphasizing literature, critical thinking, and writing; and for those preparing for graduate education in English or literary studies. English is often selected as a major by students with double majors or minors in other departments.

Option II: Rhetoric and Professional Writing is for students preparing for careers in business, public service, law, or other professions requiring writing and reading skills. It is also suitable for those seeking careers in higher education specializing in rhetoric and composition.

Option III: Teaching is for students who need specific training in the teaching of language and literature at the secondary level; it is coordinated with the Department of Teaching and Learning.

Option IV: Creative Writing is for students interested in creative writing in various forms (poetry, fiction, nonfiction prose), in editing and publishing, and in careers drawing on related creative and professional skills.

Digital Technology and Culture

Digital Technology and Culture is an interdisciplinary degree program that integrates humanities, social sciences, and technology in a critical and creative framework designed to meet individual student interests as well as the needs of contemporary audiences and employers. Digital Technology and Culture majors work at the forefront of today's technology, while learning the importance of technological history and preparing themselves to live in and understand a culture increasingly influenced by technology. If you are interested in mixing art and technology, in language and culture, and in persuasion and effective communication then DTC is the major for you. For further information, consult the separate entry for "Digital Technology and Culture."

Preparation for Graduate Study

Students interested in a graduate program in English at Washington State University should offer preparation in English courses generally approximating one of the first three undergraduate programs described above. Students with undergraduate majors in such subjects as philosophy, foreign languages, and history may also be accepted for graduate study in the department. Students preparing for degrees which require a foreign language reading competency should begin studying a qualifying language before entering graduate school. See the "Language Requirements" page on the Department of English Graduate Studies Web site for further details.

Schedules of Studies

I. ENGLISH - LITERARY STUDIES (120 HOURS)

Requirements in this degree include fifteen hours of core classes (302, 370, 371, 372, and 373), fifteen hours 300-400 level English literature or Humanities classes, at least six of them at the 400 level, and six hours of electives in English or Humanities at any level, excluding Engl 201. One of these must be an advisor-approved writers-of-color class. Total: 36 hours.

First Year

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<th>First Term</th>
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<tr>
<td>Art &amp; Humanities [H,G] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<td>Elective (English or Humanities recommended)</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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Second Term

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<td>English or Humanities Elective (GER)</td>
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<td>Physical Sciences [P] (GER)</td>
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<td>Science Elective (GER)</td>
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II. ENGLISH - RHETORIC AND PROFESSIONAL WRITING OPTION (120 HOURS)

Requirements in this degree are core of eighteen hours of 300-400 level classes, twelve to eighteen hours of electives from the list of approved courses, and the option of one or two electives with the approval of advisor – of any English or Humanities course at any level. Required courses/ core (18 hours): 301, 302, 360, 362, and 460 or 461 (Prerequisite of Engl 402 or 403 required for 461). One transnational lit course (chosen in consultation with advisor) from 370, 371, 372, 373, 460, or 461. Electives (18 hours): 308, 336, 354, 355, 358, 361, 363, 375, 401, 402, 405, 410, 458, 461, 475, 476, 495, any creative writing course deemed appropriate by CW faculty, the student, and her or his advisor.

First Year

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<td>6</td>
<td>Art &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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At least one from Hum 101, 103, 302, 303, 304, 335, 350, 410, or 450 is required. Upper-division Hum courses are not recommended for first-year students.
III. ENGLISH - TEACHING OPTION (124 HOURS)

First Year

First Term Hours
Arts & Humanities [H,G] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Science Elective (GER) 4

Second Term Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Biological Sciences [B] (GER) 4
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3

Second Year

First Term Hours
Arts & Humanities [H,G] (GER) 3
Engl 302 [M] [W] (GER) 3
Engl 326 3
Physical Sciences [P] (GER) 4
Psych 105 [S] (GER) 3

Requirements in this option involve 39-credit hours, approximately half in creative writing and related professional courses, the remainder in supporting literature courses approved by the advisor. In addition to these requirements, students are urged to elect GER courses in American and world cultures, history, and society to round out the liberal arts education that they will bring to careers in creative writing, editing, publishing, and related fields.

First Year

First Term Hours
Arts & Humanities [H,G] (GER) 3

Minors

English

The student must complete a minimum of 18 hours in English courses (excluding 101 and 198), half of which must be 300-400-level and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses; Engl 302 is required.
Humanities Minor
The Department of English administers the Humanities minor. For details, see the separate entry under “Humanities.”

Linguistics
The student must complete 18 hours, half of which must be 300-400-level, in the following courses: For L 101 or Engl 256, Engl 255 or Phil 201, Engl 443 (phonology), Engl 443 (syntax), Engl 354 or Anth 355 and one from Engl 458 (sociolinguistics), Engl 458 (psycholinguistics), Anth 350, Psych 492 or Phil 443. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Professional Writing
The professional writing minor requires 18 hours, half of which must be 300-400-level and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses, and include Engl 301, 402 or 403 and 461. In addition, 12 hours from Engl 255, 256, 300, 354, 355, 401, 402, 403, 405, 478 and 498 are required.

Certificates

Professional Writing Certificate
To earn the Professional Writing Certificate, students must complete the following five courses with a 3.0 GPA or better: Anth 350, Engl 301, 355, 402, and 498. Engl 498 must be taken only after the other four courses have been completed. The certificate can be earned through the Distance Degree Program and/or on-campus offerings. The University undergraduate certificate fee will apply.

Teaching English as a Foreign Language Certificate
To earn the Teaching English as a Foreign Language Certificate, students must complete 18 hours including the following courses: Engl 443 (syntax); Engl 443 (phonology); Engl 458 (sociolinguistics) or For L 441; Engl 458 (psycholinguistics); Engl 495 or For L 440; and Engl 498 (3 hours). Engl 255 (English grammar is highly recommended).

Description of Courses

ENGLISH

Engl

100 Basic Writing 3 Prereq writing placement exam. Designed to introduce students to writing and reading in the university. S, F grading.

101 [W] Introductory Writing 3 Prereq writing placement exam or Engl 100. Designed to develop students’ academic writing, critical thinking, rhetorical strategies, reading and library skills. Credit not granted for more than one: Engl 101, 105, and 198.

102 Writing Tutorial V 1-3 May be repeated for credit; cumulative maximum 5 hours. Prereq writing placement exam. Student-centered group tutorial focusing on writing improvement usually connected to the Engl 101 or 105 course. S, F grading.

104 Intermediate Grammar and Basic Skills ESL 3 Prereq writing placement exam. Designed to introduce non-native speakers of English to writing and reading in the university.


108 [H] Introduction to Literature 3 Reading short stories, novels, plays, and poetry by diverse voices; role of conventions, culture, history in interpretation of literature. Credit not granted for both Engl 108 and 199.

110 [H] Reading Now 3 Contemporary writing including fiction, poetry, creative nonfiction and graphic novels.

150 Introduction of Film as Narrative 3 (2-3) Introduction to analysis of techniques and elements of narrative film and to critical vocabulary for its study as art form.

198 [W] English Composition Honors 3 Open only to students in the Honors College. Credit not granted for more than one: Engl 101, 105, and 198.

199 [H] English Composition and Literature Honors 3 Open only to students in the Honors College. Credit not granted for both Engl 108 and 199.

200 [W] Expository Writing V 1-2 Prereq sophomore standing. For transfer students who need to make up writing credits.

201 [W] Writing and Research 3 Prereq Engl 101 or 105. Designed to develop students’ researching skills for writing across the disciplines.

202 Grammar in Context 1 May be repeated for credit; cumulative maximum 5 hours. Prereq concurrent writing course. Tutorial to assist students in mastering conventions of Standard Edited American English. S, F grading.

205 [H] Introduction to Shakespeare 3 Shakespeare plays with emphasis on stage productions and film adaptations in various cultural contexts.

210 [H] Readings in American Literature 3 Selected works by diverse voices from different eras of American literature; importance of conventions, cultural contexts, for interpretation and understanding.

216 [S,D] American Cultures 3 Same as Am St 216.

220 [H,D] Introduction to Multicultural Literature 3 Same as CES 220.

251 Introduction to Creative Writing: Exploring the Genres 3 Beginning writer’s workshop covering short fiction, creative nonfiction, and poetry with discussion of the elements of each genre; poetic forms.

252 Introduction to Creative Writing and Creative Writing Pedagogy 3 Beginning workshop with discussion and development of classroom approaches to three creative writing genres for the preprofessional secondary English teacher.

255 English Grammar 3 Introduction to the terms, concepts, and analytical methods of traditional English grammar.

256 Introduction to Syntax and Semantics 3 Technical introduction to the structure of words and sentences in natural languages and to the study of linguistic meaning.

298 [W] Writing and Research Honors 3 Prereq Honors College Writing Diagnostic. Critical thinking, research, and advanced writing for Honors College students.

300 Computers in English 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Use of computers in the writing process and in the analysis of literature. S, F grading.

301 [W] Writing and Rhetorical Conventions 3 Prereq Engl 101 or 105. Designed to provide students with advanced practice in and study of style, argument, and other discourse conventions.

302 [WM] Introduction to English Studies 3 Prereq Eng 101. Interpretation of texts in several fields of English studies including rhetoric, literary study, creative writing and professional writing.

303 Revision Workshop - ESL 3 Prereq GER written communication proficiency course and completion of University Writing Portfolio. Appreciation of writing processes and revision for speakers of English as a second or foreign language, including self-assessment, developing rhetorical approaches, diagnosing and solving consistent problems, editing, and proofreading strategies.

304 Revision Workshop 3 Prereq GER written communication proficiency course and completion of University Writing Portfolio. Appreciation of writing processes and revision, including self-assessment, developing rhetorical approaches; diagnosing and solving consistent problems, editing, and proofreading strategies.

305 [H] Shakespeare 3 Shakespearean drama to 1600.

306 [H] Shakespeare 3 Shakespearean drama after 1600.

307 [M] Historized Analysis of Literature 3 Prereq Eng 302 or c/. Introduction to analyzing literary texts in relation to literary and cultural history.

308 [H,M] Introduction to Literary Criticism 3 Introduction to the systematic study of critical and theoretical approaches to literature; emphasis on problems of interpretation.

309 [H] Women Writers 3 Women’s artistic and intellectual contributions to prose, fiction, drama, and poetry.

311 [G] Asian/Pacific American Literature 3 Same as CES 313.

314 [M] Topics in Asian/Pacific American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Same as CES 314.

315 Asian Pacific American Autobiography 3 Same as CES 315.

316 [G] South Asian Film 3 (2-3) Exploration of films by directors in South Asia and in the South Asian diaspora.
317 [H,D] Gay and Lesbian Literature 3 Gay and lesbian literature with focus on the history of homosexual literature and exploration of current authors.

321 [G] African American Literature 3 Same as CES 331.

322 [M] Topics in African American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Trends and major writers.

323 Approaches to the Teaching of English 3 Literature and language arts in secondary schools.


325 Young Adult Literature 3 Issues in literature written for young adults and strategies for teaching the genre in secondary schools.

326 Applied Grammar for Teachers 3 Application of traditional English grammar for K-12 teachers, with focus on edited, American, African American, vernacular, and Spanish-influenced Englishes.

332 [M] Topics in Poetry 3 May be repeated for credit; cumulative maximum 6 hours. Forms, history, development of poetry; the epic, the lyric, verse satire, dramatic monologue, modernist verse. May be repeated for credit; cumulative maximum 6 hours.

333 [H] Composition and Design 3 Prereq junior standing. Same as DTC 336.

337 Experimental Animation 3 (2-2) Digital and analog animation techniques; conceptual development of narrative structures.

338 [M] Topics: Major Trends and Figures 3 May be repeated for credit; cumulative maximum 6 hours. Literary trends or major writers.

339 Topics in Film as Literature 3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Analytical study of film as major literary genre.

340 Science Fiction Film 3 (2-3) Major science fiction films and the literature which inspired them.

341 [G,M] Native American Literature 3 Same as CES 373.

342 Documentary Film Theory and Production 3 (2-2) Theory of documentary film in social contexts culminating in the creation of actual documentary films by students.


351 Creative Writing: Prose 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Engl 251 Workshop approach to writing prose.

352 Creative Writing: Poetry 3 Prereq Engl 251 or substitution approved by instructor. Workshop approach to poetry writing.

353 Creative Writing: Nonfiction 3 Prereq Engl 251 or substitution approved by instructor. Writing literary nonfiction: practice and theory.

354 Digital Storytelling 3 Same as DTC 354.


356 Electronic Research and the Rhetoric of Information 3 Same as DTC 356.

357 Topics in Magazine Editing and Creative Writing 3 May be repeated for credit; cumulative maximum 6 hours. Magazine editing, audience, and cultural contexts; professional publishing techniques; other specialized topics in professional and creative writing.

358 Workshop Topics in Writing, Teaching, Literature 1 May be repeated for credit; cumulative maximum 6 hours. Prereq junior standing or approval of instructor. An intensive, time-limited workshop, offered by visiting writers, scholars, and other experts, in topics of special interest. S, F grading.

359 Topics in Creative Writing 3 Prereq Engl 251. Specialized topics in creative writing.

360 Principles of Rhetoric 3 Basic concepts and approaches to the art of persuasion.

361 [H] Everyday Rhetorics 3 Rhetorics as language and image of popular culture.

362 Rhetorics of Racism 3 The language of racism since WWII.

363 Rhetoric: Literacy, Power and Agency 3 Major discussions on literacy emphasizing the historical, social, linguistic and pedagogical.

364 Legal Writing 3 Introduction to the American legal system and the style, arguments and accepted forms of professional writing in this discipline.

366 [H] The English Novel to 1900 3 Classic English novels in cultural perspective by such authors as Defoe, Fielding, Austen, the Brontes, Thackeray, Dickens, George Eliot, Hardy.

368 [H] The American Novel to 1900 3 Classic American novels in cultural perspective by such authors as Cooper, Hawthorne, Melville, Stowe, Twain, James, Jewett, Chopin, Crane, Dreiser.

370 The Making of English: Literature, Language and Culture Before 1600 3 Literature before 1600, highlighting the making of “English” through its interaction with other cultures/languages including Anglo-Saxon, French and Spanish.

371 17th and 18th Century Transnational Literature in English 3 Literary and cultural texts in English from 1600 to 1800 including British and colonial American literatures within their transnational contexts.

372 19th Century Literature of the British Empire and the Americas 3 Literary and cultural texts in English from 1800 to 1900 focusing on global British literature and literatures of the Americas.

373 20th and 21st Century Global Literatures in English 3 Literary and cultural texts in English from 1900 to the present focusing on literatures representing the complex processes of globalization.

375 [H,M] Language, Texts and Technology 3 Prereq junior standing. Same as DTC 375.

401 History of Rhetoric 3 Survey of influential theories of rhetoric, ancient to modern.

402 [W,M] Technical and Professional Writing 3 Prereq Engl 101, junior standing. Research writing: defining, proposing, reporting progress; presenting a final product; other professional writing needs. Credit not granted for both Engl 402 and 403.

403 [W,M] Technical and Professional Writing ESL 3 Prereq Engl 101; pass University Writing Portfolio or concurrent enrollment in additional assigned coursework. For non-native speakers of English. Same as Engl 402. Special grammatical and rhetorical problems. Credit not granted for both Engl 402 and 403.

405 Advanced Professional Writing and Editing 3 Prereq Engl 402 or by interview. Professional writing and editing: textual alterations, design, and layout, including internship experience.

409 [T] Women Writers in the American West 3 Prereq completion of one Tier I and three Tier II courses. Diversity of writings by women in the trans-Missouri West from the 1890s to the present.

410 [T] Cultural Criticism and Theory 3 Prereq completion of one Tier I and three Tier II courses. Study of tragedy and comedy in the Age of Shakespeare.

419 [T] The Twentieth Century Novel 3 Prereq completion of one Tier I and three Tier II courses. The novel in English in the literary and cultural context of the modern age.

443 Problems in English Linguistics: Syntax and Phonology 3 May be repeated for credit; cumulative maximum 6 hours. Technical introductions to generative analysis of sentences and to sound systems of human languages.

446 Form and Theory in Creative Writing: Prose and Poetry 3 Prereq two college-level creative writing courses. Formal elements of fiction, creative nonfiction, poetry for creative writing students; analysis of contemporary applications of traditional and experimental techniques.

451 [M] Advanced Creative Writing: Prose 3 May be repeated for credit; cumulative maximum 6 hours. Prereq one upper-division creative writing course. Advanced workshop in writing fiction or creative nonfiction prose.

452 [M] Advanced Creative Writing: Poetry 3 May be repeated for credit; cumulative maximum 6 hours. Prereq one upper-division creative writing course. Workshop approach to poetry writing for the advanced student.

454 History of the English Language 3 Prereq one-year foreign language. Language related to the origin, history, and literature of its speakers. Credit not granted for both Engl 454 and 554.

458 Topics in Sociolinguistics and Psycholinguistics 3 May be repeated for credit; cumulative maximum 6 hours. Relationship of language to social and psychological structures.
460 [M] The Scope of Rhetoric 3 Major themes in contemporary rhetoric.


470 [T] Literature and Culture of the American West 3 May be repeated for credit; cumulative maximum 6 hours. PreReq completion of one Tier I and three Tier II courses. Cultural exploration of American West in written texts; outsider and insider versions of reality and imagination of its diverse peoples.

472 [T] Ecological Issues and American Nature Writing 3 PreReq completion of one Tier I and three Tier II courses. Same as Am St 472.

475 [T,D] Digital Diversity 3 PreReq junior standing; completion of one Tier I and three Tier II courses. Same as Am St 475.

476 Digital Literacies 3 PreReq EnGl/DTC 375. Same as DTC 476.

477 Advanced Multimedia Authoring 3 PreReq EnGl 355. Same as DTC 477.

478 Usability and Interface Design 3 (0-6) PreReq EnGl 355. Same as DTC 478.

480 American Literature to 1855 3 PreReq EnGl 302. American writing from Settlement and Revolution through the times of Irving, Poe, Emerson, Hawthorne, Fuller, Thoreau, and Melville.

481 American Literature 1855-1916 3 PreReq EnGl 302. American writing in an era of expansion, social and literary ferment: Whitman, Dickinson, Frost, the literature of realism and naturalism.

482 Modern American Literature 3 PreReq EnGl 302. Major literary movements and alternate voices in American poetry, fiction, and drama from World War I to the present.

483 Chaucer and Medieval Literature 3 PreReq EnGl 302. Chaucer’s Canterbury Tales in the context of Medieval culture and literary tradition.


485 Milton and English Literature of the 17th Century 3 PreReq EnGl 302. Nondramatic literature from the Metaphysicals and Johnson through Milton, against background of scientific revolution, religious controversy, and civil war.

486 English Literature of the Restoration and 18th Century 3 PreReq EnGl 302. Neoclassical literature from 1660 to the Romantic era: Dryden, Swift, Pope, Johnson, Gray, Goldsmith, Burns, and others.

487 English Romantic Literature 3 PreReq EnGl 302. Major works by Blake, Wordsworth, Coleridge, Byron, Shelley, Keats, and others during Romantic literary revol, especially 1798-1832.

488 Victorian Literature 3 PreReq EnGl 302. Major works by Tennyson, Dickens, Browning, Swinburne, Wilde, and others in a dynamic age of change in Britain, 1832-1901.

489 Modern British Literature 3 PreReq EnGl 302. Fiction, drama, poetry in age of conflict, artistic experimentation: Joyce, Woolf, Lawrence, Murdoch, Shaw, Pinter, Yeats, Eliot, Auden, and others.

492 [M] Advanced Topics in Literature, Criticism, and Theory 3 May be repeated for credit; cumulative maximum 6 hours. Not open to graduate students. Seminar with term paper project; focused studies in literature and critical theory.

493 [M] Advanced Topics in American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Not open to graduate students. Seminar with term paper project; focused studies in American literature.

495 [M] Advanced Topics in English for Teachers 3 May be repeated for credit; cumulative maximum 6 hours. PreReq senior in English/teaching option. Not open to graduate students. Seminar with term paper project; literature, composition theory, pedagogy.

498 Internship V 1-15 May be repeated for credit; cumulative maximum 15 hours. PreReq junior in English. Cooperative learning experience in business, education, or industry in English-related jobs. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Seminar in the Teaching of Writing: Methodology of Composition 3 Development of a workable definition of the methods of composing through a review of relevant research and problem-solving exercises.


506 Seminar in 16th Century English Literature 3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.

507 Shakespeare 3 Plays, poems, criticism, and background materials.

508 Seminar in Assessment of Writing 3 Problems involved in the diagnosis and assessment of student writing.

509 Seminar in Classical Rhetoric and its Influences 3 Study of Greek and Roman rhetorical theories and their influences.

510 Backgrounds of American Literature 3 Studies of American writing in cultural contexts.

511 Seminar in 17th and 18th Century American Literature 3

512 Introduction to Graduate Study 3

513 Theory and Method in American Studies 3 Same as Am St 513.

514 Seminar in 20th Century American Literature 3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.

515 Contemporary Theories of Rhetoric 3 Contemporary critical theory and cultural studies and reconsiderations of susasive discursive practices.

521 Seminar in British Romantic Literature 3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.

522 Seminar in Victorian Literature 3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.

525 Seminar in English Literature of the 17th Century 3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.

527 Seminar in English Literature of the Restoration and 18th Century 3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.

529 Seminar in 19th Century American Literature 3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.

531 Administering a Writing Program 3 PrReq graduate standing. Combining theory and practice in writing program supervision and management. Interns will work under direct faculty supervision.

532 Teaching Writing to Nontraditional Students 3 PreReq EnGl 501. Theory and practice of the teaching of basic writers.

534 Theories and Methods of the Teaching of Technical and Professional Writing 3 Historical and theoretical bases for production of scientific discourse; training in its practical applications.

543 Problems in English Linguistics: Syntax and Phonology 3 May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of Eng 443; additional requirements. Credit not granted for both Eng 443 and 543. Cooperative course taught by WSU, open to UI students (ENG 543).

546 Topics in Teaching English as a Second Language 3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours. Topics and controversies related to second language acquisition theory and pedagogy.

548 Seminar in Literary Theory 3 May be repeated for credit; cumulative maximum 6 hours. Problems in the theory and practice of literary criticism.

549 Seminar in 20th Century British Literature 3 May be repeated for credit; cumulative maximum 6 hours.

550 Seminar in Poetry or Non-fiction Prose 3 May be repeated for credit; cumulative maximum 6 hours. Historical and generic studies in poetry and non-fiction prose.

554 History of the English Language 3

567 Seminar in Prose Fiction 3 May be repeated for credit; cumulative maximum 6 hours. Historical and generic studies of prose fiction.
Entomology

Department of Entomology

entomology.wsu.edu
ISN 166
509-335-5504


Insects and related arthropods are dominant components in all terrestrial and most freshwater ecosystems. There are more species of insects than all the other species of animals and plants combined. This almost unimaginable diversity provides the most fertile resource for scientific inquiry within a number of areas of biology. Entomology at Washington State University is active, robust, and dynamic. The curriculum provides the opportunity to investigate the basic and applied aspects of the science. Facilities and training are available for study in major areas of entomology including, but not limited to, apiculture, behavior, integrated biological control and sustainable pest management, ecology, forest entomology, insect-plant interactions, population genetics, physiology, taxonomy/systematics, biological diversity, and environmental toxicology. We believe that a detailed understanding of insect biology is a prerequisite to developing rational, effective, and sustainable management practices. Similarly, an understanding of the ecological ramifications of such management practices, particularly pesticide use, is a requirement.

The entomology curriculum provides the opportunity to study basic and applied aspects of entomology and prepares students employment in all aspects and levels of the science. Courses are designed for majors and nonmajors, providing needed training for students in agriculture, education, veterinary medicine, microbiology, public health, environmental sciences, and natural sciences. An interdisciplinary curriculum in integrated pest management (IPM) is available to students with interests that span entomology and pest management.

Facilities are available for graduate study in the major areas of entomology as delineated above. Departmental faculty, adjunct faculty, and affiliate faculty may all serve as student advisors. Faculty are housed both on campus and at research stations throughout the state; this ability to interact with both on- and off campus advisors and mentors offers students opportunities and perspectives not available in most programs. We maintain strong cooperative interactions with the USDA, ARS and students are encouraged to explore this avenue for advisors and funding opportunities. The department has a long and excellent record of student placement both nationally and internationally. Extensive insect collections, insectary, quarantine, computer, and molecular facilities support teaching, extension, and research. The department is committed to both basic and applied aspects of the science. We are heavily involved in developing an integrated biological control approach to pest management. This commitment is reflected in the broad involvement of the faculty in all aspects of entomology.

The department offers courses of study leading to the degrees of Bachelor of Science in Biology with an Entomology option; Master of Science in Entomology, and Doctor of Philosophy (Entomology). Additional information can be obtained on the web at http://entomology.wsu.edu.

Preparation for Graduate Study

As preparation for work toward an advanced degree in entomology, a student should have completed an undergraduate major in one of the biological or physical sciences, forestry, agriculture, or a closely related field. Potential students with majors in other disciplines are considered on an individual basis. Background work should include courses in the biological and physical sciences, genetics, ecology, entomology, and the plant and animal sciences.

INTEGRATED PEST MANAGEMENT

The integrated pest management (IPM) option major is a multidisciplinary course of study offered through the Agriculture and Food Systems Degree Program. Students electing the IPM option will take courses in the Departments of Crop and Soil Sciences, Entomology, Horticulture and Landscape Architecture, and Plant Pathology. Students acquire a holistic perspective and ecological understanding of the philosophy, principles, and practices of pest management and are trained to become professional crop protection specialists.

Schedules of Studies

INTEGRATED PEST MANAGEMENT - ENTOMOLOGY OPTION (129 HOURS)

First Year

First Term Hours
Biol 106 [B] (GER) 3
Chem 101 [P] or 105 [P] (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
IPM 201 3

Second Term Hours
Biol 107 [B] or 120 [B] (GER) 4
Chem 102 [P] or 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
Math 140 [N] or Stat 212 [N] (GER) 4
Psych 105 [S] (GER) 3

Second Year

First Term Hours
Ag Ec 201 [S] (GER) 4
CropS 201 or Hort 201 4
ES/RP 101 [B] (GER) 4
ES/RP 174 3
H D 205 [C] (GER) 3

Second Term Hours
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Chem 345 4
ES/RP 150 [Q] or Zool 150 [Q] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
Soils 201 [B] (GER) 3
Complete Writing Portfolio 3

Third Year

First Term Hours
Arts & Humanities [H,G] (GER) 3
Bot 320 4
CropS 305 3
PI P 429 3

Second Term Hours
Biol 372 [M] 4
Bot 332 4
Entom 343, 344 4
IPM 452 2
Elective/Option Course 3

Third Term Hours
Year 3, Summer Session: IPM 399 3

Fourth Year

First Term Hours
Entom 439 4
One from: Entom 348, 441, 448 or 450 1-4
Tier III Course (GER) 3
Elective/Option Courses 6
## Integrated Pest Management - Tree Fruit Option

The tree fruit integrated pest management option in the Entomology BS degree is an integrated, cooperative program between Wenatchee Valley College and the department of Entomology. This option is designed to prepare integrated pest management specialists for employment with the tree fruit industry in Washington or elsewhere in the Pacific Northwest.

The first half of the program is taken at Wenatchee Valley College, where the emphasis is on fundamental agricultural science, tree fruit production, and orchard management (including pest management) through courses and orchard practicum experiences. Wenatchee Valley College, located in the heart of Washington's tree fruit industry, has teaching orchards and well-equipped facilities. The second half of the program is taken at Washington State University where courses provide students with an advanced knowledge of plant science, entomology, and integrated pest management and fulfill remaining GER's necessary for the BS degree.

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### Integrated Pest Management - Weed Science Option (135 Hours)

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<td>Biol 107 [B] or 120 [B] (GER)</td>
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### Minors

#### Entomology

A minimum of 16 hours is required for the minor and must include Entom 343, 344, 349, or 440 and 9 hours from: Entom 348, 441, 448, 449, 450, 462; IPM 201, 452, 462. 9 hours of upper-division work must be taken in residence at WSU through WSU-approved education abroad or educational exchange courses.

### Description of Courses

#### Entomology

**101 [B] Insects and People: A Perspective**

The world's most abundant animals and their extensive effects on people yesterday and today.

**102 [B] Entomology in Human Health**

Arthropods and their role in the transmission of human diseases; major arthropod vectored diseases.

**150 [Q] Insects, Science, and World Cultures**

3 (2-3) Impact of insects and agriculture on human affairs with emphasis on cultures and countries around the world; especially useful for non-science majors and K-8 pre-service teachers. Cooperative course taught by WSU, open to UI students (ENT 150).

**340 Agricultural Entomology**


**343 [M] General Entomology**

3 Rec Biol 106, 107 or permission of instructor. Biology, natural history, and importance of insects and related arthropods.

**344 [M] General Entomology Laboratory**

2 (0-6) Rec Biol 106, 107 or permission of instructor. Identification and taxonomy of insects and related arthropods; insect collection and field work required.
361 Honey Bee Biology 3 Biology of the honey bee, including behavior, genetics, evolution, pollination, sociality, and beekeeping practices.

401 [T] Biology and Society, Past and Present 3 Prereq Entom 106; completion of one Tier I and three Tier II courses; Rec Biol 150. Development of biological ideas and knowledge from antiquity to present with emphasis on major advances achieved through invertebrate models. Cooperative course taught by WSU, open to UI students (ENT 401).

440 Taxonomy of Immature Insects 2 or 4 Prereq Entom 343. Identification of eggs, larvae, nymphs, and pupal stages of insects. Insect collection required. Credit not granted for both Entom 440 and 540.

441 Insect Ecology 3 (2-3) Prereq Entom 343 or general ecology course. Population and community dynamics, theory and application in natural and artificial systems. Field trips required. Credit not granted for both Entom 441 and 541. Cooperative course taught by UI, open to WSU students (ENT 441).


447 Introduction to Biological Control 3 Principles and methods of controlling insect pests and weeds by biological means. Credit not granted for both Entom 447 and 547. Cooperative course taught by UI, open to WSU students (ENT 447).

448 Medical and Veterinary Entomology 3 Graduate-level counterpart of Entom 448; additional requirements. Credit not granted for both Entom 448 and 548. Medical and veterinary entomology. Credit not granted for both Entom 448 and 548.

505 Insect Physiology 3 Prereq Biol 322, Chem 345; Biol 322, Entom 340, or 343. General principles of insect physiology; the mechanisms of vital processes in insects; organ, cellular, subcellular, chemical and physical levels. Cooperative course taught by WSU, open to UI students (ENT 505).

550 Insecticides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Insecticides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism.

557 Herbicides: Toxicology and Mode of Action 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Herbicides in terms of historical perspective, classification, synthesis, toxicity, mode of action, and metabolism.

558 Pesticide Topics 1 Prereq biochemistry, organic chemistry, physiology, plant or animal physiology. Current issues concerning pesticides in terms of toxicity, mode of action, and metabolism.

572 Aquatic Entomology 3 (2-3) Graduate-level counterpart of Entom 472; additional requirements. Credit not granted for both Entom 472 and 572. Cooperative course taught by UI, open to WSU students (ENT 572).

590 Special Topics in Entomology V 1-4 May be repeated for credit; cumulative maximum 10 hours. Graduate-level counterpart of Entom 490; additional requirements. Credit not granted for both Entom 490 and 590. Cooperative course taught jointly by WSU and UI (ENT 590).

593 Seminar 1 May be repeated for credit. Prereq 20 hours biology. Reporting and discussing problems and research in entomology.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

INTEGRATED PEST MANAGEMENT

IPM

201 Introduction to Pest Management in a Quality Environment 2 Pest management to maximize plant protection and safeguard the quality of the environment.

399 Pest Management Internship V 1-4 May be repeated for credit; cumulative maximum 7 hours. Supervised individual practicum with IPM-oriented businesses, organizations, and governmental agencies; professionally related field interaction. S, F grading.

452 Pesticides and the Environment 2 Rec 12 hours Biol. Immediate and prolonged effects of pesticides on human and other animals; legal and moral repercussions of pesticide use.


Program in Environmental Science and Regional Planning

esrp.wsu.edu
Troy 305
509-335-8538

Please see the School of Earth and Environmental Sciences in this catalog for information about Environmental Science and Regional Planning.

Department of Fine Arts

www.finearts.wsu.edu
FA Center 5072
509-335-8686

Professor and Department Chair, C. Ivory; Professors, A. Christenson, C. Watts; Associate Professors, M. Forsyth, K. Haas; Assistant Professors, M. DePiano, D. Gast (Tri-Cities), H. Higgs (Vancouver), M. Kinkel, N. Meisel, I. Palmer, R Safau.

The Fine Arts Department offers a diversity of experiences in the visual arts. The department offers courses of study leading to the degrees of Bachelor of Arts in Fine Arts (within this degree, there are two options: a General Studies option, and an Art History option), Bachelor of Fine Arts and Master of Fine Arts. The Bachelor of Arts and Bachelor of Fine Arts programs are designed to open doors into the world of visual expression and intellectual development. In particular, we encourage students to sample a variety of art disciplines and make an informed choice about their direction in art. The department includes some areas of emphasis within which to develop a program: drawing, painting, sculpture, printmaking, ceramics, photography, and digital media. These are supported by a strong art history component. Many career possibilities involving art exist in the world outside the university.

Students with a BA in Fine Arts-General Option,
Graduate Study

The Fine Arts Department offers an interdisciplinary Master’s program for those wishing to pursue a career in studio art. Students may focus on, but are not limited to, ceramics, drawing, digital media, painting, photography, printmaking, and sculpture. Emphasis is placed on personal and conceptual artistic development in light of contemporary art practices.

The M.F.A degree requires 52-60 credit hours and serves as the entry credential to college-level teaching and/or work as a practicing artist in the fine and applied arts. Graduates meet with faculty for one-on-one studio discussions. At the end of the first year students have an exhibition in the departmental gallery and the second year program culminates in a thesis exhibition held in the Museum of Art. A final oral examination is also required.

Schedules of Studies

BACHELOR OF ARTS IN FINE ARTS - ART HISTORY OPTION (120 HOURS)

Certification requirements:
1) F A 102 or 103;
2) 9 hours from 200 or 300-level art history courses;
3) 2.0 cumulative gpa in F A courses.

First Year

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Footnotes:
¹ Select from any non-art history FA course.
² See department for approved list of electives.

FINISH OPTION (120 HOURS)

For the degree Bachelor of Arts in Fine Arts a total of at least 48 hours of fine arts is required; 30 of these hours must be in 300-400-level courses:
1) F A 102, 103 and 110;
2) F A 201 or 202;
3) One course from 2D area (F A 111, 312, 320 or 370);
4) One course from 3D area (F A 310 or 350);
5) One course from media arts areas (F A 332, 333 or 381);
6) 2.0 cumulative gpa in F A courses.

First Year

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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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<td></td>
<td></td>
<td>Complete Writing Portfolio</td>
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</table>

Transfer Credits

The Department of Fine Arts will accept up to 18 credit hours in art toward the major and 9 credit hours in art toward the minor.

Exchange Program

The Department of Fine Arts has a tuition-free exchange for four students with the School of Fine Arts at Nihon University, Tokyo, Japan. All art majors at WSU are eligible for this one-year study in Japan. Selection is made in the winter. Other opportunities for undergraduate study abroad in Europe, Australia, and the Far East are available from the Office of International Programs.

Certification Process

Prospective applicants for certification are responsible for acquainting themselves with all requirements and procedures. Details including specific course requirements and portfolio submission are available in the departmental office.

BACHELOR OF ARTS IN FINE ARTS - STUDIO OPTION (120 HOURS)

For the degree Bachelor of Arts in Fine Arts a total of at least 48 hours of fine arts is required; 30 of these hours must be in 300-400-level courses:
1) F A 102, 103 and 110;
2) F A 201 or 202;
3) One course from 2D area (F A 111, 312, 320 or 370);
4) One course from 3D area (F A 310 or 350);
5) One course from media arts areas (F A 332, 333 or 381);
6) 2.0 cumulative gpa in F A courses.

First Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Course</th>
<th>Credits</th>
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Second Year

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Third Year

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<th>Term</th>
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Select from any non-art history FA course.

1 Select from any non-art history FA course.

See department for approved list of electives.
Science Elective (GER) 4  
Social Sciences [S,K] (GER) 3  
Elective 3  

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| F A 304 3  
| Elective 3 |

**Fourth Year**

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<td>Tier III Course [T] (GER) 3</td>
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<td>300-400-level Electives 6</td>
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</table>
| 300-400-level F A Elective 3  
| F A [M] 3 |

**BACHELOR OF FINE ARTS (BFA) (120 HOURS)**

For the degree Bachelor of Fine Arts a total of at least 70 hours in fine arts are required; 46 of these must be in 300-400-level courses.

Certification requirements (students should prepare for BFA certification during fall semester of the junior year):
1) F A 102, 103 and 110;  
2) F A 201 or 202;  
3) One course from 2D area (F A 111, 312, 320 or 370);  
4) One course from 3D area (F A 310 or 350);  
5) One course from media arts areas (F A 332, 333 or 381);  
6) 6 additional hours in major emphasis;  
7) 2.0 cumulative GPA in F A courses;  
8) Slide portfolio and exhibit presentation of original art work.

**First Year**

<table>
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<tr>
<th>First Term</th>
<th>Hours</th>
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| Biological Sciences [B] (GER) 4  
| Engl 101 [W] (GER) 3  
| F A 102 3  
| F A 110 3  
| GenEd 110 [A] (GER) 3 |
| Second Term | Hours |
| Arts & Humanities [H,G] (GER) 3  
| Communications Proficiency [C,W] (GER) 3  
| F A 103 3  
| F A 111, 312, 320, or 370 3  
| GenEd 111 [A] (GER) 3 |

**Second Year**

<table>
<thead>
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</table>
| 300-level F A Elective 3  
| F A 201 3  
| F A 310 or 350 3  
| Intercultural Studies [I,G,K] (GER) 3  
| Physical Sciences [P] (GER) 4 |
| Second Term | Hours |
| 300-level F A Elective 3  
| Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3  
| [I,G,K], or Social Sciences [S,K] (GER) 3  
| F A 202 3  
| F A 332, 333, or 381 3  
| Math Proficiency [N] (GER) 3  
| Complete Writing Portfolio 3 |

**Third Year**

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<th>First Term</th>
<th>Hours</th>
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| 300-400-level F A Elective 3  
| F A 303 3  
| F A 312 3  
| Science Elective (GER) 4  
| Social Sciences [S,K] (GER) 3 |
| Second Term | Hours |
| 300-400-level F A Electives 6  
| Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3  
| F A 304 3  
| Elective 2 |

**Fourth Year**

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| 300-400-level F A Electives 9  
| F A 498 [M] 3  
| Tier III Course [T] (GER) 3 |
| Second Term | Hours |
| 300-400-level F A Electives 3  
| F A [M] 3  
| F A 493 4  
| Elective 2 |

**Minors**

**Art**

A minor in art requires 18 hours including F A 102 or F A 103; F A 110; and one course from F A 201 or 202. The remaining 9 hours of electives must be in 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Art History**

A minor in art history requires 18 hours including F A 201 and 202. The remaining 12 hours of electives must be in 300-400-level art history courses. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Description of Courses**

**FINE ARTS**

F A

101 [H] Introduction to Art 3 For nonmajors. Appreciation of various visual art forms; emphasis on contemporary period.

102 Visual Concepts I 3 (0-6) Introduction to visual and conceptual studio art practice through an interdisciplinary approach to two-dimensional space.

103 Visual Concepts II 3 (0-6) Introduction to visual and conceptual studio art practice through an interdisciplinary approach to three-dimensional space.

110 Drawing 3 (0-6) Composition in pictorial space, visualization of ideas, drawing from life.

111 Figure Drawing 3 (0-6) Prereq F A 102, 110. Introduction to drawing the human figure.

201 [H] World Art History I 3 Historical survey of art and architecture from prehistory through 1450.

202 [H] World Art History II 3 Historical survey of art and architecture from 1450 to the present.

301 [G] Arts of Native North America 3 Diversity of visual forms, traditional and contemporary, within changing historical and cultural contexts.

302 [G,M] Arts of Asia 3 Art and architecture of India, China and Japan within their historical, religious and cultural contexts.

303 [H] Modern Art-19th Century 3 Prereq F A 201, 202. Modern art in the early modern period from around the globe.


307 [H,M] The Arts of Renaissance Europe 3 Prereq F A 201 and 202. The arts of southern and northern Europe from 1300 to 1550.

308 [H,M] Women Artists I 3 Middle Ages through the 18th century.


312 Advanced Drawing 3 (0-6) May be repeated for credit. Prereq F A 110. Advanced projects using drawing media and process.

313 Drawing from the Body 3 (0-6) May be repeated for credit. Prereq F A 111. Continuation of F A 111. Contemporary discourse surrounding the body; exploration through the practice of drawing and performative actions.

320 Beginning Painting 3 (0-6) F A 102, 110. Introduction to problems in painting; development of composition and color.

321 Intermediate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 320. Problems and ideas in painting.

331 Art, Science, and Technology 3 Prereq F A 201; certified Fine Arts and DTC majors and minors only or permission of instructor. Survey of art's relationship to science and technology from Renaissance to present day; emphasis on historical overview and cultural implications.

332 Introduction to Digital Media - Print and Web 3 (0-6) Prereq F A 102; F A 110. Introduction to principles and processes of digital media through print and web based projects; emphasis on theoretical investigations, conceptual development.

333 Introduction to Digital Media - Video and Sound 3 (0-6) Prereq F A 102 and 110. Principles and processes of digital media through video and sound-based projects; theoretical investigations and conceptual development.
337 Experimental Animation 3 (2-2) Same as Engl 337.
340 Ceramics 3 (0-6) Prereq F A 103 or 110. Hand building processes; glazing; firing.
341 Intermediate Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 340.
350 Sculpture 3 (0-6) Prereq F A 103, 110. Composition of form in the three-dimensional space.
351 Intermediate Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 350. May be repeated for credit; cumulative maximum 9 hours.
361 Special Topics—Drawing V 1-6 May be repeated for credit.
362 Special Topics—Painting V 1-6 May be repeated for credit.
363 Special Topics—Digital Media V 1-6 May be repeated for credit.
364 Special Topics—Ceramics V 1-6 May be repeated for credit.
365 Special Topics—Sculpture V 1-6 May be repeated for credit.
366 Special Topics—Printmaking V 1-6.
367 Special Topics—Black and White Photography V 1-6 May be repeated for credit.
369 Illustration and Rendering Techniques 3 (0-6) Same as AMT 368.
370 Introduction to Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 102. Introduction to the fundamentals of printmaking, incorporating drawing, painting and collage; processes may include lithography, etching, relief and monotype.
371 Screenprinting 3 (0-6) Prereq F A 102. Introduction to the basic techniques, processes and history of screenprinting; collage, repetition, multiples, hand-drawn, photo and digital processes.
380 History of Photography 3 Historical survey of photography from its invention to the present; conceptual, cultural, and technical implications of the medium.
381 Beginning Photography 3 (0-6) Prereq F A 102. Camera and black/white film used in conjunction with studio and darkroom techniques; composition and aesthetic concepts introduced.
382 Intermediate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 381. Expansion of conceptual building in black/white darkroom and camera techniques; research and portfolio.
385 Digital Imaging 3 (0-6) May be repeated for credit; cumulative maximum 9 hours. Prereq F A 332, 381. Principles and processes of digital imaging including color theory, software, cameras, scanning, color management and output options.
401 Special Topics—Art History V 1-6 May be repeated for credit; cumulative maximum 100 hours.
403 [M] Modern Theories of Art 3 May be repeated for credit; cumulative maximum 6 hours. Selected topics in 19th and 20th century theories of art.
404 [M] Advanced Non-western Art History 3 May be repeated for credit; cumulative maximum 6 hours. Different topics related to the arts in Africa, the Americas, Oceania, and Asia.
405 [M] Contemporary Art: Theory and Practice 3 Contemporary theories of art and how those theories are developed.
408 Art History Thesis V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq art history major. Thesis directed by student's department; original research paper regarding visual culture using art historical research skills.
423 Advanced Painting 3(0-6) or 6(0-12) May be repeated for credit. Prereq F A 321, major in fine arts. Continuation of F A 321. Advanced problems in painting. Six credits only with permission of instructor.
433 Print Based Media 3 (0-6) May be repeated for credit. Prereq F A 332. Principles and processes of visual communication in digital print; may include typography, image/text relationships, layout design and book arts.
434 Time Based Media 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq F A 333. Principles and processes of video, installation, and sound based art; emphasis on conceptual development of experimental forms.
435 Interactive Media 3 (0-6) Prereq F A 332. Interactive possibilities in digital media including web-based projects, installation and physical computing.
442 Advanced Ceramics V 3-6 May be repeated for credit. Prereq F A 341.
452 Advanced Sculpture V 3-6 May be repeated for credit. Prereq F A 351. Six credits only with permission of instructor.
471 Digital and Photo Processes for Printmaking 3 (0-6) May be repeated for credit. Prereq F A 370 or 371. Survey of digital and photo processes for printmaking.
483 Advanced Photography V 3-6 May be repeated for credit. Six credits only with permission of instructor. Prereq F A 382, major in F A. Advanced black/white darkroom and studio; research of historic and contemporary trends; discussion of personal direction; portfolio.
490 Gallery Procedures with Museum of Art V 3-6 May be repeated for credit; cumulative maximum 9 hours. By interview only. Introduction to art museums and galleries, including practicum in exhibition preparation, installation, art handling, collections.
493 Senior Exhibit 4 (0-8) Prereq certified BFA major. Independent study involving exhibit, written thesis and oral examination working with area coordinator. S, F grading.
495 Fine Arts Internship V 1-12 May be repeated for credit. Prereq Fine Arts major. Experience in work-related fine arts environments for practical application and experience. S, F grading.
498 [M] Contemporary Issues Seminar 3 May be repeated for credit; cumulative maximum 6 hours. Prereq F A 304. Research seminar examining current issues confronting art and artists.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
500 Graduate Art History 2 May be repeated for credit; cumulative maximum 6 hours. Prereq 9 hours undergraduate art history.
510 Graduate Drawing 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
511 Graduate Drawing 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
512 Graduate Drawing 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
520 Graduate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
521 Graduate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
522 Graduate Painting 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
530 Graduate Digital Media 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
531 Graduate Digital Media 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
532 Graduate Digital Media 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
540 Graduate Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
541 Graduate Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
542 Graduate Ceramics 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
550 Graduate Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
551 Graduate Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
552 Graduate Sculpture 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
570 Graduate Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
571 Graduate Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
572 Graduate Printmaking 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
580 Graduate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
581 Graduate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
582 Graduate Photography 3 (0-6) May be repeated for credit; cumulative maximum 9 hours.
598 Graduate Seminar 2 May be repeated for credit; cumulative maximum 6 hours. Topics in contemporary issues, theory, and criticism.
Food Science

Food Science is a multidisciplinary science that applies biology, chemistry, physics, engineering, nutrition, and other sciences to improve the safety and quality of food products; develop new food products; and design new, safer, and more energy efficient food preservation methods. Food scientists strive to improve the microbial and chemical safety of foods, enhance the quality of foods through traditional and emerging technologies. Food scientists conduct research to improve food safety and quality, identify beneficial food ingredients and develop new food products, extend the shelf life of foods, and identify environmentally friendly food preservation technologies. Food scientists are employed around the world by large and small food processing companies, food ingredient suppliers, food quality assurance and testing labs, federal and state governmental agencies, and academia. The School of Food Science is well positioned to meet the emerging challenges, needs, and opportunities of the food industry.

Food Science students learn to convert food commodities into high quality, safe and nutritious food products. As part of the BS degree, students receive training and learn skills relative to the production, processing, preservation, safety, evaluation, and distribution of foods. The food processing industry is continually challenged to evaluate existing foods for quality, as well as the development of new foods to better meet consumer demands and the nutritional needs of the world. Students can gain practical processing and leadership skills in the state-of-the-art creamery where world-renowned Cougar Gold Cheese is made.

The undergraduate food science curriculum closely follows the recommendation of the national professional organization, the Institute of Food Technologists, and provides the student with a working knowledge of food science and food technology. In the first two years of college, students enroll in science courses and complete most General Education Requirements. Many of the General Education and introductory chemistry, biology and physics courses can be completed with an Associate’s Degree from many Community Colleges. In the junior and senior years, the curriculum emphasizes courses in food processing, food chemistry, food microbiology, sensory evaluation, and other specialized areas such as the processing and manufacture of cereal, dairy, fruit, and vegetable products, as well as cheese and wines. Students with specific interest and career goals can gain additional education in selected programs by taking elective courses, participating in internships with food companies, and/or conducting a research project with a faculty member.

Our graduating seniors will (in addition to a strong undergraduate general education): 1) have well developed food science skills within the context of a strong science background; 2) be able to apply the scientific method to food science issues or problems; 3) to be able to organize and articulate (oral and written) information related to food science; 4) have practical skills specific to the food science field; and 5) have well developed leadership and teamwork skills.

Other Opportunities

Numerous summer internships are available to gain practical hands-on training. Contact your advisor for more information. Graduate programs are also available that lead to the degrees of Master of Science and Doctor of Philosophy in Food Science.

Transfer Students

Students planning to transfer to the school should coordinate their programs of study with advisors to select courses, in the proper sequence, which are applicable to the degree requirements.

Preparation for Graduate Study

Students who plan to work toward an advanced degree should seek advice from their advisors in the selection of courses. This will ensure the courses selected will strengthen their education in areas needed for successfully completing an advanced degree program.

Students from related fields who wish to obtain an advanced degree in food science are encouraged to apply as they may be well prepared for graduate studies. They would be required to take certain key courses required of undergraduates in addition to those needed for their graduate program.

Students who identify an interest in graduate work early in their studies are encouraged to contact the advisor no later than the end of the junior year so a course of study can be planned which schedules appropriate prerequisites to graduate courses and an introduction to research projects.

Schedules of Studies

FOOD SCIENCE - FOOD SCIENCE MAJOR (120 HOURS)

The food science major is for the student interested in the science of food processing, quality, safety and product development. Students gain practical training in the application of chemistry and microbiology to the processing of foods.

First Year

First Term

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Second Term

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Second Year

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Second Term

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Complete Writing Portfolio
### Third Year

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<td>FS 432</td>
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<td>FS 433</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Electives³</td>
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### Fourth Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td><strong>First Term</strong></td>
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<tr>
<td>FS 408</td>
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<td>FS 460</td>
<td>3</td>
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<tr>
<td>FS 461 [M]</td>
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<tr>
<td>FS 422</td>
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<tr>
<td>FS 423</td>
<td>1</td>
</tr>
<tr>
<td>FS 462</td>
<td>4</td>
</tr>
<tr>
<td>FS 470</td>
<td>3</td>
</tr>
<tr>
<td>FS 489</td>
<td>3</td>
</tr>
<tr>
<td>Electives³</td>
<td>3</td>
</tr>
</tbody>
</table>

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¹ One semester of calculus (Math 140 or 171) is required of those students who will be competing for scholarships offered by the Institute of Food Technologists.

² Although Biol 106 is listed as a prerequisite to Biol 107, Biol 107 can be taken without Biol 106 if Chem 105 is taken prior to Biol 107 and if Biol 107 is taken concurrently with Chem 106.

³ Electives may be selected using the emphasis area list available in the F S department. All courses must be selected in consultation with an academic advisor.

### Description of Courses

**FOOD SCIENCE**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Prerequisites</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>304 (FSHN) Cereal Products</td>
<td>Prereq Chem 345.</td>
<td>Technical principles related to the production and commercial processing of legume and cereal foods. Field trip required. Cooperative course taught jointly by WSU and UI (FS 304).</td>
</tr>
<tr>
<td>401 (FSHN) Topics in Food Science</td>
<td>Prereq FS 304.</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 6 hours. Selected topics in food science.</td>
</tr>
<tr>
<td>406 (FSHN) Evaluation of Dairy Products</td>
<td>Prereq FS 406.</td>
<td>I 1 Identifying defects in dairy products and relating these defects to their probable cause; remedies. Credit not granted for both FS 406 and 506. Cooperative course taught jointly by WSU and UI (FS 406).</td>
</tr>
<tr>
<td>408 (FSHN) Seminar in Food Science</td>
<td>Prereq FS 406.</td>
<td>I 1 May be repeated for credit; cumulative maximum 2 hours. Prereq junior or senior standing in Food Science. Critical analysis of contemporary topics in food science. Organization and communication of Scientific information. Cooperative course taught jointly by WSU and UI (FS 408). S, F grading.</td>
</tr>
<tr>
<td>416 (FSHN) Food Microbiology</td>
<td>Prereq MBioS 305; MBioS 306.</td>
<td>Purpose for enumeration, detection and identification of microorganisms in food products; physical, chemical and environmental factors influencing growth and survival of foodborne microorganisms; pathogenic and spoilage microorganisms in food and their control. Cooperative course taught jointly by WSU and UI (FS 416).</td>
</tr>
<tr>
<td>417 (FSHN) Food Microbiology Laboratory</td>
<td>Prereq FS 416.</td>
<td>2 (0-6) Prereq c/f; in FS 416. Lab for FS 416. Cooperative course taught jointly by WSU and UI (FS 417).</td>
</tr>
<tr>
<td>422 (FSHN) Sensory Evaluation of Food and Wine</td>
<td>Prereq Stat 212.</td>
<td>Theory, principles and application of sensory evaluation techniques in appearance, aroma, flavor and texture of foods and wine. Credit not granted for both FS 422 and 522. Cooperative course taught jointly by WSU and UI (FS 422).</td>
</tr>
<tr>
<td>423 Sensory Evaluation of Food and Wine Lab</td>
<td>Prereq FS 422 or c/f; rec age 21 or older.</td>
<td>1 (0-3) Prereq FS 422 or c/f; rec age 21 or older. Practical application of FS 422 including theory, principles and application of sensory evaluation techniques for appearance, aroma, flavor and texture of foods and wine. Credit not granted for both FS 423 and 523. Cooperative course taught jointly by WSU and UI (FS 423).</td>
</tr>
<tr>
<td>429 (FSHN) Dairy Products</td>
<td>Prereq Chem 345; MBioS 101 or 301; MBioS 303.</td>
<td>Dairy chemistry, microbiology, sanitation, product development and processing from cow to consumer. Credit not granted for both FS 429 and 529. Cooperative course taught jointly by WSU and UI (FS 429).</td>
</tr>
<tr>
<td>430 Dairy Products Lab</td>
<td>Prereq FS 429 or c/f; hands-on skills formulating, processing, evaluating and analyzing dairy products using communication and critical thinking skills. Credit not granted for both FS 430 and 530. Cooperative course taught jointly by WSU and UI (FS 430).</td>
<td></td>
</tr>
<tr>
<td>432 (FSHN) Food Engineering</td>
<td>Prereq FS 304.</td>
<td>3 Prereq FS 304. Food engineering for improving the efficiency of food processing operations and quality processed food; heat transfer, stream, air-vapor mixtures, refrigeration and fluid flow. Cooperative course taught jointly by WSU and UI (FS 432).</td>
</tr>
<tr>
<td>433 (FSHN) Food Engineering Lab</td>
<td>Prereq FS 432 or c/f.</td>
<td>1 (0-3) Prereq FS 304. Laboratories, problem sessions, and group discussions. Cooperative course taught jointly by WSU and UI (FS 433).</td>
</tr>
<tr>
<td>460 (FSHN) Food Chemistry</td>
<td>Prereq Chem 345; MBioS 303.</td>
<td>Fundamentals of food chemistry; composition of foods and the changes that occur during processing. Cooperative course taught jointly by WSU and UI (FS 460).</td>
</tr>
<tr>
<td>461 (FSHN) Food Chemistry Laboratory</td>
<td>Prereq FS 304.</td>
<td>1 (0-3) Prereq FS 460 or c/f. Experiments related to the properties, reactions and interactions of chemical components of foods. Cooperative course taught jointly by WSU and UI (FS 461).</td>
</tr>
<tr>
<td>462 (FSHN) Food Analysis</td>
<td>Prereq Chem 345; MBioS 305; MBioS 306.</td>
<td>Introductory food analysis; methods common to many food commodities. Cooperative course taught jointly by WSU and UI (FS 462).</td>
</tr>
<tr>
<td>464 (FSHN) Food Toxicology</td>
<td>Prereq MBioS 303.</td>
<td>General principles of toxicological evaluation of chemicals which enter the food chain; toxicology of food additives, colors, preservatives, drugs, pesticides and natural toxins in foods and risk characterization. Credit not granted for both FS 464 and 564. Cooperative course taught jointly by WSU and UI (FS 464).</td>
</tr>
<tr>
<td>465 (FSHN) Wine Microbiology and Processing</td>
<td>Prereq MBioS 303; MBioS 305; MBioS 306.</td>
<td>Technical principles related to the processing and fermentation of wines with an emphasis on microbiology. Credit not granted for both FS 465 and 565. Cooperative course taught jointly by WSU and UI (FS 465).</td>
</tr>
<tr>
<td>466 (FSHN) Wine Microbiology and Processing Laboratory</td>
<td>Prereq FS 304.</td>
<td>1 (0-3) Prereq FS 465 or c/f. Hands-on winemaking; application of chemical microbiological methods for wine analysis. Field trip required. Cooperative course taught jointly by WSU and UI (FS 466).</td>
</tr>
<tr>
<td>470 (FSHN) Advanced Food Technology</td>
<td>Prereq FS 303, 416, 433, 460 or c/f.</td>
<td>Physical principles of food preservation and recent advances in food technology. Credit not granted for both FS 470 and 570. Cooperative course taught jointly by WSU and UI (FS 470).</td>
</tr>
<tr>
<td>489 (FSHN) Food Product Development</td>
<td>Prereq FS 303; FS 416; FS 460; senior standing.</td>
<td>Application of food chemistry, food processing/ engineering and microbiology; knowledge to formulate a new food product. Cooperative course taught jointly by WSU and UI (FS 489).</td>
</tr>
<tr>
<td>495 Internship in Food Science</td>
<td>Prereq FS 303.</td>
<td>2 May be repeated for credit; cumulative maximum 4 hours. Prereq sophomore standing. Students work full time in industrial assignments with prior approval of advisor and industrial supervisor. S, F grading.</td>
</tr>
<tr>
<td>496 (FSHN 0) Internship in a Winery</td>
<td>Prereq FS 303.</td>
<td>2 May be repeated for credit; cumulative maximum 4 hours. Prereq sophomore standing. Industrial assignments at a regional, national or international winery. S, F grading.</td>
</tr>
</tbody>
</table>
499 Special Problems V 1-4 May be repeated for credit. S, F grading.
501 (FSHN) Topics in Food Science V 1-3 May be repeated for credit; cumulative maximum 6 hours. Selected topics in food science.
506 (FSHN) Evaluation of Dairy Products I 1 Graduate-level counterpart of FS 406; additional requirements. Credit not granted for both FS 406 and 506. Cooperative course taught jointly by WSU and UI (FS 506).
507 (FSHN) Evaluation of Dairy Products II 1 Graduate-level counterpart of FS 407; additional requirements. Credit not granted for both FS 407 and 507. Cooperative course taught jointly by WSU and UI (FS 507).
510 Functional Foods and Health 3 Prereq MBioS 303 and one year of biology. Benefits of foods beyond basic nutrition; bioactive compounds in functional foods and nutraceuticals relating to disease prevention and health promotion.
511 (FSHN) Food Lipids 3 Rec biochemistry, food chemistry. Occurrence, structure, chemical and physical properties; functions of lipids in foods. Cooperative course taught jointly by WSU and UI (FS S11).
512 (FSHN) Food Proteins and Enzymes 2 Prereq biochemistry, food chemistry. Chemistry/biochemistry of proteins/enzymes applied to food research and industry; protein functionality/enzyme technology application to food industry. Cooperative course taught jointly by WSU and UI (FS S12).
513 Food Carbohydrates 3 Structure function relationships of polysaccharides within food systems as a function of their respective molecular structures and physical characteristics. Cooperative course taught jointly by WSU and UI (FS S19).
516 Food Laws 2 Prereq senior or graduate standing. Government statutes/regulations that contribute to safe, nutritious and wholesome food supply; US legal system relevant to regulation of manufacture and sale of food and supplements. Cooperative course taught jointly by WSU and UI (FS S16).
517 Seminar Written 2 May be repeated for credit. May be repeated for credit. Planning, writing, reporting, reviewing and evaluating current food-related research.
518 Seminar Oral 1 May be repeated for credit. May be repeated for credit. Development of skills and communication tools and techniques for oral presentations of current food science research.
522 (FSHN) Sensory Evaluation of Food and Wine 3 Prereq Stat 212. Graduate-level counterpart of FS 422; additional requirements. Credit not granted for both FS 422 and 522. Cooperative course taught jointly by WSU and UI (FS S22).
529 (FSHN) Dairy Products 3 Prereq MBioS 101 or 301; Chem 345; MBioS 303. Graduate-level counterpart of FS 429; additional requirements. Credit not granted for both FS 429 and 529. Cooperative course taught jointly by WSU and UI (FS S29).
530 (FSHN) Dairy Products Lab 1 (0-3) Prereq c/ /FS S29. Graduate-level counterpart of FS 430; additional requirements. Credit not granted for both FS 430 and 530. Cooperative course taught jointly by WSU and UI (FS S30).
564 (FSHN) Food Toxicology 3 Prereq MBioS 303. Graduate-level counterpart of FS 464; additional requirements. Credit not granted for both FS 464 and 564. Cooperative course taught jointly by WSU and UI (FS S64).
565 (FSHN) Wine Microbiology and Processing 3 Prereq graduate standing. Graduate-level counterpart of FS 465; additional requirements. Credit not granted for both FS 465 and 565. Cooperative course taught jointly by WSU and UI (FS S65).
570 (FSHN) Advanced Food Technology 3 Prereq FS 416, 433 or c/ . Graduate-level counterpart of FS 470; additional requirements. Credit not granted for both FS 470 and 570. Cooperative course taught jointly by WSU and UI (FS S70).
583 Advances in Cereal Sciences and Technology 2 Prereq food chemistry, biochemistry or organic chemistry. Chemistry and functionality of cereal grains as related to their processing and product quality. Cooperative course taught jointly by WSU and UI (FS S83).
700 (FSHN) Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.
800 (FSHN) Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.
305 Nutrition Related to Fitness and Sport 3 Prereq FSHN 130 or 233. Same as Ath T 305. Cooperative course taught by UI, open to WSU students (FCS 305).
330 (M) Physiological Nutrition 3 Prereq Biol 251; Chem 345; FSHN 130 or 233. Functional chemistry of nutrients in physiological systems and nutrient interactions.
331 Nutrition in the Human Life Cycle 3 Prereq FSHN 130 or 233. How growth and development impacts nutrient requirements throughout the life cycle. Cooperative course taught jointly by WSU and UI (ICS 476).
350 Nutritional Counseling and Assessment 3 Rec FSHN 331. Fundamental knowledge and skills in nutritional counseling, including theory and strategies of behavior change and principles of nutritional and dietary assessment.
380 Management in Food Service Systems 1 4 (3-3) Prereq FSHN 120; FSHN 121; 331; Acctg 230; HBM 358 or Mgmt 301. Food service purchasing, safety and sanitation, kitchen layout and design, equipment selection, food production, delivery systems, and inventory.
401 Topics in Food Science and Human Nutrition V 1-3 May be repeated for credit; cumulative maximum 6 hours. Selected topics in food science and human nutrition. Credit not granted for both FSHN 401 and 501.
410 Advanced Practice Skills in Dietetics 1 Prereq junior standing in food science and human nutrition. Analysis of dietetics supervised practice experience; development of application process; participation in community affairs; public policy and research in dietetics.
420 Food Laws, Policies, and Product Development 4 (3-3) Prereq FSHN 120. Rec Chem 345. Food laws, policies, industry standards, and quality of food for consumer acceptance; use of chemical and physical principles in food preparation to develop and explore new food products.
430 Human Nutrition, Intermediary Metabolism 3 Prereq Biol 251, FSHN 330, MBioS 303. Biochemical roles of nutrients and processes of intermediary metabolism affecting people’s need for food; integration of biochemical pathways of major and minor nutrients; important nutritional diseases and controversies.
435 Medical Nutrition Therapy 3 Prereq FSHN 350, 430 or c/. Nutrition principles applied to pathological conditions in people.
436 Nutrition Education 3 Prereq FSHN 130 or 233; senior standing. Guidelines and skills necessary for developing, planning, implementing, and evaluating nutrition education programs and materials.

Food Science/Human Nutrition

www.pharmacy.wsu.edu/nutrition
FSHN 102
509-335-2164

Human Nutrition - Professor and Interim Department Chair, K. Meier; Professors, K. Beerman, S. Butkus, J. Shultz; T. Shultz; Associate Professors, M. Ellefson, S. McGuire; Instructors, L. Beha, D. Wood.

Description of Courses

FOOD SCIENCE/HUMAN NUTRITION

FSHN

120 Food Preparation 3 Principles of food preparation, including physical and chemical changes, quality, composition and use of foods.

121 Food Preparation Lab 1 (0-3) Prereq c/ with FSHN 120. For nutrition majors and minors only. Hands-on lab preparation/experiments to understand the principles and methods of food preparation.

201 Professional Dietetics 1 Structure, function and history of the American Dietetic Association, and educational requirements and roles of registered dietitian.
Department of Foreign Languages and Cultures

www.forlang.wsu.edu
Thompson 110
509-335-4135

Professor and Department Chair, E. Gonzalez; Professors, J. Grenier-Winther, B. Ingemanson; Associate Professors, W. Cao, S. Davis, R. Halverson, C. Lupike, F. Manzo-Robledo, A. M. Rodriguez-Vivaldi; Assistant Professors, J. Bonzo, W. Brencher, M. Glynn, M. Hubert, V. NAVARO-Daniels, Instructors, R. Bond, K. Niimi, S. Polle, M. Previto, C. Sanchez-Martins, I. Serna; Lecturer, B. Henrioulle; Director, Language and Learning Resource Center, D. Winther; Academic Program Manager, L. Heustis.

Students graduating in any of the foreign languages or area studies degrees in the Department of Foreign Languages and Cultures would be expected: 1) to have a fairly advanced degree of competency in their foreign language of choice, depending on the intensity of the student's chosen level of concentration and their possible experience with study abroad; 2) to be better equipped, with expanded capabilities, for pursuing their careers in today's increasingly global society; 3) to have an intellectual development that prepares students to comprehend and function in the world of the present, but also prepares them for whatever the future may hold; 4) to have stimulation of the student's intellectual curiosity and critical thinking skills; 5) to have an appreciation of humanistic endeavors within the overall context of understanding international cultural diversity; and 6) to have a better understanding of some of the ethnic minorities in the U.S.

Students who wish to pursue an international career should: (1) select a major in a foreign language, (2) seek a second major in another professional field, (3) choose courses in the second professional field that focus on international issues, (4) choose GER courses that focus on international studies, and (5) spend a semester or more in a study abroad program, ideally a program that offers an internship in the student's professional field. Recognizing the need for students to reinforce, in a practical way, knowledge gained in the classroom, the department sponsors a wide variety of supplementary activities. The Chinese House, a living group where Chinese is spoken and where conversational activities are supervised by a resident native speaker. McCroskey International House promotes cultural awareness and understanding built on personal contact and the exchange of ideas and opinions between people of diverse nations, races and religions. Visiting lecturers, language tables, foreign film showings, and other cultural events supplement the classroom experience. State-of-the-art technology and multimedia facilities in the classroom and at our Language Learning Resource Center enhance the learning experience.

The department offers courses of study leading to the degrees of Bachelor of Arts in Foreign Languages and Cultures (Chinese Language and Culture, French, and Spanish) and Master of Arts in Foreign Languages and Cultures (Spanish). Language minors are available in Chinese, French, German, Japanese, Russian, and Spanish. Language/cultural minors are also possible in Film Studies, French Area Studies, German Area Studies, and Latin American Area Studies.

The department also advises in degree areas of General Humanities-International Studies in the major concentration areas of Latin American Area Studies, Germanic Area Studies, French and Francophone Area Studies, and European Area Studies. (See Liberal Arts, General Studies-International Studies.)

Teacher Training Program

Students preparing to teach should consult the catalog listing of the Department of Teaching and Learning for certification requirements and for teaching majors and minors. Those who intend to major in foreign languages and education should begin the study of the major language in the first year and of the minor language, if any, not later than the beginning of the second year. Students are also required to take FOR 440 and 441. Teacher training is available in the language programs of French and Spanish.

Preparation for Graduate Study

Students who contemplate graduate work in Spanish in the Department of Foreign Languages and Cultures should present an undergraduate degree similar to those described in the schedule of studies. Complete details on graduate programs are available from the graduate studies advisor and on the departmental website, www.forlang.wsu.edu.

Schedules of Studies

CHINESE LANGUAGE AND CULTURE

(120 HOURS)

First Year

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<th>Term</th>
<th>Hours</th>
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</thead>
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<td>First Term</td>
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<tr>
<td>Chin 101 or higher (102, 203, 204)&lt;sup&gt;1&lt;/sup&gt;</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>For L 101 [G], 110 [H], 120 [G] or 130 [H] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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</tr>
<tr>
<td>Social Sciences [S,K] (GER)&lt;sup&gt;2&lt;/sup&gt;</td>
<td>3</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<td>Chin 102 or higher (203, 204)</td>
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</tr>
<tr>
<td>Chin 111, 121, or 131</td>
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</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
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Second Year

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<tr>
<td>Chin 203 or higher (204)</td>
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<tr>
<td>Math Proficiency [N] (GER) (210 rec)</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>Elective&lt;sup&gt;1&lt;/sup&gt;</td>
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<tr>
<td>Second Term</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Chin 204 or 307</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Chin 311 [M]</td>
<td>3</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
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<tr>
<td>Elective&lt;sup&gt;1&lt;/sup&gt;</td>
<td>3</td>
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<tr>
<td>Complete Writing Portfolio</td>
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### Third Year

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<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tr>
<td><strong>First Term</strong></td>
<td>12</td>
<td>GenEd 111 [A] (GER) 3</td>
</tr>
<tr>
<td><strong>Second Term</strong></td>
<td>3</td>
<td>Second Year Courses</td>
</tr>
<tr>
<td><strong>Third Term</strong></td>
<td>12</td>
<td>Fren, Ger, Span 110 (if necessary), or higher (102, 203, or 204) 4</td>
</tr>
</tbody>
</table>

### Second Year

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<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Term</strong></td>
<td>3</td>
<td>Fren, 203 (if necessary), or higher (204) 4</td>
</tr>
<tr>
<td><strong>Second Term</strong></td>
<td>3</td>
<td>Math Proficiency (105 rec.) [N] (GER) or Elective 3</td>
</tr>
<tr>
<td><strong>Third Term</strong></td>
<td>3</td>
<td>Communication Proficiency [C,W] (GER) 3</td>
</tr>
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</table>

### Fourth Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tbody>
<tr>
<td><strong>First Term</strong></td>
<td>3</td>
<td>Fren 305 1</td>
</tr>
<tr>
<td><strong>Second Term</strong></td>
<td>3</td>
<td>Fren 306, 307 or 308 [M] 3</td>
</tr>
<tr>
<td><strong>Third Term</strong></td>
<td>3</td>
<td>Second Year Courses</td>
</tr>
<tr>
<td><strong>Fourth Term</strong></td>
<td>3</td>
<td>Fren 305 1</td>
</tr>
</tbody>
</table>

### FRENCH REQUIREMENTS (120 HOURS)

A grade of C or better is required to advance in courses taught in the target language. A course graded P/F does not count toward the major. A maximum of 12 credits from a single-semester study abroad program may be applied toward the major or minor.

1 Electives must be represented by an approved university minor in a second foreign language; 16 credits in a concentrated related field; or a second major in another field.

2 Students must take nine credits in China-related courses from other departments. For a list of approved courses, see the Department of Foreign Languages and Cultures.

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### SPANISH REQUIREMENTS (120 HOURS)

A minimum of 34 hours beyond the 203 level (or the equivalent level in competence) in the major language is required for a Bachelor of Arts degree in Foreign Languages and Cultures. 101, 102, and 203 do not count toward the major. Students who place into 102 and receive a B or better qualify for an additional 4 departmental advanced placement credits; students placing into 203 or above and receiving a B or better qualify for 8 departmental advanced placement credits. A maximum of 8 departmental AP credits is possible. See department for details.

Majors must complete either a minor in a second foreign language, a concentration of at least 16 credits in a related field, or a second major.

No course in which a C- or lower grade is earned may be repeated for credit toward the major. 300-400-level courses taken pass, fail may not be included for credit toward the major. No course may be repeated for credit toward the major unless thus designated in the catalog. No course may count for both the major and the minor.

Majors and prospective majors are strongly encouraged to spend at least one semester abroad, living in the target culture and enhancing their fluency. Many accredited study abroad programs are available; students should work with their advisers in the selection of a program.

Of the 34 hours required for the major, a minimum of 15 must be taken in residence with 6 of these hours at the 400-level. A maximum of 12 credits per semester or 18 credits per year earned in a study abroad program may be applied toward the major. Credits for 105, 205, 305 may not be applied toward the major or minor.

### First Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First Term</strong></td>
<td>4</td>
<td>Fren 101, 110, 120, 130, or 131[H,G] (GER) 3</td>
</tr>
<tr>
<td><strong>Second Term</strong></td>
<td>3</td>
<td>Fren 306, 307, or 308 [M] 3</td>
</tr>
<tr>
<td><strong>Third Term</strong></td>
<td>3</td>
<td>Fren 306, 307 or 308 [M] 3</td>
</tr>
<tr>
<td><strong>Fourth Term</strong></td>
<td>3</td>
<td>Fren 306, 307 or 308 [M] 3</td>
</tr>
</tbody>
</table>

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1 Electives must be represented by an approved university minor in a second foreign language; 16 credits in a concentrated related field; or a second major in another field.

2 One [S] or [K] must also be an American Diversity [D]course.

3 Majors and prospective majors are strongly encouraged to spend at least one semester abroad, living in the target culture and enhancing their fluency. Many accredited study abroad programs are available; students should work with their advisers in the selection of a program. No course may be repeated for credit toward the major unless thus designated in the catalog. No course may count for both the major and the minor. Majors and prospective majors are strongly encouraged to spend at least one semester abroad, living in the target culture and enhancing their fluency. Many accredited study abroad programs are available; students should work with their advisers in the selection of a program. No course may be repeated for credit toward the major unless thus designated in the catalog. No course may count for both the major and the minor.
Spanish 308  3
Spanish 310, 311, 320, 321, 350, 351, or 361  3

**Fourth Year**

*First Term*  
**Hours**

Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER)  3
Span 407  3
Span 450, 451, or 452 [M]  3
Electives (For L 441 if teaching major) 1  6

*Second Term*  
**Hours**

Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER)  3
Span 305  1
Span 408 [M]  3
Span 450, 451, or 452 [M]  3
Tier III Course [T] (GER)  1
Elective  3

1 Electives must be represented by a competence in a second foreign language up to and including 204; an approved university minor or a teaching minor; or a second major in another field.

**Minors**

### Chinese, French, German, Japanese, or Spanish

To fulfill requirements for a minor in Chinese, French, German, Japanese, or Spanish, a student must complete a minimum of 17 credits of course work in one language area. A foundation of the target language, 203 and 204 (8 credits), is required; in addition, 3 courses (9 credits) must be taken in courses other than 203-204 at the 300-400 level. A minimum of 9 credits with a letter grade must be taken in residence at WSU, of which 3 must be at the 300-400 level. All courses must be passed with a grade of C or better. Only courses thus designated in the Catalog may be repeated for credit toward the minor. Courses counting towards a minor in the language may not be counted towards a major in International Area Studies (i.e., Latin America Area Studies, German Area Studies, French and Francophone Area Studies, or Russian Area Studies). 105, 205, and 305 may not count towards the minor. For courses taken in Study Abroad Programs or as other transfer credits, please check with your advisor.

**French Area and Culture Studies**

A minimum of 16 credits is required (options in French or Francophone Studies). A foundation of the target language, French 203 (4 credits), is required; in addition, 4 courses (12 credits) of further knowledge must be taken other than 203 as: EITHER one lower level and two upper-level courses in FLC plus one approved course in another department; OR one lower-level and one upper-level course in FLC plus two approved courses in another department. See the department of FL&C for a list of acceptable courses. For special requirements concerning French and Francophone options in the French Area Studies Minor, please see your advisor. A minimum of 9 credits with a letter grade must be taken in residency at WSU at the 300-400 level. All courses must be passed with a grade of C or better. Only courses thus designated in the Catalog may be repeated for credit toward the minor. Courses counting towards a minor in the language may not be counted towards a major in International Area Studies (i.e., Latin America Area Studies, German Area Studies, French and Francophone Area Studies, or Russian Area Studies). 105, 205, and 305 may not count towards the minor. For courses taken in Study Abroad Programs or as other transfer credits, please check with your advisor.

**German Area and Culture Studies**

A minimum of 16 credits is required. A foundation of the target language, German 203 (4 credits), is required; in addition, 4 courses (12 credits) of further knowledge must be taken other than 203 as: EITHER one lower level and two upper-level courses in FLC plus one approved course in another department; OR one lower-level and one upper-level course in FLC plus two approved courses in another department. See the department of FL&C for a list of acceptable courses. A minimum of 9 credits with a letter grade must be taken in residence at WSU at the 300-400 level. All courses must be passed with a grade of C or better. Only courses thus designated in the Catalog may be repeated for credit toward the minor. Courses counting towards a minor in the language may not be counted towards a major in International Area Studies (i.e., Latin America Area Studies, German Area Studies, French and Francophone Area Studies, or Russian Area Studies). 105, 205, and 305 may not count towards the minor. For courses taken in Study Abroad Programs or as other transfer credits, please check with your advisor.

**Latin American Area and Culture Studies**

A minimum of 16 credits is required. A foundation of the target language, Spanish 203 (4 credits), is required; in addition, 4 courses (12 credits) of further knowledge must be taken other than 203 as: EITHER one lower level and two upper-level courses in FLC plus one approved course in another department; OR one lower-level and one upper-level course in FLC plus two approved courses in another department. See the department of FL&C for a list of acceptable courses. A minimum of 9 credits with a letter grade must be taken in residency at WSU at the 300-400 level. All courses must be passed with a grade of C or better. Only courses thus designated in the Catalog may be repeated for credit toward the minor. Courses counting towards a minor in the language may not be counted towards a major in International Area Studies (i.e., Latin America Area Studies, German Area Studies, French and Francophone Area Studies, or Russian Area Studies). 105, 205, and 305 may not count towards the minor. For courses taken in Study Abroad Programs or as other transfer credits, please check with your advisor.

**Description of Courses**

### ARABIC

**Arabic**

101 **First Semester** 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (ARBC 101).

102 **Second Semester** 4 (3-2) Prereq Arabic 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, and writing. Not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (ARBC 102).

105 **Elementary Conversation** 1 May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (ARABC 105). S, F grading.

### CHINESE

**Chin**

101 **First Semester** 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (CHIN 101).

102 **Second Semester** 4 (3-2) Prereq Chin 101 with a grade of C or better, or equivalent. Continuation of Chin 101. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (CHIN 102).

105 **Elementary Conversation** 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. S, F grading.

111 [G] **Asian Film** 3 Asian film from a cultural perspective. Taught in English. Cooperative course taught jointly by WSU and UI (CHIN 111).

120 [G] **Traditional Chinese Culture** 3 Cultural development of China from early times through the golden age of Chinese civilization. Taught in English.

121 [G] **Modern Chinese Culture** 3 An introduction to the culture of modern China, including Hong Kong and Taiwan. All readings in English. Cooperative course taught by WSU, open to UI students (CHIN 121).
131 [G] Masterpieces of Asian Literature
3 Taught in English. Introduction to Asian literature. Cooperative course taught by WSU, open to UI students (CHIN 320).

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Prereq Chin 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (CHIN 201).

204 Fourth Semester 4 (3-2) Prereq Chin 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (CHIN 202).

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

361 Chinese for the Professions 3 Prereq Chin 204 with a grade of C or better. Communication in Chinese in the professional setting; telephone and meeting role play, letter writing, television and discussion of current events. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (CHIN 361).

363 Introduction to Literary Chinese 3 Prereq Chin 102 or equivalent. Fundamentals of literary Chinese. Open to native speakers. Cooperative course taught by WSU, open to UI students (CHIN 363).

364 Media Chinese 3 Prereq Chin 204 with a grade of C or better. Study of Chinese using newspapers, television news, radio broadcasts, webcasts and other journalistic media. Taught in Chinese. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (CHIN 364).

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

405 Advanced Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Chin 305; oral proficiency interview. Advanced-level conversation practice in small groups with a native speaker. Cooperative course taught by WSU, open to UI students (CHIN 405). S, F grading.


480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

CLASSICS

Clas

101 First Semester Latin 4 Latin fundamentals of speaking, listening, reading and writing skills.

102 Second Semester Latin 4 Prereq Clas 101 with a grade of C or better, or equivalent. Continued development of Latin speaking, listening, reading and writing skills.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

349 Greek Language Lab 1 May be repeated for credit; cumulative maximum 2 hours. Basic skills. Cooperative course taught by UI, open to WSU students (GREK 349). S, F grading.

369 Latin Language Lab 1 May be repeated for credit; cumulative maximum 2 hours. Prereq permission. Advanced-level expressive skills. Cooperative course taught by UI, open to WSU students (LATN 369). S, F grading.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

404 Special Topics 1 May be repeated for credit; cumulative maximum 3 hours. Cooperative course taught by UI, open to WSU students (LATN 404).

441 Intermediate Greek I 4 Readings in classical Greek prose and poetry. Cooperative course taught by UI, open to WSU students (LATN 441).

461 Latin Literature of the Augustan Age 3 Cooperative course taught by UI, open to WSU students (LATN 461).

462 Latin Literature of the Augustan Age 3 Cooperative course taught by UI, open to WSU students (LATN 462).

463 Latin Literature of the Republic 3 Cooperative course taught by UI, open to WSU students (LATN 463).

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

FOREIGN LANGUAGES AND CULTURES

For L

100 Studies in Foreign Languages I V 1-4 May be repeated for credit; cumulative maximum 8 hours. Languages, topics, or foreign language skills not covered by other 100-level courses. Cooperative course taught jointly by WSU and UI (FL 204).

101 [G] Introduction to the World of Languages 3 Taught in English. Explore the nature, history, evolution, acquisition, and use of language with examples from major foreign language groups.

102 [H] Humanities in the Ancient World 3 Same as Hum 101.

110 [H] Introduction to Foreign Film 3 Taught in English. An introduction to the study of international film; stories, cultures, and cinematic features.

120 [G] Introduction to Foreign Cultures 3 Taught in English. An introduction to both verbal and non-verbal intercultural communication.

130 [H] Introduction to Foreign Literature 3 Taught in English. An introduction to the study of international literature; stories, cultures, and literary devices.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

200 Studies in Foreign Languages II V 1-4 May be repeated for credit; cumulative maximum 8 hours. Languages, topics, or foreign language skills not covered by other 200-level courses. Cooperative course taught jointly by WSU and UI (FL 204).

210 Foreign Film and Lecture Series 1 1 (0-3) An introduction to foreign films through universal themes and their varied cinematic portrayal. S, F grading.
Taught in English. Introduction to the themes and concepts involved in global studies.

221 Pre-Study/Internship Abroad Orientation 1 Taught in English. Orientation and practical information for students preparing to study or intern abroad. S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

300 Studies in Foreign Languages V 1-4 May be repeated for credit. Languages not currently a part of the curriculum may be offered on demand. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (FL 300).

302 [H,M] Humanities in the Middle Ages and Renaissance 3 Same as Hum 302.

303 [H,M] Reason, Romanticism, and Revolution 3 Same as Hum 303.

304 [H] Humanities in the Modern World 3 Same as Hum 304.

350 [S] Speech, Thought, and Culture 3 Same as Anth 350.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

400 Special Topics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq GenEd 110 or 111. Interdisciplinary study of foreign languages, literature, or culture.

410 [T] Issues in Foreign Film and Literature 3 Prereq one Tier I; three Tier II courses. Taught in English. Comparison of film adaptations to give students an understanding of how cultures respond to contemporary conditions.

440 Methods of Teaching Foreign Languages 3 Prereq 204 level of foreign language, or equivalent. Survey of current methodology with emphasis on practical application in the classroom. Credit not granted for both For L 440 and 540.

441 Research and Methods of Technology Enhanced Foreign Language Learning 3 Prereq 204 level of foreign language, or equivalent. Taught in English. The use of technology in the foreign language classroom; hands-on experience with equipment and multi-media materials. Credit not granted for both For L 441 and 541.

450 Descriptive Linguistics I 3 Same as Anth 450.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

495 Cooperative Education Internship V 1-6 May be repeated for credit; cumulative maximum 6 hours. Cooperative education internship with academic, business, industry or government units. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

540 Research and Methods of Teaching Foreign Languages 3 Prereq graduate standing. Graduate level counterpart of For L 440; additional requirements. Credit not granted for both For L 440 and 540.

541 Research and Methods of Technology Enhanced Foreign Language Learning 3 Prereq graduate standing. Graduate level counterpart of For L 441; additional requirements. Credit not granted for both For L 441 and 541.

560 Seminar in Scholarly Methodology 2 Prereq graduate standing. Bibliography and formal aspects of scholarly writing; general introduction to literary criticism.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

**FRENCH**

Fren

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission. Credit not granted for Fren 101/102, and 104.

102 Second Semester 4 (3-2) Prereq Fren 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading, and writing. Not open to native speakers except with permission. Credit not granted for Fren 101/102, and 104.


105 Elementary Conversation 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. S, F grading.

110 [H] French/Francophone Film 3 (3-2) Taught in English. Introduction to French and Francophone films. Not open to native speakers except with permission.

120 [H] French Culture 3 Taught in English. Cultural history of France from beginnings to present; comparison of French and American cultures.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Prereq Fren 102 with a grade of C or better, or equivalent. Grammar review and further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission.

204 Fourth Semester 4 (3-2) Prereq Fren 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission.

205 Intermediate Conversation I 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Prereq Fren 203 or 204 or equivalent, or c// in Fren 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker. Not open to native speakers except with permission. S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation II 1 May be repeated for credit; cumulative maximum 2 hours. Prereq one Fren 300-level course or in a Fren 300-level course. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. May be repeated for credit; cumulative maximum 2 hours. S, F grading.

306 Intermediate Reading and Translation 3 Prereq Fren 204 with a grade of C or better, or equivalent. Vocabulary building, contrastive English-French expressions, development of skills to increase reading speed and fluency.

307 Intermediate Speaking and Listening 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Fren 204 with a grade of C or better, or equivalent. Systematic development of speaking and listening proficiency; emphasis on pronunciation and phonetics. Not open to native speakers except with permission.

308 [M] Intermediate Grammar and Writing 3 Prereq Fren 204 with a grade of C or better. Writing practice in the language and active review of grammar. Not open to native speakers except with permission.

310 (311) [H] French and Francophone Film 3 (3-2) Prereq either Fren 306, 307, or 308. Taught in French. View and discuss French and Francophone films from the 1930's to present.


350 (351) [H] Introduction to French Literature 3 May be repeated for credit; cumulative maximum 6 hours. Prereq either Fren 306, 307, or 308. Taught in French. French and Francophone novels, short stories and plays.

361 French for the Professions 3 Prereq Fren 204 with a grade of C or better, or equivalent. Communication in French for professional purposes; telephone and meeting role-plays, letter- and resume-writing, discussions of current events in the Francophone world.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

405 Advanced Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Fren 305; oral proficiency interview. Advanced-level conversation practice in small groups with a native speaker. S, F grading.

408 [M] Advanced French 3 Prereq Fren 308 with a grade of C or better, or equivalent. Systematic development of language skills at the advanced level.
110 [T] French Film in Translation 3 (2-2) Exciting view of French and Francophone cinema. All viewings, discussions, and writings in English.

420 French Society and Culture 3 French societal and cultural heritage themes as they relate to geography, history, demography, secular and religious customs and education. Taught in English.

430 [T] Topics in French/Francophone Literature in Translation 3 Prereq one Tier 1 course; three Tier II literature or humanities courses. Taught in English. In-depth reading and discussion of a select group of French literary works of a particular theme, genre, or author.

450 [M] Seminar in French Studies - Themes 3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Fren 300-level courses excluding Fren 305. Seminar on important themes in French studies. Taught in French.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

GERMAN

Ger

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission.

102 Second Semester 4 (3-2) Prereq Ger 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading, and writing. Not open to native speakers except with permission.

105 Elementary Conversation 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. S, F grading.

110 [H] German Film 3 Taught in English. Introduction to German film.

120 [H] Germanic Culture 3 Taught in English. The cultural development of the Germanic peoples to 1750.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Prereq Ger 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission.

204 Fourth Semester 4 (3-2) Prereq Ger 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission.

205 Intermediate Conversation I 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Prereq Ger 203 or 204 or equivalent or c// in Ger 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker. Not open to native speakers except with permission. S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation II 1 May be repeated for credit; cumulative maximum 2 hours. Prereq one Ger 300-level course or c// in a Ger 300-level course. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. S, F grading.

307 Intermediate Speaking and Listening 3 Prereq Ger 204 with a grade of C or better, or equivalent. Systematic development of speaking and listening proficiency; emphasis on pronunciation and phonetics. Not open to native speakers except with permission.

308 Intermediate Grammar and Writing 3 Prereq Ger 204 with a grade of C or better, or equivalent. Writing practice in the language and active review of grammar. Not open to native speakers except with permission.

310 German Film 3 Prereq either Ger 306, 307, or 308. Study of important German films. Taught in German.

320 German Culture 3 Prereq either Ger 306, 307, or 308. Introduction to German culture. Taught in German. Cooperative course taught jointly by WSU and UI (GERM 305).

340 Introduction to German Literature 3 Prereq either Ger 306, 307, or 308. Survey of masterpieces of German literature. Taught in German.

361 German for the Professions 3 Prereq Ger 204 with a grade of C or better, or equivalent. Communication in German for professional purposes; telephone and meeting role-plays, letter-writing, television, discussions of current events in the German-speaking world. Cooperative course taught jointly by WSU and UI (GERM 303).

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

405 Advanced Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Ger 305; oral proficiency interview. Advanced-level conversation practice in small groups with a native speaker. S, F grading.

408 [M] Advanced Grammar and Writing 3 Prereq Ger 308, or equivalent. Development of advanced proficiency in writing.

450 [M] Seminar in German Studies - Themes 3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Ger 300-level courses excluding Ger 305. Seminar on important themes in German studies. Taught in German. Cooperative course taught jointly by WSU and UI (GERM 420).

451 [M] Seminar in German Studies - Authors 3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Ger 300-level courses excluding Ger 305. Seminar on important authors in German studies. Taught in German. Cooperative course taught jointly by WSU and UI (GERM 421).

452 [M] Seminar in German Studies - Genres 3 May be repeated for credit; cumulative maximum 6 hours. Prereq two Ger 300-level courses excluding Ger 305. Seminar on important genres in German studies. Taught in German.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

GREEK

Greek

101 (Clas 341) Elementary Greek 4 Fundamentals of speaking, listening, reading and writing. Not open to native speakers except with permission. Cooperative course taught jointly by WSU and UI (GREK 341).

102 (Clas 342) Elementary Greek 4 Continued development of basic skills in speaking, reading and writing. Not open to native speakers except with permission. Cooperative course taught jointly by WSU and UI (GREK 342).

ITALIAN

Ital

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (ITAL 101).

102 Second Semester 4 (3-2) Prereq Ital 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (ITAL 102).

105 Elementary Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker. Not open to native speakers except with permission. S, F grading.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Prereq Ital 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission.

204 Fourth Semester 4 (3-2) Prereq Ital 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission. S, F grading.
205 Intermediate Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Ital 203 or 204 or equivalent or c/in Ital 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (ITAL 205). S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

205 Intermediate Conversation 1 0 (0-2) May be repeated for credit; cumulative maximum 2 hours. Prereq Jpn 203 or 204 or equivalent or c/in Jpn 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (JAPN 202).

205 Intermediate Conversation 1 0 (0-2) May be repeated for credit; cumulative maximum 2 hours. Prereq Jpn 203 or 204, or equivalent. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (JAPN 202).

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

305 Intermediate Conversation 1 May be repeated for credit; cumulative maximum 2 hours. Prereq Jpn 203, or equivalent. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (JAPN 305). S, F grading.

306 Intermediate Reading and Translation 3 Prereq Jpn 204 with a grade of C or better. Vocabularly building, contrastive English-Japanese expressions, development of skills of increase reading speed and fluency. Not open to native speakers except with permission.

307 Intermediate Speaking and Listening 3 Prereq Jpn 204 with a grade of C or better. Systematic development of speaking and listening proficiency; emphasis on pronunciation and phonetics. Not open to native speakers except with permission.

308 Intermediate Grammar and Writing 3 Prereq Jpn 204 with a grade of C or better. Writing practice in the language and active review of grammar. Not open to native speakers except with permission.

320 Issues in East Asian Ethics 3 Philosophical foundations of ethical thought in East Asia; informed responses to modern ethical dilemmas. Taught in English. Cooperative course taught by WSU, open to UI students (Chin 320).

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

JAPANESE

Jpn

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (JAPN 101).

102 Second Semester 4 (3-2) Prereq Jpn 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (JAPN 102).

105 Elementary Conversation 1 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (JAPN 105).

111 [G] Asian Film 3 Same as Chin 111.

120 Traditional Japanese Culture 3 Traditional Japanese society and culture from ancient themes to the 19th century. Taught in English.


180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Prereq Jpn 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (JAPN 201).

204 Fourth Semester 4 (3-2) Prereq Jpn 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (JAPN 202).

205 Intermediate Conversation 1 0 (0-2) May be repeated for credit; cumulative maximum 2 hours. Prereq Jpn 203 or 204 or equivalent or c/in Jpn 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (JAPN 202).

206 Intermediate Conversation 1 0 (0-2) May be repeated for credit; cumulative maximum 2 hours. Prereq Jpn 203, or equivalent. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (JAPN 202).

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

304 Fourth Semester 4 (3-2) Prereq Jpn 203 with a grade of C or better. Continued development of basic skills in speaking, listening, reading, and writing. Cooperative course taught by UI, open to WSU students (JAPN 304). S, F grading.

305 Intermediate Conversation 1 0 (0-2) May be repeated for credit; cumulative maximum 2 hours. Prereq Jpn 203, or equivalent. Conversation practice in small groups with native/near-native speakers. Not open to native speakers except with permission. Cooperative course taught by UI, open to WSU students (JAPN 305).

306 Intermediate Reading and Translation 3 Prereq Jpn 204 with a grade of C or better. Vocabularly building, contrastive English-Japanese expressions, development of skills of increase reading speed and fluency. Not open to native speakers except with permission.

307 Intermediate Speaking and Listening 3 Prereq Jpn 204 with a grade of C or better. Systematic development of speaking and listening proficiency; emphasis on pronunciation and phonetics. Not open to native speakers except with permission.

308 Intermediate Grammar and Writing 3 Prereq Jpn 204 with a grade of C or better. Writing practice in the language and active review of grammar. Not open to native speakers except with permission.

320 Issues in East Asian Ethics 3 Philosophical foundations of ethical thought in East Asia; informed responses to modern ethical dilemmas. Taught in English. Cooperative course taught by WSU, open to UI students (Chin 320).

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

380 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

RUSSIAN

Rus

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (RUSS 101).

102 Second Semester 4 (3-2) Prereq Rus 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, and writing. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (RUSS 102).

105 Elementary Conversation 1 0 (0-2) May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (RUSS 105).

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Prereq Rus 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (RUSS 203).

204 Fourth Semester 4 (3-2) Prereq Rus 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (RUSS 204).

205 Intermediate Conversation 1 0 (0-2) May be repeated for credit; cumulative maximum 2 hours. Prereq Rus 203 or 204 or equivalent or c/in Rus 203 or 204. Intermediate-level conversation practice in small groups with a native/near-native speaker. Not open to native speakers except with permission. Cooperative course taught by WSU, open to UI students (RUS 205). S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

NEZ PERCE

Nez P

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Cooperative course taught by UI, open to WSU students (NEZP 101).

203 Third Semester 4 (3-2) Prereq Nez P 102 with a grade of C or better. Further development of basic skills in speaking, listening, reading, and writing. Cooperative course taught by UI, open to WSU students (NEZP 201).

204 Fourth Semester 4 (3-2) Prereq Nez P 203 with a grade of C or better. Continued practice in spoken and written language; selected texts in a cultural context. Cooperative course taught by UI, open to WSU students (NEZP 202).
110 [H] Peninsular Spanish Film 3 Taught in English. Introduction to Spanish film.

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission.

102 Second Semester 4 (3-2) Prereq Span 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading, and writing. Not open to native speakers except with permission.

105 Elementary Conversation 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. S, F grading.

110 [H] Peninsular Spanish Film 3 Taught in English. Introduction to Spanish film.

111 [G] Latin American Film 3 Taught in English. History of Latin American cinema from a cultural perspective.

120 [H] Peninsular Spanish Culture 3 Taught in English. Introduction to Spanish culture.

121 [G] Latin American Culture 3 Taught in English. Contemporary social, political, and cultural issues in Latin America.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Span 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission.

204 Fourth Semester 4 (3-2) Prereq Span 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

320 Peninsular Spanish Culture 3 Taught in English. The image and role of St. Petersburg in Russian classics in literature, art, music, and film. Cooperative course taught by WSU, open to UI students (RUS 430).

410 [T] Russian Film 3 Prereq one Tier I; three Tier II courses. Russian daily life, historical events, and values in representative samples of Russian film. Taught in English. Cooperative course taught by WSU, open to UI students (RUS 410).

430 [T] St. Petersburg 3 Prereq one Tier I; three Tier II courses. Taught in English. The image and role of St. Petersburg in Russian classics in literature, art, music, and film. Cooperative course taught by WSU, open to UI students (RUS 430).

462 History of Imperial Russia 3 Same as Hist 462.

463 [M] History of the Soviet Union 3 Same as Hist 463.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

SPANISH

Span

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission.

102 Second Semester 4 (3-2) Prereq Span 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading, and writing. Not open to native speakers except with permission.

105 Elementary Conversation 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. S, F grading.

110 [H] Peninsular Spanish Film 3 Taught in English. Introduction to Spanish film.

111 [G] Latin American Film 3 Taught in English. History of Latin American cinema from a cultural perspective.

120 [H] Peninsular Spanish Culture 3 Taught in English. Introduction to Spanish culture.

121 [G] Latin American Culture 3 Taught in English. Contemporary social, political, and cultural issues in Latin America.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Span 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission.

204 Fourth Semester 4 (3-2) Prereq Span 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

320 Peninsular Spanish Culture 3 Taught in English. The image and role of St. Petersburg in Russian classics in literature, art, music, and film. Cooperative course taught by WSU, open to UI students (RUS 430).

410 [T] Russian Film 3 Prereq one Tier I; three Tier II courses. Russian daily life, historical events, and values in representative samples of Russian film. Taught in English. Cooperative course taught by WSU, open to UI students (RUS 410).

430 [T] St. Petersburg 3 Prereq one Tier I; three Tier II courses. Taught in English. The image and role of St. Petersburg in Russian classics in literature, art, music, and film. Cooperative course taught by WSU, open to UI students (RUS 430).

462 History of Imperial Russia 3 Same as Hist 462.

463 [M] History of the Soviet Union 3 Same as Hist 463.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

SPANISH

Span

101 First Semester 4 (3-2) Fundamentals of speaking, listening, reading, and writing. Not open to native speakers except with permission.

102 Second Semester 4 (3-2) Prereq Span 101 with a grade of C or better, or equivalent. Continued development of basic skills in speaking, listening, reading, and writing. Not open to native speakers except with permission.

105 Elementary Conversation 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Elementary-level conversation practice in small groups with a native/near-native speaker; not open to native speakers except with permission. S, F grading.

110 [H] Peninsular Spanish Film 3 Taught in English. Introduction to Spanish film.

111 [G] Latin American Film 3 Taught in English. History of Latin American cinema from a cultural perspective.

120 [H] Peninsular Spanish Culture 3 Taught in English. Introduction to Spanish culture.

121 [G] Latin American Culture 3 Taught in English. Contemporary social, political, and cultural issues in Latin America.

180 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

203 Third Semester 4 (3-2) Span 102 with a grade of C or better, or equivalent. Further development of speaking, listening, reading, and writing skills. Not open to native speakers except with permission.

204 Fourth Semester 4 (3-2) Prereq Span 203 with a grade of C or better, or equivalent. Continued practice in spoken and written language; selected texts in a cultural context. Not open to native speakers except with permission.

280 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

320 Peninsular Spanish Culture 3 Taught in English. The image and role of St. Petersburg in Russian classics in literature, art, music, and film. Cooperative course taught by WSU, open to UI students (RUS 430).

410 [T] Russian Film 3 Prereq one Tier I; three Tier II courses. Russian daily life, historical events, and values in representative samples of Russian film. Taught in English. Cooperative course taught by WSU, open to UI students (RUS 410).

430 [T] St. Petersburg 3 Prereq one Tier I; three Tier II courses. Taught in English. The image and role of St. Petersburg in Russian classics in literature, art, music, and film. Cooperative course taught by WSU, open to UI students (RUS 430).

462 History of Imperial Russia 3 Same as Hist 462.

463 [M] History of the Soviet Union 3 Same as Hist 463.

480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

SPANISH

Span
480 Special Topics: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 credits. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

502 Topics in Nineteenth-Century Spanish Literature 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing or permission of instructor. Selected works. Taught in Spanish.

551 Seminar in Golden Age Literature 3 Prereq graduate standing or permission of instructor. Reading and discussion of representative works of the Spanish Golden Age. Taught in Spanish.

552 Seminar in Golden Age Literature 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing or permission of instructor. Selected works and topics. Taught in Spanish.

553 Topics in Twentieth-Century Spanish American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing or permission of instructor. Seminar on conquest and colonial literature in Hispanic America.

554 Seminar in Spanish Literature and/or Culture V 1-3 May be repeated for credit. Prereq graduate standing or permission of instructor.

555 Seminar in Colonial Spanish American Literature 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing or permission of instructor. Seminar on conquest and colonial literature in Hispanic America.

597 Graduate Internship V 1-6 May be repeated for credit; cumulative maximum 12 hours. Prereq graduate standing; Span 560; For L 540; minimum gpa of 3.50. Supervised internship experience relating to career objectives; portfolio assignment required. S, F grading.

621 Advanced Instructional Practicum 1 May be repeated for credit; cumulative maximum 4 hours. Prereq graduate standing or permission of instructor. Supervised practical experience in foreign language teaching. S, F grading.

570 Advanced Writing Tutorial V 1-2 May be repeated for credit; cumulative maximum 5 hours. Prereq concurrent enrollment in a Writing in the Major course or a course that assigns writing. Assigned tutorials in the WSU Writing Lab. S, F grading.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

General Education Courses

Description of Courses

GENERAL EDUCATION

See the General Education Program section of this catalog for a complete description of the General Education Program. Vancouver students should refer to the Vancouver Campus information.

GenEd

104 Pathways to Academic Success Seminar 2 Introduction to college level research & writing, including analysis of source material, disciplinary/interdisciplinary discourse, and development of critical thinking.

105 Explore 2 Topic-based seminar for undecided second year and transfer students who work closely with research faculty while also exploring major and career areas of interest.

110 [A] World Civilizations I 3 Integrated study of social, political, and philosophical/religious systems in early civilizations, with an introduction to distinctive art forms.

111 [A] World Civilizations II 3 Integrated study of social, political, and philosophical/religious systems in modern civilizations, with an introduction to distinctive art forms of the major world civilizations.

300 Accessing Information for Research 1 Effective research strategies in the disciplines, including emerging information resources, such as Internet.

302 Advanced Writing Tutorial V 1-2 May be repeated for credit; cumulative maximum 5 hours. Prereq concurrent enrollment in a Writing in the Major course or a course that assigns writing. Assigned tutorials in the WSU Writing Lab. S, F grading.

Program in General Studies

General Studies is for students who have varied interests that may cut across the usual departmental boundaries and who wish to play a role in deciding on a suitable curriculum of study.

The General Studies programs are offered by the College of Liberal Arts and the College of Sciences. The degrees offered through Liberal Arts are the Bachelor of Arts in Humanities, Bachelor of Arts in Social Sciences, and Bachelor of Liberal Arts. The degree offered through Sciences is the Bachelor of Science. These degrees are not identified with a specific subject-matter field on the diploma.

Students who wish to enroll in General Studies should contact the appropriate coordinator in Liberal Arts or Sciences.

For complete program information, see the Liberal Arts, General Studies Program, and the Sciences, General Studies Program, in this catalog.

Description of Courses

GENERAL STUDIES

GenSt

400 General Studies Portfolio 1 Prereq senior standing. Evaluating one’s educational experience and presenting that evaluation in written form. S, F grading.

Department of Geology

www.sees.wsu.edu
Webster 1228
509-335-3009

Please see the School of Earth and Environmental Sciences in this catalog for information about Geology.

Global Studies

www.ip.wsu.edu/global
International Programs, Bryan 206
509-335-2541

Director and Associate Professor, D. Pietz.

Global studies looks at economic, political, social, cultural, and scientific practices in a trans-national and cross-cultural perspective. An undergraduate minor in global studies encourages a student in any major discipline to think in terms of the globalization that marks the contemporary world. The program of study designed to provide an exciting interdisciplinary global perspective on the arts, humanities, social sciences, and sciences. The minor is flexible and complements majors from across the University, affording students the opportunity to reach beyond their majors, or to take courses related to their majors outside of the context of the United States.

The global studies minor gives students from all majors disciplines a competitive edge in the global job market. Graduates in any field find that the unique combination of flexible coursework gives them the skills and background to work in their chosen fields in an international environment. It helps build the attributes of the successful global citizen, someone who is capable of understanding and mastering the complexity of diverse intercultural contexts.
Minors

Global Studies

The minor requires 18 credit hours and must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students should select one track from the three listed in the course requirements, and one module from those listed within each track. Some courses may be substituted with the approval of the Director of Global Studies. In particular, many course equivalents may be taken through a study abroad program, and students are encouraged to discuss these with the Director of Global Studies. Additional courses may be included within the minor as developed in the university curriculum.

TRACK I - Language and Civilization: Choose one from Com 321, Engl 222, F A 202, For L 101, 110, 120, 130, or 220. Choose 5 courses from one of the following modules:
- Regional and Comparative Literatures/Film: Chin/Span 111, Chin 130, Engl 333, 344, 355, For L 410, Fren/Ger/Span 110, Fren/Ger/Rus/Span 130, Fren/Rus 430.
- Art, Music and Folklore: Anth 301, 303, 404, F A 404, 405, Mus 163, 265, 360, 361, 362, 363, Phil 430
- Language: 2 semesters of second year foreign language required.

TRACK II - Global Communities: Choose one from Anth 203, CES 212, For L 120, 220, Phil 101, Pol S 102, 103, or W St 332. Choose 5 courses from one of the following modules:
- Language: 2 years of high school or 2 semesters of university foreign language courses required. Additional foreign language study is strongly recommended.

TRACK III - Technology and Global Society: Choose one from Arch 202, CropS 360, ES/RP 101, F A 331, For L 120, 220, FSHN 170, Geol 210, NATRS 202. Choose 5 courses from one of the following modules:
- Global Resources and Human Survival: Biol 474, CES 401, CropS 201, 360, Hist 495, NATRS 441, 312, Soils 345.
- Language: None required but foreign language study is strongly recommended.

Health Policy and Administration

www.hpa.spokane.wsuedu
Academic Center Bldg., Suite 411
509-358-7980

Interim Chair and Boeing Distinguished Professor, D. A. Sclar; Professors, J. S. Coyne, T. L. Skaer; Associate Professors, M. M. Ahern, F. Akinci, J. Kennedy.

The Department of Health Policy and Administration (HPA) offers the Master of Health Policy and Administration degree at WSU Spokane. The HPA program’s mission is: (1) to prepare excellent working students in metropolitan Spokane, eastern Washington, and the Inland Northwest region, and excellent students nationally interested in healthy communities, for a variety of professional health services management positions; and (2) to contribute to community health services enhancement and community health policy development through education, applied research, and service. A core value of the HPA Program and its faculty is to prepare health services managers with the knowledge, skills, and values to exercise professional leadership and promote healthy communities.

The 50 credit hour curriculum includes:
- Introductory courses (Introduction to the Health Care System; Health Care Policy and Politics; Law and Ethics of Health Management; Government Regulation of Health Services; Health Care Cost Accounting; Biostatistics and Epidemiology for the Health Sciences; Marketing for Health Care Organizations); core courses (Health Care Economics; Health Care Finance; Health Management Decision Science; Health Care Management; Research and Evaluation Methods; Health Care Information Systems); electives; 3 credit internship; capstone course, Strategic Management and Marketing; and 3 credit graduate project.

Basic knowledge of microeconomics, financial accounting, and computer skills (word processing, spreadsheet) are prerequisites for the required courses. Computer assisted self-study programs and a listing of area classes satisfying the prerequisites are available from the program.

The graduate program in Health Policy and Administration is accredited by the CAHME (Commission on Accreditation of Healthcare Management Education). According to the Association of University Programs in Health Administration Directory of Programs, “CAHME is recognized by the Council for Higher Education Accreditation (CHEA) which oversees accreditation of the nation’s colleges and universities, and by the Department of Education, as the only accrediting agency in the field of health services administration. Accreditation by CAHME is the most important assurance that a graduate program meets the quality standards developed by the profession and the health services industry.”

The HPA Program is also admitted to the Western Interstate Commission for Higher Education (WICHE) Western Regional Graduate Program (WRGP). According to WICHE, WRGP “consists of very high quality masters and doctoral degree programs which tend not to be widely available throughout the West.” Admission of the HPA Program means that residents of Alaska, Arizona, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, North Dakota, Oregon, South Dakota, Utah, Washington, and Wyoming are eligible to enroll at Washington resident rates of tuition. The WSU Health Policy and Administration Program is the only health administration program admitted to WRGP of the four CAHME-accredited programs in the WRGP region.

Students should apply for admission to WRGP through the regular HPA admissions process and identify themselves as “WICHE WRGP” applicants. Students should be a resident of one of the 14 participating states for one year before applying as a WRGP student. Part-time students are eligible to participate in WRGP if they have been admitted to a WRGP program.

Admission standards conform to the requirements of the WSU Graduate School. An undergraduate gpa of 3.0 or better is expected. In addition, GRE or GMAT scores are required for admission to the HPA Program, except for applicants holding a professional doctoral degree (e.g., MD, JD, DDS) or PhD from a US accredited school. Significant weight is given to GRE aptitude (verbal and quantitative combined) total scores of at least 1000, or a GMAT aptitude score of at least 500. However, indications of academic ability as expressed by undergraduate grade point average and professional experience are of greater importance than specific undergraduate background and GRE or GMAT scores.

For additional information, please call (509) 358-7980 or visit http://www.hpa.spokane.wsue.edu.

Description of Courses

HEALTH POLICY AND ADMINISTRATION

HPA

500 Introduction to the Health Care System
3 Orientation to history and organization of the health care system.

501 Health Care Policy and Politics
3 History, methods, results and evaluation of health-care-related policy and politics.

502 Law and Ethics of Health Management
3 Private health law and ethics, including professional liability, relationship of physician and patient, malpractice reform, health institutions, and health access.

503 Government Regulation of Health Services
3 Prereq graduate standing. Public law regulation; health care quality, personhood and individual autonomy, life/death decisions, antitrust, health care financing and cost control.

509 Health Care Economics
3 Prereq microeconomics. The economics of allocating, financing and delivering health care services. Cooperative course taught by WSU, open to UI students (ECON 450).

510 Health Care Cost Accounting
3 Prereq basic financial accounting; graduate standing. Basic cost-accounting concepts, principles, and applications in the health care setting.

511 Health Care Finance
3 Prereq HPA 512. Aspects of health care financial management fundamentals and managerial accounting for strategic financial management.
512 Health Management Decision Science  
3 Prereq HPA 511. Application of decision science technology to risk-analysis problems in healthcare for both investor-owned and non-profit entities.

515 Health Care Management  
3 Introduction to the knowledge, skills, and values associated with the practice of health management.

516 Health Quality Management  
3 Overview of the total field of health quality, including strategic quality management programs, quality assurance, quality control, and design.

517 Health Care and Human Resources Management  
3 Managing human resources and health professionals in diverse health care environments such as hospitals, clinics, home health care agencies and pharmaceutical firms.

519 Biostatistics and Epidemiology for the Health Sciences  
3 Prereq HPA 518. Application of quantitative methods to problems in the health sciences; statistical analysis software.

520 Research and Evaluation Methods  
3 Prereq statistics or HPA 518. Basic research and evaluation methods for health care professionals.

530 Health Care Information Systems  
3 Key attributes of health care information systems and their evolution in health care environments.

531 Marketing for Health Care Organizations  
1 Prereq graduate standing. Basic marketing concepts, principles, and issues related to marketing public and private health care.

532 Health Care Ethics  
3 Ethical issues affecting health care institutions, professionals and consumers.

533 Comparative International Health Care  
3 Analysis of key attributes of health care in selected countries and comparisons with the US health care system.

534 Rural Health Care in America  
3 The unique characteristics, professional opportunities, problems and reform alternatives in rural health care.

535 Mental Health Policy and Law  
3 Professions regulation, negligence, consent, privacy; civil commitment, treatment rights, guardianship, trial competency, insanity defense, sex offenders, execution capacity, entitlements, discrimination.

536 Disability and Aging Policy  
3 Prereq graduate standing. Policy aspects of disability, aging and chronic illness; including work disability, health and long term care, rationing, gender and class.

537 Strategic Management and Marketing  
3 Prereq HPA 511, 515. Key components and processes in strategic planning.

538 Internship  
V 1-5 May be repeated for credit; cumulative maximum 5 hours. Prereq HPA 500. Student experience in professional work settings. S, F grading.

539 Special Topics in Health Policy and Administration  
V 1-3 May be repeated for credit; cumulative maximum 9 hours.

600 Special Projects or Independent Study  
V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination  
V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study and/or Examination  
V 1-18 May be repeated for credit. S, F grading.

Department of History

jlibarts.wsu.edu/history

Wilson-Short 301
509-335-5139


Offerings in the field of history may be classified as American, Asian, European, and Latin American.

The Department of History's Undergraduate Degree Program is designed to produce several outcomes. We expect students who complete the requirements for an undergraduate major in History to: 1) express sophisticated and abstract concepts clearly in writing; 2) be familiar with the nature of historical argument and methodologies; 3) frame research topics and do research at an appropriate undergraduate level; 4) have a mastery of the broad outlines of historical developments, themes, issues, and patterns; 5) develop critical thinking skills that will allow and encourage them to become life-long learners.

A major in history can be used in government service, the new specialty of public history teaching, several areas of business and industry, and many other fields. It can also be used in preparation for study of the law, the ministry, archival work, and librarianship. Double majors or complementary minors combining history with other fields are easily arranged.

The department offers courses of study leading to the degrees of Bachelor of Arts in History, Bachelor of Arts in Social Studies, Master of Arts in History, and Doctor of Philosophy. In cooperation with others, the department participates in the interdisciplinary Program in American Studies leading to the degree of Doctor of Philosophy.

Preparation for Graduate Study

Students who have had basic undergraduate training in history (approximately 12 hours) and who have had undergraduate majors in such subjects as American literature, economics, anthropology, and political science may be well prepared for graduate study in several fields of specialization in history. Adequate opportunities are provided for removing deficiencies by taking appropriate courses or special examinations.

Undergraduates who are pursuing their studies at other institutions or through other curricula at this institution and who contemplate graduate work in this department should select courses similar to those required in the schedule of studies.

Schedules of Studies

HISTORY - EDUCATION OPTION
(131 HOURS)

Students who wish to earn a teaching credential must apply to the Teacher Preparation Program in the College of Education. They should consult with an advisor in history about choosing additional electives that may apply toward a minor or second major and that complement a History endorsement.

To certify in the History Education option, a student must have earned at least a 2.50 cumulative gpa.

The History Education major consists of 42 hours: 36 hours of History, including Hist 101, 102, 110, 111; one course from two of the following four sets: Hist 230, 231, 270, 271, 272, 273, 275; and one more non-western/global course (for a total of three in this category); 21 hours of 300-400-level History, which must include 300, 422, 469; and 480. EconS 102, Pol S 101, and Psych 105 are also required to meet state certification guidelines (these can also fulfill GERs). History courses and courses cross-listed with History do not count as GERs.

Students must have one year of a foreign language at the college level or two years at the high school level.

First Year

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<tr>
<th>Term</th>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td></td>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td></td>
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<td>3</td>
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<td></td>
<td>Math Proficiency [N] (GER)</td>
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Second Year

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<th>Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Arts &amp; Humanities [H,G] (GER)</td>
</tr>
<tr>
<td></td>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
</tr>
<tr>
<td></td>
<td>EconS 102 [S], Pol S 101 [S], or Psych 105 [S] (GER)</td>
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<td>Hist 102</td>
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Second Year

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<tr>
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<tr>
<td></td>
<td>EconS 102 [S], Pol S 101 [S], or Psych 105 [S] (GER)</td>
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<td>Engl 201 [W], 301 [W], or 302 [W] (GER)</td>
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<td>Hist 110 [S] (GER)</td>
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<td>Hist 200-level course</td>
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Third Year

<table>
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<tr>
<th>Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td></td>
<td>EconS 102 [S], Pol S 101 [S], or Psych 105 [S] (GER)</td>
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<td>Hist 111 [S] (GER)</td>
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<td>Hist 200-level course</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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Complete Writing Portfolio
### Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>300-400-level Hist Elective(^1)</td>
<td>3</td>
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<td>Hist 422</td>
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Science GER [B,P] if needed for a total of 12 credits

<table>
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<tr>
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<tbody>
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<td>Tier III Course [T] (GER)</td>
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### Fourth Year

#### First Term

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<tbody>
<tr>
<td>300-400-level Hist Elective(^1)</td>
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<tr>
<td>Hist 469 [M]</td>
<td>3</td>
</tr>
<tr>
<td>T &amp; L 467</td>
<td>3</td>
</tr>
<tr>
<td>T &amp; L 465</td>
<td>3</td>
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<tr>
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#### Second Term

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<tr>
<td>EdPsy 468</td>
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<td>Hist 480</td>
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<td>T &amp; L 467</td>
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### Fifth Year

#### First Term

<table>
<thead>
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<th>Course</th>
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</tr>
</thead>
<tbody>
<tr>
<td>T &amp; L 415</td>
<td>16</td>
</tr>
</tbody>
</table>

\(^1\) Pol S 101 and Econ 102 are state requirements for teacher certification in history and are recommended to fulfill GER requirements; Psych 105 is required for admission to the Teacher Preparation Program.

\(^2\) One from Engl 201, 301, 302 is required for admission to the Teacher Preparation Program.

\(^3\) Choose two from two categories: 230, 231; 270, 271, 272, 273, 275.

\(^4\) History education majors must choose their 12 hours of 300-400 electives from the following: one from Hist 411, 413, 414, 415, 416, one from Hist 412, 417, 418, 419, one from European history course list (see advisor) and one from world history course list (see advisor).

**HISTORY - GENERAL OPTION (120 HOURS)**

36 semester hours of history is required including 6 hours of US history, 6 hours of European history, and 9 hours of Non-Western/Global history; 21 hours at the 300-400-level, which must include Hist 300 and 469; and a 12 hour concentration (at least 6 hours 300-400-level) in the same or in related disciplines with the advisor's approval.

It is assumed that prior to the junior year the student will have completed courses meeting General Education and College of Liberal Arts requirements for graduation.

#### First Year

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
<td>3 or 4</td>
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<tr>
<td>Science Elective (GER)</td>
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**Second Term**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Intercultural Studies [L,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
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**Second Year**

#### First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>100-200-level Hist Electives(^1)</td>
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<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
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**Second Term**

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<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>100-200-level Degree Program Course(^2)</td>
<td>3</td>
</tr>
<tr>
<td>100-200-level Hist Electives(^1)</td>
<td>6</td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Foreign Language, if necessary, or Elective (^3)</td>
<td>3 or 4</td>
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<tr>
<td>Complete Writing Portfolio</td>
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**Third Year**

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<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>100-200-level Degree Program Course(^2)</td>
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<tr>
<td>300-400-level Hist Electives(^1)</td>
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<tr>
<td>Hist 300 or Hist Elective (any level)(^3)</td>
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<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>300-400-level Degree Program Course(^2)</td>
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<tr>
<td>300-400-level Electives</td>
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<tr>
<td>300-400-level Hist Elective</td>
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<td>Hist 300</td>
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<tbody>
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<td>300-400-level Degree Program Course(^2)</td>
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<tr>
<td>300-400-level Electives (^1)</td>
<td>6</td>
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<tr>
<td>300-400-level Hist Electives</td>
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<table>
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</thead>
<tbody>
<tr>
<td>300-400-level Electives</td>
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</tr>
<tr>
<td>Hist 469</td>
<td>3</td>
</tr>
<tr>
<td>Tier III Course [T] (GER)</td>
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</table>

\(^1\) History Electives must include 6 hours US history, 6 hours European history, and 9 hours Non-Western/Global history.

\(^2\) Courses in the same or in related disciplines with the advisor's approval; students are encouraged to explore, in consultation with their advisor, a double-major or strong minor in a complementary subject field.

**HISTORY - PRE-LAW OPTION (120 HOURS)**

36 semester hours in history is required including 6 hours of US history, 6 hours of European history, and 9 hours of Non-Western/Global history; 12 hours of 100-200 level Hist; 3 hours of additional Hist; 21 hours of 300-400-level, which must include Hist 300 and 469. Included in the program of study below are 30 hours of courses in communication, social sciences and humanities, economics and business that are valuable preparation for study of the law. In addition to these requirements, students are urged to elect, in consultation with their advisor, courses that complement the curriculum's broad based liberal arts education.

To certify in the history pre-law option, a student must have earned at least a 2.50 cumulative gpa.

A grade of C or better is required in all History courses used to fulfill the requirements for this major.

It is assumed that prior to the junior year that students will have completed courses meeting General Education and College of Liberal Arts requirements for graduation.

#### First Year

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Science Elective (GER)</td>
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<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol [B] or Physical [P] Sciences (GER)</td>
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<tr>
<td>ComSt 102 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Intercultural Studies [L,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Pre-Law Option(^2)</td>
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**Second Year**

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<table>
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<tr>
<th>Course</th>
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<tr>
<td>100-200-level Hist Electives(^2)</td>
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<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<td>Pre-Law Option(^2)</td>
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<tr>
<td>100-200-level Hist Electives(^2)</td>
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<tr>
<td>Foreign Language, if necessary, or Elective (^3)</td>
<td>3 or 4</td>
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<td>Pre-Law Option(^2)</td>
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**Third Year**

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<table>
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<th>Course</th>
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<tbody>
<tr>
<td>300-400-level Hist Elective(^3)</td>
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<tr>
<td>Hist 300 or Hist Elective (any level)(^3)</td>
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<td>Pre-Law Option(^2)</td>
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**Fourth Year**

**First Term**

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<tr>
<td>300-400-level Hist Electives(^3)</td>
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<tr>
<td>300-400-level Degree Program Courses(^2)</td>
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<tr>
<td>300-400-level Hist Electives</td>
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<td>Hist 469</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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</table>

\(^3\) Pre-Law requirements (may also fulfill GER requirements) – Political Science: Pol S 300 and two courses from 101, 102, 198 or 206; Business/accounting: two courses from Econ\#1 101, 102, 198, Acctg 230, B Law 210 or Fin 323; Social Sciences/Humanities: one course each from [Anth 101 or 198], [Phil 201, 260, 360, 370 and 470], [Psych 105 or 198] and [Soc 101 or 198]; English: one course from Engl 201, 301 or 402.

\(^4\) 100-200 level History electives. Choose from 101, 102, 110, 111, 230, 231, 270, 272, 273, 275

\(^5\) 300-400 level history electives. The following courses are recommended to fulfill upper-division requirements: European History: 341, 342, 343, 440, 441, 444, 445, 446, 447, 450, 453, 455, 459, 488, 489;
SOCIAL STUDIES - EDUCATION OPTION
(137 HOURS)

Social Studies is a major for students who plan to earn both a BA and a teaching endorsement in the multidisciplinary fields of history and the social sciences: anthropology, economics, geography, political science, psychology, sociology. Social Studies majors who wish to earn a teaching credential must apply to the Teacher Preparation Program in the College of Education. They should consult with an advisor in history about choosing additional electives that may apply toward a minor or second major and that complement a Social Studies endorsement.

To certify in Social Studies, a student must have earned at least a 2.50 cumulative GPA.

The social studies education major consists of 63 hours: lower-division (30 hours) to include Hist 101, 102, 110, 111; one course from two of the following four sets: Hist 230 231, 270, 271 272 273, 275; one from Anth 109, 119, 203, 260; Econ 102; Pol S 101; Soc 101. Upper-division (30 hours): 15 hours of history, to include 422, one European, one non-western/global, and one American/U.S. course; 15 hours of social sciences, to include one from Econ 320, 327, 416, 427, 430 [T]; one from geography (Anth 309, Hist 319, 495); one from Pol S 300, 316, 427, 450, 455 or Crml 320; and 6 additional hours from Anth 307, 316, 320, 330, 331, 350; Psych 310, 324, 361, 470; Soc 320, 351, 384, 430; Hist 480 is also required. An approved seminar is also required but may double-count with the upper-division courses above.

As social studies is an interdisciplinary major, 21 credits may double count to fulfill GER and major requirements.

Students must have one year of a foreign language at the college level or two years at the high school level.

First Year

First Term

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<th>Hours</th>
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<td>GenEd 110 [A] (GER)</td>
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<td>Hist 101 [H] (GER)</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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Second Term

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<td>Anth 101 [K] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Hist 102 [H] (GER)</td>
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<td>Soc 101 [S,D] (GER)</td>
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Second Year

First Term

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<tr>
<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<td>Econ 102 [S] (GER)</td>
<td>3</td>
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<td>Hist 110 [S] (GER)</td>
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<td>Hist 200-level course</td>
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<td>Pol S 101 [S] or Psych 105 [S] (GER)</td>
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Second Term

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<td>Engl 201 [W], 301 [W], or 302 [W] (GER)</td>
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<tr>
<td>Hist 111 [S] (GER)</td>
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Hist 200-level course\(^1\) 3  
Pol S 101 [S] or Psych 105 [S] (GER)\(^2\) 3  
T & L 300 1  
Complete Writing Portfolio

Third Year

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>300-400-level Hist Electives(^a)</td>
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<td>300-400-level Econ's Elective from list</td>
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<tr>
<td>Anth/Psych/Soc Electives from list(^1)</td>
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Second Term

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<td>Anth/Psych/Soc Electives from list</td>
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<td>Geography Elective from list</td>
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<td>Hist 422</td>
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<td>Pol S Elective from list</td>
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Science GER [B,P] if needed for a total of 12 credits 5
T & L 317 2

Fourth Year

First Term

<table>
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<tbody>
<tr>
<td>300-400-level Hist Elective(^a)</td>
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<tr>
<td>300-400-level Hist Elective(^a)</td>
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<td>T &amp; L 465</td>
<td>3</td>
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<tr>
<td>T &amp; L 466</td>
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<td>Tier III Course [T] (GER)</td>
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<table>
<thead>
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<tbody>
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<td>300-400-level Hist Elective(^a)</td>
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Fifth Year

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</thead>
<tbody>
<tr>
<td>T &amp; L 415</td>
<td>16</td>
</tr>
</tbody>
</table>

\(^1\) Choose 2 from 2 categories: 230, 231; 270, 271; 272, 273; 275.  
\(^2\) Psych 105 is required for admission to the Teacher Preparation Program; one from Engl 201, 301, 302 is also required for admission.  
\(^3\) An approved seminar, Hist 469 or Soc 320, may double-count as a major course.  
\(^4\) Social studies majors must choose their 12 hours of 300-400 electives from the following: one from European history list, one from world history list, one from American/U.S. history list and one additional elective.  
\(^5\) Tier III course may double-count as a major course.

Minors

History

A minor in history requires 18 hours, 9 of which must be in 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A grade of C or better is required in all course work for the minor.

Minors

History

A minor in history requires 18 hours, 9 of which must be in 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A grade of C or better is required in all course work for the minor.

**Description of Courses**

**HIST**

101 [H] Classical and Christian Europe 3  
Greece and Rome, birth of Christianity and Islam, Middle Ages, Renaissance, Reformation, religious wars, Louis XIV.

102 [H] Modern Europe 3  
War, revolution, industrialization, culture 18th to 20th centuries; imperialism, democracy, and totalitarianism; Europe’s leaders Napoleon to Hitler; Post-WW II developments.

110 [S] American History to 1877 3  
Social, economic, cultural history of British mainland colonies/United States to 1877.

111 [S] American History Since 1877 3  
Social, economic, cultural history of United States, 1877 to present.

150 [S,D] Peoples of the United States 3  
Examination of the peoples of the United States from the beginnings of the colonial era to the present.

201 [K] Asian/Pacific American History 3  
Same as CES 211.

205 [H,D] African American History 3  
Same as CES 235.

216 [S,D] American Cultures 3  
Same as Am St 216.

230 [K] Latin America, The Colonial Period 3  
Overview of the most significant events, social and ethnic groups, practices, and institutions of colonial Latin America.

231 [K] Latin America, The National Period 3  
Investigation of broad themes, individual national histories, and United States policy in Latin America over the past two centuries.

270 [K] India: History and Culture 3  
Development of civilization; and contemporary societies of India and South Asia.

271 [K] Southeast Asian History: Vietnam to Indonesia 3  
Historical introduction to Southeast Asian social, religious, political, economic and cultural institutions including Vietnam, Thailand, Burma, the Philippines and Indonesia.

272 [I] Introduction to Middle Eastern History 3  
History of the Middle East from Muhammad to the present; political and religious development and the impact of empires.

273 [G] Foundations of Islamic Civilization 3  
Main ideas and institutions that have characterized Islamic civilization since its founding, presented thematically.

275 [K] Introduction to East Asian Culture 3  
Civilizations of China and Japan.

280 [S,D] Race and Law in American History 3  
Same as CES 280.

290 [S] Honors History II 3  
Prereq honors students only. Introduction to social science research through a historical lens.

298 [S,D] History of Women in American Society 3  
The roles of women—social, economic, political—in American history from colonial times to the present.
300 [M] Writing about History 3 Prereq certified major in history or social studies. Historical topics, use of sources, analytical thought, and precision in language.

306 [K] Cultures and Peoples of the Middle East 3 Same as Anth 306.

308 [K] North American Indian History, Precontact to Present 3 History of North American Indian peoples from circa 1350 to present.

313 [S] Black Freedom Struggle 3 Same as CES 335.

319 Geographical History of the US 3 Perspectives on the geographical history of the U.S. from early times to the present.


322 [H,D] US Popular Culture Since 1930 3 Movies, radio, television, sports, music, and other popular arts in historical context.


331 [K] Cultural History in Latin America 3 Social development of Blacks, Whites, and Indians in Latin America from the conquest to the modern era.

335 [K] Women in Latin American History 3 Survey of women's changing roles throughout Latin America from pre-colonial to present.

337 [H] Women in the Ancient World 3 Role of women in ancient Egypt, Mesopotamia, Israel, Greece, and Rome; focus on the formation of western attitudes toward women.

340 [H] Ancient Greece 3 History and culture of pre Christian Greek civilization.

341 [H] Rome: Republic and Empire 3 History and culture of the Roman world from the independence of the city to the onset of the medival order.

342 [H] History of England to 1485 3 English history; intellectual and cultural development.

350 [S] European Women's History, 1400-1800 3 Women's experiences in Europe from the Renaissance to the Enlightenment and the ideas and roles that shaped their opportunities.

355 [H] History of European Popular Culture 3 The transformation of Europe's popular culture (music, games, stories, beliefs) through social, religious, print, and industrial revolutions.

370 [G] History of Ancient and Medieval India 3 Historical development to 1500 CE of states, religions, caste society, gender customs and social ecology in India.

373 [G] Chinese Civilization 3 Growth of Chinese civilization from the dawn of history to the present.


381 [S] Science in Western Civilization Through Newton 3 Development of Western science and its influence on European culture and society.

382 [S] Science in Western Civilization from Newton to Einstein 3 Development of modern science and its influence on Western culture and society.

386 World War II in Europe 3 Causes for war; military operations; economic mobilization; social and cultural change; occupation and resistance; the Holocaust; the legacy of war.

387 World War II in Asia and the Pacific 3 Imperial rivalries in Asia; Japanese militarism; military, ideological and social aspects of the war; the atomic bomb; memory of the war.


390 U.S. Military History 3 American military history from 1630 to the present. Themes will include civil military relations, the conduct of war, and political-military relations.

395 Topics in History 3 May be repeated for credit; cumulative maximum 6 hours. Analytical study of selected historical movements and events.

398 [H,D] History of Women in the American West 3 The multicultural history of women in the west through women's literature, archives, and oral history.

400 History in Media 3 Representation of historical people and events through different media e.g., text, film, video, and computers.

409 [T] American Environmental History 3 Prereq completion of one Tier I and three Tier II courses. A history of environmental change, ideas of nature, natural resource development, conservation politics, science and environmental policy.


411 American Diplomatic History, 1776-1914 3 Policies and principles characteristic of American diplomacy from 1776 to 1914. Credit not granted for both Hist 411 and 511.

412 American Diplomatic History in the 20th Century 3 Credit not granted for both Hist 412 and 512.

413 [M] Early American History to 1750 3 The cultures and interactions of Native Americans, Europeans, and Africans; development of colonial American societies and institutions.

414 The Era of the American Revolution 3 The origins of the American Revolution, the War of Independence, and the emergence of republican government and society.

415 Jefferson-Jacksonian America 3 Social and political history of the United States from 1789 to 1845; Jeffersonian and Jacksonian eras. Credit not granted for both Hist 415 and 515.

416 Civil War and Reconstruction 3 The Civil War as a problem in historical causation and social, political, and economic impact of the war. Credit not granted for both Hist 416 and 516.

417 Rise of Modern America 3 Response to industrialism in the Gilded Age and the reform movements of Populism and Progressivism. Credit not granted for both Hist 417 and 517.

418 United States, 1914-1945 3 America through World War I, cultural tensions of the Twenties, and the crises of Depression and WWII. Credit not granted for both Hist 418 and 518.

419 United States, 1945-Present 3 International and domestic impact of the Cold War, era of McCarthyism, American aspirations, tensions and conflicts in the post-industrial era. Credit not granted for both Hist 419 and 519.

421 The American West 3 Multicultural exploration of the frontier experience and western America; environment, economic development, gender, class and race emphasized. Credit not granted for both Hist 421 and 521.

422 History of the Pacific Northwest 3 Political, social economic and environmental history of the Pacific Northwest. Fulfills the teaching certification requirement for Washington state history. Credit not granted for both Hist 422 and 522.

423 Radicals, Reformers, and Romantics: The Impact 3 Changing thought and its impact in the United States from colonial times to the present. Credit not granted for both Hist 423 and 523.

425 [T] The City in History 3 Prereq completion of one Tier I and three Tier II courses. Description and comparison of the city through history in European and one or more non-Western cultures.

426 [T] Workers Across North America 3 Prereq completion of one Tier I and three Tier II courses. Same as CES 426.

427 [M] Public History: Theory and Methodology 3 An introduction to the broad range of non-traditional careers in history. Credit not granted for both Hist 427 and 527. Cooperative course taught by WSU, open to UI students (HIST 404).

430 [M] History of Mexico 3 War of independence, 19th century Mexico and the liberal-conservative struggle; modern Mexico since the Revolution of 1910. Credit not granted for both Hist 430 and 530.

432 20th Century Latin America 3 Contemporary developments, policies and trends in the Latin American states. Credit not granted for both Hist 432 and 532.
433 History of Cuba and the Caribbean 3 Historical development of the Caribbean, with emphasis on Cuba, from the Spanish arrival to Castro's revolution. Credit not granted for both Hist 433 and 533.

434 Revolution in Latin America 3 Social and political development in Central America; reasons for dictatorships and revolutionary movements; comparison with other Latin American regions. Credit not granted for both Hist 434 and 534.

435 [T] European Expansion Overseas, 1400-1800 3 Prereq completion of one Tier I and three Tier II courses. The factors underlying European overseas expansion before 1800 and its impact on indigenous societies and world trading patterns.

436 [T] Imperialism in the Modern World 3 Prereq completion of one Tier I and three Tier II courses. History of imperialism (colonial, economic, territorial, cultural) since 1800 as a global phenomenon.

438 Topics in Public History V 1-3 May be repeated for credit; cumulative maximum 3 hours. Rec Hist 427. Public history applications, methods and careers in specific public history fields. Credit not granted for both Hist 438 and 538.

439 Slavery, Abolition and Emancipation in World History 3 Prereq junior standing. History of slavery and abolition as a worldwide phenomena; trends and debates in historiographical literature.

440 The Early Middle Ages, 330-1050 3 Western Europe, the Byzantine Empire, and Islam from the dissolution of classical Roman civilization to the 11th century revival.

441 The Later Middle Ages, 1050-1500 3 Western European and Byzantine civilizations from the 11th century revival to the advent of the Renaissance in the West.

444 [T] The Renaissance 3 Prereq completion of one Tier I and three Tier II courses. Political, cultural, and religious history of Europe, 1300-1500.

445 The Reformation 3 Political, cultural, and religious history of Europe, 1500-1650.

447 Europe in the French Revolutionary and Napoleonic Era, 1789 to 1815 3 Credit not granted for both Hist 447 and 547.

448 Modern Europe as Reflected In Art 3 Early Modern Europe as reflected in architecture and the visual arts.

449 Europe and Two World Wars, 1914-1945 3 Political, intellectual, economic, and international aspects of European life during and between two world wars. Credit not granted for both Hist 449 and 549.

450 [M] Europe Since 1945 3 Europe from the end of World War II to the present; the Cold War, European integration, social and intellectual life. Credit not granted for both Hist 450 and 550.

453 Conservatism, Liberalism, and Socialism: Europe, 1815-1870 3 The consolidation of industrial society and the nation-state in 19th-century Europe. Credit not granted for both Hist 453 and 553.

454 Nationalism and National Conflict: Europe, 1870-1914 3 The rise of Europe to world predominance and the crisis of the European order. Credit not granted for both Hist 454 and 554.

455 [T] The Great War 1914 - 1920 3 Political, social and cultural history of the first global war from the Sarajevo assassination through the post-war peace settlements.

459 Modern Britain 3 Britain and the Empire from the Napoleonic wars to the present. Credit not granted for both Hist 459 and 559.

462 History of Imperial Russia 3 History and culture of Imperial Russia from Peter the Great to the 1905 revolution. Credit not granted for both Hist 462 and 562.


464 Comparative Genocide 3 Prereq junior status, 6 hours in Hist. Study of the concepts, history, and consequences of genocide in the global perspective through theoretical and case study analysis. Credit not granted for both Hist 464 and 564.

466 [T] History of the Cold War, 1944-present 3 Prereq completion of one Tier I and three Tier II courses. Exploration of the 50 year “cold” conflict between the US and USSR and its political, social, economic, and cultural consequences for the world.

467 Modern France 3 The history of France from the revolution of 1789 to the present.

468 Hitler and Nazi Germany 3 Origins and rise of Nazism; state, society and culture in the Third Reich; Nazi racial ideology; world war; the Holocaust. Credit not granted for both Hist 468 and 568.

469 [M] Seminar in History 3 May be repeated for credit. Prereq Hist 300.

472 [M] The Middle East Since World War I 3 Development in the Middle East since World War I including nationalism, fundamentalism, and revolution. Credit not granted for both Hist 472 and 572.

473 [T] The Middle East and the West 3 Prereq completion of one Tier I and three Tier II courses. East-west tensions in the context of historical relations between the Middle East and West Europe since the rise of Islam.

474 Modern South Asia: Community and Conflict 3 Historical transformation of communities and communal conflicts in modern South Asia from 1500 to present; themes: caste, religion, geography, environment and economy.


476 [M] Revolutionary China, 1800 to Present 3 Continuity and change in the political, social, cultural and economic experience of China since 1800. Credit not granted for both Hist 476 and 576.

477 [M] Modern Japanese History 3 Examination of political, socioeconomic and cultural changes and the international crises in modern Japan since the 19th century. Credit not granted for both Hist 477 and 577.

479 History of East Asian Economic Development Since 1945 3 The historical relationships between politics and economics in East Asia since 1945.

480 Methods of Teaching Social Studies 3 Prereq certification; by interview only. Methods, resources, selection of content, past and present issues in social studies education.

483 [T] Technology and Social Change to 1950 3 Prereq completion of one Tier I and three Tier II courses. The emergence of modern technological society with emphasis on the period 1750-1950.

486 United States Foreign Relations 3 Same as Pol S 427.

489 [M] Recent Political Thought 3 Same as Pol S 438.

491 [T] History of World Trade 3 Prereq completion of one Tier I and three Tier II courses. The evolution of the institutions, conditions, and consequences of world trade after 1000.

492 [T] Cultural Appetites: Food in World History 3 Prereq completion of one Tier I and three Tier II courses. What food selection and preparation reveals about cultural integration around the world from the medieval era to the present.


495 [T] Space, Place, and Power in History: Historical Geography in Global Perspective 3 Prereq completion of one Tier I and three Tier II courses. Introduction to the discipline of historical geography; geographical and spatial approaches to European, North American, and Asian history.

496 Topics in American Studies 3 May be repeated for credit; cumulative maximum 9 hours. Same as Am St 596. Credit not granted for both Hist 496 and 596.

497 Seminar 3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.

498 History Internship V 1-12 May be repeated for credit; cumulative maximum 12 hours. Prereq major or minor in history. Participation as intern in public or private sectors. Credit not granted for both Hist 498 and 598.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Field Course in American History 3 May be repeated for credit. Readings and interpretive problems of American history.

511 American Diplomatic History 1776-1914 3 Graduate-level counterpart of Hist 411; additional requirements. Credit not granted for both Hist 411 and 511.

512 American Diplomatic History in the 20th Century 3 Graduate-level counterpart of Hist 412; additional requirements. Credit not granted for both Hist 412 and 512.
For continued enrollment in the University Honors College, students must maintain a 3.2 cumulative GPA. Any graded courses used to fulfill Honors College graduation requirements must receive a grade of C or better. Students who satisfactorily complete all UHC requirements and a cumulative GPA of 3.2 will receive a University Honors Certificate of Completion provided they have completed a minimum of 15 graded credits of honors courses. Certification will be noted on the transcript.

Each semester, students enrolled in the Honors College take one to three Honors courses in addition to their major courses.

**Freshman Year**

- **English 298**
- **Math requirement**
- **Foreign Language competency requirement**
- **Science 298 (fall only)**
- **Science 299 (spring only)**

**Sophomore or Junior Year**

- UH 270 Principles and Research Methods in Social Sciences
- UH 280 Contextual Understanding in the Arts and Humanities
- UH 290 Science as a Way of Knowing
- UH 398 Honors Thesis Proposal Seminar

**Junior or Senior Year**

- UH 370 Case Study: Global Issues in Social Science
- UH 380 Case Study: Case Study: Application of English and Humanities to Global Issues
- UH 390 Application of Science to Global Issues
- UH 450 Honors Thesis

Students who qualify for Calculus II (Math 172) on the basis of the math placement test receive credit for Math 171 and thereby fulfill this requirement. Other students take the math required by their major. Honors College accepts Math 140, 171, 202, 205, 206, 210, 212, and 251 and 252 combined. Check with a University Honors College advisor for any questions concerning the math requirement.

Scientists meet major required lab sciences (3 credits).

- Three credits required. The Honors College will accept credits required for other departmental theses or projects. Please check with an Honors advisor.

**Timing Optional with Student:**

Optional: UH 430 (Education Abroad Practicum and Research)

**Certificates**

**Honors Certificate of Global Competencies**

The Certificate of Global Competencies is an elective certificate for Honors students whose international interests and/or career objectives can be enhanced by an integrated program of language study, academic coursework, and study abroad. Students receive a notation on their transcript in addition to the Honors Certificate of Completion.

The Certificate of Global Competencies builds on the courses required for the Honors Certificate of Completion. Students who enter with good foreign language preparation usually will not require extra time to complete both certificates. Twenty-three credits are required for the Certificate of Global Competencies. A minimum of 14 credits must be taken for a letter grade. At least 12 of the credits must be taken at WSU. A grade of C or better must be earned in each of the required, elective and transfer courses in order to qualify for the certificate. The University undergraduate certificate fee will apply.

Students are strongly encouraged to work with an Honors advisor to plan an appropriate schedule of studies. The certificate entails requirements in three areas:

1. Foreign language competency: A minimum of 4 graded credits at the 204 level or higher, and fourth semester competence are required. Fifth semester competence is preferred. Most students will complete 6–8 graded credits in a foreign language.
2. Education abroad: A minimum of 6 graded credits from one term abroad or longer in an approved program. A “term” may include a summer session with a full academic load. A typical semester abroad in an approved program will result in 12–15 WSU credits.
3. Coursework: A minimum of 11 graded credits and 3 S,F grade credits are required. The following courses are required: UH 300 (focused on language/culture/continent of study abroad experience), UH 330, UH 350, UH 430, and UH 450 (focus on an international topic).

**Description of Courses**

**UNIVERSITY HONORS**

- Anth 198 – Anthropology Honors
- Chem 116 – Chemical Principles Honors II
- Econ 198 – Economics Honors
- Engl 298 – Writing and Research Honors
- Hist 290 – History Honors
- Math 182 – Honors Calculus II
- Math 230 – Honors Introductory Linear Algebra
- Math 283 – Honors Calculus III
- Phil 198 – Philosophy Honors
- Phys 205 – Physics Honors I
- Phys 206 – Physics Honors II
- Pol S 198 – Political Science Honors
- Psych 198 – Psychology Honors
- Sci 298 – Sciences for Honors Students I
- Sci 299 – Sciences for Honors Students II
- Soc 198 – Sociology Honors
- UH 270 – Principles and Research Methods in Social Sciences
- UH 280 – Contextual Understanding in the Arts and Humanities
- UH 290 – Science as a Way of Knowing
- UH 300 – Honors Seminar
- UH 330 – Development of Western Civilization
- UH 350 – Development of Global Civilizations
- UH 370 – Case Study: Global Issues in Social Sciences
- UH 380 – Case Study: Application of Arts and Humanities to Global Issues
- UH 390 – Case Study: Application of Science to Global Issues
- UH 398 – Honors Thesis Proposal Seminar
- UH 410 – Domain of the Arts
- UH 430 – Honors Education Abroad Research
- UH 440 – Domain of the Arts
- UH 450 – Honors Thesis or Project
- UH 499 – Special Problems
450 Honors Thesis or Project V 1-4 May be repeated for credit; cumulative maximum 4 hours. Thesis or project directed by student's major department. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

Department of Horticulture and Landscape Architecture

www.hortla.wsu.edu
Johnson Hall 149
509-335-9502


All degree programs in horticulture are transitioning to Integrated Plant Sciences, pending final approval by the Higher Education Coordinating Board. Please see that section for information.

Horticulture

Courses in horticulture are designed to give instruction in ecology and viticulture, fruit, vegetable, and ornamental production, handling, utilization, and management. Emphasis is on developing an understanding of plant growth and development fundamental to crop management. A production and management emphasis is designed to prepare students to be professionals in production, handling and processing, marketing, consulting, government, management, environmental and related fields. A science emphasis is designed to prepare students for graduate study and careers in research and teaching. Additional emphases are available in consultation with an advisor.

Students in horticulture may focus on environmental horticulture, fruits and vegetables, tree fruit management, or viticulture and enology. The department offers an undergraduate minor in horticulture.

Horticultural production and management students are encouraged to minor in business administration or agricultural economics. Horticultural science students are encouraged to take additional courses in chemistry, biochemistry, genetics, mathematics, and physics.

The BS in Horticulture degree program provides students with the following learning outcomes: basic and functional understanding of the scientific basis and interdisciplinary nature of horticulture and horticultural crop production systems; the importance of the development of strong technical, written, and oral communication skills; knowledge and skills related to the application of emerging technologies in the horticultural sciences; an understanding of the role of plants in society; and the knowledge and skills necessary to function as an entry-level practitioner in the horticultural industry and to become, with experience, a successful horticulturist.

An interdisciplinary curriculum in integrated pest management is available to those students whose interests span the areas of horticulture and pest management. The curriculum is described under the entomology section of this bulletin.

The department offers courses of study leading to the degrees of Bachelor of Science in Horticulture, Bachelor of Landscape Architecture, Master of Science in Horticulture, Master of Science in Landscape Architecture, and Doctor of Philosophy.

Preparation for Graduate Study

Students with undergraduate majors in the plant sciences, including horticulture, crop science, plant pathology, environmental science, genetics, plant physiology and biochemistry, may be well prepared for graduate study in horticulture.

Undergraduate students who are pursuing their studies at other institutions, or through other curricula at this institution, and who contemplate graduate work in horticulture should take as many courses in the basic physical and biological sciences as possible.

LANDSCAPE ARCHITECTURE

Landscape architecture is the professional art and science of planning and designing land elements so that the activities of people are in harmony with their environment. The practice ranges in scale from the design of residential and garden landscapes to planning and design of complex projects such as cities and regions.

The undergraduate curriculum is accredited by the American Society of Landscape Architects (ASLA). It stresses a broadly based course of study emphasizing residential, community, and urban design; site, regional and land use planning, and professional practice methods.

The curriculum is divided into two parts: pre-landscape architecture and landscape architecture.

Students in pre-landscape architecture must apply to be accepted into the upper-division level of the landscape architecture program. The opportunity exists to participate in special studies, professional work experiences and foreign study.

The Bachelor of Landscape Architecture degree program provides students with the following learning outcomes: basic knowledge and skills in critical thinking, design/inquiry/problem solving, design technology, and design communications necessary to function as an entry level practitioner of landscape architecture and become with experience, a creative and professional practitioner of landscape architecture; and exposure to a broad array of design and planning opportunities from which to experience and evaluate a variety of social, political, natural resource, and aesthetic issues affecting human habitats and land use.
<table>
<thead>
<tr>
<th>Schedules of Studies</th>
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**HORTICULTURE - ENVIRONMENTAL OPTION**  
*(121 HOURS)*

All degree programs in horticulture are transitioning to Integrated Plant Sciences, pending final approval by the Higher Education Coordinating Board. Please see that section for information.

**First Year**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Biol 120 or 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 102 [P] or 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Hort 202</td>
<td>4</td>
</tr>
<tr>
<td>Math Proficiency [N] (GER)</td>
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**Second Year**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>ComSt 102 [C] or H D 205 [C] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Hort 231</td>
<td>3</td>
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<tr>
<td>Hort 334</td>
<td>3</td>
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<tr>
<td>Soils 201</td>
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<table>
<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Elective</td>
<td>3</td>
</tr>
<tr>
<td>Env. Hort Emphasis¹</td>
<td>3</td>
</tr>
<tr>
<td>Hort 232</td>
<td>3</td>
</tr>
<tr>
<td>Hort 251</td>
<td>4</td>
</tr>
<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<table>
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<tr>
<th>Third Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Year 2, Summer Session: Hort 399</td>
<td>3</td>
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**Third Year**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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</thead>
<tbody>
<tr>
<td>Adv. Plant Sci. Elective²</td>
<td>3-4</td>
</tr>
<tr>
<td>Computer Literacy</td>
<td>3</td>
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<tr>
<td>Env. Hort Core³</td>
<td>3</td>
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<tr>
<td>Env. Hort Emphasis</td>
<td>3</td>
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<tr>
<td>Hort 356</td>
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<tr>
<td>IPM Elective</td>
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<table>
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<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Entom 340 or Entom 348/9</td>
<td>2-3</td>
</tr>
<tr>
<td>Env. Hort Core</td>
<td>3</td>
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<tr>
<td>PI P 429 or 331</td>
<td>3</td>
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<tr>
<td>Social Science [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Soils Elective</td>
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**Fourth Year**

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Adv. Plant Sci. Elective</td>
<td>3-4</td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Env. Hort Core</td>
<td>3</td>
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<tr>
<td>Env. Hort Emphasis</td>
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<tr>
<td>Supporting Hort Elective⁴</td>
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<tr>
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<th>Hours</th>
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<tbody>
<tr>
<td>Adv. Plant Sci. Elective</td>
<td>3-4</td>
</tr>
<tr>
<td>Env. Hort Core</td>
<td>3</td>
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</tbody>
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¹ Environmental Horticulture Emphasis (12 hours): select a focus area in consultation with a faculty advisor from:
- Business: Acctg 230, Mktg 360, Ag Ec 330, and 350.
² Advanced Plant Science Electives (9 hours) and must include 3 hours of [M]: Hort 416, 418 [M], Biol 320, 332, 409, or 462.
³ Environmental Horticulture Core (12 hours): Hort 331, 332, 333, 340, 439, or LA 264.
⁴ Supporting Horticulture Elective (3 hours): Hort 310, 313, or 320.

**HORTICULTURE - FRUIT AND VEGETABLE OPTION**  
*(121 HOURS)*

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**First Year**

<table>
<thead>
<tr>
<th>First Term</th>
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<tbody>
<tr>
<td>Biol 120 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
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</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<table>
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<tr>
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<tbody>
<tr>
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<td>Hort 202</td>
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**Second Year**

<table>
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<tr>
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<tr>
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<tr>
<td>Chem 345</td>
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<tr>
<td>Hort 310 and 311; 313; or 320 and 321</td>
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<tr>
<td>Hort 334</td>
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<td>Soils 201</td>
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<tr>
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<td>3</td>
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<td>Biol 320</td>
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<td>Hort 251</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>Complete Writing Portfolio</td>
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<td>Year 2, Summer Session: Hort 399</td>
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**Third Year**

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<tr>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>PI P 429</td>
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**Fourth Year**

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<tr>
<td>Hort 310 and 311; 313; or 320 and 321</td>
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<tr>
<td>Hort Elective</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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**HORTICULTURE - VITICULTURE AND ENOLOGY OPTION**  
*(123 HOURS)*

All degree programs in horticulture are transitioning to Integrated Plant Sciences, pending final approval by the Higher Education Coordinating Board. Please see that section for information.

**First Year**

<table>
<thead>
<tr>
<th>First Term</th>
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<tr>
<td>Biol 120 [B] (GER)</td>
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<td>Hort 202</td>
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**Second Year**

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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Hort 313</td>
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<td>Complete Writing Portfolio</td>
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**Third Year**

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<tbody>
<tr>
<td>AgTM 325</td>
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<td>Biol 150, 408 or MBioS 301</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Entom 340</td>
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</table>
LANDSCAPE ARCHITECTURE (121 HOURS)

The professional course of study is divided into two segments. These are pre-landscape architecture and the third-fourth year professional landscape architecture program (BLA). Completion of the program leads to the degree of Bachelor of Landscape Architecture and allows the graduate to enter the profession. At least three additional years of professional experience and successful completion of the landscape architectural license examination are necessary for registration as a licensed landscape architect in most states.

Prelandscape architecture (pre-LA) is a two-year, nondegree course of study that is intended to prepare undergraduate students for the advanced professional curriculum in the upper division. The pre-LA curriculum concentrates on General Education Requirements (GERs) and basic professional courses. General Education Requirement (GER) courses should be selected with the assistance of a landscape architecture advisor. The completion of pre-LA prepares the student to make application to the professional major in landscape architecture or entry-level technical positions in various landscape industries. Transfer students who have not completed the equivalent of the pre-LA course work will be accepted directly into pre-LA.

To be admitted to the major of landscape architecture, the student should have completed the pre-LA curriculum and submitted an application. Application forms and instructions are available from the Admissions Office and the Department of Horticulture and Landscape Architecture Office. Applications to the professional program must be submitted prior to April 1. Due to limitations of space, faculty, and budget, admission can be granted to only the most qualified students based on experience, demonstrated abilities, motivation, and academic performance. The following courses (or approved equivalents) must be completed with a grade of C or better for students to be admitted into the professional program: Biol 120, Hort 231, 232, L A 101, 102, 260, 262, 263, 365.

Transfer students who have completed the equivalent of the pre-LA curriculum may apply to the professional program. The entire fourth year of the program is conducted at the Interdisciplinary Design Institute on the WSU Spokane campus.

### First Year

<table>
<thead>
<tr>
<th>First Term</th>
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<tbody>
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<td>FSHN 465 or Hort 435</td>
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<tr>
<td>Hort 413</td>
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<tr>
<td>MBioS 305</td>
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<tr>
<td>MBioS 306</td>
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<td>SoilS 442</td>
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**Third Term**

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**Fourth Year**

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<tbody>
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<tr>
<td>Hort 418 [M]</td>
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<td>Tier III Course [T] (GER)</td>
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<tbody>
<tr>
<td>First Year</td>
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<tr>
<td>FSHN 465 or Hort 435</td>
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<td>Hort 409</td>
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<tr>
<td>Hort 416</td>
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<tr>
<td>Hort 425 [M]</td>
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<td>Hort 425 [M]</td>
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<td>Communications Proficiency [C,W] (GER)</td>
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<td>L A 260</td>
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<td>L A 262</td>
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<td>SoilS 201 [B] (GER)</td>
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<td>Biology Elective</td>
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<td>L A 362</td>
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<td>L A 327</td>
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<td>L A 363</td>
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<td>L A 367</td>
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<td>L A 470</td>
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<td>L A 450 [M]</td>
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<tr>
<td>L A 485 [M]</td>
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<tr>
<td>Tier III Course (GER)</td>
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<tr>
<td>Electives</td>
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</table>

1. May be taken in the sophomore year for transfer students
2. May be offered jointly with the UI if schedules and faculty availability align.
4. SoilS 368 could be substituted.

### Minors

#### Horticulture

A minimum of 16 hours in Hort is required, of which at least 9 hours must be in 300-400-level courses excluding Hort 399 and 499 and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Hort/CropS 202 and 251 are highly recommended. All pass, fail enrollments, and up to 2 credits of Hort 499, must be approved by the department chair.

#### Description of Courses

**Horticulture**

**102 Cultivated Plants** 3 Production strategies, innovative research, utilization and processing techniques of Washington’s major agronomic and horticultural crops.

**113 Introduction to Vines and Wines** 3 Same as FS 113.

**150 [Q] Plants and Society** 3 (2-3) Plant production systems are used to explore and understand the interrelationships between living systems, the environment, and modern civilization.

**202 Crop Growth and Development** 4 (3-3) Rec Hort 102; Biol 106, 107, or 120. Morphology, anatomy, growth and development of agronomic and horticultural crops.

**231 Landscape Plant Materials I** 3 (2-3) Prereq Biol 120 or Hort 202. Characteristics, ecology, nomenclature, identification, selection, and use of important woody and herbaceous landscape plant species.

**232 Landscape Plant Materials II** 3 (2-3) Rec Biol 120 or Hort 202. Continuation of Hort 231.

**251 Plant Propagation** 4 (3-3) Prereq Biol 107, Biol 120, or Hort 202. Principles and methods of multiplying herbaceous and woody plants and their handling up to useable size. Field trip required.

**310 Pomology** 3 Prereq biological or plant science course. History, botany, cultivation and uses of temperate-zone tree fruits. Cooperative course taught by UI, open to WSU students (PLSC 461).

**313 Viticulture and Small Fruits** 3 Prereq biological science, botany, plant science course, or Hort/CropS 202. Botanical relationships, plant characteristics, fruiting habits, location, culture, marketing, and utilization of grapes, berries, and other small or bush fruits. Field trip required.

**319 Introductory Plant Physiology Laboratory** 1 (0-3) Prereq Biol 106 or 120; organic chemistry or c//; Biol 318 or c//. Same as Biol 319.

**320 Oliviculture** 3 Prereq Hort 202. Rec plant science course or SoilS 201. Science, business, and art of vegetable crop production: culture, fertility, growth, physiology, handling, marketing; garden, commercial, greenhouse, tropical, specialty vegetables. Cooperative course taught by WSU, open to UI students (PLSC 320).
Advanced Viticulture 3 Prereq Biol 120; Hort 313; Chem 345; Soils 201; senior standing. Rec Stat 212 or 412. Graduate-level counterpart of Hort 413; additional requirements. Credit not granted for both Hort 413 and 513.

Seminar in Molecular Plant Sciences 1 May be repeated for credit; cumulative maximum 4 hours. Same as MFS 515.

Advanced Horticultural Crop Physiology 3 Prereq Biol 320. Graduate-level counterpart of Hort 416; additional requirements. Credit not granted for both Hort 416 and 516.

Post-Harvest Biology and Technology 3 (2-3) Prereq Biol 320; Hort 202. Physical and physiological basis for handling and storage practices; perishable organ ontogeny and physiological disorders; post-harvest environment requirements. Field trip required. Credit not granted for both Hort 418 and 518. Cooperative course taught by WSU, open to UI students (PLSC 418).

Future World Trends and Horticultural Impact 3 Prereq junior standing. Scientific, business, government, and popular information used to explore world trends; evaluate information; investigate impact of major trends in horticulture.

Chemistry and Biochemistry of Fruit and Wine 3 Prereq Biol 320; MBioS 302, 303; rec analytical chemistry. Study of the chemistry and biochemistry of fruits; biochemistry and physiology of individual fruit compounds, aspects of processing including winemaking. Credit not granted for both Hort 435 and 535.


Plant Breeding II 2 Prereq Crops/Hort 444 or MBioS 301. Same as CropS 445.

Potato Science 3 Graduate-level counterpart of Hort 490; additional requirements. Credit not granted for both Hort 490 and 590. Cooperative course taught by UI, open to WSU students (PLSC 590).

Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

LANDSCAPE ARCHITECTURE

1 Landscape Architecture Graphics 3 (1-6) Basic mechanical and freehand drawing; use of various drafting media, two- and three-D drawing, lettering, and rendering techniques.

2 Introduction to Computer Graphics in Landscape Architecture 3 (2-3) Use of digital media applied to analysis, drafting and rendering skills; introduction to Photoshop, AutoCAD, and Illustrator.

22 Landscape Architecture Field Experience I 1 (0-2) May be repeated for credit; cumulative maximum 2 hours. Prereq sophomore standing. Field study of landscapes, designers and design firms through travel experiences.

History of Landscape Architecture 3 (2-2) Historical development in the practice and profession of landscape architecture throughout the world, circa BC to present. Cooperative course taught jointly by WSU and UI (LARC 389).
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>262</td>
<td>Landscape Architectural Design I 3 (2-3)</td>
</tr>
<tr>
<td>263</td>
<td>Landscape Architectural Design II 3 (0-6)</td>
</tr>
<tr>
<td>327</td>
<td>Theory in Landscape Architecture 3</td>
</tr>
<tr>
<td>333</td>
<td>Landscape Architecture Field Experience II 1 (0-2)</td>
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<td>362</td>
<td>Landscape Architectural Design III 4 (2-6)</td>
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<td>363</td>
<td>Landscape Architectural Design IV 4 (2-6)</td>
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<td>365</td>
<td>Landscape Architectural Construction II 4 (2-6)</td>
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<td>367</td>
<td>Landscape Architectural Construction III 3 (2-3)</td>
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<td>381</td>
<td>Ecological Applications in Design 3 (2-3)</td>
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<td>399</td>
<td>Professional Work Experience: Office Practice V 1-2</td>
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<td>425</td>
<td>Issues in Landscape Evolution and Design Theory 3</td>
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<tr>
<td>450</td>
<td>[M] Principles and Practice of Planning 3</td>
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<tr>
<td>460</td>
<td>Interdisciplinary Design Studio 5 (2-6)</td>
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<td>467</td>
<td>Regional Landscape Inventory and Analysis 4 (2-6)</td>
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<td>470</td>
<td>Landscape Architectural Design V 4 (1-9)</td>
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<td>475</td>
<td>Senior Project Proposal 2</td>
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<tr>
<td>477</td>
<td>Landscape Applications of Geographic Information Systems 3 (1-6)</td>
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<td>480</td>
<td>Professional Practice 2</td>
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<td>485</td>
<td>[M] Senior Creative Project I 4 (0-8)</td>
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<td>491</td>
<td>Topics in Design 3</td>
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<td>499</td>
<td>Special Problems V 1-4</td>
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<tr>
<td>520</td>
<td>The Northern Rocky Mountain Regional Landscape 4 (2-4)</td>
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<td>521</td>
<td>Cultural Interpretation of the Regional Landscape 4 (2-4)</td>
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<td>525</td>
<td>Landscape Modeling 3 (1-6)</td>
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<td>530</td>
<td>Philosophies and Theories of the Built Environment 3</td>
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<td>540</td>
<td>Research Methods 3</td>
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<td>560</td>
<td>Interdisciplinary Seminar 3</td>
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<td>Special Projects or Independent Study V 1-18</td>
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<td>Master’s Research, Thesis, and/or Examination Variable Credit V 1-18</td>
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**VITICULTURE & ENOLOGY**

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<td>113</td>
<td>Introduction to Vines and Wines 3</td>
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<tr>
<td>313</td>
<td>Viticulture and Small Fruits 3</td>
</tr>
<tr>
<td>326</td>
<td>Vineyard and Winery Equipment Systems 3 (2-3)</td>
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<td>399</td>
<td>Professional Work Experience V 1-4</td>
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<td>409</td>
<td>Seminar in Viticulture and Enology 1</td>
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<td>413</td>
<td>Advanced Viticulture 3</td>
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<td>435</td>
<td>Chemistry and Biochemistry of Fruit and Wine 3</td>
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<td>465</td>
<td>Wine Microbiology and Processing 3</td>
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<td>Wine Microbiology and Processing Laboratory 1 (0-3)</td>
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<td>496</td>
<td>Internship in a Winery 2</td>
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</table>

School of Hospitality Business Management

**www.business.wsu.edu/Hospitality**

**Todd Hall Addition 470**

509-335-5766

Director, N. Swanger; I. Haglund; Distinguished Professors, D. Reynolds; Associate Professors, D. Gursoy, H. J. Kim, N. Swanger; Assistant Professors, C. Chi; Catering Services Manager, J. Callison; Instructor, W. Maynard; Professors Emeriti, P. Diaz, L. Kreck, D. Rutherford, D. Smith, W. Terry Umbreit.

The school provides specialized instruction dealing with the major organizational, managerial, financial, and technical issues relative to hospitality and tourism operations of hospitality businesses. The school prepares graduates for managerial responsibilities in hospitality and tourism operations both here and abroad. The curriculum provides a sound business education on the fundamental features of operating hotels, restaurants, clubs, and managed service operations. It includes courses in general education, business, and hospitality management. The program of study leads to a degree of Bachelor of Arts in Hospitality Business Management.
The School of Hospitality Business Management will produce graduates who:
1. Understand and apply concepts of hospitality business management.
2. Have effective oral and written communication skills.
3. Address issues critically and reflectively.
4. Work efficiently and effectively with others.
5. Have ethical leadership skills.
6. Understand and practice world-class service.
7. Possess and apply a global perspective.
8. Acknowledge and respect persons from diverse cultures and backgrounds.
10. Are technologically competent and resourceful.

Global Learning Requirement
Students within the College of Business must complete one of the following Global Learning requirements:
1. Study abroad for 6 or more credit hours. Two smaller study abroad programs may be cumulated to meet the entire six credit hour requirement. International students in the College of Business (not including DDP students) will meet their study abroad requirement through their study in the United States.
2. Complete a major or minor in a foreign language, Global Studies, or International Business. Honors College students that meet their demonstrated proficiency in a foreign language will also be deemed to have met the College of Business Global Learning requirement.
3. Complete a certificate with a major international component such as the Asia Program certificate.
4. Complete any two of the following requirements:
   a. a brief study abroad program of less than 6 credit hours.
   b. an international internship approved by the International Business Institute (maximum of three credit hours).
   c. an accepted international course (G, K, Tier III Capstone course as approved through the International Business Institute**). See your advisor for classes), or
d. a College of Business international course including I Bus 380, any International Business Institute 300 or 400 level course, any cross-listed course offered by the International Business Institute.(see your advisor for classes)** or
   e. an accepted petition to the International Business Institute to allow the use of extensive international travel experiences at the college level for up to three credit hours towards the Global Learning Requirement. Normally such an experience will be at least 3 months in duration. Credit for 1 Bus 496 or 499 may be given upon pre-approval.
3. Complete a minimum of one year international experience in any of the following areas: military service, Peace Corps, Volunteer work with an organization, missionary work, or other. Documentation is required for approval.
* Interpretations regarding the proposed policy will be made by the administrative head of the International Business Institute.
** Students may choose to enroll in the course prefix of their preference. For example, either Mktg 482 or Ibus 482 may be used equivalently to satisfy this requirement.

Transfer Students
A student planning to transfer to hospitality business management from a two-year program should have made appropriate academic progress before transferring. In addition, the student should have 400-580 hours (one summer) of gainful employment in the hospitality industry. However, it is strongly advised that the student utilize both summers in related employment before entering WSU.

Schedules of Studies
HOSPITALITY BUSINESS MANAGEMENT (120 HOURS)
To be eligible for certification as a major in hospitality business management, students must have earned at least 60 semester hour of credit and completed the following certification courses with a gpa of 2.50 or higher: Acctg 230, 231; B Law 210; MgtOp 215; EconS 101, 102; Engl 101; Math 201, Math 202 or 205; MIS 250, and have a WSU cumulative gpa of 2.5. All students must apply for certification on-line. Students will also be ranked based on space availability and academic performance. Students are eligible to petition for consideration of alternative criteria.

All students majoring in hospitality business management must complete 50% of their course work outside of the College of Business and Economics. Nine hours of economics and four hours of MgtOp 215 are counted as outside of the CBE to meet this 50% rule.

Residence Requirements: 1) At least 50% of business core and major specialization course requirements must be taken at WSU; 2) At least nine 300-400-level business, economics, or hospitality courses must be taken in residence at WSU; and 3) The last 30 hours of course work must be taken at WSU.

Transfer, correspondence, and independent study courses, including IBUS 380, any International Business Institute course, and any cross-listed course offered by the International Business Institute, may count toward the 120 hours required for the degree and/or satisfy requirements other than major courses.

Only general elective courses that are not GERS, not core/major requirements, and not a course offered by the CBE may be taken pass, fail.

An honors senior project is required for Honors students.

First Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Ecom 101 [S] or Ecom 102 [S] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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</tr>
<tr>
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<tr>
<td>HBM 131</td>
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<td>Science [B,P,Q] (GER)</td>
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<tr>
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<tr>
<td>Math 201</td>
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<td>MIS 250</td>
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Second Year

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<tr>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 202 [N] or 205 [N] (GER)</td>
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<tr>
<td>Acctg 231</td>
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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>B Law 210</td>
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<tr>
<td>HBM 258 or 280</td>
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<tr>
<td>MgtOp 215</td>
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Third Year

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<tr>
<td>FIn 325</td>
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<tr>
<td>HBM 358</td>
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<td>HBM Elective</td>
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<tr>
<td>MgtOp 301</td>
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<td>Score 3rd Term</td>
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<tr>
<td>HBM 381 [M]</td>
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<td>HBM 491</td>
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<tr>
<td>MgtOp 360</td>
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<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>Soc or Psych [S,K] (GER) (Soc 101, 102 150 preferred)</td>
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Fourth Year

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<td>Econ 305, 323, or 423</td>
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<tr>
<td>HBM 320</td>
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<td>HBM 494 [M]</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<td>MgtOp 450</td>
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<tr>
<td>Pol S Elective</td>
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<td>Tier III Course (GER)</td>
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<td>Elective</td>
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1 For a total of 7 hours of Biological and Physical Sciences.

Minors

Hospitality Business Management
To be eligible to certify in the hospitality business management minor, students must be certified in a major and have a cumulative gpa of 2.5. A minor in hospitality business management requires at least 19 hours of credit, 9 of which must be 300-400-level, with an overall gpa of at least 2.5 in the required courses. Courses for the minors may not be taken pass/fail. A total of 6 hours of transfer work may be counted toward the minor requirements for courses at the 100- or 200-level only. All other course work must be taken in residence at WSU. The director must approve deviations from the stated requirements: HBM 131; 158, 280 or 284; 182 or 320; 298 or 498; 381; 494; and one (3 credit) elective from HBM 300-400 level courses. Students seeking a college of
Business minor must take at least 9 of the required hours at the 300-400-level in residence at WSU or through WSU-approved education abroad or educational exchange courses. A maximum of 6 hours may be transferred from another institution.

**Description of Courses**

**HOSPITALITY BUSINESS MANAGEMENT**

**HBM**

131 Introduction to Hospitality Business Management 3 Historical development and organizational structure of the hospitality service industries.

158 Basic Restaurant Operations and Service 3 Prereq HBM 131. General restaurant operating concepts, dining room service procedures and food safety; sanitation principles.

182 Introduction to Industry Experience 1 Preparation for work in hospitality/business organizations; resume writing, interview skills, use of Career Services, career dress.

235 Travel, Society and Business 3 Underlying principles and practices in domestic tourism. Cooperative course taught by WSU, open to UI students (RRT 236).

258 Fundamentals of Cooking and Dining Room Service 2 (1-3) Practical applications of cooking techniques, dining room service, and restaurant operations including safety, sanitation, flow of goods and industry trends.

275 Special Topics V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

280 Lodging Systems and Procedures 3 Management functions relating to the planning and operational policies of various hotel departments.

284 Managed Services 3 Management systems of the segment of the hospitality industry relating to contract and self-operated management companies.

296 Internship Experience V 3-12 May be repeated for credit; cumulative maximum 12 hours. Prereq HBM 131. Cooperative educational internship with a hospitality business, government or nonprofit organization. S, F grading.

301 Introduction to Conventions and Meetings Industry 3 Prereq junior standing. Overview of industry, including components, interrelationships, economics and theory.


320 Industry Experience 1 Prereq hospitality business management major; senior standing; HBM 182. Students work in various hospitality operations for 1,000 hours; work performance must be documented. Two supervised reports required. S, F grading.

350 Beverage Management 3 Prereq junior standing; must be 21 years of age. Beverage operations; detailed study of wines and spirits; consideration of social impacts such as trends in consumption.

356 Food and Beverage Systems Design and Analysis 3 Prereq FSHN 120; HBM 280. Management theory, problems, and cases in food and beverage operations, work methods; sanitation; research.

358 Foodservice Systems and Control 3 Prereq Acctg 230, FSHN 120, HBM 258, hospitality business management major; Operational control processes, control systems, and cost analysis procedures in food and beverage management.

381 [M] Hospitality Leadership and Organizational Behavior 3 Prereq HBM 131. Focusing on interpersonal skills and group dynamics; covers key hospitality leadership and management issues. Cooperative course taught by WSU, open to UI students (RRT 381).

383 Meeting and Convention Management 3 Prereq HBM 301. Theory and practice of meeting/convention/event management, including goals, organization on- and off-site operations, evaluation.

435 International Tourism 3 International and domestic tourism; effects of tourism on the society.

458 Advanced Culinary Management and Catering 3 Prereq HBM 358. Advanced kitchen/dining room management with emphasis on culinary skill development and the planning and administration of catering events.


491 Operational Analysis 3 Prereq Acctg 231; Dec S 215; Fin 325. Using management tools in analyzing operational effectiveness of hotel and restaurant organizations.

494 [M] Service Operations Management 3 Prereq junior standing. Design and management of service delivery systems through operations management topics from a service perspective.

495 Case Studies and Research 3 Prereq HBM 358, 480, 491. Use of the case method and computerized statistical programs in the analysis of administrative practices of organizations.

497 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. Topics of special interest within the area of hotel and restaurant administration.

498 Hospitality Business Management Internship V 2-15 May be repeated for credit; cumulative maximum 15 hours. Cooperative educational internship with a business, government or nonprofit organization. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

535 International Tourism Strategy and Planning 3 Tourism components; social, economic, and cultural effects on societies; the management of tourism businesses.

581 Services Management 3 Prereq enrollment in the MBA program. Design and management of service systems in hospitality operations; control of customer interaction, personnel activities and inventory.

591 Service Management Seminar 3 Survey of selected concepts, frameworks, theory, issues and empirical research in service management.

592 Current Issues in Travel and Tourism 3 Current issues, practices, principles and theory, research and methodologies that govern travel and tourism behavior.

597 Special Topics 3 Strategic business policy, concepts, and practices in hospitality management.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

**Department of Human Development**

www.hd.wsu.edu
Johnson Tower 501
509-335-8439


Students seeking a bachelor of arts degree in this department focus on human development across the lifespan as it occurs within the family, linked to a variety of contexts within communities. The program centers on understanding the complexity of physical, social, cognitive, and emotional development with an emphasis on development within the family. The curriculum examines human and family development across the lifespan (i.e., child, adolescent, younger and older adults). Opportunities are also available to become state certified as a teacher in preschool to third grade or as a family and consumer sciences teacher in junior high or senior high school.

In addition to the teaching certifications, the department offers four certificates: early childhood, adolescence, gerontology, and family studies. Students choosing these certificates are prepared to work in a wide range of careers working with children, adolescents, older adults, and/or families in a variety of professional settings. These may include positions in foster parent programs, adoption agencies, childcare or Head Start programs, teen centers, juvenile justice programs, nursing homes or other community-based programs for the elderly, and family services agencies.

We expect our graduating students will demonstrate: 1) an understanding of social, emotional, cognitive, and physical development across the lifespan in the family context; 2) an understanding of how contextual systems interact to influence family and individual development; 3) the ability to critically select, evaluate, and utilize information to understand and benefit individuals and families; 4) writing, listening, and speaking appropriate for human development related occupations; 5) application of human development knowledge and skills in professional settings.

Students completing a human development
degree are required to complete a certified minor or approved certificate of study in another department. A minor or certificate of study should be selected in consultation with a human development faculty advisor, preferably by the end of the third semester.

The human development degree provides preparation for graduate work leading to teaching, research, counseling, or administrative positions in academia, social services, or family therapy.

The department also offers a Master of Arts degree in Human Development. Areas of focus are early childhood, parent-child relations, youth-at-risk, prevention science, and community collaborative research. This degree prepares graduates for prevention positions, leadership positions in human service professions, entrance to doctoral programs, and research/teaching careers in higher education. More information is available from the graduate school.

Schedules of Studies

### HUMAN DEVELOPMENT - FAMILY AND CONSUMER SCIENCES OPTION (127 HOURS)

The Bachelor of Arts degree in Human Development requires a cumulative gpa of 2.5 or better and a C minimum grade in all H D courses, including substitutions. Of the 42 hours required for the major, a minimum of 21 must be taken in residence at WSU. At least 40 of the total hours required for this bachelor's degree must be in 300-400-level courses.

#### First Year

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<tr>
<th>Term</th>
<th>Courses</th>
<th>Hours</th>
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<td>First Term</td>
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<td>H D 350&lt;sup&gt;1&lt;/sup&gt;</td>
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<td>H D 479&lt;sup&gt;2&lt;/sup&gt;</td>
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#### Second Term

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<td>H D 409&lt;sup&gt;3&lt;/sup&gt;</td>
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<tr>
<td>H D 480&lt;sup&gt;4&lt;/sup&gt;</td>
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<td>T &amp; L 464</td>
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<td>T &amp; L 466</td>
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#### Fourth Year

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<td></td>
<td>H D 410 [M]&lt;sup&gt;5&lt;/sup&gt;</td>
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<td>T &amp; L 467</td>
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<td>Tier III Course T (GER)</td>
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#### Third Year

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<th>Hours</th>
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<tr>
<td>First Term</td>
<td>H D Elective</td>
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<tr>
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<td>Complete Writing Portfolio</td>
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#### Second Term

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<tbody>
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#### Fourth Year

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<tbody>
<tr>
<td>H D Elective&lt;sup&gt;4&lt;/sup&gt;</td>
<td>3</td>
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1. Courses are only offered during this semester each year.
2. Chem 101 strongly recommended.
4. EconS 101 [S] or 102 [S] strongly recommended.
5. T & L 407 requires a half-day each day, 5 days a week.

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### HUMAN DEVELOPMENT - GENERAL OPTION (123 HOURS)

The Bachelor of Arts degree in Human Development requires a cumulative gpa of 2.5 or better and a C minimum grade in all H D courses, including substitutions. Of the 42 hours required for the major, a minimum of 21 must be taken in residence at WSU.

#### First Year

<table>
<thead>
<tr>
<th>Term</th>
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<tr>
<td>First Term</td>
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<td>H D 201</td>
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<td>Math Proficiency N (GER)</td>
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#### Second Term

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<td>H D 202&lt;sup&gt;6&lt;/sup&gt;</td>
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<td>H D 204</td>
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<td>Physical Sciences [P] (GER)&lt;sup&gt;7&lt;/sup&gt;</td>
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<td>Psych 105 [S] (GER)</td>
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#### Third Year

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<td>Social Sciences [S,K] (GER)&lt;sup&gt;8&lt;/sup&gt;</td>
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<td>Engl 201 [W], 301 [W], 302 [W] (GER)</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Science Elective (GER)</td>
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#### Fourth Year

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#### Third Year

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<td>H D Elective&lt;sup&gt;4&lt;/sup&gt;</td>
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#### Fourth Year

<table>
<thead>
<tr>
<th>Course</th>
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<tr>
<td>H D Elective&lt;sup&gt;4&lt;/sup&gt;</td>
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</tbody>
</table>

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2. FSHN 130 [B] is strongly recommended.
3. Courses are only offered during this semester each year.
4. A minor must be decided at the end of the third semester.
5. H D 446 requires a half-day each day, 5 days a week for a semester and can be put into the schedule any time after taking H D 342.
6. The internship course (H D 498) can be taken during the summer semester of the junior or senior year. H D 497 should be taken no more than one to two semesters before taking the internship.

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### HUMAN DEVELOPMENT - PRESCHOOL THROUGH THIRD GRADE (P-3) CERTIFICATION OPTION (132 HOURS)

Teaching Certificate Program - Students majoring in human development may choose to become certified in the state of Washington to teach in preschool through third grade (P-3), and kindergarten through eighth grade (K-8), or family and consumer sciences. They must fulfill course requirements specified by the state of Washington. Note that the certification programs available in human development are offered in conjunction with the WSU College of Education. Additionally, those teacher certification students who wish to have a supporting endorsement from the Department of Human Development must meet with the appropriate human development advisor to obtain the list of approved courses.

The Bachelor of Arts degree in Human Development requires a cumulative gpa of 2.5 or better and a C minimum grade in all H D courses, including substitutions. Of the 42 hours required for the major, a minimum of 21 must be taken in residence at WSU.
### First Year

<table>
<thead>
<tr>
<th>Term</th>
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<th>Courses</th>
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<tr>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
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<td>Psych 105 [S,K] (GER)</td>
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<tr>
<td>Science [B,P,Q] (GER)</td>
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<tr>
<td>ComSt 102 [C] (GER)</td>
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<td>H D 204</td>
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<td>Hist 150 [S,D] (GER)</td>
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### Second Year

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<tr>
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<tr>
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<td>H D 341</td>
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<tr>
<td>Math 251</td>
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<td>Mus 153 [H] (GER)</td>
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<td>H D 302</td>
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<td>Math 252 [N] (GER)</td>
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### Third Year

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<td>T &amp; L 371</td>
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<td>T &amp; L 483</td>
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### Fourth Year

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<td>H D 446</td>
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<td>T &amp; L 385</td>
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<td>H D 410</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Sp Ed 409</td>
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<td>Tier III Course [T] (GER)</td>
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### Fifth Year

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<tr>
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1. FSHN 130 [B] is strongly recommended.
2. Engl 201, H D 341, 342, and Math 251 must be completed prior to application for admission to the teacher certification program.
3. Courses are only offered during this semester each year.
4. During the freshman year, students must pass the Mus 388 competency exam or take Mus 153, qualify to enroll in Math 251, and begin the University Writing Portfolio.
5. H D 446 requires a half-day each day, 5 days a week for a semester and can be put into the schedule anytime after taking H D 342.

### Minors

#### Aging

The Department of Human Development administers the Program in Aging. A minor in aging is available to all WSU undergraduate students, including human development majors. Students may opt to earn a Certificate in gerontology in conjunction with completing requirements for the Program in Aging (see Program in Aging). Refer to criteria outlined in the Program in Aging and contact Margaret Young at 335-9203 or email youngmg@mail.wsu.edu.

### General Human Development

The minor requires 18 hours, 9 of which must be in 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. The minor in Human Development requires H D 101 and 204 and 12 additional H D elective hours selected from H D 201 or 202 or 203, 300, 301, 302, 305, 340, 341, 350, 360, 385, 403, 406, 408, 412 and 430. Students must achieve a cumulative gpa of 2.5 or better in courses used to fulfill requirements for the Human Development minor.

### Certificates

#### Adolescence/Aging/Early Childhood Development and Care/Family Studies

The department of Human Development offers certificates in adolescence, aging, early childhood development and care, and family studies. Each certificate reflects a high standard of training and experience in a specific area of human development. Non-human development majors are required to complete any prerequisites for the internship requirement. The requirements for each certificate include 6 hours in H D core courses that support the area of certification, 15 hours in required and optional courses and 4 hours of internship that reflect the area of certification. Students must maintain an overall gpa of 2.5 in those courses that count toward the certificate. For specific requirements in any of these certificates, contact the department of Human Development.

### Description of Courses

#### HUMAN DEVELOPMENT

1. **H D 101 [S] Human Development Across the Lifespan** Overview of lifespan development from a psychosocial ecological perspective; individuals, families, organizations, and communities and their interrelationships.

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201 Human Development - Prenatal Through Age 8 3 In-depth examination of growth and development from the prenatal period through age 8 in context of family, community and society.

202 Human Development - Middle Childhood Through Adolescence 3 Prereq H D 101 or 201. In-depth study of school-age child and adolescent; observation and volunteer experience; theories and their application.

203 Human Development: Adulthood Through the Older Years 3 In-depth study of individual development from young adulthood through later years within the social context of family and community.


205 [C] Communication in Human Relations 4 (3-2) Developing an understanding of human behavior and learning skills in communication and leadership.

275 Special Topics in Human Development: Study Abroad V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours. S, F grading.

300 Child Abuse and Neglect 3 Prereq 6 hours of social sciences. Overview of causes, identification, reporting, and treatment of children who are abused and/or neglected.

301 Family Stress and Coping 3 Prereq 6 hours of social sciences. Examination of the nature and course of family crisis, using a family systemic approach, including principles used in intervention strategies.

302 Parent-Child Relationships 3 Prereq 6 hours in social sciences. Parenting in contemporary society with focus on reciprocity of parent-child relationships and diversity of families.

305 Gerontology 3 Prereq 6 hours of social sciences. Examination and analysis of social context of aging including public policy, implications of demographic shifts, and quality-of-life issues.

310 [M] Research Approaches to Human Development 3 Prereq 6 hours of H D; junior standing. Overview of research techniques in human development; methods of evaluating research products.

320 Resource Management and Problem Solving 3 Prereq 6 hours of social science. Styles of managing material, human and environmental resources with families; various approaches to problem solving with individuals and families.

334 [S] Principles of Community Development 3 Prereq social science course, sophomore standing. Same as CRS 334.

340 Development in Context 3 Prereq 6 hours in social sciences. In-depth study of contextual influences (i.e., culture, place, family, school) on early years of human development; application of multi-cultural perspectives/practices.
341 Learning and Guidance in Early Childhood 3 Prereq H D 101, 201, or 340; 3 additional hours of social sciences. Theories of child guidance; understanding of child behavior; strategies and techniques for effective group and individual guidance of young children.

342 Curriculum for Early Childhood 4 (3-3) Prereq H D 101, 201, or 340; 3 additional hours of social sciences; Rec H D 341 or 345. Planning and implementation of developmentally appropriate curriculum for use in programs serving young children.

350 [S,D] Diversity in Contemporary Families 3 Prereq 6 hours of social sciences. Preparation for students in human service professions to work with ethnic, cultural, economic, language, gender, religious and other types of diversity.

360 Death and Dying 3 Prereq 6 hours of social sciences. Death and dying throughout life and in different contexts; manner of death, grief, and legal and ethical considerations.

385 Perspectives in Human Services 3 Prereq 6 hours of Anth, H D, Psych or Soc. In-depth study of human service practice, theoretical perspectives and strategies for delivery of appropriate services to diverse clientele.

403 [T] Families in Poverty 3 Prereq 6 hours of social sciences; junior standing; completion of one Tier I and three Tier II courses. Examining poverty in US and globally; description of groups most often poor; identification of effective solutions and successful interventions.

406 Work and Family 3 Prereq 6 hours of social sciences. Issues related to work and family; workplace environments; fostering effective policy responses to family needs; role of work-family coordination. Credit not granted for both H D 406 and 506.

407 Student Teaching for Family and Consumer Sciences V 4-16 Prereq T & L 415 or c/; make application and pay certification fees; complete all other coursework for degree and teacher certificate; receive fingerprinting clearance from Washington State Patrol, FBI, and Office of Professional Practices; maintain 2.5 gpa overall and in endorsement area and professional core courses. Placement by interview only. Supervised teaching in public schools, including seminars reflecting on effective teaching. S, F grading.

408 Advanced Adolescent Development 3 Prereq 6 hours of social sciences. In-depth examination of theories and research; developmental issues and prevention and intervention programs for school-aged child and adolescent.

410 [M] Public Policy Issues Impacting Families and Individuals 3 Prereq 9 hours of social sciences; junior standing; strongly rec H D 310 and H D 420. Family policy issues in a changing society; ecological perspective; relationship of public policy to communities, organizations, families, and individuals.

412 Adult Development and Learning 3 Prereq 6 hours of social sciences. Understanding growth and change in adulthood with application of effective learning and teaching practices with adult populations.

420 Application of Human Development Theories 3 Prereq 9 hours of social sciences; junior standing. In-depth examination of theories and their use in understanding individual development in context of family and community.

430 Professional Skills 3 H D 385; junior standing. Examination and development of skills important for effective professionals: communication, leadership, ethical behavior, cultural competence, grant writing, evaluation, and others.

446 Practicum in Early Childhood Programs V 3-6 May be repeated for credit; cumulative maximum 12 hours. Prereq H D 341 or 345; HD 342; placement by interview only. Teaching in department's child development laboratory; emphasis on skill building in working with diverse groups and building partnerships with families.

449 Seminar in Early Childhood Education 3 Prereq H D 203 or 340 and 3 hours of H D; Rec H D 341 and 342. Identification and examination of current issues and trends in early childhood education with emphasis on child, family, and community concerns.

464 Administration of Early Childhood Programs 3 Prereq 6 hours of social sciences. Organization, administration, and management of early childhood programs; finance, program development, service delivery, personnel concerns, resource development, and evaluation.

479 Planning and Evaluation in Human Development 3 Prereq 9 hours of H D. Design, implementation and evaluation of community/school programs; needs assessment; appropriate curriculum resource identification; outcomes development; includes individual and program evaluation.

480 Instructional Strategies in Human Development 3 Prereq 9 hours of H D. Identification and use of instructional strategies; evaluation of strategies to determine appropriate use and effectiveness with a variety of learners.

482 [M] Child Assessment and Evaluation 3 Prereq H D 201; 6 additional hours in H D. Understanding aspects of assessment and evaluation of young children; selection, administration, summary development, ethics and professional responsibilities, evaluation and follow-up.

485 Participation in Human Development Research V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq 6 hours of social sciences. Supervised participation in faculty research including data collection, analysis, literature review, preparation of findings. S, F grading.

486 Special Topics in Human Development: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 15 hours. Prereq 6 hours of social sciences. S, F grading.

487 Special Topics in Human Development V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq 6 hours of social sciences. Assessment and evaluation of families and children.

495 Instructional Practicum V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq H D 497. Opportunity to assist with instruction; experience in further study of topic, organization of material, grading, management of resources. S, F grading.

497 Professional Preparation 2 Prereq 12 hours in H D. Educational knowledge and personal skills/abilities matched to careers; expanded knowledge of human development professions; professional self-presentation; professional/ethical conduct.

498 Field Placement V 1-8 May be repeated for credit; cumulative maximum 8 hours. Prereq H D 385 or 497. Self-initiated, supervised work experience with appropriate private organizations, businesses, or government agencies; interaction with professionals in related fields.

499 Special Problems V 1-4 May be repeated for credit. Prereq by interview only. S, F grading.

511 Theory and Substance of Human Development I 3 Prereq graduate standing. Human development theories; application to life span development, cultural variations, resources, problem solving, interaction of families and individuals with other systems.

513 Research Methods in Human Development I 3 Prereq graduate standing. Introduction to process of research and methods in human development; techniques of research, data collection, and data analysis procedures. Cooperative course taught by WSU, open to UI students (FCS 521).

514 Research Methods in Human Development II 3 Prereq H D 513. Integration of formal decision making into the social science research process; procedures appropriate for experimental, quasi-experimental and field research. Cooperative course taught by WSU, open to UI students (FCS 522).

520 Adolescence 3 Prereq graduate standing. In-depth examination of theories and research, developmental issues and prevention and intervention programs for school-aged children and adolescents.

535 Program Development in Child and Family Studies 3 Prereq graduate standing. Analysis and development of program delivery systems, curricula and evaluation models. Cooperative course taught jointly by WSU and UI (FCS 554).

540 Effective Intervention Programs 3 Prereq H D 530. Innovative effective prevention and intervention programs from theoretical, applied, and outcome evaluation perspectives.

550 Seminar on Family Relationships 3 Prereq graduate standing. Survey of family studies topics and issues examined from a research point of view.

558 Parent-Child Relationships 3 The reciprocal interactions among family members will be examined; theoretical perspectives and empirical findings will be explored in terms of implications for education and practice.

560 Seminar in Child Development 3 Prereq graduating. Survey of literature on selected areas in child development; discussion of research and application related to current issues and trends.
**Minors**

**Humanities**

The humanities minor is particularly appropriate for communication students with international interests, foreign languages majors seeking to broaden their studies beyond their major language, and history and business majors with interests in international arts and literature. The student must complete a minimum of 18 hours in courses listed under “Humanities” of which at least half must be 300-400-level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Description of Courses**

**HUMANITIES**

**Hum**

101 [H] Humanities in the Ancient World 3 Integrated humanities: literature, philosophy, history, and art of the ancient world.

103 [H] Mythology 3 The theory of mythology and use of myths in art, literature, and music; Greco-Roman and one other.

120 [G] Traditional Chinese Culture 3 Same as Chin 120.

130 [H] Introduction to Foreign Literature 3 Same as For L 130.


302 [H,M] Humanities in the Middle Ages and Renaissance 3 Integrated humanities: exploring great works and themes of the European Middle Ages and Renaissance, including art, architecture, music, philosophy, and literature.

303 [H,M] Reason, Romanticism, and Revolution 3 Integrated humanities: literature, philosophy, music, art, 1700 to World War I; revolutionary changes which led to the 20th century.

304 [H] Humanities in the Modern World 3 Literature, philosophy, art, architecture, film, music since World War I; major works reflecting influential movements and concerns of the modern world.

320 Issues in East Asian Ethics 3 Same as Japn 320.

335 [H] The Bible as Literature 3 Historical and literary approach to texts of the Jewish and Christian scriptures; emphasis on history, interpretation, and influence.

338 Topics in Humanities 3 May be repeated for credit; cumulative maximum 6 hours. Interdisciplinary, international topics in the humanities (art, architecture, music, literature, philosophy, film).

350 [G] Sacred Texts and Cultures of World Religions 3 Sacred and literary texts, spiritual practices, and cultural origins and values of six world religious traditions from an intercultural perspective.

**Integrated Plant Sciences**

ips.wsu.edu

Hulbert Hall 423

509-335-4562

**Academic Directors**


The science of plant life from molecule to market is the focus of the new Integrated Plant Sciences (IPS) Degree program. Pending final approval by the Higher Education Coordinating Board, the degree will be delivered collaboratively by departments within the College of Agricultural, Human, and Natural Resource Sciences, the IPS degree provides students with an exciting depth and breadth of knowledge that crosses a variety of plant science disciplines, including crop and soil sciences, horticulture and landscape architecture, entomology, plant pathology, and food science. Students pursuing a Bachelor of Science degree in Integrated Plant Sciences may choose among seven majors highly sought by employers in the state and nationally: Agricultural Biotechnology, Field Crop Management, Fruit and Vegetable Management, Nursery and Greenhouse Management, Landscape Design and Implementation, Turfgrass Management, or Viticulture and Enology.

**Bachelor of Science in Integrated Plant Sciences (pending final approval)**

IPS majors explore the science of plant development
and production from the perspectives of a variety of disciplines. All students in the program take a core set of interdisciplinary courses selected specifically to give them a solid foundation on which they can build expertise in a specific discipline.

In addition to WSU’s Six Learning Goals of the Baccalaureate, successful IPS graduates also will be able to:

- Understand and put into practice the scientific basis and interdisciplinary nature of plant production and utilization systems
- Understand and put into practice the growth and development of horticultural and agronomic crop plants, current management practices, and factors that influence aesthetic and end-use quality
- Understand and put into practice the physiological and biochemical processes that occur during growth, development, maturation, and harvest of crop plants
- Use the skills, facts, concepts, principles, and research methods from plant and other sciences to participate actively in a wide variety of environmental, scientific and agricultural activities, including research, outreach, education and management
- Understand and appreciate the importance of horticultural and agronomic crop plants to global society and use this knowledge to contribute to the welfare of global society
- Clearly and compellingly communicate solutions to local, regional, national, and global problems in writing or orally using appropriate traditional and emerging technological media
- Understand and appreciate the wide array of professional opportunities in plant sciences.

The hands-on possibilities within the IPS degree are numerous. Students are required to participate in undergraduate research projects, work as part-time employees with research and extension personnel, and/or participate in professional internships to put their classroom training to work. Student clubs also provide a variety of ways to interact with peers, faculty, and staff within the college, yet another way to enrich the educational experience.

Scholarships for IPS majors are available on a competitive basis and are awarded based on ability, need, and interest in a career path in plant sciences. In order to certify in an IPS major, a student must have a minimum of 24 credits with a minimum cumulative GPA of 2.0. For complete information about all majors within the IPS degree programs, please see the IPS webpage at: http://ips.wsu.edu.

Transfer Students

Students planning to transfer into the IPS program should take courses that meet the university’s general education requirements (GERs), and that also meet the IPS core requirements when possible. Students are strongly encouraged to consult with an advisor within the IPS program for further guidance.

Schedules of Studies

AGRICULTURAL BIOTECHNOLOGY (120 HOURS)

The Agricultural Biotechnology major is a designed for students interested in careers as laboratory or research technicians in plant biotechnology, breeding, genetics, entomology, plant pathology, molecular biology, or physiology, as well as for students preparing for advanced degrees in these areas. The program emphasizes the development and application of new technology to ensure a safe and abundant food and fiber supply. Students may find employment in industry, government, or university labs.

First Year

<table>
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<tr>
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<th>Hours</th>
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<tbody>
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<td>Engl 101 [W] (GER)</td>
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<td>Hort 102</td>
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<td>Math 140 [N] (GER)</td>
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Second Term

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<td>EconS 101 [S] or EconS 102 [S] (GER)</td>
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<td>GenEd 110 [A] or GenEd 111 [A] (GER)</td>
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Second Year

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Second Term

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<td>Entom 340</td>
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<td>SoilS 201 [B] (GER)</td>
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Third Year

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Second Term

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<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>CropS 425</td>
<td>3</td>
</tr>
<tr>
<td>CropS 495</td>
<td>4</td>
</tr>
<tr>
<td>MBiO 303</td>
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</tr>
<tr>
<td>Elective</td>
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Fourth Year

<table>
<thead>
<tr>
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<th>Hours</th>
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<tbody>
<tr>
<td>Hort 480</td>
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<tr>
<td>MBiO 478</td>
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<tr>
<td>Stat 412</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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Second Term

<table>
<thead>
<tr>
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<th>Hours</th>
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<tbody>
<tr>
<td>400-500-level Seminar in CAHNRS</td>
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<tr>
<td>Hort 416 or CropS 411 [M]</td>
<td>3</td>
</tr>
<tr>
<td>MBiO 401</td>
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<tr>
<td>MBiO 404</td>
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</table>

One of the Arts & Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course.

FIELD CROP MANAGEMENT (120 HOURS)

The Field Crop Management major is ideal for students interested in agronomy, crop production, and plant, soil, and pest management. Crop scientists (or agronomists) are involved in improving food, feed, and fiber production. Graduates qualify for careers in agribusiness, corporate and technical farm management, professional consulting, research, and sales positions.

First Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 101 [P] or 105 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or GenEd 111 [A] (GER)</td>
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Second Term

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Chem 102 [P] or 106 [P] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>EconS 102 [S] (GER)</td>
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</tr>
<tr>
<td>GenEd 110 [A] or GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 140 [N] (GER)</td>
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Second Year

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<thead>
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<tbody>
<tr>
<td>Anth 203 [K] or Anth 309 [K] (GER)</td>
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</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Hort 102</td>
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<td>SoilS 201 [B] (GER)</td>
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Second Term

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<thead>
<tr>
<th>First Term</th>
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<tbody>
<tr>
<td>Advisor Specified Course</td>
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<tr>
<td>Entom 340</td>
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<td>H D 205 [C] or ComSt 102 [C] (GER)</td>
<td>3 or 4</td>
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<td>Hort 202</td>
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<td>Elective</td>
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Third Year

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<tr>
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<tr>
<td>EconS 350 or EconS 352</td>
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<td>Electives</td>
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Second Term

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<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>CropS 411 [M]</td>
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<tr>
<td>CropS 495, 497, 498, or 499</td>
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<tr>
<td>IPM 452 (GER)</td>
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<td>Electives</td>
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Fourth Year

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<th>Hours</th>
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<tbody>
<tr>
<td>Advisor Specified Course</td>
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<tr>
<td>CropS 403</td>
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</tr>
<tr>
<td>P I P 429</td>
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<td>Tier III Course [T] (GER)</td>
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Second Term

<table>
<thead>
<tr>
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<th>Hours</th>
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<tbody>
<tr>
<td>CropS 412</td>
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<tr>
<td>SoilS 441</td>
<td>3</td>
</tr>
<tr>
<td>Stat 212 [N] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Electives</td>
<td>7</td>
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</tbody>
</table>

One of the Arts & Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course.
FRUIT AND VEGETABLE MANAGEMENT (120 HOURS)

The Fruit and Vegetable Management major offers specialization in the science and practice of growing, harvesting, handling, storing, processing, and marketing tree fruits, small fruits, and vegetables. Students will learn the most efficient and sustainable management practices involving state-of-the-art production systems for the diverse fruit and vegetable crops produced in the Pacific Northwest and beyond. Graduates can look forward to careers as growers and farm managers, production field advisors, sales representatives in the horticultural services industry, managers of production farms, and brokers and marketers of fruit and vegetable products.

First Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>First Term</td>
</tr>
<tr>
<td>Hours</td>
</tr>
<tr>
<td>First Term</td>
</tr>
<tr>
<td>Chem 101 [P] or Chem 105 [P] (GER)</td>
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<tr>
<td>4</td>
</tr>
<tr>
<td>EconS 101 [S] or Econ 102 [S] (GER)</td>
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<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Hort 202</td>
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<tr>
<td>3</td>
</tr>
<tr>
<td>Second Term</td>
</tr>
<tr>
<td>Hours</td>
</tr>
<tr>
<td>Biol 106 [B] (GER)</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Chem 102 [P] or Chem 106 [P] (GER)</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Hort 202</td>
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<td>4</td>
</tr>
</tbody>
</table>

LANDSCAPE DESIGN AND IMPLEMENTATION (120 HOURS)

Students interested in careers in designing and building residential, commercial, public, and institutional landscapes, using both plant material and non-living elements such as walls and fountains, should consider the Landscape Design and Implementation major. In addition to the IPS core courses, students will take courses in landscape architecture and horticulture. Through hands-on experience in course activities and participation in a professional practicum, students will learn to design, install, and maintain aesthetic outdoor environments that enrich people's lives.

First Year

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>First Term</td>
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<tr>
<td>Hours</td>
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<tr>
<td>First Term</td>
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<tr>
<td>Biol 106 [B] (GER)</td>
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<td>Eng 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
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<tr>
<td>Hort 202</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Second Term</td>
</tr>
<tr>
<td>Hours</td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>3</td>
</tr>
<tr>
<td>Fruit &amp; Veg Mgt Elective</td>
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<tr>
<td>2</td>
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<tr>
<td>Hort 251</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Sustainability Elective</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Elective</td>
</tr>
<tr>
<td>3</td>
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<tr>
<td>Complete Writing Portfolio</td>
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Second Year

<table>
<thead>
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<th>Course</th>
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</thead>
<tbody>
<tr>
<td>First Term</td>
</tr>
<tr>
<td>Hours</td>
</tr>
<tr>
<td>Biol 106 [B] (GER)</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>Eng 101 [W] (GER)</td>
</tr>
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<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Hort 202</td>
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<tr>
<td>L A 101</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>Second Term</td>
</tr>
<tr>
<td>Hours</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>H D 205 [C] or ComSt 102 [C] (GER)</td>
</tr>
<tr>
<td>3 or 4</td>
</tr>
<tr>
<td>Hort 202</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>L A 102</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>SoilS 201 [B] (GER)</td>
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<td>3</td>
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</table>

NURSERY AND GREENHOUSE MANAGEMENT (120 HOURS)

The Nursery and Greenhouse Management major is a horticulture-based program that prepares students for opportunities in plant propagation, the production and marketing of potted crops, bedding plants, trees, shrubs, and cut flowers, and in landscape plant management. This is an exciting major for students interested in owning or managing a nursery or...
greenhouse, attending graduate school in horticulture, working for university extension offices and research greenhouses, maintaining landscapes and parks, or working as wholesale horticultural-product brokers. Students in this major are encouraged to gain hands-on experience and earn scholarships through participation in the Horticulture Club.

First Year

First Term
- Biol 106 [B] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Hort 102 3

Second Term
- Chem 101 [P] or Chem 105 [P] (GER) 4
- GenEd 110 [A] or 111 [A] (GER) 3
- Hort 202 4
- SoilS 201 [B] (GER) 3

Second Year

First Term
- Arts & Humanities [H,G] (GER) 3
- Biol 120 [B] or Biol 107 [B] (GER) 4
- Chem 102 [P] or Chem 106 [P] (GER) 4
- Hort 231 3

Second Term
- Advanced Plant Science Elective 3
- H D 205 [C] or ComSt 102 [C] (GER) 3 or 4
- Hort 232 3
- Hort 251 4
- Horticulture Elective 3
- Complete Writing Portfolio

Third Year

First Term
- Advanced Plant Science Elective [M] 4
- Anth 203 [K] or Anth 309 [K] (GER) 3
- Horticulture Electives 6
- Stat 212 [N], Math 140 [N], Math 171 [N], or Math 202 [N] (GER) 3 or 4

Second Term
- Advanced Plant Science Elective 2
- Econ 101 [S] or Econ 102 [S] (GER) 3
- Entom 340 3
- Hort 331 3
- Horticulture Electives 3
- IPM 452 2

Third Term
- (Summer Session) Hort 399 3

Fourth Year

First Term
- Advanced Plant Science Elective 3
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Horticulture or Advanced Plant Science Elective 2
- PI P 300 or 429 2 or 3
- Tier III Course [T] (GER) 3
- Elective 1

Second Term
- 400-500-level Seminar in CAHNRs 1
- Hort 357 3
- Hort 358 3
- Hort 416 3
- Hort 425 [M] 3
- SoilS 301 or SoilS 441 3

First Term
- Anth 203 [K] or Anth 309 [K] (GER) 3
- Arts & Humanities [H,G] (GER) 3
- Econ 101 [S] or Econ 102 [S] (GER) 3
- SoilS 201 [B] 3

Second Term
- 400-500-level Seminar in Cahnrs 1
- Hort 357 3
- Hort 358 3
- Hort 416 3
- Hort 425 [M] 3
- SoilS 301 or SoilS 441 3

First Term
- AgTM 315 3
- CropS 301 [M] 3
- CropS 305 3
- Elective 3
- Stat 212 [N] (GER) 4

TURFGRASS MANAGEMENT (120 HOURS)
The Turfgrass Management major is geared toward students interested in pursuing careers as golf course managers, athletic field managers, or personnel managers in those venues. Students will take courses in turf management, turf production, plant pathology, entomology, soil fertility, and plant breeding to learn how to maintain healthy turfgrass systems. Additionally, students gain hands-on experience at the Palouse Ridge Golf Course, a new 18-hole championship golfing facility at the Pullman campus.

First Year

First Term
- Anth 203 [K] or Anth 309 [K] (GER) 3
- Chem 101 [P] (GER) 4
- CropS 104 1
- Engl 101 [W] (GER) 3
- Hort 202 3

Second Term
- Biol 106 [B] (GER) 4
- Chem 102 [P] (GER) 4
- GenEd 110 [A] or 111 [A] (GER) 3
- Hort 202 4

Second Term
- AgTM 412 3
- Arts & Humanities [H,G] (GER) 3
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- CropS 317 1
- EconS 102 [S] (GER) 3
- IPM 452 2
- Complete Writing Portfolio

Third Year

First Term
- AgTM 315 3
- CropS 301 [M] 3
- CropS 305 3
- Elective 3
- Stat 212 [N] (GER) 4

Second Term
- CropS 302, Hort 232, or Hort 331 3
- Entom 340 3
- SoilS 441 3
- Electives 7

Fourth Year

First Term
- AgTM 314 or Hort 346 3
- CropS 495, CropS 497, CropS 498, or CropS 499 3
- PI P 429 3
- SoilS 442 3
- Tier III Course [T] (GER) 1

Second Term
- Accnt 230, EconS 350 or 352, or MgtOp 301 3
- CropS 401 3
- CropS 411 [M] 3
- CropS 412 1
- CropS 444 2
- Elective 3

VITICULTURE AND ENOLOGY (123 HOURS)
The Viticulture and Enology major was created for students interested in grape-growing and winemaking, as well as contributing to critical research and development opportunities in the wine industry. This program offers the technical, scientific, and practical experience needed to gain the essential skills for producing high quality grapes and premium table wines. It prepares students for successful careers in the wine industry in Washington and beyond.

First Year

First Term
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] or 111 [A] (GER) 3
- Hort 102 3
- Math 140 [N] (GER) 4

Second Term
- Biol 106 [B] (GER) 4
- Chem 106 [P] (GER) 4
- Hort 202 4

Second Year
- Biol 107 [B] (GER) 4
- GenEd 110 [A] or 111 [A] (GER) 3
- V E 113 3

Second Term
- AgTM 314 3
- CropS 301 [M] 3
- CropS 305 3
- Elective 3
- Complete Writing Portfolio

First Term
- Anth 203 [K] or Anth 309 [K] (GER) 3
- Arts & Humanities [H,G] (GER) 3
- EconS 101 [S] or EconS 102 [S] (GER) 3
- SoilS 201 [B] 3

Second Term
- AgTM 315 3
- CropS 301 [M] 3
- CropS 305 3
- Elective 3
- Stat 212 [N] (GER) 4

Complete Writing Portfolio
Third Year

First Term

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Biol 320, or Biol 318 and Biol 319</td>
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<tr>
<td>MBioS 303</td>
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<td>PL P 300</td>
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<td>V E 313</td>
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Second Term

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<td>IPM 452</td>
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<tr>
<td>MBioS 305</td>
<td>3</td>
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<td>Tier III Course [T] (GER)</td>
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<td>V E 413</td>
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Fourth Year

First Term

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<tr>
<td>V E 326</td>
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</tr>
<tr>
<td>V E 409</td>
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<td>V E 465</td>
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Second Term

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<tbody>
<tr>
<td>Hort 416</td>
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<td>Hort 425 [M]</td>
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<td>Specialization Electives</td>
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<tr>
<td>V E 422</td>
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<td>V E 435 or 488</td>
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<table>
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</thead>
<tbody>
<tr>
<td>1 One of the Arts &amp; Humanities or Social Sciences courses [H,G,S,K], or the Tier III [T] course should be double-designated as a Diversity [D] course.</td>
<td></td>
</tr>
<tr>
<td>2 Entom 343 can be taken as an alternative to Entom 340.</td>
<td></td>
</tr>
<tr>
<td>3 IPM 201 can be taken as an alternative to IPM 452.</td>
<td></td>
</tr>
<tr>
<td>4 Specialization Electives for V&amp;E Major--(Choose a minimum of 12 credits, including one [M] from the following lists, advisor approval required)--VE, FS, and Hort Electives: V E 435; V E 466; V E 488; FS 303 [M]; FS 416; FS 460; FS 462; FS 470; Hort 251; Hort 322; Hort 418 [M]; Hort 421 [M].--Other Electives: AgTM 515; AgTM 433 [M]; Chem 220/222; CropS 305; CropS 403 [M]; EconS 351; ESRP 486; Geol 322 or 323; HRM 350; MBioS 301; MBioS 306; Mktg 360; Soils 301 [M]; Soils 345; Soils 374; Soils 414; Soils 415; Soils 421; Soils 441; Soils 442; or Soils 468.</td>
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</table>

300 College Major and Career Planning I

Application of career development principles to development of professional opportunities; includes comprehensive career self-assessment and analysis of workplace trends.

490 McNaIr Preparation for Graduate School

1 May be repeated for credit; cumulative maximum 2 hours. Prereq junior standing. Preparation for McNaIr Scholars and others for graduate study. No credit earned toward degree; not qualified for financial aid. S, F grading.

590 Preparation for College Teaching 2

Prereq graduate standing/TA appointment. Cross-discipline instructional development for graduate teaching assistants; course development teaching techniques, university policies and procedures. S, F grading.

591 Interdisciplinary Studies 1

May be repeated for credit. Contemporary issues in interdisciplinary education and research. Open to all interested students.

597 Preparing the Future Professoriate 2

Prereq doctoral student standing. Understanding and contextual knowledge of the professorate and issues facing higher education.

598 Interdisciplinary Seminar 1

May be repeated for credit; cumulative maximum 3 hours. Prereq Univ 591. Seminar on theory and practice of advanced interdisciplinary doctoral study.

698 Continuous Enrollment Status 0

This course (no credit earned) satisfies continuous enrollment status for graduate students who are not otherwise enrolled.

800 Doctoral Research, Dissertation, and/or Examination V 1-18

May be repeated for credit. For Interdisciplinary PhD only. S, F grading.

Description of Courses

Interdisciplinary Design Institute, WSU Spokane

www.idi.spokane.wsue.edu
WSU Spokane
509-358-7920
design@wsu.edu


The Interdisciplinary Design Institute is committed to leadership in developing the highest level of disciplinary and interdisciplinary instruction, scholarship, and public service. The Institute’s philosophy recognizes these areas of emphasis as interdependent and reinforcing and seeks to foster creative interplay among them.

Overview

The Doctor of Design (DDes) program is intended to advance both the art and science of design within the philosophical and pedagogical framework of interdisciplinary inquiry, critical synthesis, and problem solving that bridges education, research, and practice. As a terminal doctoral degree, the DDes is intended for persons who are well versed and professionally skilled in the design profession and who seek to make substantive, innovative, and original scholarly contributions to their fields. The DDes is the only one of its kind in the State of Washington, as well as the western United States and Canada.

Undergraduate Students

Undergraduate students from interior design spend time at the Interdisciplinary Design Institute in the third and fourth years of their programs learning together on design issues using both disciplinary and interdisciplinary approaches.

Graduate Students

Graduate students explore advanced design theories, problem-solving techniques, methodologies, and individual research initiatives while pursuing a degree in architecture, landscape architecture, interior design, or a Doctor of Design.

Through the interdisciplinary core curriculum, graduate students acquire the skills and knowledge needed to participate effectively as members of interdisciplinary design and research teams, and to advance the body of knowledge in their disciplines.

Description of Courses

Interdisciplinary Design Institute

Design

550 Applications: Using Research in the Inquiry Process 3

Prereq Doctoral standing; previous research methods course. Application of scientific research in the advanced design process.

561 Seminar in Design Thinking 3

Prereq doctoral standing. Understanding “design thinking” or “design knowing” and translating research and theory into practice.

562 Area Readings 3

Prereq Doctoral standing. Forum for the advancement of understanding and discussion of readings related to interdisciplinary design.

563 Directed Readings 3

Prereq Desgn 562. Advanced critical and comprehensive reviews of literature pertinent to student’s focus area; development of specialization and expertise in identified area.

564 Design Research Methods 4

Prereq c// in Desgn 565. Development and preparation of research proposals; identification of theories, exploration of research methods and strategies; development of thesis statement and literature review.

565 Dissertation Proposal Planning 2

Prereq doctoral standing and c// in Desgn 564. Write and present independent research proposal based on work in Desgn 564 to prospective doctoral committee members. S, F grading.

570 Research Practicum 3

Prereq Doctoral standing; Desgn 564; Desgn 565. Interdisciplinary research in design; focus on development and application of individual research.
950 Teaching Practicum V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq doctoral standing. Supervised teaching experience integrating application of design knowledge and approaches.

598 Topics in Design V 1-3 May be repeated for credit; cumulative maximum 9 hours. Prereq doctoral student. Topical issues in design responding to the shifting demands and needs of the design professions.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Department of Interior Design

http://id.wsu.edu/
Daggy 330
509-335-4118

Associate Professor and Chair, J. Turpin; Assistant Director and Clinical Associate Professor, L. Johnson; Professors, N. Blossom, J. Asher Thompson; Associate Professors, R. Krikac, J. McCoy, M. Melcher; Assistant Professor, K. Ryan.

The interior design program is based on a concern for human beings and the creation of interior settings that support human activities and values. Graduates of the Program in Interior Design should be able to think creatively and solve problems in a professional manner. Above all, an interior design education helps the student to develop intellectual curiosity, allowing the graduate to continue to develop as a person and as a designer throughout life. Upon completion of the program, students are able to analyze information, evaluate issues, and set priorities while generating creative design solutions for projects of a complex scale.

Accredited by the Council for Interior Design Accreditation (formerly FIDER), the Bachelor of Arts in Interior Design provides the common body of knowledge related to interior design as recognized by CIDA. Qualified students may choose to enter an articulated B.A./M.A. degree program within the senior year that leads to a master’s degree completed in the first year of graduate study. The Master of Arts program also offers a two-year track for interior designers and one of the few three-year tracks available nationwide—catering to individuals possessing a bachelor’s degree in something other than design. The Master of Arts program combines studio design experiences with qualitative and quantitative research to explore human behavior vis-à-vis interior environments, examine design theories, and experiment in design technology. In early 2009, Design Intelligence ranked the graduate program ninth best program among all of America’s interior design programs.

Students are required to earn a C or better in all required interior design courses required for the degree of Bachelor of Arts in Interior Design. All students must present a senior portfolio review to graduate.

Certification Requirements

Students wishing to certify into the Bachelor of Arts in Interior Design program must complete a minimum of 45 semester hours and receive a C or better in the following eight courses: I D 101, 102, 197, 201, 203, 205, 215, 297, or transfer equivalents as approved by the department. The successful completion of a portfolio review is required upon completion of I D 203 to become a certified major in Interior Design. The review is set up as an interview process between each student and a faculty panel. During the interview, students are expected to present completed projects and explain, defend, and justify their design solutions to the faculty.

Schedules of Studies

INTERIOR DESIGN (120 HOURS)

The interior design program offers a balanced exposure to art, architecture, and humanities. Upper-division coursework is taught at WSU Spokane, where students participate in an interdisciplinary design studio experience. This is an integrated studio with participation from interior design, architecture, and landscape architecture.

Students are required to earn a C or better in all required interior design courses required for the degree of Bachelor of Arts in Interior Design. All students must present a senior portfolio review to graduate.

Certification Requirements

Students wishing to certify into the Bachelor of Arts in Interior Design program must complete a minimum of 45 semester hours and receive a C or better in the following eight courses: I D 101, 102, 197, 201, 203, 205, 215, 297, or transfer equivalents as approved by the department. The successful completion of a portfolio review is required upon completion of I D 203 to become a certified major in Interior Design. The review is set up as an interview process between each student and a faculty panel. During the interview, students are expected to present completed projects and explain, defend, and justify their design solutions to the faculty.

First Year

First Term Hours
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
I D 101 3
I D 197 3
Math Proficiency [N] (GER) 1 3

Second Term Hours
GenEd 111 [A] (GER) 3
I D 102 3
I D 297 3
Intercultural Studies [L,G,K] (GER) 3
Tier I Science [B,F,Q] (GER) 4

Second Year

First Term Hours
Communication Proficiency [C] (GER) 3
I D 201 4
I D 205 2
Physical Sciences [P] (GER) 2 3 or 4
Psych 105 [S] (GER) 3

Second Term Hours
Biological Sciences [B] 2 3 or 4
F A 201 [H] or Arts & Humanities [H,G] (GER) 3

1 Math 205 or 210 is suggested.
2 Students must take 3 credits of [B] science and 3 credits of [P] science and a 1 credit lab. The other 3 credits to satisfy the GER requirement can be [B,P, or Q].
3 Portfolio review takes place after completion of this course.
4 Soc 101 or other Social Science American Diversity [S,D] GER is highly recommended.
5 Supportive electives as listed or approved by faculty advisor; transfer interior design hours as approved by the department: F A 201, 202; Arch 220, 221, 409, 492; Soc 343, 350, 351; U H 330; I D 305, 211, 311, 498, 477, 277, 411, 480, 481, 482, 275, 276, 278, 279, 428, 490, 483, 495, 499.
6 Highly recommended as a summer option between junior and senior year.

Minors

Interior Design Studies

A minor in interior design studies shall be certified only by department approval and is limited to 10 students per year. Students must submit their intent to seek the minor in writing to the Interior Design Department. The department may restrict enrollment in any year based on its obligation to deliver the Bachelor of Arts program. A minor in interior design is not an avenue for professional certification nor is it accredited by the Council for Interior Design Accreditation. Architecture students who have completed their third year of coursework are also eligible to apply. To be eligible to receive the minor a student must: 1) complete one of the two
lower-division core requirements; 2) complete the upper-division electives requirement; 3) have a minimum GPA of 3.0; and 4) and have completed the sophomore portfolio review. The lower-division core is either 23 credits including: ID 101, 102, 201, 203, 215, Arch 101, and Arch 103. Transfer students complete 17 hours including: ID 103, 201, 203 and 215. The upper-division electives must be taken in Spokane and consist of 9 hours selected from ID 215. The upper-division electives must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

INTERIOR DESIGN

ID

101 Design Issues 3 Sensory awareness as a design determinant; introduction to basic design elements in problem identification and solving processes.

102 Basic Environmental Design Studio 3 (0-6) Prereq ID 101. Application of basic design elements to the exploration of space and form.

103 Transfer Studio 6 (3-6) An intensive studio introducing basic elements and principles of design; basic technical skills (drafting, sketching, rendering, model building).

197 Design Communication I 3 (2-2) Integration of manual and digital methods in design implementation; freehand sketching and graphics software used in design process.

201 Perception and Communication 4 (1-9) Prereq Arch 101, 103; I D 101, 102, or 103 c/. Application of design concepts into micro environments; design vocabulary and skill development.

202 H The Built Environment 3 Same as Arch 202.


205 Visual Communication 3 (2-2) Course focuses on the various methods in which the interior designer may choose to visually communicate design concepts.

215 Materials and Components of Interior Design 3 Characteristics and properties of structural and non-structural interior materials.

250 H History of Interiors 3 A survey of interior environments, spatial distributions, furnishings, and related design elements from ancient Egypt to the 18th century.

277 Interior Design Field Trip 1 May be repeated for credit; cumulative maximum 2 hours. Prereq freshman standing. Selected issues in the field of interior design in connection with an organized field trip.

278 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours. S, F grading.

279 Special Topics: Study Abroad V 1-15 May be repeated for credit; S, F grading.

297 Design Communication II 3 (2-2) Prereq I D 197. Integration of manual and digital methods in design drafting.

303 Immersion Studio 6 (1-10) Prereq A. A. degree, portfolio review, 203 year Interior Design degree. Intense and concentrated experience in design of interior spaces from abstraction and concept to complex interiors of larger scale.

305 Freehand Sketching 3 (2-2) Prereq Arch 101, I D 102. Development of knowledge and skills in freehand sketching to facilitate design exploration and further understanding of the built environment.

312 [M] Interior Design Theory 2 Prereq I D 321. Theory, principles, and determinants of interior design applied to current practice.

321 Fundamentals of Planning and Design 5 (0-10) Prereq I D 203. Design investigations of space of specified size and complexity for people of varying social, economic, and cultural backgrounds.

325 Interior Building Systems 3 Prereq I D 203. Analysis, planning, and application of interior lighting; introduction to HVAC and plumbing systems.

333 Fundamentals of Planning and Design II 4 (1-9) Prereq I D 321. Design of interior environments for the needs of the private and public sector.

350 [H,M] History of Interiors II 3 A survey of interior environments, spatial distributions, furnishings, and related design elements in the 19th and 20th centuries.

392 [M] Professional Procedures 3 Business practices and procedures as related to interior design; contract documentation and specification writing.

415 Advanced Interior Construction and Detailing 3 Analysis of building construction and detailing which impacts interior space design.

425 Advanced Planning and Design I 5 (0-10) Prereq I D 333. Interdisciplinary research and design that explores interior design as a vital part of the urban landscape.

426 Advanced Planning and Design II 5 (0-10) Prereq I D 425. Design problems and presentations emphasizing the bridges between theory and practice.

460 Portfolio and Representation 3 Prereq I D 425. Develop communication skills and produce documents necessary to professionally present oneself to prospective employers within the fields of design.

477 Interior Design Field Trip 1 May be repeated for credit; cumulative maximum 2 hours. Prereq junior standing. Selected issues in the field of interior design in connection with an organized field trip.

490 Cooperative Education Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. Prereq by interview only. Off-campus cooperative education internship with business, industry, or government unit.

498 Special Topics in Interior Design V 1-3 May be repeated for credit; cumulative maximum 6 hours.

520 Historical Perspectives of Interior Space 3 Prereq graduate standing. Historical perspectives of interior environments, spatial distributions, furnishings, and related design elements from ancient Egypt to the 18th century.

525 Interior Design Graduate Studio I 5 (0-10) Prereq I D 426. Graduate studio: application of advanced design theories, philosophies and research methodologies to enhance undergraduate design foundations through interdisciplinary studio experiences.

526 Interior Design Graduate Studio II 5 (0-10) Prereq I D 525. Graduate studio: individual thesis topics and the application of advanced design theories, philosophies, and research methodologies to student’s focus topic.

530 Philosophies and Theories of the Built Environment 3 Prereq graduate standing in Arch/I D/L A. Same as Arch 530.

540 Research Methods 3 Prereq graduate standing. Same as Arch 540.

560 Interdisciplinary Seminar 3 Prereq graduate standing. Same as Arch 560.

594 Readings in Interior Design 3 Prereq graduate standing. Exploration of current topics through readings in interior design.

598 Topics in Interior Design V 1-3 May be repeated for credit; cumulative maximum 6 hours.

600 Special Projects or Independent Study V 1-18 May be repeated for credit, S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination V 1-18 May be repeated for credit, S, F grading.

Liberal Arts

www.libarts.wsu.edu

Description of Courses

LIBERAL ARTS

Lib A

497 Extended Degree Program Internship V 2-16 May be repeated for credit; cumulative maximum 16 hours. Prereq junior standing. Extended Degree Program student participation as paid or unpaid intern in a government unit or a non-profit organization.

Liberal Arts, General Studies Program

www.libarts.wsu.edu/genstudies

Murrow East 106

509-335-8731

Director, A. M. Rodriguez-Vivaldi; Associate Director, T. Whitacre.

General Studies is for students who have varied interests that may cut across the usual departmental boundaries and who wish to play a role in deciding on a suitable curriculum of study.
The degrees offered are the Bachelor of Arts in Humanities, Bachelor of Arts in Social Sciences, and Bachelor of Liberal Arts. These degrees are not identified with a specific subject-matter field on the diploma.

The Learning Goals/Outcomes for the General Studies program are primarily based on those of the General Education program. Student learning goals/outcomes can be identified as (1) reason critically; (2) conduct self-directed or independent learning projects; (3) understand the roles of normative views and values, including ethics and aesthetics; (4) communicate conclusions, interpretations, and implications clearly, concisely, and effectively, both orally and in writing; (5) acquire and assimilate knowledge in a variety of modes and contexts and recognize diverse disciplinary viewpoints and methods; (6) understand the historical development of human knowledge and cultures, including both Western and non-Western civilizations; (7) graduation of lifelong learners; (8) adaptability to new situations through understanding of how information is gathered and organized and how knowledge is constructed in more than one specialty area; (9) knowledge in the main scholarly disciplines in which knowledge is organized; (10) ability to integrate knowledge from various knowledge domains; (11) preparation for advanced study and research outside the major; and (12) broad-based education in the humanities, social sciences, and sciences.

The student's University experience in terms of assignments, course selection, classroom participation, internships, performances, community services, and service learning activities will be considered. Outcomes will be measured in terms of society and self; critical thinking and creativity; writing, listening and speaking skills; information literacy; quantitative and symbolic reasoning skills; and depth, breadth and application of knowledge.

For each of the tracks within Liberal Arts General Studies, a limited number of particular learning goals relate to each respective track. These learning goals specify knowledge and skill appropriate to the title of the degree. For example, the Bachelor of Liberal Arts, the BA in Social Science, and the various BA in Humanities options including International Area Studies, Linguistics, and Religious Studies.

### Schedules of Studies

#### GENERAL STUDIES - INTERNATIONAL STUDIES (120 HOURS)

R. Halverson, Coordinator

The International Area Studies area of General Studies is for students who have interests that are both international and interdisciplinary. Students may choose between these major concentrations: Latin America Area Studies, German Area Studies, French and Francophone Area Studies, and European Area Studies. (Please note that Asian Area Studies, N. Kawamura Coordinator, is described in the Asian Area Studies, Linguistics, and Religious Studies. (Please note that Asian Area Studies, R. Halverson, Coordinator

The Program section of the catalog, Russian Area Studies, Social Sciences, and Liberal Arts must be met, as described in the academic regulations. Normally, upon acceptance to the option, students should anticipate at least two semesters of course work before graduation.

#### GENERAL STUDIES - LIBERAL ARTS (120 HOURS)

C. R. King, Coordinator

This option is available to students who have interests and motivations which go beyond definitions of departmental boundaries. A student who chooses this option designs a major in consultation with the coordinator and two other faculty members. Students who major in liberal arts will earn the Bachelor of Liberal Arts degree.

The course of study will be outlined by the student, with the advice and assistance of the coordinator. Course work totaling 30 credit hours will be selected to provide a coherent body of knowledge culminating in a relevant thesis or senior project. The Thesis/project hours are beyond the required 30. As part of the requirement for completion of the degree, the student's committee will meet to discuss and evaluate the project. All General Education Requirements of the university and the Colleges of Sciences and Liberal Arts must be met, as described in the academic regulations. A student may certify the major with this option upon completion of 30 or more semester hours, with the approval of the coordinator. Approval will be granted to those students who demonstrate a sincere motivation to accomplish their unique course of study. Requests for the option are made in an informal interview with the coordinator. Normally, upon acceptance to the option, students should anticipate at least two semesters of course work before graduation.

#### GENERAL STUDIES - LINGUISTICS (120 HOURS)

L. Gordon, Coordinator

A student majoring in linguistics may expect a broad liberal education in literature, anthropology, mathematics, and philosophy around a core of language. The student will gain a substantial knowledge in the main scholarly disciplines in which linguistics and will become conversant with the formal theories of linguistic analysis and the historical study of language. Students who major in linguistics will earn a Bachelor of Arts in Humanities degree.

The major in linguistics requires 40 credit hours, variously distributed in the following sequence, depending upon the particular emphasis which the student and advisor together select.

#### First Year

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<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Science Elective (GER)</td>
<td>4</td>
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#### Second Term

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<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<td>Linguistics Elective</td>
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#### Second Year

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<tr>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Linguistics Elective</td>
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<tr>
<td>Phil Elective (GER)</td>
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<td>Elective</td>
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<tr>
<td>Complete Writing Portfolio</td>
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#### Third Year

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<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Linguistics Elective</td>
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<tr>
<td>300-level Foreign Language Elective</td>
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<td>Emphasis Elective</td>
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#### Fourth Year

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<th>Hours</th>
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<tr>
<td>Linguistics Elective</td>
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<tr>
<td>300-400-level Electives</td>
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<tr>
<td>Tier III Course (GER)</td>
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<tr>
<td>300-400-level Electives</td>
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</table>

1. Students must take 21 hours or more, including at least one historical course: Anth 330, 450, 499; Engl 256, 354, 458, 499.
2. Students must take 3-12 hours depending upon special emphasis: Cpt S 150, 405; Math 107, 171, 172, 205, 212; Stat 360.
3. Students must take 3-12 hours depending upon special emphasis: SWS 371, 375, T & L 333, 414.

#### GENERAL STUDIES - RELIGIOUS STUDIES (120 HOURS)

M. W. Myers, Coordinator

Religious Studies is a cross-disciplinary program designed for students who wish to develop an understanding of the nature of religion and its role in individual and social life. The program enables students to analyze critically and evaluate western and non-western religions without a predisposition to defend or reject the claims of any particular
faith. The program offers both a major and a minor; it is preparatory for careers and future study in international affairs, arts, humanities, social sciences, and intercultural studies. Students who major in religious studies will earn a Bachelor of Arts in Humanities degree.

A student may earn a minor in Religious Studies by completing 39 semester hours of work from among the designated courses in the several departments involved. Of these 39 hours, 12 must consist of the core courses specified below for all majors. Further courses are specified as required or elective depending on the student’s focus: western religions, non-western religions, or comparative religions. There is also a language requirement.

A student must also satisfy the General Education and College of Sciences or College of Liberal Arts graduation requirements and take at least 40 of the total 120 semester hours in 300-400-level courses. For a minor in Religious Studies, a student must take at least 18 semester hours of work, including the core (minus the Seminar in Religious Studies) and three courses from the required list of comparative religion. Religious Studies also makes an ideal second major.

**First Year**

**First Term**
- Engl 101 [W] (GER) 3
- For L Elective 4
- GenEd 110 [A] (GER) 3
- Math Proficiency [N] (GER) 3
- Science Elective (GER) 4

**Second Term**
- Arts & Humanities [H,G] (GER) 3
- Biological Sciences [B] (GER) 4
- Communication Proficiency [C,W] (GER) 3
- For L Elective 4
- GenEd 111 [A] (GER) 3

**Second Year**

**First Term**
- Anth 303 3
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- For L Elective 4
- Physical Sciences [P] (GER) 4
- Social Sciences [S,K] (GER) 3

**Second Term**
- For L Elective 4
- Intercultural Studies [I,G,K] (GER) 3
- Phil 207 3
- Soc 341 [J] (GER) 3
- Tier III Course (GER) 3
- Complete Writing Portfolio

**Junior & Senior Year — Choose one option:**

**Western Religions:** Hist 272, 445, Phil 407; seven courses from: Anth 330, Engl 305, 306, 383, 385; F A 201, 202; Hist 341, 423, 440, 441; Hum 101, 198, 302, 340; Phil 290, 310, 340, 400; Soc 341.

**Non-Western Religions:** Hist 273, Phil 314, 315; six courses from: Anth 303, 330; F A 201, 202, 302; Hist 270, 275, 308, 370, 373, 374, 408, 470, 472, 473; Hum 350; Soc 341.

**Comparative Religions:** Hist 273, 445, Phil 314, 315; five courses from: Anth 303, Engl 305, 306, 383, 385; F A 201, 202, 302; Hist 308, 341, 370, 373, 374, 408, 440, 441, 470, 472, 473; Hum 350; Phil 340, Soc 341.

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**GENERAL STUDIES - SOCIAL SCIENCES/ HUMANITIES PLAN A (120 HOURS)**

T. Whitacre, Coordinator

This division of general studies is for students whose primary interest in the humanities or social sciences requires programs and course selections which are not possible within single academic units or established curricula. Students who wish to earn a Bachelor of Arts in Humanities or a Bachelor of Arts in Social Sciences will devise an approved, coherent program of study which fulfills an academic or career goal and includes prerequisites consistent with the 300-400-level course work. In addition, each student will satisfy the General Education Requirements and any additional requirements of the College of Liberal Arts.

**Plan A—Primary/Secondary Concentration**

Primary concentration: a minimum of 24 semester credits, including at least 15 300-400-level credits, must be completed in a single humanities or social sciences department or published program with a minimum 2.00 primary concentration GPA. The degree (Gen H or Gen S) will depend on the primary concentration.

Secondary concentration: a minimum of 15 semester credits, including at least 6 300-400-level credits, must be completed in another academic department, program or area published in the catalog with a minimum 2.00 GPA.

For a list of approved Plan A areas, please contact the Liberal Arts General Studies office.

**First Year**

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Elective 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math Proficiency [N] (GER) 3

**Second Term**
- Biological Sciences [B] (GER) 4
- Communication Proficiency [C,W] (GER) 3
- For L Elective 4
- GenEd 111 [A] (GER) 3

**Second Year**

**First Term**
-Anth 303 3
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- For L Elective 4
- Physical Sciences [P] (GER) 4
- Social Sciences [S,K] (GER) 3

**Second Term**
- For L Elective 4
- Intercultural Studies [I,G,K] (GER) 3
- Phil 207 3
- Soc 341 [J] (GER) 3
- Tier III Course (GER) 3
- Complete Writing Portfolio

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**GENERAL STUDIES - SOCIAL SCIENCES/ HUMANITIES PLAN B (120 HOURS)**

T. Whitacre, Coordinator

Humanities: A combination of humanities courses totaling at least 39 hours involving three academic areas with a minimum of 9 hours in each of the three areas. At least 21 of the 39 hours must be at the 300-400 level and the GPA for the 39 hours must be a 2.00 minimum. Students declare the General Humanities major (Gen H) and receive a Bachelor of Arts in Humanities.

Social Sciences: A combination of social sciences courses totaling at least 39 hours involving three academic areas with a minimum of 9 hours in each of the three areas. At least 21 of the 39 hours must be at the 300-400 level and the GPA for the 39 hours must be a 2.00 minimum. Students declare the General Social Sciences major (Gen S) and receive a Bachelor of Arts in Social Sciences.

For a list of approved Plan B areas, please contact the Liberal Arts General Studies office.

**First Year**

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Eng 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math Proficiency [N] (GER) 3
- Primary Concentration 3

**Second Term**
- Biological Sciences [B] (GER) 4
- Communication Proficiency [C,W] (GER) 3
- Elective 3
- GenEd 111 [A] (GER) 3
- Social Sciences [S,K] (GER) 3

**Second Year**

**First Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Physical Sciences [P] (GER) 4
- Primary Concentration 3
- Secondary Concentration 3

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Intercultural Studies [I,G,K] (GER) 3
- Primary Concentration 3
- Science Elective 4
- Secondary Concentration 3
- Complete Writing Portfolio

**Third Year**

**First Term**
- 300-400-level Primary Concentration 3
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3

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1 Students must take a total of 40 hours of upper-division (300-400 level). The areas require 21 upper-division hours. The GER requires 3 upper-division hours. The remaining 16 hours may be taken in the electives, the GERs or by electing to take more than the minimum required in the areas.

2 Among the 300-400 level course work in the areas, two courses, each at 3 hours, must have a [M] designation.
Minors

American Indian Studies

O. Svingen, Coordinator

The minor in American Indian Studies requires 18 semester hours which shall include a required 9 hour core (Anth 320, CES 171 and Hist 308) and 9 hours of electives (Anth 327, 331, 333, 435, CES 372, 373, 379, 470, 475, FA 301, Hist 410, or MUS 265). At least 9 of the credits must be taken at WSU and at least 9 hours must be at the 300-400 level. A minimum of 12 credits must be taken for a letter grade and a minimum GPA of 2.00 is required in the minor coursework.

Classical Studies

R.S Williams, Coordinator

Students wishing to minor in classical studies are required to take a minimum of 16 hours of course work, at least 9 of which are at the 300-level and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students are encouraged, but not required, to take a classical language.

Religious Studies

M. Myers, Coordinator

For a minor in religious studies, a student must take at least 18 semester hours of work, of which at least half must be 300-400-level taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. The minor includes the core (minus the Seminar in Religious Studies) and three courses from the required list of comparative religion.

Certificates

Certificate in American Indian Studies

O. Svingen, Coordinator

The certificate in American Indian Studies requires 18 semester hours which shall include a required core (9 hours) and 9 hours of electives. 15 of the credits must be taken at WSU, and 9 hours must be at the 300-400-level. A minimum of 12 credits must be taken for a letter grade and a grade of C or better must be earned in each of the required and recommended courses in order to qualify for the certificate. Any currently enrolled degree-seeking student is eligible to enroll in the certificate program. Other students must meet the existing admissions standards for non-degree seeking students. The university undergraduate certificate fee will apply. Students must complete Anth 320, CES 171, and Hist 308. The remaining 9 hours are chosen from the following elective courses: Anth 327, 331, 333, 435, CES 372, 373, 379, 470, 475, FA 301, Mus 265. Other courses in American Indian studies may be added to the elective pool as they become available. Contact O. Svingen, coordinator, for more information.

Program in Materials Science and Engineering

www.materials.wsu.edu

Fulmer 204

509-335-4520


Materials science includes the principles and practice of designing, synthesizing, characterizing, preparing, and fabricating useful materials. The Materials Science and Engineering Program accepts qualified bachelor's and master's graduates in the sciences and engineering who now wish to pursue graduate research for a PhD in the area where the disciplines overlap. Materials science is an interdisciplinary program and this feature is emphasized in the research activities. Requirements for the Materials Science PhD include a minimum of 72 credit hours of which at least 34 hours are graded course work. The common ground for all participants in materials science is covered by the core of courses (16 credits) required of all students. The core provides a general overview to the field as well as advanced courses in thermodynamics, solid state physics, applied mathematics, and materials characterization. All students must attend the materials science seminar series, which provides an opportunity to find out the current research activities in the program and associated departments. After completion of the core of courses, students then select additional courses (a minimum of 18 credit hours) in areas that are applicable to their research program. These courses can come from any area of physical science, engineering, and mathematics.

All students complete an original research dissertation (MatS800). After admission to candidacy for the degree, students select a research supervisor from the materials science faculty. A broad spectrum of contemporary research areas is available.

Description of Courses

MATERIALS SCIENCE

Mat S

503 Current Topics in Materials Science V 1-3

May be repeated for credit. Recent advances and current research at the forefront of materials science.

505 Advanced Materials Science I 4

Broad baseline in materials science including relationships between structure and properties.

506 Biomaterials 3

Prereq MSE 201 and permission of instructor. Same as MSE 506.

513 Crystal Plasticity 3

Rec Math 440. Same as MSE 513.

516 Phase Transformations 3

Rec MSE 314, 316. Same as MSE 516.
521 Statistics of Microstructures 3 Prereq Math 440, 540 or permission of instructor. Same as MSE 521.

538 Special Topics V 1-3 May be repeated for credit. Selected topics of current interest in advanced materials science.

571 Microscopic Analysis of Solid Surfaces 3 Modern spectroscopic methods for microscopic analysis of solid surfaces; emphasizes electron, ion, laser, and x-ray techniques.

593 Seminar in Physical Chemistry and Materials Science 1 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Same as Chem 593.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/ or Examination V 1-18 May be repeated for credit. S, F grading.

Department of Mathematics

www.math.wsu.edu

Neill 103
509-335-3926


The Department of Mathematics provides undergraduate instruction and training in all major fields of mathematics. The numerous service courses taught by the department reflect the growing importance of mathematics in an increasing number of other disciplines.

Undergraduate training for mathematics majors is provided at WSU in the following six options: actuarial mathematics and statistics. Talented undergraduate management science and computer science, as well as for graduate study in such fields as business, economics, fields. The mathematics major also prepares students for graduate study and specialization are offered through the taking of appropriate courses. Students who contemplate undertaking studies leading to a doctoral degree should contact the department for advice and assistance in the development of their plans.

Schedules of Studies

MATHMATICS

Mathematics Major Core Requirements

In addition to the General Education requirements and the College of Sciences requirements, a mathematics major is required to take Math 171, 172 (or 182), 220 (or 230), 273 (or 283), 301, 303, 315, 360 (or 443), 398, 401, 402, 420, 421, four additional 300-400 level Math courses specified by a chosen option, Cpt S 121 or 251, Math 372 (or 382), and Math 402 or 420. Students who contemplate undertaking studies leading to a doctoral degree should contact the department for advice and assistance in the development of their plans.

Certification Requirements

1. Applications for certification are accepted at any time during fall and spring semesters. Decisions are made within ten working days of receipt of application. Application forms are available in the Mathematics Department office.

2. Applications are evaluated, and certification decided, by a faculty committee.

3. Applicants must have an overall gpa of at least 2.0.

4. The mathematics core consists of Math 171, 172, 220. This core (or its equivalent for transfer students) must be completed before application.

5. Students with at least a 2.5 gpa in the mathematics core will be certified automatically. Those with less than a 2.0 gpa in the mathematics core will normally not be certified. Others will be considered on a case-by-case basis.

6. Appeals on certification decisions are considered by the department chairperson.

7. Students who are denied certification may reapply after completing at least 12 more semester hours, whereupon decisions are based on grades in mathematics, science, and computer science courses; cumulative grade point average and grade patterns; and a personal interview.

8. Certified students whose cumulative gpa or gpa in mathematics courses numbered 171 and above falls below 2.0 for two consecutive semesters, or who are academically deficient, are subject to decertification.

9. Applications for recertification are handled in the same manner as certification applications for those previously denied.

Third and Fourth Year Mathematics Options Requirements

Mathematics majors must complete the courses specified by one of the following options:

Actuarial Science Option

Required Courses: Math 360, 416, 423, 443, 456 (background material for actuarial exams. Suggested Courses: Actctg 230 and 231, B Law 210, EconS 101, 102, 301, 302, 311, Fin 320, 350 and Math 448 provide additional background for actuarial exams.

Computational Mathematics Option

Required Courses: Cpt S 122, Math 364, 448, and two of (416, 440, 464, 466). Suggested Courses: Computer Science minor with Cpt S 223 and three upper-level courses (e.g. Cpt S 317, 332, and 445 or 450), approved by the Cpt S undergraduate coordinator.

Mathematical Modeling Option

Required Courses: Four of: Math 340, 415, 440, 448, 486. Suggested Courses: Two of (Math 364, 416, 441, 446, 442, and a minor in an area that uses mathematical modeling.

Operations Research Option

Required Courses: Math 364, 464, and two of (325, 416, 448, 453, 456, 466).

Theoretical Mathematics Option

Required Courses: Four of: Math 302, 303, 325, 415, 441 and 453.

Secondary Mathematics Teaching Option

See separate schedule of studies below.

First Year

First Term Hours

Biological Sciences B (GER) 4
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Math 171 [N] (GER) 4

Second Term Hours

Cpt S 121 or 251 3 or 4
GenEd 111 [A] (GER) 3
**Mathematics Major Core Requirements**

In addition to the General Education requirements and the College of Sciences requirements, a mathematics major is required to take Math 171, 172 (or 182), 220 (or 230), 273 (or 283), 300, 301, 315, 360 (or 443), 398, 401, 402, 420, 421, four additional 300-400 level Math courses specified by a chosen option, Cpt S 121, Phys 201, and Engl 402 (or 403 for non-native English speakers). These core courses are required for all mathematics major options, except the Secondary Mathematics Teaching Option, where Cpt S 121, Math 402 and 420 are not required, Math 303 and 330 are required, Engl 201 (or 301) is required instead of 402, Math 320 may be substituted for 421. Courses required for the major may not be taken pass/fail, and a 2.0 minimum GPA is required.

**Secondary Mathematics Teaching Option**

Required Courses: Math 303, 325, 330, 431, 432 and two additional 3-credit 300-400 level Math classes. Mathematics major core courses Cpt S 121, Math 402 and 420 are not required. Students may take Engl 201 (or 301) instead of Engl 402. Students may substitute Math 320 for 421.

*T&L Requirements: Secondary education teacher certification also requires Psych 165, EdPsy 468, T&L 300, 301, 317, 415, 464, 465, 466, 467, 469 and 470. A T&L advisor must be consulted for approval and sequencing.

**Third Year**

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<tr>
<th>First Term</th>
<th>Hours</th>
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<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Math 401 [M]</td>
<td>3</td>
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<tr>
<td>Math Option Course</td>
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<td>Elective</td>
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<tr>
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<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<td>Math 301</td>
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<tr>
<td>Math 315</td>
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<td>Math 360</td>
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**Fourth Year**

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<tr>
<td>Math 401 [M]</td>
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<td>Math Option Course</td>
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<td>Elective</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<td>Math 171 [N] (GER)</td>
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<td>First Term</td>
<td>Hours</td>
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<tr>
<td>Math 300 [M]</td>
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<td>Math 301</td>
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<td>Complete Writing Portfolio</td>
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<td>T &amp; L 300</td>
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**Minors**

**Mathematics**

A mathematics minor requires 18 hours of approved mathematics courses, with at least 9 hours of 300-400-level credits taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Check with the Mathematics Department for a current list of approved courses. Courses required for the minor may not be taken pass/fail, and minimum 2.0 GPA is required in these courses.

**Description of Courses**

**MATHEMATICS**

**Math**

101 Intermediate Algebra 3 Fundamental algebraic operations and concepts. (This material is currently available on the Pullman campus through a 3 credit course, Math 91, taught by the Institute for Extended Learning, Community Colleges of Spokane.)

103 Algebra Methods and Introduction to Functions 3 Fundamental algebraic operations and concepts, linear systems and inequalities, polynomial and rational functions, introduction to exponential and logarithmic functions. (This material is currently available on the Pullman campus through a 3 credit course, Math 99, taught by the Institute for Extended Learning, Community Colleges of Spokane.)

105 (210) [N] Exploring Mathematics 3 Prereq: Math 101 or 103 with a grade of C or better or satisfactory math placement score. Nature and scope of modern mathematics, relationships to other disciplines.

106 College Algebra 3 Prereq: Math 101 or 103 with a grade of C or better or satisfactory math placement score. Graphs, properties and applications of polynomial, rational, exponential and logarithmic functions. Credit not graded for both Math 106 and 107.
107 Precalculus 4 Prereq Math 101 or 103 with a grade of C or better or satisfactory math placement score. Graphs, properties, and applications of polynomial, rational, exponential, logarithmic, and trigonometric functions.

108 Trigonometry 2 Prereq Math 106 with a grade of C or better or satisfactory math placement score. Graphs, properties and applications of trigonometric functions. Credit not granted for both Math 107 and 108.


111 Mathematics Tutorial for Math 201 1 Prereq c// Math 201. Student-centered group tutorial focusing on skill improvement for success in Math 201. S, F grading.

140 [N] Calculus for Life Scientists 4 (3-3) Prereq Math 107 with a grade of C or better, or satisfactory math placement score. Differential and integral calculus with emphasis on life science applications. Credit not normally granted for more than one of Math 140, 171, 202, 206.

151 Calculus for Middle School Teachers 3 Prereq Math 107 with a C grade or better. Differential and integral calculus in relation to middle school mathematics and real world problems through visualization, hands-on activities and technology.

171 [N] Calculus I 4 (3-3) Prereq Math 107 with a grade of C or better, or satisfactory math placement score. Differential and integral calculus of one variable with associated analytic geometry. Credit not normally granted for more than one of Math 140, 171, 202, 206.

172 Calculus II 4 (3-3) Prereq Math 171 with a grade of C or better. Techniques and applications of one-variable calculus; estimation; series, derivative of a vector function.

182 Honors Calculus II 4 (3-3) Prereq Math 171 with a grade of C or better and permission of instructor. Single variable calculus; series, coordinate graphs.

201 Mathematics for Business and Economics 3 Prereq Math 101 or 103 with a grade of C or better or satisfactory math placement score. Mathematical analysis using polynomial, exponential, and logarithmic functions; linear systems, linear programming and probability, for business and economic applications.

202 [N] Calculus for Business and Economics 3 Prereq Math 107 or 201 with a grade of C or better, or satisfactory math placement score. Differential and integral calculus of the polynomial, exponential, and logarithmic functions. Credit not normally granted for more than one of Math 140, 171, 202, 206.

205 [N] Statistical Thinking 3 Prereq Math 101, 103 or intermediate math placement score of 13. Same as Stat 205.

206 [N] Calculus for Architects 3 Prereq Math 107, with a grade C or better or satisfactory math placement score. Calculus of elementary functions; trigonometry; applications to architects. Credit not normally granted for more than one of Math 140, 171, 202, 206.

212 [N] Introduction to Statistical Methods 4 (3-3) Prereq Math 103 or intermediate math placement score of 13. Same as Stat 212.

216 Discrete Structures 3 Prereq Math 107, Phil 201, and a programming course. Discrete mathematics, trees, graphs, elementary logic, and combinatorics with application to computer science.

220 Introductory Linear Algebra 2 Prereq Math 171 or c//. Elementary linear algebra with geometric applications. Credit not normally granted for more than one of Math 220 and 230.

230 Honors Introductory Linear Algebra 3 Prereq Math 171 or c// and permission of the instructor. An introduction to linear algebra with an emphasis on conceptual development. Credit not normally granted for more than one of Math 220 and 230.

251 Mathematics for Elementary School Teachers I 3 (2-2) Prereq satisfactory math placement score or Math 101, 103 or 107 with a C or better. Logical and historical development of present-day number systems and associated algorithms; methods of problem solving.

252 [N] Mathematics for Elementary School Teachers II 3 (2-2) Prereq one year high school geometry; Math 251. Informal approach to basic ideas: mensuration, geometrical constructions, similarity, congruence, symmetry, probability, counting principles, measures of central tendency, graphical representation.

273 Calculus III 4 (3-3) Prereq Math 172 with a grade C or better. Calculus of functions of several variables.

283 Honors Calculus III 2 Prereq Math 182 or by permission. Multivariable calculus with emphasis on conceptual development and problem solving.


301 Introduction to Mathematical Reasoning 3 Prereq Math 220. Mathematical arguments and the writing of proofs.

302 Theory of Numbers 3 Prereq Math 172, 220, and 301, each with a C or better. Divisibility properties of integers; congruences; Diophantine equations; quadratic residues.

303 [M] Higher Geometry 3 Prereq Math 220 with a C or better. Geometry as a deductive system of logic, postulatory systems; projective and non-Euclidean geometries.

315 Differential Equations 3 Prereq Math 273 with a grade of C or better; Math 220 with a C or better or c//. Linear differential equations and systems; series, numerical and qualitative approaches; applications.

320 [M] Elementary Modern Algebra 3 Prereq Math 220 with a C or better. Algebra as a deductive system; number systems; groups, rings, and fields.

325 Elementary Combinatorics 3 Prereq Math 220 with a C or better. Introduction to combinatorial theory; counting methods, binomial coefficients and identities, generating functions, occurrence relations, inclusion-exclusion methods.


351 Algebraic Thinking for the Middle School Teacher 3 Prereq Math 252 with a grade of C or better. Algebraic reasoning, classes of functions, translation among models, analytical rule, tables of data, context and coordinate graphs.

360 Probability and Statistics 3 Prereq Math 172. Same as Stat 360. Credit not granted for both Math 360 and 370. Cooperative course taught jointly by WSU and UI (STAT 301).

375 Vector Analysis 3 Prereq Math 315. Line integrals, gradient, curl, divergence; Stokes' theorem, potential functions.

398 Mathematical Snapshots 1 Prereq Math 172. Character, life work, and historical importance of mathematicians from various eras and branches of mathematics.

401 [M] Introduction to Analysis I 3 Prereq Math 301. Properties of sets and sequences of real numbers; limits, continuity, differentiation and integration of functions; metric spaces.

402 [M] Introduction to Analysis II 3 Prereq Math 401. Sequences of functions, power series, multivariable calculus, inverse and implicit function theorems, Lagrange multipliers, change of variable in multiple integrations.

415 Intermediate Differential Equations 3 Prereq Math 315. Linear systems; qualitative theory (existence, uniqueness, stability, periodicity); boundary value problems; applications.

416 Simulation Methods 3 Prereq Cpt S 121 or 203; statistics course. Model formulation and simulation in business, industry, and government; simulation languages; analysis of simulation output; applications. Credit not granted for both Math 416 and 516.

420 Linear Algebra 3 Prereq Math 220; Math 301. Advanced topics in linear algebra including similarity transformations, canonical forms, bilinear forms.


423 Statistical Methods for Engineers and Scientists 3 Prereq Stat 360 or one 3 hour statistics course. Same as Stat 423.

425 Conceptual Aspects of Mathematics 3 Prereq college-level math course. Same as T & L 425.
431 Intersections of Culture and Mathematics 3 (2-2) Prereq Math 301. Gender/race/ethnicity differences; social consequences; cultural influences on development and learning of mathematics; role of women, people of color in mathematics. Credit not granted for both Math 431 and 531.

432 Mathematics for College and Secondary Teachers 3 Prereq Math 301. Pre-algebra, algebra functions and geometry examined from an advanced perspective, for secondary and lower level college teachers. Credit not granted for both Math 432 and 532.

440 Applied Mathematics I 3 Prereq Math 315. Partial differential equations; Fourier series and integrals; Bessel functions; calculus of variations; vector calculus; applications. Credit not granted for both Math 440 and 540.

441 Applied Mathematics II 3 Prereq Math 315. Complex variable theory including analytic functions, infinite series, residues, and conformal mapping; Laplace transforms; applications. Credit not granted for both Math 441 and 541.

443 Applied Probability 3 Prereq Math 172; 220. Same as Stat 443. Cooperative course taught jointly by WSU and UI (APST 451).

448 Numerical Analysis 3 Prereq FORTRAN, C, or other programming language; Math 315. Fundamentals of numerical computation; finding zeroes of functions, approximation and interpolation; numerical integration (quadrature); numerical solution of ordinary differential equations. Credit not granted for both Math 448 and 548. Cooperative course taught by WSU, open to UI students (MATH 433).

453 Graph Theory 3 Prereq Math 220. Graphs and their applications, directed graphs, trees, networks, Eulerian and Hamiltonian paths, matrix representations, construction of algorithms. Credit not granted for both Math 453 and 553.

456 Introduction to Statistical Theory 3 Prereq Stat 430 or 443. Same as Stat 456. Cooperative course taught jointly by WSU and UI (MATH 433).

464 Linear Optimization 3 Prereq Math 273. Linear and integer programming: optimization problems; applications to economic and military strategy; rectangular games; minimax theory. Cooperative course taught by WSU, open to UI students (MATH 452).

466 Optimization in Networks 3 Prereq Math 325 or 364, or knowledge of linear programming. Formulation and solution of network optimization problems including shortest path, maximal flow, minimum cost flow, assignment, covering, postman, and salesman. Credit not granted for both Math 466 and 566.


494 Seminar in Mathematical Biology 1 May be repeated for credit; cumulative maximum 4 hours. Prereq one course in math and one course in biology. Oral presentation of research approaches, research results and literature review of mathematical biology including mathematical modeling of biological systems. S, F grading.

497 Instructional Practicum 1 or 2 May be repeated for credit; cumulative maximum 2 hours. By interview only. May be repeated for credit; cumulative maximum 2 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

500 Preseminar 1 May be repeated for credit; cumulative maximum 2 hours. May be repeated for credit; cumulative maximum 2 hours. S, F grading.

501 Real Analysis 3 Prereq Math 402. Metric spaces, convergence, continuous functions, infinite series, differentiation and integration of functions of one and several variables.


503 Complex Analysis 3 Prereq Math 501. Analytic functions, complex integration, Taylor and Laurent series, conformal mapping, Riemann surfaces and analytic continuation. Cooperative course taught jointly by WSU and UI (MATH 531).

504 Measure and Integration 3 Prereq Math 501. Lebesque measure, Lebesque integration, differentiation, L spaces, general measure and integration, Radon-Nikodym Theorem, outer measure and product measures. Cooperative course taught jointly by WSU and UI (MATH 531).

507 Advanced Theory of Numbers 3 May be repeated for credit; cumulative maximum 6 hours. Analytic and algebraic number theory. Cooperative course taught by WSU, open to UI students (MATH 507).

508 Topics in Applied Analysis 3 Prereq Math 502. Advanced treatment of applications using techniques from fundamental analysis, convexity, analytic function theory, asymptotics, and differential equations. Cooperative course taught by WSU, open to UI students (MATH 508).


512 Ordinary Differential Equations 3 Prereq Math 402. Existence of solutions; linear systems; qualitative behavior, especially stability; periodic solutions. Cooperative course taught jointly by WSU and UI (MATH 539).

516 Simulation Methods 3 Prereq Cpt 5 121 or 203; statistics course. Graduate-level counterpart of Math 416; additional requirements. Credit not granted for both Math 416 and 516.

525 General Topology 3 Prereq Math 402. Sets, metric spaces, topological spaces; continuous mappings, compactness, connectedness, local properties, function spaces, and fundamental groups. Cooperative course taught jointly by WSU and UI (MATH 511).

531 Intersections of Culture and Mathematics 3 (2-2) Graduate-level counterpart of Math 431; additional requirements. Credit not granted for both Math 431 and 531.

532 Mathematics for College and Secondary Teachers 3 Prereq graduate standing, teaching experience or intention. Graduate-level counterpart of Math 432; additional requirements. Credit not granted for both Math 432 and 532.

534 Approaches to Mathematics Teaching 3 Prereq Math 531, 532. Instruction and curricula of mathematics content for community college and high school, covering basic arithmetic through calculus.

540 Applied Mathematics I 3 Prereq Math 515, graduate standing. Graduate-level counterpart of Math 440; additional requirements. Credit not granted for both Math 440 and 540.

541 Applied Mathematics II 3 Prereq Math 515, graduate standing. Graduate-level counterpart of Math 441; additional requirements. Credit not granted for both Math 441 and 541.

543 Approximation Theory 3 Prereq Math 448. Univariate polynomial and rational approximation techniques; approximation using splines and wavelets; selected topics in multivariate approximation; algorithms for approximation. Cooperative course taught by WSU, open to UI students (MATH 543).

544 Advanced Matrix Computations 3 Prereq Math 448. Advanced topics in the solution of linear systems and eigenvalue problems, including parallel matrix computations. Cooperative course taught by WSU, open to UI students (MATH 544).

545 Numerical Analysis of Evolution Equations 3 Prereq Math 448. Discretization and numerical solution of partial differential equations of evolution; stability, consistency, and convergence; shocks; conservation of forms. Cooperative course taught by WSU, open to UI students (MATH 545).

546 Numerical Analysis of Elliptic PDEs 3 Prereq Math 448. Methods of discretizing elliptic partial differential equations and solving the resulting systems of equations; error analysis. Cooperative course taught by WSU, open to UI students (MATH 547).

548 Numerical Analysis 3 Prereq FORTRAN, C, or other programming language; Math 315; graduate standing. Graduate-level counterpart of Math 448; additional requirements. Credit not granted for both Math 448 and 548.
553 Graph Theory 3 Prereq Math 220; graduate standing. Graduate-level counterpart of Math 453; additional requirements. Credit not granted for both Math 453 and 553.

555 Topics in Combinatorics 3 May be repeated for credit; cumulative maximum 6 hours. Combinatorics, generating functions, recurrence relations, inclusion-exclusion, coding theory; experimental design, graph theory.


561 Partial Differential Equations II 3 Prereq Math 560. Continuation of Math 560. Cooperative course taught by WSU, open to UI students (MATH 542).

563 Mathematical Genetics 3 Prereq Math 273; MBios 301; Stat 412, 430, or 443. Mathematical approaches to population genetics and genome analysis; theories and statistical analyses of genetic parameters.

564 Nonlinear Optimization I 3 Prereq advanced multivariate calculus and a programming language; Rec Math 464, 544. Theory and algorithms for unconstrained nonlinear optimization problems, including line search, trust region, conjugate gradient, Newton and quasi-Newton methods. Cooperative course taught by WSU, open to UI students (MATH 564).

565 Nonlinear Optimization II 3 Prereq Math 273, 564; programming language. Theory and algorithms for constrained linear and nonlinear optimization including interior point, quadratic programming, penalty, barrier and augmented Lagrangian methods.

566 Optimization in Networks 3 Prereq graduate standing; Math 325 or 364, or knowledge of linear programming. Graduate-level counterpart of Math 466; additional requirements. Credit not granted for both Math 466 and 566.

567 Integer and Combinatorial Optimization 3 Prereq Math 464. Theory and applications of integer and combinatorial optimization including enumerative, cutting plane, basis reduction, relaxation and matching methods.

568 Statistical Theory I 3 Prereq Math 273; Stat 430 or 443. Statistical Theory I 3 Same as Stat 548. Cooperative course taught by WSU, open to UI students (STAT 548).

569 Statistical Theory II 3 Prereq Stat 548. Same as Stat 549. Cooperative course taught by WSU, open to UI students (STAT 549).

570 Mathematical Foundations of Continuum Mechanics I 3 Prereq advanced calculus and differential equations. The basic mathematical theory of continuum mechanics and its relation to perturbation techniques and stability methods. Cooperative course taught by WSU, open to UI students (MATH 570).

571 Mathematical Foundations of Continuum Mechanics II 3 Prereq Math 570. Continuation of Math 570. Cooperative course taught by WSU, open to UI students (MATH 573).

574 Topics in Optimization 3 Prereq advanced multivariable calculus and a programming language. Rec Math 464, 544. Advanced topics in the theory and computing methodology in optimization with emphasis on real-life algorithmic implementations.

581 Seminar in Analysis V 1-3 May be repeated for credit. Cooperative course taught jointly by WSU and UI (MATH 541).

583 Seminar in Applied Mathematics V 1-3 May be repeated for credit. Cooperative course taught by WSU, open to UI students (MATH 583).

586 Mathematical Modeling in the Natural Sciences 3 Prereq Math 315. Graduate-level counterpart of Math 486; additional requirements. Credit not granted for both Math 486 and 586.

590 Seminar in Mathematics Education V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Topics in mathematics education.

597 Mathematics Instruction Seminar I 1-18 May be repeated for credit; cumulative maximum 5 hours. Prereq graduate standing. Introduction to the teaching of university mathematics. S, F grading.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

School of Mechanical and Materials Engineering

www.mme.wsu.edu
Sloan 201
509-335-8654


The School of Mechanical and Materials Engineering offers programs in Mechanical Engineering (Pullman and Tri-Cities campuses), and Materials Science and Engineering (Pullman). Each program is detailed as follows.

MECHANICAL ENGINEERING

Mechanical engineering is concerned with (a) the use and economical conversion of energy from natural sources into other useful energy to provide power, light, heat, cooling and transportation, (b) the design and production of machines to lighten the burden of human work, (c) the creative planning, development and operation of systems for using energy, machines and resources, and (d) the processing of materials into products useful to people. Employment opportunities for graduates exist in the areas of mechanical design, systems design, equipment development, manufacturing, CAD/CAM, project engineering, production management, applied research, and sales and service.

The mission of the mechanical engineering program is to provide a broad education in mechanical engineering that prepares our students for successful professional practice and advanced studies. In addition, the undergraduate curriculum prepares students for continued education at the graduate level. The educational objectives of the undergraduate mechanical engineering program are as follows: (1) To ensure that our graduates have an understanding of fundamental mathematical and scientific principles and the ability to apply these principles to relevant engineering problems, so that they can be successful in the profession or in pursuing graduate studies; (2) to ensure that our graduates have the technical knowledge, hands-on experience, and communication skills that will allow them to function successfully as members of technical teams; and (3) to instill in our graduates an appreciation of the economic, social, environmental, and ethical impact of their professional activities and a desire for lifelong learning.

The undergraduate curriculum emphasizes foundation courses at the third year which are fundamental to all aspects of mechanical engineering. These courses emphasize both analysis and design while accompanying laboratory courses provide opportunities for hands-on experiences. Computer applications are interwoven throughout the program. The courses in the fourth year emphasize the integration of fundamental engineering principles into various applications in mechanical engineering. The students also take two electives tailored to their interests and career goals. The undergraduate program is completed with courses in integrated design of mechanical and thermal systems as well as a capstone laboratory course. Graduates are prepared to enter the field as engineers or to continue into a graduate program. An engineering internship program is available for students to gain industrial experience during their academic careers.

The School offers courses of study leading to the degrees of Bachelor of Science in Mechanical Engineering (accredited by the Accrediting Board for Engineering and Technology), Master of Science in Mechanical Engineering, and Doctor of Philosophy (Mechanical Engineering). The BS-MS Program is available to outstanding undergraduates, and facilitates the completion of a Master of Science degree program in Mechanical Engineering or Materials Science and Engineering. The school participates in the interdisciplinary programs leading to the Master of Science in Engineering and Doctor of Philosophy (Engineering Science).

MATERIALS SCIENCE AND ENGINEERING

The mission of the materials science and engineering program is to provide excellence in education, research, and service in the field.
of materials science and engineering through educational programs that graduate students with strong backgrounds in scientific and engineering problem-solving methods. Materials science and engineering is the application of methods and principles of the pure sciences to study engineering materials. The undergraduate program focuses on (a) the relationship of the microscopic structure, e.g., crystal structure and defects to the macroscopic properties of materials, e.g., strength, (b) experimental techniques for characterizing physical, chemical and structural properties of materials, and (c) design and selection of appropriate materials for given engineering applications.

The specific fields of application covered by research and instruction programs can be expressed by the nominal designations of metals (metallurgy), polymers, ceramics, electronic materials, biomaterials, and composites. Due to the diversity of useful properties encountered in materials engineering, attention must be given to application and peculiarities of these specific types of materials. Where possible, however, a generalized approach toward the study of materials, their properties, their selection, and their utilization is fostered. The broad-based instructional approach prepares graduates for careers in a wide range of industrial settings, from aerospace companies to corporations specializing in the production of solid state electronics. In addition, the undergraduate curriculum prepares students for continued education at the graduate level.

The educational objectives of the undergraduate materials science and engineering program are as follows: (1) To provide our students with an academic foundation in the fundamentals of materials science; (2) to provide our students with a program which emphasizes understanding of the interrelationship between structure, properties, and processing for engineering materials; (3) to provide our students with research experience; (4) to provide our students with an integrated mechanical-materials design experience that utilizes a teamwork approach in solving engineering problems; (5) to develop in our students the ability to communicate effectively both orally and in writing; and (6) to create an environment within the program that instills in the students a sense of professionalism, and a desire for life-long learning.

The School offers courses of study leading to the degrees of Bachelor of Science in Materials Science and Engineering (accredited by the Accrediting Board for Engineering and Technology) and the Master of Science in Materials Science and Engineering. The school participates in the interdisciplinary programs leading to the Doctor of Philosophy (Engineering Science, Materials Science).

TRANSFER STUDENTS

The School of Mechanical and Materials Engineering cooperates with the community colleges in Washington to minimize problems associated with transfer. Inquiries are welcome. A strong preparation in mathematics, physics, and chemistry is strongly recommended prior to transfer to minimize the time required at Washington State University to complete the bachelor's degree requirements.

The certification into the mechanical engineering or materials science and engineering programs is processed by the School. The certification requirements are described in the WSU catalog. Details for certification can also be obtained by contacting the School directly.

GRADUATE STUDY

A Bachelor of Science degree from an accredited program in mechanical engineering or materials science and engineering provides a good background for the graduate program. Students with bachelor degrees in other engineering disciplines, mathematics, and the physical sciences are routinely admitted, but may be required to make up requisite undergraduate deficiencies.

Schedules of Studies

MATERIALS SCIENCE AND ENGINEERING DEGREE PROGRAM (131 HOURS)

Certification Requirements: Certification into the Bachelor of Science program in Materials Science and Engineering is limited to 21 students per entering class. Students who have completed at least 30 semester hours of graded course work with an overall minimum 2.0 gpa and who have completed the following courses with a minimum grade of 2.0 in each course: Chem 105, Chem 106, Engl 101, Math 171, 172, and Phys 201 or their equivalents are eligible. When it becomes necessary to limit enrollment, the overall gpa as well as the gpa for the prerequisite courses listed above, will be important factors. For additional details, contact the school's office of student services.

First Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Chem 105 [P] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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</tr>
<tr>
<td>Math 171 [N] (GER)</td>
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<td>MSE 110</td>
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<td>Second Term</td>
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<tr>
<td>Biological Sciences [B]</td>
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<td>Chem 106 [P] (GER)</td>
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<tr>
<td>Math 172</td>
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<td>Phys 201 [P] (GER)</td>
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Second Year

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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>C E 211</td>
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<td>Math 273</td>
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<tr>
<td>MSE 201</td>
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<td>Phys 202 [P] (GER)</td>
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<td>C E 215</td>
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<tr>
<td>Cpt S 251 or E E 221</td>
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<tr>
<td>EconS 102 [S] (GER)</td>
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<tr>
<td>Intercultural Studies [J,G,K] (GER)</td>
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<td>Math 315</td>
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<td>MSE 220</td>
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Third Year

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<tr>
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<tbody>
<tr>
<td>M E 310</td>
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<td>MSE 302</td>
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<td>MSE 316</td>
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<td>MSE 320</td>
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<td>MSE 402</td>
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<tr>
<td>Stat 360 or 370</td>
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<tr>
<td>Second Term</td>
<td>Hours</td>
</tr>
<tr>
<td>E E 304</td>
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<td>MSE 321</td>
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<td>MSE 323</td>
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<tr>
<td>MSE 401</td>
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<tr>
<td>MSE 403</td>
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<td>Engineering and Science Elective</td>
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Fourth Year

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<td>MSE 401</td>
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<td>MSE 403</td>
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<tr>
<td>MSE 413</td>
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</tr>
<tr>
<td>MSE 425 [M]</td>
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<tr>
<td>Engineering and Science Elective</td>
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<tr>
<td>Second Term</td>
<td>Hours</td>
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<tr>
<td>Engl 402 [W] (GER)</td>
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<tr>
<td>MSE 426 [M]</td>
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<td>MSE Elective</td>
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<tr>
<td>Technical Elective</td>
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<tr>
<td>Tier III Humanities or Social Sciences Course [T] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

MECHANICAL ENGINEERING DEGREE PROGRAM (128 HOURS)

Certification Requirements: Students who have completed at least 30 semester hours of graded course work with an overall minimum 2.0 gpa and who have completed the following courses with a minimum grade of 2.0 in each course: C E 211, Chem 105, Engl 101, M E 103, Math 171, 172, and Phys 201 or their equivalents are eligible to apply for certification into the Mechanical Engineering Program. Applications for certification will be reviewed by a departmental committee. When it becomes necessary to limit enrollment, the overall gpa as well as the gpa for the prerequisite courses listed above, will be important factors. Application deadline dates are March 1 for the fall semester and October 1 for the spring semester. Students who have not completed all of the prerequisite courses will be assigned to a mechanical engineering advisor. Additional details and application forms are available from the school's office of student services.

First Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Chem 105 [P] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>Engr 120</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<td>Math 171 [N] (GER)</td>
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<tr>
<td>MSE 401</td>
<td>3</td>
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<tr>
<td>Stat 360 or 370</td>
<td>3</td>
</tr>
<tr>
<td>MSE 425 [M]</td>
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<tr>
<td>Engineering and Science Elective</td>
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</table>

Second Term             | Hours |
| Biological Sciences [B] | 3     |

First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>MSE 401</td>
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<tr>
<td>MSE 403</td>
<td>3</td>
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<tr>
<td>MSE 413</td>
<td>3</td>
</tr>
<tr>
<td>MSE 425 [M]</td>
<td>2</td>
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<tr>
<td>Engineering and Science Elective</td>
<td>6</td>
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</table>

Second Term             | Hours |
| Biological Sciences [B] | 3     |

Chem 106 [P] (GER) 4
GenEd 111 [A] (GER) 3
M E 116 2
Math 172 4

Second Year

First Term  Hours
C E 211 3
Cpt S 121, 251, 253, or E E 221 2
Econ S 102 [S] (GER) 3
Math 220 2
Math 273 2
Phys 201 [P] (GER) 4

Second Term  Hours
C E 215 3
M E 212 3
M E 216 2
M E 220 1
Math 315 3
Phys 202 [P] (GER) 4
Complete Writing Portfolio

Third Year

First Term  Hours
E 304 2
M E 301 3
M E 303 3
M E 313 3
Math/Stat 370 3
MSE 201 3

Second Term  Hours
Arts & Humanities [H,G] (GER) 3
M E 305 2
M E 310 3
M E 316 [M] 3
M E 348 3
M E 404 3

Fourth Year

First Term  Hours
Intercultural Studies [J,G,K] (GER) 3
M E 401 3
M E 402 3
M E 414 3
Technical Elective\(^1\) 3

Second Term  Hours
Engl 402 [W] (GER) 3
M E 406 [M] 3
M E 416 3
Technical Elective\(^1\) 3
Tier III Humanities or Social Sciences Course [T] (GER) 3

\(^1\) Technical Elective in M E or MSE. (MSE 440 excluded).

WSU-approved education abroad or educational exchange courses.

**Mechanical Engineering Minor**

A minor in mechanical engineering requires 16 credits of 300-400-level M E courses, including two of the following four courses: M E 303, 348, 404, 414. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Description of Courses**

### MECHANICAL ENGINEERING Courses

**M E**

116 Engineering Computer-aided Design and Visualization 2 (0-6) 3-D solid modeling, parts, engineering drawings and assemblies; geometric dimensioning and tolerancing, 3-D visualization, computational analysis of parts and assemblies.

212 Dynamics 3 Prereq C E 211. Kinematics and kinetics of particles and rigid bodies; introduction to mechanical vibration. Cooperative course taught jointly by WSU and UI (M E 220).

216 Integrated CAD Design 2 (0-6) Prereq M E 116. CAD applications in engineering design and analysis.

220 Materials Laboratory 1 (0-3) Prereq C E 215 or c//. Mechanical behavior of materials and application to engineering structures.

301 Fundamentals of Thermodynamics 3 Prereq Phys 201 with a grade of C or better. Rec Math 315. Thermodynamic properties of matter, ideal and real gases, work and heat, first and second laws and their application to engineering systems. Cooperative course taught jointly by WSU and UI (CHE 321).

303 Fluid Mechanics 3 Prereq M E 212. Fluid statics, laminar and turbulent flow, similitude, pipe flow, boundary layers, lift and drag and measurement techniques. Cooperative course taught jointly by WSU and UI (CHE 320).

305 Thermal and Fluids Laboratory 2 (1-3) Prereq major in engineering; M E 301; M E 303; Math 370 or c//. Instrumentation, data acquisition, and theory verification in the thermal and fluid sciences.

310 Manufacturing Processes 3 (2-3) Prereq MSE 201, major in engineering. Cutting operations, metal forming by deformation, material fabrication, and nontraditional processing.

311 Manufacturing Processes Laboratory 1 (0-3) Prereq M E 310 or c//, major in engineering. Manufacturing processes laboratory in machining, welding, forming; manufacturing project.

313 Engineering Analysis 3 (2-3) Prereq Math 315; computer science programming. Analysis and modeling of engineering problems utilizing numerical and mathematical techniques and computers. Cooperative course taught jointly by WSU and UI (M E 380).

316 [M] Systems Design 3 Prereq C E 215; M E 216; ME 313; MSE 201 or c//; major in engineering. Engineering design process for systems and components; design criteria, creativity, engineering economics, CAD, standards, product safety; design projects.

348 Dynamics Systems 3 Prereq M E 212, 313, major in engineering. Fundamentals of vibration analysis, control systems, system modeling and dynamics analysis.

401 Mechatronics 3 (2-3) Prereq E E 304; M E 348 Integration of mechanical and microprocessor-based systems; control theory implemented with data acquisition systems; sensors; actuators, signal conditioning, programmable logic controllers.


404 Heat Transfer 3 Prereq M E 301, 303 or c//, major in engineering. Conduction, radiation, and convection heat transfer; analytical, numerical, experimental results for solids, liquids, and gases; heat exchanger design. Cooperative course taught jointly by WSU and UI (M E 345).


407 Computational Fluid Dynamics 3 Prereq M E 303. Basic concepts and applications of computational fluid dynamics to the analysis and design of fluid systems and components.

413 Mechanics of Solids 3 Prereq C E 215, MSE 201. Same as MSE 413.

414 Machine Design 3 Prereq C E 215, MSE 316 or c//; major in engineering; rec M E 220. Optimal design of machinery; analysis for prevention of machine elements failure.

416 Mechanical Systems Design 3 (1-6) Prereq M E 348 or 375; M E 404; M E 414 or c//. Integrative design in mechanical engineering; multidisciplinary design project considering both technical and non-technical contexts; organizational dynamics and communications.

419 Air Conditioning 3 Prereq M E 404. Principles of heat and moisture transfer; air motion and purity in buildings; design of systems. Cooperative course taught by WSU, open to UI students (M E 444).

436 Combustion Engines 3 Prereq M E 303. Internal combustion engines; spark ignition engines, diesels, and gas turbines.

439 Applied Aerodynamics 3 Prereq M E 305. Aerodynamic lift and drag; circulation; boundary layers, application to subsonic aircraft wing design.

449 Mechanical Vibration 3 Prereq M E 348. Vibrating systems and noise producing mechanisms; design for noise and vibration control. Cooperative course taught jointly by WSU and UI (M E 472).

**Minors**

**Materials Science And Engineering**

A minor in materials science and engineering requires 16 credits which must include M E 220 and MSE 201. An additional 12 credits must be chosen from MSE 302, 401, 402, 403, 404, 406, 413, M E 310, or E E 496. 9 hours of upper-division work must be taken in residence at WSU or through

461 Introduction to Nuclear Engineering 3 Prereq junior in engineering or physical science. Applied nuclear physics; application to the nuclear fuel cycle and nuclear reactor core design; nuclear reactor systems and safety.

470 Dynamics of Machinery 3 Prereq M E 348. Kinematics and kinetics of mechanisms and machines; static and dynamic force analyses of planar and spatial systems; synthesis for functionality. Cooperative course taught by WSU, open to UI students (ME 470).


473 Computer-aided Design 3 (2-3) Prereq M E 316. Interactive computer programming and graphics in the design of engineering systems.

474 Advanced Manufacturing Processes 3 Prereq M E 310. Mechanical and metallurgical fundamentals of metal machining and materials processing by deformation; manufacturing systems concepts in production.

475 Manufacturing Automation 3 (2-3) Prereq Cpt S 203 or 251; E E 304; M E 310. Computer control of manufacturing processes; numerically controlled machine tools, robotics, control algorithms, component and system design.

481 Control Systems 3 Prereq M E 348. Analysis and design of feedback control systems. Cooperative course taught by WSU, open to UI students (ME 481).

483 Topics in Mechanical Engineering V 1-4 May be repeated for credit; cumulative maximum 7 hours. Contemporary topics in materials engineering.

495 Internship in Mechanical Industry 3 or 6 May be repeated for credit; cumulative maximum 12 hours. Prereq major in materials science engineering or mechanical engineering. By interview only. Students work full time on engineering assignment in approved industries with industrial and faculty supervision. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Continuum Mechanics 3 Prereq graduate standing. Unified presentation of principles common to all branches of solid and fluid mechanics; viscous fluids, elasticity, viscoelasticity, and plasticity.

509 MEMS Engineering 3 (2-3) Prereq graduate standing or permission of instructor. Introduction to the design, fabrication and application of microelectromechanical systems.

514 Thermodynamics of Solids 3 Rec MSE 312. Same as MSE 514.

515 Advanced Heat Transfer 3 Rec M E 404, 521. Derivation of the energy conservation equation; laminar and turbulent forced convection heat transfer with internal and external flow; free convection. Cooperative course taught jointly by WSU and UI (ME 546).

516 Conduction and Radiation Heat Transfer 3 Prereq M E 404. Principles of conduction and radiation heat transfer with focus on solving conduction and radiation problems of engineering interest.

517 Thin Films 3 Prereq graduate standing or senior in engineering or science. Same as MSE 517.

520 Multiscale Modeling in Thermomechanics of Materials 3 Prereq Math 540 or Phys 571; Math 570, M E 501, 521, 526, 531 or MSE 513. Multiscale problems in thermomechanics of materials; practical and computational aspects of homogenization, granular materials, dislocation plasticity and atomistic methods.

521 Fundamentals of Fluids 1 3 Prereq C E 315 or MSE 303. Governing equations of fluid mechanics accompanied by applications of Navier-Stokes equation to simple flow situations, boundary layer analysis. Cooperative course taught by WSU, open to UI students (ME 521).

523 Engineering Acoustics 3 Prereq graduate standing. Fundamentals of acoustics including wave theory; transmission through layers; generation and reception, low frequency models; application to sound measurement, transducers, loudspeaker cabinet design, and nondestructive testing; acoustic design project required. Cooperative course taught by UI, open to WSU students (M E 513).

525 Biomechanics 3 Prereq B E 320, C E 215 or MSE 301; Math 315. Same as B E 525.

527 Macroscopic Thermodynamics 3 Advanced thermodynamics from macroscopic viewpoint; basic postulates, equilibrium, stability, property relations; application to thermal-fluid and solid mechanics; irreversible thermodynamics. Cooperative course taught jointly by WSU and UI (ME 524).

530 Elasticity 3 Prereq M E 414; graduate standing. Theory of kinematics of solid deformable bodies; conservation laws applied to an elastic continuum; generalized linear stress-strain behavior with applications. Cooperative course taught by WSU, open to UI students (ME 530).

531 Theory of Plasticity 3 Rec M E 501. The fundamentals of the theory of plasticity; the classical theory of plasticity; the classical theory and modern continuum theories of large elasto-plastic deformations. Cooperative course taught by WSU, open to UI students (ME 531).

532 Finite Elements 3 Same as C E 532.

534 Mechanics of Composite Materials 3 Prereq M E 414. Analysis of micromechanical and macromechanical behavior of composite materials with emphasis on fiber-reinforced composite; prediction of properties; stiffness and strength theories; laminated beams and plates; dynamic behavior; environmental effects. Cooperative course taught jointly by WSU and UI (ME 534).

537 Fracture Mechanics and Mechanisms 3 Same as MSE 537.

540 Advanced Dynamics of Physical Systems 3 Newtonian dynamics, rotating coordinate systems; Lagrangian and Hamiltonian mechanics; gyroscopic mechanics, other applications. Cooperative course taught by WSU, open to UI students (ME 504).

556 Numerical Modeling in Fluid Mechanics 3 Prereq C E 315. Fundamental concepts in development of numerical models for fluid flow with applications to steady and unsteady flows. Cooperative course taught by WSU, open to UI students (ME 556).

574 Foundations of CAD 3 Topics fundamental to the creation of CAD, engineering visualization, and virtual reality based engineering software. Cooperative course taught by WSU, open to UI students (ME 534).

575 Geometric Modeling 3 Study of the mathematics behind the creation of complex shapes for CAD using curves, surfaces, and solids.

579 Advanced Topics in Mechanical Engineering V 1-3 May be repeated for credit.

598 Seminar 1 May be repeated for credit. Current research interests. S, F grading.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

MATERIALS SCIENCE AND ENGINEERING Courses

MSE

110 Introduction to Materials Science 2 Introduction to the science and technology of metals, polymers, ceramics and composites.

201 Materials Science 3 Prereq Chem 106, Phys 201 or c//. Structure of materials, phase equilibrium, phase transformations, and mechanical properties.

302 Electronic Materials 3 Prereq Chem 105, Phys 202 or c//. Structure of materials, electronic structure of solids; thermal, electrical, dielectric, and magnetic properties of materials; semiconductors processing.

312 Thermodynamics and Phase Equilibrium 3 Prereq MSE 201. Concepts of activity, equilibrium, solution properties; relationship between free energy, composition, and temperature; heterogeneous equilibria.

316 Kinetics of Chemical and Physical Reactions 3 Kinetics of heterogeneous chemical reactions; mechanisms and kinetics of diffusion; oxidation and other gas-metal reactions; polarized electrodes; corrosion; boundary migration; nucleation and growth; eutectoid and martensitic transformations.
320 Materials Structure - Properties Lab 3 (1-6) Prereq MSE 201 or c//; major in materials science engineering. Principles and techniques of optical metallography and other laboratory methods used in modern materials science and engineering.

321 Materials Characterization 3 Prereq MSE 201. Properties of x-rays, scattering and diffraction; crystal structures; x-ray diffraction methods, transmission electron microscopy and scanning electron microscopy.

323 Materials Characterization Lab 2 (1-3) Prereq MSE 321 or c//; Laboratory exercises on materials characterization: x-ray, TEM, SEM.

401 Metallic Materials 3 Prereq MSE 201. Major alloy systems and manufacturing processes; materials selection.

402 Polymeric Materials 3 Prereq MSE 201. Structural characterization, syntheses, and reactions of polymeric materials; relationships between structure and properties, viscoelasticity, deformation, and physical behavior of polymers. Cooperative course taught by WSU, open to UI students (ME 402).

403 Ceramic Materials 3 Prereq MSE 201. Processing, characteristics, microstructure, and properties of ceramic materials.

404 Engineering Composites 3 Prereq MSE 201. Basic concept in design and specifications of engineering composites.

406 Biomaterials 3 Prereq MSE 201. Overview of the different types of materials used in biomedical applications such as implants and medical devices. Credit not granted for both MSE 406 and 506.

413 Mechanics of Solids 3 Prereq C E 215, MSE 201. Elasticity, elastic stress distributions; plastic deformation of single and polycrystals; introduction to dislocation theory and its applications; creep, fracture, fatigue.


450 Seminar 1 May be repeated for credit. For seniors only.

483 Topics in Materials Engineering V 1-4 May be repeated for credit; cumulative maximum 7 hours. Contemporary topics in materials engineering.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

503 Advanced Topics in Materials Engineering V 1-3 May be repeated for credit; cumulative maximum 6 hours.

505 Advanced Materials Science 4 Same as Mat S 505.

506 Biomaterials 3 Prereq MSE 201 and permission of instructor. Overview of the different types of materials used in biomedical applications such as implants and medical devices.

509 MEMS Engineering 3 (2-3) Prereq graduate standing. Same as M E 509.

513 Crystal Plasticity 3 Rec Math 440. Dislocation theory; slip; climb; mechanical properties of polycrystalline materials, and application to important deformation processes.

514 Thermodynamics of Solids 3 Rec MSE 312. Thermodynamic properties of solid solutions; models for substitutional and interstitial solutions; configurational and non-configurational contributions; calculation of phase diagrams.

515 Electronic Properties of Materials 3 Electron energy bands in solids, electrical conduction in metals and semiconductors, applications to semi-conduction devices based on silicon and III-V compounds.

516 Phase Transformations 3 Rec MSE 314, 316. Thermodynamics, nucleation, interface motion, mechanisms and kinetics of chemical reactions between solid metals and their environment.

517 Thin Films 3 Prereq graduate standing or senior in engineering or science. Materials science aspect of thin films, including growth, characterization, and properties for electrical, mechanical, corrosion, and optical behavior.

520 Multiscale Modeling in Thermodynamics of Materials 3 Prereq Math 540 or Phys 571; Math 570, M E 501, 521, 526, 531 or MSE 513. Same as M E 520.

521 Statistics of Microstructures 3 Prereq Math 440, 540 or permission of instructor. Stereology, orientation and spatial distributions, percolation, measurement techniques and application to modeling of microstructures.

523 Ceramics Processing 3 Prereq graduate standing. Fundamentals of ceramic processing science for thin films and bulk ceramics.

530 Elasticity 3 Prereq M E 414; graduate standing. Same as M E 530. Cooperative course taught by WSU, open to UI students (ME 530).

530 Elasticity 3 Prereq M E 414; graduate standing. Same as M E 530. Cooperative course taught by WSU, open to UI students (ME 530).

531 Theory of Plasticity 3 3 Rec M E 501. Same as M E 531. Cooperative course taught by WSU, open to UI students (ME 531).

534 Mechanics of Composite Materials 3 Prereq M E 414. Same as M E 534. Cooperative course taught jointly by WSU and UI (ME 534).

537 Fracture Mechanics and Mechanisms 3 Fracture mechanics and mechanisms and the microstructural origins of toughness in metals, polymers and composites.

543 Polymer Materials and Engineering 3 Prereq MSE 402. Same as C E 593.

544 Natural Fibers 3 Prereq graduate standing. Same as C E 594.

545 Polymer and Composite Processing 3 Prereq graduate standing. Same as C E 595.

546 Engineered Wood Composites 3 Same as C E 596. Cooperative course taught by WSU, open to UI students (MSE 550).

547 Polymers and Surfaces for Adhesion 3 Prereq MSE 402 or 404. Same as C E 597. Cooperative course taught by WSU, open to UI students (FORPR532).

548 Natural Fiber Polymer Composites 3 Prereq graduate standing. Same as C E 598. Cooperative course taught by WSU, open to UI students (FORPR533).

592 Transmission Electron Microscopy 3 Development of the principles and applications of electron optics in microscopy.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Department of Military Science

www.wsu.edu/~armyrotc
Avery 405
509-335-2591

Professor and Department Chair, Lieutenant Colonel C. A. Whiteside.

The Department of Military Science is the formal designation of the Army ROTC program at Washington State University. It is designed to educate, train, and motivate qualified students to serve as commissioned officers in the U.S. Army upon graduation. The military science department offers academic, professional, and technical education and training that complements the educational programs at WSU.

The military science curriculum comprises a two-year basic course (freshman and sophomore years) and a two-year advance course (junior and senior years). The basic course is open to all WSU students. Enrollment in the advance course is offered only with the approval of the department chair.

At WSU, military science courses emphasize training in a practical environment. Students learn leadership skills through classroom instruction, on-campus leadership labs, and summer training opportunities. The goal of this training is to develop leadership goals applicable in both the military and civilian sphere of activity. During the summer between the junior and senior year of academic study, enrolled cadets must attend the Leadership Development and Assessment Course at Fort Lewis, WA. This is a 28 day leadership practicum administered by Officers and NCOs of the U.S. Army that develops and assesses the leadership capabilities of the cadets.

Competitive, merit-based scholarships are available to deserving individuals. These scholarships pay either Tuition and associated fees, or Room and Board. Scholarship winners also receive $1200/
year for books ($600 each semester). Basic course cadets on an ROTC scholarship and advance course cadets receive a monthly tiered stipend ranging from $300/month for freshmen to $500/month for seniors. High school students may apply for a four-year Army ROTC scholarship in the fall of their senior year (high school) if they are interested in pursuing a military career. Students at WSU may apply for two- or three-year scholarships if they have a similar interest. Scholarships are also available for those students interested in pursuing commissioned service in the National Guard or Army Reserve, without a full-time commitment to active duty upon graduation.

Upon successful completion of the advance course and graduation from WSU, cadets are commissioned as U.S. Army officers and serve in either the active Army, the Army Reserve, or the Washington National Guard.

Description of Courses

MILITARY SCIENCE

Mil S

101 The United States Army 1 Role of the Army in contemporary society.

102 National and International Role of the Army 1 Role of the Army in today's international affairs.

110 Cougar Rangers I 1 Military adventure training, pioneering activities, military skills and small unit tactics. Field trip required.

111 Cougar Rangers II 1 Prereq permission of instructor. Military adventure training, pioneering activities, military skills and small unit tactics. Field trip required.

201 Introduction to Leadership 2 Multidisciplinary approach to military leadership.

202 The Officer as a Professional 2 U.S. Army Officer Corps as a profession; the U.S. Army Officer as a professional.

301 Applied Leadership and Management 3 Prereq instructor permission. Troop leadership procedures emphasizing instruction in military professionalism and ethics; practical aspects of tactics and leadership practicum.

302 Small Unit Tactics and Military Leadership 3 Prereq instructor permission. Preparation, delivery, and critique of practical oral presentations; leadership of small units; offensive and defensive operations.

320 Leadership Development Assessment 6 (0-18) Prereq Mil S 301, 302. By interview only. Intensive study and internship in military tactics, command and leadership; held at Fort Lewis, WA, S, F grading.

396 Leader Internship 6 (0-18) Prereq junior standing. By interview only. Fully funded non-committal leader internship and Army orientation; provides leader training and assessment. May be taken as MgtOp 498, Pol S 497, PEACT 201, or Ed Ad 499 with permission. S, F grading.

401 Advanced Military Leadership 3 Prereq instructor permission. Historical and legal basis of military justice; small unit management; military professionalism and ethics.

402 Advanced Military Management and Practicum 3 Prereq instructor permission. Theory and practice of Army administration/management; staff planning and correspondence; pre-commission orientation; unit management/resources application.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

School of Molecular Biosciences

molecular.biosciences.wsu.edu
Biotechnology-Life Sciences 102 509-335-1276

Director, J. Nilson; Senior Associate Director, M. Konkel; Associate Director of Graduate Programs, L. Gloss; Associate Director of Undergraduate Programs, W. Davis; Associate Director of Development, J. Alderete; Regents Professor, M. Grisswold, M. Smeardon; Professors, J. Alderete, K. Beerman, R. Brosmer, H. Grimes, T. Hassold, P. Hunt, M. Hunzicker-Dunn, M. Kahn, C. Kang, K. H. Kim, A. Kleinhofs, M. Konkel, N. Magnuson, S. Muradilshan, J. Nilson, R. Reeves, M. Skinner, D. von Wettstein, L. Xan; Associate Professors, W. Davis, L. Gloss, C. Her, M. McGuire, K. Roberts (Spokane), E. Shelden, S. Sylvestor (Vancouver), L. Taylor, J. Wyrick; Assistant Professors, W. An, W. Chai (Spokane), C. Cooper (Vancouver), C. Haseltine, S. Wang, J. Watts, P. Ye; Additional Graduate Faculty, M. Black, K. Brayton, L. Brewer, W. Brown, J. Browse, S. Carpenter, J. Harding, J. Jones, D. Kramer, B. Lange, L. Lavine, N. Lewis, D. Moffett, B. Rodgers, L. Thomasaw, G. Thorgaard, Clinical Assistant Professor, C. Helmick, N. McCabe, P. Miter, M. Sanchez-Lanter; Clinical Assistant Professors, T. Farmerie, D. Mitchell, C. Peters, M. Rolfsmeyer, J. Stanton.

Molecular biosciences can be viewed as a dynamic continuum in which approaches derived from biology, chemistry, and physics are utilized to address the fundamental mechanisms of living things. The School of Molecular Biosciences offers undergraduate majors in biochemistry, biotechnology, genetics and cell biology, and microbiology. Students interested in the health professions can major in biochemistry, genetics and cell biology, or microbiology, and readily complete the requirements for application to medical, dental, veterinary, or other professional schools. Each of the areas is described below in more detail.

The School of Molecular Biosciences also offers undergraduate minors in biochemistry, genetics and cell biology, microbiology, molecular biology, and pre-genetics counseling. Requirements for the minors are detailed below.

At the graduate level, the school offers programs leading to the degrees of Master of Science in Molecular Biosciences and Doctor of Philosophy (Molecular Biosciences).

BIOTECHNOLOGY

Biotechnology is the application of a new level of understanding of organisms and biological processes. It uses modern molecular, computer and engineering techniques to answer basic biological questions and to develop products and practices for use by society. Biotechnology will affect every aspect of human existence. The applications of biotechnology are broad and have already brought impressive results in agriculture, human health, and environmental protection and restoration. Biotechnology enables industries to make new or better products with greater speed, efficiency and flexibility.

We expect that our graduating students will be able to: 1) demonstrate critical thinking by analyzing results generated in the lab, as well as from published papers, that address biological problems at the chemical, cellular, and organismal level; 2) demonstrate in-depth knowledge in Molecular Biosciences through the use of modern instrumentation and computers in support of their projects, including use of available databases for research; and 3) effectively communicate scientific information both in written form and oral presentations to colleagues and lay audiences.

GENETICS AND CELL BIOLOGY

Genetics and cell biology are interdisciplinary sciences that are fundamental to all fields of modern biology. The program affords students the opportunity to study with scientists who represent a wide range of research interests in plant, animal, and microbial genetics and cell biology. Undergraduates who major in genetics and cell biology will be well prepared to work as high-level technicians in the biotechnology industry or in university and government laboratories. An undergraduate degree also prepares students for graduate study and research in biochemistry, biophysics, molecular biology, and many related fields. Students have training opportunities in a wide range of research areas including protein biochemistry, membrane structure and function, molecular biology of gene regulation in animals, plants, and microorganisms, enzymatic reaction mechanisms, signal transduction, DNA repair, reproductive biology, protein-DNA interactions, plant and natural product biochemistry, and structural biology including NMR spectroscopy and x-ray crystallography.

The program offers two curricular options leading to the Bachelor of Science in Biochemistry. The biochemistry/biophysics option provides increased emphasis on chemistry, physics, mathematics, and physical biochemistry, and yields a minor in chemistry. The biochemistry/molecular biology option provides increased emphasis on molecular and cell biology, and yields a minor in molecular biology.

We expect that our graduating students will be able to: 1) demonstrate critical thinking by analyzing results generated in the lab, as well as from published papers, that address biological problems at the chemical, cellular, and organismal level; 2) demonstrate in-depth knowledge in Molecular Biosciences through the use of modern instrumentation and computers in support of their projects, including use of available databases for research; and 3) effectively communicate scientific information both in written form and oral presentations to colleagues and lay audiences.
entry into professional schools related to medicine as well as into graduate school programs leading to the Master's and PhD degrees in a variety of areas in agriculture and basic science. Students who receive Master's and PhD degrees obtain positions in basic and applied genetics at universities, federal departments and laboratories, private industry, including biotechnology and plant and animal breeding, and in specialized medical research.

We expect that our graduating students will be able to: 1) demonstrate critical thinking by analyzing results generated in the lab, as well as from published papers, that address biological problems at the chemical, cellular, and organismal level; 2) demonstrate in-depth knowledge in Molecular Biosciences through the use of modern instrumentation and computers in support of their projects, including use of available databases for research; and 3) effectively communicate scientific information both in written form and oral presentations to colleagues and lay audiences.

**MICROBIOLOGY**

Microbiology is both a basic and an applied science that studies microorganisms and their activities. It is concerned with their form, structure, reproduction, physiology, and identification. It includes the study of their distribution in nature, their relationship to each other and to other living things, their beneficial and detrimental effects on human beings, and the physical and chemical changes they make in their environment. Employment opportunities in industrial, government, hospital, and private laboratories and agencies are excellent for qualified graduates. Areas in which the unit is prepared to direct research include the biology of membranes, bioremediation, molecular genetics, molecular basis of cell-cell interactions and virulence, microbial differentiation, cellular and tumor immunology and the regulation of the immune response.

The Microbiology degree program offers options in general microbiology and medical technology, leading to the Bachelor of Science degree in Microbiology. Requirements for the general microbiology option and for the medical technology option are the same except that Biol majors choose the general microbiology option and for the medical technology option they choose the medical technology option. We expect that our graduating students will be able to: 1) demonstrate critical thinking by analyzing results generated in the lab, as well as from published papers, that address biological problems at the chemical, cellular, and organismal level; 2) demonstrate in-depth knowledge in Molecular Biosciences through the use of modern instrumentation and computers in support of their projects, including use of available databases for research; and 3) effectively communicate scientific information both in written form and oral presentations to colleagues and lay audiences.

**CERTIFICATION REQUIREMENTS:**

A student must meet the following three requirements to be eligible to certify as a SMB major in biochemistry, biotechnology, genetics and cell biology, and microbiology:

1. Complete Biol 106, Biol 107, Chem 105 and Chem 106, or transfer equivalents, with a minimum grade of C.
2. Earn a minimum cumulative GPA of at least 2.50.
3. Earn a minimum of 24 semester hours. Students must maintain a minimum cumulative GPA of 2.50 for all WSU courses to remain certified in a SMB degree program. A certified major who falls below the minimum requirements will be decertified according to Academic Regulation 56.

**GRADUATION REQUIREMENTS:**

A grade of C or better is required in all MBioS courses taken to meet graduation requirements. None of these courses may be taken pass/fail.

### Schedules of Studies

#### BIOCHEMISTRY - BIOCHEMISTRY/BIOPHYSICS OPTION (120 HOURS)

A grade of C or better is required in all MBioS courses taken to meet graduation requirements. None of these courses may be taken pass/fail.

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<th>Hours</th>
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<td>First Term</td>
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<tr>
<td>Chem 105 [P] (GER)</td>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
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<tr>
<td>Math 171 [N] (GER)</td>
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<tr>
<td>Second Term</td>
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<tr>
<td>Biol 106 [B] (GER)</td>
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<tr>
<td>Chem 106 [P] (GER)</td>
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<tr>
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<tr>
<td>Math 172</td>
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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Biol 107 [B] (GER)</td>
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<td>Chem 345</td>
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<td>Chem 346</td>
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<td>Chem 347</td>
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<td>Social Sciences [S,K] (GER)</td>
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<td>Complete Writing Portfolio</td>
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<td>First Term</td>
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<td>Chem 220</td>
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<td>Chem 222</td>
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<tr>
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<td>Second Term</td>
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<td>Communication Proficiency [C,W] (GER)</td>
<td>3</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
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<tr>
<td>MBioS 454 [M]</td>
<td>3</td>
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<tr>
<td>MBioS 465</td>
<td>3</td>
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<tr>
<td>MBioS 305</td>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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<td>MBioS 413</td>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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</table>

1. Science elective: 3 credits from MBioS 401, 404, 478, 498, 499, or Phys 466.

**BIOCHEMISTRY - BIOCHEMISTRY/ MOLECULAR BIOLOGY OPTION (120 HOURS)**

A grade of C or better is required in all MBioS courses taken to meet graduation requirements. None of these courses may be taken pass/fail.

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<td>First Term</td>
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<tr>
<td>Biol 106 [B] (GER)</td>
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<td>Chem 105 [P] (GER)</td>
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<td>Second Term</td>
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<tr>
<td>Biol 107 [B] (GER)</td>
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<td>Chem 106 [P] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Chem 345</td>
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<tr>
<td>MBioS 301</td>
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<td>Phys 101 [P] or 201 [P] (GER)</td>
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<td>Second Term</td>
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<td>Chem 346</td>
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<td>MBioS 303</td>
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<td>Phys 102 [P] or 202 [P] (GER)</td>
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<tr>
<td>Complete Writing Portfolio</td>
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<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<td>Math 172, Stat 212 [N] (GER), or Stat 412</td>
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<td>MBioS 304 [M]</td>
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<td>MBioS 404</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<td>MBioS 305</td>
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<td>MBioS 465</td>
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<td>Science Elective</td>
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<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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</table>
### BIOTECHNOLOGY DEGREE PROGRAM (120 HOURS)

A grade of C or better is required in all MBioS courses taken to meet graduation requirements. None of these courses may be taken pass/fail.

#### First Year

**First Term**
- MBioS 413 3
- MBioS 454 [M] 3
- MBioS 491 3
- Electives 5

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- MBioS 401 3
- MBioS 414 3
- Tier III Course [T] (GER) 3
- Elective 3

1. Pre-med students and those interested in advanced degrees should take Chem 345, 346, and 348 (a one-year course in organic chemistry).
2. 3 hours from MBioS 410, 423, 426, 440, 442, 450, 466, 478, 498, 499.

**Third Year**

**First Term**
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**
- MBioS 304 [M] 3
- MBioS 303 4
- MBioS 301 3
- Math 140 or 171 [N] (GER) 4

**Fourth Year**

**First Term**
- MBioS 454 [M] 3
- Mktg 360 3
- Phil 365 [H] or 370 [H] (GER) 3
- Electives 6

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Lab Elective1 3 or 4
- MBioS 401 3
- MBioS 402, 492, or 496 3
- Tier III Course [T] (GER) 3

1. Pre-med students and those interested in advanced degrees should take Chem 345, 346, and 348 (a one-year course in organic chemistry).
2. Soc 331 is recommended, but not required.

#### GENETICS AND CELL BIOLOGY (120 HOURS)

A grade of C or better is required in all MBioS courses taken to meet graduation requirements. None of these courses may be taken pass/fail.

**First Year**

**First Term**
- MBioS 413 3
- MBioS 454 [M] 3
- MBioS 491 3
- Electives 5

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- MBioS 401 3
- MBioS 414 3
- Tier III Course [T] (GER) 3

**Third Year**

**First Term**
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**
- MBioS 304 [M] 3
- MBioS 303 4
- Phys 101 [P] or 201 [P] (GER) 4

**Third Year**

**First Term**
- Arts & Humanities [H,G] (GER) 3
- MBioS 301 3
- Phys 101 [P] or 201 [P] (GER) 4

**Second Term**
- MBioS 303 4
- MBioS 304 [M] 3
- Phys 102 [P] or 202 [P] (GER) 4
- Social Sciences [S,K] (GER) 3
- Complete Writing Portfolio

**Elective 3

**Fourth Year**

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Social Sciences [S,K] (GER) 3
- Complete Writing Portfolio

**Microbiology and Medical Technology (122 HOURS)

A grade of C or better is required in all MBioS courses taken to meet graduation requirements. None of these courses may be taken pass/fail.

**First Year**

**First Term**
- MBioS 413 3
- MBioS 454 [M] 3
- MBioS 491 3
- Electives 5

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
- Lab Elective1 3 or 4
- MBioS 401 3
- MBioS 402, 492, or 496 3
- Tier III Course [T] (GER) 3

1. Pre-med students and those interested in advanced degrees should take Chem 345, 346, and 348 (a one-year course in organic chemistry).
2. Soc 331 is recommended, but not required.

**Second Year**

**First Term**
- Biol 106 [B] (GER) 4
- Chem 105 [P] (GER) 4
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3

**Second Term**
- MBioS 304 [M] 3
- MBioS 303 4
- Phys 102 [P] or 202 [P] (GER) 4
- Social Sciences [S,K] (GER) 3
- Complete Writing Portfolio

**Third Year**

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Social Sciences [S,K] (GER) 3
- Complete Writing Portfolio
Third Year

**First Term**

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<td>Communication Proficiency [C,W] (GER)</td>
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<td>MBioS 305</td>
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<td>MBioS 306</td>
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**Second Term**

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<tbody>
<tr>
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<td>Lecture Elective</td>
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<tr>
<td>MBioS 410</td>
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<td>MBioS 411</td>
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<td>Elective</td>
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Fourth Year

**First Term**

<table>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Lab Elective</td>
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<tr>
<td>MBioS 404</td>
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<tr>
<td>MBioS 430 [M]</td>
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<td>MBioS 440</td>
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**Second Term**

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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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<tr>
<td>MBioS 401</td>
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<td>MBioS 442</td>
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<tr>
<td>MBioS 496</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
</tr>
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<td>Elective</td>
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</tbody>
</table>

Minors

Biochemistry

A minor in biochemistry requires 20 hours including Chem 345, 346, MBioS 303, 304, 413; MBioS 414 or 465. A grade of C or better is required in all courses used in the minor. None of these courses may be taken pass/fail. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Genetics and Cell Biology

A minor in genetics and cell biology requires 16 hours under the genetics and cell biology degree program at the 300-400-level, including MBioS 301 and 401. Additional credits may be selected from Biol 325, MBioS 402, 404, 423, 425, 426, 427, 478. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A grade of C or better is required in all course work for the minor.

Microbiology

A minor in microbiology requires a minimum of 17 credit hours including MBioS 305 and 306, and the remaining at the 300-400-level selected from: MBioS 342, 410, 411, 426, 430, 440, 442, 444, 445, 446, 448, 450, 454, 498, 499. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A grade of C or better is required in all course work for the minor.

Molecular Biology

A minor in molecular biology requires 20 hours including the following courses: MBioS 301, 303, 305, 401; MBioS 304, 402, or 454; MBioS 404, 413, or 426. A grade of C or better is required in all course work for the minor. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. A student whose major is in the School of Molecular Biosciences cannot be granted a minor in molecular biology.

Pre-Genetic Counseling

A minor in pre-genetic counseling requires 19 - 23 hours including MBioS 301, 423, Phil 365, Psych 321, 440 or 444, 445, one of Math 360, Psych 311, Stat 212, or 412. A grade of C or better is required in all course work for the minor. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

**MOLECULAR BIO SCIENCES**

MBioS

101 [B] Introductory Microbiology 4 (3-3)

Microbiology for the informed citizen as it impacts humans and their environment. Not for students who have taken Biol 106 and 107. Credit not granted for both MBioS 101 and MBioS 102/105.

130 (FSHN 0) [B] Nutrition for Living 3

Information related to the interaction of nutrients in the body and factors that govern nutrient requirements.

210 Your Future in Life Sciences 2 Same as Sci 210, S, F grading.

233 (FSHN 0) Human Nutrition 3

Rec biology or chemistry course; or Biol 251 or 315. Applying principles of chemistry, biology, and physiology to the study of nutrition emphasizing nutrient functions, nutrient requirements and impact of diet on health and disease.

301 General Genetics 4 Prereq Biol 106 and 107; two semesters Chem. Principles of modern and classical genetics. Credit not normally granted for MBioS 301/Biol 301 and Biol 408.


304 [M] Introductory Biochemistry Laboratory 3 (1-6) Prereq MBioS 303 or c//. Basic biochemical techniques.

305 General Microbiology 3 Prereq Biol 106 and 107; Chem 345 or c//. Structure, function, nutrition, physiology, and genetics of microbes and their application to immunology, pathology, microbial diversity, and environmental microbiology.

306 General Microbiology Laboratory 2 (0-6) Prereq MBioS 305 or c//. Laboratory for MBioS 305.

320 [B] DNA and Society 3 Prereq one college-level course in biology. The role of DNA in natural processes and diseases; impact of biotechnology on health care, agriculture, industry, and our lives.

342 Microbial Ecology 3 Prereq Biol 106; Chem 345 or c//. Discussion of microorganism behavior in nature and microbial activities influence on ecological balance.

360 [M] Cell and Molecular Laboratory 2 (0-6) Prereq MBioS 301; MBioS 303 or c//; one semester organic chemistry. Laboratory methods in cell biology, genetics and molecular biology.

401 Cell Biology 3 Prereq MBioS 301; MBioS 303. Cellular structure and function; membrane biochemistry and transport; cell-cell communication; regulation of cell cycle and apoptosis; cell signaling; cancer biology.

402 [M] General Genetics Laboratory 3 (1-6) Prereq MBioS 301. Basic principles of modern and classical genetics utilizing several species.

404 Molecular Genetics 3 Prereq MBioS 301; MBioS 303 or c//; MBioS 303. Introduction of prokaryotic and eukaryotic genome organization and gene expression, modern molecular techniques, experimental approaches, genome and gene function and analyses.

410 Medical Microbiology 3 Prereq MBioS 305; MBioS 306; MBioS 404 or c//. Microbial pathogens and their relationship to disease.

411 Diagnostic Medical Bacteriology 2 (0-6) Prereq MBioS 410 or c//. Techniques and tests for the identification of bacteria pathogenic for humans.

413 General Biochemistry 3 Prereq MBioS 303; junior standing. Structure and function of proteins, nucleic acids and biological membranes; principles of enzymology; biochemical methodology.

414 General Biochemistry 3 Prereq MBioS 413. Metabolism of carbohydrates, proteins, fats, bioenergetics; photosynthesis; control of metabolic processes.

423 Human Genetics 3 Prereq MBioS 301. Exploration of individual and population genetics leading to critical discussion of current social, medical, and scientific issues.

426 Microbial Genetics 3 Prereq MBioS 301; 303. Genetics of bacteria, bacteriophages and plasmids; regulation of gene expression; genetic manipulation of microorganisms.
430 [M] Combined Immunology and Virology Laboratory 3 (1-6) Prereq MBioS 305; MBioS 306; c// MBioS 440 or 442. Fundamental principles in immunology including the cultivation and characterization of viruses using laboratory techniques.

440 Immunology 3 Prereq MBioS 302; organic chemistry. Principles of basic immunology. Credit not granted for both MBioS 440 and 450.

442 General Virology 3 Prereq MBioS 301; MBioS 303 or c//. The biology of bacterial, animal, and plant viruses. Credit not granted for both MBioS 442 and 542. Cooperative course taught by WSU, open to UI students (BACT 130).

446 Epidemiology 3 Prereq junior standing. Study of diseases in human populations; concepts of etiology, disease rates, susceptibility and risk factors, screening for disease, and prevention. Cooperative course taught by WSU, open to UI students (MMBB 420).

450 Microbial Physiology 3 Prereq MBioS 303; MBioS 305 and 306. Basic microbial physiology and its relevance to the processes of applied microbiology. Credit not granted for both MBioS 450 and 550.


465 Principles of Biophysical Chemistry 3 Prereq MBioS 303; Math 140 or 171; Phys 102 or 202. Biochemical reactions and processes, molecular recognition, coupled reactions, enzyme catalysis, analysis of macromolecular structure by electrophoresis, sedimentation, viscosity, and spectroscopy.

466 Physical Biochemistry 3 Prereq MBioS 465, Math 172, Phys 202. Techniques for the study of biological structure and function; spectroscopy, magnetic resonance, diffusion, sedimentation, electron microscopy, diffraction and scattering. Credit not granted for both 466 and 566.


490 Special Topics in Molecular Biology V 1-2 May be repeated for credit; cumulative maximum 6 hours. Prereq senior standing. Current topics discussed by experts in the field.

494 Senior Project in Molecular Biosciences 1 Prereq certified major in SMB; senior standing. Written paper and seminar presentation on laboratory research project.

495 Internship Training V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq by permission only. Experience in work related to specific career interests. S, F grading.

498 Directed Research V 1-4 May be repeated for credit; cumulative maximum 100 hours. Introduction to laboratory research; requires written report and oral presentation.

499 Special Problems V 1-4 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

501 Cell Biology 3 Prereq MBioS 301, 303, or graduate standing. Graduate-level counterpart of MBioS 401; additional requirements. Credit not granted for both MBioS 401 and 501. Cooperative course taught by WSU, open to UI students (GENET530).

503 Molecular Biology I 3 Prereq MBioS 301, 303, or graduate standing. DNA replication and recombination in prokaryotes and eukaryotes; recombinant DNA methods and host/ vector systems; genome analysis; transgenic organisms.

504 Molecular Biology II 3 Prereq MBioS 301, 303, or graduate standing. Gene expression and regulation in prokaryotes and eukaryotes, including transcription, RNA processing, and translation; chromatin structure; DNA repair.

513 General Biochemistry I 3 Prereq MBioS 303, graduate standing. Graduate-level counterpart of MBioS 413; additional requirements. Credit not granted for both 413 and 513.

514 General Biochemistry II 3 Prereq MBioS 413, or graduate standing. Graduate-level counterpart of MBioS 414; additional requirements. Credit not granted for both 414 and 514. Cooperative course taught by WSU, open to UI students (MMBB 542).

523 Fundamentals of Oncology 3 Prereq MBioS 513. Same as P/T 572.

528 Molecular and Cellular Reproduction 3 (2-2) State of the art concepts of the molecular, cellular, and physiological aspects of mammalian reproduction. Cooperative course taught by WSU, open to UI students (BIOL 559).

529 Selected Topics in Cell Biology 1 Prereq MBioS 401 or c// MBioS 501. Selected topics in cell biology using current literature.

540 Immunology 3 Prereq MBioS 302; organic chemistry or graduate standing. Graduate-level counterpart of MBioS 440; additional requirements. Credit not granted for both MBioS 440 and 540. Cooperative course taught by WSU, open to UI students (MMBB 512).

541 Research Seminar 1 May be repeated for credit. Literature reviews and research reports.

542 General Virology 3 Prereq MBioS 301, 303 or c//; organic chemistry or graduate standing. Graduate-level counterpart of MBioS 442; additional requirements. Credit not granted for both MBioS 442 and 542.

548 Selected Topics in Immunology & Virology 1 May be repeated for credit. Prereq MBioS 440, 442, 540, 542, or c//. Selected topics in immunology and virology using the current literature. May be repeated for credit; cumulative maximum 2 hours.

549 Seminar in Immunology 1 May be repeated for credit; cumulative maximum 2 hours. Prereq MBioS 440 or graduate standing. Seminar series on advances in immunology. May be repeated for credit; cumulative maximum 2 hours.

550 Microbial Physiology 3 Prereq MBioS 303, MBioS 305 and 306, or graduate standing. Graduate-level counterpart of MBioS 450; additional requirements. Credit not granted for both MBioS 450 and 550.

561 Biochemical Signaling in Plants, Animals and Microorganisms 3 Prereq MBioS 513. New research on intra and extra cellular biochemical signaling, including communication in plants and hormone action in animals.

566 Physical Biochemistry 3 Prereq MBioS 465; Math 172; Phys 202; graduate standing. Graduate-level counterpart of MBioS 466; additional requirements. Credit not granted for both 466 and 566.

568 Advanced Topics in Molecular Biosciences V 1-3 May be repeated for credit. Prereq MBioS 513 or c//. Recent research in selected areas of biochemistry.

574 Protein Biotechnology 3 Prereq MBioS 513 or c//. Biotechnology related to the isolation, modification and large scale commercial production, patenting and marketing of useful recombinant proteins and products.

578 Bioinformatics 3 (2-3) Prereq MBioS 301, 303, or Cpt S 355; graduate standing. Graduate-level counterpart of MBioS 478; additional requirements. Credit not granted for both 478 and 578.

579 Molecular Biosciences Seminar V 1-2 May be repeated for credit; cumulative maximum 10 hours. Required of all graduate students in molecular biosciences. May be repeated for credit; cumulative maximum 10 hours.

593 Research Proposal 2 May be repeated for credit; cumulative maximum 4 hours. Written and oral presentation of an area in molecular biosciences. May be repeated for credit; cumulative maximum 4 hours.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Program in Molecular Plant Sciences

www.molecularplantwsu.edu

324 French Administration Bldg.
509-335-1716

Course requirements are drawn from existing courses offered by MPS and cooperating departments and programs. In addition, a seminar is held weekly during each semester.

Description of Courses

MOLECULAR PLANT SCIENCES

MPS

515 Seminar in Molecular Plant Sciences 1 May be repeated for credit; cumulative maximum 4 hours. A cross-discipline seminar, including botany, crop and soils sciences, horticulture, plant pathology, and molecular plant sciences.

561 Biochemical Signaling 2 Prereq MBioS 513. Same as MBioS 561.

570 Advanced Topics in Molecular Plant Sciences 1 May be repeated for credit; cumulative maximum 4 hours. Written and oral presentation of an area of molecular plant sciences.

587 Advanced Topics in Plant Biochemistry 3 Prereq MBioS 514; introductory botany. Same as MBioS 571.

600 Special Projects or Independent Study V 1-18 May be repeated for credit; S, F grading.

700 Master's Research, Dissertation and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation and/or Examination V 1-18 May be repeated for credit. S, F grading.

School of Music

http://libarts.wsu.edu/music
Kimbrough 260
509-335-3898

Professor and Director of the School of Music , G. Berthiaume; Professors, D. Jarvis, E. Lear, G. Yasinskiy; Associate Professors, M. Arksy, D. Turnbull, J. Wieck, L. West; Assistant Professors, R. Boden, K. Hare, K. McCarthy, J. Savage; Clinical Assistant Professor, D. Hower, S. Converse, R. Pond, K. Savage, A. Yasinskiy; Instructors, J. Brummett, D. Hagelganz, K. Hollingsworth, H. Jarvis, R. Kriehn, M. Mielke, C. Merva Robblee, T. Robblee, J. Schneider, S. Scott, D. Snider, A. Sternfeld-Dunn.

The School of Music prepares students for careers in music with degrees in music education, performance, composition and interdisciplinary studies. The School promotes a lifelong passion for music in its students by developing their scholarly, intellectual, creative and technical abilities. Essential to fulfilling this mission is our understanding that each facet of the study of music culminates in the performance and creation of music.

The focal emphases are supported by studies in musicianship including performing, listening, history, theory, composition and teaching. We value:
• conceptual understanding of musical components and processes
• continued practice in creating, interpreting, presenting, analyzing, and evaluating music
• increasing understanding of various musical cultures and historical periods
• acquiring capacities to integrate musical knowledge and skills
• accumulating capabilities for independent work in the music professions

Performance Studies in Music

Performance studies are offered on several levels to meet the needs of music majors as well as those of students from the general university community. There are no additional fees or tuition charges for the use of practice facilities. The 100-level performance studies are open to any student without audition through class instruction. The 200-level denotes group or private instruction for advanced non-music majors by special permission of the department chair (audition required).

Individual instruction in performance studies is offered at the 300- and 400-level for music majors and, by special permission of the department chair, to advanced non-music majors who meet all requirements for music majors as listed below. All students enrolled in 200-400-level performance instruction are required to attend weekly convocation (student recital), attend recitals as required, participate in at least one approved music department ensemble, and take applied jury examinations at the end of each term. A small tuition charge is assessed per 200-400-level course, not dependent on total credits. Students enrolled in 300- and 400-level performance study must enroll in a music theory or music history course each semester until music core requirements have been completed. No student will be permitted to enroll in 300-400-level performance studies unless these criteria are met. In addition, each music major must pass the piano proficiency exam, as a precondition to upper-division standing.

Performance studies may not be taken on a pass-fail basis.

Bachelor of Arts

This program is designed to offer a broad musical understanding within a liberal arts background. We expect that our graduating students be able to:
1) demonstrate mastery of music theory (an understanding of organizational patterns of music and their interaction, and of musical forms and structures and the ability to employ this understanding in aural, verbal, and visual analyses); 2) competently perform on an instrument of choice (including voice) and effectively communicate on the literature for that instrument and for appropriate ensembles, and demonstrate a basic performance proficiency on the piano; 3) critically evaluate the history and development of music through the present time and place music in historical, cultural and stylistic contexts; 4) comprehend the basics of non-Western music and/or jazz, and demonstrate a rudimentary capacity to create derivative or original music both extemporaneously and in written form; and 5) work independently on a variety of musical problems by combining their capabilities in performance, analysis, composition and improvisation, and history and repertory.

209
Bachelor of Music

This program offers majors for specialization in performance, composition and music education as well as options for professional music preparation in combination with other fields. The curriculum is designed to prepare students as professional musicians, teachers, and practitioners of music. We expect that our graduating students be able to: 1) demonstrate mastery of music theory (an understanding of organizational patterns of music and their interaction, and of musical forms and structures and the ability to employ this understanding in aural, verbal, and visual analyses); 2) competently perform on an instrument of choice (including voice) and effectively communicate on the literature for that instrument and for appropriate ensembles, and demonstrate a basic performance proficiency on the piano; 3) critically evaluate the history and development of music through the present time and place music in historical, cultural and stylistic contexts; 4) comprehend the basics of non-Western music and/or jazz, and demonstrate a rudimentary capacity to create derivative or original music both extemporaneously and in written form; and 5) work independently on a variety of musical problems by combining their capabilities in performance, analysis, composition and improvisation, and history and repertory.

Music Performance

This major offers professional preparation in music with specialization in performance. The curriculum is designed to prepare students to become professional performers in their respective major instrument or voice. Students following options in performance or composition are required to present an acceptable senior recital in the major performance medium (composition for composition majors). Students following options in performance are also required to present an acceptable junior recital in the major performance medium.

Music Education

This program offers professional preparation in music with specialization in music education. The curriculum is designed to prepare students as professional teachers of music. Students following any of the music education or elective studies options are required to present an acceptable senior half recital in the major performance medium. Students following any of the music education options must have a minimum gpa of 2.5 in all of the following areas: cumulative gpa, Professional Education Core with a C or better in each course, and academic major (and minor if any) with a C or better in each course. Students certifying as majors in any of the music education options must also certify as majors in the College of Education.

Master of Arts in Music

Please consult the current WSU Graduate Study Bulletin. For students pursuing the combined BM/MA with teacher certification in Music, please consult the department.

SCHEDULE OF STUDIES

Normal progress in all music degree curricula requires enrollment during the freshman year in 300-level performance studies. Such enrollment requires an audition which is best completed during the semester (usually spring) prior to the student’s matriculating in the university. Students who do not audith early must do so during the first week of classes in the term. Normal progress also assumes placement in 200-level music theory. Theory placement tests will be administered as part of the performance audition. Students who do not qualify for 300-level performance studies and 200-level theory studies as freshmen will usually require more semesters and credit hours of performance studies to complete a degree than listed in this schedule of studies.

To certify as a major pursuing any degree in music, students must meet the following criteria: 1. Completion of 24 semester hours; cumulative gpa of 2.0; completion of 10 hours with a cumulative gpa of 2.0 and a grade of C or better in those courses selected: Mus 151, 152, 181, 182, 251, 252, 253, 254, and up to four credits of applied study; approval of the appropriate applied study area coordinator; 2. Approval requires two semesters’ study as specified by each area: Keyboard at 300 level with grade of B- or better, Brass and Percussion at 300 level with grade of B- or better, Woodwinds at 300 level with grade of B- or better, and Voice at 200 level with grade of B- or better; completion of application available from department. Students not passing the upper-division exam after the second attempt will be decertified as music majors. In addition the College of Education requires 2.5 gpa and C or better in each course listed for the major, minor and professional core, plus a 2.5 cumulative gpa, of students certifying in any of the Bachelor of Music in Music Education curricula. As indicated in the requirements listed under the various majors and options for the Bachelor of Music degree and the Bachelor of Arts degree in Music, each student must satisfactorily complete all music courses with a minimum 2.5 gpa and a grade of C or better in each music course. Each student is required to pass the piano proficiency exam and the junior and/or senior qualifying exam, with the exception of those students enrolled in the Bachelor of Arts degree (the B.A. degree requires completion of MUS 182 with a C or better). Students must also complete the General Education Requirements plus those for the College of Liberal Arts.

Bachelor of Arts in Music

120 Hours

This four-year program is designed to meet the needs of students wishing a broad liberal arts background with a major in music. Of the total 120 credits required for a degree in this program, 70 credits are devoted to courses outside music, including the General Education Requirements. Non-music courses other than those used for the GERs must be at the 200-level or above. 40 credits of the 120 required for the degree must be in 300-400-level. Music credits beyond the required 50 credits in music add to the number of credits required in the degree. Other requirements include: C or better in all music courses; 2.5 music average; senior qualifying exam; piano proficiency exam or grade of C or better in Mus 182.

First Year

First Term Hours
Engl 101 [W] (GER) 3
Mus 1811 0 or 1
Mus 2512 3
Mus 2522 1
Mus Ensemble3 1
Mus Private Lessons 2

Second Term Hours
Biological Sciences [B] (GER) 4
GenEd 110 [A] (GER) 3
Mus 1822 0 or 1
Mus 2534 3
Mus 2544 1
Mus Ensemble3 1
Mus Private Lessons 2

Second Year

First Term Hours
Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Math Proficiency [N] (GER) 3
Mus 3512 3
Mus 3522 1
Mus Ensemble3 1
Mus Private Lessons 2

Second Term Hours
Mus 3532 3
Mus 3542 1
Mus 3594 3
Mus Ensemble3 1
Mus Private Lessons 2

Third Year

First Term Hours
200-400-level Non-Music Electives 6
Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
Mus 360 [M]4 3
Mus Ensemble3 1

Second Term Hours
200-400-level Non-Music Electives 6
Mus 361 [M]4 3
Mus 453 2
Mus Ensemble3 1
Phil 101 [H] (GER) 3

Fourth Year

First Term Hours
200-400-level Non-Music Elective 8
300-400-level Music Elective 4
Social Sciences [S,K] (GER) 3

Second Term Hours
200-400-level Non-Music Electives 8
300-400-level Music Elective 5
Tier III Course [T] (GER) 3

1 Class piano credits not required in degree.
2 Fall only.
3 Chosen from Mus 428-444.
4 Spring only.
5 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
BACHELOR OF MUSIC - BUSINESS OPTION

This four-year program is designed to meet the needs of students wishing professional preparation in music combined with studies in business. Students select one of several minors offered in the College of Business.

Certification of the minor requires prior certification in music. Other requirements include a C or better in all music courses; 2.5 music average; upper-division exam; piano proficiency exam. At least 42 of the hours required for this degree must be 300-400-level courses.

Students following this option are required to present an acceptable senior half recital in the major performance medium.

Students must pass the piano proficiency exam, pass the senior qualifying exam, achieve a 2.5 gpa and a grade of C or better in all music classes. The 3 credits of 300-400-level music electives may not be in music private lessons or ensembles. Class piano credits are not required for the degree. The College of Business and Economics offers several minors. Criteria for certification of a minor include completion of 60 credits and meeting other criteria set by the College of Business and Economics. Some business and economics minors require only 16 credits; this number has been used in calculating the degree credit total. Where a minor requires additional credits, either students may use elective hours or must complete additional credits for the degree. In order to take 300-400-level courses in the College of Business and Economics, the student must be certified in her/his major and have completed at least 60 credits.

First Year

First Term

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<th>Hours</th>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Mus 181(^1)</td>
<td>0 or 1</td>
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<tr>
<td>Mus 251(^2)</td>
<td>3</td>
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<td>Mus 252(^1)</td>
<td>2</td>
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<tr>
<td>Mus Ensemble 428-444</td>
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<tr>
<td>Mus Private Lessons</td>
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Second Term

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<tbody>
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<td>ComSt 102 [C] (GER)</td>
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<tr>
<td>Mus 254(^2)</td>
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Second Year

First Term

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Second Term

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Third Year

First Term

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<td>Mus 359(^1)</td>
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Second Term

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<td>Business Minor Course</td>
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<tr>
<td>Mus 361 [M](^4)</td>
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<tr>
<td>Mus 428 or 435</td>
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<td>Mus Private Lessons</td>
<td>2</td>
</tr>
<tr>
<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>Secondary Applied or Mus 487</td>
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Fourth Year

First Term

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Business Minor Courses</td>
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</tr>
<tr>
<td>Mus Ensemble 428-444</td>
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<tr>
<td>Mus Private Lessons</td>
<td>2</td>
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Second Term

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Mus 470(^5)</td>
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<tr>
<td>Mus Ensemble 428-444</td>
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<tr>
<td>Mus Private Lessons, 400-level</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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<tr>
<td>Electives</td>
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<tr>
<td>Senior Recital</td>
<td></td>
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</tbody>
</table>

\(^1\) Class piano credits not required for degree.

\(^2\) Fall only.

\(^3\) Spring only.

\(^4\) Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,L] requirement.

\(^5\) Spring only.

BACHELOR OF MUSIC - ELECTRICAL ENGINEERING AND COMPUTER SCIENCE OPTION

This four-year program is designed to meet the needs of students wishing professional preparation in music combined with studies in electrical engineering and computer science.

Students select one of several minors offered by the School of Electrical Engineering and Computer Science. Certification in the minor requires prior certification in all music courses; 2.5 music average; senior qualifying exam; piano proficiency exam.

Students following this option are required to present an acceptable senior half recital in the major performance medium. At least 42 of the hours required for this degree must be 300-400-level courses.

Students must pass the proficiency exam, achieve a 2.5 gpa and a grade of C or better in all music courses. The three credits of 300-400-level music electives may not be in music private lessons or ensembles. Class piano credits are not required for the degree. The School of Electrical Engineering and Computer Science offers several minors. Criteria for certification of a minor includes completion of 60 credits and meeting other criteria, such as appropriate math placement. Of the four minors available, three require 16 credits and one requires 20 credits. However, all require math courses not listed in the minor itself but necessary as prerequisites to other courses. Consultation with the School of Electrical Engineering and Computer Science will provide students with details concerning math and physics. Students may use elective credits for additional math and other prerequisites.

First Year

First Term

<table>
<thead>
<tr>
<th>Course</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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</tr>
<tr>
<td>Math 107 (if necessary)</td>
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<tr>
<td>Mus 181(^1)</td>
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<tr>
<td>Mus 251(^2)</td>
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<td>Mus 252(^2)</td>
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<td>Mus Private Lessons</td>
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Second Term

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<td>ComSt 102 [C] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
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<td>Math [N] (GER)</td>
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<td>Mus 182(^1)</td>
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<td>Mus 253(^1)</td>
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<tr>
<td>Mus 254(^1)</td>
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<tr>
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<td>Mus Private Lessons</td>
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Second Year

First Term

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<tr>
<td>Cpt S 121 or 251</td>
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<td>Mus 182 or 281(^1)</td>
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<td>Mus 351(^1)</td>
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<td>Mus 352(^2)</td>
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<td>Mus Ensemble 428-444</td>
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<td>Mus Private Lessons</td>
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<tr>
<td>Science (GER)</td>
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<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
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<td>Electives</td>
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Second Term

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<tbody>
<tr>
<td>EE/Cpt S minor course</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Mus 353(^1)</td>
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<tr>
<td>Mus 354(^1)</td>
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<td>Mus 359(^1)</td>
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Third Year

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<td>Arts &amp; Humanities [H,G] (GER)</td>
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<td>Mus 257 or 258(^2)</td>
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<td>Mus 360(^3)</td>
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<td>Mus ensemble 428-444</td>
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<td>Mus Private Lessons</td>
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<td>Physical Sciences [P] (GER)</td>
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Second Term

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<td>E E or Cpt S Minor Course</td>
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<td>Mus 361(^3)</td>
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Music

First Term

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<td>Mus Ensemble 428-444</td>
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<th>Hours</th>
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Second Term

<table>
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<th>Hours</th>
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First Term

<table>
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<th>Subject</th>
<th>Hours</th>
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Second Term

<table>
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<th>Hours</th>
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First Term

<table>
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Second Term
### First Term

<table>
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<tr>
<th>Course</th>
<th>Hours</th>
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<tr>
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<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Mus 181</td>
<td>0 or 1</td>
</tr>
<tr>
<td>Mus 251</td>
<td>3</td>
</tr>
<tr>
<td>Mus 252</td>
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<td>Mus Ensemble</td>
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<td>Mus Private Lessons</td>
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### Second Term

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<td>Mus 456</td>
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<tr>
<td>Mus 482</td>
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<tr>
<td>Mus Ensemble (music elective)</td>
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</tr>
<tr>
<td>Mus Private Lessons</td>
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<tr>
<td>Music Electives</td>
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### Third Term

<table>
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<th>Course</th>
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<tbody>
<tr>
<td>GenEd 110 [A] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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<tr>
<td>Mus 182</td>
<td>0 or 1</td>
</tr>
<tr>
<td>Mus 253</td>
<td>3</td>
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<tr>
<td>Mus 254</td>
<td>1</td>
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<td>Mus Ensemble</td>
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<td>Mus Private Lessons</td>
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<tr>
<td>T &amp; L 300</td>
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### Fourth Year

<table>
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<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Engl 201 [W] (GER)</td>
<td>3</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Mus 181</td>
<td>0 or 1</td>
</tr>
<tr>
<td>Mus 251</td>
<td>3</td>
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<tr>
<td>Mus 252</td>
<td>1</td>
</tr>
<tr>
<td>Mus Ensemble</td>
<td>1</td>
</tr>
<tr>
<td>Mus Private Lessons</td>
<td>2</td>
</tr>
<tr>
<td>Psych 105 [S] (GER)</td>
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</tr>
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### Fifth Year

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Mus 182</td>
<td>0 or 1</td>
</tr>
<tr>
<td>Mus 253</td>
<td>3</td>
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<tr>
<td>Mus 254</td>
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</table>

### Music Education - Broad Endorsement Option (152 Hours)

Students following any teacher preparation option are required to present an acceptable senior half recital in the major performance medium.

Students following any teacher preparation option must have a minimum gpa of 2.5 in all of the following areas: cumulative gpa, Professional Education Core with a C or better in each course, and academic major (and minor if any) with a C or better in each course. Students must also certify as majors in the College of Education.

Students must pass the Piano Proficiency Exam, pass the senior qualifying exam, achieve a cumulative 2.5 gpa and a grade of C or better in all music classes, and a 2.5 gpa and a grade of C or better in all College of Education Professional Core courses. Class piano credits are not required for the degree. Instrumentalists must complete 4 credits in vocal performance studies (private lessons and/or ensemble) and vocalists must complete 4 credits of instrumental performance studies.

This option provides teacher certification in designated arts: music (choral and general). Requirements include: C or better in all music and education courses; 2.5 music average; 2.5 education average; 2.5 overall average; senior qualifying exam, piano proficiency, solo half-recital. Approved performing groups: a minimum of 1 hour during each of 7 semesters, to include at least one semester of Mus 428 for instrumentalists and 428 for vocalists. Include a minimum of 2 hours in choral and 2 hours in instrumental performing groups.

### First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
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</tr>
<tr>
<td>Mus 181</td>
<td>0 or 1</td>
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<tr>
<td>Mus Ensemble</td>
<td>1</td>
</tr>
<tr>
<td>Mus Private Lessons</td>
<td>2</td>
</tr>
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</table>

### Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Psych 105 [S] (GER)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Endorsement Option (145 Hours) Students following any teacher preparation option are required to present an acceptable senior half recital in the major performance medium.

Students following any teacher preparation option must have a minimum gpa of 2.5 in all of the following areas: cumulative gpa, Professional Education Core with a C or better in each course, and academic major (and minor if any) with a C or better in each course. Students must also certify as majors in the College of Education.

Students must pass the Piano Proficiency Exam, pass the senior qualifying exam, achieve a cumulative 2.5 gpa and a grade of C or better in all music classes, and a 2.5 gpa and a grade of C or better in all College of Education Professional Core courses. Class piano credits are not required for the degree. Vocalists must complete 4 credits of vocal performance studies.

This option provides teacher certification in designated arts: music (choral and general). Requirements include: C or better in all music and education courses; 2.5 music average; 2.5 education average; 2.5 overall average; senior qualifying exam, piano proficiency, solo half-recital. Approved performing groups: a minimum of 1 hour during each of 7 semesters, to include at least one semester of Mus 428 for vocalists.

### First Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Mus 181</td>
<td>0 or 1</td>
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<td>Mus 252</td>
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<td>Mus Ensemble</td>
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<tr>
<td>Mus Private Lessons</td>
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<td>Psych 105 [S] (GER)</td>
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### Second Term

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 201 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>Mus 182</td>
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<td>Mus 253</td>
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<td>Mus 254</td>
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<td>Mus Ensemble</td>
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1. Class piano credits not required in degree.
2. Spring only.
3. Fall only.
4. Spring, alternate years only.
5. T & L 328 required for degree; Mus 455 required.
6. Music

---
### Music Education - Instrumental/General Endorsement Option (145 Hours)

Students following any teacher preparation option are required to present an acceptable senior half recital in the major performance medium.

Students following any teacher preparation option must have a minimum GPA of 2.5 in all of the following areas: cumulative GPA, Professional Education Core with a C or better in each course, and academic major (and minor if any) with a C or better in each course. Students must also certify as majors in the College of Education.

Students must pass the Piano Proficiency Exam, pass the senior qualifying exam, achieve a cumulative 2.5 GPA and a grade of C or better in all music classes, and a 2.5 GPA and a grade of C or better in all College of Education Professional Core courses. Class piano credits are not required for the degree. Instrumentalists must complete 4 credits in instrumental performance studies (private lessons and/or ensemble).

This option provides teacher certification in designated areas: Music (instrumental and general). Requirements include: C or better in all music and education courses; 2.5 music average; 2.5 education average; 2.5 overall average; 4 credits instrumental performance; senior qualifying exam, piano proficiency, solo half-recital. Approved performing groups: a minimum of 1 hour during each of 7 semesters, to include at least one semester of Music 435 for instrumentalists.

### Third Year

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<tr>
<th>Term</th>
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<td></td>
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<td></td>
<td>Science Elective [B,P,Q] (GER) 4</td>
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<td></td>
<td></td>
<td>T &amp; L 465</td>
</tr>
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<td>1. Music Senior Qualifying Exam</td>
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<td>2. May Field Experience</td>
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<td></td>
<td></td>
<td>Mus Private Lessons</td>
</tr>
<tr>
<td></td>
<td></td>
<td>T &amp; L 317</td>
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<td>T &amp; L 466</td>
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<td></td>
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<td>Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.</td>
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<td>T &amp; L 328 required for degree; Mus 455 required.</td>
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### Fourth Year

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<td>T &amp; L 317</td>
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<td></td>
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<td>T &amp; L 466</td>
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<tr>
<td>Second Term</td>
<td></td>
<td>Mus 353</td>
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<td></td>
<td>Mus Private Lessons</td>
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<tr>
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<td>T &amp; L 317</td>
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<td>May Field Experience</td>
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<td></td>
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<td>Certify Major, Certify T &amp; L</td>
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<td>T &amp; L 466</td>
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<td>T &amp; L 460</td>
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<td>Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.</td>
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</tr>
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<td></td>
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<td>Spring, alternate years only.</td>
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1. Class piano credits not required in degree.
2. Fall only.
3. Spring only.
5. Fall, alternate year only.
6. Spring, alternate years only.
### Music Education - Without Teaching Certificate Option (123 Hours)

Students following any teacher preparation option are required to present an acceptable senior half recital in the major performance medium.

Students following any teacher preparation option must have a minimum GPA of 2.5 in all of the following areas: cumulative GPA, Professional Education Core with a C or better in each course, and academic major (and minor if any) with a C or better in each course. Students must also certify as majors in the College of Education. Since this option is likely to lead to enrollment in the MA in Music, students are advised that admission to graduate study requires a 3.0 cumulative GPA.

Students must pass the Piano Proficiency Exam, pass the senior qualifying exam, achieve a cumulative 2.5 GPA and a grade of C or better in all music classes, and a 2.5 GPA and a grade of C or better in all College of Education Professional Core courses. Class piano credits are not required for the degree. Instrumentalists must complete 4 credits in vocal performance studies (private lessons and/or ensemble) and vocalists must complete 4 credits of instrumental performance studies.

This option provides teacher certification in designated arts: Music (choral, instrumental, and general). Requirements include: C or better in all music and education courses; 2.5 music average; 2.5 education average; 2.5 overall average; 4 credits vocal performance for instrumentalists; 4 credits instrumental performance for vocalists; upper-division exam, piano proficiency, solo half-recital. Approved performing groups: a minimum of 1 hour during each of 7 semesters, to include at least one semester of Mus 435 for instrumentalists and 428 for vocalists. Include a minimum of 2 hours in choral and 2 hours in instrumental performing groups.

This option provides professional preparation in music combined with studies in education. Students may complete teacher certification requirements after completion of this degree through further enrollment as undergraduate second degree candidates, enrollment as post-baccalaureate non-degree students, or as graduate students, each of which requires application for admission. Students planning to seek admission and enroll as graduate students should, at the beginning of their last semester of undergraduate study, complete the necessary form to count selected courses in the final undergraduate semester toward the graduate degree, up to a maximum of 6 credits.

#### First Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Mus 181(^1)</td>
<td>0 or 1</td>
</tr>
<tr>
<td>Mus 251(^2)</td>
<td>3</td>
</tr>
<tr>
<td>Mus 580 or Electives</td>
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</tr>
<tr>
<td>Mus Ensemble 428-444</td>
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</tr>
<tr>
<td>Mus Private Lessons</td>
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</tr>
<tr>
<td>Psych 105 [S] (GER)</td>
<td>3</td>
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<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
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<tbody>
<tr>
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</tr>
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<td>Mus 182(^2)</td>
<td>0 or 1</td>
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<tr>
<td>Mus 253(^3)</td>
<td>3</td>
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</tbody>
</table>

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\(^1\) Class piano credits not required in degree.  
\(^2\) Fall only.  
\(^3\) Spring only.

### Second Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mus 182(^1)</td>
<td>1</td>
</tr>
<tr>
<td>Mus 251(^2)</td>
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<td>Mus 253(^3)</td>
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</table>

<table>
<thead>
<tr>
<th>Second Term</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mus 252(^1)</td>
<td>1</td>
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<td>Mus 254(^4)</td>
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<tr>
<td>Mus Ensemble 428-444</td>
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<td>Mus Private Lessons</td>
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</tr>
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### Third Year

<table>
<thead>
<tr>
<th>First Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Mus 258(^5)</td>
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<tr>
<td>Mus 360 [M](^6)</td>
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<td>Mus 455(^7)</td>
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<tr>
<td>Mus Private Lessons</td>
<td>2</td>
</tr>
<tr>
<td>T &amp; L 464</td>
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<tbody>
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<tr>
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<td>Physical Science [P] (GER)</td>
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### Fourth Year

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<td>Mus 455</td>
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<tr>
<td>Mus 580 or Electives</td>
<td>3</td>
</tr>
<tr>
<td>Mus Endorsement Electives</td>
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<tr>
<td>Mus Ensemble (Choral)</td>
<td>1</td>
</tr>
<tr>
<td>Mus Private Lessons (400-level, Sr. Recital)</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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<table>
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<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Mus Endorsement Electives</td>
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</tbody>
</table>

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\(^4\) Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.  
\(^5\) T & L 328 required for degree; Mus 455 required.

### Music Performance - Brass, Percussion, Strings, Winds Option (130 Hours)

Requirements include: junior and senior qualifying exams; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; junior and senior recitals.

#### First Year

<table>
<thead>
<tr>
<th>First Term</th>
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<tbody>
<tr>
<td>Engl 101 [W] (GER)</td>
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<tr>
<td>Mus 181(^1)</td>
<td>0 or 1</td>
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<tr>
<td>Mus 251(^2)</td>
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<tr>
<td>Mus 252(^3)</td>
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<tr>
<td>Mus Ensemble(^1)</td>
<td>1</td>
</tr>
<tr>
<td>Mus Private Lessons</td>
<td>4</td>
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<tr>
<td>Science Elective (GER)</td>
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<th>Hours</th>
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<tbody>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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<tr>
<td>GenEd 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Mus 182(^1)</td>
<td>0 or 1</td>
</tr>
<tr>
<td>Mus 253(^3)</td>
<td>3</td>
</tr>
<tr>
<td>Mus 254(^3)</td>
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<tr>
<td>Mus Ensemble(^1)</td>
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<tr>
<td>Mus Private Lessons</td>
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#### Second Year

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<th>First Term</th>
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<tbody>
<tr>
<td>Communication Proficiency [C,W] (GER)</td>
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<tr>
<td>GenEd 110 [A] (GER)</td>
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</tr>
<tr>
<td>Mus 351(^1)</td>
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<tr>
<td>Mus 352(^2)</td>
<td>1</td>
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<td>Mus Ensemble(^1)</td>
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<td>Mus Private Lessons</td>
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<td>Mus 353(^2)</td>
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<td>Mus 354(^2)</td>
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<td>Mus 359(^3)</td>
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<td>Mus Private Lessons</td>
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<tr>
<td>Secondary Instrument or Mus 487</td>
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<td>Complete Writing Portfolio</td>
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#### Third Year

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<tr>
<td>Mus Endorsement Electives</td>
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<tr>
<td>Mus Private Lessons (400-level, Sr. Recital)</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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<th>Second Term</th>
<th>Hours</th>
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<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] or Social Sciences [S,K] (GER)</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<tr>
<td>Mus Endorsement Electives</td>
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\(^1\) Class piano credits not required in degree.  
\(^2\) Fall only.  
\(^3\) Spring only.

### GenEd 110 [A] (GER) 3

<table>
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<td>Mus Private Lessons (400-level, Sr. Recital)</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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<td>Mus Ensemble (Choral)</td>
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<tr>
<td>Mus Private Lessons</td>
<td>4</td>
</tr>
<tr>
<td>Secondary Instrument or Mus 487</td>
<td>2</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
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</table>
MUSIC PERFORMANCE - FLUTE, PERCUSSION, SAXOPHONE, STRING BASS, TRUMPET, AND VOICE (JAZZ STUDIES) (127 HOURS)

This option with an emphasis in jazz is available to students whose major instruments are flute, percussion, saxophone, string bass, trumpet, or voice.

Requirements include: junior and senior qualifying exams; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; half and full recitals.

**First Year**

**First Term**
- Applied: 4
- Mus 101 [W] (GER): 3
- Mus 251: 3
- Mus 252: 3
- Mus Ensemble 428-444: 1
- Science Elective (GER): 4

**Second Term**
- Applied: 4
- Arts & Humanities [H,G]: 3
- GenEd 110 [A] (GER): 3
- Mus 181: 0-1
- Mus 253: 1
- Mus 254: 1
- Mus Ensemble 428-444: 1

**Second Year**

**First Term**
- Applied: 4
- Communication Proficiency [C,W] (GER): 3
- GenEd 111 [A] (GER): 3
- Mus 182: 0-1
- Mus 251: 1
- Mus 252: 1
- Mus 441: 1
- Mus Private Lessons: 4
- Science Elective (GER): 4

**Second Term**
- Applied: 4
- Biological Sciences [B] (GER): 4
- GenEd 110 [A] (GER): 3
- Mus 253: 3
- Mus 254: 1
- Mus Private Lessons: 4

**Third Year**

**First Term**
- Applied: 4
- Biological Sciences [B] (GER): 4
- Intercultural Studies [I,G,K] (GER): 3
- Mus 360 [M]: 3
- Mus 361 [M]: 3
- Mus 458: 2
- Mus 481: 1
- Mus Ensemble 428-444: 1
- Secondary Instrument or Mus 465: 2

**Second Term**
- Applied: 4
- Arts & Humanities [H,G]: 3
- Intercultural Studies [I,G,K] (GER): 3
- Mus 360 [M]: 3
- Mus 361 [M]: 3
- Mus 441: 1
- Mus 498: 2
- Physical Sciences [P] (GER): 4
- Complete Writing Portfolio: 3

**Fourth Year**

**First Term**
- Applied: 4
- Biological Sciences [B] (GER): 4
- Intercultural Studies [I,G,K] (GER): 3
- Mus 182: 0
- Mus 253: 3
- Mus 254: 3
- Mus Ensemble 428-444: 1
- Physical Sciences [P] (GER): 4
- Tier III Course [T] (GER): 3

**Second Term**
- Applied: 4
- Arts & Humanities [H,G]: 3
- Intercultural Studies [I,G,K] (GER): 3
- Mus 361 [M]: 3
- Mus 435: 1
- Mus 463: 2
- Mus Private Lessons: 4

**MUSIC PERFORMANCE - KEYBOARD OPTION (127 HOURS)**

Requirements include: Accompany a junior, senior, or graduate recital; piano proficiency exam; junior and senior qualifying exams; junior recital; senior recital; 2.5 average in all music courses; C or better in all music courses.

**First Year**

**First Term**
- Applied: 4
- English 101 [W] (GER): 3
- Mus 182: 0
- Mus 253: 3
- Mus 351: 2
- Mus 352: 3
- Mus Private Lessons: 4
- Science Elective (GER): 4

**Second Term**
- Applied: 4
- Biological Sciences [B] (GER): 4
- GenEd 110 [A] (GER): 3
- Mus 253: 3
- Mus 254: 1
- Mus Private Lessons: 4
- Tier III Course [T] (GER): 3

1 Class piano credits not required.
2 Fall only.
3 Chosen from Mus 428-444.
4 Courses are taught alternate years.
5 Spring only.
6 One credit of pedagogy is required in respective area: woodwind (392), Percussion (393) or Brass (394).

Fall, alternate year only.

Fall, alternate year only.

Fall, alternate year only.

Fall, alternate year only.

Fall, alternate year only.

Fall, alternate year only.

Fall, alternate year only.

Fall, alternate year only.
MUSIC PERFORMANCE - KEYBOARD WITH ELECTIVE STUDIES IN PEDAGOGY OPTION (129 HOURS)

Requirements include: Accompany a junior, senior, or graduate recital; piano proficiency exam; junior and senior qualifying exams; junior recital; senior recital; 2.5 average in all music courses; C or better in all music courses.

First Year

**First Term**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tr>
<td>Mus 252</td>
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<td>1</td>
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<tr>
<td>Mus 441</td>
<td></td>
<td>1</td>
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<tr>
<td>Mus Private Lessons</td>
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<td>Science Elective (GER)</td>
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**Second Term**

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<td>1</td>
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<tr>
<td>Mus 453</td>
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<td>2</td>
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<td>Mus 492</td>
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<td>Mus Private Lessons</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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<tr>
<td>Electives</td>
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</table>

1 Fall only.
2 Spring only.
3 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
4 Courses are taught alternate years.
5 Spring, alternate years only.

**MUSIC PERFORMANCE - VOICE OPTION (130 HOURS)**

Requirements include: junior and senior qualifying exams; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; junior and senior recitals.

First Year

**First Term**

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<tr>
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<th>Hours</th>
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<td>Mus 251</td>
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<td>3</td>
</tr>
<tr>
<td>Mus 252</td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Mus Ensemble</td>
<td></td>
<td>1</td>
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<tr>
<td>Mus Private Lessons</td>
<td></td>
<td>4</td>
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<tr>
<td>Science Elective (GER)</td>
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**Second Term**

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<th>Course Title</th>
<th>Hours</th>
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<tr>
<td>GenEd 110</td>
<td>[A] (GER)</td>
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<td>Mus 351</td>
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<td>3</td>
</tr>
<tr>
<td>Mus 352</td>
<td></td>
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<tr>
<td>Mus 441</td>
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<td>1</td>
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<tr>
<td>Mus Private Lessons</td>
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**Third Year**

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<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
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<td>[M]</td>
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<td>Mus 435</td>
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<td>Mus 498</td>
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<td>Mus Private Lessons</td>
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**Fourth Year**

**First Term**

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<td>Physical Sciences</td>
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<tr>
<td>Social Science</td>
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**Second Term**

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<td>Mus 453</td>
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<tr>
<td>Tier III Course [T] (GER)</td>
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</tr>
<tr>
<td>Electives</td>
<td></td>
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</table>

1 Fall only.
2 Spring only.
3 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
4 Courses are taught alternate years.
5 Spring, alternate years only.

**MUSIC PERFORMANCE - VOICE OPTION** (130 HOURS)

Requirements include: junior and senior qualifying exams; piano proficiency exam; 2.5 average in all music courses; C or better in all music courses; junior and senior recitals.

First Year

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<thead>
<tr>
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<tbody>
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<td>Mus 252</td>
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<tr>
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<tbody>
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<td>[A] (GER)</td>
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<td>Mus 352</td>
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<tr>
<td>Mus 441</td>
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<td>Mus Private Lessons</td>
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<tr>
<td>Psych 105</td>
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<td>[M]</td>
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<td>Mus 498</td>
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<tr>
<td>Mus Private Lessons</td>
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<tr>
<td>Physical Sciences</td>
<td>[P] (GER)</td>
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</table>

**Fourth Year**

**First Term**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>EdPsy 361/490, T &amp; L</td>
<td>301</td>
<td>3</td>
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<tr>
<td>Mus 441</td>
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<td>1</td>
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<tr>
<td>Mus 451</td>
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<td>Mus 465</td>
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<tr>
<td>Mus 360</td>
<td>[M]</td>
<td>3</td>
</tr>
</tbody>
</table>

Electives and Tier III Courses

1 Class piano credits not required.
2 Fall only.
3 Chosen from Mus 428-444.
4 Spring only.
5 Fall, alternate year only.
6 Spring, alternate years only.
7 Mus 360 and 361 fulfill the College of Liberal Arts [H,G,S,K,I] requirement.
8 Courses are taught alternate years.

**Minors**

**Jazz Studies**

Required courses: Mus 257, 258, 362, 457, 458, and one 3-credit Mus course; four credits from 438, 439, 440. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Music Minor and Supporting Teaching Endorsements**

Choose one of the following options: Option 1 includes Mus 151 or 152 and 2 credits from Mus 181, 182, 281 or 2 credits from Mus 102, 202, 302. Option 2 includes Mus 251 and 252. Both options also include Mus 160 or 161, and one course from Mus 265, 262, Mus 163, 263, 262 or Theat 367; 4 credits of performance studies, 4 credits performing groups; and 4 credits 300-400-level music electives. Also available are supporting teaching endorsements in music for students whose primary teaching endorsements are in other majors. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.
Description of Courses

MUSIC

Mus
102 Piano 2 (0-6) May be repeated for credit.
103 Voice 2 (0-6) May be repeated for credit.
151 Music Fundamentals I 3 Notation and performance of music fundamentals: pitch, rhythm, scales, key signatures, and intervals.
152 Music Fundamentals II 3 Prereq Mus 151. Notation and performance of music fundamentals: melody, rhythm, scales, intervals, key signatures, triads; preparatory for Mus 251.
153 [H] Musical Style in Composition 3 Introduction to musical style in composition, history, and analysis including theory fundamentals, history survey, and beginning composition.
160 [H] Survey of Music Literature 3 Exploration of predominantly western music through demonstrations, performances, lectures, concerts, and discussions.
181 Class Piano I 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. For music majors/minors and elementary education majors only. By audition only. Pedal, sight reading, transposition, playing by ear, chord progressions, melody, and improvisation.
182 Class Piano II 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. By audition only. Continuation of Mus 181. Scales, arpeggios, blocked and broken chords; repertoire to complement individual skills, theoretical knowledge and improvisation.
201 Organ 2 (0-6) May be repeated for credit.
202 Piano 2 (0-6) May be repeated for credit.
203 Voice 2 (0-6) May be repeated for credit. Prereq c// in Mus 431, 432, or by interview only.
204 Horn 2 (0-6) May be repeated for credit.
205 Trumpet 2 (0-6) May be repeated for credit.
206 Trombone 2 (0-6) May be repeated for credit.
207 Baritone 2 (0-6) May be repeated for credit.
208 Tuba 2 (0-6) May be repeated for credit.
209 Percussion 2 (0-6) May be repeated for credit.
210 Violin 2 (0-6) May be repeated for credit.
211 Viola 2 (0-6) May be repeated for credit.
212 Violoncello 2 (0-6) May be repeated for credit.
213 Contrabass 2 (0-6) May be repeated for credit.
214 Flute 2 (0-6) May be repeated for credit.
215 Oboe 2 (0-6) May be repeated for credit.
216 Clarinet 2 (0-6) May be repeated for credit.
217 Bassoon 2 (0-6) May be repeated for credit.
218 Saxophone 2 (0-6) May be repeated for credit.
219 Harp 2 (0-6) May be repeated for credit.
220 English horn 2 (0-6) May be repeated for credit.
221 Timpani 2 (0-6) May be repeated for credit.
222 Afternoon Workshop 1-15 May be repeated for credit.
223 Guitar 1 (0-3) Prereq Mus 151. Notation and performance of music fundamentals: pitch, rhythm, scales, key signatures, triads; preparatory for Mus 251.
251 Materials and Structures of Music I 3 By examination. Overtones, melody, rhythm, intervals, tonality, modality, penta-scales, two-voiced counterpoint, analytical techniques, composition.
252 Applied Theory I 1 (0-3) By examination. Ear training, conducting, rhythmic reading, sight reading, keyboard, dictation.
253 Materials and Structures of Music II 3 Prereq Mus 251, 252. Writing; analysis of three- and four-voiced homophonic and contrapuntal music, diatonic emphasis, seventh chords, modulation.
254 Applied Theory II 1 (0-3) Prereq c// in Mus 253. Ear training, sight singing, keyboard.
256 Seminar in Composition 1 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 353 or c//. By interview only. Original writings in small forms.
257 Jazz Theory 2 Introduction to jazz theory; chord symbols, extended harmony; scales and modes, voicing, bass lines and substitutions.
258 Introduction to Jazz Improvisation 2 May be repeated for credit; cumulative maximum 4 hours. Introduction to jazz improvisation.
262 [H] Rock Music: History and Social Analysis 3 History and analysis of rock music related to its African American origins, its societal role, and its diverse development and impact.
275 Special Topics: Study Abroad 1-15 May be repeated for credit; cumulative maximum 100 hours. 5, F grading.
281 Class Piano III 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq Mus 182. By audition only. Principles, functional keyboard and improvisation.
301 Organ 2 (0-6) or 4 (0-12) May be repeated for credit.
302 Piano 2 (0-6) or 4 (0-12) May be repeated for credit.
303 Voice 2 (0-6) or 4 (0-12) May be repeated for credit. Prereq c// in Mus 431, 432, or by interview only.
304 French Horn 2 (0-6) or 4 (0-12) May be repeated for credit.
305 Trumpet 2 (0-6) or 4 (0-12) May be repeated for credit. 2 (0-6)
306 Trombone 2 (0-6) or 4 (0-12) May be repeated for credit.
307 Baritone 2 (0-6) or 4 (0-12) May be repeated for credit.
308 Tuba 2 (0-6) or 4 (0-12) May be repeated for credit.
309 Percussion 2 (0-6) or 4 (0-12) May be repeated for credit.
310 Violin 2 (0-6) or 4 (0-12) May be repeated for credit.
311 Viola 2 (0-6) or 4 (0-12) May be repeated for credit.
312 Violoncello 2 (0-6) or 4 (0-12) May be repeated for credit.
313 Contrabass 2 (0-6) or 4 (0-12) May be repeated for credit.
314 Flute 2 (0-6) or 4 (0-12) May be repeated for credit.
315 Oboe 2 (0-6) or 4 (0-12) May be repeated for credit.
316 Clarinet 2 (0-6) or 4 (0-12) May be repeated for credit.
317 Bassoon 2 (0-6) or 4 (0-12) May be repeated for credit.
318 Saxophone 2 (0-6) or 4 (0-12) May be repeated for credit.
319 Secondary Performance Study 2 (0-4) May be repeated for credit; cumulative maximum 16 hours. Prereq certified music major. Instruction on instruments or voice other than major performing medium.
351 Materials and Structures of Music III 3 Prereq Mus 253, 254. Vertical, linear and formal relationships of chromatic music; writing, analysis, coordinated with aural study.
352 Applied Theory III 1 (0-3) Prereq Mus 254. Continued musical development in ear training, sight singing, applied theory, keyboard dictation.
353 Materials and Structures of Music IV 3 Prereq Mus 351. Vertical, linear and formal relationships of 20th century music; writing, analysis, listening.
354 Applied Theory IV 1 (0-3) Prereq Mus 352. Continued development in ear training, sight singing, keyboard and dictation, emphasizing 20th century music.
359 [M] History of Music: Antiquity to 1650 3 Mus 251; Mus 252; Engl 101. Development and change in the musical culture from antiquity to 1650.
360 [M] History of Music: 1650 - 1850 3 Prereq Mus 253; Mus 252; Mus 359; Engl 101. Development and change in musical culture from 1650 to 1850.
361 [M] History of Music: 1850 - Present 3 Prereq Mus 251; Mus 252; Mus 360; Engl 101. Development and change in musical culture from 1850 to the present.
362 [H,D] History of Jazz 3 History of jazz in chronological sequence; social and political contexts of the African-American origins of jazz; stylistic developments.
364 Introduction to Sound Recording Technology 3 Music, audio and recording technology throughout history and its influence on society and culture.
371 Diction for Singers 1 Italian and English; International Phonetic Alphabet; fundamental diction principles, applied to each language and oriented to needs of the singer.
428 Opera Workshop 1 (0-4) May be repeated for credit. By audition only. Public performance may be required.

431 Concert Choir 1 (0-4) May be repeated for credit. By audition only. Public performances each semester.

432 University Singers 1 (0-4) May be repeated for credit. Public performance may be required.

433 Vocal Ensembles 1 (0-4) May be repeated for credit. By audition only. Public performance may be required.

434 Symphony Orchestra 1 (0-4) May be repeated for credit. By audition only. By audition only. Orchestral literature and public performance each semester.

435 Chamber Ensembles 1 (0-4) May be repeated for credit. By audition only. Public performance may be required.

436 Symphonic Band 1 (0-4) May be repeated for credit. By audition only. Public performances.

437 Wind Symphony 1 (0-4) May be repeated for credit. By audition only. Public performances each semester.

438 Jazz-Lab Band 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances each semester.

439 Vocal Jazz Ensemble 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances each semester.

440 Jazz Combos 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Public performances each semester.

441 Accompanying 1 (0-4) May be repeated for credit. By audition only.

444 Marching Band/Varsity Band 1 (0-4) May be repeated for credit. By audition only.

451 Seminar in Counterpoint 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 351 or c//. Contrapuntal techniques of the 16th and 18th century with original stylistic writing.

452 Electronic Music 2 (1-3) Prereq Mus 353 or c//. Introduction to computer-controlled digital, analog, and sampling synthesis; topics include sequencing, waveform editing, and creative projects.

453 Form and Analysis 2 Prereq Mus 353 or c//. Organization of musical works according to the relationships in sectional divisions, thematic divisions, and tonal bases.

455 Seminar in Instrumentation 2 May be repeated for credit. Prereq Mus 351 or c//. Scoring for various instrumental combinations.

456 Seminar in Advanced Composition V 1-3 May be repeated for credit. Prereq upper-level composition review. Original writing in small and large forms (traditional and experimental).

457 Seminar in Jazz Arranging/Composition 2 Prereq Mus 257. Arranging and composing for instrumental jazz ensembles.

458 Advanced Jazz Improvisation 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Mus 258. Advanced concepts in jazz improvisation.
493 Wind and Percussion Techniques I 2 (0-6) Prereq Mus 481. Brass, woodwind, and percussion techniques for music education majors.

494 Wind and Percussion Techniques II 2 (0-6) Prereq Mus 493. Brass, woodwind and percussion techniques; elementary instrument conducting for music education majors.

496 Topics in Music V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq permission of program coordinator. Advanced seminar with required projects in music history, literature, pedagogy, theory, composition or performance. Credit not granted for both MUS 496 and 596.

497 Directed Student Teaching in Music V 4-16 Prereq make application and pay certification fees; complete all other coursework for the degree and teacher certificate; receive fingerprinting clearance from Washington state Patrol, FBI and Office of Professional Practices; maintain 2.5 gpa overall and in endorsement area and professional core courses. Placement by interview only at approved sites. Supervised teaching in public schools, including seminars reflecting on effective teaching. S, F grading.

498 Piano Pedagogy Practicum 2 May be repeated for credit; cumulative maximum 6 hours. Prereq applied piano study. Piano Pedagogy Practicum 2 Supervised teaching in Piano Preparatory Lab School, including lesson planning and meetings with coordinator for critiques and suggestions. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Organ 2(0-6) or 4(0-12)

502 Piano 2(0-6) or 4(0-12) May be repeated for credit.

503 Voice 2(0-6) or 4(0-12) May be repeated for credit. Prereq c// in Mus 431, 432, or by interview only.

504 French Horn 2(0-6) or 4(0-12) May be repeated for credit.

505 Trumpet 2(0-6) or 4(0-12) May be repeated for credit.

506 Trombone 2(0-6) or 4(0-12) May be repeated for credit.

507 Baritone 2(0-6) or 4(0-12) May be repeated for credit.

508 Tuba 2(0-6) or 4(0-12) May be repeated for credit.

509 Percussion 2(0-6) or 4(0-12) May be repeated for credit.

510 Violin 2(0-6) or 4(0-12) May be repeated for credit.

511 Viola 2(0-6) or 4(0-12) May be repeated for credit.

512 Violoncello 2(0-6) or 4(0-12) May be repeated for credit.

513 Contrabass 2(0-6) or 4(0-12) May be repeated for credit.

514 Flute 2(0-6) or 4(0-12) May be repeated for credit.

515 Oboe 2(0-6) or 4(0-12) May be repeated for credit.

516 Clarinet 2(0-6) or 4(0-12) May be repeated for credit.

517 Bassoon 2(0-6) or 4(0-12) May be repeated for credit.

518 Saxophone 2(0-6) or 4(0-12) May be repeated for credit.

519 Secondary Performance Study 1 or 2 May be repeated for credit; cumulative maximum 6 hours. Prereq bachelor's degree in music. Instruction on instruments or voice other than major performing medium.

522 Graduate Recital 2 May be repeated for credit; cumulative maximum 4 hours. Private screening and public performance as required within each performance emphasis.

528 Opera Workshop 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Graduate-level counterpart of Mus 428; additional requirements.

531 Concert Choir 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Graduate-level counterpart of Mus 431; additional requirements.

532 Vocal Ensembles 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Graduate-level counterpart of Mus 433; additional requirements.

534 Symphony Orchestra 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Graduate-level counterpart of Mus 434; additional requirements.

535 Chamber Ensembles 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Graduate-level counterpart of Mus 435; additional requirements.

537 Wind Symphony 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 437; additional requirements.

538 Jazz-Lab Band 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Graduate-level counterpart of Mus 438; additional requirements.

539 Vocal Jazz Ensemble 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Graduate-level counterpart of Mus 439; additional requirements.

540 Jazz Combos 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. By audition only. Graduate-level counterpart of Mus 440; additional requirements.

541 Accompanying 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Graduate-level counterpart of Mus 441; additional requirements.

542 Conducting 1 (0-4) May be repeated for credit; cumulative maximum 8 hours. Prereq senior or graduate standing. Applications of analytical techniques to develop a basis for musical understanding and interpretation.

543 Seminar in Music Theory 2 May be repeated for credit; cumulative maximum 4 hours. Prereq senior or graduate standing.

556 Graduate Seminar in Advanced Composition V 2-3 May be repeated for credit; cumulative maximum 10 hours. Prereq by interview only. The creation of works for either traditional acoustic ensembles or electro-acoustic media.

559 Seminar in Advanced Jazz Composition V 1-3 May be repeated for credit; cumulative maximum 12 hours. Prereq Mus 457 or permission. Graduate-level counterpart of Mus 459; additional requirements. Credit not granted for both Mus 459 and 559.

560 Introduction to Graduate Studies in Music 2 Prereq senior or graduate standing. Required of all graduate students in music. Basic bibliographic and research techniques; written presentations related to area of emphasis.

561 Seminar in Literature of 20th Century Music 2 Prereq senior or graduate standing. Impressionism, expressionism, neoclassicism, neoromanticism, jazz and recent electronic music.

562 Symphonic Literature 2 Symphony orchestra and symphonic form from its beginning to modern times studied from the score.

565 Seminar in Major Performance Literature 2 May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of MUS 465; additional requirements. Credit not granted for both MUS 465 and 565.

566 Seminar in Music History 2 May be repeated for credit; cumulative maximum 6 hours. Prereq senior or graduate standing. Various historic periods and composers.

575 Advanced Conducting 2 or 3 May be repeated for credit. By audition only. Rehearsing orchestras, bands, and choruses. Public performance may be required.

580 Instrumental Music Education 3 Graduate counterpart of Mus 480; additional requirements. Credit not granted for both Mus 480 and 580.

586 Seminar in Piano Pedagogy 2 Prereq Mus 502 or c//. Materials and methods of teaching experiences.

588 Choral Methods and Materials I 2 (0-6) Prereq senior or graduate standing. Preparation in the administration of choral programs from auditions to the selection and rehearsal of choral literature.

589 Choral Methods and Materials II 2 Prereq Mus 588. Graduate-level counterpart of Mus 489; additional requirements.

590 General Music/Materials/Methods 4 (3-2) Prereq senior or graduate standing. Graduate-level counterpart of Mus 490; additional requirements. Credit not granted for both Mus 490 and 590.

591 Vocal Pedagogy 2 (1-2) Prereq graduate standing. Graduate-level counterpart of Mus 491; additional requirements. Credit not granted for both Mus 491 and 591.

596 Topics in Music V 1-3 May be repeated for credit; cumulative maximum 6 hours. Permission of the program coordinator. Graduate counterpart of MUS 496; additional requirements.
Department of Natural Resource Sciences

natural-resources.wsu.edu
Johnson Hall 115
509-335-6166

Professor and Chair, K. A. Blatner; Professors, M. S. Carroll, C. T. Robbins; Associate Professors, L. H. Harlesey, R. C. Moore, R. D. Sayler, L. A. Shipley, R. B. Wielgus, B. A. Zamora; Assistant Professor, M. Swanson; Adjunct Faculty: R. Everett, W. J. Foreyt, C. Grue, G. Kuhn, Lemnkuhl, M. McClure, G VanBlaricom; Professors Emeriti, D. M. Baumgartner, J. H. Buhaly, R. C. Chapman, C. J. Goebel, D. P. Hanley, A. Noskowiak, D. Satterland, J. R. Nelson, R. L. Shew.

Natural resources are the ultimate basis for much of the environmental quality, social well being and economic status in the State of Washington and the world. Issues and concerns surrounding natural resources are of extraordinary importance as society strives to both sustain and balance the various ecological, socioeconomic and aesthetic values provided by natural resources and ecosystems. Given these facts, the mission of the Department of Natural Resource Sciences at WSU is to advance and impart knowledge of ecosystems and natural resources, including their attributes and functions; their ecological and societal values; and their management in an ecologically, socially and economically sound, sustainable manner.

Our programs reflect and integrate the breadth of disciplines and professions comprising the Natural Resource Sciences. Wildlife Ecology is represented in the department, plus contributing biophysical and social sciences. Our programs also demonstrate departmental dedication to positive working/learning environments that reflect and foster valuing, understanding and respect of human diversity in the broadest sense.

We expect our graduates will (1) have the educational background to recognize and appreciate the broad economic, sociological and ecological issues and the implications of proposed actions; (2) have the professional education that enables them to recognize problems, develop and evaluate alternative actions; (3) have the ability in unfamiliar situations to recognize problems, formulate and evaluate alternatives using established scientific philosophy/methodology; (4) recognize the need for continued personal and professional development; (5) be able to communicate effectively to a variety of audiences; (6) have an appreciation of the scientific and historic pressures that have contributed to today’s attitudes and status of natural resources; and (7) have an appreciation of the basic stewardship ethic that is inherent in the natural resource professions. In addition to its traditional focus on undergraduate and graduate education the department is focused on basic and applied research, and extension and continuing education. The research, extension, and continuing education programs promote the responsible stewardship of Washington’s natural resources (sustained supply of natural resources such as fiber, and other products and values that promote the quality of life of Washington rural and urban populations).

There are a variety of career options such as work with state/federal land management or regulatory agencies, municipal or county government, public interest groups, natural resource industries, private land management, the consulting industry, and research/development in either the private or public sectors. Graduates may work as foresters, wildlife biologists, information specialists, game managers, consultants, and researchers in a variety of roles in developing countries. In addition, with further education our graduates are involved in environmental education in grade schools and high schools, in the legal profession, and in natural resource law enforcement.

The structure of the undergraduate curriculum is such that it is very feasible (with some additional time) to pursue either dual natural resource majors or a major in one field and minor in another natural resource field. The department offers disciplinary minors in forestry and wildlife available to all students, plus a general natural resource minor available to non-natural resource majors. Student chapters of professional societies (Society of American Foresters and The Wildlife Society) provide out of class opportunities for students to interact with each other socially and professionally with the faculty and other professionals. Faculty contacts with many of the employing organizations and interaction with career services on campus help students obtain summer and permanent employment, as well as internship and cooperative education opportunities in their chosen field.

Facilities such as the department’s undergraduate project laboratory; various teaching and research laboratories; bear research facility; animal holding facilities, greenhouses and grasslands/woodlands at the E.H. Steffen Center; the Hudson Biological Reserve at Smoot Hill; the Kramer/Palouse Natural Area; the Ownbey Herbarium; and the 12,000-acre Colocum multiple-use area provide students with access to the facilities and technologies needed to develop competence in their chosen professions. These facilities and the close proximity of natural forest, rangeland and aquatic ecosystems to the Pullman campus provide significant opportunities for field and experiential learning to natural resource science students.

majors in Natural Resource Sciences

Students pursuing the BS in Natural Resource Sciences must major in two of these areas: Wildlife Ecology or Natural Resources. All majors share a set of basic science and General Education Requirements and a core of natural resource courses. The Natural Resource Core is composed of a broad spectrum of courses designed to expose students to a variety of natural resource disciplines, concepts and philosophies. It contains coursework in the areas of measurements, social and economic dimensions of natural resources, natural resource ecology, plant identification and ecology, wildlife ecology/management, and natural resource planning. In addition, each major has a core of courses designed to meet the requirements of the discipline and/or professional area. Each major also includes options which enable students to further specialize their education.

All courses that are department requirements must be taken for a letter grade, including those identified as their respective options. If courses are taken that are above those required, they may be taken pass/fail as an exception with approval by the department chair.

Natural Resource Major

The Natural Resource Major is offered for students interested in biological, physical or socioeconomic aspects of natural sciences that either extend beyond traditional disciplinary boundaries or which represent areas of specialization not encompassed by our other majors. This is the most flexible of our majors, offering exceptional opportunities for tailoring (in consultation with academic advisors) of courses/curricula to match individual student interests and needs within the realm of natural resource sciences.

In addition to university GERs, basic science courses and the natural resource common core, students complete a major core composed of a limited number of courses in the areas of soil science, conservation biology, ecology and social sciences. Based upon area of primary interest and in addition to the major core, each student also will complete an option composed of approved elective courses. Options are designed to provide specialization in specific areas of natural resource sciences, such as natural resource policy/social science, wetland/aquatic resources, and directed studies which provides students working with their advisors to select courses that focus upon an aspect of natural resource sciences not represented by the other options. Lists of approved electives for each of these options are available from the department.

Wildlife Ecology Major

The wildlife ecology major provides students with a basic background in the sciences plus additional courses emphasizing the management and scientific aspects of wildlife ecology. Students are therefore prepared to pursue a variety of careers focusing upon either/biomedical development or wildlife management. The core requirements plus proper selection of approved wildlife electives may allow majors to meet the US Office of Personnel Management requirements for wildlife biologist, wildlife refuge manager, general biologist, and zoo manager. Through judicious use of electives a student can also meet additional civil service requirements for fish biologist and range conservationist. Wildlife students can further individualize and often enhance their professional credentials by minoring in another subject such as criminal justice, computer science, or forestry. Students with a primary interest in veterinary sciences and wildlife may jointly pursue their interests via the pre-vet school option.

In addition to university GERs, basic science courses and the natural resource common core, students in this major complete a core of wildlife classes emphasizing wildlife ecology, management, nutrition, population ecology, and conservation biology. Opportunities for specialization and pursuit of individual student interests beyond the wildlife core are provided through completing either the pre-vet school option, or a directed studies option wherein students may select approved electives in the areas of habitat ecology, aquatic ecology, animal ecology and conservation biology.
Pre-Vet Option in Wildlife Ecology
The pre-veterinary bachelor’s program in natural resource sciences (NRS) with a major in wildlife ecology offers students the opportunity to combine an interest in individual animal health with the challenge of managing wild animal populations and environments. The curriculum provides a background in chemistry through introductory biochemistry, genetics and cell biology and introductory courses in physics and the quantitative sciences. The natural resource core curriculum and the wildlife ecology curriculum provide a basic foundation for the management of wildlife species and their environment. Elective courses in ornithology, mammalogy, toxicology, reptiles and amphibians and fisheries provide students with the ability to focus their attention on selected biological topics. The NRS program provides students with the necessary academic background and GPA to be academically competitive in obtaining admission to the Veterinary program at the completion of the junior or senior year.

Natural Resource Sciences Honors Students
The Honors College and the Natural Resource science curricula provide students with an opportunity to acquire an exceptional breadth of knowledge and technical skills. The oral and written skills, in particular, provide graduates of the Honors College and the Natural Resource sciences with the communication skills that are highly prized in the public and private sector. The synergism of knowledge associated with the Honors and the Natural Resource sciences curricula provides students not only with the ability to view natural resource problems in the context of social and historic processes, but also to seek technical solutions that may be socially and culturally compatible in the modern world.

Transfer Students
Transfer students should plan to complete the basic required courses in English composition, chemistry, speech, biological sciences, mathematics, microeconomics, social sciences, and arts and humanities by the end of their sophomore year. Students may be granted credit for equivalent technical courses taken at other academic institutions. Refer to WSU Transfer Guides for Community Colleges, available through the web, for details. It is suggested that students planning on transferring contact the department regarding priority of transfer courses.

Graduate Programs
Graduate programs provide students not only with an increased knowledge of the scientific basis of their profession but also with a more complete understanding of the holistic nature of successful natural resource management and science. The department offers the MS in Natural Resource Sciences (thesis-based). The department in conjunction with the environmental science and regional planning program offers a PhD in Environmental and Natural Resource Sciences. Under the broad rubric of each graduate degree, students may specialize in a variety of technical, physical or social science aspects of natural resources by virtue of either/both advanced coursework or graduate research. Graduate curricular requirements are flexible; hence, students with preceding education in both natural resource and related fields are encouraged to apply. To be accepted to graduate study in natural resource sciences, applicants must (1) meet the Graduate School’s minimum admission requirements, (2) complete the department’s supplemental application form, (3) have at least one member of the department’s faculty willing to serve as the student’s major advisor. Students interested in graduate study in natural resource sciences should consult the WSU Graduate Bulletin and directly contact the department for further information on opportunities and requirements.

Schedules of Studies

NATURAL RESOURCE MAJOR (120 HOURS)

Two options are designed to provide specialization in specific areas of natural resource sciences and include natural resource policy and wetland/aquatic resources. Lists of approved electives for each of these options are available from the department. A third option, directed studies, allows students working with their advisors to select courses that either increase their general knowledge of natural resources, or focus upon an aspect of natural resource sciences not represented by the other two options.

First Year

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<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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<tr>
<td>First Term</td>
<td></td>
<td>Biol 106 [B] (GER) 4</td>
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<td>Engl 101 [W] (GER) 3</td>
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<td>Math 107 4</td>
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<td>NATRS 100 1</td>
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<td>Second Term</td>
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<td>Biol 107 [B] or 120 [B] (GER) 4</td>
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<td>Chem 101 or 105 [P] (GER) 4</td>
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<td>Engl 201 [W], H D 205 [C], or ComSt 102 [C] (GER) 4</td>
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WILDLIFE ECOLOGY - DIRECTED STUDIES OPTION (120 HOURS)

This directed studies option allows students to select approved electives in the areas of habitat ecology, aquatic ecology, animal ecology and conservation biology.

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¹ Students in consultation with their advisors select 11-14 hours of course work for the option requirement. To facilitate selection the department/advisors have developed course lists for the most widely chosen areas of emphasis which may include minors. In addition to the option courses each student is required to choose two animal systematics courses from: Biol 412, 423, 428, 432, or Entom 343.

² Restricted Math electives include: Math 140, 171, 202, and Stat 212. Math 140 is the preferred elective.

### WILDLIFE ECOLOGY - PRE-VETERINARY OPTION (127 HOURS)

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### Description of Courses

#### NATURAL RESOURCE SCIENCES

**NATRS**

1. **Introduction to Natural Resource Management**
   - Prereq: Instructor approval.
   - Nature and significance of natural resources; types of renewable natural resource systems; goals and principles of natural resource management.

2. **Introduction to Measurements and Computers in Natural Resources**
   - Prereq: Math 107, 140, 171, 202 or equivalent, or instructor’s permission. Introduction to basic concepts, field techniques, and the use of spreadsheets in natural resources. Field trips required.

3. **Introductory Wildlife Management**
   - Prereq: Biol 106 or 120. An introductory course in the principles of wildlife management. Field trip required.

4. **Natural Resource Ecology**
   - Ecology as applied to management of natural resource ecosystems; biological diversity, conservation biology, global climate change in natural resource ecology. Field trips required.

5. **Forest Plants and Ecosystems**
   - Prereq: NATRS 300 or c//. Identification and ecology of forest plants with emphasis on trees and the ecosystems with which they occur. Field trips required.

6. **Arid Land Plants and Ecosystems**
   - Prereq: NATRS 301. Identification and ecology of arid land plants (trees, shrubs, grasses, forbs) and the ecosystems in which they occur. Field trips required.
305 Silviculture 3 Prereq NATRS 204, 300, 302. Stand dynamics, natural regeneration methods, intermediate stand treatment, relationships of natural resource management to silvicultural practice. Field trips required.

312 [S,D] Natural Resource and Society 3 Social views of natural resources; processes by which these views are developed and expressed; social conflict over natural resources.

330 Natural Resource Economics 3 Rec EconS 101. Same as EconS 330.

374 Remote Sensing and Airphoto Interpretation 3 (2-3) Same as Soils 374.

411 [M] Limnology and Aquatic Ecosystem Management 3 (2-3) Prereq Biol 102 or 120; Chem 101. Introduction to the science and management of aquatic ecosystems, emphasizing lakes.

416 Fisheries Management 4 (3-3) Prereq UI Fish 314, 411; Stat 251. Techniques employed in sampling and application of principles toward managing recreational and commercial aquatic resources. Cooperative course taught jointly by WSU and UI (FISH 418).

417 Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

419 Topics in Natural Resource Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Topical issues in natural resource sciences.


424 Concepts in Aquaculture 3 (2-3) Prereq NATRS 421, or permission of instructor. Concepts and methods of extensive and intensive aquaculture in warm water and cold water systems. One 1-day field trip. Cooperative course taught by UI, open to WSU students (FISH 424).

425 Concepts in Aquaculture Laboratory 1 (0-3) Prereq NATRS 421, or permission of instructor. Laboratory for NATRS 424. Concepts and methods of extensive and intensive aquaculture in warm and cold water systems. One-day field trip required. Cooperative course taught by UI, open to WSU students (FISH 422).

430 Introduction to Wildland Fire 3 Prereq NATRS 301. Physical nature and behavior of wildland fire; the fire environment; fire ecology; practice of wildland fire management. Field trip required.

431 Wildlife Nutrition 3 (2-3) Nutritional requirements and interactions of wildlife populations. Cooperative course taught by WSU, open to UI students (WLF 431).

435 Wildlife Ecology 4 (3-3) Prereq Biol 372 or NATRS 300; Stat 212 or 412. The ecology of wildlife species and the contributing biological processes. Overnight field trip required.


438 Natural Resource and Environmental Policy and Law 3 Prereq junior standing or permission of instructor. Development, content and implementation of natural resources and environmental policy and law in the U.S. Emphasis on both historical development and current issues in this field.

441 Population Ecology and Conservation 4 (3-3) Prereq Biol 572 or NATRS 300; Stat 212 or 412. Ecology, conservation, management of vertebrate populations, especially threatened and endangered species; designed for wildlife and conservation biology majors.

450 [M] Conservation Biology 3 Prereq by interview only. Patterns of biological diversity, factors producing changes in diversity, values of diversity, management principles applied to small populations, protected areas, landscape linkages, biotic integrity, restoration, legal issues and funding sources. Credit not granted for both NATRS 450 and 550.

454 [M] Restoration Ecology 3 (2-3) Prereq senior standing. Ecological principles used to restore biological communities; ecological processes and species on degraded landscapes. Credit not granted for both NATRS 454 and 554.

455 Elements of Range Management Sciences 3 Prereq Biol 107. Systems science, ecology, wildlife, livestock, social science, concept design, and their contributions to a management science involving rangelands.

460 Watershed Management 3 Prereq NATRS 204, completion of department requirement in biology, chemistry, and physical science, mathematics and statistics; or by interview. Principles and practices of management of forest and rangelands for protection, maintenance, and improvement of water resource values. Field trip required.

464 [M] Landscape Ecology 3 (2-3) Prereq junior standing. Linkages between spatial patterns and processes in a variety of landscapes and the qualitative tools used in the investigation of these linkages. Credit not granted for both NATRS 464 and 564.

468 ArcGIS and Geospatial Analysis 4 (2-6) Prereq Biol 120, Geol 101 or Soils 201. Same as Soils 468.

479 Natural Resource Management Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. An elective opportunity for select students to supplement their academic training with practical field experience.

488 [M] Senior Thesis in Natural Resources V 3-6 May be repeated for credit; cumulative maximum 6 hours. Prereq senior in natural resource sciences.

519 Advanced Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

521 Human Dimensions of Wildlife Management 2 Prereq NATRS 435. An exploration of the elements involved in the management of wildlife for non-consumptive activities, the impacts of such activities on wildlife, the role of national parks and protected areas in providing wildlife viewing opportunities, and public attitudes toward wildlife species. Cooperative course taught by UI, open to WSU students (WLF 520).

524 Plant Ecophysiology 3 Prereq course in general ecology or botany. Adaptations of individual plant species to their environment, emphasizing ecophysiological mechanisms that influence plant establishment, below and above ground productivity. Field trips required. Cooperative course taught by UI, open to WSU students (ID 560).

525 Experimental Plant Ecology 1 (0-3) Experimental techniques in plant ecology with orientation toward environmental and physiological measurement in field and laboratory research. Cooperative course taught by WSU, open to UI students (RANGES52).

550 Conservation Biology 3 Prereq by interview only. Graduate-level counterpart of NATRS 450; additional requirements. Credit not granted for both NATRS 450 and 550.

551 Rangeland Vegetation Ecology 3 Prereq two ecology courses. Ecological concepts of dynamics and distribution of plant communities; secondary succession processes, soil-vegetation relationships and development of vegetation classification schemes. Cooperative course taught by UI, open to WSU students (RANGES51).

554 Restoration Ecology 3 (2-3) Restoration Ecology 3 (2-3) Graduate-level counterpart of NATRS 454; additional requirements. Credit not granted for both NATRS 454 and 554. Cooperative course taught by UI, open to WSU students (RANGES52).

556 Foraging Ecology of Herbivores 2 Prereq graduate student or by permission. Synthesis of foraging behavior concepts including nutritive quality of forages, digestive and metabolic constraints, and diet and habitat selection. Cooperative course taught jointly by WSU and UI (RANGES56).

564 Landscape Ecology 3 (2-3) Graduate-level counterpart of NATRS 464; additional requirements. Credit not granted for both NATRS 464 and 564.

588 Advanced Topics in Wildlife V 1-3 May be repeated for credit; cumulative maximum 10 hours. Biology and management of wildlife species. Cooperative course taught jointly by WSU and UI (WLF 503).

594 Environmental and Natural Resources Issues and Ethics 3 Prereq senior standing. Ethical systems applied to natural resources; issues of professionalism and ethics in natural resource management. Cooperative course taught by WSU, open to UI students (RRT S94).

595 Seminar in Natural Resource Sciences 1 May be repeated for credit. Literature review; preparation and presentation of reports in natural resource sciences.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.
Program in Naval Science

www.navy.uidaho.edu
Navy Building, University of Idaho
208-885-6333

Professor of Naval Science, Captain Ryder, Commander Roemhildt, Captain Hennessy, Lieutenant Stofferahn, Lieutenant Patterson, Lieutenant Roberts.

The Navy-Marine Corps Officer Education Program, administered and taught by the NROTC staff at the University of Idaho, is open to men and women and offers scholarships leading to reserve commissions in the Navy and Marine Corps and active duty as Navy or Marine Corps officers. Normally, students enter the program at the beginning of their freshman year; however, selected students may enter up to the beginning of their junior year. Students take 20 hours of professional courses taught by the Navy and Marine Corps staff of the NROTC unit. In addition to the professional courses, students enrolled in the NROTC Program must also participate in Naval Science Drill (NS 100) each semester. Following graduation, the newly commissioned officer is offered a broad variety of duty assignments including duty on nuclear submarines and surface ships, in naval aviation, and ground or aviation assignments in the Marine Corps. All commissionees go on active duty at full pay and allowances immediately upon graduation.

College Program

Application for this program is made directly to the head of the Department of Naval Science. Students receive their uniforms and naval science textbooks at no cost and begin receiving a monthly stipend of $350 per month at the beginning of their junior year. College Program students may be nominated by the Professor of Naval Science for a two- or three-year scholarship as freshmen, sophomores, or first-semester juniors, if their grades and military aptitude marks are sufficient to warrant such nomination. The program requires one training cruise during the summer following the junior year. It is an afloat cruise of the same type and with the same pay as described for the Scholarship Program. Graduates of this program are commissioned as reserve officers and are ordered to active duty upon graduation.

Scholarship Program

The scholarship benefits include tuition, fees, a book allowance, and a monthly stipend of up to $400. Application for this program is normally made during the early fall of the student’s senior year of high school. Initial selections are based on college entrance examination scores (SAT or ACT) and high school academic performance. A student on scholarship participates in three summer training cruises of four to six weeks duration. During the first cruise, students are introduced to the submarine, amphibious warfare (Marine Week), surface warfare, and aviation communities. The second and third cruises are aboard ships of the Pacific or Atlantic fleets and often include travel to Europe or the Far East. During summer cruises, the students receive one-half the pay of an ensign, in addition to room and board.

Graduates of this program are commissioned as reserve officers in the Navy or Marine Corps.

Marine Corps Option

Both male and female Scholarship and College Program students who desire a Marine Corps commission may apply for the Marine Corps option during their first two years in college. Students taking this option enroll in specialized classes on Marine Corps subjects during their junior year and participate in summer training at the Marine Corps Development and Education Center, Quantico, Virginia during the summer following their junior year.

Naval Science Institute

Navy-Marine Corps Scholarship and College Program applicants entering the program after completion of their sophomore year will be required to attend the Naval Science Institute (NSI) during the summer between their sophomore and junior years. At the NSI they will study the material taken by the four-year candidates during their freshman and sophomore years. On completion of the NSI, candidates return to the university and complete their junior and senior years of the naval science curriculum with their peers. Candidates in the two-year program will participate in one afloat cruise between their junior and senior years. Applications must be submitted early in the second semester of the sophomore year. The top NSI graduates are awarded scholarships for their last two years of college. The remaining graduates enter the College Program and receive those benefits.

Nursing Program

The NROTC program also offers scholarships leading to commissioning in the Navy Nurse Corps. Selected students attend one year of classes at WSU and then transfer to Intercollegiate Center for Nursing Education (ICN) in Spokane, Washington for completion of the BS in Nursing. Application for this program can be made during the freshman year. For more information concerning this program, please see the Intercollegiate Program in Nursing.

Field Trips

Field trips to Navy and Marine Corps facilities are arranged periodically in order to allow the Navy-Marine Corps Officer Education Program members the opportunity to learn more about the naval service.

Scholarship Program

The scholarship benefits include tuition, fees, a book allowance, and a monthly stipend of up to $400.

Application for this program is normally made during the early fall of the student’s senior year of high school. Initial selections are based on college entrance examination scores (SAT or ACT) and high school academic performance. A student on scholarship participates in three summer training cruises of four to six weeks duration. During the first cruise, students are introduced to the submarine, amphibious warfare (Marine Week), surface warfare, and aviation communities. The second and third cruises are aboard ships of the Pacific or Atlantic fleets and often include travel to Europe or the Far East. During summer cruises, the students receive one-half the pay of an ensign, in addition to room and board.

Graduates of this program are commissioned as reserve officers in the Navy or Marine Corps.

Naval Science

N S 101, 102, 201, 202; four to six courses from the following: N S 301, 302, 311, 401, 402, 412. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

Naval Science

N S

100 Drill Lab 0 (0-3) Required of all Navy-Marine Corps Officer Education Program students. Two hour lab per week. Cooperative course taught by UI, open to WSU students (NS 100). S, F grading.

101 Introduction to Naval Science 2 Roles of major elements of naval service; design and structure of ships. Cooperative course taught by UI, open to WSU students (NS 101).

102 Ships Systems I 3 Introduction to control and propulsion systems of naval ships; nuclear and conventional power. Cooperative course taught by UI, open to WSU students (NS 102).

201 Ships Systems II 3 Naval weapons: ballistics, control, propulsion, components, systems analysis. Cooperative course taught by UI, open to WSU students (NS 201).

202 Seapower and Maritime Affairs 3 US Navy and merchant marine seapower, development, and policy. Cooperative course taught by UI, open to WSU students (NS 202).

299 Directed Study V 1-2 May be repeated for credit; cumulative maximum 12 hours. By interview only. Cooperative course taught by UI, open to WSU students (NS 299).

301 Navigation 3 Theory, principles, and procedures of terrestrial and celestial navigation. Cooperative course taught by UI, open to WSU students (NS 301).

302 Naval Operations 3 Prereq N S 301. Naval operations and tactics, relative motion, rules of the naval road. Cooperative course taught by UI, open to WSU students (NS 302).

311 Evolution of Warfare 3 Rec N S 101, 202. Evolution of war through tactics; strategy from Sun Tzu to J.E.C. Fuller. Cooperative course taught by UI, open to WSU students (NS 311).

401 Naval Organization and Management 3 Theories of management and management resources, motivational theories and leadership. Cooperative course taught by UI, open to WSU students (NS 401).

402 Naval Leadership 2 Rec N S 401. Principles and styles of leadership, personal attributes, and UCMJ. Cooperative course taught by UI, open to WSU students (NS 402).

412 Amphibious Operations 3 Rec N S 311. Amphibious doctrine from Gallipoli to Mayquesz. Cooperative course taught by UI, open to WSU students (NS 412).

420 Basic Leadership 1 By interview only. Practical application of leadership and management techniques through the branch and division officer level. Cooperative course taught by UI, open to WSU students (NS 499).

421 Intermediate Leadership 2 By interview only. Practical application of leadership and management techniques through the department head level. Cooperative course taught by UI, open to WSU students (NS 499).

422 Advanced Leadership 3 By interview only. Practical application of leadership and management techniques through the executive and commanding officer level. Cooperative course taught by UI, open to WSU students (NS 499).
directed study v 1-4 may be repeated for credit. by interview only. cooperative course taught by ui, open to wsu students (ns 499). s, f grading.

program in neuroscience

www.vetmed.wsu.edu/depts-vcapp/neurosci_programs_in_neuroscience.aspx

McCoy 110
509-335-7675


Neuroscience, the study of the brain and central nervous system, is a multidisciplinary program leading to the bachelor of science, Master of science, and Doctor of Philosophy degrees, as well as to a minor at the undergraduate level. The neuroscience field plays an important role in both human and animal biomedical science. Innovations by Washington State University neuroscientists advance the world’s understanding of how nerves and brain chemicals produce our feelings and behaviors and how poor health results from disturbances in the delicate organization of the brain. Neuroscience seeks to answer questions that touch on nearly every aspect of human life, including feeling, eating, sleeping, remembering, sensing, and maintaining health.

The undergraduate program for majors is designed for students interested in preparing for professional study in the health sciences (such as medical doctor or doctor of veterinary medicine), graduate school, or for those who wish to use their training in laboratory settings in universities, government organizations, or industry.

Computational neuroscience is an option within the undergraduate neuroscience major and links the information processing features of the nervous system with information processing of computer systems. Accordingly, the computational neuroscience track supplements the neuroscience core curriculum with information technology courses. In this way students learn not only of the brain and its information processing mechanisms, but also of modern computer hardware and software technologies. Upon completion of the four-year curriculum, a BS in Neuroscience will be awarded. Furthermore, the program is designed to allow students to acquire breadth in computation subjects or, alternatively, to focus on either software or hardware aspects of computation. Students choosing to acquire breadth in computational subjects will be well prepared for graduate study in most areas of neural and biomedical science, including bioengineering. Students choosing a software or hardware focus may obtain a minor in either computer science or computer engineering.

The graduate program prepares students for careers in academia, research, and public service. Upon graduation, neuroscience students are credible experts in the areas of their thesis research. The neuroscience graduate faculty experts are nationally and internationally recognized in their contributions to science and society. Doctoral students interested in neuroscience research can pursue their studies with faculty who are unraveling the complexities of:

- Addiction
- Sleep and Performance
- Body Weight and Energy Balance
- Emotion and Well-Being
- Learning and Memory
- Reproduction
- Vision
- Movement

When you graduate with a doctoral or masters degree in Neuroscience, a world of opportunity awaits you. You will have, in hand, peer reviewed publications, a NIH-style grant proposal ready for submission, and the skills to continue on as an independent researcher or as part of a collaborative team. Neuroscience graduates have gone on to excellent jobs in biotechnology and medical device industries, to professional schools (medical, veterinary and law, for example), or to other tier one research universities to teach and continue their research and studies.

Specific student learning outcomes for neuroscience majors include:

1. Breadth and Depth of Discipline – Demonstrate knowledge in one or more core Neuroscience areas.
2. Communication – Communicate effectively, both orally and in writing.
3. Information Literacy – Effectively (thoroughly) search, evaluate, and cite the appropriate neuroscience literature.
4. Quantitative and Symbolic Reasoning – Apply appropriate quantitative tools to data.
5. Thinking Critically and Creatively – Implement the "scientific method".
6. Self-in-Society – Be aware of the implications and significance of Neuroscience (results, etc.) to society.

Transfer students

Transfer students must satisfy the program requirements for graduation. Science courses taken at other institutions will be evaluated and credits accepted where possible. Inquiries should be directed to a Neuroscience undergraduate advisor.

7-year honors neuroscience/veterinary medicine degree program

Academically qualified undergraduate students who meet the highly selective criteria for admission to WSU’s Veterinary Medical Program may apply to the 7-year BS/DVM degree program in neuroscience after completion of one year of honors college coursework at WSU. If accepted into the program, the student will work toward a bachelor of science in neuroscience in the first three years of the program and work toward the doctor of veterinary medicine degree in the following four years. The first three years are a combination of honors College courses and regular university courses that fulfill the pre-veterinary and Neuroscience major requirements. The last four years are the traditional doctor of veterinary medicine program, plus completion of an honors thesis. Prospective applicants must be admitted to the WSU Honors College and enrolled in Honors courses. See the Honors College for additional information.

Preparation for graduate study in neuroscience

To be eligible for admission, candidates must meet general Washington State University requirements outlined in the Graduate Study Bulletin in effect at the time of their admission, as well as the current graduate neuroscience program requirements. Applicants for admission to the Graduate Program in Neuroscience must have a minimum GPA of 3.0 (A=4.0) either on the basis of the last 60 graded semester or 90 graded quarter hours of undergraduate study or basic science portion of a graduate or professional curriculum (first 60 credit hours). Applicants will have completed courses in inorganic and organic chemistry, biochemistry, calculus, physics and a minimum of three courses in different areas of the biological sciences. It is advisable that applicants have a basic statistics course prior to entering the neuroscience program.

Applications for admission to the program must include a completed graduate school application form, GRE test scores (subject tests are not required), official transcripts for all college-level course work, three letters of recommendation from references capable of judging aptitude and capability for graduate study by the applicant, a statement by the applicant that describes career goals and research interests, a writing sample, and a resume or curriculum vitae (CV). For students whose native language is not English, TOEFL scores are also required. Inquiries should be directed to the Program in Neuroscience, Department of VCAPP, Washington State University, Pullman, WA 99164-6520 or email grad.neuro@wsu.edu. Students normally begin their studies in the fall semester, which starts the latter part of August. The priority deadline for completed applications for admission to the Neuroscience Program is December 31. Applicants are offered admission on a rolling basis, but may be notified of acceptance as late as April 15. Students may still apply for admission after December, but graduate stipends may not be available for late applicants.

Pre-admit PhD program in neuroscience

Early admission to the graduate program in Neuroscience is intended for the academically exceptional WSU undergraduate neuroscience major who intends to pursue a career in neuroscience research. A student nominated for the pre-admit program will have an outstanding record of academic achievement and will have exhibited an aptitude and strong motivation for original research in neuroscience. This program will provide incentives for the best and brightest students in the Undergraduate Program in Neuroscience to remain at WSU for their graduate work. See a Neuroscience Academic Advisor for additional information.
### Schedules of Studies

#### NEUROSCIENCE - COMPUTATIONAL (BREADTH OF FIELD EMPHASIS)  
(126 HOURS)

Students may certify in computational neuroscience after completing Neuro 301, and a minimum of 24 semester hours with a 3.0 minimum GPA in Biol 106, Biol 107, Chem 105, Chem 106, Math 171, Math 172, and Phys 201.

**First Year**

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
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<tr>
<td></td>
<td></td>
<td>Chem 106 [P] (GER)</td>
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**Second Year**

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**Third Year**

**First Term**

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**Second Term**

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<td>Neuro 404</td>
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<td>Phys 202</td>
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**Fourth Year**

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1. Satisfied course requirements for entrance into medical or veterinary school
2. Prereq Chem 345, Neuro 301 and MBioS 303

#### NEUROSCIENCE - COMPUTATIONAL (HARDWARE EMPHASIS)  
(128 HOURS)

Students may certify in computational neuroscience after completing Neuro 301, and a minimum of 24 semester hours with a 3.0 minimum GPA in Biol 106, Biol 107, Chem 105, Chem 106, Math 171, Math 172, and Phys 201.

**First Year**

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<td>Math 171 [N] [GER]</td>
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<td>GenEd 110 [A] (GER)</td>
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**Second Year**

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<td>Neuro 301</td>
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**Third Year**

**First Term**

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<td>Intercultural Studies [I,G,K] (GER)</td>
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**Fourth Year**

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1. Satisfied course requirements for entrance into medical or veterinary school
2. Prereq Chem 345, Neuro 301 and MBioS 303

#### NEUROSCIENCE - COMPUTATIONAL (SOFTWARE EMPHASIS)  
(126 HOURS)

Students may certify in computational neuroscience after completing Neuro 301, and a minimum of 24 semester hours with a 3.0 minimum GPA in Biol 106, Biol 107, Chem 105, Chem 106, Math 171, Math 172, and Phys 201.

**First Year**

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**Fourth Year**

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1. Satisfied course requirements for entrance into medical or veterinary school
2. Prereq Chem 345, Neuro 301 and MBioS 303

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**Credits:**

- Biol 353: 4
- E E 324: 4
- Neuro 430 [M]: 4
- Neuro 490: 1
- Tier III Course [T] (GER): 3

---

1. Satisfied course requirements for entrance into medical or veterinary school
2. Prereq Chem 345, Neuro 301 and MBioS 303

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227
### NEUROSCIENCE - GENERAL OPTION (120 HOURS)

Students may certify in general neuroscience (including premed and prevet) after completing Neuro 301 and a minimum of 24 semester hours with a 3.0 minimum GPA in Biol 106, 107, Chem 105, 106, Math 140 or 171, Phys 101, 102.

#### First Year

<table>
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#### Second Year

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#### Third Year

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#### Fourth Year

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1. Satisfied course requirements for entrance into medical or veterinary school.
2. Part of the 345-346 year-long sequence. Recommended for medical, dental, or optometry school.
3. Prereq Chem 345, Neuro 301 and MBioS 303

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1. Part of the 345-346 year-long sequence. Recommended for medical, dental, or optometry school.
2. Math 171, 202, 206 or 210 can substitute.
3. Or statistics course approved by advisor.

### NEUROSCIENCE - PRE-MEDICAL AND PRE-VETERINARY OPTION (120 HOURS)

Students may certify in general neuroscience (including premed and prevet) after completing Neuro 301 and a minimum of 24 semester hours with a 3.0 minimum GPA in Biol 106, 107, Chem 105, 106, Math 140 or 171, Phys 101, 102.

#### First Year

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<th>Term</th>
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<th>Courses</th>
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#### Second Year

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<tr>
<td>First</td>
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<td>Arts &amp; Humanities [H,G] (GER) 3&lt;br&gt;Communication Proficiency [C,W] (GER) 3&lt;br&gt;Intercultural Studies [I,G,K] (GER) 3&lt;br&gt;Neuro 301 3&lt;br&gt;Phys 101 [P] (GER) 4</td>
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#### Third Year

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<td>MBioS 301 4&lt;br&gt;MBioS 303 4&lt;br&gt;Neuro or other Electives 2&lt;br&gt;Psych 311 4</td>
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<td>Second</td>
<td></td>
<td>Biol 438 [M] (recommended neuro elective) 3&lt;br&gt;Neuro 404 3&lt;br&gt;Neuro 495/499 or other Electives 6&lt;br&gt;V An 308 (recommended neuro elective) 4&lt;br&gt;Take GRE</td>
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#### Fourth Year

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<tbody>
<tr>
<td>First</td>
<td></td>
<td>Neuro 403 [M] 3&lt;br&gt;Neuro 495 or 499 2</td>
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1. Part of the 345-346 year-long sequence. Recommended for medical, dental, or optometry school.
2. Math 171, 202, 206 or 210 can substitute.
3. Or statistics course approved by advisor.
Neuro or other Electives 7
Tier III Course [T] (GER) 3
Apply to Veterinary School

Second Term Hours
Neuro 430 [M] 4
Neuro 490 1
Neuro or other Electives 11

Minors

Neuroscience

Students may apply for a minor in neuroscience once they have completed 60 semester credit hours and have a 2.0 GPA. However, they may take minor coursework at any time as long as they meet the prerequisites. Minor certification forms are available in the Neuroscience Office, Wegner 205, and the Student Advising and Learning Center, Lighty 260. A minor in neuroscience requires 16 credits in Neuroscience, with at least 13 at or above the 300-level. Courses needed to satisfy the minor must include Neuro 301; three credits selected from Psych 384, Psych 390, or Biol 438; at least three credits of Neuro 495 or Neuro 499; and at least six credits selected from the following: Neuro 403, Neuro 404, and Neuro 430. Up to five credits of Neuro 495 or 499 may be included. Upon the approval of the student's advisor, a student with a minor in neuroscience may include 500-level courses in the minor program, provided the student meets the graduate study requirements and, prior to registration, obtains the consent of the faculty member(s) teaching the course. Students must maintain a minimum 2.0 GPA to remain certified as a neuroscience minor. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

Description of Courses

NEUROSCIENCE

Neuro

138 Neuroscience Seminar 1 May be repeated for credit; cumulative maximum 2 hours. Introduces new students to individual faculty research interests and helps students link personal interests to academic majors. S, F grading.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

301 Exploring the Brain 3 Rec Chem 101 or higher and Biol 107 or c/. Structure and function of the nervous system from single neurons to behavior. Credit not granted for both Neuro 301 and 302.

302 Exploring the Brain - Honors 3 Prereq Chem 106, Biol 107 and Phys 101 with a grade of B or higher. Basic concepts, analysis and discussion of the experimental foundations for understanding nervous system function. Credit not granted for both Neuro 301 and 302.

403 [M] Cellular Neurobiology 3 Prereq Neuro 301; MBioS 303; certified Neuro major or minor or instructor's permission. Cellular and molecular interactions occurring within the nervous system.

404 Neuroanatomy 4 (3-3) Prereq Neuro 301, or by interview only. Fundamental principles of the organization and plans of circuitry of the nervous system.

409 Affective Neuroscience 3 Prereq AS 440, Biol 353, Neuro 301, or Psych 372. Brain mechanisms of human and animal emotions. Credit not granted for both Neuro 409 and 509.

430 [M] Principles of Neurophysiology 4 (3-3) Prereq Biol 107; Neuro 301; Phys 102, 202 or 206; or by interview; Rec MBioS 303. Advanced exploration of the principles underlying cellular, sensory, motor and integrative functions of the nervous system.

461 Neurobiology 3 Prereq Phys 101; Chem 345 recommended. Study of the nervous system, with an emphasis on the basic mechanisms of neuronal signaling, the function of sensory systems, and neural development. Cooperative course taught by UI, open to WSU students (ZOOI 461).

480 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

490 Senior Project 1 Prereq senior standing; certified neuroscience major or minor. Introduction to neuroscience research literature. S, F grading.

495 Directed Research V 1-3 May be repeated for credit; cumulative maximum 100 hours. Prereq certified Neuro major or minor. Introduction to neuroscience research literature. S, F grading.

499 Special Problems V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq certified neuroscience major or minor. Introduction to neuroscience laboratory research. S, F grading.

509 Affective Neuroscience 3 Prereq graduate standing. Graduate-level counterpart of Neuro 409; additional requirements. Credit not granted for both Neuro 409 and 509.

520 Fundamentals of Neuroscience 4 (3-3) Prereq permission of instructor or graduate standing. Functional aspects of the brain from cell membrane to higher integrative processes.

521 Introduction to Veterinary Neurology 3 (2-3) Prereq V M 510P. Same as V M 521P.

526 Domestic and Exotic Animal Behavior 2 (1-3) Prereq by interview only. Same as V M 526P.

529 Integrative Neuroscience 3 Prereq graduate standing; biochemistry course. Basic biochemical processes in the nervous system and their significance for normal and abnormal function.

531 Neuroscience Laboratory Rotation 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq graduate standing. Fourteen-week rotation through each of two research laboratories; learning procedures and techniques in neuroscience. S, F grading.

540 Special Topics in Integrative Neuroscience 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Concepts and controversies in neuroscience involving integrative properties of cell systems. May be repeated for credit; cumulative maximum 6 hours.

541 Special Topics in Cellular and Molecular Neuroscience 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Concepts and controversies in neuroscience that involve nerve cell function and regulation. May be repeated; cumulative maximum 6 hours.

542 Special Topics in Disciplinary Neuroscience 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Concepts and controversies in neuroscience that involve normal and pathological aspects of behavior.

561 Biological Signal Processing 3 Development of quantitative models and analysis of neural systems. Cooperative course taught by UI, open to WSU students (NEUR 521).

590 Seminar 1 May be repeated for credit; cumulative maximum 4 hours. Presented by advanced graduate students and faculty (both in VCAPP and around WSU) on their research areas. S, F grading.

592 Research Writing and Seminar 3 May be repeated for credit; cumulative maximum 6 hours. Written and oral communication of scientific information; formal instruction while preparing research proposals and departmental seminar.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

College of Nursing

www.nursing.wsu.edu
ICN - Spokane
509-324-7337

Professor and Dean, P. Butterfield; Professor and Senior Associate Dean, A. Hirsch; Professor and Associate Dean for Research, J. Roll; Professor and Director PhD Program, R. Bindler; Professor and Assistant Dean RN/BSN Program, R. Hoekse; Professors, M. Bruya, R. Pringle; Associate Professor and Assistant Dean for Undergraduate Education, T. Bayne; Associate Professor and Assistant Dean/Regional Director, G. Guido; Associate Professors, M. Armstrong, J. Banasik,

BACCALAUREATE PROGRAM

The College of Nursing was established as the Intercollegiate Center for Nursing Education on July 1, 1968 and exists as a joint endeavor of Washington State University, Eastern Washington University, and Whitworth University. Its undergraduate integrated program is the first of its kind among colleges and universities in the United States.

The program is designed for two types of students - those with no previous preparation in nursing and registered nurses. The curriculum is four academic years of full-time study for the student with no previous preparation in nursing. The length of the program for the registered nurse (RN) is approximately one year of full-time study.

The lower-division courses, for students with no previous preparation in nursing (freshman and sophomore years), are offered on the Pullman campus. They provide the student with a foundation in the natural and social sciences and the humanities.

The 300-400-level courses, junior and senior years, are offered at the College of Nursing in Spokane, Tri-Cities and Yakima. They provide the professional preparation in nursing. To apply for admission to the college, students must have at least 60 semester hours and all courses prerequisite to nursing completed the term prior to enrollment in the upper division.

The program of study leads to the degree of Bachelor of Science in Nursing. It is approved by the Washington State Nursing Care Quality Assurance Commission and the Commission on Collegiate Nursing Education. Upon successful completion of the baccalaureate program, graduates are eligible to take the state examination for licensure as registered nurses.

Transfer Students

Students who plan to transfer to nursing at Washington State University from other institutions should discuss their program early with the nursing advisor on the Pullman campus to select courses that will be applicable to the degree requirements. Registered nurses who plan to obtain their baccalaureate degree in nursing from Washington State University may obtain admission and curriculum information from their nursing advisors on the Pullman, WSU Tri-Cities and WSU Vancouver campuses.

Learning Outcomes

We expect our graduating students will be able to: (1) provide competent nursing care to individuals, families, groups and communities through promotion, maintenance and restoration of health; prevention of illness, and physical, emotional, and spiritual support throughout the life span; (2) formulate nursing practice decisions using evolving knowledge and research from nursing science, the biological and behavioral sciences, and the humanities; (3) use developmentally appropriate teaching-learning principles to assist clients to achieve their health goals and to assist colleagues to improve the quality of their nursing care; (4) provide compassionate, ethical care to individuals of diverse cultures, values, beliefs, and lifestyles; (5) demonstrate the values central to nursing practice including: altruism, autonomy, human dignity, integrity, and social justice; (6) protect the rights of people to receive optimum care and make informed decisions affecting their health and welfare; (7) uphold the standards and values of the profession including accepting responsibility for learning and personal growth; (8) interpret professional nursing using perspectives gained from past, present, and future trends in nursing and society; (9) advocate for responsible, humane health care policies; (10) partner with clients, families, communities and interdisciplinary health care teams to design and provide quality health care; (11) participate in revision of health care policy and practice within a rapidly changing global environment; (12) demonstrate leadership skills and knowledge of the management process in designing, managing and coordinating care; (13) use evolving information technology to monitor and improve the health care of clients; and (14) demonstrate knowledge of fiscal dimensions with a variety of current and evolving health care systems.

MASTER OF NURSING PROGRAM

The program may be completed in two academic years. Provision is made for part-time matriculation over a longer period of time, subject to policies and requirements of Washington State University and the College of Nursing. Candidates for the MS degree are required to demonstrate competency in relevant computer applications. A thesis or specified non-thesis option is required.

The masters program in nursing at the College of Nursing was established in 1983 and has been accredited by the Commission on Collegiate Nursing Education. The program builds upon a baccalaureate degree in nursing and provides a basis for further study at the doctoral level. The purpose is to prepare students for leadership positions in advanced nursing practice, Community-based/population-focused nursing, psychiatric/mental health nurse practitioner, and family nurse practitioner specializations are available. Video-conference classes are available in Spokane, Vancouver, and several other sites across the state.

The Master of Nursing program is open to students who hold a Bachelor of Science in Nursing degree from a nationally recognized accrediting agency. Admission is granted on the basis of the student's (1) undergraduate GPA, (2) skills in history taking and physical assessment, (3) completion of a course in basic descriptive and inferential statistics, (4) eligibility for licensure as a registered nurse in Washington state, and (5) recommendations relative to professional nursing competence and prediction of success as a graduate student. A written or verbal interview, depending on program track, is required for all applicants.

Students apply to the Graduate School in Pullman. Information, determination of student interests and goals, and assignment of a faculty advisor are provided by the Graduate Program office at the College of Nursing.

We expect that our graduating students: (1) collaborate in the conduct of research with faculty and community of scholars; (2) provide leadership in planning, implementing, coordinating, and evaluating health care delivery; (3) participate in the formulation of health policy appropriate to a diverse and multicultural society; (4) model and influence the values of the profession of nursing; (5) assume responsibility and accountability for enacting the role of an advanced practice nurse within the scope of legal, professional, and ethical standards; (6) integrate theories from nursing and other sciences to provide high quality nursing care; (7) provide evidence-based practice in a variety of settings through the promotion, maintenance, and restoration of health and the prevention of illness; (8) deliver culturally competent nursing and health care; and (9) provide direct client care to individuals, families, and/or communities consistent with the knowledge and skills appropriate to advanced practice nursing.

PHD IN NURSING PROGRAM

The PhD in Nursing Program began in summer 2007, and admits up to 10 students each summer. Required course work is delivered over 7 semesters in a combination of approaches - face-to-face in Spokane, videostream, and online learning. The student presents a dissertation research proposal to meet requirements for the preliminary examination, and completes an independent research study. The program prepares students to advance the discipline of nursing science through a research-focused program emphasizing innovative approaches and leveraged resources to improve health care. Graduates are equipped to become leaders in nursing education and research, critical roles in today's health care environment.

Applicants are required to have (1) a masters degree in nursing or health related field, (2) a GPA of 3.5 or higher in the masters program, (3) completion of a graduate level statistics course, (4) satisfactory statement of goals and match of research interests to college faculty, (5) submission of a scholarly work and vita/resume, (6) 3 letters of reference, and (7) a successful interview. A successful TOEFL examination is required with those for whom English is not a primary language.

Students apply to the Graduate School in Pullman. Information, determination of student interests and goals, and assignment of a faculty advisor are provided by the Graduate Program office at the College of Nursing.

We expect graduates of the PhD in Nursing program to: (1) Contribute to advancing nursing science and practice through clinical research; (2) analyze, construct, and test theoretical frameworks that guide nursing research design, methodology, data analyses, and the transfer of new knowledge.
into practice; (3) create effective interdisciplinary collaborations to foster research and the transfer of evidence-based knowledge into best clinical practices; (4) synthesize knowledge from a variety of disciplines to create research designs and methods for nursing science and to address ethical, social, cultural, political, and professional issues; (5) implement proven and emerging technologies to enhance nursing research and education; and (6) implement innovative research designs, methodologies, leadership skills, health education, and/or life style modification techniques to address the health care needs of vulnerable populations and disparities in the access to or delivery of health care.

Schedules of Studies

NURSING (123 HOURS)

Sixty semester hours are required in 300-400-level nursing major courses. Additional 300-400-level nursing or non-nursing electives may be required.

A grade of C or better is required in all prerequisite courses and nursing courses.

Criteria for admission to the 300-400-level nursing major include an overall cumulative GPA of 2.8 or higher and a cumulative GPA of 2.8 or higher in prerequisite courses. Responses to personal interview questions may be used as additional admission criteria.

Part-time schedule of study is available; see advisor.

First Year

First Term

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<td>Chem 101 [P] (GER)</td>
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<td>Engl 101 [W] (GER)</td>
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<td>GenEd 110 [A] (GER)</td>
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<td>Psych 105 [S] (GER)</td>
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<td>Soc 101 [S] or 102 [S] (GER)</td>
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Second Term

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<td>Chem 102 [P] (GER)</td>
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<tr>
<td>Communication Profficiency [C,W] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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Second Year

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<td>Biol 251</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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Second Term

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<td>H D 101 [S] (GER)</td>
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<td>MBioS 101 [B] (GER)</td>
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Third Year

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<td>Nurs 311</td>
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<tr>
<td>Nurs 315</td>
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<tr>
<td>Nurs 316</td>
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<tr>
<td>Nurs 317</td>
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<tr>
<td>Nurs 328</td>
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Second Term

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<td>Nurs 309</td>
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Fourth Year

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<td>Nurs 408</td>
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<td>Nurs 414</td>
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<td>Nurs 415</td>
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<td>Nurs 416</td>
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<td>Nurs 417</td>
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Second Term

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<td>Nurs 425</td>
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<td>Nurs 426</td>
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<tr>
<td>Nurs 427</td>
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<tr>
<td>Nurs 430</td>
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NURSING - REGISTERED NURSES OPTION

Bachelor of Science Option for Registered Nurses:


Description of Courses

NURSING

308 Professional Development I: Research and Informatics

3 Prereq admission to nursing or by permission. First of professional development series; focus on nursing and health care research, information management, informatics, and development of nursing research.

309 Professional Development II: Ethical Reasoning and Decision Making Processes in Nursing

3 Prereq Nurs 308; c// Nurs 315. Continuation of professional development series; moral/ethical reasoning models, decision processes, and philosophical basis of nursing as a discipline.

311 Pathophysiology and Pharmacology in Nursing

4 Prereq admission to nursing. Etiology, pathogenesis, clinical manifestations of common human dysfunction; nursing implications for prevention and therapeutic approaches including pharmacologic and non-pharmacologic therapies.

315 Nursing Practice: Health and Illness

4 (0-12) Prereq Nurs 308, 311, 315, 316, 317, or c/. Introduction to nursing practice and health assessment: professional values, core competencies, critical thinking and decision making. S, F grading.

316 Introduction to Nursing Practice in Health and Illness: Theory

2 Prereq Nurs 308, 311, 317 or c/. Introduction to nursing concepts and holistic assessment including core professional values, knowledge and competencies for nursing practice.

317 Health Assessment

3 (2-2) Prereq Nurs 308, 311, 316 or c/. Systematic approach to health assessment of adults emphasizing and incorporating use of nursing process and scientific rationale.

318 Growth and Development Across the Life Span

3 Prereq admission to nursing or by permission. Theoretical and conceptual perspectives on human growth and development across the life span.

322 The Human Experience of Diversity and Health

2 Prereq admission to nursing or by permission. Explorations of regional, national, and global expressions of health and illness and implications for health care professionals.

324 Nursing Concepts in Acute and Chronic Illness in the Adult

4 Prereq Nurs 311, 315, 316, 317. Theoretical concepts of acute and chronic illness in the adult as a basis for critical thinking and decision-making in nursing.

325 Nursing Practice in Acute and Chronic Illness in Adults


328 Introduction to Gerontological Nursing

2 Prereq c// Nurs 318. Professional values, communication, and functional assessment in care of elders; core knowledge and role development of the gerontological nurse.

360 Professional Nursing Concepts and Issues

2 Prereq certified in nursing or RN. Philosophical, historical, economic, legal/ethical, and professional issues designed for registered nurses to build upon previously acquired professional concepts.

365 Nursing Concepts: Assessment and Application of Physiological Concepts to Nursing Practice I

3 Prereq certified in nursing; registered nurse. Integration of pathophysiological, assessment, pharmacological nursing concepts with diverse client populations; emphasizing neurological, EENT, skin, musculoskeletal, endocrine, and respiratory systems.

366 Nursing Concepts: Assessment and Application of Physiological Concepts to Nursing Practice II

3 Prereq certified in nursing; registered nurse. Integration of pathophysiological, assessment, pharmacological nursing concepts with diverse client populations; emphasizing fluid/electrolytes, oncology, GI/GU; cardiovascular; immune system, renal.

392 Therapeutic Touch: A Nursing Modality of Caring and Healing

3 (2-3) Prereq completion of one semester of nursing or by permission. Explores the broad arena of touch as a means of interpersonal communication and as a mechanism for healing using Krieger-Kunz method.

398 Special Topics

V 1-3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.
400 Nursing Research and Informatics 3
Prereq enrolled in WSU College of Nursing; registered nurse. Application of informatics skills and research processes to clinical practice; incorporates first level informatics concepts.

405 Nursing Leadership 2
Prereq certified in nursing; registered nurse. Application of group leadership and management theories to professional nursing practice.

406 Nursing Management 3
Prereq enrolled in WSU College of Nursing; registered nurse. Management, leadership, and group theories are utilized and applied to the management of nursing and health care.

408 Professional Development III: Leadership and Management 3
Prereq Nurs 309. Continuation of professional development series; focus on impact of leadership, management, and resource allocation on patient outcomes.

409 Professional Development IV: Transition to Practice 2
Prereq Nurs 408; Nurs 414; Nurs 415; Nurs 416; Nurs 417. Continuation of professional development series; focus on transition to practice and nursing across health care systems/delivery within global arena.

414 Child and Family Health: Theory 3
Prereq Nurs 324, 325; c// Nurs 318, 328. Analysis and evaluation of scientific and theory base for nursing care of children and families.

415 Children and Families as the Focus of Nursing Care 3 (1-6)
Prereq Nurs 324, 325; c// Nurs 318, 328, 414. Synthesis and application of underlying science and nursing process with the unique population of children and families.

416 Childbearing Health of the Family 3
Prereq Nurs 324, 325; c// Nurs 318, 328. Care of childbearing families within the context of community; newborn health, and men's and women's reproductive health addressed.

417 Nursing Care of Childbearing Families 2
(0-6) Prereq Nurs 324, 325; c// Nurs 318, 328, 415, 416. Nursing care of families during the childbearing continuum and/or acute care settings; combination of clinical and seminar.

424 Psychiatric/Mental Health Nursing Concepts 3
Prereq Nurs 414, 415, 416, 417. Healthy to psychopathological states studied within a nursing framework; includes history, theories, legal/ethical issues of psychiatric/mental health nursing.

425 Nursing Practice: Psychiatric/Mental Health 2
(0-6) Prereq Nurs 414, 415, 416, 417; c// Nurs 424. Clinical application of the nursing process with clients experiencing acute and chronic psychiatric/mental health disruptions.

426 Community Health Nursing Theory 2
Prereq Nurs 414, 415, 416, 417. Synthesis of nursing and public health concepts with emphasis on community as partner and population-focused practice.

427 Community Health Nursing Practice 3
(0-9) Prereq Nurs 414, 415, 416, 417; c// Nurs 426. Promoting the public's health through application of the public health functions; assessment, policy development, and assurance.

430 Senior Practicum 3

440 Nursing Concepts: Community Health 2
Synthesis of nursing and public health concepts with focus on community as partner, and population-based practice.

462 Selected Nursing Concepts: Psychiatric/Mental Health 2
Nursing process with individuals and families experiencing psychiatric/mental health disruptions.

465 Nursing Practice: Community and Psychiatric Mental Health 3
(0-9) Prereq Nurs 462 and 440 or c//. Application of community health, public health, and psychiatric/mental health nursing concepts to individuals, families, and communities with identified health needs.

476 Health Law: Application to Practice 3
Prereq junior standing. Laws, principles and issues related to regulations of health care professionals, practice settings and public and private programs.

477 Health Care Ethics V
2-3 Ethical theories including deontology, teleology, virtue ethics and applicability to ethical dilemmas in nursing. Credit not granted for both Nurs 477 and 577.

478 Plateau Tribes: Culture and Health 3
(2-3) Prereq junior/senior in health care of human services/health professionals. History, culture, and health care needs of the Plateau Indian tribes; both classroom and practicum experience. Credit not granted for both Nurs 478 and 578.

479 Advanced Physiology for Clinical Practice 3
Prereq Admission to WSU nursing program. Cellular and system physiology foundational to advanced practice and understanding drug mechanisms of action.

480 Special Topics: Study Abroad V
1-15 May be repeated for credit. S, F grading.

481 International Health Care 3
Prereq Nurs 315. Study abroad experience in global health care; assessment and evaluation skills in planning and implementing culturally appropriate health care for individuals and communities.

490 Basic Dysrhythmia Interpretation/Advanced Cardiac Life Support V
1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq completion of Nurs 420 or c// or permission of instructor. Basic interpretation of common ECG rhythms, dysrhythmias, and application of ACLS dysrhythmia management guidelines.

491 Advanced Cardiac Life Support (ACLS) and Laboratory Value Analysis and Interpretation V
3 Prereq Nurs 311, 324, 325 or by permission. Analysis/interpretation of common laboratory values; basic interpretation of common ECG rhythms, dysrhythmias, and application of ACLS dysrhythmia management guidelines.

492 Essentials of Disaster Management for Nurses 3
Prereq junior standing; certified nursing major. Natural and manmade disasters; nursing implications for disaster management; mental health and ethical issues and concerns related to vulnerable populations.

495 Nursing Practice: Advanced Clinical Practicum 2
(0-6) Prereq certified in nursing. Application and integration of theoretical content in an area of nursing practice of special interest to the student.

497 Special Topics in Nursing V
1-3 May be repeated for credit; cumulative maximum 6 hours.

498 Special Topics in Nursing V
1-3 May be repeated for credit; cumulative maximum 6 hours.

499 Special Problems V
1-4 May be repeated for credit. S, F grading.

503 Scientific Inquiry in Nursing 2
Prereq graduate standing in nursing or permission of the instructor. Scientific inquiry applied to theoretical and philosophical foundations in nursing.

504 Methods of Nursing Research 4
Prereq Nurs 503 or c//. Research process as foundational to both conduct of scientific inquiry and utilization of findings.

507 Health Care Policy Analysis V
2-3 Prereq graduate standing. Analysis of health care system policy; exploration of issues of clinical management and community resource utilization including advocacy techniques.

519 Teaching in the Information Age 3
Prereq basic computer skills; permission of instructor. Focus on educational paradigms consistent with distance education; development of a variety of multimedia materials for nursing education.

520 Nursing Education in a Multicultural Society V
3-5 Prereq permission of instructor. Application of learning theories and strategies useful in teaching diverse populations; taught in a distance degree format.

521 Teaching, Learning and Evaluation in Nursing V
3-6 Prereq graduate standing in Nurs or by permission. Exploration of concepts related to teaching-learning, assessment of diverse learning needs, instructional strategies and design, evaluation of performance outcomes.

523 Educational Issues and Curriculum Analysis V
3-5 Prereq graduate standing in nursing or by permission. Exploration of curriculum history, development, future predictions; program evaluation; instructional resources, leadership, and policy development in academic and service settings.

534 Research Seminar: Grant Development 1
Prereq graduate standing. Seminar focusing on grant writing and advanced skills for critically reviewing grant applications.

535 Philosophy of Nursing Science 2
Prereq Nurs 534, 535 or c//. Structure and organization of fields of knowledge in science including historical and philosophical tenets of inquiry.
536 Nursing Theory: Foundations for Knowledge Development
2 Prereq graduate standing in nursing. Theory development analysis; theory critique; nursing knowledge examination; impact of theory on nursing science, applied to student's phenomenon of interest.

541 Psychiatric/Mental Health Nursing: Individuals
(3-3) Prereq graduate standing in nursing; Nurs 562, 581 or c/-. Theories of psychopathology and appropriate nursing interventions with individuals across the age continuum.

543 Psychiatric Mental Health Nursing
(3-3) Prereq Nurs 541, 581. Introduction to theory and practice of group psychotherapy; Milieu and other selected theories studied and applied to nursing practice.

546 Practicum in Psychiatric/Mental Health Nursing
V 4-5 Prereq Nurs 541, 543, 562, 581; PharP 525 or c/-. Individualized clinical experience/seminar designed to provide advanced competency, accountability, leadership in psychiatric/mental health nursing.

548 Psychiatric Nurse Practitioner Internship
V 1-9 May be repeated for credit; cumulative maximum 9 hours. Prereq Nurs 546, PharP525, by interview only. Application and integration of theory, research findings, and interventions in the primary care of clients with psychiatric disorders.

549 Addiction Perspectives
2 Prereq Graduate standing in nursing or permission of instructor. Overview of the theories, physiology, course and epidemiology of addictions; assessment, evaluation, prevention and treatment.

550 International, Interdisciplinary, and Transcultural Health Care
3 Prereq graduate standing in nursing or by permission. Diverse health beliefs and practices or clients and members of the interdisciplinary healthcare team.

552 Family Nursing in the Community
V 2-4 Theoretical approaches to the analysis of normal and at-risk families; application of family assessment and intervention models when planning care.

554 Epidemiological Approaches to Community Health
3 Prereq graduate standing in Nurs. Epidemiologic application to health; implications for health promotion, disease prevention; focus: knowledge and skills required to obtain and use databases.

556 Community-Based/Population-Focused Role Practicum
V 3-6 Prereq permission of instructor. Culminating analysis, development, and enactment of advanced practice roles in teaching, practice, or administration of community-based/population-focused nursing.

561 Advanced Assessment and Diagnosis for the Psychiatric Mental Health Practitioner
3 Prereq Admission to PMHNP program. Assessment and diagnosis of psychiatric illnesses; focus on physical and psychiatric history, mental status exam and strategies of psychometric evaluation.

562 Advanced Health Assessment and Differential Diagnoses
4 (3-3) Prereq graduate standing in nursing. Advanced holistic health assessment/differential diagnosis; analysis of data from biological, sociological, psychological, cultural, and spiritual dimensions.

563 Advanced Pharmacological Concepts and Practice
(3-3) Prereq graduate standing in nursing. Pharmacology for clinical practice including decision making, prescribing, drug monitoring, and patient education associated with prescriptive authority.

564 Health Promotion in Nursing Practice
V 2-3 Prereq graduate standing in nursing. Theoretical bases including cultural variations for selected health promotion strategies for neonates through elderly clients.

565 Information Management for Clinical Practice
(3-2-3) Prereq computer competency in word processing/spreadsheets. Application/evaluation of nursing informatics; information systems to support clinical research, practice, administration, and education.

566 Community Analysis and Program Planning
V 2-3 Prereq graduate standing in nursing; CBPF students must enroll for 3 credits. Application of core public health functions in community analysis, program development and program evaluation.

567 Primary Care of Families: Adults and Elders
4 (1-9) Prereq admission to FNP program; Nurs 562; Nurs 563; Nurs 581. Assessment, differential diagnosis, therapeutic intervention with adults; developmental changes; opportunities to provide diagnostic, maintenance, and follow-up care.

568 Primary Care of Families: Maternity Care & Women's Health
4 (1-9) Prereq admission to FNP program; Nurs 562; Nurs 563; Nurs 581. Assessment, differential diagnosis, and therapeutic intervention with infants, children, and adolescents in rural and urban settings.

569 Primary Care of Families: Infants, Children and Adolescents
4 (1-9) Prereq admission to FNP program; Nurs 562; Nurs 563; Nurs 581. Assessment, differential diagnosis, and therapeutic intervention with individuals in childbearing, childrearing, and multigenerational families.

570 Clinical Decision Making
1 (0-3) Prereq Nurs 581, 562, 563; concurrent with first clinical course. Provides a framework for systematic collection, organization, interpretation, and communication of data for the development of differential diagnosis.

572 Nursing Science: Chronic Biobehavioral Nursing Outcomes
3 Prereq admission to graduate program. Concepts, theories and research relevant to preventing and managing chronic conditions across the lifespan.

574 Nursing Sciences: Acute Biobehavioral Nursing Outcomes
2 Prereq Nurs 536. Research methods, procedures and analysis of acute phenomena in nursing with a focus on vulnerable populations.

575 Diagnostic Testing and Interpretation
3 (2-3) Prereq admission to FNP program. Analysis of diagnostic findings across the age continuum for clinical decision making; selected diagnostic and treatment skills for advanced practice.

577 Health Care Ethics
V 2-3 Graduate-level counterpart of Nurs 477; additional requirements. Credit not granted for both Nurs 477 and 577.

578 Plateau Tribes: Culture and Health
3 (2-3) Prereq junior/senior in health care of human services/health professionals. Graduate-level counterpart of Nurs 478; additional requirements. Credit not granted for both 478 and 578.

581 Advanced Pathophysiology
4 Prereq graduate standing in nursing or permission of instructor. Advanced cellular and system pathophysiology of individuals with neurological, endocrine, immune, hematolgy, cardiopulmonary, renal, gastrointestinal, bone and skin disorders.

584 Nursing Science: Systems of Health Care Delivery
3 Prereq Nurs 536. Health care delivery systems in the US and worldwide addressing barriers to care, social justice, vulnerability and access disparity.

585 Faculty Role Seminar
(1) Prereq completion of coursework; completion of preliminary examination or c/. Analysis of current issues related to the faculty role in nursing education.

586 Faculty Role Practicum
2 Prereq admission to graduate program or by permission. Analysis, development and enactment of selected aspects of the faculty role.

587 Research Inquiry: Qualitative Methods I
3 Prereq graduate standing in nursing. Qualitative methodologies, issues and techniques of data collection, analysis and interpretation; issues of ethics and bias.

588 Research Inquiry: Quantitative Methods I
3 Prereq graduate standing in nursing. Quantitative methodologies, issues and techniques of data collection, analysis and interpretation.

589 Psychometrics in Health Care Research
2 Prereq Nurs 588; 6 credits of graduate statistics. Application of psychometric theory and techniques for constructing, analyzing and testing instruments to measure nursing and educational interventions and outcomes.

590 Research Inquiry: Quantitative Methods II
2 Prereq Nurs 588; Nurs 589. Advanced theoretical and practical application of selected quantitative and methodological strategies.

591 Mixed Methods for Outcome Evaluation
2 Prereq graduate standing in nursing. Outcomes and evaluation in nursing and health care from both a qualitative and quantitative methods and application perspective.

592 Research Inquiry: Qualitative Methods II
2 Prereq Nurs 587. Application of qualitative methodologies, techniques of qualitative data analysis, presentation of qualitative findings, rigor, data management and research dissemination.
Students gain experiential learning through laboratories, practicums, and a semester-long internship focusing on exercise physiology and nutrition. The curriculum for the B.S. in Exercise Physiology and Metabolism is endorsed by the American College of Sports Medicine for meeting the knowledge, skills, and abilities standards required for Clinical Exercise Specialist® certification. The program is also accredited by the American Dietetic Association, and includes an optional coordinated program in dietetics (CPD). Senior ExMet students may apply to the CPD, a minor which entails 3 additional semesters of coursework and supervised practice in dietetics prior to graduation. Successful completion of the CPD allows graduates to test for the Registered Dietitian credential.

At the completion of their program, students will be expected to demonstrate effective written, oral, and visual communication skills in a variety of settings and environments for “target audiences”; apply knowledge of physical, chemical, and biological sciences to exercise and nutrition sciences; apply knowledge of behavioral and social sciences to exercise and nutrition habits of diverse populations; demonstrate the ability to use, interpret, evaluate, and apply research principles to exercise and nutrition interventions; apply knowledge, skills and abilities of exercise and nutrition assessment to individuals representing various health and disease states; demonstrate their understanding of the role of healthcare systems and public policy in the maintenance and achievement of health; demonstrate critical thinking skills gained throughout the Exercise Physiology and Metabolism curriculum by utilizing problem-solving activities and assignments; perform exercise and nutrition programming and work effectively as a team member in a variety of settings such as acute care, rehabilitation facilities and community health facilities; be well informed regarding the characteristics of various health and fitness settings and factors that impact their operation such as policies, regulatory agencies, reimbursement/ funding, and legislative issues; and model professional skills and behaviors, including social responsibility, ethical practice, and a commitment to lifelong learning.

Graduates will be prepared for successful and rewarding careers and job opportunities including: clinical programs in rehabilitation institutes, hospitals, and clinics; cardiac and pulmonary rehabilitation; community health centers; sports nutrition; university and worksite wellness programs; exercise and health promotion, commercial fitness centers; and personal and sports-specific training. Graduates who complete an approved clinical internship will be qualified to test for American College of Sports Medicine Certified Clinical Exercise Specialist® credential and/or the Registered Dietitian certification. In addition, graduates may seek admission to graduate programs in various disciplines, including exercise science or nutrition.

The following Program of Study is recommended for students who complete Years One and Two at WSU Pullman, and Years Three and Four at WSU Spokane, plus 600 clinical hours that include an exercise internship. Students coming from colleges or universities other than WSU Pullman will need to contact the Academic Coordinator in the Program in Nutrition and Exercise Physiology to determine appropriate prerequisites.

Program in Nutrition and Exercise Physiology, WSU Spokane

Professor and Director of the Program in Nutrition and Exercise Physiology, K.E. Meier; Professor, J. Armstrong Shultz; Associate Professors, S.E. Blank, E.C. Johnson, M. Ballejos; Assistant Professor, S. Marsh; Clinical Assistant Professors, J. Beary, S. Kynast-Gales; Clinical Instructors, J. Knuth, M. Houghton, L. Frank, C. Bork.

The Bachelor of Science in Exercise Physiology and Metabolism, with an option in Dietetics, is a unique, interdisciplinary undergraduate degree in the health sciences that focuses on the effects of exercise and nutrition on cellular function and on the health of individuals. Supporting prerequisite coursework, detailed in the Program of Study (below), provides a broad knowledge base in human anatomy, physiology, nutrition, chemistry, biochemistry, and microbiology; however, the primary focus of the upper division major is on advanced exercise physiology and nutrition.

The degree offers an integrative curricular approach in which students gain a unique perspective on how and why the human body responds to various exercise and nutritional stimuli through didactic and experiential assessment of genetic, clinical, social/psychological, and environmental factors.
Minors

Coordinated Program in Dietetics

The minor in the Coordinated Program in Dietetics requires 29 hours and includes the following: ExMet 401, 437, 451 and 440. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students applying for the minor must be certified majors in the BS Exercise Physiology and Metabolism program, and must have a minimum 3.00 cumulative GPA and a C or better in all courses within the BS ExMet curriculum. Upon successful completion of the BS Exercise Physiology and Metabolism degree and the CPD minor, students will be eligible to take the registration examination to become Registered Dietitians.

Description of Courses

EXERCISE PHYSIOLOGY AND METABOLISM

ExMet

300 Professional Preparation 2 Prereq junior standing certified exercise physiology and metabolism major. ADA and ACSM standards of practice, code of ethics; societal and cultural issues that impact the health care industry.

320 Strength Training and Conditioning: Theory and Application 4 Prereq Biol 251; Biol 315 or MtvSt 262. Application of scientific principles of strength and conditioning as it relates to exercise training and sports.

340 Foods with Application to Physical Activity 3 (2-3) Prereq one semester of organic chemistry. Experimental approach to physical, chemical and sensory properties of foods; overview of culinary techniques, technology and application to physical activity.

362 Biomechanical Analysis 3 Prereq [N] GER math course; MtvSt 262 or Biol 315. Applied sport, clinical and occupational biomechanics.


401 Community Supervised Practice 9 Prereq completion of all exercise physiology and metabolism requirements through the 4th year. Advanced principles of community dietary nutrition education along with hands-on community supervised practice experience.

402 Vitamin and Mineral Metabolism 2 Prereq ExMet 400. Absorption and metabolism of vitamins and minerals and their role in macronutrient metabolism and nutritional requirements for maintenance of health.

427 Nutritional Assessment and Lifestyle Counseling 3 (2-3) Prereq FSHN 233, Psych 105. Basic skills and concepts of nutrition assessment and lifestyle counseling of ambulatory adults using dietary intake, menu planning and communication skills.

435 Exercise, Diet and Disease 4 Prereq ExMet 400; ExMet 402; ExSci 463. Pathophysiology of disease and implications for dietary and exercise interventions.

437 Diet Therapy 4 Prereq completion of all exercise physiology and metabolism requirements through the 4th year. Theoretical and practical base for diet modification and nutritional therapy in health and a variety of disease states.

440 Clinical Supervised Practice 11 Prereq completion of all exercise physiology and metabolism requirements through the 4th year. Professional supervised experience offsite in clinical dietetics. Meets American Dietetic Association requirements for registration eligibility. S, F grading.

450 Management and Facilities 3 Prereq senior standing; certified exercise physiology and metabolism major. Essential skills and guidelines for those in the health facility industry in establishing and maintaining a safe and proper facility.

451 Management Practices in Food Science 5 (1-11) Prereq completion of all exercise physiology and metabolism requirements through the 4th year. Advanced principles of food systems; institutional food service management along with offsite, hands-on food service supervised practice experience.

458 Nutrition and Exercise Throughout the Life Cycle 4 Prereq senior standing in exercise physiology and metabolism. Physical activity relating to nutritional needs and dietary patterns from infancy through old age and including maternal nutrition. Cooperative course taught by UI, open to WSU students (FCS 486).


470 Sports Nutrition 3 Prereq ExSci 463, FSHN 233, MBioS 303. Identification of energy, macro/micronutrients and fluid requirements during exercise; evaluation of dietary practices and ergogenic aids for pre- and post-competition, weight maintenance.

473 Nutrition in the Community 2 Prereq completion of all exercise physiology and metabolism requirements through the 4th year. Public health nutrition including assessment of communities, problem list development, program planning and an overview of existing programs and services.

478 Electrophysiology and Exercise Biogenetics 3 Rec ExSci 463. Bioenergetic, stratiﬁed muscle metabolic, and neuroendocrine responses to exercise and training.

480 Cardiopulmonary Rehabilitation 4 (3-3) Prereq ExMet 435; ExMet 465; ExSci 463; ExSci 476. Principles and applications of exercise and nutrition assessment/ prescription and program management to cardiopulmonary and rehabilitation situations and populations.

490 Nutrition and Exercise Internship 10 (0-30) Prereq completion of all coursework for BS in Exercise Physiology and Metabolism. Supervised offsite exercise and nutrition field experience to assess normal and diseased clients and develop/apply nutrition and exercise prescriptions. S, F grading.

EXERCISE SCIENCE

ExSci

463 Advanced Exercise Physiology 4 (3-3) Prereq Biol 251; Biol 315 or MtvSt 262. Advanced undergraduate exercise physiology with emphasis on mechanisms regulating physiological responses to exercise across the life span.


501 Special Topics 3 Prereq admission to Clinical and Experimental Exercise Science graduate program. Special topics in exercise physiology and metabolism.

563 Exercise and Immune Response 3 Rec ExSci 463. Influence of physical exercise on immune response and consequent impact on host susceptibility to disease and infection.

565 Muscle Physiology and Exercise Biogenetics 3 Rec ExSci 463. Bioenergetic, stratiﬁed muscle metabolic, and neuroendocrine responses to exercise and training.

567 Cardiopulmonary Exercise Physiology 3 Rec ExSci 463. Pulmonary, circulatory, thermoregulatory, ﬂuid balance and physiological system integration responses to exercise and training.

568 Clinical Assessment and Prescription 3 Prereq ExSci 463, 476, 567. Development of knowledge and skills in clinical testing analysis, and exercise prescription for clinical populations. Cooperative course taught by UI, open to WSU students (PE 593).

589 Research Techniques V 2-3 Application and use of research techniques and tools in physiology of exercise.

590 Internship V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Opportunity in an educational, industrial, municipal or private sports or recreational setting; direct participation in tasks, research and reporting activities. S, F grading.
The College of Pharmacy

www.pharmacy.wsu.edu
Wagner 105
509-335-5901

COLLEGE OF PHARMACY Interim Dean and Professor, W. Campbell; Associate Dean and Clinical Associate Professor, C. A. Elstad; Associate Dean and Professor, D. E. Baker; Assistant Dean and Associate Professor, M. W. Garrison. DEPARTMENT OF PHARMACEUTICAL SCIENCES Professor and Chair, R. M. Quock; Professors, G. G. Meadows, K. E. Meier; Associate Professors, M. E. Black, S. S. Duoud, N. M. Davies; Assistant Professors, A. Hafte, D. W. Koh, G. Poon; Clinical Associate Professors, S. L. Chambers-Fox, C. A. Elstad. DEPARTMENT OF PHARMACOTHERAPY Clinical Associate Professor and Chair, L. G. MacLean; Professors, D. E. Baker, R. K. Campbell, L. J. Cohen; Clinical Assistant Professors, B. Bray, J. L. Ilitz, B. Kelly, T. L. Loven, A. Maldonado, G. Matsaura, J. K. Reynolds, J. Robinson, C. R. Schwartz, T. E. Sonnett, M. Wilson, L. Woodward.

The College of Pharmacy offers a course of study leading to a Doctor of Pharmacy (PharmD) degree. The PharmD schedule of studies involves four professional years. The third professional year of the PharmD curriculum is delivered in the Health Sciences building located on the Washington State University Spokane campus. The fourth professional year of the PharmD curriculum consists of advanced experiential training, in which students will be assigned to one of the following geographic locations: Spokane, Yakima, Vancouver, Tri-Cities, Tacoma or Pullman. They will be expected to complete the majority of their rotations in their assigned geographic locations. Students will gain experience in a variety of health care environments, including community, institutional, and long-term care settings. Ninety-four students are enrolled annually in the fall in the first professional year of the PharmD program. Pre-pharmacy requirements are listed under Pharmacy in this catalog.

The application period each academic year is from October 1st to January 1st. Although a bachelor's degree is not required for admission, pre-requisites for admission require more than two years of pre-pharmacy education. Because the number of applicants to the professional program exceeds the number that can be admitted, no assurance can be given that those who successfully complete the pre-pharmacy requirements will be admitted to the Doctor of Pharmacy program.

For information regarding the Doctor of Pharmacy curriculum, please see the College of Pharmacy home page at www.pharmacy.wsu.edu, or contact the College of Pharmacy Office of Student Services at 509-335-1402.

We expect our Doctor of Pharmacy graduates to successfully achieve the following competency-based outcomes:

Outcome 1 – Knowledge Acquisition and Critical Thought: The graduate shall acquire, analyze, synthesize, and apply knowledge in biomedical, pharmaceutical, and clinical sciences to facilitate positive therapeutic outcomes and prevent drug therapy related misadventures.

Outcome 2 – Communication: The graduate shall acquire a repertoire of verbal, non-verbal, and written communication skills, demonstrate professional level competency in applying these skills in a variety of cultural and practice contexts, and select appropriate methods for use in all facets of pharmacy practice.

Outcome 3 – Professionalism: The graduate shall practice ethically within the boundaries of the laws of pharmacy, uphold values and integrity embodied in the practice of pharmacy, and provide leadership/influence for the improvement of the profession.

Outcome 4 – Knowledge of the Profession, Professional Development, and Public Service: The graduate shall thoroughly understand the profession, assume responsibility for continuous professional development, and provide leadership/influence for the improvement of the health and wellness of individuals and society.

Outcome 5 – Medication Therapy Management: The graduate shall integrate and apply requisite biomedical, pharmaceutical, and clinical sciences, and communication skills, to evaluate, design, implement, and monitor optimal patient-centered pharmacotherapy plans, educate patients, identify and resolve drug related problems, and assure patient safety.

Outcome 6 – Management Systems, Processes and Operations: The graduate shall understand multiple factors/perspectives in US healthcare systems delivery; medication distribution, control, and quality management systems; and pharmacy management systems, policies, and operations to optimize patient/population outcomes.

The College of Pharmacy Office of Student Services: 509-335-1402.

We expect our Doctor of Pharmacy graduates to

**Schedules of Studies**

Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

**PROFESSIONAL CURRICULUM (134 HOURS)**

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**ELECTIVE**

**Principles of Chemistry**

Chemistry – Chem 105 and 106 – 8 credits

**Organic Chemistry**

Chemistry – Chem 345 and 346 – 7 credits

**Microbiology**

MBioS 305 – 5 credits

**Human Anatomy with lab**

Biol 315 – 4 credits

**Mammalian Physiology**

Biol 353 – 4 credits

**Biochemistry**

MBioS 303 – 4 credits

**Genetics or Molecular Genetics**

Biol 301, or MBioS 404 – 3 credits

**Nutrition and Exercise Physiology**

**Introductory Biology**

Biol 106 and 107 – 8 credits
499 Special Problems V 1-4 May be repeated for credit; cumulative maximum 12 hours. S, F grading.

500 P Pharmacy Practice Foundations 2 Prereq admission to PharmD program. Perspectives into the profession of pharmacy; pharmacy law, ethics, and careers.

501 P Applied Patient Care I: Patient Assessment 1 (0-3) Prereq admission to PharmD program. Laboratory course teaching hands-on physical assessment techniques from a pharmacy perspective, to provide patient-specific care. S, F grading.

502 P Applied Patient Care II: Clinical Assessment and Documentation 1 (0-3) Prereq PharmP 501. Clinical assessment and documentation skills necessary for effective pharmaceutical care.


510 P Introduction to Therapeutic Agents: Top 200 Drugs 1 (0-3) Prereq admission to PharmD program. Drugs most frequently prescribed in the US as a basis for pharmacy practice.

520 P Pharmacy Law and Regulatory Affairs 3 Prereq admission to PharmD program. Legal and ethical pharmacy practice including licensing, patient privacy protection, order fulfillment and contracts.

521 P Professional Communications Lab 1 (0-3) Prereq admission to PharmD program. Professional communication skills as an essential foundation for career development.

522 P Introductory Pharmacy Practice Experience I 1 Prereq successful completion of first year of PharmD program. Prepares student pharmacists for community practice experience and service learning activities.

524 P Professional Communications and Integrated Colloquium 1 (0-2) Prereq PharmP 521. Practice in eliciting information from patients, initiating educational interventions and demonstrating sensitivity to cultural factors.

526 P Introductory Pharmacy Practice Experience II 3 (0-9) Prereq completion of first year of PharmD program. Authentic practice situations and service learning with opportunities for discussion and reflection.

527 P Introductory Pharmacy Practice Experience III 1 Prereq completion of second year of PharmD program. Authentic practice situations and service learning with opportunities for discussion and reflection.

528 P Introductory Pharmacy Practice Experience IV 3 (0-9) Prereq successful completion of second year of PharmD program. Authentic practice situations and service learning with opportunities for discussion and reflection.

550 P Drug Information and Literature Evaluation 3 Prereq PharmP 540. Evaluation of drug information in pharmaceutical and biomedical literature to provide better patient care.

555 P Special Topics 2 Contemporary issues in pharmacy.

556 P Applied Clinical Pharmacokinetics 2 Prereq PharmS 530. Clinical applications of pharmacokinetics including theoretical background and application to patient care.

560 P Advanced Therapeutics 3 Prereq PharmP 545. Advanced pharmacotherapy in complex patients including cardiovascular diseases, infectious diseases and endocrine disorders.

561 P Acute Care Advanced Practice Experience V 1-5 May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in acute care settings.

562 P Ambulatory Care Advanced Practice Experience V 1-5 May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in ambulatory care settings.

563 P Elective I Advanced Practice Experience V 1-5 May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in acute or ambulatory patient care settings.

564 P Elective II Advanced Practice Experience V 1-5 May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in acute, ambulatory, or non-traditional patient care.

565 P Elective III Advanced Practice Experience V 1-5 May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in various health care settings.

566 P Community Advanced Practice Experience V 1-5 May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in a community pharmacy setting.

567 P Institutional Advanced Practice Experience V 1-5 May be repeated for credit; cumulative maximum 5 hours. Prereq PharmD didactic coursework completed. Advanced practice experience in an institutional pharmacy setting.
570 P Selected Topics in Pharmacy Practice  
2 Prereq PharP 530, 540. Interactive course addressing economic, ethical and professional aspects of health care delivery.

571 P Quality Assurance and Patient Safety  
2 Prereq admission to PharmD program. Patient safety issues including quality assurance, medication error avoidance and risk management in healthcare systems.

577 P Parenteral Products  
2 (0-4) Prereq PharP 546, 560; PharS 523. Preparation and administration of compounded parenteral products; patient case discussions and student presentations.

578 P Therapeutics of Special Populations  
3 Prereq PharP 560. Special therapeutic needs of unique populations including pediatrics, chronic neurologic disorders, hospice care and immuno-compromised patients.

579 P Inter-professional Health Care  
3 Prereq third year PharmD student. Interdisciplinary students (pharmacy, nursing, medicine) working and learning together using patient cases.

580 P Pharmacy Management  
3 Prereq admission to PharmD program. Management principles essential for common practice settings in the profession of pharmacy.

582 P Pharmacy Law  
3 Prereq third year standing. Laws relating to the practice of pharmacy.

585 P Patient Cases and Professional Presentations  
1 (0-2) Prereq PharP 546. Professional presentation/communication skills in pharmacy; focus on public speaking in various formats.

586 P Are We Poisoning our Parents?  
1 Prereq completion of second year of PharmD program. Causes and perils of an overmedicated society through discussion and avocation of safe and responsible use of drugs in older adults.

590 P Advanced Topics in Infectious Disease  
1 Prereq PharP 552; PharP 553. Advanced knowledge of infectious disease topics covered in therapeutic PharmD coursework. S, F grading.

591 P Medication Error Prevention  
2 Prereq upper-division, certified health sciences major. Interdisciplinary responsibilities and approaches to detection and prevention of medication errors; practice in developing risk management plans for specific cases.

592 P Medical Devices for Home Health Care  
2 Prereq third professional year pharmacy student. Review of medical devices used by patients for home care or self care and provision of recommendations to patients concerning these devices.

593 P Advanced Topics in Behavioral Health-Mental Health in the Media  
1 Prereq PharP 552; PharP 553. Advanced knowledge of behavioral health topics covered in Therapeutics PharmD coursework through discussion and case-based teaching, and opportunities for students to think through diagnosis, treatment, complications, adverse effects, interactions, and monitoring parameters. S, F grading.

594 P Comprehensive Diabetes Management  
3 Prereq current Pharm.D students who have completed the first semester of the pharmacy program. Multidisciplinary foundation for future health professionals in the principles of diabetes management, using self-paced, modular and internet-based alternative format for delivery. S, F grading.

595 P Emergency Preparedness and Public Health Response  
1 Prereq PharP 552. Terrorism and disaster emergency preparedness and the role of the pharmacist in the public health response. S, F grading.

596 P Entrepreneurship in Pharmacy  
1 Prereq PharP 580 or 581; third or fourth year PharmD student. Entrepreneurship and innovative pharmacy business plan development. S, F grading.

597 P Case Studies in Neonatal Pharmacy  
1 Prereq admission to the PharmD program. Case-based approach to pharmacological issues in the neonatal intensive care unit. S, F grading.

598 P Elementary Science Education Practicum  
1 (0-2) Prereq third year PharmD student. Prereq third year Pharm D student. Communication with children in classroom environment to stimulate future practicing pharmacists to participate in outreach activities as part of science education.

599 P Special Projects  
2 May be repeated for credit; cumulative maximum 4 hours. Laboratory research, clinical research, or comprehensive review of selected subjects. S, F grading.

PHARMACEUTICAL SCIENCES

PharS

499 Special Problems  
V 1-4 May be repeated for credit; cumulative maximum 12 hours. S, F grading.

500 P Pathophysiology with Medical Terminology  
4 Prereq admission to PharmD program. Review of human physiology along with an overview of human pathophysiology, including medical terminology.

510 P Pharmacy Calculations  
1 (0-3) Prereq admission to PharmD program. Familiarizes students with the drugs most frequently prescribed in the US, as a basis for pharmacy practice. S, F grading.

521 P Pharmaceutics I  
3 Prereq admission to PharmD program. Principles of dosage form design and drug delivery, with an emphasis on physiochemical principles.

522 P Pharmaceutics II  
2 Prereq PharS 521. Principles of dosage from design and drug delivery, with an emphasis on pharmaceutical technology and biopharmaceutics.

523 P Pharmaceutics Laboratory  
1 (0-3) Prereq PharS 510, 521; c// PharS 522. Laboratory experience in the preparation of medicines.

530 P Pharmacokinetics  
3 Prereq PharS 522. Qualitative and quantitative understanding of the processes of drug absorption, distribution and elimination.

534 P Pharmaceutical Biotechnology  
2 Prereq PharS 543P. Pharmacological and pharmaceutical properties of medications derived from biotechnology.

540 P Immunology  
2 Prereq successful progress in PharmD program. Fundamentals of immunology, including the immunological mechanisms that underlie prevention and clearance of infectious diseases, and immune reactions that contribute to disease; mechanism of action of immunomodulatory and immunomodulatory agents.

543 P Pharmacological Basis of Therapeutics III  
4 Prereq PharS 542P. Structure activity relationship, mechanism of action, medication-related effects, therapeutic uses, adverse reactions, and drug interactions of endocrine and central nervous system medications.

544 P Toxicology  
2 Prereq PharS 542P. Mammalian toxicology emphasizing basic concepts, target organ toxicity, carcinogenesis, clinical toxicology, and the toxicology of natural products and dietary supplements.

551 P Integrated Pharmacology I  
3 Prereq admission to PharD program. Medicinal chemistry, drug metabolism, signal transduction, drug development and autonomic pharmacology.

552 P Integrated Pharmacology II  
4 Prereq PharS 551. Pharmacology of drugs acting on the cardiovascular system, peripheral sites and central nervous system.

553 P Integrated Pharmacology III  
4 Prereq PharS 552. Immunopharmacology (including immunizations), chemotherapeutics (antibiotics, antivirals, and anti-cancer drugs), and endocrine pharmacology.

554 P Integrated Pharmacology IV  
4 Prereq Phar S 553. Pharmaceutical biotechnology, basic toxicology, pharmacogenomics and complementary and alternative medicines.

Program in Pharmacology and Toxicology

www.pharmacy.wsu.edu/PharmTox

Wegner Hall 305

509-335-7598


The sciences of pharmacology and toxicology are important to maintenance of human and animal health, food resources, and environmental quality. Pharmacologists and toxicologists study the interaction of chemicals with biological systems to understand their adverse effects and their useful effects for the treatment of disease. The Pharmacology/Toxicology program consolidates the research and teaching expertise of faculty primarily in the Colleges of Pharmacy (Pharmaceutical Sciences Department), Veterinary Medicine, Sciences (chemistry and molecular biosciences) and Liberal Arts (psychology).
Students entering the program should have completed undergraduate work in biology, chemistry (including organic chemistry and biochemistry), mathematics (through calculus), an upper division level organ/mammalian physiology course, and an undergraduate statistics course. We also welcome applications from applicants who have a professional degree in pharmacy. Course deficiencies may be rectified during the first year of graduate study, but this may hinder the student’s ability to take core P/T courses in the first year. Students in both the MS and PhD programs are expected to develop an area of emphasis that is consistent with the research capabilities and interests of the faculty.

Each student in the program is required to complete the core curriculum: MBioS 513, Phil 530, P/T 501, P/T 502, P/T 505**, P/T 506, P/T 507**, P/T 505, P/T 555 (PhD only), P/T 597, V Ph 505* (stats).

In addition, elective graded coursework (currently 3 credits for MS students; 12 credits for PhD students) from advanced courses in pharmacology, toxicology or related subjects are required. The student, in consultation with his/her advisor, selects elective course work that complements each student’s research and career interests. Each student is required to write a thesis based upon original laboratory research. The research interests of the faculty span a broad spectrum including: animal models of disease (colitis, ulceration, hyperlipidemia, colorectal cancer, breast cancer, hepatitis); behavioral and neuropharmacology; cancer biology; cardiovascular pharmacology; drug metabolism; endocrinology; immunopharmacology; medicinal chemistry; molecular biology (including gene therapy, epitope tags and site-directed mutagenesis); molecular pharmacology; pharmacokinetics and drug delivery technology; reproductive biology; and signal transduction.

Our program is housed in Wegner Hall on the main campus in Pullman. Research methods being employed by the faculty include: amino acid analysis; animal pharmacokinetics; behavioral (anxiety and pain) testing; immunocytochemistry; cell culturing and sorting; cell transfections, including siRNA; DNA sequencing; flow cytometry; immunoblotting and immune precipitation; lipid analyses; mitochondrial DNA-PCR; mouse tumorigenesis testing; oligonucleotide and peptide synthesis; Phase I and Phase II in vitro metabolism; phospholipase assays radioligand binding assay; radioimmunoassay; and signal transduction analyses.

Laboratories of individual faculty members in the pharmacology and toxicology program are well equipped with: 2-D protein electrophoresis equipment; beta and gamma counters; BioRad Gel Doc imaging system (visible and UV); Cartesan and Kopf stereotactic headholders, animal observation chambers; custom-built for behavioral studies; cell electroporator; Cytoscrub fluorescence machine; gas and high performance liquid chromatographs (HPLC); Fluorescence and UV/visible microplate readers; flow cytometer; densitometer; Molecular Dynamics STORM system (fluorescence and UV imaging); PCR and real-time PCR instrumentation; single-quad mass spectrometer and HPLC; Li-Cor infrared imaging system; Malvern particle sizer; and other instruments to perform their research projects. Also located on campus is an Electron Microscopy Center, as well as facilities for NMR and imaging equipment. Graduate faculty have access to accredited animal care facilities.

Applications for admission to the program must include: Official GRE scores, official transcripts for all college level work, three letters of recommendation, and a letter discussing career goals and research interests. For students whose native language is not English, TOEFL scores above 600 (paper-based test), 250 (computer-based TOEFL) or 100 (Internet based TOEFL) are required. Inquiries should be emailed to: pharmtox@wsu.edu or bbr@wsu.edu.

**Description of Courses**

**PHARMACOLOGY AND TOXICOLOGY**

**P/T**

**502 Faculty Research in Pharmacology/Toxicology** 1 P/T graduate standing. Introduction to faculty research for incoming graduate students. S, F grading.

**505 Principles and Methods of Toxicology** 3 P/T MbioS 513 or c/f; 300-level organ/mammalian physiology or permission of instructor. Basic concepts in mammalian toxicology and the methodology currently employed for toxicological investigations. Cooperative course taught by WSU, open to UI students (IST 505).

**506 Principles of Pharmacology** 3 P/T MbioS 513 or c/f. Mechanisms of drug action and the factors that modify drug responses; drug design and drug development. Cooperative course taught by WSU, open to UI students (IST 506).

**507 Principles of Therapeutics** 3 P/T 300-level organ/mammalian physiology; P/T 506. Organ systems pharmacology, including drug actions, effects, side effects, and interaction of medications used in therapeutics.

**Advanced Pharmacokinetics/Toxicokinetics** 3 P/T 506. Kinetics of drug absorption, distribution, elimination, and pharmacologic response. Cooperative course taught by WSU, open to UI students (VA 510).

**511 Topics in Toxicology** V 1-4 May be repeated for credit; cumulative maximum 12 hours. By interview only. Topics of current interest in toxicology and closely related areas. Cooperative course taught by WSU, open to UI students (VA 511).

**512 Topics in Pharmacology** V 1-4 May be repeated for credit; cumulative maximum 12 hours. By interview only. Topics of current interest in pharmacology and closely related disciplines. Cooperative course taught by WSU, open to UI students (VA 512).

**555 General and Cellular Physiology** 4 (3-3) P/T 506. Prerog cell physiology or genetics course. Same as V P/5 555.

**572 Fundamentals of Oncology** 3 P/T MbioS 513. Thorough overview of cancer biology encompassing basic cellular and molecular mechanisms of carcinogenesis and tumor progression, treatment and prevention. Cooperative course taught by WSU, open to UI students (IST 565).

**597 Pharmacology and Toxicology Seminar** 1 May be repeated for credit; cumulative maximum 12 hours. Cooperative course taught by WSU, open to UI students (VA 597). S, F grading.

**600 Special Projects or Independent Study** V 1-18 May be repeated for credit. S, F grading.

**700 Master’s Research, Thesis, and/or Examination** V 1-18 May be repeated for credit. S, F grading.

**800 Doctoral Research, Dissertation, and/or Examination** V 1-18 May be repeated for credit. S, F grading.

**Department of Philosophy**

libarts.wsu.edu/philo
Bryan Hall 316
509-335-4249

Associate Professor and Department Chair, D. L. Shier; Professor, M. W. Myers; Associate Professors, J. K. Campbell, D. M. Holbrook; Assistant Professor, A. Bunch, W. Kabeasenche, M. Stichter; Emeritus, H. S. Silverstein.

The Department of Philosophy offers courses in which students discuss fundamental intellectual questions and both classical and contemporary attempts to address them. What makes for a morally right act or a just society? What sorts of things can we really claim to know? What is mind, and what is its relation to matter? Are we really capable of free choice or is our every act determined by past events? These are the kinds of questions that are addressed by philosophers.

Philosophy students acquire knowledge of ethics, logic, political philosophy, philosophy of religion, epistemology, metaphysics, and other areas which provide excellent intellectual foundations for careers in law, government service, education, ministry, and many other fields.

The study of philosophy enables students to explore critically a variety of systems of beliefs and values, to identify and challenge the foundations of their own beliefs and values, and to develop sound habits of critical thinking and communication skills that are central to success in all professions.

We expect our undergraduate students to 1) develop the critical thinking skills necessary for evaluating intellectual material from any discipline; 2) learn basic methods of symbolic logic (propositional logic or higher); 3) learn standard research procedures and methods for philosophy; 4) develop their abilities to write and speak effectively about philosophy and other subjects; 5) come to understand theories, concepts, and issues of moral philosophy; and 6) gain both broad knowledge of philosophy and knowledge within specialized fields of philosophy.

The department offers programs of study leading to the Bachelor of Arts in Philosophy (in either the Traditional Option or the Pre-Law Option) and the Master of Arts in Philosophy.
Schedules of Studies

**PHILOSOPHY - PRE-LAW OPTION**

(120 HOURS)

No course with a grade of D+ or less and no course taken pass/fail will be counted toward the major. The overall GPA for courses in the major must be at least a 2.00.

**First Year**

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math Proficiency [N] (GER) 3
- Phil 260 3

**Second Term**
- Communication Proficiency [C,W] (GER) 3
- GenEd 111 [A] (GER) 3
- Phil 201 3
- Science Elective (GER) 4
- Social Sciences [S,K] (GER) 3

**Second Year**

**First Term**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
- Biological Sciences [B] (GER) 4
- Foreign Language, if necessary, or Elective 3
- Phil Elective 3
- Elective 1

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
- Foreign Language, if necessary, or Elective 4
- Phil Elective 3
- Physical Sciences [P] (GER) 4
- Complete Writing Portfolio

**Third Year**

**First Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Intercultural Studies [L,G,K] (GER) 3
- Phil 360, 365, or 370 3
- Pol S 300 3
- Elective 3

**Second Term**
- Engl 301 [W] or Phil 200 [W] (GER) 3
- Phil 460, 470, or 472 3
- Tier III Course [T] (GER) 3
- Elective 6

**Fourth Year**

**First Term**
- Phil 495 [M] 3
- Phil Electives 6
- Electives 6

**Second Term**
- Phil Elective 3
- Electives 12

**PHILOSOPHY - TRADITIONAL OPTION**

(120 HOURS)

No course with a grade of D+ or less and no course taken pass/fail will be counted toward the major. The overall GPA for courses in the major must be at least a 2.00.

**First Year**

**First Term**
- Arts & Humanities [H,G] (GER) 3
- Engl 101 [W] (GER) 3
- GenEd 110 [A] (GER) 3
- Math Proficiency [N] (GER) 3
- Phil 101 [H] (GER) 3

**Second Term**
- Communication Proficiency [C,W] (GER) 3
- GenEd 111 [A] (GER) 3
- Phil 201 [H] (GER) 3
- Science Elective (GER) 4
- Social Sciences [S,K] (GER) 3

**Second Year**

**First Term**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
- Biological Sciences [B] (GER) 3
- Foreign Language, if necessary, or Elective 4
- Phil 320 [H] (GER) 3
- Elective 1

**Second Term**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER) 3
- Foreign Language, if necessary, or Elective 4
- Phil 321 3
- Physical Sciences [P] (GER) 4
- Complete Writing Portfolio

**Third Year**

**First Term**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
- Intercultural Studies [L,G,K] (GER) 3
- Phil 314 or 315 3
- Phil 322 or 420 3
- Phil 446 or 447 3

**Second Term**
- Phil 325, 442, or 443 3
- Phil 460 [M] or 472 [M] 3
- Tier III Course [T] (GER) 3
- Elective 6

**Fourth Year**

**First Term**
- Phil 495 [M] 3
- Phil Electives 6
- Electives 6

**Second Term**
- Phil Elective 3
- Electives 12

**Minors**

**Ethics**

The minor in ethics consists of 18 credit hours, of which at least 15 must be from ethics courses within the department of philosophy, such as Phil 260, 360, 365, 370, 460, 462 and 472. 3 credit hours may, with approval of the department of philosophy, be from an ethics course in the student's major or in another department. Nine of the 18 hours must, in accord with university policies, be in upper-division course work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Philosophy**

The minor in philosophy consists of 16 hours of course work, at least 9 of which must be in 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Courses are chosen by the student, in consultation with the department, but will normally include Phil 101 and will always include Phil 201.

**Description of Courses**

**PHILOSOPHY Courses**

**Phil**
- 101 [H] Introduction to Philosophy 3 Nature and place of philosophy in human thought; problems and achievements.
- 198 [H] Philosophy Honors 3 Open only to students in the Honors College.
- 200 [W] Writing and Reasoning 3 Application of critical thinking skills to essay writing.
- 201 [H] Elementary Logic 3 Analysis and evaluation of deductive and non-deductive arguments.
- 207 [H] Philosophy of Religion 3 Critical inquiry into the existence and nature of God; the problem of evil; the relation of faith and reason; immortality and miracles.
- 210 [H] Philosophy in Film 3 The use of film as "philosophical text", discussing philosophical theories and debates presented in films, both old and new.
- 260 [H] Introduction to Ethics 3 Ethics through analysis of contemporary moral and social issues.
- 315 [G,M] Philosophies and Religions of China and Japan 3 The philosophies and religions of China and Japan, and their metaphysical, epistemological, ethical, social, and political positions and views of God and gods.

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1 One Phil elective must be [M] if two have not been taken.
320 [H] History of Ancient and Medieval Philosophy 3 Prereq 3 hours in Phil. Pre-Socrates, Plato, Aristotle; post-Aristotelian philosophy to the Renaissance. Cooperative course taught jointly by WSU and UI (PHIL 320).

321 [H] History of Modern Philosophy 3 Prereq 3 hours in Phil. Renaissance, 17th and 18th century philosophers. Cooperative course taught jointly by WSU and UI (PHIL 321).

322 [H] Nineteenth-century Philosophy 3 Prereq 3 hours in Phil. The Continental, post-Kantian tradition, with emphasis on thinkers such as Hegel, Schopenhauer, Kierkegaard and Nietzsche. Cooperative course taught by WSU, open to UI students (PHIL 322).

350 [H] Philosophy of Science 3 Purpose and logical structure of science; human implications. Cooperative course taught jointly by WSU and UI (PHIL 412).

360 [H] Business Ethics 3 The principles of ethics as applied to specific problems in business faced by individuals and corporate institutions.

365 [H] Biomedical Ethics 3 Ethical problems in medicine and biological research.

370 [H] Environmental Ethics 3 The place of humans in nature and human obligations to nature, if any.

390 Topics in Philosophy 3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.

401 Advanced Logic 3 Prereq Phil 201. First-order predicate logic plus some metatheory, applications and/or extensions. Credit not granted for both Phil 401 and 501. Cooperative course taught by WSU, open to UI students (PHIL 402).

406 Philosophy and Race 3 Prereq 3 hours in Phil or CES 201. Same as CES 406. Cooperative course taught by UI, open to WSU students (PHIL 406).

407 Seminar in Philosophy of Religion 3 May be repeated for credit; cumulative maximum 6 hours. Senior seminar for majors in religious studies. Advanced topic-driven seminar. Critical analysis of traditional and contemporary religions and religious phenomena. Credit not granted for both Phil 407 and 507.

413 [T] Mind of God and the Book of Nature: Science and Religion 3 Prereq 3 hours Phil; completion of science General Education Requirements; completion of one Tier I and two Tier II courses. Methodological comparison; cutting edge issues in science as they impact theism; guest lectures from professors in the natural sciences.

420 Contemporary Continental Philosophy 3 Prereq 3 hours Phil. Selected movements, figures, and issues in recent continental philosophy. Cooperative course taught by WSU, open to UI students (PHIL 420).

421 Kant 3 Prereq 3 hours of philosophy. Exploration of Kant's philosophy and the philosophies heavily influenced by Kant. Cooperative course taught by WSU, open to UI students (PHIL 421).

425 [T,D] Philosophy and Feminism 3 Prereq 3 hours Phil or W St 200. Feminist philosophy as critique of Western philosophical tradition and as alternate framework for thought.

431 [T] Aesthetics and Philosophy of Art 3 Prereq 3 hours Phil; completion of one Tier I and three Tier II courses. Philosophical exploration of aesthetics experience and any or all of the arts; emphasis on value considerations and comparisons of differing media. Cooperative course taught jointly by WSU and UI (PHIL 431).

435 [T] East/West Philosophy of Architecture 3 Prereq completion of one Tier I and three Tier II courses. East/West philosophies and their impact on understanding of nature and architecture.

442 [M] Analytic Philosophy of Mind 3 Prereq 3 hours Phil. Theories of mind, self, mental acts, psychological states and artificial intelligence. Cooperative course taught jointly by WSU and UI (PHIL 442).

443 Philosophy of Language 3 Prereq 3 hours Phil. Investigation of philosophical issues concerning meaning, reference, truth, the nature of language, and the relation between language and thought. Cooperative course taught jointly by WSU and UI (PHIL 443).

451 Philosophy of Biology 3 Prereq 3 hours Phil, 3 hours Biol. Conceptual problems and value questions in defining biology as a human endeavor and in defining its scope and its aims. Cooperative course taught by UI, open to WSU students (PHIL 451).

452 [M] Social and Political Philosophy 3 Prereq 3 hours Phil or Pol S. Problems of normative social and political theories; historical and contemporary philosophers. Cooperative course taught jointly by WSU and UI (PHIL 452).

499 Special Problems V 1–4 May be repeated for credit. S, F grading.

501 Advanced Logic 3 Prereq Phil 201. Graduate-level counterpart of Phil 401; additional requirements. Credit not granted for both Phil 401 and 501. Cooperative course taught by WSU, open to UI students (PHIL 402).

504 Special Topics in Philosophy 3 May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Intensive study of a special topic not otherwise covered in depth in the curriculum. Cooperative course taught jointly by WSU and UI (PHIL 504).

507 Seminar in Philosophy of Religion 3 Graduate-level counterpart of Phil 407; additional requirements. Credit not granted for both Phil 407 and 507.

510 Seminar in the History of Philosophy 3 Prereq graduate standing. Systematic exploration of the central works of an individual philosopher or philosophical movement. Cooperative course taught jointly by WSU and UI (PHIL 510).

520 Seminar in Ethical Theory 3 Prereq graduate standing. The major issues, views, and figures of ethical theory from ancient Greece to the present.

522 Seminar in Metaphysics 3 Prereq graduate standing. The nature of reality, through study of key concepts such as God, personhood, free will, causation, space, time, and identity.

524 Seminar in Epistemology 3 Prereq graduate standing. Classical problems, questions, and theories involving the concept of knowledge.

530 Bioethics 2 Prereq graduate standing. Professional ethics for scientists; ethical implications of new technologies; obligations to human and non-human research subjects.

532 Seminar in Business Ethics 3 Prereq graduate standing. The major issues in business ethics, both domestic and international, from general principles to specific cases.

535 Advanced Biomedical Ethics 3 Current ethical issues in medical practice, medical research and public policy relating to health issues. Cooperative course taught by WSU, open to UI students (PHIL 535).

543 Philosophy of Language 3 Graduate-level counterpart of Phil 443, additional requirements. Credit not granted for both Phil 443 and 543. Cooperative course taught jointly by WSU and UI (PHIL 443).

551 Philosophy of Biology 3 Graduate-level counterpart of Phil 451; additional requirements. Cooperative course taught jointly by WSU and UI (PHIL 551).

552 Environmental Philosophy 3 Prereq graduate standing. Philosophical examination of various ethical, metaphysical and legal issues concerning humans, nature and the environment. Cooperative course taught by UI, open to WSU students (PHIL 552).

556 Religion and Environment 3 Concepts of the sacred, the human and nature and their interrelationships with religious traditions and how they relate to ecology and environmental ethics. Cooperative course taught by UI, open to WSU students (PHIL 556).
570 Philosophy of Law 3 Graduate-level counterpart of Phil 470, additional requirements. Credit not granted for both Phil 470 and 570. Cooperative course taught jointly by WSU and UI (PHIL 410).

571 Ecological Jurisprudence 3 Prereq graduate standing. Nature of law at the intersection of nature and culture including influences from the philosophy of pragmatism. Cooperative course taught by UI, open to WSU students (PHIL 571).

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Physical Education Activity

PEB 101
509-335-1309

Description of Courses

PE-ACTIVITY

Physical Education Activity courses are open to all students. PEACT courses numbered 100 through 174 are for beginners. Those numbered 177 and above are for intermediate or advanced students. PEACT course credit is granted on the basis of 1 credit for two-one-hour classes per week. PEACT courses may not be repeated for credit, with the exception of PEACT 200 Special Topics (1 credit hour, repeatable to a maximum of 4 hours). Only 8 hours of PEACT credit may be applied toward graduation credit. Courses are graded A, S, or F, except as noted.

PEACT
101 Beginning Conditioning 1 (1-1) S, F grading.
102 Beginning Conditioning ROTC 1 (1-1) A, S, F grading.
107 Beginning Judo 1 (1-1) A, S, F grading.
108 Karate 1 (1-1) A, S, F grading.
112 Weight Training 1 (1-1) S, F grading.
114 Beginning Gym Tumbling 1 (1-1) A, S, F grading.
119 Aerobic Dance 1 (1-1) S, F grading.
120 American Social Dance Men 1 (1-1) A, S, F grading.
121 American Social Dance Women 1 (1-1) A, S, F grading.
126 Beginning Mod Dance 1 (1-1) A, S, F grading.
127 Beginning Jazz Dance 1 (1-1) A, S, F grading.
128 Beginning Swimming 1 (1-1) A, S, F grading.
131 Scuba Diving 2 (1-3) A, S, F grading.

132 Conditioning Swimming 1 (1-1) S, F grading.
133 Water Aerobics 1 (1-1) S, F grading.
140 Jogging 1 (1-1) S, F grading.
141 Beginning Golf 1 (1-1) A, S, F grading.
143 Beginning Bowling 1 (1-1) A, S, F grading.
145 Beginning Fencing Men 1 (1-1) A, S, F grading.
146 Beginning Fencing Women 1 (1-1) A, S, F grading.
150 Beginning Tennis 1 (1-1) A, S, F grading.
152 Pocket Billiards 1 (1-1) A, S, F grading.
154 Beginning Racquetball 1 (1-1) A, S, F grading.
158 Beginning Volleyball 1 (1-1) A, S, F grading.
164 Beginning Soccer 1 (1-1) A, S, F grading.
177 Intermediate Racquetball 1 (1-1) A, S, F grading.
200 Special Topics 1 (1-1) May be repeated for credit; cumulative maximum 4 hours. A, S, F grading.
201 Intermediate Conditioning ROTC 1 (1-1) A, S, F grading.
208 Intermediate Karate 1 (1-1) A, S, F grading.
220 Advanced Social Dance Men 1 (1-1) A, S, F grading.
221 Advanced Social Dance Women 1 (1-1) A, S, F grading.
235 Lifeguarding 2 (1-3) A, S, F grading.
242 Advanced Golf 1 (1-1) A, S, F grading.
250 Intermediate Tennis 1 (1-1) A, S, F grading.
251 Advanced Tennis 1 (1-1) A, S, F grading.
258 Intermediate Volleyball 1 (1-1) A, S, F grading.
265 Advanced Soccer 1 (1-1) A, S, F grading.
266 Fly Fishing 1 (1-1) A, S, F grading.

Physical Science Courses

Description of Courses

PHYSICAL SCIENCES

Ph S

298 [P] Physical Science Honors 4 (3-3) Concepts from cosmology, astronomy, physics, chemistry, and biochemistry; how matter evolved from the Big Bang to intelligent life forms.

430 Methods of Teaching Science 3 (2-3) Prereq admission to secondary teacher prep; 36 hours science. Same as Biol 430.

Department of Physics and Astronomy

www.physics.wsu.edu
Webster 1245
509-335-9532

Professor and Department Chair, S. L. Tomsovic; Professors, G. S. Collins, Regents Professor J. T. Dickinson, Regents Professor V. M. Gupta, Regents Professor M. G. Kuzay, K. G. Lynn, P. L. Marston, M.D. McCluskey, M. D. Miller; Associate Professors, D. Blume, S. Bose, S. L. Dexheimer, F. Engels, G. Worthey; Assistant Professors, Yi Gu, C. Zhang; Clinical Associate Professor, F. Gittes; Senior Instructor, M. Allen, Instructor, N. Cerruti.

Physics is the study of nature at its most fundamental level. It is the science upon whose principles all other sciences and technologies are based. A major in physics is ideal preparation not only for further study in physics but also for advanced study in biophysics, medicine, astrophysics, geophysics, chemical physics, engineering, meteorology, and computer science. All of these areas also offer potential careers for the physics major.

Courses offered by the physics department introduce the student to the major physical theories: mechanics, thermodynamics and statistical physics, electricity and magnetism, and quantum physics. Additional undergraduate courses cover optics, atomic physics, nuclear physics, solid state physics, biological physics, and astrophysics. Students test the theories in laboratories and learn experimental techniques needed to work with modern apparatus such as computers, high-vacuum equipment, lasers, and electronic and optical devices.

Active research programs supported by federal grants and contracts are pursued in the following fields: acoustics (scattering, nonlinear processes, and levitation); astrophysics (planetary, stellar, and galactic structure and evolution); astrophysical generation of gravitational waves; gravitational wave data analysis, cosmology; optical properties of semiconductors; biophysics; nanoscale physics and materials; Bose-Einstein condensates, cluster physics; optical physics (femtosecond laser spectroscopy, scattering from doped polymers, nonlinear optics, quantum electronics, Fourier spectroscopy, diffraction catastrophes); physics education (use of microcomputers in teaching and labs); nuclear solid state physics (MÖssbauer effect, perturbed angular
correlation, positron annihilation studies of defects in solids; shock wave and high pressure physics (chemical and structural response of condensed materials to high dynamic pressures, time-resolved optical spectroscopy, shock and detonation wave propagation, chemical reactions, dynamic mechanical failure); surface and chemical physics (synchrotron SANS, diamond films, molecular interactions with surfaces, reactive etching of surfaces, photoelectric and thermal emission microscopy); theory (quantum chaos, nonlinear dynamics, mesoscopic systems, phase transitions and critical phenomena, quantum liquids, and gases, atomic and molecular physics, classical and quantum gravity, black hole thermodynamics, and low-temperature physics). These research groups offer graduate students the opportunity to pursue original investigations required for advanced degrees. Undergraduate physics majors are encouraged to participate in research through the special-project course (Phys 499) and through part-time jobs that are sometimes available.

The department offers courses of study leading to the degrees of Bachelor of Science in Physics, Master of Science in Physics, and Doctor of Philosophy (Physics).

Astronomy courses at both the undergraduate and graduate levels are administered by the department. Instruction in astronomy is enhanced by the use of a 12-inch refractor at the Jewett Observatory, a Spitz planetarium, and faculty research at LIGO gravitational-wave observatory. Opportunities are available for students to collaborate with faculty to do research projects.

The Department of Physics is a major participant in the Materials Science Program and offers courses and research opportunities leading to advanced degrees in this interdisciplinary program.

The Department of Physics in collaboration with the School of Electrical Engineering and Computer Science offers a specialized Master of Science in Physics in the multidisciplinary area of Optoelectronics.

The Department of Physics has developed a variety of options for students seeking a major in physics. For most of these options, the program in the first two years is the same. Differences in these will appear as ______. The program is appropriate for students who have had a good experience with calculus and wish to start physics in their second semester at WSU. Students who have placed into Math 172 can accelerate the math sequence. Upon consultation with the departmental advisor, modifications can be made in the list of required courses to fit the needs of individual students.

**Certification Requirements**

A student may certify as a physics major after completing 30 credits (preferably including Phys 201 and Math 171) with a cumulative GPA of 2.0 or better. A research experience is required of all students as a 499 project; however, to gain valuable work experience outside the university, students are strongly encouraged to participate in an internship or research experience in industry or a government lab outside of WSU. The summer after the junior year is the most appropriate time for this experience. All students are required to submit an undergraduate thesis to the physics faculty in the senior year. Phys 490 will give credit for this effort. The student must earn a C (2.0) or better grade in each of the required physics courses.

**Transfer Students**

Transfer students receive credit for equivalent courses taken elsewhere, but must meet the requirements for graduation listed.

**Preparation for Graduate Study**

Undergraduate students contemplating graduate work in physics should consider enrolling in Phys 443, 521, 571, and additional math courses.

**Schedules of Studies**

**PHYSICS - FIRST AND SECOND YEAR REQUIREMENTS (120 HOURS)**

A student may certify as a physics major after completing 30 credits (preferably including Phys 201 and Math 171) with a cumulative GPA of 2.0 or better. A research experience is required of all students as a 499 project; however, to gain valuable work experience outside the university, students are strongly encouraged to participate in an internship or research experience in industry or a government lab outside of WSU. The summer after the junior year is the most appropriate time for this experience. All students are required to submit a graduate thesis to a committee of two physics faculty members in the senior year. Phys 490 will give credit for this effort. The student must earn a C (2.0) or better grade in each of the required physics courses.

The first year requirements are common to all physics degree programs:

**First Year**

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 105 [P] (GER) or 115</td>
<td>4</td>
</tr>
<tr>
<td>Degree program course, if necessary¹</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 171 [N] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Phys 188</td>
<td>1</td>
</tr>
</tbody>
</table>

**Second Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 106 [P] (GER) or 116</td>
<td>4</td>
</tr>
<tr>
<td>Degree program course, if necessary¹</td>
<td>3 or 4</td>
</tr>
<tr>
<td>GenEd 110 [A] or 111 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Math 172</td>
<td>4</td>
</tr>
<tr>
<td>Phys 201 or 205</td>
<td>3 or 5</td>
</tr>
</tbody>
</table>

**Second Year**

**First Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Biological Sciences [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Degree program course, if necessary²</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Math 220</td>
<td>2</td>
</tr>
<tr>
<td>Math 273</td>
<td>2</td>
</tr>
<tr>
<td>Phys 202 or 206</td>
<td>4 or 5</td>
</tr>
</tbody>
</table>

**Second Term**

<table>
<thead>
<tr>
<th>Course</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cpt S 121</td>
<td>4</td>
</tr>
<tr>
<td>Degree program course, if necessary²</td>
<td>3 or 4</td>
</tr>
<tr>
<td>Math 315</td>
<td>3</td>
</tr>
<tr>
<td>Phys 303</td>
<td>3</td>
</tr>
<tr>
<td>Phys 330</td>
<td>3</td>
</tr>
<tr>
<td>Social Sciences [S,K] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Complete Writing Portfolio</td>
<td></td>
</tr>
</tbody>
</table>

² Environmental: ES/RP 101; Physics Education: Psych 105 [S] (GER) ComSt 102 [C] (GER); Computational Physics: Cpt S 121, 122.

³ Astrophysics: Phys 345; Biophysics, Environmental Physics: Biol 106, 107; Computational Physics: EE 214, CptS 223, Optics and Electronics; Instrumentation: E E 214; Physics Education: T & L 300, 301.

**THIRD AND FOURTH YEAR REQUIREMENTS**

Note: the minors listed require that the student apply to the respective department before graduation. The minors are never automatically issued. In some degree programs, the course work is close to that required for a minor, but the student must negotiate with the relevant department to finalize that minor program; these degree programs are listed as possibly offering the minor.

Consult the physics department to determine when classes should be taken.

The third/fourth year options are:

- **Standard Four-Year Degree Option**

  This program yields a Bachelor of Science in Physics degree with a minor in mathematics.

  Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [L,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [W,M]; Tier III Humanities or Social Sciences Course (GER); Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 415 [M], 450, 461, 463, 465, 490 [M], 499 (One hour of 499 in an appropriate department or physics required. Additional hours may be taken for credit).

- **Standard Option**

  This program yields a Bachelor of Science in Physics degree with a minor in mathematics.

  Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [L,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [W,M]; Tier III Humanities or Social Sciences Course (GER); Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 412, 415 [M], 443, 450, 463, 465, 490 [M], 499; any 400-level Math or Phys course.

- **Astrophysics Option**

  This program yields a Bachelor of Science in Physics degree with a minor in mathematics and astronomy.

  Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [L,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [W,M]; Tier III Humanities or Social Sciences Course (GER); Astr 499 (One hour of 499 in an appropriate department or physics required. Additional hours may be taken for credit); Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Astr 345, 390, 435, 436; Phys 304, 320, 341, 342, 410, 412, 415 [M], 443, 450, 490 [M], 461, and 465.

- **Biophysics Option**

  This program yields a Bachelor of Science in Physics degree with a minor in mathematics and possibly biochemistry.

  Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [L,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [W,M]; Tier III Humanities or Social Sciences Course (GER);
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [W,M]; Tier III Humanities or Social Sciences Course (GER); Cpt S 224, 322, 430, 400-level electives (6 hours), 499 (One hour of 499 in an appropriate department or physics required. Additional hours may be taken for credit); Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 415 [M], 450, 463, 490 [M].

- **Computational Physics Option**

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and possibly in computer science.

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [W,M]; Tier III Humanities or Social Sciences Course (GER); Cpt S 224, 322, 430, 400-level electives (6 hours), 499 (One hour of 499 in an appropriate department or physics required. Additional hours may be taken for credit); E E 234; Math 216, Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 415 [M], 450, 463, 490 [M].

- **Continuum Physics and Acoustics Option**

This program yields a Bachelor of Science in Physics degree with a minor in mathematics.

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [W,M]; Tier III Humanities or Social Sciences Course (GER); M E 303, 413 (U of I), 424, 449, 499 (One hour of 499 in an appropriate department or physics required. Additional hours may be taken for credit); Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 415 [M], 450, 463, 490 [M].

- **Environmental Physics Option**

This program yields a Bachelor of Science in Physics degree with a minor in environmental science.

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [W,M]; Tier III Humanities or Social Sciences Course (GER); Biol 372; Chem 345; ES/RF 335, 404, 444, 445, 499 (One hour of 499 in an appropriate department or physics required. Additional hours may be taken for credit); Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 415 [M], 450, 463, 490 [M].

- **Instrumentation Option**

This program yields a Bachelor of Science in Physics degree with a minor in mathematics.

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) (6 hours); Intercultural [I,G,K] (GER); Social Sciences [S,K] (GER); Engl 402 [W,M]; Tier III Humanities or Social Sciences Course (GER); E E 261, 262, 311, 352; Math Electives (6 hours) selected from Math 340, 360, 375, 401, 402, 415, 420, 440, 441, 443, 448; Phys 304, 320, 341, 342, 410, 412, 415 [M], 443, 450, 463, 465, 490 [M], 499.

- **Materials Physics Option**

This program yields a Bachelor of Science in Physics degree with a minor in mathematics and possibly in material science.
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Prerequisites/Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>188</td>
<td>Freshman Seminar I</td>
<td>Faculty will present current research interests and opportunities in physics; questions and discussion. Taught annually each fall. S, F grading.</td>
</tr>
<tr>
<td>201</td>
<td>Physics for Scientists and Engineers I</td>
<td>4 (3-3) Prereq Math 171 with a grade of C or better or placement into Math 172 or higher. Credit not granted for more than one of Phys 101, 201, or 205.</td>
</tr>
<tr>
<td>202</td>
<td>Physics for Scientists and Engineers II</td>
<td>4 (3-3) Prereq Math 172 with a grade of C or better or placement into Math 273 or higher; Phys 201 with a grade of C or better. Credit not granted for more than one of Phys 102, 202, or 206.</td>
</tr>
<tr>
<td>203</td>
<td>Problem Solving for Physics 201</td>
<td>Prereq c/; enrollment in Phys 201. Small class environment for students who desire focused attention on problem solving skills as applied to Phys 201 materials. S, F grading.</td>
</tr>
<tr>
<td>205</td>
<td>[P] Physics for Scientists and Engineers I - Honors 5</td>
<td>(3-3) Prereq Math 171. Calculus-based physics, mechanics, sound, and thermodynamics. Credit not granted for more than one of Phys 101, 201, or 205.</td>
</tr>
<tr>
<td>206</td>
<td>[P] Physics for Scientists and Engineers II - Honors 5</td>
<td>(3-3) Prereq Math 172; Prereq Math 273; orPhys 201 or 205. Calculus-based physics, honors section; electricity, magnetism, light, topics in modern physics. Credit not granted for more than one of Phys 102, 202, or 206.</td>
</tr>
<tr>
<td>303</td>
<td>Modern Physics I</td>
<td>3 Prereq Math 220 or c/; Phys 202. Quantum and relativity theories with applications to atomic, solid state, nuclear and elementary particle physics.</td>
</tr>
<tr>
<td>320</td>
<td>Mechanics I</td>
<td>3 Prereq Math 315 or c/; Phys 102 or 202. Particle motion in one-, two-, and three-dimensional space; motions of systems of particles; rigid body motion; Lagrange's equations.</td>
</tr>
<tr>
<td>330</td>
<td>Thermal Physics</td>
<td>3 Prereq Phys 273; Phys 202. Thermal behavior of systems; energy and entropy; equations of state; changes of phase; elements of continuum and statistical approaches.</td>
</tr>
<tr>
<td>341</td>
<td>Electricity and Magnetism I</td>
<td>3 Prereq Math 315 or c/; Phys 202. Electrostatic fields, magnetic fields, and dielectric and magnetic media.</td>
</tr>
<tr>
<td>410</td>
<td>Electronics</td>
<td>3 (1-0) Prereq Phys 102 or 202. Laboratory construction and investigation of electronic circuits employed in research instruments.</td>
</tr>
<tr>
<td>415</td>
<td>Quantum Physics Laboratory</td>
<td>3 (2-3) May be repeated for credit; cumulative maximum 6 hours. Prereq Phys 340. Experiments in modern and quantum physics, fundamental interactions of radiation with matter.</td>
</tr>
<tr>
<td>443</td>
<td>Optics</td>
<td>3 Prereq Phys 341 or c/; Polarization, interference, coherence, and diffraction phenomena of the electromagnetic spectrum; optical properties of solids; laser resonators; gaussian beams; ABCD matrices.</td>
</tr>
<tr>
<td>450</td>
<td>Introduction to Quantum Mechanics</td>
<td>Prereq Math 235; Phys 303. Introduction to quantum theory with applications to atomic physics. Cooperative course taught jointly by WSU and UI (PHYS 450).</td>
</tr>
<tr>
<td>461</td>
<td>Introduction to Atomic and Molecular Physics</td>
<td>3 Prereq Phys 304. Introduction to atomic and molecular physics; spectroscopy.</td>
</tr>
<tr>
<td>463</td>
<td>Introduction to Solid State and Materials Physics</td>
<td>3 Prereq Phys 304. Introduction to the physics of solids; crystal structures, lattice vibrations, and electron theory.</td>
</tr>
<tr>
<td>465</td>
<td>Introductory Nuclear Physics</td>
<td>Prereq Phys 304. Nuclear systematics, apparatus of nuclear research, radioactivity, nuclear-atomic interactions, nuclear reactions and scattering; introductory particle physics. Cooperative course taught jointly by UI, open to WSU students (PHYS 465).</td>
</tr>
<tr>
<td>466</td>
<td>Biological Physics</td>
<td>3 Prereq Chem 106; Math 172; Phys 202. Fundamental physics and thermodynamics of the cell; mechanics of biomolecular machines. Credit not granted for both Phys 466 and 566.</td>
</tr>
<tr>
<td>490</td>
<td>[M] Undergraduate Thesis</td>
<td>1 Preliminary thesis draft of a laboratory or library research experience, oral presentation, and final draft.</td>
</tr>
<tr>
<td>501</td>
<td>Graduate Seminar I</td>
<td>1 Introduction to graduate and interdisciplinary research. S, F grading.</td>
</tr>
<tr>
<td>514</td>
<td>Optoelectronics Lab I</td>
<td>1 (0-3) May be repeated for credit; cumulative maximum 3 hours. Prereq graduate standing. Experiments with optical systems: Imaging, interference, coherence, information storage/processing, gas and solid state lasers, optical fibers, and communications systems.</td>
</tr>
<tr>
<td>515</td>
<td>Optoelectronics Lab II</td>
<td>V 1-3 May be repeated for credit; cumulative maximum 3 hours. Prereq graduate standing. Experiments in optical physics, physical properties of light, laser physics, waveguides, quantum confined semiconductor structures and ultrafast dynamics and nonlinear optics.</td>
</tr>
<tr>
<td>521</td>
<td>Classical Mechanics I</td>
<td>3 Prereq Phys 320; 571 or c/. Laws of motion as developed by Newton, d’Alembert, Lagrange, and Hamilton; dynamics of particles and rigid bodies. Cooperative course taught jointly by WSU and UI (PHYS 521).</td>
</tr>
<tr>
<td>533</td>
<td>Thermal and Statistical Physics</td>
<td>3 Prereq Math 440; Phys 330. Thermodynamic laws and potentials, kinetic theory, hydrodynamics and transport coefficients; introduction to statistical mechanics, ensembles, partition functions. Cooperative course taught jointly by WSU and UI (PHYS 533).</td>
</tr>
<tr>
<td>534</td>
<td>Thermal and Statistical Physics</td>
<td>3 Prereq Chem 531, 535; or Phys 533, 551. Phase transitions and critical phenomena; Landau theory. Bose-Einstein condensation, superfluids, Fermi systems, low-temperature expansions. Cooperative course taught jointly by WSU and UI (PHYS 531).</td>
</tr>
</tbody>
</table>
541 Electromagnetic Theory 3 Prereq Phys 342, 571 or c/. Special relativity and the classical electromagnetic field; emission, propagation, and absorption of electromagnetic waves. Cooperative course taught jointly by WSU and UI (PHYS 541).

542 Electrodynamics 3 Prereq Phys 541. Interaction of matter and electromagnetic radiation; classical and quantum electrodynamics. Cooperative course taught jointly by WSU and UI (PHYS 542).

545 Nonlinear Optics 3 Prereq Phys 534, 542, 551. Nonlinear wave propagation theory applied to several nonlinear-optical phenomena; experimental techniques that probe a material's nonlinearity.

546 Quantum Electronics 3 Prereq Phys 541, 551 or c/. The physics of lasers and of coherent optical radiation generation and propagation.

550 Quantum Theory I 3 Prereq Math 440, 441; Phys 450. Introduction to quantum theory; physical and mathematical foundations; application to atomic systems.

551 Quantum Theory II 3 Prereq Phys 550, 571. Symmetry and invariance; angular momentum theory; approximation methods.

552 Quantum Theory III 3 Prereq Phys 551. Scattering theory; relativistic wave mechanics; quantum field theory.


563 Physics of the Solid State 3 Prereq Phys 534, 551. Lattice vibrations and defects; ionic and electronic conductivities; band theory; magnetic properties; luminescence. Cooperative course taught jointly by WSU and UI (PHYS 563).

566 Biological Physics 3 Graduate-level counterpart of Phys 466; additional requirements. Credit not granted for both Phys 466 and 566.

571 Methods of Theoretical Physics 3 Prereq Math 440, 441. Mathematical methods for theoretical physics; linear algebra, tensor analysis, complex variables, differential equations, integral equations, variational calculus, and group theory. Cooperative course taught jointly by WSU and UI (PHYS 571).

575 Advanced Solid State Physics 3 Prereq Phys 534, 542, 552 or c/, 563, 571. Quantum theory of solids; Green's functions, correlation functions and other field-theoretic methods; magnetism, superconductivity and transport properties.

581 Advanced Topics 3 May be repeated for credit; cumulative maximum 12 hours. Topics of current interest in advanced physics. Cooperative course taught jointly by WSU and UI (PHYS 581).

590 Seminar 1 May be repeated for credit. S, F grading.

592 Wave Propagation Seminar 2 May be repeated for credit; cumulative maximum 4 hours. Prereq Math 440, 441. Waves in the continuum; elastic, plastic, and hydrodynamic waves; shock waves. S, F grading.

598 Teaching Undergraduate Physics Laboratories 1 May be repeated for credit; cumulative maximum 4 hours. Principles and practices of teaching, planning and management of undergraduate physics laboratories; choice and care of equipment. S, F grading.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Department of Plant Pathology

plantpath.wsu.edu
Johnson Hall 345
509-335-9561


Plant pathology is the study of plant diseases, including causes, economic consequences, spread, and control. Opportunities for graduates in plant pathology include positions in research and development, teaching, extension, and sales. Plant pathologists are employed throughout the world by industries, governments, educational institutions, and private foundations.

A limited undergraduate program is designed to provide a broad background in the biological, physical, and agricultural sciences. However, most opportunities in plant pathology require advanced degrees. Students who intend to terminate university training with a baccalaureate degree are encouraged to enroll in the Agricultural and Food Systems [Agriculture and Food Security major] or Integrated Plant Sciences curricula. For more information on these baccalaureate degrees, please visit: http://academic.cahnrs.wsu.edu/majors/index.html.

The courses offered in this department are designed both to train students expecting to make plant pathology or mycology their professional field of specialization and to provide supplementary training for students in other biological and agricultural fields, particularly botany, crop science, genetics, horticulture, forestry, and entomology. Students who expect to become professional plant pathologists are advised to include in their undergraduate studies fundamental courses in bacteriology, botany, chemistry, genetics, physics, and zoology.

A professional career in plant pathology would benefit from graduate training. Students often enter advanced work in plant pathology following a major in biology, botany, crop science, genetics, horticulture, molecular biology, or similar areas as well as in plant pathology. Specialized areas of advanced study include bacteriology, mycology, nematology, virology, epidemiology, molecular biology of host-parasite relationships, ecology of disease development, disease resistance, chemical control, and biological control. Research is conducted on diseases of grain crops, forage crops, forest trees, fruit, vegetables, ornamentals, and turf.

The department offers courses of study leading to the degrees of Bachelor of Science in Agricultural and Food Systems, Master of Science in Plant Pathology, and Doctor of Philosophy in Plant Pathology.

Preparation for Graduate Study

As preparation for work toward an advanced degree a student should have completed a bachelor's degree; at least one year each of general inorganic chemistry, botany, zoology, physics; one semester each of systematic botany, plant physiology, bacteriology, general plant pathology, entomology, precalculus, organic chemistry, genetics, and report writing or advanced composition.

Description of Courses

PLANT PATHOLOGY

PI P

150 [Q] Molds, Mildews, Mushrooms: The Fifth Kingdom 3 A mycocentric approach to natural and anthropological history including the diverse niches occupied by molds, mildews and mushrooms.

300 Diseases of Fruit Crops 2 Prereq Biol 120, Hort 310, or Hort 313. Comprehensive understanding of the diseases of fruit crops grown in the state of Washington.

403 Advanced Cropping Systems 3 Prereq CropS 201; PI P 429 or c/; or graduate standing. Same as CropS 403. Credit not granted for both PI P 403 and 503.

429 General Plant Pathology 3 (2-3) Rec Biol 107 or 120. Classification, symptoms, causes, epidemiology, and control of plant diseases.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

503 Advanced Cropping Systems 3 Prereq CropS 201; PI P 429 or c/; or graduate standing. Graduate-level counterpart of PI P 403; additional requirements. Credit not granted for both PI P 403 and 503.

511 Viruses and Virus Diseases of Plants 4 (3-3) Prereq course in biochemistry or advanced genetics. Nature of plant viruses, vector-virus relationships and virus diseases of plants. Cooperative course taught jointly by WSU and UI (PLSC 511).
513 Nematodes and Nematode Diseases of Plants 2 (1-3) Prereq Pl P 429. Anatomy, identity, and diseases caused by nematodes; techniques and control.

514 Phytopathology 4 (3-3) Prereq MBioS 302, 303. Isolation and characterization of bacteria having a saprophytic, symbiotic or pathogenic association with plants, molecular structure, function, and genetics. Cooperative course taught by WSU, open to UI students (PLSC S14).

515 Seminar 1 May be repeated for credit.

521 General Mycology 4 (2-6) Rec Biol 107 or 120. The structure, life histories, classification, and economic importance of the fungi.

525 Field Plant Pathology and Mycology V 1-2 May be repeated for credit; cumulative maximum 4 hours. Rec plant pathogenesis and/ or mycology course; by interview only. Field trips, forays, and demonstrations dealing with various aspects of plant pathology and mycology.

526 Advanced Fungal Biology 4 (2-6) Prereq Pl P 421, 521 and graduate standing. Advanced topics in fungal biology, ecology, systematics, evolution and coevolution via discussions of literature and special laboratory projects.

535 Molecular Genetics of Plant and Pathogen Interactions 3 Prereq MBioS 301, 303. Genetic and molecular biological aspects of host-pathogen interactions. Cooperative course taught by WSU, open to UI students (PLSC S35).

551 Epidemiology and Management of Plant Diseases 3 Prereq Pl P 429 or 529. Principles of plant disease epidemiology, control and ecology of pathogens. Cooperative course taught by WSU, open to UI students (PLSC 506).

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Department of Political Science

www.libarts.wsu.edu/polisci

Johnson Tnr 801

509-335-2544


Courses in political science are offered in political institutions (presidency, congress, the courts, political parties, mass media), public policy formation and evaluation, public law, civil liberties, international relations (foreign policy, strategic policy, conflict resolution), comparative government (area studies, post-industrial societies, cross-national comparisons), political philosophy and methodology.

The department offers courses of study leading to the degrees of Bachelor of Arts in Political Science, Master of Arts in Political Science, and Doctor of Philosophy.

The Department of Political Science is the locus of the Criminal Justice Program, which offers courses of study leading to the Bachelor of Arts in Criminal Justice and the Master of Arts in Criminal Justice. For details, see the criminal justice section of this catalog.

The undergraduate programs in the Department of Political Science are designed to prepare students to be more thoughtful consumers and producers of information related to political phenomena in the U.S. and in other nations. More specifically, the department's programs aim to: (1) develop the ability to think critically about social and political values; (2) produce graduates with an understanding of the importance of a global perspective on political issues; (3) understand the fundamental theories and frameworks currently used to explain a wide range of political behaviors; and (4) develop and cultivate the ability to write, read, and think critically and effectively.

Prelaw Studies

No specific major is required to be eligible for law school. The department's Prelaw Advising Center assists all students interested in law school regardless of their intended major.

Through its prelaw curriculum, the department offers a selection of courses designed to prepare students adequately for law school and eventual careers in law. This curriculum reflects recommendations of the Association of American Law Schools. Students choosing other departmental options are also eligible to attend law school if they meet admission requirements.

Public Service

Government is the nation's largest employer. Many public officials are political science graduates. The department advises students concerning training and career opportunities in federal, state, and local governments, the Foreign Service, and related occupations. Its extensive internship program places students in public agencies, political parties, and similar organizations. The department also encourages and advises students on study abroad as part of preparing for careers in international affairs.

Division of Governmental Studies and Services

The department's Division of Governmental Studies and Services (DGSS) is an instrument for extending beyond the classroom and into public service the resources represented in the department's teaching and research personnel. Functions of the division include performing research and issuing publications relating to government and public affairs; providing training and consulting services to public agencies and private organizations concerned with public affairs; and administering internship programs to provide practical experience in government. DGSS maintains a collection of specialized government publications and related materials and, in general, acts as a link between teaching and the conduct of public affairs.

Preparation for Graduate Study

Students with some undergraduate course work in political science while majoring in such subjects as economics, business administration, history, criminal justice or sociology may readily pursue graduate study in political science. Undergraduates at other institutions or in other departments at this institution who contemplate graduate work in this department should acquire some training in political science. For graduate study and its graduate degree programs, the department clusters its courses in three subfields: American institutions and processes; foreign systems and world politics; and administration, justice, and applied policy studies.

Schedules of Studies

POLITICAL SCIENCE - GENERAL OPTION (120 HOURS)

Students wishing to enroll in Pol S 499 must have at least junior standing and consent of the instructor; no more than 3 hours of 499 or 3 hours of 497 may be counted towards the departmental requirements.

First Year

First Term

Hours

Arts & Humanities [H,G] (GER) 3
Engl 101 [W] (GER) 3
GenEd 110 [A] (GER) 3
Pol S 101 [S] (GER) 3
Social Sciences [S,K] (GER) 3

Second Term

Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Communication Proficiency [C,W] (GER) 3
GenEd 111 [A] (GER) 3
Intercultural Studies [I,G,K] (GER) 3
Pol S 102 [S] (GER) 3

Second Year

First Term

Hours

Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Foreign Language, if necessary, or Elective 3 or 4
Math Proficiency [N] (GER) 3
Pol S 103 [S] (GER) 3
Science Elective (GER) 4

Second Term

Hours

Arts & Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER) 3
Biological Sciences [B] (GER) 4
Foreign Language, if necessary, or Elective 3 or 4
Pol S Electives1 6
Complete Writing Portfolio

Third Year

First Term

Hours

300-400-level Arts & Humanities or Social Sciences Elective 3
300-400-level Pol S Elective [M] 3
Physical [P] Sciences (GER) 4
Pol S Electives1 6
### Second Term  

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<tr>
<td>300-400-level Pol S Elective [M]</td>
<td>3</td>
</tr>
<tr>
<td>Cpt S or Stat Elective</td>
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<tr>
<td>Engl 201 [W], 301 [W], or 402 [W] (GER)</td>
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**Fourth Year**

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**Third Year**

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<td>Pol S 333 or 438</td>
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<tr>
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<td>Pol S IR Elective</td>
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<td>Pol S IR Elective</td>
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<td>Minor Field Elective or Foreign Language</td>
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**Fourth Year**

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<tr>
<td>Minor Field Elective</td>
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<tr>
<td>Political Science Comparative Elective (if necessary)</td>
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<td>Tier III Course [T] (GER)</td>
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<td>Electives</td>
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<td>Electives</td>
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### Political Science Option (120 Hours)

33 hours in Pol S are required, at least 15 of which must be earned at WSU. Consult advisor on study abroad in junior year.

**First Year**

**First Term**

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<th>Course Type</th>
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<tr>
<td>Engl 101 [W] (GER)</td>
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<td>Math Proficiency [N] (GER)</td>
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<td>Pol S 101 [S] (GER)</td>
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<td>Science Elective [Q,B,P] (GER)</td>
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<td>Biological Sciences [B] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Pol S 102 [S] (GER)</td>
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**Second Year**

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<td>Communication Proficiency [C,W] (GER)</td>
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<td>Physical Science [P] (GER)</td>
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<td>Pol S Comparative Elective or Minor Field Elective</td>
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<tr>
<td>Social Science [S,K] (GER)</td>
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<td>Pol S Elective</td>
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<td>Pol S IR Elective</td>
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<td>Minor Field Elective</td>
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Complete Writing Portfolio

### Third Year

**First Term**

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<td>Arts &amp; Humanities [H,G], Intercultural Studies</td>
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<td>Crm J 320 or 420</td>
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<td>Pol S 402</td>
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**Fourth Year**

**First Term**

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<th>Course Type</th>
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<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>Pol S 443</td>
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**Second Term**

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<td>Tier III Course [T] (GER)</td>
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### Minors

**Political Science**

18 semester hours of political science coursework is required for the minor, half of which must be in 300-400-level courses. The courses may not be taken pass, fail. Students must successfully complete Pol S 101, 102, and 103. At least 12 semester hours of political science must be earned at Washington State University. Three hours of Pol S 497 or 499 may be applied to the minor. A minimum gpa of 2.0 in the political science courses is required.

### Description of Courses

#### Political Science

**Pol S**

101 [S] **American National Government**

Introduction to American politics exploring the constitution, political institutions and actors, the policy making process, and various public policies.

102 [S] **Introduction to Comparative Politics**

3 Nature of the state; fundamental problems of government and politics; ideological and institutional comparison of democracies and dictatorships.

103 [S] **International Politics**

3 Creation and operation of national, international, and supranational communities; major world problems since 1945.

198 [S] **Political Science Honors**

3 Open only to students in the Honors College.

206 **State and Local Government**

3 Institutions, processes, and problems, with special reference to the state of Washington.
276 Special Topics: Study Abroad  V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

277 Special Topics: Study Abroad  V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

300 The American Constitution 3 Prereq Pol S 101. Constitutional principles as established by the Supreme Court and related political developments.

301 Political Simulations 3 Prereq Pol S 101. Preparation for and participation in political simulations.

305 [S] Gender and Politics 3 Role of gender in political behavior; voting and political participation; women as subjects and objects of political systems.

314 National States and Global Challenges 3 Comprehensive introduction to the processes of the economic and political integration of the European Union.

316 American Public Policy 3 Institutions, processes, and substantive issues of American public policy and policy formation.

317 Media and Politics 3 Relationship between the media and American political institutions and the public.

333 [S] Development of Marxist Thought 3 Marxist theory from the original writing of Marx and Engels to contemporary developments.

340 Introduction to Public Administration 3 Prereq Pol S 101. Basic theories of administrative organization, relationships, and behavior.

375 Chicana/o and Latina/o Politics 3 Same as CES 359.

381 Crime and Justice in the Movies 3 (2-2) Prereq Crm J 101 or Pol S 101. Same as Crm J 381.

400 Political Science Issues 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Pol S 101. Current issues in political science. Cooperative course taught by UI, open to WSU students (Pol S 404).

402 Civil Liberties 3 Prereq Pol S 101. Origin and development of civil liberties; responsibility of the branches of government and the people for their maintenance.


405 [M] Comparative Criminal Justice Systems 3 Same as Crm J 405.

410 History of American Indian Sovereignty and Federal Indian Law 3 Same as Hist 410.

416 Policy Analysis 3 Analysis of public policy formation, evaluation and implementation.

417 Voting and Elections 3 Analysis of voting behavior and elections; turnout, influences on voter choice, congressional and presidential elections, campaign finance, and polling.

418 Human Issues in International Development 3 Same as Anth 418. Cooperative course taught by WSU, open to UI students (POLSC462).

420 Political Parties and Interest Groups 3 Roles, characteristics, and theories of political parties; organization, behavior, and impact of interest groups.


427 United States Foreign Relations 3 Ends and means in foreign policy; organization, management, control, and current policy issues.

428 [T] Issues in Political Psychology 3 Prereq Pol S 101 or Psych 105; completion of one Tier I and three Tier II courses. Introduction to the ways in which psychological factors influence political phenomena.

429 Special Topics in American Foreign and Defense Policy 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Pol S 102 or 103. Current issues in foreign policy.

430 [T] The Politics of Natural Resource and Environmental Policy 3 Prereq completion of one Tier I and three Tier II courses. Issues and problems of natural resource and environmental policy.

432 [M] Comparative Public Policy 3 Processes of public policy formation and outcomes in post-industrial democracies, and how to analyze it in a comparative perspective.

435 Politics of Developing Nations 3 Issues and problems of political development and modernization common among developing nations. Cooperative course taught by WSU, open to UI students (POLSC501).


437 Classical Political Thought 3 The development of political philosophy from the pre-Socratics to Machiavelli.

438 [M] Recent Political Thought 3 The development of political thought since Machiavelli.

442 [M] Leadership Skills for the Public Sector 3 Prereq Pol S 101 or 102; Psych 105 or Soc 101. Leadership, motivation, team-building, group dynamics, interpersonal and group conflict and job design for the public sector.

443 Administrative Jurisprudence 3 Study of the origins, nature, and practice of justice and law in public administration.

445 Public Personnel Administration 3 Development of American civil service systems and concepts; problems and techniques involved in selection and management of public employees. Cooperative course taught by WSU, open to UI students (POLSC445).

446 [M] Public Budgeting 3 The government budget as an instrument of politics, planning and control; organizing for democratic accountability.

447 [M] Comparative Public Administration 3 Public administration systems in Europe, Japan, Socialist and developing countries; origins and development.

448 Urban Politics and Policy 3 Urban political processes and policies; intergovernmental relationships; impact of urban reform.

450 [M] The Legislative Process 3 Role of legislatures in a democratic system; problems of representation; election and tenure of lawmakers; legislative organization and procedures.

455 The Presidency 3 Organization and processes of executive institutions at the national level; uses and limits of executive power.

472 [M] European Politics 3 Government and politics of postindustrial societies, including West Europe and Japan.

474 [T] African Politics 3 Prereq completion of one Tier I and three Tier II courses. Historical, economic, and social factors that shape contemporary African political systems and problems of nation-building.

475 Mao to Deng: The People’s Republic of China, 1949 - 1999 3 Same as Hist 475.

476 [M] Revolutionary China: 1800 to Present 3 Same as Hist 476.

497 Political Science Internship  V 1-12 May be repeated for credit; cumulative maximum 12 hours. Prereq Pol S 101. On/off campus internship in federal, state, or local government institutions; nonprofit or public organizations; written assignments and readings required. S, F grading.

498 Cooperative Education Internship  V 2-12 May be repeated for credit; cumulative maximum 12 hours. By interview only. Off-campus cooperative education internship with business, industry, or government unit coordinated through the Professional Experience Program. S, F grading.

499 Special Problems  V 1-4 May be repeated for credit. S, F grading.

501 The Scope of Political Science 3 Prereq 12 hours Pol S. Historical development and present status of the discipline; contemporary issues and future trends. Cooperative course taught jointly by WSU and UI (POLSC330).

502 Seminar in Normative Theory 3 Elements of normative theory developments; examination of bases of controversies and approaches in the modern literature using historical sources.

503 Research Methods in Political Science and Criminal Justice 3 Prereq 12 hours Pol S; Soc 321. Social science research design topics, measurement, sampling, data sources, experimental and quasi-experimental designs, field and historical designs, content analytic designs. Cooperative course taught by WSU, open to UI students (POLSC331).

504 Quantitative Methods in Political Science and Criminal Justice 3 Prereq introductory statistics course. Applied statistical skills, enabling understanding of substantive political and social questions.
505 Comparative Criminal Justice Systems 3  
Same as Crm J 505.

510 Seminar on American Institutions and Processes 3  
Seminar required of all graduate students using this field as a major or a minor; it is a prerequisite of all other graduate seminars in the field.

511 Seminar in American Political Thought 3  
May be repeated for credit; cumulative maximum 6 hours. The genesis and development of political thought in the United States.

512 Seminar in American Institutions 3  
May be repeated for credit; cumulative maximum 6 hours. Origin, development, and contemporary issues in political organization and structure in the United States.

513 Seminar in American Political Behavior 3  
May be repeated for credit; cumulative maximum 6 hours. Theoretical approaches to, and empirical analysis of, mass political behavior in the US.

514 Seminar in Public Policy 3  
Examination of central questions in public policy including the nature of public policy, policy analysis, and government intervention in society.

516 Seminar on Law, Courts, and Judicial Politics 3  
Prereq graduate standing. Seminar on law, courts, and judicial politics.

530 American Foreign Policy: Theories and Applications 3  
3 Theories of international politics applied to American foreign policy. Cooperative course taught by WSU, open to UI students (POLSC301).

531 Seminar in International Security 3  
International security and arms control politics, negotiations, agreements. Cooperative course taught by WSU, open to UI students (POLSC561).

532 Seminar in International Political Economy 3  
Institutions, politics, and decision-making processes in managing international economic relations.

533 Topics in Political Psychology 3  
May be repeated for credit; cumulative maximum 6 hours. Psychological influences on political decision making, bargaining, conflict and conflict resolution options.

534 Seminar in Comparative Politics 3  
Cooperative course taught jointly by WSU and UI (POLSC595).

536 Special Topics in Comparative Politics 3  
May be repeated for credit; cumulative maximum 6 hours. Advanced issues seminar in international and comparative politics.

537 Concepts and Methods in Comparative Politics 3  
May be repeated for credit; cumulative maximum 6 hours. Selected concepts (state, political participation), and methods (cross-national analysis, case study approaches) in comparative politics.

538 International Development and Human Resources 3  
Same as Anth 519.

539 The Political Science Profession 1  
Methods, problems, and purposes of teaching, research, and vocation in political science. S, F grading.

540 Proseminar in Public Administration 3  
Proseminar over viewing basic theories of administrative organization, relationships, and behavior.

541 Seminar in Evaluation Research 3  
Same as Crm J 540.

542 Proseminar in Administration, Justice, and Applied Policy Studies 3  
May be repeated for credit; cumulative maximum 6 hours. Prereq Pol S 340 or 445. Analytical perspectives and theoretical issues. Cooperative course taught jointly by WSU and UI (POLSC592).

543 Topics in Public Administration and Policy 3  
May be repeated for credit; cumulative maximum 6 hours. Prereq graduate standing. Examination of the literature on the politics of the American public policy process.

544 The Politics of Policy Process 3  
American political process; policy making under the constraints of a democratic system; relationship to the (non) achievement of the public interest.

547 Seminar in Public Administration 3  
Cooperative course taught by UI, open to WSU students (POLSC501).

597 Graduate Internship V 2-12  
May be repeated for credit; cumulative maximum 12 hours. Prereq graduate student. On/off campus internship in federal, state, or local government institutions; nonprofit or public organizations; written assignments and readings required. S, F grading.

600 Special Projects or Independent Study V 1-18  
May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1-18  
May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18  
May be repeated for credit. S, F grading.

**Prelaw Curriculum**

libarts.wsu.edu/prelaw

Students interested in legal education may prepare for admission to law school from any major in any college at the University. The American Bar Association recommends completing baccalaureate degrees before entering law school, attaining as rich an undergraduate education as possible, and developing skills in reading, writing, critical thinking, oral communication, research, and task management. Admission to law school is based in most cases on a student’s Law School Admissions Test (LSAT) score, grade point average, personal statement, letters of recommendation, quality of the institution where undergraduate work is completed, and difficulty and range of course work. The ABA recommends completing a major, but double majors or minors have no effect on admission. Pre-law students are advised to pursue majors in a discipline that interests them: students are more likely to excel in majors they enjoy, and the process of exploring one subject in greater depth will provide valuable preparation for study of the law. No particular major is recommended and there are no minimum requirements with regard to course work, but the American Bar Association has identified knowledge of certain subjects as important groundwork for law school: history, especially American history; political thought and theory and the American political system; ethical theory and theories of justice; economics; basic math and finance; human behavior and social interaction; diverse cultures both within and outside the United States; international and global issues. For best results students should work closely with their major advisors. Several departments at the University offer pre-law curricula: Communication (226 Murrow Hall), History (301 Wilson Hall), Philosophy (316 Bryan Hall), Political Science (801 Johnson Tower), and Sociology (204 Wilson Hall). Additional information can be obtained from Professor J. Mitchell Pickerill (Washington State University, 824 Johnson Tower, Pullman, WA 99164-4880).

**Predental Curriculum**

www.wsu.edu/~premed

Troy 305  
509-335-4549

Becoming a dentist requires a program of graduate study in a dental school as well as undergraduate preparation. It is possible, but rare, for students to be admitted to some programs after the third year of college. The majority of students who go on to dental school complete a baccalaureate degree. No particular major is required, but almost all dental schools require specific undergraduate coursework and submission of scores from the Dental Aptitude Test (DAT), ordinarily taken in the summer following the student’s third college year. A total of 21 credits of elective courses in humanities and social sciences, plus one year of coursework in each of the following areas, will meet the requirements of almost all institutions and also give a good preparation for the DAT:

1. English composition (Engl 101 and an additional [W] course or Engl 198/199)
2. General chemistry (Chem 105 and 106 or Chem 115 and 116)
3. Organic chemistry (Chem 345, 346, and 1 additional credit of organic chemistry)
4. Physics (Phys 101 and 102 or Phys 201 and 202)
5. Introductory biology (Biol 106 and 107)  
In addition, some institutions require Microbiology (MBioS 305 and 306), Biochemistry (MBioS 303), and/or Introductory Psychology (Psych 105).

Admission to a school of dentistry is based on satisfactory completion of the entrance requirements of that school, attainment of satisfactory scholastic record, satisfactory scores on the Dental Admission Test (DAT), the possession of personal qualifications necessary for the study of dentistry, and a single committee letter written by the premedical/predental applicant advisory committee.

Additional information can be obtained from K.L. Brothers, Ph.D., Washington State University, 305 Troy Hall, Pullman, WA 99164-4432.
Premedical Curriculum

www.wsu.edu/-premed
Troy 305
509-335-4549

Becoming a medical doctor requires a program of graduate study in medical school as well as undergraduate preparative coursework. It is unusual for students to be admitted to medical school without a baccalaureate degree. No particular major is required, but almost all medical schools require specific undergraduate courses and the submission of scores from the Medical College Admission Test (MCAT). The MCAT is typically taken during the late spring or early summer of the student’s third college year. A total of 21 credits of elective courses in humanities and social sciences, plus one year of coursework in each of the following areas, will meet the requirements of almost all institutions and also give a good preparation for the MCAT.

1. English composition (Engl 101 and an additional [W] course or Engl 198/199)
2. General chemistry (Chem 105 and 106 or Chem 115 and 116)
3. Organic chemistry (Chem 345, 346, and 1 additional credit of organic chemistry)
4. Physics (Phys 101 and 102 or Phys 201 and 202)
5. Introductory biology (Biol 106 and 107)
6. Molecular biology (MBios 301, 305, and 306)
7. Biochemistry (MBios 303)

All medical schools assume that applicants will have developed math skills adequate to the demands of the required courses listed above; however, a few schools specify either a semester or a year of calculus (Math 140 or 171, with Math 172 if a full year is needed; some students will require Math 107 in preparation for calculus).

Acceptance of a student by a medical school is contingent on the satisfactory completion of at least the minimum entrance requirements of that school, attainment of a superior scholastic record, good to excellent scores on the MCAT, and possession of personal qualifications appropriate to success in the medical profession. Most schools require applicants to appear for a personal interview. In addition, letters of recommendation from several college teachers or a single committee letter written by the premedical/predental applicant advisory committee must strongly support the applicant. The latter is preferable.

Many medical schools welcome applications from students who have majors, or who have taken considerable work, in such diverse areas as humanities, mathematics, psychology, sociology, physics, chemistry, biochemistry, and engineering. Adequate latitude exists in the medical schools’ requirements so that the advisor usually is able to suggest a schedule of studies to meet the needs of the individual student. Medical schools also expect a good selection of non-science courses on the student’s transcript.

Additional information can be obtained from K. L. Brothers, Ph.D., Washington State University, 305 Troy Hall, Pullman, WA 99164-4432.

Preventerinary Curriculum

Students interested in veterinary medicine may prepare for admission from any major in the University as long as they meet the minimum requirements for admission. The requirements for admission are listed in this catalog under the College of Veterinary Medicine. Admission to the veterinary program is highly competitive so students are encouraged to choose their major carefully. While there is no baccalaureate degree in preveterinary medicine offered, many departments have programs that allow students to prepare for admission to veterinary school and earn a baccalaureate degree simultaneously. See the individual departments for specific plans of study. A minimum of three years of college or completion of a baccalaureate degree is strongly recommended.

Department of Psychology

www.wsu.edu/psychology
Johnson Twr 235
509-335-2631


The bachelor’s degree program provides for either a major or a minor in psychology. The program for majors is designed for those who wish to study psychology as part of a liberal education; for those who plan to use their training in related vocations such as the professions, governmental organizations, business and industry, and psychological services; and for those who are preparing for graduate work in psychology. Course offerings are open to students in other departments who need a background in those aspects of psychology that are related to their respective fields.

The department offers courses of study leading to the degrees of Bachelor of Science in Psychology, Master of Science in Psychology, and Doctor of Philosophy.

Excellent facilities are available for instruction and research in psychology. There are specially designed facilities for research in learning, memory, sensory processes, perception, animal behavior, physiological psychology, social interaction, and behavior modification. Departmental facilities also include the Psychology Clinic, which is a training clinic, and the Student Psychophysiology Lab. In addition, cooperative arrangements with other units of the university and with outside agencies and institutions make it possible for students to gain first-hand experience in research and professional work. The university maintains a comprehensive library of books and journals in psychology and related fields.

Graduate Program

The graduate program leads to advanced degrees for qualified students who plan careers as psychologists. The course of study for the Doctor of Philosophy degree may be directed toward either a specialization in clinical or experimental psychology. The graduate training program in clinical psychology at Washington State University is accredited by the American Psychological Association.

Preparation for Graduate Study

Students who contemplate work leading to advanced degrees are urged to confer as early as possible with a psychology faculty mentor. Graduate programs require a solid background in mathematics, natural sciences, physics, philosophy, and social sciences as well as appropriate preparation in psychology itself.

Schedules of Studies

PSYCHOLOGY - BACHELOR OF ARTS (120 HOURS)

The Bachelor of Arts in Psychology requires a minimum of 30 credit hours in Psych, at least 15 hours of which must be in 300-400-level courses. The student must take at least 10 credit hours of psychology in residence at WSU and must maintain at least a C average in Psych courses. Students must have two years of one foreign language in high school or take one year in college of a modern foreign language before graduation. Beyond certain minimum requirements there is flexibility in the degree program, in accordance with the needs of the individual student. A student may certify as a BA major after completion of 24 semester hours and cumulative gpa of 2.0 or better.

For the BA degree in Psychology, the four learning goals are: (1) Students will understand basic scientific methodology; (2) Students will be able to describe societal influences on individual behavior, and they will display an understanding of the cultural relativism inherent in defining what is normal and abnormal behavior; (3) Students will be able to critically evaluate psychological material published in popular media sources; (4) Students will demonstrate proficiency in the written communication of psychological concepts.

First Year

First Term
Biol 101 [B] and 105 [B] or Biol 102 [B] or higher (GER) 4
Psych 105 [S] (GER) or 198 3
Engl 101 [W] (GER) 3
Intercultural Studies [I,G,K] (GER) 3

Second Term
Arts & Humanities [H,G] (GER) 3
Communication Proficiency [C,W] (GER) 3
GenEd 110 [A] (GER) 3
Social Sciences [S,K] (GER) 3
Stat or Math 212 4

Second Year

First Term
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
GenEd 111 [A] (GER) 3
Physical Sciences [P] (GER) 4
Track Psych Elective1 3
Elective 3

251
Second Term  
**Hours**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER)  6
- Biological [B] or Physical [P] Sciences (GER)  4
- Psych 310  3
- Elective  2
- Complete Writing Portfolio  

**Third Year**

**First Term**  
**Hours**
- 300-400-level Track Psych Elective [M]  1  3
- Psych Elective  3
- 300-400-level Electives  7

**Second Term**  
**Hours**
- Psych 316 [M]  3
- Track Psych Elective  3
- 300-400-level Electives  9

**Fourth Year**

**First Term**  
**Hours**
- Tier III Humanities or Social Science [T] (GER)  3
- Track Psych Elective  3
- 300-400-level Electives  6
- Elective  3

**Second Term**  
**Hours**
- 300-400-level Psych Electives  6
- Electives  9

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**PSYCHOLOGY - BACHELOR OF SCIENCE (120 HOURS)**

The Bachelor of Science in Psychology requires a minimum of 30 credit hours in Psych, at least 15 hours of which must be in 300-400-level courses. The student must take at least 10 credit hours of psychology in residence at WSU and must maintain at least a C average in Psych courses. Students must have two years of one foreign language in high school or take one year in college of a modern foreign language before graduation. Beyond certain minimum requirements there is flexibility in the degree program, in accordance with the needs of the individual student. A student may certify as a B.S. major after completion of 30 semester hours, Psych 311 with a C- or better, and cumulative gpa of 2.5 or better.

For the B.S. degree in Psychology, the four learning goals are: (1) Students will understand basic research design and analysis; (2) Students will be able to describe societal influences on individual behavior, and they will display an understanding of the cultural relativism inherent in defining what is normal and abnormal behavior; (3) Students will be able to critically evaluate scientific studies; (4) Students will demonstrate proficiency in the written communication of psychological concepts.

**First Year**

**First Term**  
**Hours**
- Biol 101 [B] and 105 [B], or Biol 102 [B], or higher (GER)  4
- Engl 101 [W] (GER)  3
- Intercultural Studies [L,G,K] (GER)  3
- Psych 105 [S] (GER) or Psych 198  3

**Second Term**

**Hours**
- Arts & Humanities [H,G] (GER)  3
- Communication Proficiency [C,W] (GER)  3
- GenEd 110 [A] (GER)  3
- Math Proficiency [N] (GER)  3
- Social Sciences [S,K] (GER)  3

**Second Year**

**First Term**  
**Hours**
- Arts & Humanities [H,G] or Social Sciences [S,K] (GER)  3
- GenEd 111 [A] (GER)  3
- Physical Sciences [P] (GER)  4
- Psych 311  4

**Second Term**  
**Hours**
- Arts & Humanities [H,G], Intercultural Studies [L,G,K], or Social Sciences [S,K] (GER)  6
- Biological [B] or Physical [P] Sciences (GER)  4
- Psych 312 [M]  4
- Complete Writing Portfolio  

**Third Year**

**First Term**  
**Hours**
- Group I Psych Elective  2  3
- Group II Psych Elective  2  3
- Electives  10

**Second Term**  
**Hours**
- Group I Psych Elective  2  3
- Group II Psych Elective  2  3
- 300-400-level Non-Psych Electives  10

**Fourth Year**

**First Term**  
**Hours**
- Group I Psych Elective  2  3
- Phys Elective  3
- Tier III Course [T] (GER)  3
- 300-400-level Non-Psych Electives  7

**Second Term**  
**Hours**
- Non-Psych Electives  15
- Psych Electives  1-4

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1. Please note that if you take only 3 credits of science elective, you will need to take another 1-credit science elective (i.e. Biol 201).
3. Writing in the Major Courses: Psych 312, 328, 401, 440, 473.
4. Recommended Courses:
   - One 3 hour course from Psych 445, 497, 498, 499.
   - Psych electives will be chosen in consultation with advisor.

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Minors

**Addiction Studies (Vancouver only)**

A minor in addiction studies requires 17 – 22 hours depending on the track. The three tracks are:
- Track 1 (professional certification): comprising coursework primarily in the department of psychology and aimed at preparing students for certification as chemical dependency professionals (CDP) in Washington State. Track 2 (non-certification): comprising coursework primarily in the departments of sociology and criminal justice, aimed at students preparing for careers in public policy, law enforcement, social work, and related fields, who wish to obtain additional training in the political, social, and cultural components of addictive behaviors (but who do not wish to be certified as chemical dependency professionals in Washington State). Track 3 (interdisciplinary): integrating psychological, behavioral, sociological, and criminal justice issues into models of addiction intervention and prevention. Credit hours for the minor must include 9 hours of upper-division work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

**Psychology**

The minor in psychology may be certified after the completion of 60 semester hours. It requires 18 credit hours in Psych, of which at least 9 must be taken at WSU and at least 9 must be in graded 300-400-level courses.

Psych 105 or 198 is required and a statistics or research methods course is strongly recommended. A minimum gpa of 2.00 or higher is required in all coursework used for the minor.

**Certificates**

**Abnormal Child Psychology**

The certificate in abnormal child psychology requires a minimum of 21 hours. The 9 hour core is: Psych 361, 464, 465. 12 hours of electives are selected from: H D 300, 301, 302, 482, Soc 362, SHS 371, 478, Psych 412, 444, 445. A minimum gpa of 2.00 or higher is required in all coursework used for the certificate.

**Helping Skills**

The certificate in helping skills requires a minimum of 20 hours. The 8 hour core is: Psych 333, 440, 444. 12 hours of electives are selected from: Psych 230, 265, 320, 321, 324, 363, 390, 412, 445, and 464. A minimum gpa of 2.00 or higher is required in all coursework used for the certificate.
Description of Courses

PSYCHOLOGY

Psych

105 [S] Introductory Psychology 3 Contemporary psychology; biological and social influences on normal and abnormal human behavior. Credit not granted for both Psych 105 and 198.

106 Psychology Applied to Daily Living: Dealing with Friends, Alcohol, and Sex 1 Rec Psych 105 or 198. Application of psychological procedures to the problems of group living, alcohol use, sexual decision making and related social issues.

198 [S] Psychology Honors 3 Prereq admittance to the Honors College. Credit not granted for both Psych 105 and 198.

230 Human Sexuality 3 Prereq Psych 105 or 198. Sexuality in personal development; personal, cultural, biological influences on sexual identification and behavior; fertility, reproduction, sexual functioning, sexuality and personality.

265 [B] Biopsychological Effects of Alcohol and Other Drugs 3 Prereq Biol 102 or 107; Psych 105 or 198. Biopsychological effects of the major classes of abused and psychotherapeutic drugs, including alcohol, stimulants, sedatives and hallucinogens.

275 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

301 Seminar in Psychology V 1-3 May be repeated for credit; cumulative maximum 6 hours. Rec 6 hours Psych.

306 Industrial Psychology 3 Prereq Psych 105 or 198. Job analysis and evaluation; personnel recruitment and selection; design and evaluation of training systems; performance appraisals.

307 Human Factors 3 Prereq Psych 105 or engineering major. Human limitations and capabilities in architectural and engineering design; system analysis.

308 Organizational Psychology 3 Prereq Psych 105 or 198. Employee motivation satisfaction and commitment; organizational communication; leadership; group behavior, teams and conflict; organizational change and development.

309 [S,D] Cultural Diversity in Organizations 3 Rec Psych 105 or 198. Psychology applied to cultural diversity in organizations; interpersonal and intergroup relationships; diversity training; EEO legislation and affirmative action.

310 Pseudoscience and Human Behavior 3 Prereq Psych 105 or Psych 198. Evaluation of scientific claims in the behavioral sciences and everyday life.

311 Elementary Statistics in Psychology 4 Prereq college level math course with a grade of C- or better. Descriptive statistics, probability, and inference; design and interpretation of research.

312 [M] Experimental Methods in Psychology 4 (3-3) Prereq Psych 105 or Psych 198; Psych 311 or statistics course with a grade of C- or better. Designing, conducting, and reporting research in selected areas of experimental psychology.

316 Applied Research in Psychology 3 (2-3) Prereq Stat 212 or statistics course. Experimental design and statistics; research; problem solving in small group situations.

320 Health Psychology 3 Prereq Psych 105 or Psych 198. Psychological and physiological aspects of stress; health behavior and disease prevention; adjustment to chronic illness.

321 Introduction to Personality 3 Prereq Psych 105 or Psych 198. Theories, concepts, methods, discoveries in psychology of personality.

324 [S,D] Psychology of Women 3 Prereq Psych 105 or Psych 198. Socialization and sex roles of women; a psychological perspective.

328 [M] Self Control 3 Prereq Psych 105 or Psych 198. Analysis of self-control problems; application of behavioral principles to student-conducted projects.

333 Abnormal Psychology 3 Prereq Psych 105 or Psych 198; 3 hours Psych. Problems of abnormality from traditional and evolving points of view; types, therapies, outcomes, preventive techniques.

342 Assessment and Treatment of Dual Diagnosis 3 Prereq Psych 105. Development of conceptual frameworks to guide the treatment and research of patient’s co-occurring chemical dependency and psychiatric disorders.

350 [S] Social Psychology 3 Prereq Psych 105, Psych 198, or Soc 101. Attitude changes, conformity, interpersonal relations, groups and social influences explored to give a coherent view of social psychology.

361 [S] Principles of Developmental Psychology 3 Prereq Psych 105 or Psych 198. Introduction to biological and psychosocial influences on infant, child and adolescent development.

363 Psychology of Aging 3 Rec Psych 105 or Psych 198. Psychological processes of aging; changes in sensory, motor, cognitive, motivational and personality characteristics; research methodologies for the study of aging.

372 [B] Introduction to Physiological Psychology 3 Prereq Biol 102 or Biol 107; Psych 105 or Psych 198. Functional relationship between nervous system and behavior; integrated organ systems, sensory processes, and investigative procedures. Occasional lab meetings required; see instructor for times.

384 Sensation and Perception 3 Prereq Psych 105 or Psych 198. Perception of size, depth, form, shape; illusions, contrast; historical and modern theories and research; applications and demonstrations.

390 Operant Behavior 3 Prereq Psych 105 or Psych 198. Principles of operant and classical conditioning.
511 Analysis of Variance and Experimental Design 3 Prereq Psych 311 or statistics course. Parametric, nonparametric, repeated-measures, and multivariate ANOVA; planned comparisons; confidence intervals and power analysis; experimental design and variants.

512 Correlation, Regression, and Quasi-Experimental Design 3 Prereq Psych 511. Simple and multiple correlation and regression; time-series analysis; factor analysis; field research and quasi-experimental design.

513 Seminar in Quantitative Methods and Research Design 3 May be repeated for credit. Prereq Psych 512. Advanced topics in specialized quantitative procedures and in design of research in psychology.

514 Psychometrics 3 Prereq Psych 512. Scientific construction of behavioral assessment instruments, including validation and reliability; types of scales and responses; statistical scaling; test theory issues.

515 Multilevel and Synthesized Data 3 Prereq Psych 512. Structural equation modeling, hierarchical linear modeling and meta-analysis and the software used to conduct these analyses.

516 Applied Structural Equation Modeling with Current Software 3 Prereq Psych 511; Psych 512; Psych 514; Psych 515. Confirmatory factor analysis, path analysis, structural regression analysis, multilevel analysis and latent growth analysis with current software.

519 Industrial/Organizational Psychology 3 Application of psychological principles to the study of work behavior; includes topics such as personnel selection, performance appraisal, training, work motivation, teams, leadership, and job attitudes. Cooperative course taught by UI, open to WSU students (PSYC 516).

520 Empirical Approaches to Psychotherapy 3 Prereq Psych 533. Major therapy systems, research on process and outcome of therapy.

530 Professional, Ethical, and Legal Issues 3 Application of professional, ethical, and legal issues in clinical psychology to such topics as confidentiality, dual-relationships, research, assessment, and intervention.

533 Adult Psychopathology 3 Prereq by interview only. Theoretical and empirical approaches to diagnosis, etiology and treatment of mental disorders. Cooperative course taught by WSU, open to UI students (PSYCH575).

534 Clinical Psychopharmacology 3 Prereq Psych 533. Classification, clinical application, and mechanisms of psychotherapeutic drugs used in the treatment of mental disorders.

535 Clinical Assessment and Diagnosis 3 Diagnostic interviewing, conceptualization of clinical problems, case presentations, and treatment planning.

536 Measurement Theory and Personality Assessment 3 Prereq by interview only. Psychometric theory, theories of personality, objective and projective methods of assessing personality, development of testing and interpretive skills.

537 Psychology Clinic Assessment Practicum 3 May be repeated for credit; cumulative maximum 18 hours. Prereq Psych 539 or by interview only. Supervised practice in psychological assessment in the Psychology Clinic. S, F grading.

538 Child Therapy Practicum 3 May be repeated for credit; cumulative maximum 18 hours. Prereq by interview only. Supervised practice in the clinical application of psychology with children and families. S, F grading.

539 Measurement Theory and Intellectual Assessment 3 Prereq by interview only. Psychometric theory, theories of intelligence; methods of appraising intelligence in children and adults, and development of testing and interpretive skills.

541 Social Psychology in the Workplace 3 Overview of the general theory and methods of organizational psychology; focus on how individual or group behavior is affected by the organizational environment; includes topics such as work motivation, leadership, teams, culture/climate, and job attitudes. Cooperative course taught by UI, open to WSU students (PSYC 541).

543 Child Clinical Psychology: Empirical Approaches to Assessment and Therapy 3 Research on developmental psychopathology, child assessment, and child therapy.

544 Medical Psychology: Psychological and Pharmacological Interventions 3 Psychological factors and their influence upon the causes and/or course of medical illnesses as well as relevant clinical interventions. Cooperative course taught by WSU, open to UI students (PSYCH544).

545 Psychology Clinic Adult Therapy Practicum 3 (0-9) May be repeated for credit; cumulative maximum 18 hours. Prereq by interview only. Supervised practice in the clinical application of psychology with adults in the Psychology Clinic. S, F grading.

546 Counseling Service Practicum 3 V 1-3 May be repeated for credit; cumulative maximum 12 hours. Prereq Psych 545 or cr/. By interview only. Supervised practice in the clinical application of psychology at the WSU Counseling Service. S, F grading.

547 Medical Psychology Practicum 3 May be repeated for credit; cumulative maximum 18 hours. Prereq by interview only. Supervised practice in the clinical application of psychology at the WSU Health and Wellness Service. S, F grading.

548 Clinical Externship V 1-3 May be repeated for credit; cumulative maximum 18 hours. Prereq by interview only. Supervised practice in the clinical application of psychology at approved hospitals and medical practices. S, F grading.

550 Attitudes and Social Cognition 3 Attitude structure, function, and change; social cognition and motivation, and attributions. Cooperative course taught by WSU, open to UI students (PSYCH550).
551 Group and Interpersonal Processes
3 Theories and research in interpersonal dynamics; cognitive, learning, equity, and attributional concepts; group performance and interpersonal interaction, social influence, distributive and procedural justice, helping, and attraction.

552 Diversity Issues in Psychology
3 Research, theories, and controversies regarding the role of human diversity in psychotherapy, psychological assessment, and clinical research.

555 Personnel Psychology
3 Review of theory and methods related to personnel issues; includes topics such as individual differences, selection, psychometrics, compensation, training programs, and performance appraisal. Cooperative course taught by UI, open to WSU students (PSYC 535).

561 Human-Computer Interaction
3 Overview of human-computer interaction (HCI) topics, including user models, dialog, display design, usability, software development, groupware, and multimedia. Cooperative course taught by UI, open to WSU students (PSYC 561).

562 Advanced Human Factors
3 Review of topics and theories germane to human factors such as performance measurement systems, design specifications, research issues, controls and displays, human reliability, and illumination. Cooperative course taught by UI, open to WSU students (PSYC 562).

574 Physiological Psychology
3 Neuroanatomical, neurochemical, and other biological cases of human and animal behavior. Cooperative course taught by WSU, open to UI students (PSYC 565).

575 Foundations of Neuropsychology
3 Foundations in brain/behavior relationships and neuropathological syndromes; preparation for advanced training in neuropsychological assessment. Cooperative course taught by WSU, open to UI students (PSYC 575).

576 Neuropsychological Assessment
3 Prereq. Psych 575. Brain-behavior relationships in humans and the evaluation of cognitive, behavioral, and emotional changes accompanying a variety of neuropsychiatric syndromes.

577 Behavioral Pharmacology
3 Prereq Psych 574 or graduate standing in Neuro or P/T. Survey of drugs which affect brain function with emphasis on animal models and clinical applications. Cooperative course taught by WSU, open to UI students (PSYC 566).

584 Sensory Bases of Behavior
3 Sensory and physiological aspects of vision, audition, and other senses. Cooperative course taught by WSU, open to UI students (PSYC 568).

592 Cognition and Memory
3 Experimental approaches to human information processing, memory, and cognition.

595 Clinical Internship in Psychology
V 2-16 May be repeated for credit; cumulative maximum 16 hours. Prereq. passing of preliminary exams and completion of course work for PhD. Clinical training in an internship approved by American Psychological Association or by WSU. S, F grading.

600 Special Projects or Independent Study
V 1-18 May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination
V 1-18 May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study and/or Examination
V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination
V 1-18 May be repeated for credit. S, F grading.

Public Affairs - Vancouver
www.vancouver.wsu.edu/publicaffairs
Multimedia Classroom Building, Room 102E
360-546-9475

Academic Director, A. Wharton; Program Director, P. Thiers; Professors, J. Goodstein, T. Tripp; Associate Professors, L. Drapela, C. Long, C. Mosher, M. Stephens; Assistant Professors, D.L. Baker, D. Jaffer, A. Maclean, D. Wood.

The Bachelor of Arts in Public Affairs seeks to develop critical thinking about political and social values and develop the ability to conduct objective analysis of political structures and bureaucratic processes. The degree program is designed to educate people for service in public and nonprofit agencies and to prepare students for graduate or law school. The program’s multidisciplinary perspective provides for the blending of theory, methodology, and experience in an academically rigorous degree format.

Schedules of Studies
Students must complete one American Diversity [D] course to meet the General Education Requirements (GERs). Choose one humanities, social science, or Tier III course that is also designated as an American Diversity [D] course. Note: Honors students complete Honors requirements in place of GERs.

PUBLIC AFFAIRS (VANCOUVER ONLY) (120 HOURS)

The Bachelor of Arts in Public Affairs requires students to earn at least a C grade or higher in all core courses and no core courses may be taken pass/fail. In addition, only 6 hours in the concentration may be taken pass/fail.

Certification Requirements
To certify in Public Affairs, students must have least 24 semester hours and an overall minimum gpa of 2.75 or higher. Once certified, all students must maintain a minimum overall gpa of 2.75 or higher or they will be decertified.

First Year
First Term
Biological Sciences [B] (GER) 4
Engl 101 [W] (GER) 3
Foreign Language, if necessary, or Elective 3
GE 101 [E] (GER) 3
GE 105 [V] (GER) 3
Pol S 101 [S] (GER) 3

Second Term
Arts & Humanities [H,G] (GER) 3
Foreign Language, if necessary, or Elective 3
GE 106 [V] (GER) 3
Math Proficiency [N] (GER) 3
Social Science [S,K] GER 3

Second Year
First Term
GE 103 [E] (GER) 1
GE 110 [A] (GER) 3
Physical Sciences [P] (GER) 4
Pol S 300 3
Pol S 316 3

Second Term
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Biological [B] or Physical [P] Sciences (GER) 4
GE 111 [A] (GER) 3
Intercultural Studies [I,G,K] GER 3
Pol S 340 3
Complete Writing Portfolio

Third Year
First Term
Arts & Humanities [H,G] or Social Sciences [S,K] (GER) 3
Minor Elective1 3
PA Elective2 6
Soc 320 3

Second Term
PA Elective2 6
Pol S 432 [M] 3
Soc 321 4
Electives 2

Fourth Year
First Term
Minor Elective1 6
PA Elective2 3
Pol S 442 [M] 3
Tier III [T] GER 3

Second Term
GE 401 [E] (GER) 1
Minor Elective1 9
Electives 3

1 A minor is recommended, but not required. The minor must total 16 to 18 semester hours, including at least six credits of upper-division course work, and must be in an area other than criminal justice or political science.
15 semester hours is required in one of three concentration options: public policy and politics, public administration and management, or justice studies. See department for an approved list of courses.

**Sciences**

**Description of Courses**

**SCIENCE**

101 [Q] Origins in the Natural World 4 (3-3) Interdisciplinary approach to science in the modern world for non-science majors. If both Sci 101 and 102 are taken, students satisfy [B], [P] and laboratory requirement.

102 [Q] Dynamic Systems in the Natural World 4 (3-3) Prereq Sci 101. Interdisciplinary approach to science in the modern world for non-science majors. If both Sci 101 and 102 are taken, students satisfy [B], [P] and laboratory requirement.

210 Your Future in Life Sciences 2 Exploration of career options in biological sciences with faculty and outside speakers; guide to preparing resume and career plans. S, F grading.

298 (198) The Sciences for Honors Students I 4 (3-3) Prereq honors students only. Interdisciplinary approach to science in the modern world developed specifically for students not majoring in the sciences.

299 (199) The Sciences for Honors Students II 4 (3-3) Prereq Sci 298. Interdisciplinary approach to science in the modern world developed specifically for students not majoring in the sciences.

**Sciences, General Studies Program**

www.sci.wsu.edu/cos/generalstudies.html

Troy 305
509-335-4549

Coordinator, V. Fisher.

General Studies is for students who have varied interests that may cut across the usual departmental boundaries and who wish to play a role in deciding on a suitable curriculum of study.

The degree offered is the Bachelor of Science. The degree is not identified with a specific subject-matter field on the diploma.

The General Science Program seeks to prepare students for a wide variety of opportunities after graduation ranging from professional and graduate school to entry into business and industry. Graduates of the General Science program are expected to: 1) have a thorough understanding and knowledge of their major area of study; 2) understand and critically analyze research and journals from their field of study; 3) communicate clearly about their field to a wide variety of audiences, and 4) understand that they will need to engage in lifelong learning to stay current in their field.

**Schedules of Studies**

**GENERAL STUDIES - BASIC MEDICAL SCIENCES PLAN A**

<table>
<thead>
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<th>First Year</th>
<th>Hours</th>
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<tr>
<td>First Term</td>
<td></td>
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<tr>
<td>Biol 106 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 105 [P] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Engl 101 [W] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>GenEd 110 [A] (GER)</td>
<td>3</td>
</tr>
<tr>
<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>Biol 107 [B] (GER)</td>
<td>4</td>
</tr>
<tr>
<td>Chem 106 [P] (GER)</td>
<td>4</td>
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<tr>
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<td>3</td>
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<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
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**GENERAL STUDIES - BASIC MEDICAL SCIENCES PLAN B**

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<tr>
<td>Chem 105 [P] (GER)</td>
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<td>Second Term</td>
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<td>Biol 107 [B] (GER)</td>
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<tr>
<td>Chem 106 [P] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Math 140 [N] or 171 [N] (GER)</td>
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**Third Year**

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**Fourth Year**

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<td>Electives</td>
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</table>

1 Chem 101 may be taken prior to Chem 105
2 Math 107 may be taken the first semester as a co-requisite to other math courses and as a co-requisite to Chem 105. In addition to either Math 140 or 171 a statistics course such as Math 212, Introduction to Statistical Methods, is highly recommended, and, for some programs, required.
3 Students are encouraged to pursue a minor in other areas of more in-depth science minor.
4 An elective may be substituted for Phys 101 and 102 if it is not required for entrance to a graduate or professional program.

1 Chem 101 may be taken prior to Chem 105
2 Math 107 may be taken the first semester as a prerequisite to other math courses and as a
Department of Sociology
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Wilson-Short 204
509-335-4595

Professor and Department Chair, G. Hooks; Professors, M. Allen, D. Dillman, G. Rosa, A. Wharton; Associate Professors, L. Catanzarite, S. Frickel, E. Fussell, C. Horne, M. Johnson, J. Kuec, L. McIntyre, C. Mosher, H. Ono, T. Rotolo, N. Van Dyke; Assistant Professors, D. Jaffe, E. Johnson, K. Lloyd, A. MacLean, J. Schwartz, J. Sherman; Clinical Assistant Professor, C. Oakley.

Sociology is the scientific study of social life. The fundamental insight of the discipline is that the social matters; our lives are affected not only by our personal psychology, but by our place in the social world.

Courses in sociology are designed to provide the student with an understanding of what makes people and groups of people behave the way they do. They cover a wide range of issues, from inequality to human ecology, from deviance to religion, from medicine to politics. Few fields offer students (and researchers) opportunities of such breadth. The course of study for majors is flexible enough to accommodate a variety of individual interests. Some knowledge of sociology is widely regarded as a useful supplement to the course work in most fields.

The undergraduate sociology major provides excellent preparation for careers in a variety of occupations, including public relations, teaching, positions in government, social agencies, and industry; or as a foundation for careers in professions such as community planning, counseling, law, medicine, the ministry, politics, or public administration.

The department offers courses of study leading to the degrees of Bachelor of Arts in Sociology, Master of Arts in Sociology, and Doctor of Philosophy. At the completion of the Bachelor of Arts degree in sociology, students will be able to 1) understand themselves in relationship to society, 2) understand the relationship between society and the physical world, 3) have a depth and breadth of sociological knowledge, 4) apply their sociological knowledge to “real world” situations, 5) reason symbolically and quantitatively, 6) conduct/evaluate empirical research, 7) think critically, 8) communicate effectively orally and in writing, 9) enhance life skills such as civility and cooperation, and 10) respect social diversity.

Sociology Requirements

A Bachelor of Arts degree in sociology requires a minimum of 31 hours of sociology coursework in which students must maintain a C average. All majors must complete five required core courses as well as five elective courses in sociology. In addition, students must earn 24 credit hours in related fields, half of which must be in 300-400 level courses. Related field courses enable students to individualize their programs of study to best meet their academic and career goals. Students select related field courses from a departmentally approved list and in consultation with a faculty advisor.

Required Core Courses

The following courses are required of all majors: Soci 101, Soci 310, Soci 317 [M], and Soci 321, and one of the following “capstone experience” courses: Soci 495 [M], Soci 496 [M], or Soci 497 [M].

Schedules of Studies

SOCIOLGY - BACHELOR OF ARTS (121 HOURS)

This is a prototype of one of many ways to complete the sociology degree program in four years. The program has built-in flexibility. Students should consult their advisors regarding other acceptable course plans.

Students must meet the graduation requirements of the College of Liberal Arts. They are encouraged to make a broad and balanced sampling of GER courses to meet the university's goal for a general education, as well as to explore or confirm possible major and career interests.

First Year

<table>
<thead>
<tr>
<th>Term</th>
<th>Hours</th>
<th>Courses</th>
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Second Year

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<td>Complete Writing Portfolio</td>
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Third Year

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<td>Soc 317 [M]</td>
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Fourth Year

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<tr>
<td>Related Field Electives</td>
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<td>Tier III Course [T] (GER)</td>
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</table>

co-requisite to Chem 105. In addition to either Math 140 or 171 a statistics course such as Math 212, Introduction to Statistical Methods, is highly recommended, and, for some programs, required. 1 An elective may be substituted for Phys 101 and 102 if it is not required for entrance to a graduate or professional program. 2 Students are encouraged to pursue a minor in other areas of more in-depth science minor.

GENERAL STUDIES - BIOLOGICAL/ MATHEMATICAL/PHYSICAL SCIENCES PLAN A AND PLAN B (120 HOURS)

The Biological/Mathematical/Physical Sciences plan within General Studies is for students who are interested in interdisciplinary programs in science or mathematics which offer broader options in course selections than are possible within single departments. Students who wish to earn a Bachelor of Science degree will devise an approved, coherent program of study with the coordinator which fulfills an academic or career goal and includes prerequisites consistent with the 300-400-level major course work. In addition, each student will satisfy the General Education Requirements and any additional requirements of the College of Sciences.

Plan A—Primary/Secondary Concentration

Primary concentration: a minimum of 24 semester credits, including at least 15 300-400-level credits, must be completed in biological sciences, in mathematics or in a single physical science with a minimum 2.00 primary concentration gpa

Students who complete one of the above primary concentrations will receive a Bachelor of Science degree with a primary concentration in general biological sciences (Gen B), general mathematics (Gen M) or general physical sciences (Gen P).

Secondary concentration: a minimum of 15 semester credits, including at least 6 300-400-level credits, must be completed in another academic department, program or area published in the catalog with a minimum 2.00 minor concentration gpa.

Plan B—Three Related Areas in Biological Sciences

A combination of biological sciences courses of at least 39 credits in three or more departments or programs. 9 credits in each department or program area are required and 21 300-400-level hours must be completed with at least a 2.0 gpa in these courses. The related areas in general biological sciences (Gen B) include biology, biochemistry, botany, genetics and cell biology, microbiology, zoology and approved biology-based courses in agriculture. Students who complete a Plan B curriculum receive a Bachelor of Science degree with a primary concentration in general biological sciences (Gen B).

Prerequisite Courses

General Biological Sciences (Gen B): One year biology, one semester introductory calculus, one year general chemistry, and one semester organic chemistry.

General Physical Sciences (Gen P): One year calculus, one year calculus-based physics, and one year general chemistry.(Students who plan a major concentration in chemistry should also include quantitative and organic chemistry. Physical geology is a prerequisite for 300-400-level geology courses.)

General Mathematics (Gen M): three semesters of calculus and linear algebra.

Tier II Course [T] (GER) 3
Minors

Sociology

The minor in sociology may be certified after completion of 60 semester hours. It requires a minimum of 18 credit hours in sociology, including Soc 101, 320, and at least 9 additional graded hours of 300-400-level courses taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Any Soc course may be counted toward the minor (subject to the above provisions). Only 3 credits of Soc 495 may apply to the minor. A GPA of 2.0 is required for the minor.

Description of Courses

SOCIAL WORK

S

395 Child Welfare 3 Social work practice in child welfare; adoption, foster homes, child protection, group homes, day care, children's institutions, dependency, traditional and non-traditional family.

493 [M] Social Work Methods: Individual and Groups 3 Social work values, ethics; technical aspects of interviewing and working with client systems; communication; group work skills.

496 Social Work in Health and Mental Health 3 Applying social work methods to the fields of health and mental health with an emphasis on practical skills.

498 Special Topics in Sociology: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

SOCIOLOGY

Soc

101 [S,D] Introduction to Sociology 3 Human society and social behavior; effects of groups, organizations, cultures, and institutions.

102 [S,D] Social Problems 3 The structure of social institutions and cultural factors that constitute threats to society (crime, poverty, discrimination, drugs, family violence).

150 [S,D] Marital and Sexual Life Styles 3 Traditional and alternative marriage styles; social and personal factors in mate selection; sexual life styles; development of sex roles.

198 [S] Introduction to Sociology Honors 3 Open only to students in the Honors College.

250 [S,D] Perspectives on Disability 3 Same as DisSt 250.

298 Special Topics in Sociology: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

300 [S,M] Intersections of Race, Class, Gender and Sexuality 3 Prereq CES 101, Soc 101, or W St 200. Same as W St 300.

302 [S,D] Contemporary Masculinity and Men's Issues 3 Same as W St 302.

310 Development of Social Theory 3 Prereq Soc 101. Foundations of sociological theory; introduction to original works of early social theorists.


320 Introduction to Social Research 3 Prereq Soc 101. Methods of collecting data; surveys, experiments, field observations; organization and interpretation of data; reading social research findings.

321 Quantitative Techniques in Sociology I 4 Levels of measurement; measures of central tendency, dispersion and association; normal curve, statistical inference; logic of quantitative comparison and decision making.

331 [S] Population, Resources, and the Future 3 Effects of population on resource depletion, environmental deterioration, social and economic structure; zero population growth prospects; limits to growth debate.

332 Society and Environment 3 Prereq Soc 101. Society-environment relations, including environmental attitudes and behavior; the environmental movement and environmental politics and policy-making.


343 [S,D] Sociology of Professions and Occupations 3 Prereq Soc 101. Social organization of work in America including historical and contemporary trends, bureaucracy, gender/racial inequality, technological affects, work/family relations.


346 [S,D] Sociology of Education 5 Prereq Soc 101 or 102. Examination of how educational institutions are influenced by other social forces, how school practices affect individual outcomes and how race/class/gender shape educational opportunity.


351 [S,D] The Family 3 Prereq Psych 105 or Soc 101. Family system and its interaction patterns; family life cycle from marriage through death; marital relations, divorce, sexuality, parenting crisis, abuse.

352 Sociology of Emotions 3 Prereq Psych 105 or Soc 101. Examination of emotions by surveying current theory and research; investigate emotions such as shame, guilt, empathy, jealousy, envy, and anger.

356 Sociology of Aging and the Life Course 3 Aging as a lifelong process; behavior, personality competencies, social relations changes over the life course; historical, social structural, demographics, contextual influences. Cooperative course taught jointly by WSU and UI (SOC 431).


361 Criminology 3 Prereq Soc 101. Crime measurement, the correlates of crime, and specific types of crime such as white-collar and drug crime.


363 The Social Organization of Hate Crimes 3 Prereq Soc 101. Definition measurement, social context, and social regulation of hate crimes as a social problem; emphasizing their production and social organization.

364 Law and Society 3 Prereq Crm J 101 or Soc 101. Various points of intersection of legal and social systems; special attention given to historical development.

367 Juvenile Justice and Corrections 3 Prereq Crm J 101. Same as Crm J 365. Cooperative course taught by WSU, open to UI students (C J 365).

368 Sociological Theories of Addictive Behavior 3 Prereq Soc 101. Alcohol use and abuse in the context of other legal and illegal substances focusing on theories and drug policies.

372 The Sociology of Film 3 The social, economic, and political factors that influence film production and the impact of films on American culture.

373 [S,D] Media, Culture and Society 3 The production of popular culture by media organizations and its effects on society.

375 Aspects of Sustainable Development 3 Prereq EconS 101. Same as EconS 326.


390 (380) [S,D] Gender and Work 3 Gender and inequality at work including occupational segregation, wage inequality and balancing work and family.

391 Special Topics in Sociology V 1-3 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours.

392 Special Topics V 1-3 May be repeated for credit. May be repeated for credit; cumulative maximum 6 hours.

397 Special Topics in Sociology: Study Abroad V 1-15 S, F grading.

398 Special Topics in Sociology: Study Abroad V 1-15 S, F grading.
415 [T] Globalization 3 Prereq Soc 101; completion of one Tier I and three Tier II courses. Structural foundations of global social change; theories of intersocietal interactions and interdependencies.

418 Human Issues in International Development 3 Same as Anth 418.

421 Quantitative Techniques in Sociology II 3 Probability theory, sampling distributions, random variables, matrix approaches to statistical techniques, calculus for statistics and computer applications.

430 [T] Society and Technology 3 Prereq completion of one Tier I and three Tier II courses. Role of technology in social evolution; social impacts and shaping of technology.

433 [T] Urbanization and Community Organization 3 Prereq Soc 101; one Tier I course; three Tier II courses. Organization, function, change, development, and decline of communities; applications emphasizing rural or urban settings.


468 Addictive Behavior Across the Demographic Spectrum 3 Prereq Psych 105, Soc 101, or Cmw J 101. Overview of social, cultural and historical perspectives on dealing with addictive behavior.

474 [T] Collective Behavior and Social Movements 3 Prereq Soc 101; one Tier I course; three Tier II courses; three 300-400-level Soc or Pol S courses. Processes of collective behavior and social movements in historical and contemporary societies.

480 Sociology of Race Relations 3 Basic understanding of race relations; major sociological concepts and theories regarding minority and majority group relations.

484 [T,D] Lesbian and Gay Studies 3 Same as W St 484.

491 Advanced Special Topics V 1-3 May be repeated for credit; cumulative maximum 6 hours.

493 (Soc 495) Internship V 1-6 May be repeated for credit; cumulative maximum 12 hours. Prereq social science major; by interview only. Work experience related to undergraduate major and career interests. S, F grading.

495 [M] Capstone Internship 3 (0-3) By interview only. Self-initiated supervised work experience in an approved campus or community setting.

496 [M] Capstone - From Theory to Practice: The Sociology of Service 3 Prereq Soc 310; Soc 320 and 321 or c//; cumulative gpa 3.00 or higher. Service learning course connecting theoretical solutions to social problems with service in community organizations.


498 Research Assistantship 3 May be repeated for credit; cumulative maximum 6 hours. Prereq Soc 101; 320; by interview only. Supervised experience in current research by departmental faculty.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

510 Development of Social Theory 3 Examination of the foundations of social theory.

517 Seminar in Contemporary Sociological Theory 3 Recent developments in sociological theory, analysis, application and appraisal of specific theoretical systems.

519 International Development and Human Resources 3 Same as Anth 519.

520 Research Methods in Sociology 3 Methodology of social research at the professional level.

521 Regression Models 3 Prereq Soc 421. Simple and multiple regression, structural equation models, nonlinear applications, applications for discrete dependent variables.

522 Advanced Sociological Methodology 3 May be repeated for credit; cumulative maximum 12 hours. Prereq Soc 521. Scaling theory, sampling theory, experimental design, measurement of association, multivariate analysis, current methods and techniques.

523 Qualitative Methods Practicum 3 Prereq graduate standing. Introduction to qualitative research methods as used in social sciences; epistemological underpinnings and empirical techniques.

525 Practicum in Survey Research 3 Prereq Soc 520. Practical experience in design and implementation of telephone and mail surveys; participation in all aspects of conducting a survey.

530 Demography 3 Population studies; causes, effects, and measurement of changes in fertility, mortality, and migration; population estimation and projection.

531 Human Ecology 3 Ecosystem context of human life; change viewed ecologically; sociological use and misuse of ecological concepts; issues in theory and research.

532 Environmental Sociology 3 Societal-environmental interactions; impacts of human societies on the physical environment; environmental impacts on human behavior and social organization.

535 Technology and Society 3 Prereq graduate standing. Analysis of sociotechnical systems; effects of technology on society; the social shaping of technologies and their environmental impacts.

536 Special Topics in Environmental Sociology V 1-3 May be repeated for credit; cumulative maximum 9 hours. Special topics in environmental sociology.

542 Social Stratification: Class, Race and Gender Inequalities 3 Theoretical and empirical research in both classic stratification literature and recent scholarship on class, race/ethnicity and gender.

545 Sociology of Community 3 Community stability and change: interaction processes; decision making; societal linkages; effects on well-being.

553 Social Organization and the Family 3 The family as a social institution; principles of social organization applied to family relationships; macro-level analyses of family structure.

554 Social Psychology of the Family 3 The family as an interacting group; social psychological theories and research applied to family relationships; effects of families on individuals.

556 Sociology of Aging and the Life Course 3 Theory and research on the changes individuals undergo over the life course; influences of history, social structure, agency and social relations on lives.

568 Adolescent Deviance 3 Contemporary sociological theory and research in adolescent deviance; action programs; and emerging issues.

580 Sociology of Race Relations 3 Analysis of race/ethnic relations; historical and current theoretical explanations of race/ethnic relations.

590 Special Topics in Sociology 3 May be repeated for credit; cumulative maximum 9 hours.

591 The Sociology Profession 1 May be repeated for credit; cumulative maximum 2 hours. Requirements, operations, problems, and possibilities of the sociology profession. S, F grading.

592 Special Topics in Sociology 3 May be repeated for credit; cumulative maximum 9 hours.

593 Special Topics in Sociology V 1-3 May be repeated for credit; cumulative maximum 6 hours. Special topics in sociology.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Department of Speech and Hearing Sciences

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509-335-4525

Professor and Department Chair, G. D. Chermak; Professor, C. L. Madison; Associate Professors, E. Inglebriet, J. M. Johnson; Assistant Professors, A. Meredith, N. Potter; Clinical Professors, J. Hashbuck, L. Power; Clinical Associate Professors, S. Bassett, J. Nye; Clinical Assistant Professors, S. Forbes, S. Johnston; Instructor, M. Ratsch; Professors Emeriti, J. R. Franks, R. E. Potter.
The Department of Speech and Hearing Sciences offers courses of study leading to the degrees of Bachelor of Arts in Speech and Hearing Sciences and Master of Arts in Speech and Hearing Sciences. Academic course work and clinical practicum offerings prepare professional personnel to meet the diagnostic and therapy needs of individuals of all ages evidencing a wide variety of speech, language, hearing and learning problems. The Department also offers two minors, one in disability studies and one in speech and hearing sciences.

Students are prepared as speech-language pathologists to provide direct and consultative services in education and medical settings. The course of study emphasizes the physiological, neurological, psychological, and behavioral processes of normal development, the fundamental communication process, and the disorders of communication. The analytic and independent application of course content to the clinical process is encouraged.

The graduate program, located in the Health Sciences Building at the Riverpoint Campus of Washington State University Spokane, is a cooperative venture, combining faculty and resources of Washington State University and Eastern Washington University to form University Programs in Communication Disorders (UPCD). WSU students enroll through and receive their degrees from Washington State University. The Hearing and Speech Clinic is the Spokane campus training facility for the University Programs in Communication Disorders. Opportunities to work with special populations and in medical settings are readily available in the Spokane area. A capstone internship program provides extensive practical experience in many clinical and educational settings.

The graduate program in speech-language pathology is accredited nationally by the Council on Academic Accreditation of the American Speech-Language-Hearing Association and recognized at the state level by the Washington State Board of Education. State and national clinical and educational certifications require a master's degree. Bachelor's-level training in speech and hearing sciences is considered pre-professional. The upper-division course work in the major will be offered in Spokane only effective fall 2011.

Learning Outcomes

Learning outcomes for students in Speech & Hearing Sciences reflect the Knowledge and Skills Assessment required by the American Speech-Language-Hearing Association. Students earning a master's degree with an emphasis in speech-language pathology will be able to demonstrate: 1) knowledge of the basic human communication and swallowing processes; 2) knowledge of the nature of speech, language, hearing, swallowing and communication disorders and differences; 3) knowledge of the principles and methods of prevention, assessment, and intervention for people with communication and swallowing disorders; 4) skills in evaluation, screening and prevention procedures; 5) skills in developing, setting, and monitoring appropriate intervention plans with measurable and achievable goals that meet clients'/patients' needs; implementing intervention plans; and 6) knowledge of the principles and practices of research, including experimental design, statistical methods, and clinical applications.

Preparation for Graduate Study

Students with undergraduate majors in human development, linguistics, education, psychology, and other social and behavioral sciences, as well as those with undergraduate majors in speech and hearing sciences, may be accepted for graduate study in this department. Those with majors in areas other than speech & hearing sciences may be required to take undergraduate prerequisite coursework prior to taking graduate coursework.

Schedules of Studies

SPEECH AND HEARING SCIENCES REQUIREMENTS (124 HOURS)

At least 45 of the total hours required for the bachelor's degree in this program must be in 300-400-level courses. Successful completion of SHS 475 and 478 fulfills the university requirement of two writing in the major courses, designated [M]. Speech and Hearing Sciences majors are required to satisfactorily complete clinic apprenticeship and clinic practice (SHS 461 and 475) to fulfill degree requirements. Students must present evidence of good character and fitness to participate in clinical experiences. A background investigation conducted by the Washington State Board of Education is required to establish good character and fitness requisite to participation in clinic. Majors must also have a tuberculin (TB) skin test prior to participating in clinic apprenticeship and clinic practice. The test is available at Health and Wellness Services.

The Speech and Hearing Sciences Department provides preparation for professional (graduate) training as a speech-language pathologist or audiologist. This course sequence is based on fall enrollment. GERs must be completed in College of Liberal Arts prior to the fifth semester.

First Year

First Term

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<th>Hours</th>
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<td>Biological Sciences [B] (GER)</td>
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<td>Communication Proficiency C,W (GER)</td>
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Second Term

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<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>Psych 105 [S] (GER)/SHS Elective</td>
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Second Year

First Term

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<td>Biological [B] or Physical [P] Sciences (GER)</td>
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<td>SHS 201</td>
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<td>SHS 205</td>
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Second Term

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<td>SHS 202</td>
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<td>SHS Electives 2</td>
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<td>Stat 212 [N] (GER)</td>
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<td>Complete Writing Portfolio</td>
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Third Year

First Term

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<td>SHS 473</td>
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Second Term

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<td>SHS 376</td>
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<td>SHS 378</td>
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<td>SHS 461 or Tier III [T] (GER)</td>
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<td>SHS 472</td>
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<td>SHS 478 [M]</td>
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Fourth Year

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<td>SHS 475 [M] or Rotating Core Elective 1</td>
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<td>SHS 477</td>
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<td>SHS 479</td>
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<td>SHS 482 [M]</td>
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Second Term

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<td>SHS 479</td>
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Minors

Disability Studies

The minor in disability studies requires 18 credit hours, with 9 hours in 300-400-level course work taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Core courses include CES 302 or Soc 340; SHS 250; and SHS 489. Students select additional courses within or across two designated tracks of Culture and Society—Am St 216, Arch 202, CES 101, 260, 302, 440, Com 471/CAC 404, H D 350, SHS 201, 202, Soc 102, 331, 360, 373, 455, 474, W St 200, W St/CES/Soc 300—and Science and Rehabilitation—Colby 478, Econ 455 FSHN 405, MvSt 484, PharF 250, Phil 365, SHS 473, Sp Ed 301, 409, T & L 330.

Speech and Hearing Sciences

A minor in speech and hearing sciences requires a minimum of 16 hours including SHS 205, 371, 372; 9 hours must be 300-400-level courses excluding SHS 461 and 475, and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.
Description of Courses

DISABILITY STUDIES

DisSt

250 [S,D] Perspectives on Disability 3 Historical, international, socioeconomic, ethical and personal perspectives on disability; individual choices, societal values, and social responsibility.

489 [T,D] Disability and Society 3 Prereq completion of one Tier I and three Tier II courses. Perceptions and stereotypes of disability related to theories of marginality and stigmatization; images in films, media, and literature.

SPEECH AND HEARING SCIENCES

SHS

118 Accent Reduction for International Students 2 May be repeated for credit; cumulative maximum 4 hours. Instruction in production of the sounds and pattern of general American speech. S, F grading.

201 American Sign Language I 4 Instruction and practical training in sign language for communication with persons who are deaf; deaf culture; beginning conversation skills.

202 American Sign Language II 4 Prereq SHS 201. Sign language systems; vocabulary and skill development in signing and interpreting signs; intermediate conversation skills.

205 Introduction to Speech-Language Pathology and Audiology 3 Overview of deficits of speech, language, and hearing and the role of speech-language pathologist and the audiologist.

371 Language Development 3 Normal development of the cognitive, linguistic, and pragmatic components of language; Introduction to language disorders in children.

372 Hearing and Hearing Disorders 3 Acoustic and psychophysilogic aspects of normal hearing and speech perception, and the nature and consequences of hearing disorders.

373 Clinical Phonetics 2 Analysis and transcription of speech sounds as it relates to the remediating of unintelligible or disordered speech.

375 Phonetics 3 Description and classification of American English speech sounds; practice using the International Phonetic Alphabet to transcribe normal and disordered speech sounds.

376 Speech Sound Disorders 3 Clinical phonetics and transcription; evaluation and treatment of articulatory disorders; delayed phonological acquisition; dysarthria; and dyspraxia.

377 Anatomy and Physiology of the Speech Production 3 Anatomical and physiological basis of speech production and the pathologies and aberrations that require the services of a communication disorders specialist.

378 Speech and Hearing Sciences 3 Basis of acoustics, acoustic phonetics, psychoacoustics, and speech perception, and instrumentation for measurement of related phenomena.

450 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences.

451 Neurogenic Communication Disorders 3 Introduction to the etiology, assessment and intervention of communication disorders associated with neurological disorders.

460 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences.

461 Clinical Apprenticeship in Speech-Language Pathology and Audiology 2 (1-3) Pre-practicum preparation; observation of and assisting in therapy; state laws; clinical methods.

471 Speech-Language Pathology and Audiology in Schools 3 Therapy methods and procedures in speech-language pathology and audiology; state/federal laws affecting public school therapy.


473 [M] Language and Literacy 3 Diagnosis and remediation of language and learning disabilities in individuals manifesting disorders in understanding or using spoken/written language.

475 [M] Clinical Practice 3 (0-9) May be repeated for credit; cumulative maximum 9 hours. Prereq speech and hearing major, SHS 461; 2.4 c um gpa; C+ in SHS 475 required for repeat credit; by interview only. Practicum in diagnosis and therapy for speech/language and hearing disorders.

477 Aural Rehabilitation 3 Theories and methods in aural rehabilitation for persons who are hearing-impaired; amplification; educational audiology; counseling techniques.

478 Language Impairment 3 Prereq SHS 371. Assessment and habilitation for the preschool and elementary-age child with language disorders.

479 Neuroanatomy 3 Neuroanatomical and neurophysiological bases of speech production and audition; neuropathologies of speech, language, and audition.

480 Special Topics in Speech and Hearing Sciences 1 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences.

482 [M] Assessment of Speech and Language 3 Prereq SHS 376 or c/f, 475 or c/f. Principles, techniques, and materials involved in exploring the nature of speech and language disorders; planning programs of therapy.

490 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Research Methods 3 Philosophy of research, types of literature; experimental and descriptive designs; application of statistics; analysis of statistical results.

503 Research Methods II 2 Experimental and descriptive designs, application of statistics, analysis of statistical results. SHS graduate student; all undergraduate prerequisite courses completed.

540 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Advanced study of specialized topics in speech and hearing sciences. SHS graduate student; all undergraduate prerequisite courses completed.

542 Infant and Toddler Communication and Language 3 Typical development of communication and language in the birth to 5 year-old population; impairments affecting development; disorders; assessment; intervention. SHS graduate student; all undergraduate prerequisite courses completed.

543 School Age and Adolescent Language 3 Language development in typically developing and language impaired school age and adolescent students; disorder types; implications for assessment and intervention. SHS graduate student; all undergraduate prerequisite courses completed.

550 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Study of specialized topics in speech and hearing sciences. SHS graduate student; all undergraduate prerequisite courses completed.

553 Bilingual and Cultural Issues 2 Cultural and linguistic variables that may impact speech-language pathology services of culturally and linguistically diverse populations; assessment and treatment considerations.

556 Problems in Stuttering 2 Historical and current literature; problem-solving strategies applied to theoretical and clinical problems in stuttering. SHS graduate student; all undergraduate prerequisite courses completed.

557 Cleft Palate and Craniofacial Disorders 2 Speech and voice problems associated with clefts of the lip and palate. SHS graduate student; all undergraduate prerequisite courses completed.

560 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Advanced study of specialized topics in speech and hearing sciences. SHS graduate student; all undergraduate prerequisite courses completed.

562 Motor Speech Disorders 3 SHS graduate student; all undergraduate prerequisite courses completed. Underlying processes of neuromuscular control and feedback; results of damage and disease on neuromotor system.
563 Dysphagia 3 Anatomy and physiology of swallowing; evaluation and treatment of swallowing disorders. SHS graduate student; all undergraduate prerequisite courses completed.

565 Augmentative Communication 3 Augmentative communication theory; implementation, training strategies, ongoing adjustments, and evaluating effectiveness. SHS graduate student; all undergraduate prerequisite courses completed.

566 Off-Campus Practicum Public School Setting V 2-6 May be repeated for credit; cumulative maximum 15 hours. Prereq SHS 575; by interview only. Advanced clinical practice in a public school setting; evaluation and treatment of speech, language, and hearing disorders. SHS graduate student; all undergraduate prerequisite courses completed.

567 Issues in Public School Service Delivery 3 Clinical operations, policies, procedures, including legal, ethical, and professional considerations in the schools. SHS graduate student; all undergraduate prerequisite courses completed.

568 Off-campus Practicum Clinical Setting V 2-6 May be repeated for credit; cumulative maximum 15 hours. Prereq by interview only. Advanced clinical practice in an off-campus clinical/medical setting; evaluation and treatment of speech, language and hearing disorders.

570 Advanced Internship in Speech-Language Pathology V 1-18 May be repeated for credit. Prereq SHS 566, 575, by interview only. Advanced internship in diagnosis and therapy for communication disorders. SHS graduate student; all undergraduate prerequisite courses completed.

574 Neuropathologies of Language 3 Advanced study of language disorders resulting from brain insult after birth; emphasis on aphasia and related disorders. SHS graduate student; all undergraduate prerequisite courses completed.

575 Advanced Clinical Practice V 2-6 May be repeated for credit; cumulative maximum 15 hours. Prereq by interview only. Advanced clinical practice in evaluation and treatment of speech, language, and hearing disorders. SHS graduate student; all undergraduate prerequisite courses completed.

576 Voice Disorders 2 Functional and organic voice disorders resulting from various etiologies. SHS graduate student; all undergraduate prerequisite courses completed.

580 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Advanced study of specialized topics in speech and hearing sciences. SHS graduate student; all undergraduate prerequisite courses completed.

582 Clinical Perspectives 3 Theory and clinical experience designed to assist students in integrating course work into a clinical perspective. SHS graduate student; all undergraduate prerequisite courses completed.

587 Speech-Language Pathology in the Medical Setting 2 Report writing and charting, collaborating with the medical team, establishing prognosis and assessing efficacy of treatment, and third-party reimbursement. SHS graduate student; all undergraduate prerequisite courses completed.

588 Phonological Acquisition and Behavior 3 Current literature in articular development and deviancy; diagnosis and therapy. SHS graduate student; all undergraduate prerequisite courses completed.

590 Special Topics in Speech and Hearing Sciences V 1-3 May be repeated for credit; cumulative maximum 9 hours. Advanced study of specialized topics in speech and hearing sciences. SHS graduate student; all undergraduate prerequisite courses completed.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master’s Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 S, F grading.

Department of Statistics

www.stat.wsu.edu

Neil 413

509-335-8645


Statistics is the science that deals with the collection, analysis, display, and interpretation of data. Statistics is an interdisciplinary department that emphasizes the connection of statistics to its many areas of application, as well as the traditional connection to mathematics. The Department offers courses that provide training in the application of statistical methods to the biological, physical, and social sciences, the theory of statistical methods, probability, and statistical computing. Opportunities for individuals trained in statistics abound in business, industry, government and academia.

Faculty in the Department collaborate with researchers throughout the entire university community on statistical questions that arise in the researcher’s substantive discipline. In addition, faculty carry out active research programs in the discipline of statistics itself.

The Department of Statistics currently offers an M.S. degree with applied and theoretical options and a graduate minor. Students enrolled in a Ph.D program in Agricultural Economics, Economics, Management Operations, or Math may be enrolled in the M.S. in Statistics/Ph.D option. They can simultaneously pursue a Ph.D. in their primary discipline and an M.S. in Statistics. For specific requirements for these degrees, please contact the Statistics Office.

Preparation for Graduate Study

As preparation for work toward an advanced degree in statistics, a student should have completed one or more courses in statistical methods, mathematics through multivariable calculus and linear algebra, and have at least a three credit computer programming course. Advanced calculus and a second course in linear algebra are also strongly recommended. More important than the above specific courses is an indication of the student’s interest and ability in statistics.

Minors

Statistics

The minor in statistics requires 16 credit hours which must be approved by the Department of Statistics. Only courses which do not have significant overlap in statistical content will be approved as counting toward the minor. At least 9 of the 16 hours must be 300-400-level course work and at least 9 of the 16 hours must be courses carrying a Stat prefix. 9 hours of upper-division work must be taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Students are encouraged to have the courses they wish to count toward a Stat minor approved by the Program as early in their studies as possible.

Description of Courses

STATISTICS

Stat

205 [N] Statistical Thinking 3 Prereq Math 103 or intermediate math placement score of 13. Scientific explanation; correlations and causality; presenting statistical evidence; graphical and numerical methods; chance and gambling; the bell-shaped distribution.

212 [N] Introduction to Statistical Methods 4 (3-3) Prereq Math 103 or intermediate math placement score of 13. Interpretation and application of statistical methods.


370 Introductory Statistics for Engineers 3 Prereq Math 172. Probability axioms, probability models, random variables, expectation, confidence intervals, hypothesis testing, analysis of variance, control charts. Credit not granted for both Stat 360 and 370.

401 Statistics Analysis 3 Prereq Stat 212, 360 or 412. Concepts and methods of statistical research including multiple regression, contingency tables and chi-square, experimental design, analysis of variance, multiple comparisons, and analysis of covariance. Cooperative course taught by UI, open to WSU students (STAT 401).
410 Topics in Probability and Statistics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq one 3 hour statistics course. Current topics in probability and statistics of mutual interest to faculty and students. Credit not granted for both Stat 410 and 510.

412 Biometry 3 Prereq Stat 212, Math 140, 171, 202, or graduate standing. Principles and methods of statistical analysis as applied to biological experimentation. Cooperative course taught by WSU, open to UI students (STAT 412).

422 Sampling Methods 3 Prereq Stat 212 or 360. Simple and stratified random sampling; systematic sampling; cluster sampling; double sampling, area sampling. Cooperative course taught jointly by WSU and UI (STAT 422).

423 Statistical Methods for Engineers and Scientists 3 Prereq Stat 360 or one 3 hour statistics course. Hypothesis testing; linear, multilinear, and nonlinear regression; analysis of variance for designed experiments; quality control; statistical computing. Credit not normally granted for both Stat 423 and 430.

428 Geostatistics 3 Prereq Stat 360. Applications of random variables and probability in geologic and engineering studies; regression, regionalized variables, spatial correlation. Cooperative course taught by UI, open to WSU students (APST 428).

430 Statistical Methods in Engineering 3 Prereq Math 172; 220. Random variables, sampling, hypothesis testing; linear, multilinear, and nonlinear regression; analysis of variance for designed experiments; statistical computing. Credit not normally granted for both Math 430 and 442.

443 Applied Probability 3 Prereq Math 172; 220. Axioms of probability theory; random variables; expectation; generating function; law of large numbers; central limit theorem; Markov chains.

446 Six Sigma Innovation 3 Six Sigma is a highly structured strategy for acquiring, assessing, and applying customer, competitor, and enterprise intelligence for the purposes of product, system or enterprise innovation and design. It has two major thrusts, one that is directed toward significant innovation or improvement of an existing product, process or service that uses an approach called DMAIC (Define - Measure - Analyze - Improve - Control) and a second dedicated to design of new processes, products or services. This course focuses on the innovation aspects of Six Sigma. Cooperative course taught by UI, open to WSU students (STAT 446).

456 Introduction to Statistical Theory 3 Prereq Stat 430 or 443. Sampling distributions; hypothesis testing and estimation; maximum likelihood; likelihood ratio tests; theory of least squares; nonparametrics. Credit not granted for both Stat 456 and 556.

507 Experimental Design 3 Prereq Stat 512. Methods of constructing and analyzing designs for experimental investigations; analysis of designs with unequal subclass numbers; concepts of blocking randomization and replication; confounding in factorial experiments; incomplete block designs; response surface methodology. Cooperative course taught by UI, open to WSU students (STAT 507).

510 Topics in Probability and Statistics 3 May be repeated for credit; cumulative maximum 6 hours. Prereq one 3 hour statistics course. Graduate-level counterpart of Stat 410; additional requirements. Credit not granted for both Stat 410 and 510.

512 Analysis of Variance of Designed Experiments 3 (2-2) Prereq Math 360 or Stat 412. Principles of experimental design and analysis and interpretation of data.

514 Nonparametric Statistics 3 Prereq Stat 512. Conceptual development of basic nonparametric tests including their power and efficiency. Cooperative course taught by UI, open to WSU students (STAT 514).

516 Time Series 3 Prereq MgtOp 515 or Stat 443. Same as MgtOp 516. Cooperative course taught by WSU, open to UI students (STAT 539).

519 Applied Multivariate Analysis 3 Prereq MgtOp 591 or Stat 443. Same as MgtOp 519. Cooperative course taught jointly by WSU and UI (STAT 519).

520 Statistical Analysis of Qualitative Data 3 Prereq Math 140, 171, 201, 202, or 220; and one 3 hour statistics course. Graduate-level counterpart of Stat 420; additional requirements. Credit not granted for both Stat 420 and 520. Cooperative course taught by WSU, open to UI students (STAT 520).

522 Biostatistics and Statistical Epidemiology 3 Prereq Math 171 or 220; Stat 412. Rigorous approach to biostatistical and epidemiological methods including relative risk, odds ratio, crossover designs, survival analysis and generalized linear models. Cooperative course taught by WSU, open to UI students (STAT 522).

523 Statistical Methods for Engineers and Scientists 3 Prereq Stat 360 or one 3 hour statistics course. Graduate-level counterpart of Stat 423; additional requirements. Credit not granted for both Stat 423 and 523.

530 Applied Linear Models 3 (2-2) Prereq Stat 360 or 412. The design and analysis of experiments by linear models.

533 Theory of Linear Models 3 Prereq Math 420, Stat 430, or 456. Theoretical basis of linear regression and analysis of variance models; a unified approach based upon the generalized inverse. Cooperative course taught jointly by WSU and UI (STAT 575).

535 Regression Analysis 3 Prereq Stat 430 or 456. Conceptual development of regression; estimation, prediction, tests of hypotheses, variable selection, diagnostics, model validation, correlation, and nonlinear regression. Cooperative course taught jointly by WSU and UI (STAT 550).

536 Statistical Computing 3 (2-3) Prereq (Stat 443 and 530), Stat 523, or by instructor's permission. Generation of random variables, Monte Carlo simulation, bootstrap and jackknife methods, EM algorithm, Markov chain Monte Carlo methods. Cooperative course taught jointly by WSU and UI (STAT 565).

544 Applied Stochastic Processes 3 Prereq Stat 430 or 443. Poisson and Markov processes; queuing theory; auto-covariance; stationarity; power spectra; harmonic analysis; linear mean-square predictions. Cooperative course taught jointly by WSU and UI (APST 544).

548 Statistical Theory I 3 Prereq Math 273; Stat 430 or 443. Probability spaces, combinatorics, multidimensional random variables, characteristic function, special distributions, limit theorems, stochastic processes, order statistics.

549 Statistical Theory II 3 Prereq Stat 548. Continuation of Stat 548. Statistical inferences; estimation and testing hypotheses; regression analysis; sequential analysis and nonparametric methods.


556 Introduction to Statistical Theory 3 Prereq Stat 430 or 443; graduate standing. Graduate-level counterpart of Stat 456; additional requirements. Credit not granted for both Stat 456 and 556.

565 Analyzing Microarray and Other Genomic Data 3 Prereq Math 220; Stat 412 or 423. Statistical issues from pre-processing (transforming, normalizing) and analyzing genomic data (differential expression, pattern discovery and predictions). Cooperative course taught by WSU, open to UI students (STAT 560).

572 Quality Control 3 Prereq Stat 360 or 443. Simple quality assurance tools; process monitoring; Shewhart control charts; process characterization and capability; sampling inspection; factorial experiments.

573 Reliability 3 Prereq Stat 360, 430, or 443. Probabilistic modeling and inference; product-limit estimator; probability plotting; maximum likelihood estimation with censored data; regression models for accelerated life testing.

590 Statistical Consulting Practicum V 1-2 May be repeated for credit; cumulative maximum 6 hours. Prereq Stat 512; Stat 530. Theory and practice of statistical consulting, participation in consulting session. S, F grading.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.
Department of Teaching and Learning

http://education.wsu.edu/tl/
Cleveland 321
509-335-6842


Courses of study (availability differs across campuses) are offered for elementary school teaching (Bachelor of Arts in Education, Master in Teaching) and secondary school teaching (degree from master's plus certification, Master in Teaching). Additional endorsements are offered in Special Education, English Language Learners/Bilingual Education, and Reading. Graduate programs include Master of Arts in Education, Masters of Education, Doctor of Education, and Doctor of Philosophy. Doctoral specializations are available in these areas: Curriculum and Instruction, Cultural Studies and Social Thought in Education, Language and Literacy Education, Math Education, Teacher Leadership, and Special Education.

Department of Teaching & Learning faculty contribute to the theory and practice of the broad field of education, and dedicate themselves to understanding and respecting learners in diverse cultural contexts. They facilitate engaged learning and ethical leadership in schools and clinical settings. They seek collaboration with diverse constituencies, recognizing their local and global responsibilities to communities, environments, and future generations. They seek the following learning outcomes of students in teacher preparation: graduates will (1) use content and pedagogical knowledge to inform their teaching, (2) develop relevant, rigorous, and developmentally appropriate curricula, (3) modify curriculum and instruction based on the individual needs of their students, (4) use assessment of their students' learning and their own teaching to inform future planning and teaching, (5) attend to the social and civic development of their students, and (6) work respectfully and collaboratively with colleagues to ensure quality instructional programs and stewardship of public schools. At the master's level, graduates will (1) locate, analyze, and synthesize research literature, and apply that synthesis to problems of practice, (2) effectively communicate scholarly work through written, oral, and/or alternate formats, (3) skillfully inquire into areas of program-related interest, (4) develop scholarly habits in curiosity, inquiry, skepticism, and data-based decision making, and (5) demonstrate professional habits of respect, accept and use feedback, and consider others' ideas and perspectives. Doctoral students will achieve master's level outcomes and also will: (1) conduct and disseminate original scholarship that demonstrates acquisition and application of new knowledge and theory, (2) become emerging experts in their area of study.

The Washington State University annual report on teacher preparation, required under Title II, Section 207(f)(2) of the Higher Education Act, is available upon request. Visit our web site at http://education.wsu.edu/academics/accreditation/titleii/

TEACHER CERTIFICATION

The Department of Teaching and Learning prepares individuals to teach elementary education, early childhood education, and various single subjects at the secondary education level. The teacher certificate, awarded by the State Superintendent of Public Instruction upon recommendation by Washington State University designates the subject area in which the certificate holder is qualified to teach. Teacher preparation is offered at the Pullman, Spokane, Tri-Cities, and Vancouver campuses, and selected distant sites, although not all programs are available at each site. The teacher certificate will be awarded if the following provisions are met: 1. The candidate provides evidence of good character and personal fitness to teach. Fingerprinting is required. A background investigation is conducted by the Washington State Patrol, the FBI, and Office of Professional Practices. 2. The degree is awarded and the professional preparation program is satisfactorily completed following these guidelines:
   a. All course work is taken for a letter grade where passed, fail grading is not accepted except for field experience courses.
   b. The candidate has earned no grade lower than C (2.0) for professional course work, and course work in the endorsements. The C minimum grade also applies to general education, math, psychology, science, and social studies requirements in the elementary and early childhood programs.
   c. The cumulative WSU gpa and the gpa computed separately for professional course work and each endorsement is not less than 2.5.
   d. The student has completed all work within five years of admission to teacher preparation. Those not finishing within this time limit will be subject to all new program requirements.
   3. The candidate has achieved a passing score on the statewide examinations in basic skills (WEST-B), content (WEST-E), on the pedagogy assessment, and on all cross-campus assessments.
   4. The candidate has made application and paid licensing fees.
   5. The candidate has met the Professional Dispositions Assessment standards.

Transfer students entering an undergraduate or post baccalaureate certificate program must complete at least fifty percent of the professional education core, and, if preparing to teach at the elementary level, fifty percent of the elementary endorsement course work, plus student teaching at WSU. Transfer students and post baccalaureate applicants should consult with an advisor regarding equivalency and transferability of course work. Opportunities are provided for teacher certificate candidates to gain meaningful experiences by working directly with and observing children in school settings. It is WSU's intent to place only those individuals in F-12 classrooms who are able to demonstrate a positive impact on student learning, and to insure that they possess those characteristics desirable for working with children and young people. The College of Education therefore reserves the right to refuse placement of any student in a field experience, or to terminate an individual's placement if in the professional judgment of the faculty, the hosting school, or coordinating field personnel there is cause for concern about the fitness of that individual to work with children in a classroom setting. The student teaching field placement is arranged by the faculty with school districts contracted to provide experiences for WSU students. Students do not make their own student teaching placements. Student teaching must be completed at an approved WSU site in the state of Washington or internationally with supervision by an approved WSU provider.

Certificate Renewal, Continuing Certificate, Add-On Endorsements

http://www.education.wsu.edu/studentservices/

Information is available upon request from the Certification Coordinator, Office of Student Services, College of Education, PO Box 642152, Pullman WA 99164-2152 (509) 335-4855 or edstudents@wsu.edu.

Professional Certificate

The Teacher Professional Certificate Program is offered at the Spokane, Tri-Cities, and Vancouver campuses as well as in other partnership sites across the state. Information is available upon request from the School and Community Collaboration Center, College of Education, PO Box 642114, Pullman, WA 99164-2114, (509) 335-1988, and on regional campus web sites.

WSU PULLMAN/SPOKANE TEACHER CERTIFICATION

Inquiries and requests for program information should be addressed to Office of Student Services, College of Education, PO Box 642152, Pullman WA 99164-2152 (509) 335-4855 or beateacher@wsu.edu or visit our website at http://education.wsu.edu/studentservices/.

WSU Pullman seeks to prepare the best possible teachers and therefore seeks highly qualified individuals. Admission to, or continued enrollment in, the teacher preparation program may be denied to a candidate on the basis of the review by the faculty. To prepare in elementary education the candidate shall satisfy degree requirements of the Department of Teaching and Learning. To prepare in early childhood education, the candidate shall satisfy the degree requirements of the Department of Human Development. To prepare in a single subject, the candidate shall complete the baccalaureate degree/teaching option offered through the subject matter department, or in general studies. Single-subject endorsement preparation is available in Agriculture, Biology, Chemistry, Earth Science, English Language Arts, World Languages (French and Spanish), Health and Fitness, History, Family and Consumer Sciences, Mathematics, Music, Physics, and Social Studies. Add-on endorsements for pre-service teachers are offered in Bilingual Education, English Language Learners, Middle Level Math, Reading, Science, and Special Education. Candidates holding single-subject endorsements typically will be assigned to teach in grades 5-12 except those endorsed in ESL, Bilingual Education, World Languages, Health.
and Fitness, Music, Reading, or Special Education who are authorized to teach P-12. Specific course requirements for endorsements are listed under Single Subject Certificate Programs at the end of this section. Endorsement requirements are subject to change by the Professional Educator Standards Board.

Admission to Undergraduate and Post baccalaureate Teacher Preparation

Applicants who meet the minimum requirements are eligible for consideration, but not assured admission. Enrollment is limited and admission competitive. Admission deadlines are September 30 and February 28 or 29 with admission effective the following term. Candidates must complete formal admission procedures and be admitted to teacher preparation prior to taking any professional education course work beyond T & L 301 or 317. The following minimum criteria must be met for consideration for admission:

Minimum Criteria

Contact Student Services at 509-335-4855 or beateacher@wsu.edu for up-to-date information.

1. Completion, within the last three years, of 80 hours of supervised work with children 4 years of age or older in a supervised setting.

2. A passing score on the WEST-B, a statewide basic skills test. For information and registration go to http://education.wsu.edu/studentervices.

3. Completion of at least 30 semester hours of post-secondary course work.

4. Minimum WSU cumulative GPA of 2.50 (transfer student GPA is based on WSU course work).

5. Engl 101, plus one from Engl 201, 301, 302, 402 or equivalent composition course with a minimum grade of C.

6. T & L 301 (T & L 301 not required for H D majors) graded C or better.

7. Elementary and Early Childhood Majors: ComSt 102 or H D 205, or equivalent public speaking course; H D 101, Math 251, and two of the four required GER science courses, all graded C or better.

8. Secondary Majors: Nine hours of course work in the endorsement area. Certified in major department. Contact major department for additional requirements.

9. Personal goal statement.

10. Interview and writing sample.

Field Experiences and Student Teaching

Secondary single subject and early childhood majors must make application for student teaching one full academic year prior to the actual student teaching semester. Elementary majors make application for advanced practicum placement one year prior to the advanced practicum semester. Application forms are distributed at an orientation held each semester. An interview and a passing score on the WEST-E content test is required to begin student teaching. The following courses are required field experiences:

- Elementary majors enroll in T & L 402, Instructional Practicum I (1 credit); T & L 405, Instructional Practicum II (1 credit); T & L 490, Advanced Practicum (2 credits). Elementary majors enroll concurrently in the required practicum for the appropriate block. T & L 402 and 405 involve participation in a school setting to apply concepts learned in blocked courses. Practicum placement and activities are arranged by the course instructors. T & L 490 is an extended 4-week, full-time practicum in a school setting one semester prior to student teaching. Placement is arranged by the Department of Teaching and Learning. Secondary majors enroll in T & L 317, Secondary Practicum and Seminar (2 credits) and T & L 469, Advanced Field Experience (2 credits). T & L 317 is a three-week, full-time experience completed in May at the end of the sophomore year in a public or private school in the student’s home community. T & L 469 is a 12-week, 6 hrs/week experience in local schools arranged by the Department of Teaching and Learning during the semester prior to student teaching. All practica involve observation, reflection, and practice in classrooms.

- T & L 415, Student Teaching (16 credits), is a semester of full-time teaching in a public school, arranged by university personnel. Agricultural Education, Family Consumer Sciences and Music majors enroll concurrently in T & L 415 and the appropriate student teaching course in the major. Prior to student teaching the certificate candidate will: interview; make application and pay certification fees; satisfactorily complete all course work for the degree and teacher certificate; obtain a passing score on the WEST-E content examination; receive fingerprinting clearance from the Washington State Patrol, the FBI, and the Office of Professional Practices. Student teaching must be completed at an approved WSU site in the state of Washington or internationally with supervision by university personnel.

- T & L 593 Pre-Internship (2 credits) requires successful completion of summer courses, enrollment in concurrent fall coursework and fingerprinting clearance from the Washington State Patrol, the FBI, and the Office of Professional Practices.

- T & L 595 Internship (12 credits) requires successful completion of T & L 593 and concurrent coursework, application and payment of certification fee and a passing score on the WEST-E content examination.

The Pre-Internship and Internship are arranged by university personnel and must be completed at an approved WSU site in the state of Washington with supervision by university personnel.

Master in Teaching (MIT)

The Master in Teaching degree program is a full-time, 15-month field-based program leading to elementary or secondary education teacher certification and a master’s degree. Applicants must have a bachelor’s degree from an accredited institution with a minimum 3.0 GPA in the last 60 semester hours of graded course work. Applications for Elementary Education and Secondary Education must be submitted by November 15 for programs beginning the following summer. All applicants must have a passing score on the WEST-B and WEST-E to be considered for admission. Information about minimum admission requirements may be obtained from the College of Education Office of Graduate Studies 509-335-9195 or gradstudies@wsu.edu or http://education.wsu.edu/graduate/.


Course of Study for Secondary Education (37-51 hrs): Ed Ad 506, EdPsy 503, 504, Tkl 522, T&L 528, Tkl 513, SpEd 520, T & L 502, 505, 517, 525, 593, 595, 600, 702. For additional information about certification issues contact Student Services at edstudents@wsu.edu or visit them online at education.wsu.edu/studentervices.

WSU PULLMAN/SPokane MASTERS’ DEGREES (non-certification)

Master of Arts in Education

WSU Pullman/Spokane offers a Master of Arts in Education degree (M.A.) program with specialization and/or endorsement in Curriculum and Instruction, ELL/Bilingual Education, Literacy Education, and/or Special Education. Students planning to add an endorsement to a Washington teacher certificate must apply to WSU’s add-on endorsement program. This thesis degree focuses on developing research and inquiry skills and other professional knowledge and skills in education and leadership and may include a concentration of coursework outside the Department of Teaching and Learning.

Master of Education Degree (Ed.M.)

WSU Pullman/Spokane also offers a Master of Education degree (Ed.M.) program specialization and/or endorsements in Curriculum and Instruction, Language and Literacy Education, Special Education, and/or ELL/Bilingual Education. Students planning to add an endorsement to a Washington teacher certificate must apply to WSU’s add-on endorsement program. This non-thesis degree focuses on developing K-12 teachers’ or other professionals’ knowledge and skills in education and leadership and may include a concentration of coursework outside the Department of Teaching and Learning.

WSU PULLMAN/SPokane DOCTORAL PROGRAMS

Doctor of Philosophy in Education (Ph.D.)

(Pullman only) Specializations include Cultural Studies and Social Thought in Education, Language and Literacy Education, and Special Education (see http://education.wsu.edu/graduate/ for program descriptions and application procedures).

Doctor of Education (Ed.D.) Specializations include Special Education and Teacher Leadership (see http://education.wsu.edu/graduate/ for program descriptions and application procedures).

WSU TRI-CITIES TEACHER CERTIFICATION

http://www.tricity.wsu.edu/education/index.html Inquiries and requests for application materials should be addressed to WSU Tri-Cities, Department of Teaching and Learning, 2710 University Drive, Richland WA 99354-1671, (509) 372-7396.

WSU Tri-Cities seeks to prepare the best possible teachers and therefore seeks highly qualified individuals. Admission to, or continued enrollment in, the teacher preparation program may be denied on the basis of review by the faculty.

Bachelor of Arts

Applicants to the bachelor of arts program with elementary certification at the Tri-Cities campus who meet the minimum requirements are eligible for consideration, but not assured admission. Enrollment is limited and admission is competitive. Admission deadlines are October 1 and March 1 with admission effective the following semester. Candidates must
complete formal admission procedures and be admitted to teacher preparation prior to taking any professional education coursework beyond T&L 301. Applicants must meet the admission criteria listed for WSU Pullman, with the exception that a timed writing sample is not required as part of the interview process. T&L 301 may not be required for program admission by transfer students who are admitted to the program before they begin taking classes at WSU. T&L 301 must be taken in the first semester of the program by these students in order to remain eligible for the major.

Teacher Professional Certification Program

WSU Tri-Cities offers the Pro Cert in partnership with regional school districts.

Master of Education (Ed.M.)

Washington State University Tri-Cities offers the Master of Education (Ed.M.) degree with specializations in Literacy, ELL/Bilingual, and Curriculum and Instruction. The Ed.M. is a non-thesis degree designed for educators wishing to extend their professional knowledge and enhance their competence as practitioners. Course credit also may be used to meet continued certification requirements or lead to a Reading, Special Education, Bilingual Education, and/or English Language Learner endorsement. Students planning to add an endorsement to a Washington teacher certificate must apply to WSU’s add-on endorsement program. For additional information about certification issues please contact the Department of Teaching and Learning, WSU Tri-Cities.

WSU VANCOUVER TEACHER CERTIFICATION

http://www.vancouver.wsu.edu/programs/edu/education.htm

Inquiries and requests for application materials should be addressed to WSU Vancouver, Education Department, 14024 NE Salmon Creek Avenue, Vancouver WA 98686, (360) 546-9673, or by email at admissions@vancouver.wsu.edu.

WSU Vancouver seeks to prepare the best possible teachers and therefore seeks highly qualified individuals for admission to the Bachelor of Arts in Education and the Master in Teaching programs. Admission to, or continued enrollment in, a teacher preparation program may be denied a candidate on the basis of review by the faculty. Field experiences with accompanying seminars allow the inter-cooperating partners to engage in ongoing dialogue with university field personnel throughout the year and are coordinated with academic work.

Bachelor of Arts in Education

This Teacher Preparation Program culminates in a bachelor's degree with elementary certification. The program is designed for students who have a direct transfer Associate of Arts degree or who have completed 60 semester hours of study and who have also completed the required program prerequisites. Students can obtain a list of the prerequisites by contacting the Education Department at (360) 546-9673. All applicants must have a passing score on the state wide basic skills (WEST-B) test to be considered for admission. Students must be admitted to both WSU and the Teacher Preparation Program before beginning education classes. Students are admitted and begin classes only during the summer session.

Master in Teaching (MIT)

The Master in Teaching is a full-time, 15-18 month field-based program leading to elementary or secondary certification and a master's degree. Applicants must have a bachelor's degree from an accredited institution with a minimum 3.0 gpa in the last 60 semester hours of graded course work, and submit the MIT application portfolio which is available from the WSU Vancouver Education Department. All applicants must have a passing score on the state wide basic skills (WEST-B) and subject test (WEST-E) to be considered for admission. Applications are available in the summer and must be submitted by October 1 for secondary certification in order to be considered for the program beginning in January; December 1 is the deadline for application for elementary certification in order to be considered for the program beginning the following May.


Teacher Professional Certification Program

WSU Vancouver offers the Pro Cert program on the Vancouver campus as well as at other sites in partnership with regional school districts.

Master of Education Degree (Ed.M.)

WSU Vancouver also offers a Master of Education degree (Ed.M.) program with endorsements in Reading, Special Education, Deaf Education, and/or ELL/Bilingual Education for educators who already have a teaching certificate. This non-thesis degree focuses on K-12 developing teachers' or other professionals' knowledge and skills in education and leadership.

Schedules of Studies

ELEMENTARY EDUCATION TEACHER CERTIFICATION (120 HOURS)
Candidates for the undergraduate elementary education teacher certificate program will satisfy degree requirements of the Department of Teaching and Learning. The degree will be the Bachelor of Arts. The student should include the following course work within GER selections to satisfy prerequisite, degree, and admission to teacher preparation requirements. This course schedule does not include an add-on endorsement.

During the freshman year, students must qualify to enroll in Math 251, pass the Music 388 competency exam or take Music 153, and begin the University Writing Portfolio, as students must receive a pass before taking T & L 306.

First Term
First Term Hours
Biological Sciences [B] (GER) 4
ComSlt 102 [C] or H D 205 [C] (GER) 3
Engl 101 [W] (GER) 3
H D 101 [S] (GER) 3
Math prereq, if necessary, or Elective 3

Second Term
GenEd 110 [A] (GER) 3
Math 251 3
Mus 153 [H] (GER), if necessary 3
Pych 105 [S] (GER) 3
Science Elective [B,P,Q] (GER) 3 or 4
T & L 300 1

Second Year
First Term Hours
Am St 216 [S,D] or Hist 150 [S,D] (GER) 3
Engl 201 [W] (GER) 3
GenEd 111 [A] (GER) 3
Physical Sciences [P] (GER) 3 or 4
T & L 301 2
Certify Major

Second Term Hours
Math 252 [N] (GER) 3
T & L 305 2
T & L 306 [M] 3
T & L 307 2
T & L 320 3
T & L 330 2
T & L 402 1
Complete Writing Portfolio

Third Year
First Term Hours
Mus 388 2
Science Elective [B,P,Q] (GER) 3
T & L 352 3
T & L 371 3
T & L 385 3
T & L 405 1

Second Term Hours
Intercultural Studies [I,G,K] (GER) 3
T & L 390 3
T & L 483 3
Tier III Course [T] (GER) (Am St 473 recommended) 3

Fourth Year
First Term Hours
EdPsy 401 2
Sp Ed 420/421 2 or 3
T & L 310 [M] 2
T & L 403 2
T & L 413 2
T & L 445 2
T & L 490 3

Second Term Hours
T & L 415 16

SPECIFIC SUBJECT TEACHER CERTIFICATE (114 HOURS)
Candidates for specific subject certificates shall declare a major with the subject-matter department and meet the GER and degree requirements of that department. Students completing subject-specific endorsements will follow the Secondary Professional Education Core: Psych 105; EdPsy 468, T&L 301, 317, 464, 465, 466, 467, 469, 470 and 415 unless admitted to an EdM certificate program.
Teaching and Learning

In addition to meeting requirements of the
degree-granting department, the student must
meet admission requirements and make formal
application to the teacher preparation program prior
to enrolling in any professional education courses
beyond T & L 301 and 317. It is recommended that
candidates begin professional education courses in
the sophomore or junior year to meet sequencing
requirements. Students should include the following
courses within GER selections to fulfill prerequisite
and admission to teacher preparation program
requirements: ComSt 102; Engl 198 and 199 or Engl
101 plus Engl 201, 301, 302, or 402; Psych 105.

Fifth Year

First Year

Specific Subject Area Requirements

First Term
Engl 101 [W] (GER)
GenEd 110 [A] (GER)
Math Proficiency [N] (GER)
Psych 105 [S] (GER)
Science Elective [B,P,Q] (GER)

Hours
3
3
3
3
3 or 4

Second Term
Arts & Humanities [H,G] (GER)
Biological Sciences [B] (GER)1
ComSt 102 [C] (GER)
Endorsement2
GenEd 111 [A] (GER)

Hours
3
4
3
3
3

Second Year
First Term
Arts & Humanities [H,G] or
Social Sciences [S,K] (GER)
Endorsement2
Engl 201 [W], 301 [W], or 302 [W]
Physical Sciences [P] (GER)1
Certify in Major

Hours

Second Term
Endorsement2
Intercultural Studies [I,G,K] (GER)
T & L 300
Complete Writing Portfolio

Hours
12
3
1

3
6
3
3

Third Year
First Term
Endorsement2
T & L 301
Certify In Teaching and Learning
Complete West-B

Hours
V
2

Second Term
Endorsement2
T & L 317
Complete May practicum

Hours
V
2

Fourth Year
First Term
Endorsement2
T & L 464
T & L 465
T & L 466

Hours
9
3
3
2

Second Term
EdPsy 468
T & L 467
T & L 469
T & L 470
Tier III Course [T] (GER)

Hours
3
3
3
3
3

First Term
T & L 415

Hours
16

_______
1
Students may substitute 3 credits of Biol and 4
credits of Phys S.
2
Credit hours needed for the endorsement are
from 20-74, depending on the major. Reading
Endorsement courses begin in Block II, following
the completion of Block I and specifically T & L
321.
Agricultural Education (60 hours): AFS 101,
201, 301, 401; A S 101, EconS 350 or 351; Ag Ed
342, 407, 440, 442, 471; AgTM 201, 402; CropS/
Hort 102; 3 hrs. 300-400-level CropS elective;
3 hrs Hort elective; SoilS 201, plus 18 additional
credits in technical agriculture selected with adviser
approval. 20 credits in technical agriculture must be
upper division. A valid first aid card is required for
vocational certification.
Biology (72 hours): Biol 106, 107, 301, 372, 405,
430, 499; Chem 105, 106, 345; MBioS 303, 305,
306; Math 140 or 171; Phys 101, 201; Phys 102 or
202; Stat 212, 412, or Psych 311; one from Hist 381,
382, 483, MBios 321, Soc 430 or UH 410; 10 hours
approved biological sciences electives.
Chemistry (67 hours): Biol 106, 107; Chem 105
or 115, 106 or 116, 220, 222, 345, 346, 347, 499;
one from Hist 381, 382, 483, Soc 430, or UH 410;
Math 140 or 171; MBioS 303, 304; Ph S 430; Phys
101 or 201, 102 or 202, Stat 212, 412 or Psych 311.
Additional 9 hours 300-400-level Chem (Chem 331,
333 suggested.)
Designated World Languages French/
Spanish (40 hours): Fren/Span 204, 306, 307,
308, 407, 408; one from For L 101, 110, 120, 130,
220; two from Fren/Span 310, 311, 320, 321, 350,
351, 361, two from Fren/Span 450, 451, 452; For
L 440, 441.
Early Childhood Education (108 hours):
ComSt 102 or H D 205; Engl 198, 201, 301, or 302;
two 3-4 credit Tier I or II [B, P, Q] sciences; HD 201,
202 or 101; 204, 302, 341, 342, 410, 446, 449, 482;
Sp Ed 409; Hist 150 or Am St 216; Math 251, 252;
Mus 388; T & L 307, 390, 321, 322, 352, 371, 385,
402, 403, 405, 413, 415, 445, 483.
Earth Science (67 hours): Geol 101 or 102 (102
preferred), 206, 210, 315, 340, 350, 499; Math 140
or 171; Phys 101, 102; Chem 105, 106; Biol 106; Astr
345; ES/RP 174; Hist 381, 382, 483, Soc 430 or UH
410; Ph S 430; Stat 212, 412, or Psych 311; 6 hours
300-400-level (geology elective, geomorphology or
oceanography recommended).
English Language Arts (42 hours): Engl 302;
Hum 101, 103, 198, 302, 303, 304, 335, 350, 410
or 450; three from Engl 370, 371, 372, 373; Engl
205, 305 or 306; Engl 326, 325, 324, 323; 12 hours
English or Humanities electives (3 hours must
include an advisor approved writer-of-color class).
Family and Consumer Sciences (59 hours): Ag
Ed 440; two from AMT 211, 215, 417; MBioS 130; H
D 201, 202, 203, 204, 302, 320, 350, 406, 407, 310,
410, 479, 480.
Health and Fitness (67 hours): Ath T 266, 311;
Biol one from 102, 106, 107; Biol 251; Chem 101 or
105; MBioS 130; H F 361, 484, 393, 481, 483; Mvt
St 199, 262, 264, 362, 380, 415, 461, 481; PEACT

267

112, proficiency in 4 of 5 activity areas; aquatics,
individual sports, team sports, dance, gymnastics;
Psych 230.
History (48 hours): EconS 102; Pol S 101; Hist
101, 102, 110, 111300, 422, 469, 480; two from
Hist 230 or 231, 270; 272 or 273; 275; one from
Hist 411, 413, 414, 415, 416; one from Hist 412,
417, 418, 419; 6 hours 300-400 level Hist electives
which must include one European and one global
non-western course.
Mathematics (41 hours): Math 171, 172, 220,
273, 301, 303, 315, 330, 360, 398, 431, 432, 320 or
421; Phys 201.
Music: Each endorsement requires the passing of
a piano proficiency examination, an upper-division
exam, a solo half-recital, a 2.5 gpa and a grade of C
or better in all music courses. If the requirements
listed below along with the graduation requirements
of the College of Liberal Arts are met, the degree will
be Bachelor of Music.
Choral/Instrumental/General (73 hours):
Mus 251, 252, 253, 254, 351, 352, 353, 354, 359,
360, 361, 455, 480, 481, 482, 483, 487, 488, 489,
490, 491, 493, 494, 497. Performance Studies: 14
hours of which 2 hours must be at the 400-level.
Performing Groups: 7 hours, minimum of 1 hour
during each of seven semesters, to include at least
one semester of Mus 435 for instrumentalists and
Mus 428 for vocalists. Include a minimum of 2
hours in choral and 2 hours in performing groups.
Total performance experience (performance studies
and performing groups) must include a minimum
of 4 hours in choral/vocal music and 4 hours in
instrumental music.
Choral/General (65 hours): Mus 251, 252, 253,
254, 351, 352, 353, 354, 359, 360, 361, 455, 480,
481, 483, 488, 489, 490, 491, 497. Performance
Studies: 14 hours of which 2 hours must be at the
400 level. Performing Groups: 7 hours, minimum
of 1 hour during each of seven semesters, to include
at least 1 hour of Mus 428.
Instrumental/General (68 hours): Mus 251,
252, 253, 254, 351, 352, 353, 354, 359, 360, 361,
455, 467, 480, 481, 482, 487, 490, 491, 493, 494,
497. Performance Studies: 14 hours minimum of
which 2 hours must be at the 400 level. Performing
Groups: 7 hours, minimum of 1 hour during each
of seven semesters, to include at least 1 hour of Mus
435.
Physics (72 hours): Astr 345; Biol 106; Chem
105, 106; Hist 381, 382, 483; Soc 430, or UH 410;
Math 171, 172, 220, 273, 315; Ph S 430; Phys 201,
202, 303, 304, 380, 385, 410; 499 (4 hours includes
observing Phys 101 and 102); Stat 212, 412 or Psych
311; two from Phys 320, 330, 341.
Social Studies (63 hours): EconS 102; Hist 101,
102, 110, 111, 422, 480 and 12 hours of upper
division history electives w/advisor approval that
must include a non-western, a European, a U.S.
History, and an elective; Pol S 101; Soc 101; one
from Anth 101, 198, 203, 260; one from EconS 320,
327, 416, 427, 430; two from Hist 230 or 231, 270,
272 or 273, 275; one from Hist 319, 495, Anth 309;
one from Hist 469, Soc 320; one from Pol S 300, 316,
427, 450, 455, Crm J 320; two from Anth 307, 316,
320, 330, 331, 350, Psych 310, 324, 361, 470, Soc
320, 351, 384, 430.
ADD-ON ENDORSEMENTS The following
endorsements are available as add-on endorsements
only. Individuals may be recommended for


endorsement in bilingual education, English Language Learners, reading, science, or special education concurrently with completion of endorsement requirements in elementary education or one of the specific subject endorsements listed above, or as an endorsement added to a currently valid teacher certificate.

Bilingual Education (21 hours): T&L 333 or 510, 539, 549, 401 or 50, 509, 411, 401, 414 or 514 and 509; one from T&L 504, 512, 516, 537, 574, 580; 516, 522 (highly recommended). Demonstrated proficiency in a language other than English by passing the oral and written proficiency tests of the American Council on the Teaching of Foreign Language (ACTFL) at the advance mid level.

English Language Learners [undergraduate level] (18 hours): T&L 333, 339, 401, 414, 509; one from T&L 512, 516, 537, 574, 580.

English Language Learners [graduate level] (18 hours): T&L 501, 509, 510, 514, 549; one from T&L 411, 507, 512, 516, 520, 522 (highly recommended), 537, 574, 580 or 586.

Middle Level Math (24-25 hours): Math 151, Math 205 or 212, Math 216 or 325, Math 303, Math 351, T&L 426, 427, 513.


Reading [graduate level] (20+ hours): T&L 528, 551, 553, 558; one from T&L 307, 532, 544, 547, 548, 552; one from T&L 322, 538, 546, 556; one from T&L 413, 505, 507, 537.

Science (hours vary): The candidate must complete a full endorsement in biology, chemistry, physics or earth science plus the following courses, if not included in the full endorsement: one 3-4 credit Anatomy course; Chem 345; two from Geol 102, 210, 323 or 390; Biol 107.


Special Education [graduate level] (31 hours): SpEd 301, 501, 502, 503, 504, 509, 521, 540, 571, 590 (4 credits).

Description of Courses

SPECIAL EDUCATION

Sp Ed

301 Education of Exceptional Children 3 Survey of characteristics of students with disabilities, and overview of programming, legal aspects, and methods of instruction.

401 Teaching Students with Disabilities 3 Prereq either Sp Ed 301 or Sp Ed 420 or c/c; c// in Sp Ed 490 for 2 credits. Intervention and instructional strategies for managing academic, social, and behavior problems in classroom settings. Credit not granted for both Sp Ed 401 and 501.

402 Assessment and Curriculum for Students with Disabilities 3 Prereq either Sp Ed 301, Sp Ed 420 or c/c; c// in Sp Ed 490 for 2 credits. Measurement of individual and group, formal and informal assessment for students with disabilities. Credit not granted for both Sp Ed 402 and 502.

403 Secondary Education for Students with Disabilities 3 Prereq either Sp Ed 301, Sp Ed 420 or c/c. Overview of instruction and intervention strategies for secondary students with disabilities; assessment, and curriculum/program development. Credit not granted for both Sp Ed 403 and 503.

404 Professional Skills in Special Education 3 Prereq either Sp Ed 301, Sp Ed 420 or c/c. Legal aspects of special education, individualized education plans, roles and responsibilities of teachers, collaboration techniques, service delivery/design, and supervision of paraprofessionals. Credit not granted for both Sp Ed 404 and 504.

409 Early Childhood Special Education 3 Prereq either Sp Ed 301, Sp Ed 420 or c/c. Assessment, curriculum, and instructional techniques for teaching young children with handicaps and their families in a variety of settings. Credit not granted for both Sp Ed 409 and 509.

420 Teaching in Inclusive Classrooms V 2-3 Prereq certified education major. Designed for preservice/inservice general education (K-12) teachers to learn how to teach students with disabilities. Credit not granted for both Sp Ed 420 and 520.

421 Inclusion Strategies for Special Education Teachers 3 Prereq either Sp Ed 301 or Sp Ed 420. Roles and responsibilities of special education professionals in inclusion programs, including legal aspects and collaboration. Credit not granted for both Sp Ed 421 and 521.

440 Methods in Intensive Educational Supports 3 Prereq either Sp Ed 301, Sp Ed 420 or c/c. Assessment, curriculum development and modification, and instructional methods for students with severe disabilities. Credit not granted for both Sp Ed 440 and 540.

470 Effective Assessment and Instruction in Reading for Diverse Learners 3 Prereq either Sp Ed 301, Sp Ed 420 or c/c. Preparation of K-12 teachers to conduct reading assessment and design reading interventions for students struggling in reading and literacy.

490 Practicum in Special Education V 1-3 May be repeated for credit; cumulative maximum 8 hours. Supervised field experience in special education. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Teaching Students with Disabilities 3 Prereq either Sp Ed 301, Sp Ed 420/520 or c/c; c// in Sp Ed 590 for 2 credits. Graduate-level counterpart of Sp Ed 401; additional requirements. Credit not granted for both Sp Ed 501 and 502.

502 Assessment and Curriculum for Students with Disabilities 3 Prereq either Sp Ed 301, Sp Ed 420/520 or c/c; c// in Sp Ed 590 for 2 credits. Graduate-level counterpart of Sp Ed 402; additional requirements. Credit not granted for both Sp Ed 502 and 503.

503 Secondary Special Education for Students with Disabilities 3 Prereq either Sp Ed 301, Sp Ed 420/520 or c/c. Graduate-level counterpart of Sp Ed 403; additional requirements. Credit not granted for both Sp Ed 503 and 504.

504 Professional Skills in Special Education 3 Prereq either Sp Ed 301, Sp Ed 420/520 or c/c. Graduate-level counterpart of Sp Ed 404; additional requirements. Credit not granted for both Sp Ed 504 and 505.

509 Early Childhood Special Education 3 Prereq either Sp Ed 301, Sp Ed 420/520 or c/c. Graduate-level counterpart of Sp Ed 409; additional requirements. Credit not granted for both Sp Ed 509 and 504.

520 Teaching in Inclusive Classrooms V 2-3 Graduate-level counterpart of Sp Ed 420; additional requirements. Credit not granted for both Sp Ed 520 and 524.

521 Inclusion Strategies for Special Education Teachers 3 Prereq either Sp Ed 401/501 or c/c. Graduate-level counterpart of Sp Ed 421; additional requirements. Credit not granted for both Sp Ed 421 and 521.

522 Topics in Special Education V 1-4 May be repeated for credit; cumulative maximum 8 hours. Recent research developments, issues and/or applications in selected areas of special education.

540 Methods in Intensive Educational Supports 3 Prereq either Sp Ed 301, Sp Ed 420/520 or c/c. Graduate-level counterpart of Sp Ed 440; additional requirements. Credit not granted for both Sp Ed 440 and 540.

541 Foundations of Education of Children with Hearing Loss 2 Prereq admission to Preparing Educators of Children with Hearing Loss program. Historical and contemporary forces impacting education of children with hearing loss with emphasis on technology.

542 Development of Language for Teachers of Children with Hearing Loss 3 Prereq admission to Preparing Educators of Children with Hearing Loss program. Language from birth through school-age with emphasis on development and relationship of pragmatics, semantics and syntax.


545 Curriculum for Children with Hearing Loss 3 Prereq admission to Preparing Educators of Children with Hearing Loss program. Strategies for modifying and adapting instruction in academic areas to meet the needs to students with hearing loss.

571 Prevention and Remediation of Reading Disabilities 3 Prereq either Sp Ed 301, Sp Ed 420/520, or c/. Theoretical concepts, research, and strategies of reading assessment and instruction for students with disabilities.

589 Seminar in Disability Studies 3 Current research, issues, trends in disabilities within the broader context of education, society, history.

590 Practicum in Special Education V 1-4 May be repeated for credit; cumulative maximum 8 hours. Supervised experiences in application of theories and practices in special education. S, F grading.

600 Special Projects or Independent Study V 1-8 May be repeated for credit. S, F grading.

TEACHING AND LEARNING

T & L

300 Introductory Field Experience 1 (0-3) Supervised field experience for preservice teachers designated as an orientation to education. S, F grading.

301 Learning and Development 2 Prereq Psych 105, T & L 300. Reflective inquiry about human learning, development, diversity, and individual differences, examination of implications for teaching and education reform.

305 Fundamentals of Instruction 2 Prereq T&L 301. For candidates admitted to teacher preparation. Introduction to lesson and unit plans, state standards, instructional models, and basic strategies for using and integrating technology.

306 [M] Survey of Elementary Reading and Language Arts 3 Prereq T&L 301. For candidates admitted to teacher preparation. Attitudes, knowledge, and skills needed for successful teaching of reading and language arts.


320 Elementary Reading Methods 3 Prereq certified education major; T & L 301; c/ in T & L 305, 306, 307 and 402 (1 credit). Teaching methods, materials, and content in elementary school reading.

321 Early Literacy 3 Prereq T&L 301. For candidates admitted to teacher preparation. Designed for pre-service teachers to link assessment and instruction and guide the development of early reading and writing skills.

322 [M] Reading and Writing in Grades 4 - 8 3 Prereq T&L 301; T & L 321. For candidates admitted to teacher preparation. Designed for pre-service teachers to link assessment and instruction and assist upper-elementary students to read and write more effectively.

330 Diversity in Schools and Society 2 Prereq T & L 301. For candidates admitted to teacher preparation. Gender, linguistics, cultural and learning diversity; concepts, issues, approaches to educating students in a diverse society.

333 Introduction to English as a Second Language (ESL) 3 Foundations of ESL with attention to basic concepts of second language processing in educational settings.

339 Communicating in Diverse Classrooms 3 Prereq T & L 333 or 413. Selected topics dealing with linguistic diversity, cross-cultural communication, language development and language use.

352 Teaching Elementary Mathematics 3 Prereq Math 251; Math 252, T & L 301. For candidates admitted to teacher preparation. Teaching methods, materials, and content in elementary and middle school mathematics.

371 Teaching Elementary Science 3 Prereq 12 credits [B] [P] [Q]; T & L 301. For candidates admitted to teacher preparation. Teaching methods, materials, and content in elementary and middle school science.

385 Teaching Elementary Social Studies 3 Prereq T & L 301. For candidates admitted to teacher preparation. Teaching methods, materials, and content in elementary and middle school social studies.

390 Integrating Fine Arts into K-8 Curriculum 3 Prereq T & L 301. For candidates admitted to teacher preparation. Integrating the range of fine arts (art, music, dance, drama) into K-8 curriculum; designed for preservice and inservice general K-8 teachers.

401 Practicum in Bilingual/ESL Education 2 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq either T & L 333, T & L 335, or graduate standing. Work with students from diverse cultural and linguistic backgrounds in an educational setting implementing theoretical foundations, skills, and strategies acquired from ESL coursework.

402 Instructional Practicum I V 1-6 May be repeated for credit; cumulative maximum 6 hours. Prereq T & L 301. For candidates admitted to teacher preparation. Application of educational theories and approaches learned during methods Block I. S, F grading.

403 Social Foundations of Elementary Curriculum 2 Prereq T & L 301. For candidates admitted to teacher preparation. The school; historical, and philosophical foundations of education; school law and professional certification.

405 Instructional Practicum II V 1-6 May be repeated for credit; cumulative maximum 6 hours. Prereq certified education major. Application of educational theories and approaches learned during methods Block II. S, F grading.

410 Theoretical Foundations of Bilingual/ESL Education 3 Prereq T & L 333, 335, or graduate standing. Theoretical foundations related to research and instructional strategies for effective schooling of language minority students. Credit not granted for T & L 410 and 510.

411 Bilingual Methods and Materials Across Content Areas 3 Prereq either T & L 333, T & L 335, T & L 339, T & L 410, T & L 413, or graduate standing. Approaches, methods, and materials across content areas for the bilingual classroom.

413 Introduction to ESL for K-8 Teachers V 2-3 Prereq certified education major. Introduction to teaching ESL students for K-8 teachers.

414 Methods and Materials for Bilingual/ESL Education 3 Prereq T & L 333. For candidates admitted to teacher preparation and experienced teachers. Research and instructional methods related to English language acquisition across content areas. Credit not granted for both T & L 414 and 514.

415 Student Teaching V 6-16 Prereq certified education major and passing score on the WEST-E content examination. To begin student teaching the candidate must have paid certification fees and have a currently valid teacher certificate application with character and fitness supplement on file; completed with a C or better all course work for the teacher certificate; received fingerprinting clearance from Washington State Patrol, FBI, and Office of Professional Practices; earned a 2.5 gpa overall, in endorsement area and professional core courses. Placement by interview only at approved sites. Supervised teaching in public schools including seminars reflecting on effective teaching and professional certification. S, F grading.

425 Conceptual Aspects of Mathematics 3 Exploration of conceptual models for thinking about mathematical ideas; activities and discussions of mathematical thinking and instruction.

426 Middle Level Mathematics Methods 3 Prereq Math 251; T & L 352 or 564. Research-based and standards-aligned methods for teaching mathematics in the middle grades.

427 Proportional Reasoning 3 Prereq Math 251; T & L 352 or 564. Examination of work samples; identifying student's incomplete understanding of fundamental concepts; design instruction to develop a deeper understanding of rational numbers.

445 Elementary Methods of Educational Technology 2 (1-2) Prereq T & L 301. For candidates admitted to teacher preparation. Consideration of all technologies in K-8 schools, applications for their use, some production techniques and instructional methodologies.

464 Curriculum, Instruction and Content Literacy Methods 3 Prereq T & L 300, 301, 317; c/ T & L 465, 466; admission to the teacher preparation program. Development of curriculum, instruction and content literacy materials and methods for teaching in the secondary school classroom.
465 Culture and Community Contexts of Education 3 Prereq T & L 300, 301, 317; c// T & L 464, 466; admission to the teacher preparation program. Cultural and community-based contexts of schooling, teaching and education.

466 Secondary Methods of Educational Technology 2 (1-2) Prereq T & L 300, 301, 317; c// T & L 464, 465, 469; admission to the teacher preparation program. Integration of technologies for teaching and learning within the 9-12 classrooms; hands-on development of technology enhanced activities and lessons.

467 (M) Diversity, Classroom Life and Management 3 Prereq T & L 464, 465, 466; c// T & L 468, 469; admission to the teacher preparation program. Diversity, community building and classroom management and their interrelationships in secondary schools, and educational/legal issues on physical/sexual abuse.

469 Advanced Practicum 2 Prereq T & L 464, 465, 466; c// EdPsy 468, T & L 467; admission to the teacher preparation program. Field experience with classroom observation and teaching prior to student teaching; weekly seminar included. S, F grading.

470 ESL/Special Education Methods for Secondary Teachers 3 Prereq T & L 300, 301, 317; T & L 464, 466 or c//; admission to the teacher preparation program. Methods for teaching second language learners and students with special needs in the secondary school classroom.

480 Multicultural Education in a Global Society 3 Multicultural and multilingual education from a global perspective; development of multicultural curriculum. Credit not granted for more than one of T & L 480, 580, 582.

483 Integrating Health and Fitness into K-8 Curriculum 3 Prereq T&L 301. For candidates admitted to teacher preparation. Integrating health and fitness concepts into the K-8 curriculum; issues of abuse; designed for preservice and inservice K-8 teachers.

487 Global Geography 3 Open to non-education majors. World geography as a global perspective; education in the contemporary world: the interaction between human societies and the natural environment.

490 Advanced Practicum V 1-3 May be repeated for credit; cumulative maximum 8 hours. Prereq certified education major; T & L 402; T & L 405. Intensive practicum integrating educational theory with teaching in classroom contexts. S, F grading.

497 Topics in In-Service Education V 1-3 May be repeated for credit; cumulative maximum 9 hours. New developments and applications on selected in-service and staff development topics.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

501 Bilingual/ESL Education 3 May be repeated for credit; cumulative maximum 6 hours. Work with students from diverse linguistic and cultural backgrounds in educational settings.

502 Assessment for Teaching and Learning V 2-3 Instruction in sound assessment practices for preservice and inservice graduate students.

503 ESL Methods and Material for Secondary Content Teachers 2 Research-based ESL strategies and methods for pre-service and secondary content area teachers.

504 Advanced Study in Linguistics for Educators 3 Prereq admission to T & L graduate program. Use of linguistics to better understand second language learning and teaching and the physical aspects of acquiring a language.

505 ESL Methods for General Educators (K-8) 2 Research-based ESL strategies and methods for pre-service and experienced teachers.

506 Multicultural Classroom Instruction and Management 4 Instructional and management strategies for maximizing students’ opportunities to learn in a multicultural setting.

507 Seminar in Literacy in Multicultural Settings I 3 Multicultural perspective to curriculum development and classroom literacy practices.

508 Seminar in Literacy in Multicultural Settings II 3 Prereq T & L 507. Multicultural perspective to curriculum development and classroom literacy practices.

509 Research in Curriculum and Assessment for Bilingual/ESL Education 3 Prereq T & L 510 or 549. Research in curriculum development for and assessment of language minority students.

510 Theoretical Foundations of Bilingual/ESL Education 3 Prereq either T & L 333, T & L 335, or T & L 413. Graduate-level counterpart of T & L 410; additional requirements. Credit not granted for both T & L 410 and 510.

512 Language and Cultural Factors in Mathematics 3 Prereq graduate standing. Research and instructional strategies related to linguistic and cultural influences on learning math.

513 Seminar in Middle School Education 3 For experienced teachers. Curriculum patterns and recent research regarding instruction and materials in the contemporary middle school.

514 Methods and Materials for Bilingual/ESL Education 3 Prereq T & L 510 or T & L 549. For pre-service and experienced teachers. Graduate-level counterpart of T & L 414; additional requirements. Credit not granted for both T & L 414 and 514.

515 The Education of Cultural and Linguistic Minority Students 3 Issues in the education of language minority students.

516 Advanced Study in Computer-Assisted Language Learning 3 Prereq T & L 510 or T & L 549. Research, theory, and practice in computer-assisted language learning.

517 Educational Technology in K-8 Schools 2 (1-2) Prereq admission to MIT program. Technology standards for teachers, technology use in schools, production techniques and instructional methods.

518 Integrating Technology into the Curriculum 3 Examination and articulation of the potential for new technologies to expand learning opportunities.

519 Instructional Media Production I 3 Instructional media development, emphasizing the theory and methods of instructional design, digital media production and evaluation.

520 Topics in Special Student Populations V 1-4 May be repeated for credit; cumulative maximum 6 hours. For K-12 teachers. Knowledge of special student populations and guidance in developing appropriate curricula. Cooperative course taught jointly by WSU and UI (EDTE 504).

521 Topics in Education V 1-4 May be repeated for credit; cumulative maximum 6 hours. Recent research, developments, issues, and/or applications in selected areas of education.

522 Topics in Education V 1-3 May be repeated for credit; cumulative maximum 6 hours. Recent research, development, issues, and/or applications in selected areas of education.

523 Topics in Education V 1-3 May be repeated for credit; cumulative maximum 6 hours. Recent research, development, issues, and/or applications in selected areas of education.

524 Topics in Education V 1-3 May be repeated for credit; cumulative maximum 6 hours. Recent research, development, issues, and/or applications in selected areas of education.

525 Classroom Management Seminar V 2-3 Contemporary issues in management of elementary, middle school, and secondary classrooms; issues of abuse.

526 Research in Multicultural Education 3 Prereq either T & L 515 or by permission. Research and instructional practices focusing on multicultural education.

527 Seminar in Teacher Education Instruction 1 May be repeated for credit; cumulative maximum 4 hours. Teacher preparation program components and rationale, university teaching strategies, and evaluation methods. S, F grading.

528 Content Area Reading Instruction: Theory and Practice 3 For teachers, supervisors, and administrators in elementary, middle, and secondary schools; influence of research on the design of reading strategies.

529 Place-Based Education 3 Theory and practice of place-based education with an emphasis on community-based action research and curriculum planning.

530 Innovations in Reading 2 or 3 Graduate-level counterpart of T & L 431; additional requirements. Credit not granted for both T & L 431 and 530.

532 Children’s Literature in the Curriculum 2 Theory and classroom applications for selecting and using literature and storytelling in content areas; reading, writing, language development, the arts.

535 Gender, Power and Education 3 Interdisciplinary focus on the relationships among gender, power and education.
537 Seminar in Language, Literacy, and Culture 3 Interrelationships between schools, literacy, and student cultural background.

538 Writing Across the Curriculum 3 Writing for learning at grade levels K-12.

539 Innovations in Language Arts 3 The most recent developments in language arts instruction for pre-service and in-service teachers K-12.

540 Elementary School Social Studies 3 For candidates admitted to graduate teacher preparation and experienced teachers. Elementary structures of various social sciences; research findings related to instruction; classroom applications and materials.

541 Teacher Professional Certification: Pre-Assessment Seminar V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq completion of ProCert application, Provisional Status/Employer Support verification (WAC 180-78A-505), & a copy of Residency Teaching Certificate. Candidates evaluate current teaching against standards to determine steps for professional growth plans which measure positive impact on student learning.

542 Teacher Professional Certification: Researching Exemplary Practices V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq completion of T&L 541: Pre-Assessment Seminar. Teachers will apply exemplary practices, continue to assess their performance and college evidence of positive impact on student learning.

543 Teacher Professional Certification: Culminating Seminar V 1-3 May be repeated for credit; cumulative maximum 6 hours. Prereq completion of T&L 541 (Pre-Assessment Seminar), Professional Growth Record initial activities approved, completed core credits, And Evidence/Artifacts gathered. Candidates will complete ProCert requirements to document positive impact on students’ learning; set new goals; learn about National Board options.

544 Advanced Children’s Literature 3 Trends, issues, and research in children’s literature.

546 Teaching Writing in the Elementary School 3 Theory and research relevant to instructional approaches and practices for teaching writing in elementary schools.

547 Teaching Folk Literature to Children and Adolescents 3 Folk literature as a genre in child and adolescent literature; curriculum applications; reading, language development, social studies, creative expression.

548 Teaching Adolescent Literature 3 Evaluating, selecting, and using literature for middle school and teenage students.

549 Communicating in a Multilingual Society 3 Prereq T & L 333, T & L 335, T & L 413 or graduate standing. Study of language in social and educational context and its relation to cultural and linguistic diversity.

550 Second Language Learning and Literacy 3 Prereq admission to doctoral program. Research on second language teaching and learning in literacy education with a focus on English language learners in US schools.

551 Psychology of Reading V 2-3 Psychological, perceptual, motivational, developmental and physiological aspects of reading.

552 Literacy Development I 3 For candidates admitted to graduate teacher preparation. Review of current research and approaches to instruction in the development of literacy in elementary and middle grades.

553 Assessment and Instruction for Reading: K-8 4 (3-3) Prereq T & L 307; T & L 321; T & L 322; T & L 551. Evaluation techniques and instructional practices for impacting the reading achievement of K-8 students.

555 Seminar in Literacy Development 3 May be repeated for credit; cumulative maximum 6 hours. Current and historical research in reading/language arts, infancy through college and adult years; papers presented by faculty, invited speakers, and students.

556 Literacy Development II 3 Prereq for candidates admitted to graduate teacher preparation. Review of current research and approaches to instruction in the development of literacy in elementary and middle grades.

557 Research in Reading 3 Prereq EdPsy 505. Exploration of qualitative and quantitative reading research covering topics of current and historical importance.

558 Improving Comprehension through Literature 3 Key theoretical concepts and their implications for improved comprehension instruction, using children’s literature.

560 Research in Teaching 3 May be repeated for credit; cumulative maximum 6 hours. Recent developments in research on teaching: both quantitative and qualitative research methodologies emphasized.

561 Elementary School Mathematics 3 Research on curriculum and instruction issues in elementary school mathematics.

564 Elementary School Mathematics Methods 3 For candidates admitted to graduate teacher preparation. Introduction to research, theory, and methods of teaching K-8 mathematics; emphasis on integrating theory and practice.

565 Introduction to Scholarly Inquiry 1 Prereq graduate standing. Introduction to the EdM program including the scholarship and research requirements and the role of students and action research.

566 Democratic Education 3 Prereq graduate standing. Rationale and skill to assist teachers in making classrooms more democratic.

567 Social Foundations of Literacy 3 Prereq admission to doctoral program. Social, cultural and political factors which influence the acquisition and use of literacy.

568 Psychological Foundations and Assessment of Literacy 3 Prereq admission to doctoral program. Historical look that blends the assessment of literacy and its psychological components.

569 Critical Analysis of Children’s and Young Adult Literature 3 Prereq doctoral student. Multicultural analysis of children’s and adolescent literature and its pedagogical and sociopolitical implications and possibilities.

570 Theory and Research in Electronic Literacies 3. Ideas of literacy and effects of technology on literacy and policy, particularly those issues addressing diverse learners.

571 Elementary School Science 3 Prereq for candidates admitted to graduate teacher preparation. Theories and research underlying science programs with classroom implications.

572 Elementary School Science Methods 3 For candidates admitted to graduate teacher preparation. Theoretical base to design and implement appropriate standards-based elementary science instruction.

574 Science for All: An Individual and Multicultural Perspective 3 Prereq for candidates admitted to graduate teacher preparation. Implications of cultural and individual diversity for understanding western scientific and mathematical thought; an activity-based, educational perspective.

580 Multicultural Education in a Global Society 3 Graduate-level counterpart of T & L 480; additional requirements. Credit not granted for more than one of T & L 480, 580, 582.

583 Problem Solving in Elementary and Middle Level Education 3 For candidates admitted to graduate teacher preparation. Integration of knowledge and skills to address complex cases in teaching and learning.

587 Environment, Culture and Education 3 Prereq graduate standing. Role of education in the social, ecological, and political conflicts between culture and environment.

588 Action Research: Teachers as Research 3 Theoretical concepts, research, issues, models, and strategies for implementation of action research.

589 Race, Identity and Representation in Education 3 Interdisciplinary research in race, identity and representations in education.

590 Internship V 2-6 May be repeated for credit; cumulative maximum 12 hours. By interview only. Opportunities in professional positions. S, F grading.

593 Pre-internship and Seminar 2 (1-3) Instructional practice in diverse classroom settings and reflection on that practice. S, F grading.

594 Integrating Fine Arts into K-8 Curriculum 2 Integrating Fine Arts (art, music, dance, drama) into K-8 curriculum; designed for pre-service MIT.


596 Topics in In-Service Education V 1-3 May be repeated for credit; cumulative maximum 12 hours. Prereq graduate standing or permission of instructor. Advanced study of research, practice, and contemporary issues in education.
597 Topics in In-Service Education V 1-3 May be repeated for credit; cumulative maximum 9 hours. New developments and applications on selected in-service and staff development topics. S, F grading.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. S, F grading.

702 Master's Special Problems, Directed Study, and/or Examination V 1-18 May be repeated for credit. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. S, F grading.

Theatre Arts and Dance

libarts.wsu.edu/theatre
Daggy 320
509-335-7447

Professor and Department Chair, L. J. Harris; Professor, T. Converse; Instructors D. Bourland, J. Carlson, C. Fullner, B. Gonzales, R. Pritchard, C. Urquhart.

Description of Courses

**DANCE**

**Dance**

210 Jazz Dance I 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Basic jazz dance techniques, stage choreography, and performance.

211 Modern Dance I 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Basic modern dance techniques, stage choreography, and performance.

310 Jazz Dance II 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Prereq audition required. Advanced jazz dance techniques, stage choreography, and performance.

311 Modern Dance II 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Prereq two years prior dance experience. Advanced modern dance techniques, stage choreography, and performance.

**THEATRE ARTS AND DRAMA**

**Theat**

145 [G] Contemporary World Theatre 3 Examination of contemporary theatrical works illustrating the clash which occurs when people of one culture live in another. Access to email and web required.

150 Film History 3 Survey of world cinema throughout the century; emphasis on cultural and historical conditions that influenced development of specific genres and practitioners.

160 [H] Introduction to Theatre 3 Drama as prepared and presented for cinema, television, and stage.

163 Theatre Technology: An Introduction 3 (2-3) Introduction to the technical support for theatrical productions: scenery, lighting, sound, costumes; instruction and practical application with WSU theatre productions.

260 Performance I: Acting 3 (0-6) The creative process of acting from experiential standpoint combined with exercises in interpersonal communication and critical thinking.

261 Performance I: Directing 3 (0-6) Study of the principles, procedures, and practices of stage direction; weekly performance exercises culminating in directing a ten-minute play.

264 Stage Makeup 2 (0-6) Basic techniques in the design and execution of makeup for the stage and television.

294 Stage Speech 2 (0-6) May be repeated for credit; cumulative maximum 4 hours. Techniques and exercises for development of the actor's voice for the stage: voice production, articulation, and application.

313 Movement for Stage 3 (0-6) Prereq interview with instructor. Movement awareness skills for performers, public speakers, and broadcast personnel.

360 Performance II: Acting 3 (0-6) Prereq Theat 260, by interview only. Acting together with practical experience working with student directors and guiding the actor toward structuring a role for performance.

361 Performance II: Directing 3 (0-6) Prereq by interview only. Advanced work in stage direction; weekly exercises focusing on period drama and culminating in directing a one-act play.

362 Script Analysis 3 For directors, designers, performers. Exploration of various methods available for analyzing stage and film scripts. E-mail and Web access required.

363 Lighting for Theatre and Television 3 (2-3) Prereq Theat 163 or by interview only. Stage lighting design and technology; lighting instruments, control systems, principles of optics, color and electricity; practical applications with WSU productions.

364 Scenery: Construction and Painting 3 (2-3) Prereq Theat 163. Constructing and painting scenery; advanced methods for shifting scenery and creating special effects; materials and techniques for the scenic artist.

365 [H] Theatre History I: Beginnings to 1700 3 Development of theatre and drama from its beginning to 1700; major trends, plays, playwrights, actors, architecture, scenery, and costumes.

366 [H] Theatre History II: 1700 to 1900 3 Development of theatre and drama from approximately 1700 to 1900; major developments in theatre arts and dramatic literature.

367 [H] Musical Theatre 3 Survey of musical theatre from Vienna to Broadway, lyric drama from Mozart to the present.

368 Illustration and Rendering Techniques 3 (0-6) Same as AMT 368.

370 Costume Construction I 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Construction and sewing techniques for theatrical costume including corset and hat making.

371 Costume Construction II 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Advanced patterning and draping techniques; beginning tailoring including dyeing, printing and distressing.

402 Production Analysis 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Analysis and comparison of theatre productions through discussion and written evaluation. Credit not granted for both Theat 402 and 502.

450 Performance III: Acting 3 (0-6) May be repeated for credit; cumulative maximum 6 hours. Prereq Theat 360 or by interview only. Creative process of acting together with practical experience working with student directors; acting in an alternative or non-realistic context.

460 Technical Theatre Management 3 Prereq Theat 163. Organization and management of theatrical productions; the role of the stage manager, backstage crews; coordination of designers and directors.

461 Performance III: Directing 3 (0-6) Prereq by interview only. Advanced work in stage direction; weekly exercises focusing on modern, non-realistic theatrical forms and culminating in directing a one-act play. Credit not granted for both Theat 461 and 561.

462 Visual Communication in Theatre, Film and Television 3 Analysis of the visual aspects of theatre, film and television applying research in perceptual psychology.

464 Creative Drama 3 Philosophy and techniques of informal drama; practical experience integrated into the curriculum; emphasis on application to educational setting. Credit not granted for both Theat 464 and 564. Cooperative course taught by WSU, open to UI students (THA 381).

465 Dramatic Theory and Criticism 3 Prereq Theat 362, 365, 366, or by interview only. Undergraduate seminar exploring the major developments in dramatic theory, concentrating particularly on the scope and boundaries of postmodern critical methodologies.

467 Topics in Drama 3 May be repeated for credit; cumulative maximum 6 hours. Individualized study and discussion of drama and performance theory from different historical eras and social contexts.

480 Playwriting 3 Prereq Engl 351; Theat 362. Practical experience in the creative process of playwriting.

490 Internship in Professional Theatre V 2-15 Prereq Theat 163, 264; 360 or 361; 362; 365 or 366. Off-campus experience with Seattle area professional theatres in all aspects of production excluding performance. S, F grading.
496 Applied Theatre Studies V 1-3 May be repeated for credit; cumulative maximum 12 hours. Practical application of acting, scenery construction and painting, costumes, properties, box office and other projects connected with University Theatre productions.

497 Exit Project 3 (0-9) Prereq senior standing; certified theatre major. End of program assessment; students must define project and have it approved by the supervisor. S, F grading.

499 Special Problems V 1-4 May be repeated for credit. S, F grading.

502 Production Analysis 1 (0-3) May be repeated for credit; cumulative maximum 6 hours. Graduate-level counterpart of Theat 402; additional requirements. Credit not granted for both Theat 402 and 502.

561 Performance III: Directing 3 (0-6) Prereq by interview only. Graduate-level counterpart of Theat 461; additional requirements. Credit not granted for both Theat 461 and 561.

College of Veterinary Medicine

www.vetmed.wsu.edu/
Bustad 110
509-335-1532

The College of Veterinary Medicine offers courses of study leading to the degrees of Doctor of Veterinary Medicine, Master of Science in Veterinary Science, and Doctor of Philosophy. Additional information, including requirements for admission, is contained in the general information section of this catalog. The College of Veterinary Medicine at Washington State University is accredited by the American Veterinary Medical Association.

DOCTOR OF VETERINARY MEDICINE PROGRAM REQUIREMENTS

A minimum of seven years is generally necessary to obtain the degree of Doctor of Veterinary Medicine (DVM). The first three years of pre-veterinary training can be taken at any institution having courses equivalent to those taught at Washington State University, and the last four years are professional study directed by the College of Veterinary Medicine.

Applicants for admission to the College of Veterinary Medicine must present at least 64 semester hours of acceptable credits from an accredited college or university, exclusive of military training and physical education. The 64 semester hours should include: 9 hours of social science and arts and humanities; 3 hours of English composition; 3 hours of communication (written or verbal); and 12 hours of world civilizations and intercultural studies, which includes a second language. (General Education Requirements for graduation); 37 hours including zoology or general biology, inorganic and organic chemistry, biochemistry, physics, mathematics, genetics, and statistics.

Courses designed to fit these requirements are offered by Washington State, and the number of students admitted to preprofessional work is not limited. Since the number of applicants for admission to the professional course exceeds the number that can be admitted, no assurance can be given that all applicants who successfully complete the preprofessional curriculum will be admitted. WSU does not grant a BS in pre-veterinary medicine. Students taking pre-veterinary course work may declare a major in any subject, but are encouraged to major in animal science, biology, chemistry, microbiology, neuroscience, wildlife, zoology, or any other science-related field.

A major in veterinary medicine is not declared until admission to the College of Veterinary Medicine has been granted.

Information regarding the acceptability of course credits should be obtained from the Office of Student Services, College of Veterinary Medicine.

ADMISSION TO THE DVM PROGRAM

A student seeking to enter the professional DVM program should fill out both a VMCAS (Veterinary Medical College Application Service) and supplemental WSU-CVM online application. Deadline for submission of applications is October 2. A $60 application/processing fee will be assessed as part of completing the WSU supplemental application. The Washington and Idaho admissions committees, with the approval of the Board of Regents, select those students to be admitted to the first year of the professional program. Applicants will be notified of their acceptance on or before March 15. Successful applicants who are not currently enrolled at WSU will be asked to fill out a uniform undergraduate application for admission to WSU. Unsuccessful applicants who wish to be considered the next year must present new applications.

In accordance with policies adopted by the Board of Regents, preference for admission to the College of Veterinary Medicine is as follows:
* To qualified students coming from homes in the states of Washington and Idaho
* To qualified students certified and financed by the Western Interstate Commission for Higher Education (WICHE) Compact states
* To all other qualified students

HONORS PROGRAM FOR SELECTED STUDENTS

A program for admission of highly selected and academically qualified students to the Washington State University College of Veterinary Medicine has been established. This program admits students directly to the college upon completion of one year of undergraduate work at WSU. This is a seven-year program leading to the Doctor of Veterinary Medicine degree after satisfactory completion of the curriculum. It consists of three years of a unique undergraduate preprofessional education and the four-year professional program. The first three years of this program are a combination of Honors College courses and regular university classes which fulfill the pre-veterinary requirements. The last four years are the traditional Doctor of Veterinary Medicine program plus the completion of an honors thesis. Applicants should identify themselves to the Honors College as soon as students decide to enter WSU, because the number of positions is limited.

Combined Program in Animal Sciences and Veterinary Medicine - See Department of Animal Sciences.

Schedules of Studies

PROFESSIONAL CURRICULUM (137 HOURS)

The professional curriculum for the Doctor of Veterinary Medicine degree is outlined below. A total of 151 semester hours are required for graduation. All courses required in the professional program are 500-600-level courses.

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Third Year

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Fourth Year

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Description of Courses

VETERINARY MEDICINE

V M

350 Skeletal Preparation 1 May be repeated for credit; cumulative maximum 3 hours. Prereq V M 511 P. Technique of skeletal preparation is mastered by undertaking and completing project. Skeleton becomes property of student. S, M, F grading.

394 Veterinary Medicine as a Career 1 Prereq junior standing; cumulative gpa of 3.00 or higher; MBios 303 or c//. Current issues in veterinary medicine; ethical, financial and personal aspects of the veterinary practice. S, F grading.

499 P Special problems V 1-4 May be repeated for credit. Prereq DVM program. S, M, F grading.

500 P Animals, Society, and the Veterinarian 1 Active participation in activities designed to enhance personal growth, character development and leadership skills. S, M, F grading.

501 P International Veterinary Medicine 1 Prereq veterinary medicine students. Important issues and constraints facing the global community. S, M, F grading.

502 P Communication Skills V 1-3 Prereq veterinary medicine student. Exercises designed to enhance communication and relational skills. S, M, F grading.

504 P International Field Studies V 1-6 Prereq V M 501 P; V M 502 P; V M 503 P; veterinary medicine student. Preceptorship in the US or overseas, under direct supervision of veterinarian, agriculture or public health professional; related to international veterinary medicine. S, M, F grading.

505 P Reverence for Life 1 (0-2) Prereq veterinary medicine students. Connections between humans and animals; discussions related to use of animals in Western societies; social issues related to veterinary medicine. S, M, F grading.

508 P Research Orientation and Resource 1 Prereq veterinary medicine student. Resources and important issues for identifying and developing a focused area of scholarly activity in biomedical research. S, M, F grading.

509 P Research Issues, Ethics, and Literacy 1 May be repeated for credit; cumulative maximum 3 hours. Prereq veterinary medicine student. Philosophy and history of methodological, ethical and political issues relevant to biomedical research using selected monographs and essays. May be repeated for credit; cumulative maximum 3 hours. S, M, F grading.

510 P Veterinary Microscopic Anatomy 5 (3-6) Prereq first year in veterinary medicine or graduate student. Macroscopic functional morphology of the cell, tissues, and selected organ systems of domestic animals. S, M, F grading.

511 P Veterinary Anatomy I 5 (0-15) Prereq veterinary medicine student or graduate student. Detailed macroscopic functional morphology of the dog with comparison to other domestic animals; developmental anatomy of selected organ systems. S, M, F grading.


513 P Veterinary Cell Physiology 4 Prereq veterinary medicine student or graduate student. Cell physiology focusing on endocrine, paracrine, and neurotransmission signaling processes, transcriptional and translational control, and methodologies relevant to medicine. S, M, F grading.


520 P Veterinary Physiology 5 (4-3) Prereq V M 510 P. Physiology of domestic animals. Cooperative course taught by WSU, open to UI students (VS 511). S, M, F grading.

521 P Introduction to Veterinary Neurology 3 (2-3) Prereq V M 510 P. Neuroanatomical and neurophysiological bases of veterinary neurology, emphasizing central and peripheral sensory and motor systems. S, M, F grading.


523 P Veterinary Toxicology 3 Prereq V M 522 P. Pharmacology and toxicology of the systems of domestic animals. Continuation of V M 522 P. S, M, F grading.


525 P Animal Behavior for the Practicing Veterinarian 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Prereq veterinary medicine student. Study of the treatment of behavioral problems and training of domestic animals. S, M, F grading.

526 P Domestic and Exotic Animal Behavior 2 (1-3) Prereq veterinary medicine student. Advanced study of animal behavior, emphasizing difference between exotic and domestic animal behavior. Cooperative course taught by WSU, open to UI students (ZOOL 526). S, M, F grading.

534 P Veterinary Immunology 3 (2-3) Prereq veterinary medicine student or graduate student in veterinary science. Immunology for the professional veterinary student. S, M, F grading.

535 P Veterinary Virology 3 Prereq veterinary medicine student or graduate student in veterinary science. Virology for the professional veterinary student. S, M, F grading.

536 P Veterinary Bacteriology 4 (3-3) Prereq veterinary medicine student. Bacteria that produce disease in animals. S, M, F grading.

537 P Veterinary Parasitology 4 (3-3) Prereq veterinary medicine student. Arthropods, protozoa, and helminths of veterinary importance; their host-parasite relationship and control. S, M, F grading.


543 P Veterinary Medicine and Human Health 2 Prereq veterinary medicine student. Preparation for veterinary students in public health and food hygiene. S, M, F grading.


554 P Surgery Laboratory I 1 (0-3) Prereq c// in V M 553 P. Surgical exercises using small animals. S, M, F grading.


559 P Special Animal Medicine V 1-3 Prereq veterinary medicine student. Handling, restraint, care, normative features, procedures and diseases of unusual animals as pets or those used in food production or research. S, M, F grading.

561 P Clinical Specialties V 1-4 Prereq veterinary medicine student. This course includes clinical disciplines that are not considered core internal medicine, such as ophthalmology and dermatology. S, M, F grading.


568 P Animal Handling and Animal Agriculture Orientation 2 (1-3) Prereq veterinary medicine student. Restraint procedures, production aspects and the social issues of agricultural animals seen by veterinarians and career opportunities associated with them. S, M, F grading.


570 P Agricultural Animal Medicine II 3 Prereq V M 569P. Infectious and non-infectious conditions of agricultural animals; introduction to performance medicine. Continuation of V M 569P. S, M, F grading.


577 P Herd Production Medicine V 1-3 Prereq DVM or equivalent. Health management of livestock herds, targeting measures of productivity and profitability. S, M, F grading.


580 P Basic Nutrition 1 Prereq veterinary medicine student. Introduction to the concepts of basic nutrition designed for the first year veterinary student. S, M, F grading.

585 P Epidemiology 2 Prereq veterinary medicine student. Minimally quantitative survey in which health is framed as a population phenomenon. S, M, F grading.


590 P Veterinary Clinical Nutrition V 1-3 May be repeated for credit; cumulative maximum 3 hours. Large and small animal clinical nutrition; nutrient composition; nutritional diseases and practical feeding methods. S, M, F grading.


593 P Pain and Analgesics 2 Prereq V M 587P. Supplemental core course for DVM students; anatomy and physiology of pain; recognition and treatment of pain in veterinary patients. S, M, F grading.

598 P Introduction to Clinics 1 (0-3) Prereq veterinary medicine student. Introduction to the practice of clinical veterinary medicine and surgery within the Veterinary Teaching Hospital including records, presentation and protocol. S, M, F grading.

599 P Special Problems V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. S, M, F grading.


603 P Clinical Elective at Oregon State University V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Clinical medicine training in diseases of food animals and horses; clinic rounds and diagnostic procedures. S, M, F grading.

605 P Small Animal Community Practice Medicine V 1-4 Prereq veterinary medicine student. Required clinical experience with the small animal community practice service in the small animal clinic of the Veterinary Medicine Hospital. S, M, F grading.

606 P Small Animal Referral Medicine V 1-4 Prereq veterinary medicine student. Required clinical experience with the small animal referral medicine service in the small animal clinic of the Veterinary Medicine Hospital. S, M, F grading.


608 P Small Animal Orthopedic Surgery V 1-14 Prereq veterinary medicine student. Required clinical experience with the small animal orthopedic surgery service in the small animal clinic of the Veterinary Medicine Hospital. S, M, F grading.

609 P Small Animal Clinical Neurology V 1-4 Prereq veterinary medicine student. Required clinical experience with the small animal neurology service in the small animal clinic of the Veterinary Medicine Hospital. S, M, F grading.

611 P Small Animal Orthopedic Surgery Elective V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical experience with the Small Animal Orthopedic Surgery Service in the Small Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.

612 P Small Animal Soft Tissue Surgery Elective V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical experience with the Small Animal Soft Tissue Surgery Service in the Small Animal Clinic of the Veterinary Teaching Hospital. S, M, F grading.

613 P Small Animal Referral Medicine Elective V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical experience with the Small Animal Medicine Referral Practice Service in the Small Animal Clinic of the Veterinary Teaching Hospital. S, M, F grading.

614 P Small Animal Community Practice Elective V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical experience with the Small Animal Medicine Local Practice Service in the Small Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.
615 P Small Animal Medicine - Specialty Practice Elective V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical experience in a specialty practice area of small animal clinical medicine or surgery. S, M, F grading.

616 P Exotic Animal Medicine V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical experience with the Small Animal Medicine Exotic Practice Service in the Small Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.


620 P Clinical Oncology V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq veterinary medicine student. Diagnosing, staging and treating the veterinary cancer patient. S, M, F grading.


628 P Equine Surgery Clinical Rotation V 2-6 Prereq veterinary medicine student. Required rotation through the Equine Surgery Services of the Veterinary Teaching Hospital. S, M, F grading.

629 P Equine Medicine Clinical Rotation V 2-6 Prereq veterinary medicine student. Required rotation through the Equine Medicine Services of the Veterinary Teaching Hospital. S, M, F grading.


632 P Large Animal Theriogenology V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective theriogenology subjects in large animals. S, M, F grading.

633 P Agricultural Animal Medicine/Surgery V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical subjects in food animal diseases and herd health/preventive medicine. S, M, F grading.

635 P Preventive Medicine at Canine Center V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Preventive medicine and management practices related to control of animal diseases at Canine Center, UI, Caldwell Idaho. S, M, F grading.

636 P Equine Medicine Elective V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical experience with the Equine Medicine Service in the Large Animal Clinic of the Veterinary Teaching Hospital. S, M, F grading.

637 P Equine Surgery Elective V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq fourth year veterinary medicine. Elective clinical experience with the Equine Surgery Service in the Large Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.

638 P Equine Track V 1-4 Prereq fourth year veterinary medicine; enrollment in equine career track. Clinical experience with the Equine Surgery Service of the Large Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.

639 P Laboratory Animal Medicine V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective experience in a specialty practice area of small animal clinic. S, M, F grading.

651 P Pharmacy and Therapeutics (0-3) Prereq veterinary medicine student. One-week overview of Washington and federal drug laws, inventory control, formulary management, therapeutics for a successful practice. S, M, F grading.

652 P Technical and Diagnostic Radiology V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq veterinary medicine student. Elective clinical and laboratory experience with the Radiology Section in the Small Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.

653 P Imaging Services Elective V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical and laboratory experience with the Radiology Section in the Small Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.


655 P Clinical Pathology V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq veterinary medicine student. Elective clinical experience with the Clinical Pathology Service of the Small Animal Clinic, Veterinary Teaching Hospital. S, M, F grading.


657 P Small Animal Critical Care V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq veterinary medicine student. Elective critical care and intensive care cases. S, M, F grading.


676 P Veterinary Research Practicum V 1-8 May be repeated for credit; cumulative maximum 14 hours. Prereq veterinary medicine student; enrollment in research track program or approved for research career track. Individualized research project. S, M, F grading.

679 P Externship V 1-4 May be repeated for credit; cumulative maximum 4 hours. Prereq veterinary medicine student. Theory of practice of veterinary medicine in a non-university situation. S, M, F grading.

691 P Guided Preceptorship V 1-4 Prereq veterinary medicine student. Guided preceptorship in an accepted extramural clinical or laboratory setting. S, M, F grading.

692 P Government, Corporate, and Zoological Practice Elective V 1-6 May be repeated for credit; cumulative maximum 10 hours. Prereq veterinary medicine student. Elective clinical and laboratory experience with government, corporate, and zoological veterinary medicine arranged through a nationwide matching program. S, M, F grading.

693 P Laboratory Animal Medicine V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical and laboratory experience with major research facilities such as the Department of Comparative Medicine, University of Washington. S, M, F grading.


699 P Advanced Clinical Elective V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq veterinary medicine student. Elective clinical experience with advanced clinical subjects developed as courses for fourth year veterinary students. S, M, F grading.

Department of Veterinary and Comparative Anatomy, Pharmacology, and Physiology

www.vetmed.wsu.edu/depts-vcapp

Wegner 205
509-335-6624

Professor and Interim Chair, S. Simasko; Regents Professor, J. M. Krueger; Professors, K. B. Campbell, J. W. Harding, J. Fankhau, R. R. Ritter, W. S. Ritter, B. K. Slinker, B. A. Sorge; Associate Professors, M. Chandra, H. Jansen, D. Lin, R. Newberry, D. Rector, L. Sprunger, C. M. Ulibarri, M. Varnum, A. Vasavada; Assistant Professors, S. Appleyard, R. L. Brown, K. Czaja, W. Dong, Y. Dong, G. Wayman; Research Associate Professor, L. Churchill; Research Assistant Professor, M. Walter; Clinical Associate Professor, P. Talcott; Clinical Assistant Professors, S. Lamp, P. Meighan, S. Meighan, P. D. Wilson.

The Department of Veterinary and Comparative Anatomy, Pharmacology and Physiology offers a course of study leading to the degrees of Master of Science and Doctor of Philosophy in Veterinary Science. These degrees are designed to provide broad
training in specific aspects of veterinary science and related disciplines to prepare students for careers in teaching, research, and service. The curriculum is research intensive emphasizing the acquisition of theoretical understanding of a field and or research skills in preparation for a career in teaching and research. The veterinary science degree allows for maximum flexibility within the curriculum. Students will design their degree plan in consultation with a faculty mentor, emphasizing the specialty fields of anatomy, pharmacology or physiology. It is required that a student contact and arrange for a faculty mentor prior to admissions to the program.

The objectives for the Ph.D. level training are to prepare the candidate for a career as an independent investigator (i.e., can compete for extramural private and federal funds as the principal investigator).

To be eligible for admission, candidates must meet general Washington State University requirements outlined in the Graduate Study Bulletin in effect at the time of their admission, as well as the current graduate veterinary science program requirements. Applicants for admission to the Graduate Program in Veterinary Science must have a minimum gpa of 3.0 (A=4.0) either on the basis of the last 60 graded semester or 90 graded quarter hours of undergraduate study or basic science portion of a graduate or professional curriculum (usually the first 60 credit hours). Applicants will have completed courses in organic chemistry and biochemistry, calculus, physics and a minimum of three courses in different areas of the biological sciences. It is advisable that applicants have a basic statistics course prior to entering the veterinary science program.

Applications for admission to the program must include a completed graduate school application, Graduate Record Exam (GRE) test scores (subject tests are not required), official transcripts for all college-level course work, three letters of recommendation from references capable of judging aptitude and capability for graduate study by the applicant, a statement by the applicant that describes career goals and research interests, a writing sample, and a resume or curriculum vitae (CV). For students whose native language is not English, TOEFL scores are also required. Inquiries should be directed to the Department of VCAPP, Veterinary Science Degree Program, Washington State University, Pullman, WA 99164-6520 or email gradscis@vetmed.wsu.edu. Students normally begin their studies in the fall semester, which starts the latter part of August.

The priority deadline for completed applications for admission to the program is December 31. Applicants are offered admission on a rolling basis, but may be notified of acceptance as late as April 15. Students may still apply for admission after December, but graduate stipends may not be available for late applicants.

Department of Veterinary Clinical Sciences

www.vetmed.wsu.edu/depts-vcs
ADBF 1020
509-335-0738

Description of Courses

VETERINARY PHYSIOLOGY AND PHARMACOLOGY

V Ph
499 Special Problems V 1-4 May be repeated for credit. Cooperative course taught jointly by WSU and UI (VS 404). S, F grading.

505 Design and Analysis of Biomedical Experiments 4 Prereq Math 107; Stat 212 or higher. Design of experiments with application to clinical and basic biomedical research; choosing, applying, and evaluating appropriate data analysis methods.

555 General and Cellular Physiology 4 (3-3) Prereq MBios 303 or c//; MBios S313. Physiochemical mechanisms of cellular function.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. Cooperative course taught jointly by WSU and UI (VS 504). S, F grading.

700 Master's Research, Thesis, and/or Examination V 1-18 May be repeated for credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. For PhD in veterinary science only. S, F grading.


361 Agricultural Animal Health 3 Prereq one semester animal science or biological science. Introduction to basic concepts of infectious, noninfectious, and parasitic diseases of animals of agricultural and public health importance.

VETERINARY CLINICAL MEDICINE AND SURGERY

V MS

574 Cardiology Special Topics 1 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM or graduate standing. Clinical cardiology topics and special problems; current medical or interventional information.

576 Introduction to Veterinary Clinical Research 2 Prereq DVM or graduate standing. Designing, executing, analyzing and reporting clinical research fundamental to practicing evidence-based medicine.

577 Applied Veterinary Physiology I 2 (0-2) Prereq DVM. Review of physiology as it relates to clinical veterinary medicine and specific diseases of animals through analysis of recent medical literature.

578 Applied Veterinary Physiology II 2 Prereq V MS S77; DVM. Continuation of V MS S77.

579 Oncology Rounds Seminar 1 Prereq DVM degree. Presentation and discussion of veterinary oncology cases including imaging, pathology, clinical pathology, appropriate diagnostic steps, therapy options and potential outcomes. S, F grading.

580 Advanced Clinical Pathology 1 May be repeated for credit; cumulative maximum 6 hours. Prereq DVM or graduate standing. Weekly small group discussion of laboratory and cytologic abnormalities in recent cases from the Veterinary Teaching Hospital.

582 Seminar in Clinical Medicine 1 May be repeated for credit. Prereq DVM degree.

584 Comparative Theriogenology 1 Prereq DVM degree. Lectures from WSU College of Veterinary Medicine and Department of Animal Sciences and from UI Department of Animal and Veterinary Science.

585 Selected Topics in Advanced Clinical Neurology 1 or 2 May be repeated for credit; cumulative maximum 10 hours. Prereq DVM degree. Advanced veterinary neurology as applied to clinical practice.

586 Diagnostic Ultrasound 2 Prereq DMV or graduate standing. Diagnostic ultrasound and its application to clinical medicine in large and small animals.
Department of Veterinary Microbiology and Pathology

www.vetmed.wsu.edu/depts-vmp
Bustad 402
509-335-6030


Description of Courses

VETERINARY MICROBIOLOGY

V Mic

499 Special Problems V 1-4 May be repeated for credit. Cooperative course taught jointly by WSU and UI (VS 404). S, F grading.

535 Advanced Readings in Veterinary Microbiology 1 (0-3) May be repeated for credit. Prior fourth year in veterinary medicine or graduate student in Vet S. Supervised reading program which peruses publications of intermediate technical difficulty and advanced textbooks.

541 Advanced Diagnostic Microbiology 1 (0-3) May be repeated for credit; cumulative maximum 8 hours. Prereq V M 534P, 535P, 536P. Microbiology laboratory for performing and interpreting virologic, serologic, and related tests for the diagnosis of animal diseases.

572 Advanced Topics in Microbiology, Parasitology, or Immunology V 1-3 May be repeated for credit; cumulative maximum 4 hours. Advanced topics in microbiology, parasitology, or immunology presented in short-course, or workshop format.

591 Seminar in Diagnostic Microbiology 1 May be repeated for credit; cumulative maximum 8 hours. Seminar in diagnostic veterinary microbiology.

592 Advances in Immunobiology 1 May be repeated for credit. Cooperative course taught by WSU, open to UI students (VS 592).

600 Special Projects or Independent Study V 1-18 May be repeated for credit. Cooperative course taught jointly by WSU and UI (VS 504). S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. For PhD in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. For PhD in veterinary science only. S, F grading.

VETERINARY PATHOLOGY

V Pa

499 Special Problems V 1-4 May be repeated for credit. Cooperative course taught jointly by WSU and UI (VS 404). S, F grading.

501 Case-based Learning in Veterinary Pathology V 1-3 Prereq second year veterinary medicine or DVM. Principles of pathophysiology, infectious disease, laboratory diagnosis, zoonoses, and food safety learned through the development of multistep teaching cases. S, F grading.

525 Introductory Readings in Veterinary Pathology 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Supervised introductory readings of publications, books, and research proposals.

542 Advanced Diagnostic Pathology V 1-4 May be repeated for credit; cumulative maximum 8 hours. Prereq V M 546P. Necropsy laboratory for techniques and skills in performing and interpreting necropsy material.


545 Mechanisms of Disease 4 Prereq MBioS 440 or V M 534P, 545P. Biochemical and immunological mechanisms involved in disease processes from the comparative standpoint.

548 Introduction to Research 1 Introduction to research.

555 Research in Progress Seminar 1 May be repeated for credit; cumulative maximum 8 hours. Presentation of on-going student research project results.

569 Research Proposal 1 (0-3) May be repeated for credit; cumulative maximum 2 hours. Written preparation and oral presentation of a research proposal.

571 Advanced Topics in Pathology V 1-3 May be repeated for credit; cumulative maximum 4 hours. Advanced topics in pathology presented in short-course, or workshop, format.

592 Anatomic Pathology Seminar 1 May be repeated for credit. Histopathologic description and diagnosis.

600 Special Projects or Independent Study V 1-18 May be repeated for credit. Cooperative course taught jointly by WSU and UI (VS 504). S, F grading.

700 Master’s Research, Thesis, and/or Examination V 1-18 May be repeated for credit. For MS in veterinary science only. S, F grading.

800 Doctoral Research, Dissertation, and/or Examination V 1-18 May be repeated for credit. For PhD in veterinary science only. S, F grading.
### Department of Women’s Studies

libarts.wsu.edu/women
Wilson 10
509-335-1794

Associate Professor and Department Chair, L. Heldenreich; Professor, N. Sturgeon; Assistant Professor, N. Shahani, P. Thoma, L. Gondolli; Clinical Associate Professor, J. Meuth, M. Sciacchitano.

Women’s Studies is an interdisciplinary field rooted in women’s activism, that places gender at the center of inquiry. Scholars study social inequalities that are rooted in systems of gender as they intersect with class, race, ethnicity, nationality, sexual orientation, and age. Its scholars challenge such systems. The Bachelor’s of Arts in Women’s Studies is designed to achieve four major objectives:

1. To facilitate the understanding of continuing social change in structures and systems organized around gender, race, class, and sexuality;
2. To provide students with a systematic knowledge of the multidisciplinary scholarship about and by women and gender minorities in the field;
3. To enhance the qualifications of students preparing for careers in business, education, government, communications, the sciences and social sciences, among others; and
4. To further university and societal goals of gender equality and social justice.

In addition to a traditional Bachelor of Arts in Women’s Studies available through the Women’s Studies Department, a Bachelor of Arts in Humanities, Social Sciences, or Liberal Arts, concentrated in Women’s Studies, is available through the General Studies Program. The department of Women’s Studies at WSU is also at the forefront of the field of LGBTQ/Queer Studies in the Inland Northwest.

### Schedules of Studies

#### WOMEN’S STUDIES DEGREE PROGRAM (120 HOURS)

The major requires a minimum of 39 credit hours which must include W St 200, 300, 332, 410, 484, and 481 or 485.

### First Term

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<td>GenEd 110 [A] (GER)</td>
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<tr>
<td>Science Elective (GER)</td>
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<tr>
<td>Arts &amp; Humanities [H,G] (GER)</td>
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<tr>
<td>Biological Sciences [B] (GER)</td>
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<td>GenEd 111 [A] (GER)</td>
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<td>Social Sciences [S,K] (GER)</td>
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<td>W St Humanities Elective¹</td>
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<tr>
<td>Intercultural Studies [I,G,K] (GER)</td>
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<td>W St 332 [I] (GER)</td>
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<tr>
<td>W St Social Science Electives¹</td>
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<tr>
<td>Prepare for Women’s Studies Internship (W St 410)</td>
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**Complete Writing Portfolio**

### Third Year

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<td>300-400-level W St Elective</td>
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<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
<td>3</td>
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<tr>
<td>Physical Sciences [P] (GER)</td>
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<tr>
<td>W St 484 [T,D] (GER)</td>
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<td>Elective</td>
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<tr>
<td>Second Term</td>
<td></td>
</tr>
<tr>
<td>Arts &amp; Humanities [H,G], Intercultural Studies [I,G,K], or Social Sciences [S,K] (GER)</td>
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</tr>
<tr>
<td>W St 410</td>
<td>3</td>
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<tr>
<td>W St Elective</td>
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<tr>
<td>300-400-level Electives</td>
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### Fourth Year

<table>
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<td>First Term</td>
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<td>300-400-level W St Elective</td>
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<tr>
<td>W St 481 [M] or 485</td>
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<tr>
<td>W St Elective</td>
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<td>300-400-level Electives</td>
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<td>Second Term</td>
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<td>300-400-level Electives</td>
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<td>Tier III Course [T] (GER)</td>
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</tr>
<tr>
<td>Elective</td>
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</table>

¹ Consult advisor.

### Minors

#### Queer Studies

A minimum of 16 hours including a core of W ST 200, 309, 484, and 485. In addition, four elective hours selected from W ST 210, 300, 317, 410, 481, 499. At least 9 hours must be in upper-division work and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses.

#### Women’s Studies

The minor requires a minimum of 16 credit hours, of which 9 hours must be upper-division work and taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. Coursework must include W St 200, 300, and either 481 or 485.

### Description of Courses

#### WOMEN’S STUDIES

<table>
<thead>
<tr>
<th>Course Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>W St 150 [S,D] Marital and Sexual Life Styles</td>
<td>3</td>
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</table>

Same as Soc 150.

200 [S,D] Gender and Power: Introduction to Women’s Studies 3 Analysis of gender and power in contemporary society from perspectives of different racial, ethnic and socioeconomic groups.


210 [H] Diverse Sexualities and Cultural Production 3 Introduction to US lesbian cultural production, including writing and film, within a larger socio-political context.

214 [S,D] Gender and Culture in America 3 Same as Anth 214.

216 [S,D] American Culture 3 Same as Am St 216.

220 [S,D] Gender, Culture and Science 3 Analysis of gender, culture, science, and technology through examination of real world issues and hands-on investigation.

230 Human Sexuality 3 Prereq Psych 105. Same as Psych 230.


276 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.

277 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. May be repeated for credit. S, F grading. S, F grading.

298 [S,D] History of Women in American Society 3 Same as Hist 298.

300 [S,M] Intersections of Race, Class, Gender and Sexuality 3 Prereq CES 101, Soc 101, or W St 200. Intersections between race, class and gender through case studies; experiences in interdisciplinary methods.

302 [S,D] Contemporary Masculinity and Men’s Issues 3 Analysis of the development of masculinity in its biological and cultural forms.

305 [S] Gender and Politics 3 Same as Pol S 305.

306 [H,M] Introduction to Literary Criticism 3 Same as Engl 308.

308 [H,M] Women Artists I, Middle Ages-1900 3 Same as F A 308.

309 [H] Women Writers 3 Same as Eng 309.


315 [S,D] Women in Management and Leadership 3 Analysis of women’s historical and contemporary role in American management.

316 [K] Gender in Cross Cultural Perspective 3 Same as Anth 316.

317 Gay and Lesbian Literature 3 Same as Engl 317.

320 Resource Management and Problem Solving 3 Same as H D 320.

321 Topics in Women’s Studies V 1-3 May be repeated for credit; cumulative maximum 9 hours. Focused study of subjects/issues relating to women.
324 [S,D] Psychology of Women 3 Prereq Psych 105. Same as Psych 324.
332 [I] Global Feminisms 3 Prereq Anth 101 or W St 200. An interdisciplinary approach to examining women's roles and experiences throughout the world and different approaches to feminism/feminisms.
335 [K] Women in Latin American History 3 Same as Hist 335.
337 [H] Women in the Ancient World 3 Same as Hist 337.
340 [I] Third World Women and Film 3 Focus on the intersections of race, gender, class, sexuality, and nation in “third world” women’s films.
350 [S] European Women's History, 1400-1800 3 Same as Hist 350.
369 [H,D] Queer Identities in Contemporary Cultures 3 Prereq CES 101 or W St 200. Provides a structural critique of heteronormativity and examines L/G/B/T challenges to dominant sex and gender issues in the US.
382 Modern American Literature 3 Prereq Eng 302. Same as Engl 482.
383 [S,D] Sociology of Sexuality 3 Prereq Soc 101, Soc 102, or W St 200. Social construction of sexuality, sexual behavior, and sexuality as part of social inequalities and institutions.
390 [S,D] Gender and Work 3 Same as Soc 390.
391 Seminar in Women's Studies 3 Prereq W St 200. Analysis of the intersection of gender, race, class, and sexuality through popular cultural texts/film, television, art, literature, performance.
398 [H,D] History of Women in the American West 3 Same as Hist 398.
403 [T] Violence Toward Women 3 Same as Cm 403.
406 [T] Women and Work In Global Contexts 3 Prereq W St 200. An interdisciplinary approach to women’s labor in global contexts that analyzes differences among women as well as possible shared interests.
407 [T] Biology of Women 3 Prereq Biol 102 or 106; Biol 107 or Chem 105; Chem 106; junior standing; completion of one Tier I and two Tier II courses. Same as Biol 407.
408 [T,D] Introduction to Critical Race Feminism 3 Prereq completion of one Tier I and three Tier II courses; junior standing; CES 101 or W St 200. Studies structural inequalities in the US through historically grounded analysis of social systems, race, gender, and the law.
409 [T] Women Writers in the American West 3 Prereq completion of one Tier I and three Tier II courses. Same as Engl 409.
410 Internship V 1-12 May be repeated for credit; cumulative maximum 12 hours. Prereq W St 200; 300 or 481 with B or better, by interview only. Supervised experience in approved campus or community agencies or projects focusing on women's issues.
421 The American West 3 Same as Hist 421.
425 [T,D] Philosophy and Feminism 3 Prereq 3 hours Phil or W St 200. Same as Phil 425.
454 [T] La Chicana in US Society 3 Prereq junior standing, completion of one Tier I and three Tier II courses. Same as CES 454.
460 [T] Gender, Race, and Nature in American Culture 3 Prereq W St 200 or 300; completion of one Tier I and three Tier II courses. Exploration of American culture through examination of cultural representations of nature in mainstream and environmental politics.
462 [M] Women and Ethics 3 Prereq Phil 101 or W St 200. Study of gender and feminism and their effect on contemporary ethical theories and issues. Cooperative course taught by WSU, open to UI students (PHIL 462).
464 Gender and the Media 3 Prereq Com 101 or W St 200. Same as Com 464.
476 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.
477 Special Topics: Study Abroad V 1-15 May be repeated for credit; cumulative maximum 100 hours. S, F grading.
481 [M] Theoretical Issues in Women's Studies 3 Prereq W St 200 or 300. Introduction to the field of feminist theory, including classic interdisciplinary methods, and applications of this scholarship to contemporary women's issues.
484 [T,D] Lesbian and Gay Studies 3 Prereq Soc 101, 102, or W St 200; completion of one Tier I and three Tier II courses. Interdisciplinary exploration of issues related to gender and sexuality, explored transhistorically and cross-culturally, including race, class and age differences.
499 Special Problems V 1-4 May be repeated for credit. S, F grading.

WWAMI Medical Education Program

www.wwami.wsu.edu

Morrill 108
509-335-2602

Director, A. Turner; Professors, R. W. Brosmer, J. M. Mallatt; Assistant Professor, R. Lane Brown; Clinical Assistant Professors, D. M. Conley, C. M. Davitt, P. F. Mixer, D. B. Topping; Clinical Affiliation, L. H. Fearn, S. Hall, D. Haynes; Multicultural Program Coordinator, J. F. Sanvedra.

The WSU WWAMI Program is an integral part of the Washington-Wyoming-Alaska-Montana-Idaho (WWAMI) Medical Education Program. Course work is established by the University of Washington School of Medicine. The entire program is taught in concert with the University of Idaho WWAMI Program. Courses are taught on both campuses with faculty from Washington State University and the University of Idaho taking part in each, all WWAMI students being taught as a single class. All WWAMI students are members of the first year class of the University of Washington School of Medicine, and all courses apply to the MD degree granted by that university.

Because of specialized support material required and the nature of course content, course enrollment is restricted. With the approval of the course director and the student’s advisor, certain courses listed below may be taken by graduate students enrolled in graduate programs leading to advanced degrees granted by other academic units.

In accordance with the University of Washington School of Medicine policy, all Med S courses are S, F graded.

Description of Courses

MEDICAL SCIENCE

Med S
505 P Medical Preceptorship 1 Prereq WWAMI student. First-year medical students gain experience and insight into medical practice situations; students are stationed in physician offices at WWAMI sites. S, F grading.
510 P Microscopic Anatomy 4 (3-3) For WWAMI students only. Description and microscopic examination of cell types, tissues, and major organs of the human body. Cooperative course taught jointly by WSU and UI (MEDS510). S, F grading.
511 Anatomy and Embryology 1 S (4-3) For WWAMI students only. Presents formation and 3-dimensional relationships of major structures in the human body; human phenotype examined in dissection laboratory and living anatomy; focus is on trunk anatomy. (Fall only) Cooperative course taught jointly by WSU and UI (MEDS511). S, F grading.
512 **Mechanisms in Cellular Physiology** 3
For WWAMI students only. Fundamental cell physiology mechanisms: ionic, electrical gradients, sensory receptors, autonomic nervous system, energy metabolism, epithelial transport; gastrointestinal motility and secretions. (Fall only) Cooperative course taught jointly by WSU and UI (MEDS512). S, F grading.

513 **Introduction to Clinical Medicine I** 1
For WWAMI students only. Instruction in communications skills and interview techniques to form the basis for the eventual doctor-patient relationship. Cooperative course taught jointly by WSU and UI (MEDS513). S, F grading.

514 **Biochemistry I** 3
For WWAMI students only. Focus on genome information, gene functions, genetic information stored, mobilized, and used, regulation, molecular medicine, genomic therapies. (Fall only) Cooperative course taught jointly by WSU and UI (MEDS514). S, F grading.

516 **Systems of Human Behavior I** 1
For WWAMI students only. Physical and psychological development of the individual; conceptual systems and models of behavior related to medicine. Cooperative course taught jointly by WSU and UI (MEDS516). S, F grading.

521 **Introduction to Clinical Medicine II** 2
For WWAMI students only. Communication skills as related to patients and dealing with problem identification and patient history. Cooperative course taught jointly by WSU and UI (MEDS522). S, F grading.

523 **Introduction to Immunology** 2
For WWAMI students only. Principles of immunology and their relationship to human medicine. Cooperative course taught jointly by WSU and UI (MEDS523). S, F grading.

524 **Biochemistry II** 2
For WWAMI students only. Continuation of Med S 514P. Cooperative course taught jointly by WSU and UI (MEDS524). S, F grading.

526 **Systems of Human Behavior II** 2
Continuation of Med S 516 with an emphasis on models of behavior, normality and abnormality related to medicine. Cooperative course taught jointly by WSU and UI (MEDS526). S, F grading.

531 **Anatomy and Embryology II** 5 (4-3)
Gross anatomy; focus on head and neck anatomy, including skull, pharynx, and larynx; audition and balance. Continuation of Med S 511P. Cooperative course taught jointly by WSU and UI (MEDS531). S, F grading.

532 **Nervous System** 5 (4-3)
Normal structure and function of the nervous system, including the eye. Cooperative course taught jointly by WSU and UI (MEDS532). S, F grading.

534 **P (521) Microbiology and Infectious Disease** 6 (5-3)
Biolog of microbial pathogens and the mechanisms of pathogenesis; clinical manifestations, epidemiology and general principles of diagnosis, therapy and prevention of infectious disease. S, F grading.

535 **Introduction to Clinical Medicine III** 2 (1-2)
For WWAMI students only. The screening physical examination. Cooperative course taught jointly by WSU and UI (MEDS535). S, F grading.

553 **Anatomy and Embryology - Musculoskeletal** 3

590 **Medical Information for Decision Making** 1
Prereq WWAMI student. Medical literature for the purpose of primary research, diagnosis and therapeutic and preventative intervention. Cooperative course taught by UI, open to WSU students (MEDS590). S, F grading.

600 **Special Projects or Independent Study**
V 1-6 May be repeated for credit; cumulative maximum 6 hours. May be repeated for credit; cumulative maximum 6 hours. S, F grading.
Appendix—Academic Regulations

UNDERGRADUATE ADMISSION REQUIREMENTS

1. GENERAL REQUIREMENTS
(a) Applicants who have completed a transferable Associate's degree from a regionally accredited college or university, must be a high school graduate or its equivalent, or have completed a more advanced transferable credential from a regionally accredited college or university (e.g., a transferrable Associate of Arts or Associate of Science degree).
(b) The total number of new students admitted for any one semester will be based on the number of students for whom facilities can be made available.
(c) Appeal of admission decisions may be made only to the Admissions Subcommittee of the Academic Affairs Committee or their designee.
(d) Anyone seeking admittance to the Graduate School must follow procedures in the Graduate School Policies and Procedures Manual available in the Graduate School.
(e) The University reserves a limited number of spaces in the incoming class for the admission of students with extraordinary talents. Refer to the admission of students with extraordinary talents component of the Admissions policies section of the university catalog.

2. FRESHMAN REQUIREMENTS. Freshman applicants are considered for admission based on required high school courses completed, grade point average and the results of the Washington Pre-College Test (WPCT), if taken prior to June 1, 1989, Scholastic Aptitude Test (SAT), or the American College Test (ACT), and personal statement. On the basis of these criteria, the most qualified applicants are offered admission.

Applicants are required to submit a high school transcript showing completion of the following:

English: Four credits (three of which must be composition and literature).
Mathematics: Three credits of college preparatory mathematics (one year of geometry and two years of algebra, including an introductory component of trigonometry). Additional mathematics is strongly recommended.
Science: Two credits of laboratory science, including one credit of algebra-based science (typically chemistry or physics).
Social Science: Three credits.
World Languages: Two credits of the same world language, Native American language, or American Sign language.
Fine Arts: One credit of fine, visual, or performing arts, or one additional credit of academic elective.

Applicants from unaccredited high schools should contact the Director of Admissions.

ADVANCED STANDING (Transfer Applicants)

4. TRANSFER REQUIREMENTS
(a) Applicants who have completed a transferable Associate's degree from a regionally accredited post-secondary institution will be admitted as space allows.
(b) Applicants without a transferable Associate's degree, but with at least 27 semester (40 quarter) hours of transferable credit from a regionally accredited post-secondary institution normally will be admitted as space allows provided they have at least a 2.5 cumulative grade point average. Applicants whose cumulative grade point average is lower than a 2.5 may have their academic record reviewed more comprehensively to determine admission eligibility.
(c) Applicants with fewer than 27 semester (40 quarter) hours of transferable credit will be considered for admission if they also meet the freshman requirements. Applicants whose cumulative transfer grade point average is lower than a 2.5 may have their academic record reviewed more comprehensively to determine admission eligibility.
(d) In evaluating admission credentials of students with transfer work whose cumulative transfer grade point average is below a 2.00, all of the post-secondary transfer credit from a previous institution may be disregarded, provided the work was completed not less than four years before the time of enrollment at Washington State University. Application of this policy is contingent upon the evidence of extenuating circumstances that present a significant probability of future academic success. The Faculty Admissions Subcommittee or its designee in the Office of Admissions will consider these admission requests. After the student has completed 15 semester hours of satisfactory work at WSU, the student may petition to restore the credits previously withheld. All credit earned in courses graded C or better will be considered for restoration and, if approved, only the courses and credit (not grades or grade points) will be restored.

6. TRANSFER CREDIT. (See Rule 114)
(a) Colleges and universities must be regionally accredited for transfer credit to be awarded.
(b) Ninety semester hours shall be the maximum allowed by transfer toward a four-year degree, and 120 semester hours shall be the maximum amount allowed by transfer toward a five-year degree.
(c) The maximum combined lower-division transfer credit allowed from regionally accredited institutions CLEP (College Level Examination Program), AP (Advanced Placement), IB (International Baccalaureate), and military credit shall be 73 semester hours toward a baccalaureate degree irrespective of when those hours were earned.
(d) Two full years of credit and completion of lower-division General Education Requirements normally will be granted to students who have been awarded the Direct Transfer Associate (AA) degree from a Washington community college. The Associate of Arts—Oregon transfer degree from an Oregon community college guarantees completion of the lower-division General Education Requirements, but does not guarantee junior standing or 60 semester credits. Certain approved Associate's degrees from Arizona, California, Hawaii, and Idaho may also be considered to have fulfilled the lower division GErs for graduation, but do not guarantee junior status (60 semester credits). For details on specific degrees consult the Web site.
(e) Students who have completed at least 70 transferable quarter credit hours toward completion of an approved AA degree may complete the Direct Transfer Associate (AA) degrees from a Washington or Oregon two-year college after their initial enrollment at WSU.
(f) Students who have completed the Associate of Science Transfer Degree (AST) from a Washington Community College will receive the same priority consideration for admission to the baccalaureate institution as they would for completing the direct transfer associate degree and will generally be given junior status. Additional general education, cultural diversity, and world language requirements, as required by Washington State University, must be met prior to the completion of a baccalaureate degree. Students are responsible for checking specific major requirements in the year prior to transferring.
(g) Completion of lower-division General Education Requirements will be granted to students, who have completed all of the lower-division General Education Requirements at another regionally accredited Washington baccalaureate institution, provided the sending institution so certifies.

9. GRADE POINTS REQUIRED. Students entering with advanced standing must earn twice as many grade points for graduation as the number of hours which they have enrolled in this or any other institution.

14. CREDIT FROM INSTITUTIONS WITHOUT REGIONAL ACCREDITATION. Students who have taken college-level, academic work at institutions that are not regionally accredited but are nationally accredited may petition for transfer of appropriate credits. Petitions may be filed after the student has completed a minimum of one semester (minimum of 15 credits) of satisfactory work at Washington State University. To receive credit, a student must have earned a minimum grade of C in the course for which he or she is requesting transfer credit. Petitions are reviewed and approved first by the Department Chair and...
then by the College Dean from the unit that offers courses in that discipline. The Director of General Education reviews and approves petitions in cases where there is no equivalent WSU unit. Following approval by the Department and College (or Director of General Education), the petition is then forwarded to the Chair of the Admission Subcommittee for review and approval. Students may contact the Office of Admissions for more information.

15. CREDIT BY EXAMINATIONS. Subject to standards established in consultation with academic departments concerned, credit may be granted to entering or enrolled undergraduate students via various means including external examinations, institutional examinations, and approved military service schools. WSU does not accept credit by examination granted by other institutions. Credits by examination shall yield no grade points. Such credits may partially fulfill General Education Requirements for graduation. External examinations will include but not be limited to:

Advanced Placement (AP) Program examinations of the College Entrance Examinations Board; general and subject College Level Examination Program (CLEP); and the International Baccalaureate (IB).

(a) Advanced Placement Program. Credit for AP examinations will be granted in an amount equal to the 100-200-level course or courses in the particular discipline tested, as approved by the specific academic department. The acceptable score for receiving credit is published online at http://www.wsu.edu/future-students/admission/advanced-placement.html.

(b) College Level Examination Program (CLEP)

(1) Students with university junior standing (60 semester credits or more) are not eligible for credit through CLEP examinations. Contact the Office of Admissions for specific information.

(2) General and Subject Examinations—Credit for CLEP will be granted if the examination is passed with scores established by the department concerned in consultation with the Director of Admission. Credit will be granted for scores at the 50th percentile or above. Credit will be granted for the comparable Washington State University course, or elective credit may be granted. Not more than 6 semester hours of credit will be granted for each examination.

(c) Challenge Examinations. Matriculated students currently registered at Washington State University, with permission of their advisor or department chairperson and of the chairperson of the department offering the course, may take challenge examinations for university credit in courses in which they are not registered. Students may not take challenge examinations in courses which they have audited, or in which they have received a final grade. Upper-division students may not receive credit by challenge examination in lower-division courses in their major field. Undergraduate students may not receive credit by challenge examination in any course prerequisite to a course in which they are enrolled or have received a final grade. The maximum credit for challenge examinations is 30 semester hours unless permission is obtained from the student's academic dean. The fee for all challenge petitions is $320 per course.

(d) Military Credit. Lower-division elective credit only will be granted for satisfactory completion of:

(1) Military service schools in the amount recommended by the American Council of Education in the publication, Guide to the Evaluation of Educational Experiences in the Armed Forces.

(2) United States Armed Forces Institute correspondence courses (under the rules applicable to other correspondence work).

(3) Dantes Credit: Elective credit for DANTES Subject Standardized Tests (DSSTs) will be granted for college-level academic subjects (non-vocational/technical courses) using the minimum score and credit amount recommendations of the American Council on Education.

(e) Peace Corps and Volunteers in Service to America (VISTA) Credit for training in the Peace Corps or VISTA will be granted for having completed specific courses, under regular catalog course numbers, as shown on a regular transcript from an accredited college or university.

(f) Other Test Programs. Credit for other testing programs such as the Washington Pre-College Test Program and WSU departmental placement examinations will be granted in accordance with policies established by the university and academic departments.

AUDITING CLASSES

20. PERMISSION TO AUDIT. An auditor is a class visitor permitted on a space-available basis to observe class discussions but not take examinations or consume the instructor's time. Attendance in class beyond three visitations requires official approval on the Request for Permit to Audit card. Students may seek permission, after the start of classes, to audit a lecture course by securing the approval of the class instructor. Those wishing to audit or change from credit to audit must pay the appropriate fee and submit the signed audit card to the Office of the Registrar before the end of the fourth week of instruction in the semester. An enrollment change from audit to credit is limited to the first two weeks of instruction. A maximum of two audits are allowed for any semester or term. A registration fee per audit hour is charged for any semester or term for other than regularly enrolled full-fee-paying students. Senior citizens are exempt from this fee under the provisions of RCW 28B.15.540, provided the prescribed eligibility requirements are met. Personnel who have received authorization for the faculty/staff fee waiver are exempt from the audit fee up to 6 hours (including audits) in any one semester or 4 hours (including audits) in the summer session. Said limitation includes any combination of credit and audit hours. Audit fee is non-refundable.

21. NO CREDIT FOR AUDITING. No university credit will be allowed for auditing courses, nor may students apply for or take special examinations for university credit in courses which they have audited. Students may not take challenge examinations (see Rule 15c) in courses they have audited. (Audit enrollments will be recorded on the student's permanent record by listing the departmental prefix, course number and the statement, "OFFICIAL AUDIT NO CREDIT.")

23. MAKE-UP HOURS FOR UNIVERSITY HOLIDAYS. The presence of our one-day holidays in the academic calendar leads to fewer days of instruction for certain classes. Instructors have authority to require students to make-up lecture and laboratory contact hours, including scheduling such hours on evenings and Saturdays, whenever university holidays create unequal opportunities and time demands for students enrolled in the course. The make-up hours for a given course or section must be identified in the WSU Schedule of Classes and also in the course syllabus.

CLASS STANDING OF STUDENTS

25. CLASS STANDING. Freshman Standing—below 30 semester hours; Sophomore Standing—30 to 59 1/2 hours; Junior Standing—60 to 89 1/2 hours; Senior Standing—90 and above hours.

CREDIT

27. CREDIT DEFINITION. Academic credit is a measure of the total minimum time commitment required of a typical student in a specific course. For the WSU semester system one semester credit is assigned for a minimum of 45 hours. The expected time commitment may include: 1) time spent in scheduled course activities organized by an instructor (lectures, discussions, workbooks, videotapes, laboratories, studios, fieldwork, etc.); 2) time spent in group activities related to course requirements; and 3) time spent in reading, studying, problem solving, writing, and other preparations for the course. The minimum in-class time commitment, based on a fifteen-week semester and a traditional format, should follow these guidelines: 1) lecture—one hour of lecture per week for each credit hour; 2) laboratory--three hours of laboratory per week for each credit hour; 3) studio--two hours of studio work per week for each credit hour; 4) ensemble--four hours of ensemble work per week for each credit hour. The minimum time commitment for independent study is three hours of work per week for each credit hour. Courses taught in different time frames than the fifteen-week semester or in a different format need to define how the time commitment leads to the achievement of stated course goals. Achievement of course goals may require more than the minimum time commitment.

28. HIGH SCHOOL STUDENTS. High school students may enroll at Washington State University provided they are admitted to the university and pay the appropriate fees. Such enrollments may be for high school or university credit or both. For fall and spring semesters, all eligible high school students enroll through Running Start. For Summer Session, special fees may apply.
29. WORK FROM HIGH SCHOOLS AND VOCATIONAL BUSINESS COLLEGES. No university credit shall be given for work from high schools or vocational business colleges. Recognized exceptions are College Board Advanced Placement (AP) and International Baccalaureate (IB), for which official score reports are required to award credit. Students are awarded transfer credit for Running Start (RS), College in the High School (CHS) and similar programs only when official college transcripts are presented. Credit is not granted on the basis of the high school transcript.

31. CREDIT TO HIGH SCHOOL STUDENTS FOR COURSES COMPLETED PRIOR TO HIGH SCHOOL GRADUATION. Washington State University encourages students to complete rigorous college preparatory courses in high school, or to take college courses while in high school if they have adequate preparation. In some cases college credit may be awarded when consistent with the following criteria.

(a) High School Courses: Some high schools may offer instruction at the college level, and when consistent with university and academic department policies, college credit will be awarded if student achievement is validated by an approved national examination such as Advanced Placement or International Baccalaureate, or a review or examination administered by the university.

(b) Running Start Program:
   (1) Credit will be awarded for college courses taken prior to high school graduation when such courses are completed through the state of Washington's Running Start Program.
   (2) Courses offered by Washington State University to high school students participating in Running Start will have an enrollment of at least seventy percent of regularly admitted students in each course section.

(c) Other Courses: College credit may be awarded for courses taken in high school when consistent with the following conditions:
   (1) The course must also be currently available on the campus of the regionally accredited college or university and must be listed in the college or university catalog. The course, regardless of setting, must use the college or university curriculum.
   (2) Students interested in credit must register and pay fees at the beginning of the term and would be subject to the same grading and tuition refund policies as students on the campus of the regionally accredited college or university.
   (3) The faculty teaching the course in high school must carry a regular or adjunct faculty appointment at the regionally accredited college or university.
   (4) The students taking the course in the high school must be assessed and graded in the same manner as students taking the course on the campus of the regionally accredited college or university. Student work, whether completed for the course offered on-campus or at the high school, must be graded and evaluated by the same standards.

34. REPEAT COURSES. Students may ONLY repeat a course in which they have received a grade of C- or below, a withdrawal (W), or when a course may be repeated for additional credit. Students may enroll more than once in the same course in any given term (fall, spring, or summer) provided that the particular periods of enrollment do not overlap and that other conditions for allowed repeats are met.

a. Repeating courses graded C- or below. To improve the cumulative or resident grade point average, a student may only repeat courses in which a C- or below was received. When such a course is repeated, only the last grade contributes to the grade point average and total hours earned. Students may only repeat a course graded C- or below one time at WSU during fall or spring semesters. Additional repeats are allowed from another institution or at WSU during summer terms or by special permission of the academic unit offering the course. However, the series of repeats and grades is retained on the student's academic record.

1. Only courses identified as acceptable equivalents according to the appropriate department, the Transfer Guide, or the Admissions Office are treated as repeats. If courses deemed equivalent in content differ in credit hours, the credit hours of the repeat course supersedes the credit hours of the original course.
2. Once a student has graduated from WSU, repeated courses cannot change the pre-degree transcript.

b. Repeating for additional credit.

1. Some courses have been approved for repeat credit, i.e., the student may re-enroll in the course during a subsequent semester and credit may be accumulated. Such courses are designated in the WSU catalog as “May be repeated for credit” and will list the maximum credit limitation.
2. Courses which have been approved for repeat credit, such as topics, may offer multiple sections of a course during any one semester. Students may enroll in more than one section of these courses in any one term provided that the specified particular topics and titles differ; the repeat credit approval applies only to re-enrollment in a subsequent semester.

UNDERGRADUATE ACADEMIC DEFICIENCY

35. Washington State University expects students to maintain academic standards of excellence and make satisfactory academic progress toward their degree objectives. Undergraduate students are in good academic standing if both their current WSU semester and cumulative grade point averages are 2.00 or above. Students not meeting the criteria above are considered academically deficient.

38. An undergraduate (undeclared or certified major) who at the end of any one semester has failed to maintain a 2.00 semester and/or cumulative grade point average is considered academically deficient. The student must complete an application and an interview through the Student Advising and Learning Center, on the Pullman campus, the Distance Degree Program or designated office on other campuses. Reinstatement will be considered based on the application and interview. A certified major who has been interviewed and reinstated may be decertified by the department.

39. An undergraduate student who, at the end of any two semesters at WSU, has failed to maintain a 2.00 semester or cumulative grade point average will be dismissed from the university. For process see Rule 40.

40. Students who are dismissed from the University are required to remain out of WSU for at least one academic year. All students seeking reinstatement must provide, as part of the application for readmission, documentation that demonstrates improved academic performance at the college level and/or a readiness for academic success at WSU. All academic coursework during the time away from WSU is required to be documented and transcripts submitted. Dismissed students who apply for reinstatement after one semester will be granted reinstatement only when unusual extenuating circumstances are present. In all cases, written documentation to support the application is required.

41. An undergraduate student who has been reinstated after becoming deficient under Rule 38 or 39 will be on academic probation. The specific conditions of enrollment for students who are on official probation will be determined by the interviewer or Review Board. Students on probation who fail to comply with the conditions of their probationary enrollment will be dismissed from the University.

42. Students enrolled in professional programs (e.g., clinical courses in nursing) that involve human health care may be subject to more stringent requirements in grading, repeating course work, and retention provided the more stringent requirements are approved through Faculty Senate channels and are published and are made available to students prior to certification. Students are referred to the nursing and pharmacy offices for specific requirements.

43. Former WSU students, dismissed under any academic deficiency rule, who have not been enrolled at WSU for four years or more may request at the time that they apply for reinstatement that all previous WSU work be disregarded. This includes all credits and grade points earned. The student’s transcript will be marked to indicate that the previous work is not considered as credit earned. After completion of 15 semester hours of course work with a cumulative grade point average of 2.0 or higher at WSU, the student may petition to restore credits earned in courses graded C or better. If approved, only the courses and credit, not grades or grade points, will be restored. Requests for reinstatement and petitions for credit restoration for former WSU students will be considered by the Review Board in Student Advising and Learning Center on the Pullman campus, the Distance Degree Program or designated office on other campuses.
CONDUCT
45. Washington State University is guided by a commitment to excellence embodied in a set of core values. The University aims to create an environment that cultivates individual virtues and institutional integrity in the community. The mission of the University is supported when students uphold and take responsibility for the full scope of these values. The University's core values are identified in its strategic plan. Under the terms of enrollment, students acknowledge the University's authority to take disciplinary action for conduct on or off university property that is detrimental to the university's core values. Students who violate the university Standards of Conduct are subject to discipline, which may include temporary or permanent removal from the University. (See the Standards of Conduct for Students.)

ENROLLMENT, REGISTRATION, DROPPING COURSES, AND WITHDRAWALS
47. PLACEMENT TESTS. All students will be required to take the regulation placement tests as a prerequisite to enrollment in appropriate courses.

50. PASS, FAIL GRADING OPTIONS. Pass, fail options are available for undergraduate and graduate students. The advisor's approval is required for undergraduates. No courses designated as meeting General Education Requirements for Graduation may be taken pass, fail by any undergraduate. No more than two courses may be taken on a pass, fail basis during any given semester. Two courses is the limit for summer session.

A total of six courses may be taken on a pass, fail basis by students initiating and completing work for a baccalaureate degree at Washington State University. Students in the College of Veterinary Medicine with advisor approval may enroll for a total of six courses in the professional curriculum on a pass, fail basis, subject to the regulations listed above. University Honors College courses may be taken on a pass, fail basis only with the permission of the Honors College Dean.

Class 5 (except those working on second baccalaureate degree) and Class 6 (graduate) students are eligible to take courses on a pass, fail basis, but such work cannot be in the student's official degree program or used for removal of a specific undergraduate deficiency. Credit hours earned under pass, fail are counted toward assistantship minimum hour requirements. There is no limit on the number of hours a graduate student may take on a pass, fail basis.

Allowances for transfer students are as follows:
Transfer status upon entering WSU—Pass, fail Allotment
1-4 credits six courses
45-59 credits five courses
60-74 credits four courses
75-89 credits three courses
90 and above credits two courses

A student may change a pass, fail enrollment to a regular letter-graded enrollment, or vice versa, during the first three weeks of classes. After the third week and through the last day of instruction in a semester (end of fifteenth week), only a pass, fail enrollment can be changed to a letter-graded enrollment.

The P (pass) grades earned by pass, fail enrollees will not be included in computing the GPA; however, F grades earned by pass, fail enrollees will be included in GPA computations. Departments and programs may deny their majors permission to take, on a pass, fail basis, courses in their major field or courses needed to meet departmental requirements. Departments have the prerogative of requesting, from the Office of the Registrar, the letter grade for courses a prospective major has taken on a pass, fail basis. Departments and programs may refuse to accept courses needed to meet the above requirements if the courses were completed on a pass, fail basis before the student was accepted into the department or program.

52. PREREQUISITE COURSES. All prerequisites shall be satisfactorily completed before the student may register in a course. The instructor may waive the prerequisite in the case of a student who has demonstrated competence or who has had academic experience equivalent to that represented by the prerequisite.

53. CERTIFICATION OF A MAJOR. Upon completion of 24 semester hours, and meeting department, program, or school certification requirements, a student may certify in an academic major with the approval of the appropriate academic department, program, or school, and upon notification to the Student Advising and Learning Center. Departments, programs, or schools may require additional criteria beyond the minimum 24 hours for certification and a grade point average higher than the minimum of 2.00. Typically, students with 60 or more semester hours should be certified into a major. Consult the catalog for specific certification requirements.

54. MINOR OR SECOND MAJOR. A student who has completed 60 semester hours and is certified in a major may certify a minor or second major with the approval of the department offering the second major or minor. The student should consult with the department concerning hours and grade point requirements and an approved schedule of studies to meet such requirements.

A second major requires completion of departmental requirements for the major exclusive of General Education Requirements.

An undergraduate minor requires a minimum of 16 semester hours, 9 of which must be in upper-division work and taken in taken in residence at WSU or through WSU-approved education abroad or educational exchange courses. The Registrar's Office will be responsible for checking the minimum university requirements of the minor as defined above. Upon completion of the requirements, the department will notify the Registrar's Office, and the minor or second major will be posted on the student's permanent record (transcript).

55. CHANGE OF MAJOR. A student may change from one department to another only on approval of the chairpersons of the departments or deans concerned.

56. DECERTIFICATION AND RECERTIFICATION. A certified major who becomes academically deficient under Rules 38 or 39 and is decertified by the major department or program will be eligible to recertify, on a space-available basis, when the cumulative and major grade point averages are at or above the minimum level required for certification into the department.

A certified major who falls below the minimum departmental requirements (approved by Faculty Senate) may be decertified by the department after two semesters of falling below that minimum. The department must notify the student at the end of the first semester and establish conditions in writing that must be met the second semester. If conditions are not met at the end of the second semester, documentation must be provided to the Student Advising and Learning Center along with the request to decertify a student.

57. STUDENT PETITIONS FOR EXCEPTIONS TO ACADEMIC CALENDAR DEADLINES AND WITHDRAWAL LIMITS. Students may, with the payment of a service fee, petition for exceptions to the academic calendar deadlines (e.g., withdrawal after the deadline) or petition for withdrawal from an individual course after the student has used the maximum number allowed. Petitions are considered only in the case of extraordinary circumstances such as a medical emergency and require supporting documentation. Withdrawal also may be granted for a course if the withdrawal is recommended by the Director of Health and Wellness Services, the Director of Counseling Services, the academic dean of the unit in which the course is taught, or the academic Vice Chancellor or his or her designee because of illness or other documented extenuating circumstances.

Undergraduate and professional students may petition through the Registrar's Office or Office of Student Services. Graduate students may petition through the Graduate School. Requests for exceptions to the calendar deadlines must be made within two years of the date of enrollment in the course. Petitions for exception to the withdrawal limit must be filed by the end of the term in which the course was taken.

58. PERMISSION TO REGISTER LATE. A student may not register after the second week of any session, except with the permission of the Registrar.

61. LATE SERVICE FEE. A student who does not enroll before classes start or pay fees on or before the due date will be assessed a service charge. A charge of $100.00 will be assessed to late registrations that occur after the tenth day of classes. Late payment fees will be assessed those who pay tuition and fees after the due dates.
66. ADDING A COURSE. Students may add course enrollments through the 5th day of the semester. (NOTE: If the course is being added pass, fail the approval of the student’s faculty advisor is also required.) After the 5th day of the semester, students may add course enrollments only with the permission of the instructor.

67. DROPPING A COURSE. A student may drop a course without record up to the end of the 30th day of the semester in which the course is offered or according to a prorated schedule for shorter academic terms.

68. WITHDRAWAL FROM A COURSE BETWEEN THE 5TH WEEK AND THE END OF THE 9TH WEEK. A student may, with the payment of a service fee withdraw from a course between the 5th week and the end of the 9th week with a grade of W. For undergraduates who enter WSU in fall 1998 or later, the maximum number of WSU withdrawals is 6, not counting withdrawals that result from the cancellation of enrollment. For undergraduates who enter WSU in the fall 2004 or later, the maximum number of WSU withdrawals is 4, not counting withdrawals that result from the cancellation of enrollment. After the 4th or 6th withdrawal, a student may, in exceptional circumstances, submit a petition through the Registrar’s Office for an exception to the withdrawal limit. The petition must be filed by the end of the term in which the course was taken. If an undergraduate student uses a withdrawal during the semester and then must completely cancel enrollment for the semester, the previous withdrawal will not count toward the total of 4 or 6.

69. WITHDRAWAL FROM A COURSE AFTER THE 9TH WEEK OF A SEMESTER. Withdrawal from a course after the 9th week of a semester is available under the following conditions:
(a) From the end of the 9th week through the last day of instruction, undergraduate students are eligible to use up to two uncontested course withdrawals during their undergraduate careers, regardless of the number of undergraduate degrees earned.
(b) The grade shall be marked W, and the service fee shall be mandatory.
(c) For undergraduates who entered WSU in fall 2004 or later, the maximum number of WSU withdrawals (including the two uncontested withdrawals) is 4, not counting withdrawals that result from the cancellation of enrollment. For undergraduates who entered WSU in fall 1998 through summer 2004, the maximum number of WSU withdrawals (excluding the two uncontested withdrawals) is 6, not counting withdrawals that result from the cancellation of enrollment. Only two of these withdrawals can come after the 9th week of the semester.
(d) If an undergraduate student uses a withdrawal during the semester and then must completely cancel enrollment for the semester, the previous withdrawal will not count toward the total of 4 or 6.

A student may, in exceptional circumstances, submit a petition through the Registrar’s Office for an exception to the withdrawal limit. See rule 57.

70. Cancellation of Enrollment. Students who wish to withdraw from the institution and disenroll from all of their classes initiate the cancellation through the Office of the Registrar at WSU Pullman or the Student Services Office at WSU Spokane, WSU Tri-Cities or WSU Vancouver, or through the Distance Degree Programs Office. Students seeking to cancel their enrollment after completing one or more courses may petition for an exception to the academic calendar deadlines in the event of extraordinary circumstances (see Academic Regulation 57).
(a) Students canceling their enrollment during the first four weeks of the semester will have their permanent records marked “withdraw (date)” (individual course enrollments will not be recorded.)
(b) Students canceling their enrollment after the fourth week through the last day of instruction (end of the 15th week) will have their permanent records marked “withdraw (date),” and a grade of W will be recorded for each course enrollment.
(c) Students on academic probation during the semester of their cancellation must obtain permission of the Student Advising and Learning Center to re-enroll.

ATTENDANCE

71. ADMISSION TO CLASSES. Instructors shall not permit a student to be enrolled in a class or admit a student more than three times as a visitor without an official enrollment notice.

72. CLASS ATTENDANCE DURING THE FIRST WEEK TO ENSURE ENROLLMENT. Students who have not attended class and laboratory meetings during the first week of the semester will be dropped from the course by the department. Students should not assume that they have been dropped without verification from the department or Registrar’s Office. Students who believe that they have extenuating circumstances which prevent their attendance during the first week should notify the Office of Student Affairs or Student Services. That office will notify instructors of the absence and the reason for it. Instructors shall determine whether to accept the excuse, waive the absence, and permit make-up work.

73. ABSENCES. Absences impede a student’s academic progress and should be avoided.
(a) UNIVERSITY SPONSORED. Any student who is required to participate in off-campus, university-sponsored activities such as field trips, musical performances, judging teams, intercollegiate athletic events, etc., should obtain an official Class Absence Request form from the faculty or staff member supervising the off-campus activity. The form must contain specific information concerning the activity and date, be signed by the supervising faculty or staff member, and be submitted by the student at least one week in advance to the individual instructors of the student's classes. It is requested that a student not be penalized for absence from class provided a properly signed Class Absence Request form has been filed with the instructor prior to the absence. These university sponsored absences are subject to an instructor’s attendance policy and are not intended to imply additional acceptable absences. In all instances, it is the student's responsibility to make up all work missed. Problem cases should follow the Academic Complaint Procedures, Rule 104.
(b) MILITARY SERVICE MEMBERS. Students who are members of the National Guard or a reserve branch of a military service are occasionally required to miss class for weekend drills, active duty, and related responsibilities. In such a case, instructors should not penalize the student for the absences and should work with the student to make-up the missed assignment or examination. In each instance, it is the responsibility of the student to inform the instructor of the duty before the absence and complete the missed work as soon as reasonably possible.
(c) OTHER EXCUSED ABSENCES. Students must sometimes miss examinations or other academic obligations affecting their grades because of illness, personal crises, mandated court appearances, parental responsibilities, and the like. As long as such absences are not excessive, it is recommended that the instructor provide and document reasonable accommodation. The instructor may require the student to submit a written explanation of the absence, but written excuses from health care personnel should not be required since these requests frequently put the health care personnel in untenable positions. A student who is dissatisfied with the instructor’s accommodation may follow the Academic Complaint Procedure, Rule 104. It is recommended that the instructor explain the procedures for excused absences early in the semester, preferably in a written syllabus distributed to all students in each class. Once announced, these procedures should be scrupulously followed unless extraordinary circumstances require an exception.
Students who attempt to gain advantage through abuse of this policy (e.g., by providing an instructor with false information) may be referred to the Office of Student Affairs for disciplinary action.

EXAMINATIONS

74. FINAL EXAMINATIONS WEEK. The final examination week for each fall and spring semester will span five days, from the Monday through the Friday immediately following the fifteenth week of the semester. Special examinations will be scheduled for the Saturday following the Friday of final examination week. Summer Session final exams will be confined to the designated class meeting times scheduled for the course or lab.

75. FINAL EXAMINATION SCHEDULE. The final examination schedule will be determined before the start of each semester and published in the semester schedule of classes by the Registrar based on previous enrollment for that semester. After publication, the schedule cannot be altered except as provided.
76. SCHEDULING ALL COMMON MORNING/EVENING EXAMS. Undergraduate (100-400-level) courses having an enrollment of at least two percent of the total student body or courses with multiple lecture sections may schedule no more than three examinations each semester at the periods of 7:00 to 8:00 a.m., 8:00 to 9:30 a.m., 1:00 to 2:30 p.m., and 3:00 to 4:30 p.m. Monday through Friday, with the exception of Monday morning and Friday evening. The actual test-taking time may not exceed the regularly scheduled lecture time (50 or 75 minutes)—however, instructors may require that students arrive up to 15 minutes early to check in. If permission is to be granted for a large group exam, all sections of the course must give the exam on the same day and within the same time block unless given during the regular scheduled class time. One class lecture period shall be omitted to compensate for each hour of examination. A class lecture period lost to Labor Day, Veterans Day, Martin Luther King, Jr. Day, and/or Presidents Day holiday(s) may be counted toward this compensation for an evening exam. Proposed examination dates must be submitted to the Registrar’s Office no later than the first week of each semester. (NOTE: Officially approved and scheduled night examinations have priority over all other academic and non-academic evening activities.)

77. SPECIAL PERIODS FOR FINAL EXAMINATIONS. During examination week time will be allowed to large courses for special examinations of the entire group. The privilege of giving such special examinations is necessarily limited in terms of periods available for such tests. The courses having the greatest number of students will be given first opportunity to utilize the special examination periods available.

78. THREE OR MORE IN ONE DAY. During final examination week, if the scheduled arrangement results in students having three or more examinations scheduled for any one day, any one of their instructors is authorized to excuse the students from the regularly scheduled examination and give a final examination to the students during the special exams time blocks. In cases of difficulty in arriving at a solution, students shall refer the matter to the chairpersons of their departments or to their academic advisors.

79. CLOSED WEEK. No examinations or quizzes (other than laboratory examinations, make-up examinations and make-up quizzes) may be given during the last week of instruction.

80. NO EARLY EXAMINATIONS. A student will not be granted special examinations for the purpose of leaving the institution before the close of the semester.

81. LENGTH OF EXAMINATIONS. All regular examinations in undergraduate courses during the regular fifteen weeks of instruction, except for common morning/evening examinations and take-home examinations will be confined to the designated class meeting times scheduled for lecture, studio, laboratory, independent student or ensemble. Summer Session exams will be confined to the designated class meeting times scheduled for the courses or lab.

82. ACCOMMODATIONS OF RELIGIOUS OBSERVANCES IN THE ADMINISTRATION OF EXAMINATIONS. Washington State University is committed to providing people of diverse religious backgrounds access to education. In addition, law requires reasonable accommodation of religious beliefs and practices. Because religious observances do not always conform to state and university holidays, tests or examinations that fall on these religious observances require reasonable accommodation. The university will provide reasonable accommodation consistent with the fair, efficient and secure administration of its programs. When tests or examinations fall on one or two days objectionable to a student because of religious beliefs, the student shall provide the instructor written notice 14 calendar days prior to the holiday. The written notice shall specify the date(s) and the reasonable accommodation requested. If the request appears to be made in good conscience, the instructor shall make alternate arrangements for administration of the examination or test, considering the integrity of the testing process and fairness to all the students. The instructor shall inform the student of the decision in writing within 7 calendar days of the receipt of the request. Any student who believes that she or he has not been appropriately accommodated under this policy may seek review of the decision by sending a written request to the chairperson of the department offering the course, as soon as possible and no later than 7 days after learning of the instructor’s decision. After the chair’s decision, the student or the instructor may appeal to the dean’s office. Appeals to the dean’s office must be presented in writing within 7 calendar days of the chair’s decision. The decision of the dean or associate dean shall be made within 7 calendar days and is final. The University Ombudsman is available at any stage for advice or assistance in resolving requests for accommodation. Students should understand that fairness in the examination process is an important consideration in the educational process and that they do have a duty to cooperate in making alternate arrangements.

83. ACCOMMODATION OF DISABILITIES IN THE ADMINISTRATION OF EXAMINATIONS. Washington State University is committed to providing access to education for all of its students. In addition, federal law states that academic requirements must be modified on a case-by-case basis to afford qualified students with handicaps an equal educational opportunity. The nature of certain disabilities may necessitate accommodation of these disabilities in the administration of exams. It is the policy of the university to provide reasonable accommodation consistent with the fair and secure administration of its programs.

A student with a disability who may require special accommodation should contact the Student Disability Resource Center (DRC) when he or she arrives on the WSU Pullman campus. On the branch campuses a student should contact the Office of Student Services. A file documenting the disability will be established, and an accommodation form initiated. The instructor may ask for verification of a disability when a student requests an accommodation for an examination. The Office of Student Services or DRC provides the disabled student with a disability with an accommodation form verifying a disability and specifying the appropriate testing accommodation designed to fit the individual needs of that student. If the instructor disagrees with the arrangements as presented in the form, the instructor and/or student should seek the assistance of the DRC, department chair, cognizant dean or Vice Provost for Academic Affairs, in that order. The student and instructor may also contact the University Ombudsman or Center for Human Rights.

88. PENALTY FOR ACADEMIC DISHONESTY. Cases of academic dishonesty shall be processed in accordance with the Academic Integrity Policy, as printed in the Student Handbook and the Faculty Manual and as available from the Office of Student Affairs.

89. FINAL GRADE SUBMITTAL. Final grades will be submitted to the Registrar’s Office by 5:00 p.m. on the second working day after the close of finals week. (Final grades for Summer Session will be submitted to the Registrar’s Office by 5:00 p.m. on the second working day following the last day of Summer Session. Departments may be requested to submit final grades for summer courses earlier than the official submission deadline to facilitate grade reporting to students.)

GRADES AND GRADE POINTS

90. GRADES AND GRADE POINTS. Washington State University uses letter grades and the four (4) point maximum grading scale. The grade A is the highest possible grade, and grades below D are considered failing. Plus (+) or minus (-) symbols are used to indicate grades that fall above or below the letter grades, but grades of A+ and D- are not used. For purposes of calculating grade points and averages, the plus (+) is equal to .3 and minus (-) equals .7 (e.g., a grade B+ is equivalent to 3.3 and A- is 3.7). A student’s work is normally rated in accordance with the following definitions:

90a. A. Student work demonstrates consistently excellent scholastic performance; thorough comprehension; ability to correlate the material with other ideas, to communicate and to deal effectively with course concepts and new material; reliability in attendance and attention to assignments.

90b. B. Student work demonstrates superior scholastic performance overall, reliability in attendance, and attention to assignments; may demonstrate excellence but be less consistent than the work of an A student.

90c. C. Student work demonstrates satisfactory performance overall, as well as reliability in attendance, and attention to assignments.

90d. D. Student work demonstrates minimal, barely passing performance overall; limited knowledge of subject matter.
90e. F. Student work demonstrates unsatisfactory performance and comprehension or unfulfilled requirements. The grade is failing.

90f. S. (Satisfactory.) Grade given upon satisfactory completion of courses numbered 499, 600, 700, 702, 800, special examinations (Rule 13) and other courses duly authorized for S, F grading by the Faculty Senate. (Courses approved for S, F grading are footnoted in the Schedules of Classes.) A, S, or F grades only are used to report physical education activity grades. S, M (marginally satisfactory), F grades only are used to report grades for designated courses within the College of Veterinary Medicine. Courses approved for S, F grading may also be graded S at midterm indicating satisfactory progress.

90g. P. (Passing.) A satisfactory grade for a course taken under the pass, fail Grading Option. Instructors will turn in regular letter grades for all students enrolled in courses under the pass, fail option but grades will appear on the student's permanent record as P (Passing) or F (Failure).

90h. I. (Incomplete.) The term is used to indicate that a grade has been deferred. It is for students who for reasons beyond their control are unable to complete their work on time. All outstanding incomplete work (including grades of I, X, and blank/no grade) must be completed and posted to the official transcript prior to the conferral of the undergraduate or professional degree. It is strongly recommended that students who are granted an Incomplete limit their total number of credits to 18 credits (including credits for the Incomplete course and any new courses) during the semester when they are finishing an Incomplete. Undergraduate or graduate students who receive an I grade in an undergraduate course (100-499) have up to the end of the ensuing year to complete the course, unless a shorter interval is specified by the instructor. If the incomplete is not made up during the specified time or the student repeats the course, the I is changed to an F. (See Rule 34.) Faculty are required to submit an Incomplete Grade Report (IGR) to the departmental office with every I given. The IGR must specify conditions and requirements for completing the incomplete, as well as any time limitations less than one year.

90i. W. This is the term to be used if the student has filed, in the Registrar’s Office, official notice of a withdrawal from the course prior to the end of the 9th week, or withdrew in accordance with Rule 69, or withdrew from the university in accordance with Rule 70.

90j. X. Denotes continuing progress toward completion of special problems, research, thesis, doctoral dissertation (i.e., 499, 600, 700, 702, 800), or flexible enrollment courses; X grades are converted to S or to a letter grade upon satisfactory completion. All outstanding incomplete work (including grades of I, X, and blank/no grade) must be completed and posted to the official transcript prior to the conferral of the undergraduate or professional degree. An X grade may also be used when no final grade is reported due to instructor’s illness or absence.

92. GRADE RECORDS. Class grade records (the records from which final grades for a given class are determined) are university records which must be maintained for five years after the end of the term. Department chairs or directors are responsible for identifying appropriate storage location, which may include the instructor’s campus office. Both the chair or director or their designees and the instructor shall have ready access to these records.

93. RETENTION OF FINAL EXAMINATIONS, FINAL PROJECTS, AND FINAL PAPERS. Final examinations, final projects, and final papers are university records which must be maintained for one year after the end of the term, unless they are returned directly to the student. Department chairs or directors are responsible for identifying appropriate storage location, which may include the instructor’s campus office. Both the chair or the director or their designees and the instructor shall have ready access to these final examinations, final projects, and final papers.

98. CORRECTION OF GRADE ERRORS. An instructor may not change a grade after it has been filed with the Registrar, except in the case of clerical error, which the instructor may correct by so certifying to the Registrar. Such change must be approved (signature required) by the chairperson of the department in which the course was offered. Grade corrections must be processed within one year of the end of the term for which the original grade was given. In extenuating circumstances, exceptions to the one-year limit for correction of grade errors may be considered by petition to the Registrar’s Office.

99. GRADUATE STUDENT GRADES. On a program leading to an advanced degree, graduate students must attain a minimum grade point average of 3.00 on their graduate programs and a minimum grade point average of 3.00 in all 300-400-level and graduate courses. No grade below C is accepted in any course for graduate credit.

100. THE GRADE POINT SYSTEM

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(Credits attempted are calculated in GPA)

102. STUDENT’S SCHOLASTIC AVERAGE. A student’s scholastic average is determined by adding the grade points earned in all WSU course work and dividing by the total number of hours in which the student has been enrolled at WSU. I, W, S, P, and X grades are disregarded.

103. GROUP AVERAGES. Group averages, honor rolls, eligibility lists for honoraries, and similar lists are calculated on the basis of grades received in the Registrar’s Office by 5:00 p.m. two working days following the last day of final examinations.

104. ACADEMIC COMPLAINT PROCEDURES. Students having complaints about instruction or grading should refer them first to the instructor. If the complaint is not resolved, then the student may refer the complaint in writing to the chairperson of the department in which the course is offered by the end of the last day of the following semester (excluding summer term). The chair’s decision shall be rendered within 20 business days. After the chair’s decision, the student or the instructor may appeal to the Dean’s Office. Complaints must be presented in writing to the dean within 20 business days of the chair’s decision. The written statement should describe the complaint, indicate how it affects the individual or unit, and include the remedy sought from the dean. The decision of the dean is the final step and shall be made within 20 business days. The University Ombudsman is available at any stage for advice or assistance in resolving academic complaints. At the branch campuses, the procedure is identical except that the academic area coordinator shall substitute for the department chair and the campus dean shall substitute for the college dean.

105. ADMINISTRATIVE CHANGES TO FINAL GRADES

a.) University Academic Integrity Hearing Board. If an allegation of academic dishonesty is not resolved between the instructor and the student, then the case is referred to the University Academic Integrity Hearing Board. The case must be referred to the Board within one semester (excluding summer term). The University Academic Integrity Hearing Board shall have jurisdiction over decisions of any faculty member on matters of grading related to academic dishonesty cases. The decision of the board is final and not subject to further appeal.

b.) University Grade Appeals Board. If a chair, dean, Graduate School Dean, Academic Vice Chancellor or designee, or ombudsman finds that a change of a final grade is warranted for any reason other than academic dishonesty, they may refer the case to the University Grade Appeals Board for review within one semester of the posting of the grade (excluding summer term). Students may not take a grade appeal directly to the Board. In the case of graduate students, the Dean of the Graduate
Appendix—Academic Regulations

School may refer a case to the Board upon completion of the Graduate School appeal process, as published in the Graduate School Bulletin. The University Grade Appeals Board shall have jurisdiction over decisions of any faculty member and/or administrator on matters of University course grading appeals. The decision of the board is final and not subject to further appeal.

GRADUATION

106. APPLICATION FOR UNDERGRADUATE DEGREE (TO-DO LIST). Application for a bachelor's or DVM degree should be made at the Registrar's Office near the end of the junior year. The Registrar will furnish candidates with records of their grade points and the hours completed to date, and lists of major and General Education Requirements yet to be completed. The chairperson of the department is held responsible for checking all departmental requirements, including prerequisites for all courses and the courses required in other departments. A graduation fee must be paid at the time of application.

108. STUDENT RESPONSIBILITY FOR GRADUATION. Together with the advisor, the student plans the program of study each semester. However, the written curriculum requirements described in the bulletin and catalog supplements are binding, and no advisor may waive or alter them. The student has the ultimate responsibility for meeting university, college and departmental graduation requirements.

109. PETITIONS FOR UNDERGRADUATE GRADUATION REQUIREMENTS. Students may petition for a change in graduation requirements or by obtaining the signatures of their department chairperson or director and dean on the appropriate form available in the undergraduate degree office of the Registrar's Office.

114. REQUIREMENTS FOR UNDERGRADUATE DEGREES
(a) The four-year degree (BA, BS, B FA, B Lib A, B Mus):
   1. Meet the General Education Requirements for Graduation.
   2. Earn twice as many grade points as the number of hours enrolled in graded course work, in this or any institution for which a grade has been received.
   3. Earn twice as many grade points in the major subject as the number of hours enrolled graded course work in that major subject at Washington State University.
   4. Complete any of the four-year programs.
   5. Complete the senior year under the direction of the college in which the degree is to be granted. If any portion of the final year's work is to be completed at another institution, advance approval must be obtained, in writing, from both the department chairperson and the dean of the college.
   6. Earn a minimum of 120 semester hours of credit, no more than 8 of which may be PEACT (Physical Education Activity) courses. (At least 30 must be WSU hours; see Rule 6.)
   7. Earn a minimum of 40 semester hours of credit in 300-400-level courses; 500-level courses will count toward the 300-400-level requirement, but an undergraduate may not be required to enroll in or complete a 500-level course as a requirement for the baccalaureate degree.
   8. The award of a degree is conditioned upon the student's satisfaction of all University graduation requirements.
   9. The award of a degree is conditioned upon the student's good standing in the university and satisfaction of all University graduation requirements. "Good standing" means the student has resolved any unpaid fees or acts of academic or behavioral misconduct, and complied with all sanctions imposed as a result of the misconduct. The University shall deny the award of a degree if the student is dismissed from the University based on his or her misconduct. (See Rule 45 and the Standards of Conduct for Students.)
   10. All outstanding incomplete work (including grades of I, X, and no/blank grade) must be completed and posted to the official transcript prior to the conferral of the undergraduate or professional degree. Once an undergraduate or professional degree is conferred and posted to the official transcript, no changes will be allowed on the academic record that predates the undergraduate or professional degree.
   (b) The five-year degree (BLA):
      1. Meet requirements 1, 2, 3, 7, 8, 9 and 10 listed under (a) above.
      2. Complete any of the five-year programs.
      3. Complete the fifth year under the direction of the college in which the degree is to be granted. If any portion of the final year's work is to be completed at another institution, advance approval must be obtained in writing, from both the department chairperson and the dean of the college.
      4. Earn a minimum of 150 semester hours of credit, no more than 10 of which may be from PEACT (Physical Education Activity) courses. (See Rule 6.)

115. REQUIREMENTS FOR THE DOCTOR OF VETERINARY MEDICINE DEGREE (DVM)
(a) Complete the four-year professional program.
(b) Meet requirements 9 and 10 listed under rule 114 (a) above.

116. REQUIREMENTS FOR MASTER'S DEGREES
(a) Spend not less than the equivalent of two semesters in residence (except for external programs approved by the Graduate Studies Committee).
(b) Earn not less than 30 semester hours of credit with a minimum of 21 semester hours of course work for a thesis degree program or 26 semester hours of course work for a nonthesis degree program.
(c) Earn a minimum grade point average of 3.00 on a graduate program in all upper-division and graduate course work completed for the master's degree.
(d) Earn a minimum grade point average of 3.00 for all course work taken as a graduate student.
(e) Successfully complete graduate examinations.

117. REQUIREMENTS FOR DOCTOR'S DEGREES
(a) Spend not less than six semesters beyond the baccalaureate degree at least four of which must be at Washington State University.
(b) Spend not less than a minimum of two consecutive semesters in residence at Washington State University.
(c) Earn not less than 72 semester credit hours beyond the baccalaureate degree to include a minimum of 34 semester hours (45 semester hours for the Doctor of Arts degree and 42 semester hours for the Doctor of Education degree) of 400- and 500-level course work listed in the Graduate Study Bulletin.
(d) Earn a minimum grade point average of 3.00 on a graduate program and in all 300-400-level and graduate course work completed for the doctor's degree.
(e) Earn a minimum grade point average of 3.00 for all course work taken as a graduate student.
(f) Successfully complete graduate examinations.

118. TWO OR MORE BACHELOR'S DEGREES FROM WSU. One four-year undergraduate degree requires a minimum of 120 semester hours. For each additional bachelor's degree, the student must complete an additional 30 semester hours and satisfy all requirements of the second degree program.

121. SUMMER SESSION CREDITS. Credit earned during summer sessions may be applied toward the fulfillment of requirements for baccalaureate and advanced degrees in the same manner and subject to the same rules as credit earned during semesters of regular academic years.

125. DATE OF GRADUATION. Students will be recommended for their degrees at the end of the semester or term in which they complete their requirements. Diplomas will be dated the Saturday following the last day of final examination week for the fall semester, the day of commencement for the spring semester, and the Saturday following the last day of instruction for summer session.

HONORS

Honor rolls and lists are calculated on the basis of grades received by 5:00 p.m. two working days following the last day of final examinations. (See Rule 103.)
133.  PRESIDENT’S HONOR ROLL.  An undergraduate will be named to the President’s Honor Roll under either of the following conditions:
(a)  By achieving a grade point of 3.75 while enrolled in at least 9 graded hours in a single semester at Washington State University.
(b)  By achieving a cumulative grade point average of 3.50 based on at least 15 cumulative hours of graded work at Washington State University, provided that the semester gpa is a 3.0 or better.

137.  RECOGNITION FOR SELECTED BACCALAUREATE DEGREE CANDIDATES.  Candidates for baccalaureate degrees who have completed at least 30 hours of graded work (grades in which grade points are awarded) at Washington State University will graduate summa cum laude if the cumulative grade point average for work completed at Washington State University is 3.90 or better, will graduate magna cum laude if the minimum cumulative grade point average is 3.70 but less than 3.90, and will graduate cum laude if the minimum cumulative grade point average is 3.50 but less than 3.70.

The appropriate Latin phrase will be printed on the diploma and on the final transcript. Qualified students electing to participate in the Honors College who complete its requirements satisfactorily, regardless of whether they qualify to graduate summa cum laude, magna cum laude, or cum laude, will receive a certificate of completion and a printed notation on the final transcript.

Computation of graduation honors will be done prior to the end of the final semester to allow for publication of the appropriate honors in advance of graduation. However, following the student’s final semester, the Registrar will recompute the student’s GPA including the last semester’s work, and only this computation will determine official graduation honors.

Washington State University and its various colleges reserve the right to change the rules regulating admission to, instruction in, and graduation from Washington State University and any other regulations affecting the student body. Such regulations shall go into effect whenever the proper authorities may determine and shall apply to prospective students and to those who may at that time be enrolled.

SOLICITING

150.  No agent, solicitor, or university individual or group shall be permitted to canvass or solicit faculty members during office hours in the interests of business, charity, or any other purpose not directly connected with university interest or official duties.

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Rules are indexed by subject. Allowances have been made in number sequence for additional rules.

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