Humanities Division
wou.edu/ias/humanities
Division Chair Curt Yehnert
yehnert@wou.edu

The Humanities Division is responsible for majors and minors in English, French, German, humanities, linguistics, philosophy, Spanish, communication studies and writing.

Mission
Humanities majors and minors explore that unique human creation, language—not only for communication but also in culture, literary art, and philosophical and religious thought.

Program objectives
1. Provide students focused opportunities to investigate how culture is constructed and manifested in language.
2. Help students develop the creativity, critical thinking, written, and oral skills necessary to maximize their individual and professional development.
3. Encourage students to make connections across disciplines and cultures.

More detailed program information, including program admission requirements, can be obtained by contacting the division at 503-838-8408, or at wou.edu/ias/humanities.

Natural Sciences and Mathematics Division
wou.edu/ias/natsci_math/nsmdiv.html
Division Chair Steve Taylor
taylors@wou.edu

The Natural Sciences and Mathematics Division is responsible for majors and minors in biology, chemistry, Earth science, integrated science, mathematics and natural science.

Mission
To offer quality liberal arts education in biology, chemistry, Earth science, mathematics, physics and pre-professional studies. Our students have the opportunity to acquire and assimilate mathematical and scientific knowledge, that they may broaden and refine their understanding of the ever-changing world around them, both while at Western Oregon University and throughout their lives.

Program objectives
1. To help students internalize and apply both the scientific method and major scientific and mathematical concepts and principles.
2. To enhance students’ reasoning and problem-solving skills.
3. To improve students’ individual and collaborative skills in preparation for the global scientific and mathematical challenges of the 21st century.

More detailed program information, including program admission requirements can be obtained by contacting the division at 503-838-8206, or at wou.edu/ias/natsci_math/

Behavioral Sciences Division
wou.edu/ias/psychology
Division Chair Rob Winningham
kunzel@wou.edu

The Behavioral Sciences Division is responsible for majors and minors in gerontology and psychology.

Mission
To create lifelong learners utilizing the scientist-practitioner model. Students gain competence in accessing, evaluating, and integrating sources of knowledge within their field. Graduates of our program will understand the scientific foundations of their discipline and the core knowledge/concepts in the field. Programs in the division provide opportunities for professional development, service to the community, and practicum experiences in preparation for graduate study and/or work in a variety of fields. Graduates will be able to apply such knowledge and skills in a manner consistent with an understanding of professional standards of ethical behavior. They will be prepared to interact effectively with others, and resolve issues that face us as a society, a nation and a world.

Program outcomes
1. Demonstrate an understanding and ability to integrate knowledge of their field and develop critical thinking/scientific method research skills.
2. Demonstrate an ability to apply knowledge, skills and values to meet the needs of others and self in personal and career development.
3. Demonstrate respect and sensitivity to physiological, psychological, and social aspects of individuals within changing political, cultural, economic, and sociohistorical contexts.

More detailed program information, including program admission requirements can be obtained by contacting the division office at 503-838-8344, or at wou.edu/ias/psychology.

Social Science Division
wou.edu/ias/socsci
Division Chair Mark Henkels
henkels@wou.edu

The Social Science Division is responsible for majors and minors in anthropology, criminal justice, geography, history, political science, public policy and administration, social science, social science teacher education, and sociology.

The following minors are taught either wholly, or partially, by this division: community services, homeland security and community preparedness, legal studies, Chicano/a studies, environmental studies, film studies, gender studies, international studies, Latin American studies, and military science.

Mission
This community of scholars explores the society’s many dimensions by using methods developed by their discipline to understand both the past and the present. Division graduates apply these methods to resolving local, national, and international issues.

Program objectives
1. Develop critical thinking, writing, and speaking skills which analyze and communicate social issues.
2. Engage in research, internships, and practicums for service agencies and schools.
3. Encourage leadership in addressing institutional, community, and national issues.

For more detailed program information about coursework, faculty, and admission requirements, go to wou.edu/ias/socsci or call 503-838-8288.

Fire Services Administration Program
wou.edu/ias/socsci/fsa
Program Director LaRon Tolley
fsa@wou.edu

The Fire Services Administration Program consists of junior and senior level classes built upon the associate degree in fire science or fire protection. Acceptance into the program is limited to persons who are Oregon Fire Fighter II or equivalent, and who have completed the required 24 hours of lower-division fire science coursework prior to transferring into the program.

Students are not eligible for the WUE scholars program until official admittance into the Fire Services Administration Program is confirmed. For more information, contact the director at 503-838-8697.

WOU is authorized by the Washington Higher Education Coordinating Board (HECB) and meets the requirements and minimum educational standards established for degree-granting institutions under the Degree-Granting Institutions Act to offer credit-bearing courses toward a B.A./B.S. in Fire Services Administration. This authorization is subject to periodic review and does not carry with it an endorsement by the board of the institution or its programs.

For information about requirements of the act or how it applies to WOU, contact:

HECB
P.O. Box 43430
Olympia, WA 98504-3430
# Undergraduate majors, minors and specialty

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*Other* indicates specialty areas and programs

*A minor is not required for these majors
### Liberal Arts Core Curriculum

WOU’s general education curriculum is designed to introduce students to the content and methodology of the principal areas of knowledge—the humanities and creative arts, the natural sciences, mathematics and the social sciences. The Liberal Arts Core Curriculum (LACC) is the central aspect of WOU’s general education program. Math, computer science, cultural diversity, quantitative literacy and writing intensive course requirements, where applicable, are tailored to the various bachelor’s degrees offered at WOU (see p. 40).

The learning outcomes for WOU’s general education can be found in the Institutional Aspirations for Learning listed on p. 5. WOU is a participant in the Association of American Colleges and Universities’ Liberal Education & America’s Promise (LEAP) initiative on general education for students.

### Mission statement

The LACC provides all matriculated students with a general education core experience. The LACC prepares students for advanced study in their academic majors and helps students develop a foundation of basic knowledge necessary for a more healthy and successful personal and professional life.

### Goals

1. Develop an appreciation of the liberal arts and their role in a diverse society.
2. Use oral, written and computational languages effectively.
3. Work effectively with others.

The LACC is a required part of all B.A., B.S. and B.F.A. programs and comprises 55 of the 180 credit hours necessary for graduation. The LACC is designed to help students: learn independently; make mature judgments; solve problems in a systematic and logical manner; use language effectively; understand global problems and issues; appreciate past and present contributions to thought and culture; work effectively with others; cope with political, social, economic, technological and environmental changes and problems; sustain an active, balanced life through the development of a sound mind and body; be creatively expressive and aesthetically sensitive; as well as achieve institutional aspirations for learning (see p. 5).

It is critical that students consult with the Academic Advising and Learning Center or their academic advisor as they select LACC courses to avoid mistakes that may prolong their time in college. Many majors and minors have prerequisites or suggestions for course work within the LACC.

Courses completed as part of the Liberal Arts Core Curriculum and/or B.A./B.S./B.F.A. graduation requirements may also be used to fulfill requirements within a student’s major or minor program (i.e. be double counted).

### Standard LACC components

**Communication studies**
- 2.0 credits

**Creative arts**
- 2.0 credits

**Health and physical education**
- 1.5 credits

**Laboratory science**
- 3.0 credits

**Literature**
- 2.0 credits

**Philosophy or religion**
- 1.0 credit

**Social science**
- 3.0 credits

**Writing**
- 1.0 credit

**Total**
- 10.5 credits

### Standard LACC course selections

#### Communication studies
- COM 111 Principles of Public Speaking (3)

#### Creative arts
- Take at least 1 credit from three of the following four program areas for a total of 9 credits.

#### Theatre
- TA 110 Introduction to Theatre (3)
- TA 112 Introduction to Film (3)
- TA 210 Oral Expression Through Theatre (3)
- TA 244 Technical Theatre: Scenecraft (3)
- TA 245 Technical Theatre: Lighting (3)
- TA 246 Technical Theatre: Costuming (3)
- TA 247 Technical Theatre: Sound (3)
- TA 250 Basic Movement and Vocal Development (3)
- TA 251 Elements of Acting (3)
- TA 252 Technical Theatre: Makeup (3)
- TA 253 Production Workshop (1-3)

#### Music
- MUEN 163 Orquestra Brasil (1)
- MUEN 170 Combo (1)
- MUEN 171 Jazz Repertoire Combo (1)
- MUEN 172 Hemisphere Combo (1)
- MUEN 173 Singer/Songwriter Combo (1)
- MUEN 190 Ensemble (1)
- MUS 105 The Magic of Mozart (3)
- MUS 111 Beginning Musicanship (3)
- MUS 181 Voice Class (2)
- MUS 182 Voice Class (2)
- MUS 201 Introduction to Music and Its Literature (3)
- MUS 202 The Music of Broadway (3)
- MUS 203 Jazz History (3)
- MUS 204 Music of the World (3)
- MUS 205 Music of Black Heritage (3)
- MUS 206 Introduction to Music and MIDI (3)
- MUS 207 Song Writing (3)
- MUS 208 Popular Music in America (3)
- MUS 209 Rock Music: A Social History (3)
- MUS 210 Music Today (3)

#### Dance
- D 251 Introduction to Dance (3)

The following are dance studio courses to be taken in sequence:
- D 170, 171, 172 World Dance 1, 2, 3 (1 each)
- D 177, 178, 179 Hip Hop 1, 2, 3 (1 each)
- D 180, 181, 182 Modern Dance 1, 2, 3 (1 each)
- D 185, 186, 187 Ballet 1, 2, 3 (1 each)
- D 188, 189, 190 Jazz Dance 1, 2, 3 (1 each)
- D 196, 197, 198 Tap Dance 1, 2, 3 (1 each)
- D 210, 211, 212 Modern Dance 4, 5, 6 (2 each)
- D 220, 221, 222 Ballet 4, 5, 6 (2 each)
- D 277, 278, 279 Hip Hop 4, 5, 6 (2 each)
- D 280, 281, 282 Modern Dance 7, 8, 9 (2 each)
- D 285, 286, 287 Ballet 7, 8, 9 (2 each)
- D 288, 289, 290 Jazz Dance 4, 5, 6 (2 each)
- D 296, 297, 298 Tap Dance 4, 5, 6 (2 each)

#### Health and physical education
- PE 131 Individual Health and Fitness (2)

#### Laboratory science
- BI 101 General Biology (5)
- BI 103 General Biology (5)
- BI 105 General Biology (5)
- BI 107 General Biology (5)
- ES 101 Earth System Science I (5)
- ES 102 Earth System Science II (5)
- ES 104 Earth System Science I (5)
- ES 105 Earth System Science II (5)
- ES 106 Earth System Science III (5)
### Chemistry
- CH 104 Introduction to Chemistry (4)
- CH 105 Introduction to Chemistry (4)
- CH 106 Introduction to Chemistry (4)

### Physics
- PH 201 General Physics (4)
- PH 202 General Physics (4)
- PH 203 General Physics (4)

### Intermediate biology
- BI 211 Principles of Biology (5)
- BI 212 Principles of Biology (5)
- BI 213 Principles of Biology (5)

### Intermediate chemistry
- CH 221 General Chemistry (5)
- CH 222 General Chemistry (5)
- CH 223 General Chemistry (5)

### Physics with calculus
- PH 211 General Physics With Calculus (4)
- PH 212 General Physics With Calculus (4)
- PH 213 General Physics With Calculus (4)

### Literature (8)
Choose one course from ENG 104-109, FR 110 or GL 110. Choose another course from ENG 104-109, FR 110 or GL 110, or LING 210. English majors and language arts secondary teaching majors should take ENG 107 and ENG 108; ENG 109 is also recommended.

#### Introduction to literature
- ENG 104 Introduction to Literature: Fiction (4)
- ENG 105 Introduction to Literature: Drama (4)
- ENG 106 Introduction to Literature: Poetry (4)

#### Literature of the Western world
- ENG 107 Literature of the Western World (4)
- ENG 108 Literature of the Western World (4)
- ENG 109 Literature of the Western World (4)

### Linguistics
- LING 210 Introduction to Linguistics (4)

### Literature in translation
- FR 110 Introduction to French Literature in Translation (4)
- GL 110 Introduction to German Literature in Translation (4)

### Philosophy or religion (3)
Select one course from either area listed below:

#### Philosophy
- PHL 101 Introduction to Philosophy: Knowledge and Reality (3)
- PHL 102 Introduction to Philosophy: Personal Morality and Social Justice (3)
- PHL 103 Introduction to Logic (3)
- PHL 251 Ethics (3)
- PHL 252 Medical Ethics (3)
- PHL 255 Environmental Ethics (3)
- PHL 261 Metaphysics: Theory of Being (3)
- PHL 262 Epistemology: Theory of Knowledge (3)
- PHL 263 Philosophy of Mind (3)

#### Religion
- R 201 Introduction to the World’s Religions: Eastern (3)
- R 204 Introduction to the World’s Religions: Western (3)

#### Social science (11-12)
Choose one 8 or 9 hour sequence from the following list and any additional 3 or 4 credit hour social science course for a total of 11-12. The additional 3 or 4 credits may be any 100- or 200-level social science course, including psychology and criminal justice.

#### Anthropology
Choose two of the following as a sequence or three for 12 hour total requirement:
- ANTH 213 Language and Culture (4)
- ANTH 214 Physical Anthropology (4)
- ANTH 215 Archaeology (4)
- ANTH 216 Cultural Anthropology (4)

### Economics
- EC 201 Introduction to Microeconomics (4)
- EC 202 Introduction to Macroeconomics (4)

### Geography
Choose two of the following as a sequence or all three for 12 hour total requirement:
- GEOG 105 Introductory Physical Geography (4)
- GEOG 106 Introductory Economic Geography (4)
- GEOG 107 Introductory Cultural Geography (4)

### World history
Choose two of the following as a sequence or all three for 12 hour total requirement:
- HST 104 World History (4)
- HST 105 World History (4)
- HST 106 World History (4)

### U.S. history
Choose two of the following as a sequence or all three for 12 hour total requirement:
- HST 201 History of the United States (4)
- HST 202 History of the United States (4)
- HST 203 History of the United States (4)

### Political science
- PS 201 American National Government (3)
- PS 202 State and Local Government (3)
- PS 203 International Relations (3)
- PS 204 Intro to Comparative Politics (3)

### Sociology
- SOC 223 Introduction to Sociology: Theory (3)
- SOC 224 Introduction to Sociology: Research (3)
- SOC 225 Social Problems (3)

**For transfer students only:** the social science component of the LACC may be met by having 12 credits in at least two of the following disciplines: anthropology, criminal justice, economics, geography, history, political science, or sociology. Students are encouraged, but not required, to have two courses in one introductory sequence.

### Writing (4)
- WR 135 College Writing II (4)

This course, or its transfer equivalent, must be passed with a grade of C- or better to meet the LACC requirement. 3 or 4 credit WR 122 from a community college meets this requirement.
Honors Program
An alternative LACC is offered by WOU's Honors Program to students who have demonstrated outstanding ability, motivation, and academic achievement. Through the sustained contact the curriculum provides between students and teachers, the Honors Program forges a learning community committed to scholarly inquiry and the life of the mind. Upon completion of the Honors Program curriculum, honors students are ideally prepared to excel in their academic major and minor courses. Each honors student integrates his or her learning into an honors thesis that is publicly presented in the spring term of senior year.

Honors Program courses are open only to Honors Program students. Students interested in exploring the challenge of the Honors Program should contact the director as soon as they begin to consider this opportunity. Though acceptance usually occurs before the student starts attending WOU, a limited number of students can be accepted before the start of their second quarter. A reduced credit program exists for students who have completed their LACC courses at either WOU or another institution.

When appropriate and approved by the Honors director, AP, IB, and transfer credits can count towards completion of the Honors curriculum.

Honors LACC courses
First- and second-year
CA 101H, 102H, 103H Correlated Study of the Arts (9)
ENG 107H, 108H Survey of Western Literature (8)
PHL 207H, 208H Philosophy in the Western World (6)
GS 201H, 202H, 203H Natural Science: The Search for Order (12)
Social science sequence (approved by Honors director) (8-9)
Social science elective (approved by Honors director) (3-4)
Honors electives (approved by Honors director) (6)

Graduation in the Honors Program requires the following third and fourth year courses:

Third-year courses
407H Honors Seminar
Rotating topic by invited scholar (3)
H 303 Thesis Orientation (1-2)
H 353 Thesis Development (1-2)

Fourth-year courses
H 403 Honors Senior Project/Thesis (3-6)

Completion of the Honors curriculum satisfies WOU's writing intensive and diversity requirements.

Mathematics and computer science requirements
High school mathematics skills deteriorate quickly. Students should take their mathematics requirements in their first or second year on campus.

Students seeking a Bachelor of Arts degree will complete:
Mathematics (MTH 105 or above*) (4)
Computer science (CS 101 or above*) (2)

Students seeking a Bachelor of Science degree will complete: a combined total of 12 credit hours in mathematics, computer science, and/or designated quantitative literacy courses. A minimum of one course in mathematics at the level of MTH 111 or above** and one course in computer science is required. The remaining required credit hours may be from either discipline or designated quantitative literacy courses.

CS 101 may not be used to meet any portion of this 12 credit requirement. Quantitative literacy courses used to complete this requirement carry a special “Q” designation in the online schedule of classes and on the transcript.

The mathematics requirement for education majors with early childhood, early childhood/elementary or elementary/middle level authorizations is: MTH 211, 212, 213 (12).

Partial completion of the MTH 211, 212, 213 sequence will not meet any mathematics, computer science, or quantitative literacy courses graduation requirements. Regardless of the academic program being pursued, if any of MTH 211, 212, 213 are to be applied toward graduation requirements, the entire sequence must be completed.

* The course content must be equivalent to or greater than the content of MTH 105 and CS 101 offered at WOU.

** The prerequisite for MTH 111 is MTH 95 with a grade of C- or better, satisfactory score on WOU’s math placement test, or adequate SAT or ACT score.

Students seeking the Bachelor of Fine Arts in Art degree must complete either the additional graduation requirements for the B.S. degree or the B.A. degree listed above.

Students seeking the Bachelor of Fine Arts in Theatre degree must complete the additional graduation requirements for the B.S. degree listed above.

Approved quantitative literacy courses
See online Schedule of Classes for specific courses offered as ‘Q’
BA 240Q EC 315Q SOC 328Q
BA 340Q ES 302Q
BA 367Q PSY 467Q
CI 427Q PSY 468Q

Second language requirement
Students seeking a Bachelor of Arts degree will meet this requirement through:
• Proficiency through the third term (second semester) of the second year (usually 24 credit hours) of college work, or the equivalent, in a second language. Two years of a second language at any United States accredited institution will satisfy this requirement for transfer students. Transfer students from unaccredited institutions must pass a proficiency examination administered by the WOU modern language department. Native speakers who have attended high school in their own language may not use that language to fulfill this requirement.
• International students whose first language is not English must provide high school or college transcripts as evidence of formal training in the native language and a Test of English as a Foreign Language (TOEFL) score of at least 500 (paper based) or a score of at least 61 (internet-based) or a IELTS score of at least 5.0 to the International Students and Scholars Affairs office. International students must also meet all special graduation requirements related to writing intensive course work.

Cultural diversity requirement
Students seeking a Bachelor of Arts degree will meet this requirement by successfully completing 6 hours of course work which emphasizes a topic or subject dealing with cultural diversity from within any portion of the student’s degree plan. Cultural diversity courses used to complete this requirement carry a special ‘D’ designation.

If the course also meets the writing intensive requirements it will carry a special ‘C’ designation.

Students meeting the second language requirement for a B.A. degree will have satisfied this requirement.

Students earning at least six credits through a WOU study abroad program or international internship will have met the WOU cultural diversity requirement.

International students seeking a degree at WOU will have met the cultural diversity requirement.

Honors Program participants should consult the Honors Program description and the director of the Honors Program regarding course work to meet this requirement.

Approved diversity courses
See online Schedule of Classes for specific courses offered as ‘D’
A 100D Art Topics: various
A 404D Art History: Non-Western Art
A 405D Art History: Gender in Art
### GENERAL EDUCATION AT WOU

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Writing intensive requirement

Students will satisfy this requirement by completing six hours of “writing intensive” course work taken from within any portion of the student’s degree program. Writing intensive courses carry a ‘W’ designation. If the course also meets the cultural diversity requirements it will carry a ‘D’ designation.

Three hours of this requirement may be met by any upper-division non-creative writing course (WR prefix) even if the class does not carry the “W” designation.

Students must complete WR 135 (or its transfer equivalent) before enrolling in upper-division writing-intensive courses. Honors Program participants should consult the Honors Program description and the director of the Honors Program regarding course work to meet the writing requirements.

Approved writing intensive courses

See online schedule of classes for specific courses offered as ‘W’.

ASL 420W Sociolinguistics of Deaf Communities
A 315W Intermediate Design: 2-Dimensional Perspective
A 316W Intermediate Design: 3-Dimensional
A 404W Art History: Special Topics

ANTH 325W Ethnographic Methods
ANTH 326W Ethnographic Writing
ANTH 369W Visual Anthropology
ANTH 370W Women in Cross-Cultural Perspective

ANTH 380W Africa
ANTH 384W Modernization
ANTH 386W Anthropology of Islam
ANTH 388W Transnational Migration
ANTH 410W Research Design
ANTH 412W Senior Project

ANTH 452W U.S.-Mexico Border Field School
ANTH 476W Religion and Ritual

BA 345W Internet and Electronic Commerce
BA 411W Marketing Strategy
BA 451W Auditing
BA 455W Advertising Writing
BA 477W Topics in Marketing

BI 331W General Microbiology
BI 357W General Ecology
BI 454W Plant Ecology

CA 496W Creativity

CH 313W Instrumental Analysis
CH 350W Chemical Literature
CH 407W Seminar
CH 461W Experimental Chemistry
CH 462W Experimental Chemistry

COM 312W Public Relations Communication
COM 331W Nonverbal Communication
COM 426W Language of the Mass Media
COM 439W Contemporary U.S. Public Address

CI 310W Professional Writing in Criminal Justice
CI 327W Research Methods in Criminal Justice
CI 407W Seminar: Criminal Justice
CI 423W Management of Law Enforcement Organizations
CI 435W Gender, Crime and Justice
CI 440W Community Crime Prevention Studies

D 453W Ballet History
D 454W Evolution of Modern Dance
D 494W Dance Pedagogy
D 496W Creativity

EC 200W Introduction to Economic Perspectives
EC 315W Econometric Analysis and Report Writing
EC 444W Labor Economics

ED 333W Applied Adolescent Learning and Development
ED 342W Applied Children's Learning and Development
ED 418W Assessment Planning and Instruction

ENG 218W Introduction to Literary Study
ENG 341W Period Studies in Continental European Literature after 1700
ENG 380W Bible as Literature

ENT 460W Entrepreneurship in Action

ES 201W Principles of Geology
ES 202W Principles of Geology

GEOG 207W Geography and Film
GEOG 321W Field Geography
GEOG 411W Cultural Geography
GEOG 425W Urban Planning and Policy
GEOG 433W Political Geography
GEOG 495W History and Philosophy of Geography

GS 313W Earth Science for Elementary Schools

H 303W Thesis Orientation

HE 362W Contemporary Health Issues
HE 434W Infectious and Chronic Diseases
HE 471W Program Planning
HE 485W Bioethics in Public Health
HST 401W History and the Internet
HST 404W Gender Issues in History Part I
HST 405W Gender Issues in History Part II
HST 420W Philosophies of History
HST 499W Senior Seminar

HUM 325W Studies in German Culture and Literature to 1900

INT 360W Current Issues for Interpreters

LING 450W Linguistic Analysis of Style & Genre
### Transfer Policies Regarding the LACC

1. **WOU will accept, as satisfying any one of its LACC requirements, course work satisfactorily completed at any accredited institution if such course(s) bears the same prefix and number as the required course(s) in WOU’s LACC statement.**

2. **WOU will accept, as satisfying any of its sequence requirements, sequenced course work which is satisfactorily completed at an accredited institution if it is commonly associated with the nature of the WOU sequence.** As an example, a 12-hour transfer sequence in astronomy (with lab) will meet the LACC laboratory science sequence requirement, even though WOU does not offer a sequence in this subject.

3. **Only courses with a letter prefix and are 100-level or above may be used to meet LACC, graduation requirements, major or minor requirements. Grading must be on an A-F basis as opposed to a pass/no credit or satisfactory/no credit basis (with the exception of PE activity courses).**

4. **Students who have earned an Associate of Arts or an Associate of Science in Business Oregon Transfer degree from an Oregon community college will be considered to have met WOU’s LACC requirements.** The basic graduation, cultural diversity and writing intensive requirements are separate. The requirements of the Oregon Transfer degrees are spelled out in the May 10, 1988 and April 18, 2003 transfer agreements. All students satisfying these requirements will have “Oregon Transfer” marked on their transcript by the community college awarding the degree.

5. **Students who have earned the California Interssegmental General Education Transfer Curriculum, California State University Transfer Degree, Hawaii Articulated Associates of Arts Degree, or Washington Direct Transfer Degree will be considered to have met WOU’s LACC requirements.**

6. **The lower-division general education requirements included within the Associate of Arts Oregon Transfer degree are 55-63 quarter credit hours. The lower-division general education requirements included within the Associate of Science in Business Oregon Transfer degree are 62-65 quarter credit hours. These credit hours will be directly applied toward satisfying the LACC requirements. The remaining credit hours included within the degrees will be applied toward the satisfaction of basic graduation requirements, lower-division major, minor, or elective requirements as noted within this catalog, or in consultation with the appropriate division chair.**

7. **Advanced Placement (AP), College Level Examination Program (CLEP), and International Baccalaureate (IB) exams with sufficiently high scores may satisfy specific LACC course requirements. Contact the Registrar’s Office for more information.**

8. **These policies do not preclude case-by-case negotiation with appropriate division chairs. For example, a journalism course at a particular institution might not match the prefix of a required writing course at WOU, but the humanities division might grant a substitution on grounds of sufficient overlap in course content and resultant skill level.**

9. **Students who have completed a baccalaureate degree and are pursuing a second baccalaureate degree from WOU will be considered to have met WOU’s LACC requirements.**

### Education Transfer Students

Prior to the first term at WOU, education majors transferring from other institutions should declare their levels of authorization and intended specialty/major areas through the Academic Advising and Learning Center as well as each academic department involved. Appropriate advisors will be assigned.

### Religious Studies Transfer Courses

For a transfer course in religious studies to count as broad enough to fulfill the LACC requirement for philosophy and religious studies, that course must be a comparative course, covering multiple religious traditions, comparable to WOU’s R 201 or R 204. A course which covered a single religious tradition can count as an elective in religious studies, but will not fulfill the LACC philosophy and religious studies requirement.
Endorsement in bilingual/ESOL
or ESOL
(21 credits)
ED 482 Foundations of ESOL/Bilingual
Education (3)
ED 483 Cultural, Community and the ESOL/
Bilingual Classroom (3)
Successful completion of ED 482 and ED 483
strongly recommended for all other courses.
ED 484 First and Second Language Acquisition
and Educational Linguistics (3)
ED 491 Curriculum Models, Instructional
Approaches and Assessment Strategies for
English Language Learners (3)
ED 492 Teaching Reading and Writing to ESOL
and Bilingual Students (3)
Technology Elective (3) Approved by advisor
ED 409 Practicum (3)
ED 491 and ED 492 are not open to Pre-Ed
majors.
Prerequisites for ED 409 are:
1. Obtain a passing score on the required
ESOL test, and
2. Complete at least 15 credits of coursework
toward the ESOL endorsement. Students
must apply to the director of field services
one term preceding the practicum.
For ESOL endorsement, no second language
is required. For Bilingual/ESOL endorsement,
verification of language proficiency is required.

Biology
Professors: Sarah Boomer, Bryan Dutton,
Michael LeMaster, Stephen Scheck
Associate professors: Erin Baumgartner, Karen
Haberman, Kristin Latham
Assistant professors: Michael Baltzley, Ava
Howard
Mission
The Biology Department prepares students for
careers in biology and science education, and
admission to graduate and professional schools
in the life and health sciences. We also promote
the understanding of biology as an essential
part of a liberal arts education and of global
citizenship.
Learning outcomes
1. Understand key concepts from the many
disciplines within the biological sciences.
2. Engage in laboratory experimentation, data
analysis and interpretation, and critical
thinking at all course levels.
3. Have opportunities to augment their
coursework experiences with advanced
studies and research within areas of
particular interest.

Biology major
(78-86 credits)
Required biology core courses (62-65)
BI 211, 212, 213 Principles of Biology (15)
BI 314 Introductory Genetics (4)
BI 315 Cell Biology (4)
BI 316 Evolution (4)
BI 331 General Microbiology (4)
Choose one: (4-5)
- BI 317 Vertebrate Natural History (4)
- BI 321 Systematic Field Botany (4)
- BI 451 Invertebrate Zoology (5)
Choose one: (4)
- BI 357 General Ecology
- BI 454 Plant Ecology
CH 221, 222, 223 General Chemistry (5 each)
Math (8-10)
Choose an option:
A. MTH 112 Elementary Functions (4)
   MTH 243 Introduction to Probability and
   Statistics (4)
B. MTH 251 Calculus I (5)
   MTH 252 Calculus II (5)
C. MTH 251 Calculus I (5)
   MTH 243 Introduction to Probability and
   Statistics (4)
Select one of the following six emphases:
General biology emphasis (16-19 credits)
Cell/development (4)
Choose one:
- BI 326 Developmental Biology
- BI 432 Immunology
- BI 475 Molecular Biology
Anatomy and physiology (8-10)
Choose two:
- BI 324 Comparative Vertebrate Anatomy (5)
- BI 330 Plant Physiology (5)
- BI 371 Structure of Seed Plants (4)
- BI 434 Comparative Vertebrate Physiology (4)
Field biology of animals (4-5)
Choose one:
- BI 317 Vertebrate Natural History (4)
- BI 361 Marine Ecology (5)
- BI 451 Invertebrate Zoology (5)
- BI 474 Biology of Insects (5)
All students pursuing this emphasis must
complete BI 321 as their required biology core
option. In addition, students may choose any of
the three mathematics options of the required
biology core.
Botany emphasis (17-19 credits)
BI 330 Plant Physiology (5)
BI 371 Structure of Seed Plants (4)
Two upper division courses approved by
advisor (8-10)
All students pursuing this emphasis must
complete BI 321 and BI 454 as their required
biology core option. In addition, math option
B or C of the required biology core is strongly
recommended.
Ecology emphasis (17-18 credits)
BI 361 Marine Ecology (5)
BI 454 Plant Ecology (4)
BI 461 Conservation Biology (4)
One upper division course approved by advisor
(4-5)
All students pursuing this emphasis must
complete BI 357 as their required biology core
option. Furthermore, all students must com-
plete option B as their required biology core
math option. In addition, MTH 243 is strongly
recommended.
Molecular/cell emphasis (18-19 credits)
BI 475 Molecular Biology (4)
CH 312 Quantitative Analysis (4)
CH 450 Biochemistry I (3)
CH 451 Biochemistry II (3)
One upper division course approved by advisor
(4-5)
Students pursuing this emphasis must com-
plete option C as their required biology core
math option. Students must also complete the
physical science minor.
Pre-professional emphasis (19-21 credits)
CH 451 Biochemistry II (3)
BI 336 Advanced Human Anatomy and
Physiology (4)
Choose an option: (8-9)
A. BI 324 Comparative Vertebrate
   Anatomy (5)
   BI 434 Comparative Vertebrate
   Physiology (4)
B. BI 334 Advanced Human Anatomy and
   Physiology (4)
   BI 335 Advanced Human Anatomy and
   Physiology (4)
One upper division course approved by advisor
(4-5)
All students pursuing this emphasis must
complete BI 357 as their required biology core
option. Students must also complete either a
chemistry or physical science minor.
Zoology emphasis (18-19 credits)
BI 324 Comparative Vertebrate Anatomy (5)
BI 434 Comparative Vertebrate Physiology (4)
BI 451 Invertebrate Zoology (5)
One upper division course approved by advisor
(4-5)
All students pursuing this emphasis must
complete BI 317 and BI 357 as their required
biology core option. In addition, option B or
C of the required biology core math option is
strongly recommended.

Biology program:
1. Biology majors, regardless of the emphasis,
   are required to maintain a C average in
courses that are used to satisfy biology
degree requirements.
2. Students graduating in the various
   emphases of the biology major are required
to take a standardized exit exam in their last
year.
Biology minor
(27 credits)
BI 211, 212, and 213 or an equivalent sequence (15)
Upper-division courses approved by a biology advisor (12)

Students are required to maintain a C average in courses that are used to satisfy biology minor degree requirements.

Human biology minor
(26-28 credits)
BI 234, 235, 236 Human Anatomy & Physiology (12)
Choose two of the following*
BI 318 Microbiology for the Health Sciences (4)
BI 370 Humans and the Environment (4)
BI 441 Human Heredity (4)
300/400 level health electives (3-4 credits) in consultation with a human biology minor advisor
300/400 level psychology electives (3-4 credits) in consultation with a Human Biology minor advisor

*Appropriate upper division biology courses may be substituted in consultation with a human biology minor advisor.

Students are required to maintain a C average in courses that are used to satisfy human biology minor degree requirements.

Biology teacher education major
(70-73 credits)
BI 211, 212, 213 Principles of Biology (15)
CH 221, 222, 223 General Chemistry (15)
BI 314 Introductory Genetics (4)
BI 315 Cell Biology (4)
BI 316 Evolution (4)
BI 321 Systematic Field Botany (4)
BI 331 General Microbiology (4)
BI 357 General Ecology (4)
ES 351 Geology for Educators (3)

Cell/development (4)
Choose one:
BI 326 Developmental Biology
BI 432 Immunology
BI 475 Molecular Biology

Anatomy and physiology (8-10)
Choose two:
BI 324 Comparative Vertebrate Anatomy (5)
BI 330 Plant Physiology (5)
BI 371 Structure of Seed Plants (4)
BI 434 Comparative Vertebrate Physiology (4)

Field biology of animals (4-5)
Choose one:
BI 317 Vertebrate Natural History (4)
BI 361 Marine Ecology (5)
BI 451 Invertebrate Zoology (5)
BI 474 Biology of Insects (5)

*BI 211, 212, 213; CH 221, 222, 223 or PH 201, 202, 203 are to be counted as the LACC requirement in laboratory science.

All students pursing this degree must complete PH 201, 202, 203 (general physics) or PH 211, 212, 213 (General physics with calculus) as part of the LACC laboratory science requirement and MTH 112 must be completed as the additional degree requirement in mathematics. Furthermore, this program does not lead to a biology degree but may lead to an education degree following the completion of the professional education core in the College of Education. Requirements for admission into education programs can be obtained from the College of Education.

Business
Professors: Hamid Bahari-Kashani, Kristina Frankenberger, John Leadley, Keven Malkewitz, Mark Seabright
Assistant professor: Bojan Ilievski

Mission
Prepare students for challenging roles and opportunities in business, advanced degree programs and professional certification.

Learning outcomes
1. Analysis and Evaluation: Critically analyze and interpret information to solve problems and make decisions.
2. Communication: Effectively communicate in written documents, oral presentations, and interpersonal interactions.
3. Ethics: Recognize and evaluate ethical issues at the individual, organizational, and societal levels of analysis.

Admission to the business major is required for students seeking a business degree. Typically, application for admission will be made at the end of a student’s sophomore year by completing a degree plan with the Division of Business and Economics office. Prior to admission, the student should have completed the designated set of courses below.

Business major prerequisites:
BA 211 Financial Accounting (4)
BA 213 Managerial Accounting (4)
BA 240 Quantitative Business Methods—or—MTH 241 Calculus for Social Science (4)
BA 243 Business Statistics (4)—or—MTH 243 Introduction to Probability and Statistics (4)
COM 111 Principles of Public Speaking (3)
CS 121 Computer Applications (2)
EC 201 Introduction to Microeconomics (4)
EC 202 Introduction to Macroeconomics (4)
MTH 111 College Algebra (4)
WR 135 College Writing II (4)

Additional information regarding these requirements should be obtained from the division. Limited courses taken at other institutions may be transferred to the program based on the course and grade obtained.

Business major
(73 credits)
BA 211 Financial Accounting (4)
BA 213 Managerial Accounting (4)
BA 230 Introduction to Business Law (3)
BA 243 Business Statistics (4)
BA 310 Principles of Marketing (3)
BA 315 Financial Management (3)
BA 325 Portfolio Management (3)
BA 361 Organizational Behavior (3)
BA 362 Business Ethics (3)
BA 367 Regression Analysis (3)
BA 368 Introduction to Operations Research (3)
BA 411 Marketing Strategy (3)
BA 490 Operations Management (3)
BA 491 Strategic Management (3)
Choose one:
EC 318 Money and Banking (4)
EC 319 Public Finance (4)
EC 440 International Trade (4)
Upper-division focus (24)

Students electing to complete the Bachelor of Science degree in business will meet the 12 credit graduation requirement in mathematics, computer science and quantitative literacy courses by completing the following courses: MTH 111 (or higher), CS 121 (or higher) and an additional 6 credits from BA 240, BA 340, BA 367, EC 315.

Business minor
(22 credits)
BA 211 Financial Accounting (4)
BA 310 Principles of Marketing (3)
BA 315 Financial Management (3)
BA 361 Organizational Behavior (3)
BA 370 Business and Society (3)
Upper division electives in Business, Economics or Entrepreneurship (6)

Chemistry
Professors: Arlene Courtney, Pete Poston
Associate professors: Patricia Flatt, Rahim Kazerouni

Mission
Provides preparation for professional work in chemistry or forensic science; graduate work in chemistry or forensic science; or pre-professional training in the health sciences or secondary education. Coupling the program with an appropriate minor prepares students to enter related fields such as biochemistry, oceanography, pharmacy, toxicology and the environmental or atmospheric sciences. Through the study of general, organic, analytical and physical chemistry, students gain an understanding of the world around them.

Learning outcomes
Students will:
1. Develop competency in laboratory environments via laboratory coursework, research and practicum opportunities.
2. Develop an awareness of historical developments in chemistry and their impact on society.
3. Understand the current applications of chemical synthesis and analysis and their support of discovery in other scientific disciplines.

Formal admission is required for all students seeking a chemistry or chemistry-forensic chemistry option degree. Typically, application for admission will be made at the end of a student’s sophomore year by completing a degree plan with the advisor. Prior to admission, the student should have completed the set of courses below.

**Chemistry major prerequisites:**
PH 211, 212, 213 (traditional chemistry major)  
Chemistry major prerequisites: courses below. The student should have completed the set of plan with the advisor. Prior to admission, the student’s sophomore year by completing a degree for admission will be made at the end of a student’s sophomore year by completing a degree plan with the advisor. Prior to admission, the student should have completed the set of courses below.

**Chemistry major: forensic chemistry option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH 211, 212, 213 General Chemistry (15)</td>
<td>(73 credits)</td>
</tr>
<tr>
<td>CH 312 Quantitative Analysis</td>
<td>(4)</td>
</tr>
<tr>
<td>CH 315 Instrumental Analysis</td>
<td>(4)</td>
</tr>
<tr>
<td>CH 334, 335, 336 Organic Chemistry (9)</td>
<td></td>
</tr>
<tr>
<td>CH 337 Organic Chemistry Lab I (1)</td>
<td></td>
</tr>
<tr>
<td>CH 338 Organic Chemistry Lab II (2)</td>
<td></td>
</tr>
<tr>
<td>CH 340 Elementary Physical Chemistry (4)</td>
<td></td>
</tr>
<tr>
<td>CH 350 Chemical Literature (1)</td>
<td></td>
</tr>
<tr>
<td>CH 407 Seminar (1)</td>
<td></td>
</tr>
<tr>
<td>CH 409 Practicum (1)</td>
<td></td>
</tr>
<tr>
<td>CH 450, 451 Biochemistry (6)</td>
<td></td>
</tr>
<tr>
<td>CH 461, 462 Experimental Chemistry (4)</td>
<td></td>
</tr>
<tr>
<td>COM 327 Communication in the Legal Field (3)</td>
<td>(4)</td>
</tr>
<tr>
<td>WR 322 Technical Writing (4)</td>
<td></td>
</tr>
</tbody>
</table>

Limited electives - choose one track:
- BI 101, 102, 103 General Biology (10)
- BI 211, 212, 213 Principles of Biology (10)

The B.A. requires MTH 252, CS 121 or 161 and completion of the third term of the second year of a modern language course. The B.S. requires a combined 12 credit hours of course work in mathematics and computer science including MTH 252 and CS 121 or 161. For this major the six hours of writing intensive course work should come from CH 350W, CH 407W, CH 461W and CH 462W. The sequence PH 201, 202, 203 or PH 211, 212, 213 is to be completed as the LACC science requirement.

**Forensic science minor: chemistry majors**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 161 Fundamentals of Photography for Forensic Science (2)</td>
<td>(27 credits)</td>
</tr>
<tr>
<td>CH 320 Introduction to Forensic Science (3)</td>
<td></td>
</tr>
<tr>
<td>CH 420 Forensic Chemistry (4)</td>
<td></td>
</tr>
<tr>
<td>CH 430, 431, 432 Applications of Forensic Science (6)</td>
<td></td>
</tr>
<tr>
<td>CJ 213 Introduction to Criminal Justice (4)</td>
<td></td>
</tr>
<tr>
<td>CJ 321 Principles of Forensic Investigation (4)</td>
<td></td>
</tr>
<tr>
<td>CJ 452 Criminal Procedure (4)</td>
<td></td>
</tr>
</tbody>
</table>

This minor may be taken by majors in other scientific disciplines providing they complete CH 221-223, CH 334-338, and CH 313.

**Forensic science minor: non-chemistry majors**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 104, 105, 106 Introductory Chemistry (12)</td>
<td>(29 credits)</td>
</tr>
<tr>
<td>CH 320 Introduction to Forensic Science (3)</td>
<td></td>
</tr>
<tr>
<td>CH 430, 431, 432 Applications of Forensic Science (6)</td>
<td></td>
</tr>
<tr>
<td>CJ 321 Principles of Forensic Investigation (4)</td>
<td></td>
</tr>
<tr>
<td>CJ 452 Criminal Procedure (4)</td>
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</tr>
</tbody>
</table>

It is suggested that students pursuing this minor take BI 101 as part of their LACC science requirement. Alternatively CH 104, 105, 106 may be applied to the LACC. In this case, an additional 12 hours of science elective approved by the minor advisor may be substituted. CH 161 is highly recommended as a general education elective.

**Chemistry major: medicinal chemistry and pharmacology option**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 221, 222, 223 General Chemistry (15)</td>
<td>(75 credits)</td>
</tr>
<tr>
<td>BI 334, 335 Advanced Human Anatomy and Physiology (8)</td>
<td></td>
</tr>
<tr>
<td>BI 336 Human Histology and Physiology (4)</td>
<td></td>
</tr>
<tr>
<td>CH 221, 222, 223 General Chemistry (15)</td>
<td></td>
</tr>
<tr>
<td>CH 312 Quantitative Analysis (4)</td>
<td></td>
</tr>
<tr>
<td>CH 315 Instrumental Analysis (4)</td>
<td></td>
</tr>
<tr>
<td>CH 334, 335, 336 Organic Chemistry (9)</td>
<td></td>
</tr>
<tr>
<td>CH 337 Organic Chemistry Lab I (1)</td>
<td></td>
</tr>
<tr>
<td>CH 338 Organic Chemistry Lab II (2)</td>
<td></td>
</tr>
<tr>
<td>CH 340 Elementary Physical Chemistry (4)</td>
<td></td>
</tr>
<tr>
<td>CH 350 Chemical Literature (1)</td>
<td></td>
</tr>
<tr>
<td>CH 407 Seminar (1)</td>
<td></td>
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<tr>
<td>CH 409 Practicum (1)</td>
<td></td>
</tr>
<tr>
<td>CH 450, 451 Biochemistry (6)</td>
<td></td>
</tr>
<tr>
<td>CH 461, 462 Experimental Chemistry (4)</td>
<td></td>
</tr>
<tr>
<td>COM 327 Communication in the Legal Field (3)</td>
<td>(4)</td>
</tr>
<tr>
<td>WR 322 Technical Writing (4)</td>
<td></td>
</tr>
</tbody>
</table>

Limited electives - choose one track:
- BI 101, 102, 103 General Biology (10)
- BI 211, 212, 213 Principles of Biology (10)

The B.A. requires MTH 251, MTH 252 and CS 121 or 161 and completion of the third term of the second year of a modern language course. The B.S. requires a combined 12 credit hours of course work in mathematics and computer science including MTH 251 and CS 121 or 161. For this major the six hours of writing intensive course work should come from CH 350W, CH 407W, CH 461W and CH 462W. The sequence PH 201, 202, 203 or PH 211, 212, 213 is to be completed as the LACC science requirement.

**Forensic science minor: chemistry majors**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CH 161 Fundamentals of Photography for Forensic Science (2)</td>
<td>(29 credits)</td>
</tr>
<tr>
<td>CH 320 Introduction to Forensic Science (3)</td>
<td></td>
</tr>
<tr>
<td>CH 420 Forensic Chemistry (4)</td>
<td></td>
</tr>
<tr>
<td>CH 430, 431, 432 Applications of Forensic Science (6)</td>
<td></td>
</tr>
<tr>
<td>CJ 213 Introduction to Criminal Justice (4)</td>
<td></td>
</tr>
<tr>
<td>CJ 321 Principles of Forensic Investigation (4)</td>
<td></td>
</tr>
<tr>
<td>CJ 452 Criminal Procedure (4)</td>
<td></td>
</tr>
</tbody>
</table>

It is suggested that students pursuing this minor take BI 101 as part of their LACC science requirement. Alternatively CH 104, 105, 106 may be applied to the LACC. In this case, an additional 12 hours of science elective approved by the minor advisor may be substituted. CH 161 is highly recommended as a general education elective.

**Medicinal chemistry and pharmacology minor: natural science track**

<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BI 314 Genetics (4)</td>
<td></td>
</tr>
<tr>
<td>BI 315 Cell Biology (4)</td>
<td></td>
</tr>
</tbody>
</table>
CHEMISTRY Academics

This minor may be taken by majors in scientific disciplines other than chemistry providing they complete CH 221-223. Biology majors selecting this minor option are required to meet with a medicinal chemistry and pharmacology minor advisor to select appropriate course substitutions for any minor-specific coursework that overlaps with biology major requirements.

Chemistry major: environmental chemistry option

(74 credits)
BI 211, 212, 213 Principles of Biology (15)
CH 221, 222, 223 General Chemistry (15)
CH 312 Quantitative Analysis (4)
CH 313 Instrumental Analysis (4)
CH 334, 335, 336 Organic Chemistry (9)
CH 337 Organic Chemistry Lab I (1)
CH 338 Organic Chemistry Lab II (2)
CH 340 Elementary Physical Chemistry (4)
CH 350 Chemical Literature (1)
CH 407 Seminar (1)
CH 412 Inorganic Chemistry of the Environment (4)
CH 461, 462 Experimental Chemistry (4)
CH 450 Biochemistry (3)
MTH 243 Introduction to Probability and Statistics (4)

The B.A. requires MTH 252, CS 121 or 161 and completion of the third term of the second year of a modern language. The B.S. requires a combined 12 credit hours of course work in mathematics and computer science including MTH 252 and CS 121 or 161. For this major the six hours of writing intensive course work should come from CH 350, CH 407, CH 461 and CH 462. The sequence PH 201, 202, 203 or PH 211, 212, 213 is to be completed as the LACC science requirement. GEOG 105 is to be taken as part of the Social Science component of the LACC. This major requires completion of the environmental science minor.

Environmental chemistry minor

(27-29 credits)
CH 310 Environmental Geochemistry (3)
CH 361 Energy and Resources in Perspective (3)
ES 201, 202 Principles of Geology (8)
ES 473 Environmental Geology (4)

Choose one:
ES 341 Fundamentals of Geographic Information Systems (4)
ES 492 GIS Applications in Earth Science (3)
GEOG 341 Geographic Information Systems (4)

Electives: Choose 6-7 credits
Bi 357 General Ecology (4)
Bi 331 General Microbiology (4)
Bi 361 Marine Ecology (5)
Bi 454 Plant Ecology (4)
CH 161 Fundamentals of Photography for Forensic Science (1)
CH 345 Introduction to Toxicology (3)
CH 360 Nuclear Chemistry (3)
CH 401 Research (1-3)
CH 409 Practicum (1)
ES 331 Introduction to Oceanography (3)
ES 460 Energy and Mineral Resources (3)
ES 476 Hydrology (3)
ES 492 GIS Applications in Earth Science (3)
GEOG 393 Soils Geography (4)

This minor is available to non-chemistry majors. If an Earth science major selects this minor, ES 201, 202 and 473 will be replaced with CH 223, CH 371 and one additional science course approved by an advisor. If a biology major chooses this minor, CH 371 will be a required elective.

Chemistry/physics option: natural science major

(72 credits)
CH 221, 222, 223 General Chemistry (15)
CH 312 Quantitative Analysis (4)
CH 313 Instrumental Analysis (4)
CH 334, 335, 336 Organic Chemistry (9)
CH 337 Organic Chemistry Lab I (1)
CH 338 Organic Chemistry Lab II (2)
CH 340 Elementary Physical Chemistry (4)
CH 350 Chemical Literature (1)
MTH 251, 252 Calculus I and II (10)
PH 211, 212, 213 General Physics with Calculus (12)
PH 311, 312 Introduction to Modern Physics (8)

Approved electives in the natural sciences or math (6)

The B.A. requires MTH 251, CS 160 and completion of the third term of the second year of a modern language course. The B.S. requires a combined total of 12 credit hours of course work in mathematics, and computer science including MTH 251 and CS 160. The B.S. and B.A. require completion of the cultural diversity and writing intensive requirements. For this major, writing intensive should include CH 350W.

Physical science minor

(27-29 credits)
CH 334, 335, 336 Organic Chemistry (9)
CH 337 Organic Chemistry Lab I (1)
CH 338 Organic Chemistry Lab II (2)
PH 201, 202, 203 General Physics –or– PH 211, 212, 213 General Physics with Calculus (12)

One upper-division physical science course (i.e., a course with a CH, ES, GS, or PH prefix) approved by advisor (3-5)

All students pursuing the molecular/cell emphasis for the biology major must complete the PH 211, 212, 213 sequence as requirements for this minor. All students pursuing the preprofessional emphasis for the biology major must complete CH 450 as a requirement for this minor.

Chicano/a Studies

Professors: Maureen Dolan, John Rector

Mission
To provide students with a broad knowledge base and the intellectual tools to understand the central questions, applications and language relevant to this field of inquiry. Courses focus on comparative topic issues, discipline specific approaches and practicum/experiential learning opportunities.

Learning outcomes:
1. Gain an understanding of the cultural dynamics of Mexican and Latin American origin people in the U.S.
2. Learn to apply an interdisciplinary approach–drawing from background, current issues and language studies–to examination of topics.
3. Apply academic skills in Oregon’s Latin American communities through service learning opportunities.

Chicano/a studies minor

(24-26 credits)
Core (12-14)
Select four courses, at least one in social science and one in humanities:
ED 301 Introduction to Chicano/a Studies
HST 485 Mexican Foundations of Chicano/a/Latino/a History
HST 486 Chicano/a History
SOC 435 Chicano/a/Latino/a Studies: Social Issues, Social Movements
SPAN/HUM 328 Introduction to Chicano/a Literature
SPAN/HUM 342 Introduction to Chicano/a Life and Culture

In consultation with an advisor, select four additional courses from courses above not already used and/or the following, with no more than two courses from any one department:
ANTH 330 Contemporary Chicano/a/Culture
ED 302 Multicultural Education and the American Experience
ENG 389 U.S. Minority Literature (when related to Chicano/a/Latino/a Studies
GEOG 370 Human Migration
GEOG 371 Mexico and Central America
HST 454 Mexico and the Caribbean Since Independence
HST 490 Wests of Early America
HST 491 Western US: 20th Century Issues
SOC 406 Special Individual Studies (when related to Chicano/a/Latino/a Studies
SOC 407 Seminar (when related to Chicano/a Studies

ES 473 Environmental Geology (4)
Choose one of the following sequences (12)
D 180, 181, 182 Modern Dance 1, 2, 3 (1 each)
D 210, 211, 212 Modern Dance 4, 5, 6 (2 each)
D 280, 281, 282 Modern Dance 7, 8, 9 (2 each)
Choose one: (3)
D 453 Ballet History
D 454 Evolution of Modern Dance

Choose elective technique courses: (11)
Modern, Ballet, Jazz, Tap, World Dance, Hip Hop, Pointe, Conditioning

Electives in dance (9)
D 199 SS: Group Choreography (1)
D 240 Wellness for Dancers (3)
D 250 Drumming for Dancers (1-3)
D 270 Dance Partnering (1-3)
D 251 Intro to Dance (3)
D 300 Human Movement Notation (3)
D 310 Dance and Gender (3)
D 330 Rhythmic Awareness (3)
D 352 Dance Composition II (3)
D 357 Dance in Musical Theatre (3)
D 390 Kinesiology for Dancers (3)
D 400 Internship (1-6)
D 406 Independent Studies (1-3)
D 407 Seminar (1-15)
D 408 Workshop (1-15)
D 409 Internship (1-6)
D 450 Dance Repertory (1-3)
D 451 Dance Production (3)
D 451L Dance Production Lab (1)
D 460 Dance and Technology (3)
D 491 Creative Dance for Children (3)
D 494 Dance Pedagogy (3)
D 496 Creativity (3)

All dance majors are required to take D 251 Intro to Dance to meet the LACC requirement in creative arts which is not counted in the 72 hours of the major.

Earth Science

Professors: Jeffrey Myers, Stephen Taylor, Jeffrey Templeton

Mission
The Earth Science program provides a liberal arts education in geoscience with an emphasis on scientific methods, problem solving and interdisciplinary science education. A key objective of the program is to prepare undergraduates for careers as professional geoscientists and educators. The program also promotes the development of an informed citizenry for wise decision-making on issues related to natural resources, environmental quality, and sustainability in Oregon and beyond.

Learning outcomes
1. Demonstrate knowledge of the physical, chemical and biological processes operating in the Earth system.
2. Develop proficiency in using technology-enriched methods to solve geologic problems and communicate results.
3. Gain experience in conducting inquiry-based science in laboratory and field settings.

Completion of the Earth science degree qualifies graduates to begin the process of professional licensure as registered geologists in the state of Oregon.

Earth science major

(73-78 credits)

Choose one of the following sequences (12)
BI 101, 102, 103 General Biology
BI 211, 212, 213 Principles of Biology
PH 201, 202, 203 General Physics
PH 211, 212, 213 General Physics

Choose one of the following math options: (8-10)
A. MTH 112 Elementary Functions (4)
   MTH 243 Intro to Probability & Statistics (4)
B. MTH 243 Intro to Probability & Statistics (4)
   MTH 251 Calculus I (5)
C. MTH 251 Calculus I (5)
   MTH 252 Calculus II (5)

Choose one course in Earth System Science: (3)
ES 331 Introduction to Oceanography
ES 390 Basic Meteorology
GS 351 Elements of Astronomy
Choose one course in sedimentology/paleobiology: (3-4)
ES 304 Survey of the Fossil Record
ES 431 Paleobiology
ES 491 Stratigraphy and Depositional Systems

Choose one course in volcanology/petrology: (3-4)
ES 354 Volcanoes and Earthquakes
ES 454 Volcanology
ES 460 Energy and Mineral Resources

Choose one course in environmental geology/surface processes: (3-4)
ES 341 Fundamentals of Geographic Information Systems
ES 476 Hydrology
ES 492 GIS Applications in Earth Science

CH 104, 221, 222 is to be completed as the LACC laboratory science requirement. The B.S. and B.A. require completion of 2 to 4 credit hours of computer science coursework depending on the chosen mathematics option. For this major, 4 hours of writing intensive course work should come from WR 322.
Earth resources minor
(27-30 credits)
ES 201, 202 Principles of Geology (8)
ES 473 Environmental Geology (4)
ES 491 Stratigraphy and Depositional Systems (3)
Choose one: (3)
CH 310 Geochemistry
CH 371 Environmental Chemistry
Choose two: (6-8)
ES 321 Structural Geology
ES 354 Volcanoes and Earthquakes
ES 454 Volcanology
ES 460 Energy and Mineral Resources
Choose one: (3-4)
ES 341 Fundamentals of Geographic Information Systems
ES 476 Hydrology
ES 492 GIS Applications in Earth Science

Earth system science minor
(25-28 credits)
ES 104 Earth System Science (5)
ES 105 Earth System Science (5) —or—
ES 106 Earth System Science (5)
Choose two: (6)
ES 331 Introduction to Oceanography
ES 390 Basic Meteorology
GS 351 Elements of Astronomy
Choose one: (3-4)
ES 341 Fundamentals of Geographic Information Systems
ES 473 Environmental Geology
ES 476 Hydrology
ES 492 GIS Applications in Earth Science
Choose one: (3-4)
ES 354 Volcanoes and Earthquakes
ES 454 Volcanology
ES 460 Energy and Mineral Resources
Choose one: (3-4)
ES 304 Survey of the Fossil Record
ES 431 Paleobiology
ES 453 Geology of the Pacific Northwest
ES 491 Stratigraphy and Depositional Systems

Geology minor
(28 credits)
ES 201, 202, 203 Principles of Geology (12)
ES 301 Petrographic Microscopy (2)
ES 302 Quantitative Methods (2)
ES 322Geomorphology and Aerial Photo Interpretation (4)
ES 450 Introduction to Petrology (4)
ES 493 Sedimentary Geology (4)

History of the Earth and biosphere minor
(25-26 credits)
BI 211 Principles of Biology (5)
BI 314 Introductory Genetics (4)
BI 316 Evolution (4)
Choose one: (4) or other approved introductory geology course
ES 201 Principles of Geology (4)
ES 202 Principles of Geology (4)
ES 351 Geology for Educators (3)
ES 203 Principles of Geology (4)
ES 431 Paleobiology (4)
ES 491 Stratigraphy and Depositional Systems (3)

This minor is an interdisciplinary series of courses designed to introduce science, liberal arts and content-specific educators to the history of the earth and its life. Biology majors may substitute approved upper division biology or earth science electives for BI 211, BI 314 and BI 446.

Economics

Professors: John Leadley, Zenon Zygmont

Mission
Trains students in the tools of the discipline and encourages them to apply that knowledge to domestic and international economic and social problems. Introductory and intermediate courses in macroeconomics and microeconomics, a course in econometrics and report writing, as well as additional upper division electives in various economic specialties will prepare students for career goals.

Learning outcomes:
1. Develop the analytical and decision-making skills necessary to understand and resolve complicated contemporary business, financial and social problems;
2. Expand information literacy through the collection and interpretation of data from all relevant sources; and
3. Improve communication and presentation skills to effectively convey economic information to the public.

Economics major
(60 credits)
EC 201 Introduction to Microeconomics (4)
EC 202 Introduction to Macroeconomics (4)
EC 311 Intermediate Microeconomics I (4)
EC 312 Intermediate Microeconomics II (4)
EC 313 Intermediate Macroeconomics (4)
EC 351 Econometric Analysis and Report Writing (4)
MTH 111 College Algebra (4)
MTH 243 Introduction to Probability and Statistics (4) —or—
BA 243 Business Statistics (4)
Upper division economics courses (20)
Electives* (8)

* Electives may be lower division courses and courses from other departments and divisions, but they must be approved by an economics department advisor.

Economics minor
(28 credits)
EC 201 Introduction to Microeconomics (4)
EC 202 Introduction to Macroeconomics (4)
EC 311 Intermediate Microeconomics I (4)
EC 312 Intermediate Microeconomics II (4)
EC 313 Intermediate Macroeconomics (4)
MTH 111 College Algebra (4)
Upper-division electives in economics (4)

Students electing to complete the B.S. degree in economics will meet the 12 credit graduation requirement in mathematics, computer science and quantitative literacy courses by completing the following courses: MTH 111 (or higher), CS 121 (or higher) and an additional 6 credits from BA 240, BA 340, BA 367, EC 315.

Education

Professors: Maria Dantas-Whitney, Mark Girod, Adele Schepige, Dana Ulveland
Associate professors: Mary Bucy, Wanguzi Gatimu, Rachel Harrington, Chloe Hughes, Marie LeJeune, Karie Mize, Tracy Smiles, Steven Wojcikiewicz
Assistant professors: Carmen Caceda, Kenneth Carano, Cindy Ryan, Alicia Wenzel, Greg Zobel

Mission
Principled upon democratic ideals, educational equity, cultural sensitivity, caring and committed professionalism, and an intellectually vital community. Committed to facilitating the learning and development of our candidates who, in turn, can successfully affect the learning and development of PK-12 students in schools.

Learning outcomes
The program prepares caring, competent professionals who:
1. Demonstrate evidence of appropriate content knowledge, skills, and dispositions necessary for attaining high achievement for all PK-12 students;
2. Create a climate where diversity is valued; and
3. Successfully affect the learning and development of PK-12 students in schools.

There are special requirements for admission to the education programs. Contact the College of Education division representatives for more information. The College of Education’s Policy Analysis and Review Committee establishes policies and standards that students must meet before being admitted to teacher education courses. Students may explore their interest in teaching during their freshman and sophomore years by enrolling in FS 199, 303, 358, 399 and ED 100, 230, 240, 270 and 312.

The university has found it necessary to evaluate a person’s background to determine his or her likelihood of maintaining standards of professional conduct necessary in the discipline. An evaluation may take into consideration current performance as well as past experiences and actions that could affect a student’s ability to perform in the particular course or program.

Complete with early childhood, early childhood/elementary, elementary/middle level, middle level/high school teaching authorizations.
their English advisor to substitute for ENG 107 and/or 108 on their Academic Degree Program form. All students should complete ENG 218W as early as possible in the English core.

ENG 218 Introduction to Literary Study (4)
ENG 204, 205, 206 Survey of British Literature (12)
ENG 253, 254 Survey of American Literature (8)
ENG 301 Shakespeare (4)
LING 210 Introduction to Linguistics (4)
LING 315 Structure of English I (4)
HUM 450 Senior Portfolio (1) Not required for Language Arts Secondary Education majors
WR 230 Introduction to Writing Studies (4)

**English/literature major**
(69 credits)

**Learning outcomes**
1. Develop an appreciation of literary works within a broad scope of literary traditions and genres.
2. Understand theories, methods, and forms of literary interpretation and research methods.
3. Recognize relationships between literature and culture, society, and the individual.

**Common core** (41 credits)
ENG 318 Contemporary Literary Theory (4)
Three 300-level literature courses (12)
(no more than one course from ENG 380-389)
Three 400-level literature courses (12)

**English/linguistics major**
(68-69 credits)

**Learning outcomes**
1. Develop familiarity with issues in language usage, language variation, language acquisition and history of the English language, with special attention to writing, literacy and language arts.
2. Understand structure and function in analyzing the English language system.
3. Recognize the relationship between language and culture, society and the individual.

**Common core** (41 credits)
LING 312 Language and Society (4)
LING 370 Discourse and Text (4)
Three 400-level linguistics courses (12)
One upper-division writing course (4)
One upper-division humanities elective (3-4)

**English/writing major**
(BA: 67-69 credits)

**Learning outcomes**
1. Develop a familiarity with aims of discourse, rhetorical strategies and artistic craft.
2. Understand writing theory and practice.
3. Recognize the relationship between writing and language, knowledge and power.

**Common core** (41 credits)
Three 300-level writing classes* (11-12)

Three different 400-level writing classes for a minimum of (12)
One upper-division humanities elective (3-4)
*may include TA 330 Script Writing

**Literature minor**
(20 credits)
ENG 218 Introduction to Literary Study (4)
Approved upper-division literature courses (16)

**Linguistics minor**
(20 credits)
LING 210 Introduction to Linguistics (4)
LING 315 Structure of English I (4)
Approved upper-division linguistics courses (12)

**Teaching English as a foreign language (TEFL) certificate**
(26 credits)
LING 210 Intro to Linguistics (4)
LING 315 Structure of English (4)
Choose one: (4)
LING 312 Language and Society (4)
LING 370 Discourse and Text (4)
LING 410 Theories of Foreign Language Acquisition with Adult/Young Adult Learners (4)
LING 415 Strategies in TEFL for Adult/Young Adult Learners (4)
LING 416 Practicum (2)
LING 492 Pedagogical Grammar in TEFL for Adult/Young Adult Learners (4)

The TEFL Certificate program prepares undergraduate and post-baccalaureate students who are interested in their first international/cross-cultural English teaching position. The program is designed to meet the needs of students who seek experience teaching English as a foreign language by providing a strong foundation in English linguistics and training in second language acquisition/TEFL methodologies. The Teaching English as a Foreign Language (TEFL) Certificate is distinct from the College of Education ESOL/bilingual endorsement.

The TEFL Certificate is for undergraduate or post-baccalaureate students. Undergraduate students may also choose to obtain a linguistics minor (20 credits) along with the certificate.

Three different 400-level writing classes for a minimum of (12)
One upper-division humanities elective (3-4)

**Entrepreneurship minor**
(19 credits)
BA 211 Financial Accounting (4)*
BA 310 Principles of Marketing (3)*
ENT 320 Entrepreneurial Finance (1)
ENT 330 Planning and Creating New Ventures (3)
ENT 350 Small Business Management (3)
ENT 360 Small Business Marketing (3) –or–
ENT 460 Entrepreneurship in Action (3)
Choose two: (2)
ENT 380 Entrepreneurs Today (1)
ENT 381 Creativity and Entrepreneurs (1)
ENT 382 Innovation and Strategy (1)
ENT 383 Entrepreneurs and Society (1)
ENT 384 Going into Business in Oregon (1)
* If business major, choose any business or economics elective.

**Environmental Studies**

**Mission**
Educate students about the physical, biological and social dimensions of the environment. The program teaches specific topics and skills central to understanding environmental issues and promotes pathways to jobs in the environmental field.

**Learning outcomes**
1. Develop a working understanding of the interconnectedness of human civilization and the environment.
2. Engage in experiential learning through laboratory classes, field work, and internships.

3. Develop an awareness of current environmental issues and engage in advocacy in the community.

Environmental Studies minor (27-31 credits)

**Core courses (8)**
- HST 489 Environmental History (4)
- BI 357 General Ecology (4) —or— BI 370 Humans and the Environment (4)

**Foundation courses (13-14)**
- CH 371 Environmental Chemistry (3)
- ES 473 Environmental Geology (4)
- Choose two: (one course from any two disciplines) (6-7)
  - COM 380 Environmental Communication (3)
  - GEOG 380 Environmental Conservation (4)
  - GEOG 392 Physical Geography (4)
  - GEOG 425 Urban Planning and Policy (4)
  - GEOG 480 Nature and the American West (4)
  - PHL 255 Environmental Ethics (3)
  - PS 447 Environmental Politics and Policy (3)
  - PS 449 Environmental Values and Political Action (3)
- ES 477 International Environmental Politics (3)

**Electives (6-9)**
- Select two courses approved by minor advisor:
  - ANTH 311 Human Evolution (4)
  - BI 317 Vertebrate Natural History (4)
  - BI 321 Systematic Field Botany (4)
  - BI 331 General Microbiology (4)
  - BI 361 Marine Ecology (5)
  - BI 451 Invertebrate Zoology (5)
  - BI 453 Marine Vertebrates (4)
  - CH 310 Geochemistry (3)
  - CH 412 Inorganic Chemistry of the Environment (4)
  - EC 436 Environmental Economics and Public Policy (4)
  - ES 322 Geomorphology and Aerial Photography Interpretation (4)
- Choose two courses from the following disciplines (6-7)
  - ES 331 Introduction to Oceanography (3)
  - ES 390 Basic Meteorology (3)
  - ES 431 Paleobiology (4)
  - ES 453 Geology of Pacific Northwest (4)
  - ES 454 Volcanology (4)
  - ES 460 Energy and Mineral Resources (3)
  - ES 476 Hydrology (3)
  - ES 492 GIS Applications in Earth Science (3)
  - GEOG 240 Map and Air Photo Interpretation (4)
- Select two courses approved by minor advisor:
  - ANTH 311 Human Evolution (4)
  - BI 317 Vertebrate Natural History (4)
  - BI 321 Systematic Field Botany (4)
  - BI 331 General Microbiology (4)
  - BI 361 Marine Ecology (5)
  - BI 451 Invertebrate Zoology (5)
  - BI 453 Marine Vertebrates (4)
  - CH 310 Geochemistry (3)
  - CH 412 Inorganic Chemistry of the Environment (4)
  - EC 436 Environmental Economics and Public Policy (4)
  - ES 322 Geomorphology and Aerial Photography Interpretation (4)

**Exercise Science**

Professors: Marita Cardinal, Brian Caster, Gay Timken

**Mission**
To maximize individual and professional development in health and movement science and to promote healthy lifestyles and communities.

**Learning outcomes**
Relative to physical activity, physical fitness, and motor skill development programs, candidates will:
1. Plan effective exercise interventions based on assessment of individual, environmental, and task constraints, and on assessment of interactions among constraints.
2. Implement and evaluate strategies, interventions and programs.
3. Demonstrate professional development and advocate for research-based practices within exercise science.

Exercise science major (72-74 credits)

**Required core courses (32 credits)**
- PE 230 Foundations of Exercise Science (4)
- PE 310 Motor Learning (4)
- PE 371 Kinesiology (4)
- PE 415 Lifespan Motor Development (4)
- PE 444 Lifespan Adapted Physical Activity (4)
- PE 470 Sociological and Psychological Aspects of Physical Activity (4)
- PE 473 Physiology of Exercise (4)
- PE 483 Biomechanics (4)

**Professional tracks**
Select one:

**Applied exercise science (40 credits)**
- HE 325 Nutrition (4)
- PE 419 Internship in Exercise Science (4)
- PE 485 Exercise Testing and Prescription (4)
- Choose two: (8)
  - HE 426 Sports and Exercise Nutrition (4)
  - PE 484 Advanced Topics in Biomechanics (4)
  - PE 486 Advanced Topics in Motor Behavior (4)
  - PE 487 Advanced Topics in Physiology of Exercise (4)
  - PE 488 Exercise Motivation and Adherence (4)

**Pre-experiential non-licensure (42 credits)**
- PE 229 Teaching Movement Education (3)
- PE 240 Teaching Dance in Physical Education (3)
- PE 241 Teaching Games I (3)
- PE 242 Teaching Games II (3)
- PE 243 Teaching Outdoor and Adventure Education (3)
- PE 244 Teaching Aerobic Fitness (3)
- PE 245 Teaching Strength Training and Conditioning (3)
- PE 330 Teaching Methods in Physical Education I (4)
- PE 335 Field Experience in Physical Education (1)
- PE 430 Teaching Methods in Physical Education II (4)
- PE 431 Assessment Strategies in Physical Education (4)
- PE 445 Curricular Issues in Physical Education (4)

**Film Studies**

Professors: Gavin Keulks, Gianna Martella, Mark Perlman, Emily Plec, Robin Smith

**Mission**
To engage students in the critical study of moving images, including opportunities for practical experience in film and video making and criticism.

**Learning outcomes**
1. Enhanced awareness of the power of visual media to shape perceptions of the world.
2. Contextual understandings of moving image arts and media.
3. Skills to pursue specific interests in film and critically analyze and interpret visual media.

Film studies minor (29-35 credits)

**Core courses (11)**
- ANTH 369 Visual Anthropology (4)
- COM 426 Language of the Mass Media (3)
- ENG 386 Form and Meaning in Film (4)
courses for English majors and language arts secondary education majors. ENG 109 is also recommended. Students who already have taken ENG 104, 105, 106, 109, FR 110, or GL 110 should see their English advisor to substitute for ENG 107 and/or 108 on their Academic Degree Program form. All students should complete ENG 218W as early as possible in the English core.

**Common core (40 credits)**
- ENG 218 Introduction to Literary Study (4)
- ENG 204, 205, 206 Survey of British Literature (12)
- ENG 253, 254 Survey of American Literature (8)
- ENG 301 Shakespeare (4)
- LING 210 Introduction to Linguistics (4)
- LING 315 Structure of English I (4)
- WR 230 Introduction to Writing Studies (4)

**Literature (16)**
- Two 300-level literature courses (8) (no more than one course from ENG 380-389)
- Two 400-level literature courses (8)

**Linguistics and writing (8)**
- LING 450 Linguistic Analysis of Style & Genre (4)
- WR 440 Writing Theory and Pedagogy (4)

**Communication (9)**
- COM 112 Interpersonal Communication (3)
- Choose two: (6) At least one must be upper-division
  - COM 211 Introduction to Mass Communication
  - COM 321 Influencing through Argument
  - COM 323 Group Discussion and Leadership
  - COM 325 Intercultural Communication
  - COM 340 Conflict Management
  - COM 342 Media Literacy
  - COM 422 Persuasion

**Legal Studies minor**

**Mission**
Prepares students for success in law school and in fields related to the law. The program serves the university by integrating law-related curriculum and promoting awareness of legal processes and issues.

**Learning outcomes**
1. Attain critical thinking, reading, writing skills, and proficiency in public presentation of ideas.
2. Develop a critical understanding of the theoretical and practical aspects of the nature and practice of law, as well as the diverse law-related fields and their service to society.
3. Engage in advocacy activities promoting understanding of the legal system and issues.

**Legal studies minor**

**Mission**
Provides an interdisciplinary approach to Latin American history, society, culture, environment and language. The program encourages students to view Latin America within the ongoing processes of globalization, immigration and trans-nationalism. Students are encouraged to combine coursework on Latin America with study abroad opportunities that include Mexico, Argentina, Ecuador and Chile offered in cooperation with the NCSA and OUS consortium.

**Learning outcomes**
1. Interdisciplinary understanding of Latin America.
2. Comprehension of globalization and immigration.
3. Study abroad experience.

**Latin American studies minor**

**Mission**
Provides an interdisciplinary approach to Latin American history, society, culture, environment and language. The program encourages students to view Latin America within the ongoing processes of globalization, immigration and trans-nationalism. Students are encouraged to combine coursework on Latin America with study abroad opportunities that include Mexico, Argentina, Ecuador and Chile offered in cooperation with the NCSA and OUS consortium.

**Learning outcomes**
1. Interdisciplinary understanding of Latin America.
2. Comprehension of globalization and immigration.
3. Study abroad experience.
reasoning are essential outcomes of a liberal arts education.

Learning outcomes
1. Develop problem solving, modeling and technological skills.
2. Demonstrate the ability to make rigorous mathematical arguments and work with axiomatic systems.
3. Effectively communicate, both in writing and orally, mathematical and logical arguments and concepts.

Mathematics major
(74-75 credits)
Choose a track:

Mathematics track
CS 161 Computer Science I (5)
MTH 251 Calculus I (5)
MTH 252 Calculus II (5)
MTH 253 Calculus III Sequences and Series (3)
MTH 254 Multivariate Calculus (5)
MTH 280 Introduction to Proof (4)
MTH 311 Advanced Calculus I (4)
MTH 312 Advanced Calculus II (4)
MTH 341 Linear Algebra I (4)
MTH 344 Group Theory (4)
MTH 345 Ring Theory (4)
MTH 346 Number Theory (4)
MTH 347 Introduction to Numerical Analysis (4)
MTH 358 Mathematical Modeling (4)
MTH 370 Special Topics: Applied Mathematics (3)
MTH 391 Linear Algebra II (4)
MTH 395 Numerical Analysis (4)
MTH 360 Special Topics: Probability and Statistics (3)
CS 160 Survey of Computer Science (3)
CS 161 Computer Science I (5)
CS 162 Computer Science II (5)
CS 260 Data Structures I (3)
CS 262 Programming Languages (2)
CS 271 Computer Organization (4)
CS 311 Data Structures II (3)
CS 315 Theory of Programming Languages (3)
CS 345 Theory of Computation I (3)
CS 372 Operating Systems (3)
CS 420 Data Management Systems (3)
CS 425 Systems Analysis and Design (3)
CS 430 Software Implementation and Testing (3)
CS 406 Senior Seminar (1)

Choose nine hours from one of the following elective sequences*: (9)

A. Computational theory
CS 440 Analysis of Algorithms (3)
CS 445 Theory of Computation (3)
CS 447 Compiler Design (3)
CS 449 Topics in Computational Theory (3)

B. Software engineering
CS 470 Operating Systems- Advanced Topics (3)
CS 471 Metrics and Testing (3)
CS 470 Human Machine Interfaces (3)
CS 474 Concurrent Systems (3)
CS 475 Applied Computational Intelligence (3)
CS 479 Topics in Software Engineering (3)

C. Systems management
CS 450 Network Fundamentals (3)
CS 451 Management of Information Systems (3)
CS 452 Internet Communications (3)
CS 453 Data Mining and Data Warehousing (3)
CS 459 Topics in Systems Management (3)

Mathematics teacher education major
(66-67 credits)
CS 161 Computer Science I (5)
MTH 251 Calculus I (5)
MTH 252 Calculus II (5)
MTH 253 Calculus III Sequences and Series (3)
MTH 254 Multivariate Calculus (5)
MTH 280 Introduction to Proof (4)
MTH 311 Advanced Calculus I (4)
MTH 312 Advanced Calculus II (4)
MTH 341 Linear Algebra I (4)
MTH 344 Group Theory (4)
MTH 345 Ring Theory (4)
MTH 346 Number Theory (4)
MTH 358 Mathematical Modeling (4)
MTH 359 Special Topics: Applied Mathematics (3)
MTH 370 Linear Algebra II (4)
MTH 395 Numerical Analysis (4)
MTH 360 Special Topics: Probability and Statistics (3)
CS 160 Survey of Computer Science (3)
CS 161 Computer Science I (5)
CS 162 Computer Science II (5)
CS 260 Data Structures I (3)
CS 262 Programming Languages (2)
CS 271 Computer Organization (4)
CS 311 Data Structures II (3)
CS 315 Theory of Programming Languages (3)
CS 345 Theory of Computation I (3)
CS 372 Operating Systems (3)
CS 420 Data Management Systems (3)
CS 425 Systems Analysis and Design (3)
CS 430 Software Implementation and Testing (3)
CS 406 Senior Seminar (1)

Choose nine hours from one of the following elective sequences*: (9)

A. Computational theory
CS 440 Analysis of Algorithms (3)
CS 445 Theory of Computation (3)
CS 447 Compiler Design (3)
CS 449 Topics in Computational Theory (3)

B. Software engineering
CS 470 Operating Systems- Advanced Topics (3)
CS 471 Metrics and Testing (3)
CS 470 Human Machine Interfaces (3)
CS 474 Concurrent Systems (3)
CS 475 Applied Computational Intelligence (3)
CS 479 Topics in Software Engineering (3)

C. Systems management
CS 450 Network Fundamentals (3)
CS 451 Management of Information Systems (3)
CS 452 Internet Communications (3)
CS 453 Data Mining and Data Warehousing (3)
CS 459 Topics in Systems Management (3)

Mathematics teacher education majors must have a grade of C- or better in courses that are used to satisfy the minor requirements.

Mathematics minor
(28-30 credits)
MTH 251 Calculus I (5)
MTH 252 Calculus II (5)
MTH 253 Calculus III (or– MTH 254 Multivariate Calculus) (5)
Four approved upper-division electives in mathematics (15-16)
(300/400 level mathematics classes selected with your math advisor)

Mathematics minors must have a grade of C- or better in courses that are used to satisfy the minor requirements.

Mathematics education minor: mathematics majors
(27-28 credits)
MTH 211, 212, 213 Foundations of Elementary Mathematics (12)
MTH 396 Elementary Problem Solving (3)
MTH 392 College Algebra for Elementary and Middle School Teachers (3)
MTH 393 Probability and Statistics for Elementary and Middle School Teachers (3)
MTH 394 Introduction to Geometry for Elementary Teachers (3) or– MTH 494 Geometry for Middle School Teachers (3)
Choose one: (3-4)
MTH 346 Number Theory (4)
MTH 355 Discrete Mathematics (4)* or– MTH 398 Discrete Mathematics for Elementary and Middle School Teachers (3)*

Computer science/mathematics major
(106-107 credits)
MTH 251 Calculus I (5)
MTH 252 Calculus II (5)
MTH 253 Calculus III Sequences and Series (3)
MTH 254 Multivariate Calculus (5)
MTH 280 Introduction to Proof (4)
MTH 341 Linear Algebra I (4)
MTH 344 Group Theory (4)
MTH 355 Discrete Mathematics (4)
MTH 365 Mathematical Probability (4)
MTH 366 Mathematical Statistics (4)
Choose three electives: (11-12)
MTH 311 Advanced Calculus I (4)
MTH 314 Differential Equations (4)
MTH 345 Ring Theory (4)
MTH 346 Number Theory (4)
MTH 351 Introduction to Numerical Analysis (4)
MTH 358 Mathematical Modeling (4)
MTH 420 Special Topics: Applied Mathematics (3)
MTH 441 Linear Algebra II (4)
MTH 451 Numerical Analysis (4)
MTH 460 Special Topics: Probability and Statistics (3)
CS 160 Survey of Computer Science (3)
CS 161 Computer Science I (5)
CS 162 Computer Science II (5)
CS 260 Data Structures I (3)
CS 262 Programming Languages (2)
CS 271 Computer Organization (4)
CS 311 Data Structures II (3)
CS 315 Theory of Programming Languages (3)
CS 345 Theory of Computation I (3)
CS 372 Operating Systems (3)
CS 420 Data Management Systems (3)
CS 425 Systems Analysis and Design (3)
CS 430 Software Implementation and Testing (3)
CS 406 Senior Seminar (1)

Choose nine hours from one of the following elective sequences*: (9)

A. Computational theory
CS 440 Analysis of Algorithms (3)
CS 445 Theory of Computation (3)
CS 447 Compiler Design (3)
CS 449 Topics in Computational Theory (3)

B. Software engineering
CS 470 Operating Systems- Advanced Topics (3)
CS 471 Metrics and Testing (3)
CS 470 Human Machine Interfaces (3)
CS 474 Concurrent Systems (3)
CS 475 Applied Computational Intelligence (3)
CS 479 Topics in Software Engineering (3)

C. Systems management
CS 450 Network Fundamentals (3)
CS 451 Management of Information Systems (3)
CS 452 Internet Communications (3)
CS 453 Data Mining and Data Warehousing (3)
CS 459 Topics in Systems Management (3)

Computer science/mathematics majors must have a grade of C or better in the computer science courses and a grade of C- or better in the mathematics courses that are used to satisfy the computer science/mathematics major requirements.
*If MTH 355 is taken to satisfy any part of any mathematics major requirements, then neither MTH 355 nor MTH 398 may apply toward the mathematics education minor*

Mathematics education minors must have a grade of C- or better in courses that are used to satisfy the minor requirements.

**Mathematics education minor: non-mathematics majors**

(27-28 credits)

MTH 211, 212, 213 Foundations of Elementary Mathematics (12)

MTH 396 Elementary Problem Solving (3)

MTH 392 College Algebra for Elementary and Middle School Teachers (3) —**or**— MTH 111 College Algebra (4)

MTH 494 Geometry for Middle School Teachers (3)

MTH 495 Calculus for Middle School Teachers (3)

Choose one (3)

- MTH 393 Probability and Statistics for Elementary and Middle School Teachers
- MTH 398 Discrete Mathematics for Elementary and Middle School Teachers
- MTH 492 Abstract Algebra for Teachers

* Mathematics education minors must have a grade of C- or better in courses that are used to satisfy the minor requirements.

**Military Science (Army ROTC)**

**Military science minor**

(28 credits)

**Mission**

To teach leadership and military skills in the classroom, lab and field environment to all students and to commission selected cadets as the future officer leadership of the U.S. Army.

**Learning outcomes**

1. All students are prepared with the tools, training and experiences that will help them succeed in any competitive environment.
2. First and second year students understand basic military skills and the fundamentals of leadership which lays the groundwork toward becoming an Army leader.
3. Third and fourth year students understand advanced military tactics and have experience in team organization, planning and decision-making which prepares them to become commissioned Officers in the U.S. Army.

At least 18 of the 24 hours required in the minor must be military science courses.

**B.A./B.S. Music**

(72 credits)

**Theory** (18 credits)

- MUS 211, 212, 213 Theory I, II, III (9)
- Theory Electives: choose 9 credits
  - MUS 318 Contemporary Composition Techniques I
  - MUS 371 Orchestration I
  - MUS 372 Orchestration II
  - MUS 414 Jazz Theory
  - MUS 415 Jazz Arranging I
  - MUS 416 Jazz Arranging II
  - MUS 417 Counterpoint
  - MUS 418 Contemporary Composition Techniques II
  - MUS 421 Media Music Production I
  - MUS 422 Media Music Production II
  - MUS 423 Media Music Production III
  - MUS 430 Advanced Improvisation
  - MUS 465 Special Topics Music Theory
  - MUS 471 The Great American Songbook
  - MUS 472 Songwriting I

**Aural skills** (9 credits)


**Musicology** (18)

- MUS 360, 361, 362 Music History (9)
- MUS 363, 364 Ethnomusicology I and II (6)
- MUS 366 Music Since 1961 (3)

**Performance** (15)

- MUP 171-199 Performance (18)
  - MUS 320 Instrumental Conducting (3)
  - MUS 331 Improvisation I (2)

**Professional development** (10)

- MUS 305 Junior Seminar (1)
- MUS 345 Business of Music (3)
- MUS 404 Capstone Project (0)
- MUS 405 Senior Seminar (3)
- MUS 406 Individual Study (3) 3 terms
- MUS 250 Concert Attendance (0) 9 terms

**Bachelor of Music in Contemporary Music**

(120 credits)

**Contemporary music core** (90 credits)

**Theory** (18 credits)

- MUS 211, 212, 213 Theory I, II, III (9)
- Theory Electives: choose 9 credits
  - MUS 318 Contemporary Composition Techniques I
  - MUS 371 Orchestration I
  - MUS 372 Orchestration II
  - MUS 414 Jazz Theory
  - MUS 415 Jazz Arranging I
  - MUS 416 Jazz Arranging II
  - MUS 417 Counterpoint
  - MUS 418 Contemporary Composition Techniques II
### Bachelor of Music in Contemporary Music/Popular Music Emphasis

(120 credits)

#### Theory (18 credits)
- MUS 211, 212, 213 Theory I, II, III (9)
- Theory Electives: (9)
  - MUS 318 Contemporary Composition Techniques I
  - MUS 371 Orchestration I
  - MUS 372 Orchestration II
  - MUS 414 Jazz Theory
  - MUS 415 Jazz Arranging I
  - MUS 416 Jazz Arranging II
  - MUS 417 Counterpoint
  - MUS 418 Contemporary Composition Techniques II
  - MUS 421 Media Music Production I
  - MUS 422 Media Music Production II
  - MUS 423 Media Music Production III
  - MUS 430 Advanced Improvisation
  - MUS 465 Special Topics Music Theory
  - MUS 471 The Great American Songbook

#### Aural skills (9 credits)

#### Musicology (18)
- MUS 360, 361, 362 Music History (9)
- MUS 363, 364 Ethnomusicology I and II (6)
- MUS 366 Music Since 1961 (3)

#### Performance (38)
- MUE 101-192 Ensembles (6)
- MUE 301-392 Ensembles (6)
- MUP 170 American Vernacular Performance (6)
- MUP 270 American Vernacular Performance (6)
- MUP 370 American Vernacular Performance (6)
- MUS 320 Instrumental Conducting (3)
- MUS 321 Choral Conducting (3)
- MUS 322 American Vernacular Conducting (3)
- MUS 331 Improvisation (2)

#### A minor is not required.

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### Nursing Program

**Mission**

The Oregon Health & Science University (OHSU) School of Nursing mission is leadership in nursing and health care through thoughtful innovation in healing, teaching and discovery. The OHSU nursing program prepares students with the knowledge, skills, and clinical judgement to respond to dynamic and changing health care environments.

The OHSU School of Nursing is a statewide system of higher education whose faculty, staff, and students extend to five campuses with major educational access sites throughout Oregon. We offer undergraduate, master, and doctoral level nursing programs statewide. Admission for all programs is considered competitive and most programs require pre-requisite coursework prior to admission. For more information about the available nursing programs that are offered statewide or those that are offered on the Monmouth campus, contact the OHSU Office of Admissions at 503-494-7725 or at proginfo@ohsu.edu. For course descriptions...
and degree requirements, see the OHSU School of Nursing course catalog at ohsu.edu/son/academic/catalog.shtml.

Learning outcomes
OHSU School of Nursing participates in the Oregon Consortium for Nursing Education (OCNE) and the OCNE competencies are based on a view of nursing as a theory-guided, evidenced-based discipline. The competencies recognize that effective nursing requires a person with particular values, attitudes, habits, and skills. Accordingly there are two categories of competencies: professional competencies, and nursing care competencies. Professional competencies define the values, attitudes and practices that a competent nurse embodies and may share with members of other professions.

Nursing care competencies define relationship capabilities that nurses need to work with clients and colleagues, the knowledge and skills of practicing the discipline and competencies that encompass understand of the broader health care system. In all cases, the client is defined as the recipient of care, considered an active participant in care, and includes the individual, family or community. Nursing care competencies recognize that a competent nurse provides safe care across the lifespan directed toward the goals of helping the client promote health, recover from acute illness and/or manage a chronic illness and support a peaceful and comfortable death.

A complete list of these competencies can be located within the OHSU School of Nursing catalog/student handbook at ohsu.edu/son/academic/catalog.shtml.

Accreditation
The OHSU School of Nursing undergraduate and master’s programs are accredited by the Commission on collegiate Nursing Education; the accrediting body of the American Association of Colleges of Nursing. The OHSU School of Nursing is accredited through the year 2013.

Philosophy
Professor: Mark Perlman
Associate professors: Susan Daniel, Ryan Hickerson

Mission
Provide a conduit to broaden students’ horizons via new ideas, novel perspectives, and the historical roots and epistemological context of their beliefs; and develop the critical-thinking and problem-solving skills to evaluate and work constructively with new ideas.

Students may not feel they have the answers to questions they explore, but they will appreciate intellectual inquiry as a central part of their lives. Hence, the ultimate goal is to nurture independent, well-informed, skillful thinkers.

Learning outcomes
1. Become aware of the origins of their own beliefs and ideas, and those from different cultural/historical contexts.

2. Develop critical-thinking and problem-solving skills needed to analyze and evaluate ideas.

3. Build on their foundations in the history of philosophy and logic by working creatively and constructively with new ideas.

**Philosophy major**
(63 credits)

PHL 101 and 102 Introduction to Philosophy (6)  
PHL 103 Introduction to Logic (3)  
Choose one: (3)  
PHL 251 Ethics  
PHL 252 Medical Ethics  
PHL 255 Environmental Ethics  

PHL 262 Epistemology: Theory of Knowledge (3)  
Choose one: (3)  
PHL 261 Metaphysics: Theory of Being  
PHL 263 Philosophy of Mind  

PHL 282 Philosophy of Art  
PHL 283 Philosophy of Religion  
PHL 311 Ancient Philosophy (3)  
PHL 313 Medieval and Renaissance Philosophy (3)  
PHL 314 Modern European Philosophy (3)  
PHL 316 Contemporary Philosophy (3)  
Choose one: (3)  
PHL 321 Existentialism  
PHL 322 19th Century Philosophy  
PHL 323 Continental Philosophy  
Choose one: (3)  
PHL 350 Social and Political Philosophy  
PHL 380 Philosophy of Law  

PHL 405 Senior Tutorial in Philosophy (3)  
Choose one: (3)  
R 201 Introduction to the World’s Religions: Eastern  
R 204 Introduction to the World’s Religions: Western  
R 460 Comparative Religion  

Electives in philosophy, religious studies and approved humanities courses (18)

Upper-division courses must total 36 hours minimum.

**Philosophy minor**
(27 credits)

PHL 101 Introduction to Philosophy (3)  
PHL 103 Introduction to Logic (3)  
Choose one: (3)  
PHL 102 Introduction to Philosophy: Personal Morality and Social Justice  
PHL 251 Ethics  

Choose three: (9)  
PHL 311 Ancient Philosophy  
PHL 313 Medieval and Renaissance Philosophy  
PHL 314 Modern European Philosophy  
PHL 316 Contemporary Philosophy  

PHL 405 Senior Tutorial in Philosophy (3)  
Electives in Philosophy and/or Religious Studies (6)

Upper-division courses must total 15 hours minimum.

Physical Education

**Physical Education**

Professors: Marita Cardinal, Brian Caster, Gay Timken  
Associate professors: Jeffrey Armstrong, Robert Hautala

Mission
To maximize individual and professional development in health and movement science and to promote healthy lifestyles and communities.

Learning outcomes
Relative to physical activity, physical fitness, and motor skill development programs, candidates will:
1. Plan effective strategies, interventions and programs based on assessment of individual and community needs.
2. Implement and evaluate strategies, interventions and programs.
3. Coordinate, communicate and advocate for research-based practices.

**Physical education teacher education major**
(74 credits)

**Foundations of human movement core**
(32 credits)

PE 230 Foundations of Exercise Science (4)  
PE 310 Motor Learning (4)  
PE 371 Kinesiology (4)  
PE 415 Lifespan Motor Development (4)  
PE 444 Lifespan Adapted Physical Activity (4)  
PE 470 Sociological and Psychological Aspects of Physical Activity (4)  
PE 473 Physiology of Exercise (4)  
PE 483 Biomechanics (4)

**Physical education teacher education core**
(17 credits)

PE 330 Teaching Methods in Physical Education I (4)  
PE 335 Field Experience in Physical Education (1)  
PE 430 Teaching Methods In Physical Education II (4)  
PE 431 Assessment Strategies In Physical Education (4)  
PE 445 Curricular Issues in Physical Education (4)

**Activity core**
(25 credits)

PE 239 Teaching Movement Education (3)  
PE 240 Teaching Dance in Physical Education (3)  
PE 241 Teaching Games I (3)  
PE 242 Teaching Games II (3)  
PE 243 Teaching Outdoor & Adventure Education (3)  
PE 244 Teaching Aerobic Fitness (3)  
PE 245 Teaching Strength Training and Conditioning (3)  

Choose two courses from the following areas (4):

- Aquatics  
- Eastern Arts  
- Gymnastics  
- Outdoor Recreation
It is recommended that students take BI 102 General Biology and BI 234, and BI 235 Human Anatomy and Physiology to fulfill the natural science requirement in the LACC. BI 234, 235 and 236 are prerequisites to several major required and elective courses. See course descriptions for specific prerequisites.

**Physical education minor**
(27 credits)
PE 230 Foundations of Exercise Science (4)
Electives selected from PE offerings as approved by advisor (23)

Of these 23 credits, a minimum of 15 credits must be upper-division courses (300-400 level).

**Sports leadership minor**
(27 credits)
HE 252 First Aid, CPR and Safety (3)
PE 361 Coaching Youth Sports (3)
PE 375 Athletics: Coaching and Administration (3)
PE 359 Care and Prevention of Athletic Injuries (4)
PE 310 Motor Learning (4) or PE 420 Motor Learning for Coaches (4)
PSY 415 Psychology of Sport (4)
Choose six credits of sport or coaching related courses and/or coaching practicum with advisor approval. (6)

**Politics**
Associate professor: William Schoenfeld

**Mission**
Foster small group active learning environment in which students explore and discover the laws of physics in a state of the art laboratory. Students develop connections that link fundamental concepts in physics with phenomena covered in their biology, chemistry and Earth science classes. Provide out-of-classroom experiences in space science and teacher training through WOU’s membership in the NASA/Oregon Space Grant Consortium.

**Learning outcomes**
1. Develop reasoning and problem solving skills as applied to scientific investigations.
2. Gain experience in combining graphical and numeric information to produce mathematical models.
3. Attain proficiency in physics theory and applications suitable for high school physics teaching.

**Physics minor**
(27 credits)
PH 211, 212, 213 General Physics with Calculus (12)
PH 311, 312 Introduction to Modern Physics (8)
Upper-division chemistry, physics or mathematics electives (7)

**Political Science**
Professors: Edwin Dover, Mark Henkels, Mary Pettenger
Associate professor: Eliot Dickinson

**Mission**
To serve students through teaching and mentoring, serve society through research, public outreach and activities, and serve the university through collegial participation in all aspects of the community.

**Learning outcomes**
1. Understand key concepts in politics and public service.
2. Apply analytical approaches to political problems.
3. Gain practical experience through research, public outreach and advocacy, and participation in campus leadership.

**Political science major**
(72 credits)
PS 201 American National Government (3)
PS 202 State and Local Government (3)
PS 203 International Relations (3)
PS 204 Introduction to Comparative Politics (3)
PS 350 Introduction to Public Policy (3)
PS 351 Introduction to Public Administration (3)
PS 375 Scope and Method of Political Science (3)
Choose two in international relations and comparative politics: (6)
PS 193 Introduction to Model United Nations
PS 393 Advanced Model United Nations
PS 426 Federalism and Intergovernmental Relations
PS 440 Causes of War
PS 441 Causes of Peace
PS 459 Government and Politics of Latin America
PS 460 Government and Politics of Asia
PS 461 Politics and Government of Post-Communist States
PS 462 Politics and Government of Europe
PS 463 Government and Politics of Developing States
PS 464 Government and Politics of Africa
PS 465 Government and Politics of the Middle East
PS 473 Globalization Issues
PS 477 International Environmental Politics
PS 478 Political Fiction and Film
PS 481 International Law
PS 492 Political Ideologies
PS 493 International Organizations
PS 497 U.S. Foreign Policy
(depending on content, PS 199, 399, 406, 407, 409, 410)
Choose two in administration and political processes: (6)
PS 325 Democracy in Theory and Practice
PS 410 Parties, Pressure Groups and Elections
PS 415 Politics and Psychology
PS 416 Politics and Communication
PS 419 American Presidential Elections
PS 425 Native American Politics and Policy
PS 426 Federalism and Intergovernmental Relations
PS 451 Political Theory: Plato to Marx
PS 452 Political Theory: Marx to Habermas
PS 454 Public Personnel Administration
PS 466 Governmental Budgeting
PS 469 Congress and the Presidency
PS 490 Community Politics
PS 495 Public Sector Labor Relations (depending on content, PS 199, 399, 406, 407, 409, 410)
Choose two in public policy and law: (6)
PS 423 Issues in National Policy
PS 424 Policy Making in the States
PS 430 Aging Society
PS 432 Global Health Policy
PS 435 Women and Politics
PS 436 Gender and Politics
PS 444 National Security
PS 445 Introduction to Policy Analysis
PS 446 Land Resource Politics and Policy
PS 447 Environmental Politics and Policy
PS 449 Environmental Values and Political Action
PS 471 Immigration Politics and Policy
PS 479 Constitutional Law
PS 480 Administrative Law
PS 484 American Jurisprudence
PS 485 Legal Reasoning and Writing
PS 494 Human Rights
(assuming on content, PS 199, 399, 406, 407, 409, 410)
Electives in Political Science (18)
Electives in Social Science/Political Science: must be chosen with the advice of Political Science major advisor (15)

For the B.S. degree in political science, students may take any combination of math/computer science/quantitative literacy courses as long as it includes at least one math course beyond MTH 105 and one computer science course beyond CS 101.

**Political science minor**
(27 credits)
PS 201 American National Government (3)
PS 202 State and Local Government (3)
PS 203 International Relations (3)
PS 204 Introduction to Comparative Politics (3)
PS 350 Introduction to Public Policy (3)
PS 351 Introduction to Public Administration (3)
Upper-division electives in political science (9)

**Pre-Professional Studies in the Health Sciences**
Mission
Prepares students for entry into professional programs in many of the health sciences. Students will develop skills, gain knowledge, and complete prerequisite coursework for admission into a professional program of their choosing. Students may also use these courses toward the requirements for a Bachelors of Art or a Bachelors of Science degree. All pre-profes-
sional health science students are assigned to specific advisors.

Learning outcomes
1. Develop deductive reasoning, analytical, and problem solving skills related to their professional goals.
2. Learn broad concepts from many different disciplines for entry into their profession of choice.
3. Acquire a liberal arts education while pursuing a professional education.

WOU currently offers health sciences pre-professional studies in the following areas:

### One- to two-year programs

**Pre-nursing**
Pre-dental hygiene

Admission to nursing and pre-dental hygiene programs is highly competitive. In general, admission depends on grades, a written personal statement, professional experience, and the completion of specific coursework and/or proficiency exams. Although specific admissions requirements vary somewhat from program to program, all minimally require biology (including a year of human anatomy and physiology), psychology, sociology, writing, and math. More information about preparatory material is available from the following program advisors:

**Pre-nursing**
Dr. Michael LeMaster, lemasterm@wou.edu
503-838-8136

**Pre-dental hygiene**
Dr. Sarah Boomer, boomers@wou.edu
503-838-8209

### Three- to four-year programs

**Pre-dentistry**
Pre-medicine (allopathic, osteopathic, chiropractic, podiatric, optometric)
Pre-clinical lab science
Pre-occupational therapy
Pre-pharmacy
Pre-physical therapy
Pre-veterinary medicine

Admission to the above programs is highly competitive. In general, admission depends on grades, a written personal statement, professional experience, the completion of specific coursework and/or proficiency exams. Although specific admissions requirements vary somewhat from program to program, all require extensive coursework in biology, chemistry, and physics. Consequently, a biology degree with a pre-professional emphasis facilitates well the admission requirements for most programs.

Additional coursework is required to complete a bachelor’s degree at WOU, all of which are required or strongly recommended for admission to a majority of these programs. More information about preparatory materials is available from the following program advisors:

**Pre-dentistry**
Dr. Sarah Boomer, boomers@wou.edu
503-838-8209

**Pre-medicine**
Dr. Michael Baltzley, baltzlem@wou.edu
503-838-8832

Dr. Bryan Dutton, duttonb@wou.edu
503-838-8452

**Pre-clinical lab science**
Dr. Karen Haberman, habermk@wou.edu
503-838-8478

**Pre-occupational therapy**
Dr. Rob Winningham, winninr@wou.edu
503-838-8618

**Pre-pharmacy**
Dr. Kristin Latham, lathamk@wou.edu
503-838-8868

Pre-physician assistant
Dr. Ava Howard, howarda@wou.edu
503-838-8452

**Pre-physical therapy**
Dr. Brian Caster, casterb@wou.edu
503-838-8364

**Pre-veterinary medicine**
Dr. Karen Haberman, habermk@wou.edu
503-838-8478

### Pre-Professional Studies

**Pre-law: four-year preparation**
The minimum requirement for admission to a recognized law school is a bachelor’s degree. Most law schools value intellectual maturity and a broad educational background, such as is provided by majors in the social sciences, natural sciences or humanities, rather than narrow specialization. Well-developed research, analysis, oral and written communication skills are considered desirable.

It is suggested that students take the legal studies minor with additional course work in the following areas: accounting, economics, history, political science, philosophy, psychology, sociology, communication studies and writing. For more specific information on an appropriate course of study, see the pre-law advisor, who is assigned by the Social Science Division.

Admission to law schools is highly competitive. Applicants are usually expected to achieve an undergraduate GPA of at least 3.00 and perform well on the Law School Admission Test (LSAT), although strength in one of these areas may compensate for weakness in the other. The LSAT should be taken early in the senior year. More information about preparatory materials is available from the pre-law advisor. Contact the Social Science Division for more information.

### Psychology major

(56 credits)

Minimum 40 credits upper division

PSY 201, 202 General Psychology (8)
PSY 301 Introduction to Research Methods (4)
PSY 311 Developmental Psychology (4)
PSY 334 Social Psychology (4)
PSY 360 Cognitive Psychology (4)
PSY 467 Quantitative Methods (4)
PSY 468 Advanced Research Methods (4)

Choose one: (4)
PSY 443 Group Processes
PSY 445 Introduction to Industrial/Organizational Psychology
PSY 446 Psychology of Leadership
PSY 447 Introduction to Organizational Development

Electives (20) Chosen with an advisor’s assistance. In addition to courses with the PSY prefix, the following Gerontology courses can count as electives for the major.
GERO 360 Cognitive and Physical Changes in Aging
GERO 370 Aging and Mental Health
GERO 400 Seminar
GERO 430 Palliative Care and Chronic Illness
GERO 480 Alzheimer’s Disease and Other Dementias Management

Formal admission is required for all students seeking the B.A./B.S. degree in psychology. Prior to application for admission to the psychology major, applicants must complete the PSY 201, 202, 301 sequence or its equivalent and achieve sophomore standing (45 or more credit hours). Students will be admitted to the psychology major who meet the following criteria:

### Pre-law: four-year preparation

The minimum requirement for admission to a recognized law school is a bachelor’s degree. Most law schools value intellectual maturity and a broad educational background, such as is provided by majors in the social sciences, natural sciences or humanities, rather than narrow specialization. Well-developed research, analysis, oral and written communication skills are considered desirable.

It is suggested that students take the legal studies minor with additional course work in the following areas: accounting, economics, history, political science, philosophy, psychology, sociology, communication studies and writing. For more specific information on an appropriate course of study, see the pre-law advisor, who is assigned by the Social Science Division.

Admission to law schools is highly competitive. Applicants are usually expected to achieve an undergraduate GPA of at least 3.00 and perform well on the Law School Admission Test (LSAT), although strength in one of these areas may compensate for weakness in the other. The LSAT should be taken early in the senior year. More information about preparatory materials is available from the pre-law advisor. Contact the Social Science Division for more information.
Course Descriptions
A 670 Graduate Printmaking (3)
Advanced study and studio production of prints as a personally expressive visual form. May be repeated for credit. Prerequisites: admitted post-baccalaureate standing and consent of the instructor

A 676 Aesthetic Foundations of Visual Arts (3)
A study and analysis of philosophic aspects of the visual arts.

A 677 Contemporary Problems in Visual Art (3)
A course designed to offer critical examination of art in society, creativity, brain research, the computer and other selected areas.

A 680 Graduate Painting (3)
Advanced study and studio production of painting. May be repeated for credit. Prerequisites: admitted post-baccalaureate standing and consent of the instructor

A 690 Graduate Sculpture (3)
Advanced study of sculpture with studio work in three-dimensional art forms. May be repeated for credit. Prerequisites: admitted post-baccalaureate standing and consent of the instructor

A 699 Special Individual Studies: Graduate (3)
Terms and hours to be arranged. May be repeated for credit. Eligible for the RP grade option. Prerequisite: admitted post-baccalaureate standing

Art Education
ARE 433 Art Education (3)
Introduction to teaching art in the classroom for prospective elementary and middle school teachers. Explores art production, aesthetics, and criticism, with historical and cultural perspectives. Prerequisites: A 115 or A 130 and Junior standing

ARE 434/534 Historical and Cultural Perspectives in the Visual Arts (3)
Developing advanced level lessons in art built upon the lives and works of fine, applied and folk artists, with a multicultural perspective and interdisciplinary approach. Prerequisite: upper-division or graduate standing

ARE 490/590 Art in the Elementary School (3)
Designed to provide additional art experiences in the philosophy, materials and techniques of the visual arts for teachers and administrators. Prerequisite: upper-division or graduate standing

Biology
BI 101, 102, 103 General Biology (5 each)
The major principles and methods of biology:

BI 101 includes ecology, the diversity of life and an introduction to evolution. BI 102 considers cellular structure and function, energy transformations, genetics, evolution, reproduction and development. BI 103 emphasizes the anatomy and physiology of plants and animals along with a brief treatment of animal behavior. This sequence is designed for students not intending to pursue further study in the biological sciences. Three hours of lecture and one two-hour laboratory period.

BI 101X, 102X, 103X General Biology Peer Led Team Learning (0)
Peer-led Team Learning (PLTL) is a separate, 0-credit course that uses a learning model designed for participating students registered in introductory biology series to develop a broader and deeper understanding of course concepts.

BI 211, 212, 213 Principles of Biology (5 each)
An introduction to the science of biology, including morphological, physiological and developmental aspects of living organisms; the phylogeny, evolution and ecology of both plants and animals, and fundamental concepts of genetics and molecular biology. Designed for the biology major. Four hours of lecture and one three-hour laboratory period. Prerequisite: passing grade in BI 211 required for admission to BI 212 and BI 213. Students interested in BI 211 are strongly encouraged to have taken high school biology and chemistry or BI 102 and CH 104

BI 214, 215, 216 Human Anatomy and Physiology (4 each)
Study of the anatomy and physiology of the human body. Uses lecture and laboratories utilizing human cadavers to cover the following topics: integumentary system, skeletal system, muscular system, and immune system. Three one-hour lectures and one two-hour laboratory per week. Prerequisites: BI 102 or BI 211 with a grade of C- or better

BI 235 Human Anatomy and Physiology (4)
Study of the anatomy and physiology of the human body. Uses lecture and laboratories utilizing human cadavers to cover the following topics: nervous system, special senses, endocrine system and cardiovascular system. Three hours of lecture and one two-hour laboratory per week. Prerequisite: BI 234

BI 236 Human Anatomy and Physiology (4)
Study of the anatomy and physiology of the human body. Uses lecture and laboratories utilizing human cadavers to cover the following topics: respiratory system, digestive system, urinary system and reproductive system. Three one-hour lectures and one two-hour laboratory per week. Prerequisite: BI 235

BI 314 Introductory Genetics (4)
Principles and mechanisms of inheritance, including consideration of patterns of inheritance, the nature of the gene, chromosome structure, gene action, population genetics and mechanisms of mutation. Three hours of lecture plus one hour discussion session per week. Prerequisite: BI 211 or consent of instructor, and MTH 111 or equivalent

BI 315 Cell Biology (4)
An introduction to cell structure and function required for the biology major. Examines the architecture and basic organelle activity in the intact cell and the major techniques currently employed to study cells. Three hours of lecture and one three-hour lab each week. Prerequisites: BI 213, BI 314, and CH 221

BI 316 Evolution (4)
Introduction to the major concepts and principles of evolutionary biology with an emphasis on the sources of variation, mechanisms of evolution, phylogenetics and the evolution of the human lineage. Three lecture hours plus one hour discussion session. Prerequisite: BI 212 and BI 314 or consent of instructor

BI 317 Vertebrate Natural History (4)
The classification, behavior, life history and ecology of vertebrate animals, focusing primarily on amphibians, reptiles, birds and mammals. Laboratory will emphasize identification and field studies of vertebrates that occur in Oregon. Three one-hour lectures and one three-hour laboratory. Prerequisites: Introductory biology sequence

BI 318 Microbiology for the Health Sciences (4)
An introduction to the biology of microorganisms with an emphasis on infectious human disease agents, immunology and the control of disease through antimicrobial strategies and vaccination. Designed for students interested in pre-nursing, pre-dental hygiene and entry level positions in public health laboratories. Laboratory component emphasizes skills with microscopes, identification testing and includes practical exams. Not open for credit to biology majors or minors. However, credit may be applied to the human biology minor. Three hours of lecture and one two-hour lab per week. Prerequisites: BI 102 or BI 211 with a grade of C- or better

BI 321 Systematic Field Botany (4)
Designed to give practical experience in the identification of common plant families and species of the Willamette Valley. Includes the learning of major characteristics of plant families from a phylogenetic perspective and the use of tools for plant identification. Field collections that emphasize careful observation and records of ecological relations as plants are collected and field trips to selected sites are required. Three lectures plus one three-hour laboratory period. BI 101 or BI 213 recommended

BI 324 Comparative Vertebrate Anatomy (5)
A comparative analysis of vertebrate morphology, emphasizing the study of organs and organ systems, and an introduction to the taxonomy, evolution and functional morphology of the vertebrates. Anatomy at the level of the cell, the organ system, and the
organism will be discussed. Three hours of lecture and four hours of laboratory per week. Prerequisite: BI 211, 212, and 213 or consent of instructor

**BI 326 Developmental Biology (4)**
Development of model vertebrates and invertebrates from fertilization through organogenesis; includes analyses of early cell cleavage, morphogenesis, differentiation and growth. Three hours of lecture and one three-hour laboratory per week. Prerequisites: BI 315 and one year of chemistry, or consent of instructor

**BI 330 Plant Physiology (5)**
An examination of the physiological processes and mechanisms involved in plant nutrition, photosynthesis, assimilation of organic and inorganic materials, energy balance, water requirements, growth factors and organismic control. Three hours lecture and one four-hour laboratory periods. Prerequisite: BI 213 and CH 223 or consent of instructor

**BI 331 General Microbiology (4)**
Selected topics in the science of microbiology with an emphasis on microbial structures and physiology as they impact diversity and ecology, biotechnology, and diseases (bacterial, viral, and protozoal). Involved lab component represents nearly half course grade. Prerequisites: BI 211, 212, 213, 314, CH 221, 222, 223, WR 135

**BI 334, 335, 336 Advanced Human Anatomy and Physiology (4 each)**
An in-depth examination of anatomical structures and physiological mechanisms that function to maintain local and global homeostasis within the human body. This sequence is designed for students intending to pursue future studies in professional health fields. Laboratory component includes anatomical studies using histological slides, models, and human cadavers. Three hours of lecture and three hours of laboratory per week. Prerequisite: BI 213 or consent of instructor for admission to BI 334; passing grade in BI 334 required for admission to BI 335; passing grade in BI 335 required for admission to BI 336

**BI 340 Plant Nutrition (4)**
A study of soil fertility, nutrient acquisition, transport and metabolism, crop growth and yield, and farming practices that affect plant nutrition. Laboratory includes field trips and a term-long greenhouse experiment to diagnose nutrient deficiency. Three hours of lecture and two hours of laboratory per week. Prerequisite: BI 213 or CH 223

**BI 357 General Ecology (4)**
Focuses on the patterns of distribution and abundance of organisms in space and through time. Explores the underlying causes, both natural and anthropogenic, of these patterns at the population, community and ecosystem levels for a variety of organisms and ecosystems. In the lab, students will engage in nearly all phases of ecological research. Three hours of lecture and one three-hour laboratory. Prerequisite: BI 211, 212, 213, MTH 111, WR 135

**BI 360 Animal Behavior (4)**
A consideration of the basic problems in animal behavior, including ecological adaptations of behavioral patterns, mechanisms underlying behavior, social behavior, and the nature and organization of animal societies. Three lectures and one three-hour laboratory. Prerequisites: Introductory biology sequence (100 or 200 series) or consent of instructor

**BI 361 Marine Ecology (5)**
Explores the ecology and diversity of marine ecosystems worldwide, and focuses on adaptations, life histories and interactions of organisms with each other and their environment. Regions covered include temperate, tropical and polar seas, the open ocean and the deep sea. Laboratory time is divided between field trips to the Oregon coast and observation of living marine organisms. Three one-hour lectures and one four-hour laboratory period. Prerequisites: BI 212 and 213 or consent of instructor

**BI 370 Humans and the Environment (4)**
The study of how humans interact with their environment and the effect of the environment on human society. Topics include basic ecological principals, human population growth, environmental health, pollution, toxicology, agriculture, forest management and global climate change. Designed for human biology and environmental studies minors and as an elective for non-science majors. Not open for credit to biology majors or biology minors. Three hours lecture and one three-hour laboratory including field work. Prerequisite: BI 101, or BI 102, or BI 211, or consent of instructor; MTH 095 with grade of C- or better, or equivalent, highly recommended

**BI 371 Structure of Seed Plants (4)**
The morphology, anatomy and reproduction of seed plants from an evolutionary perspective. Two lectures and two three-hour laboratory periods. Prerequisite: BI 213 or consent of instructor

**BI 406 Individual Study (1-15)**
Terms and hours to be arranged. Eligible for the RP grade option.

**BI 407/507 Seminar (1-15)**
Terms and hours to be arranged. Eligible for the RP grade option.

**BI 408 Workshop (1-9)**
Eligible for the RP grade option.

**BI 409 Practicum (1-9)**
Eligible for the RP grade option.

**BI 424 Human Dissection (3)**
A study of gross anatomy of the human body through the dissection of a cadaver. Prerequisites: Upper-division standing and permission of instructor

**BI 432 Immunology (4)**
A course on immune mechanisms, including the nature of antigens, antibodies and their interactions, the anatomy, cell biology, genetics, regulation, diseases of mammalian immune system and the use of antibodies as tools in the clinical and research laboratory. Two lectures and two three-hour laboratories. Prerequisites: BI 315 and one year of chemistry, or consent of instructor

**BI 434 Comparative Vertebrate Physiology (4)**
A comparative analysis of vertebrate physiology, emphasizing how different kinds of vertebrates work and why they have evolved to work the way they do. Animal physiology at the level of the cell, the organ system, and the organism will be discussed. Included in this course will be an examination of various aspects of human physiology. Three hours of lectures and three hours of laboratory per week. Prerequisite: BI 211, 212, and 213 or consent of instructor

**BI 441/541 Human Heredity (4)**
Basic principles of inheritance, including Mendelian patterns of traits, chromosomal aberrations, sex determination, molecular biology, and genetic diagnostics, as it relates to humans. Designed for human biology minors. Not open for credit to biology majors or biology minors. BI 541 is designed for graduate students in education or related fields. Four hours of lecture per week. Prerequisite: BI 102 or BI 211, or consent of instructor; MTH 095 with grade of C- or better, or equivalent, highly recommended

**BI 451 Invertebrate Zoology (5)**
A systematic study of invertebrates, with a comparative approach to anatomy, physiology, behavior, life history and evolution. Emphasizes the relatedness of structure and function and focuses on the adaptations of these animals to their environments. Observation of living marine invertebrates is emphasized in the lab. Three one-hour lectures and one four-hour laboratory period. Prerequisite: BI 212 or consent of instructor

**BI 453/553 Marine Vertebrates (4)**
Investigates the anatomy, physiology, behavior, and ecology of marine vertebrates, focusing on challenges unique to the marine environment. Students will compare marine fish, reptiles, birds and mammals in exploration of different topics. Current issues such as over fishing and effects of marine pollutants will also be included. Four lecture hours. Prerequisite: introductory biology sequence (100 or 200 series) or consent of instructor

**BI 454/554 Plant Ecology (4)**
Focuses on the patterns of distribution and abundance of organisms in space and through time. Explores the underlying causes, both natural and anthropogenic, of these patterns at the population, community and ecosystem levels for a variety of plants and ecosystems. In the lab, students will engage in nearly all phases of ecological research. Emphasis will be placed on learning to effectively communicate ecological
BI 458/558 Field Biology (3-4)
Systematics, life histories and field methods in selected areas of biology. Lecture, laboratory and field trips to be scheduled. Eligible for the RP grade option. Prerequisite: introductory sequence in biology or consent of instructor.

BI 461/561 Conservation Biology (4)
Introduction to the principles and practices of conservation biology. Topics include biodiversity, extinctions, habitat fragmentation, restoration ecology, impacts of invasive species, and sustainability, among others. Particular emphasis will be placed on subjects pertinent to Oregon and temperate regions. Two 80-minute lectures plus three field trips. Prerequisite: introductory biology sequence or consent of instructor.

BI 474 Biology of Insects (5)
Focuses on the anatomy, physiology, behavior and life history strategies of insects. Also examines the evolutionary relationships and diversity of this most varied group of animals. A significant portion of the lab period is spent in the field. Three one-hour lectures and one four-hour laboratory period. Prerequisites: BI 212 or consent of instructor.

BI 475 Molecular Biology (4)
Study of molecular biology theory and practice. The study of living systems at the molecular level, especially DNA and RNA, and provides background appropriate for further work in biotechnology, cell biology, diagnostics, genetics, genomics, microbiology, pharmaceuticals, and therapeutics. Emphasis is on the study of model systems and the central role of DNA to understand the current approaches and laboratory techniques necessary to answer basic questions in current molecular biology. Two hours of lecture and four hours of laboratory per week. Prerequisites: BI 314, BI 315, and one year of chemistry or consent of instructor.

BI 606 Special Individual Studies (1-9)
Terms and hours to be arranged. Eligible for the RP grade option.

BI 608 Workshop (1-9)
Terms and hours to be arranged. Eligible for the RP grade option.

BI 609 Practicum (1-9)
Terms and hours to be arranged. Eligible for the RP grade option.

BI 624 Human Dissection (2-5)
Advanced study of the gross anatomy of the human body through the dissection of a cadaver. The exact number of credits will be determined by the background of the student and goals agreed upon by the student and instructor. Prerequisites: Graduate standing and permission of instructor.

Business

BA 101 Introduction to Business (3)
Business organization, operation and management; intended to orient the student in the field.

BA 199 Special Studies (1-6)
Terms and hours to be arranged. Eligible for the RP grade option.

BA 211 Financial Accounting (4)
Students will gain a basic understanding of how accounting is used by investors, managers, government agencies and others. Includes the study of transaction analysis with emphasis on accrual versus cash accounting, and the preparation, interpretation and use of financial statements.

BA 213 Managerial Accounting (4)
The study of accounting continues from the perspective of management users, with emphasis on planning, performance evaluation and information needed for effective decision making. Prerequisite: BA 211

BA 217 Accounting for Non-accountants (3)
Provides a comprehensive non-technical accounting course for the business minor and others interested in a survey of financial and managerial accounting techniques. Assumes no prior knowledge of accounting. Not available for credit in the business major.

BA 220 Introduction to Financial Management (3)
Basic processes, principles, tools and concepts of finance. Topics include financial analysis, financial forecasting, profit planning, budgeting, working capital management and capital budgeting. Not available for credit in the business major.

BA 229 Personal Finance (3)
Study of the role of the consumer in American society, consumer decision-making, consumer credit and borrowing, home ownership, life insurance, annuities, estate planning, wills, trusts, expenditures and taxes for government.

BA 230 Introduction to Business Law (3)
Nature and role of the law in conducting business; tort, formation, performance and discharge of contracts; commercial transactions and law of business organization, sales, bankruptcies; and the general nature of government regulation.

BA 240 Quantitative Business Methods (4)
The use of functional forms to describe variables commonly encountered in business, such as sales revenue and financial asset value. Development and application of constrained and unconstrained optimization, including differential and integral calculus. Prerequisite: MTH 111

BA 243 Business Statistics (4)
Probability, data description and analysis, sampling distribution, confidence intervals and hypothesis testing with emphasis on business applications. Prerequisite: second-year high school algebra or equivalent, or satisfy score on the placement exam.

BA 284 Introduction to International Business (3)
This course will address the organization, marketing and finance of international business. Each section will address the role of culture and the restrictions placed on international business.

BA 305 Business Analysis & Report Writing (3)
Instruction will concentrate on various forms of written communication, with special emphasis on small business analysis.

BA 310 Principles of Marketing (3)
Introduces the theories, concepts and terms that marketers use in their daily planning activities. Begins with an overview of strategic marketing planning. Strategic elements of the marketing plan (target definition, product strategy, distribution strategy, promotion strategy and price strategy) are examined in greater detail.

BA 311 Personal Selling (3)
Application of personal selling theories with a focus on basic steps in the selling process: prospecting, qualifying, presentation, objections, closing and follow-up. Prerequisite: BA 310

BA 315 Financial Management (3)
Basic processes, principles, tools, and concepts of finance. Topics include financial analysis, financial forecasting, profit planning, budgeting, working capital management and capital budgeting. Course also covers the basics of financial markets, institutions and sources of supply of different types of funds available to a firm. Prerequisite: BA 211 or consent of instructor

BA 316 Advanced Financial Management (3)
Extensive use of Excel and Monte Carlo Simulation in the structuring and analysis of financial problems. Major topics include liquidity, pro forma financials, forecasting and capital budgeting. Prerequisite: BA 315

BA 317 Intermediate Accounting I (4)
Study of major accounting principles; summary of accounting process; revenue and expense recognition; balance sheet and income statement; concepts in the valuation of all current assets. Prerequisite: BA 213 or consent of instructor

BA 318 Intermediate Accounting II (4)
Concepts in the valuation of both short-term and long-term liabilities; contingencies; recording and adjusting plant assets; long-term assets and intangible assets; stockholders equity transactions. Prerequisite: BA 317 or consent of instructor
BA 676 Topics in Management and Information Systems (4)
Focus on topics related to management and information systems, including financial, operations, project, and strategic management. May be repeated under different subtitles.

Chemistry

CH 104, 105, 106 Introductory Chemistry (4 each)
An introduction to the fundamental concepts of general chemistry. During the winter and spring terms emphasis will be placed on organic and biological chemistry. Three lectures and one two-hour laboratory. Prerequisites: High school algebra; for CH 105, a passing grade of C or better in CH 104 is required; for CH 106, a passing grade of C- or better in CH 105 is required.

CH 161 Fundamentals of Photography for Forensic Science (2)
For students interested in the scientific applications of photography. Students will gain experience with 35 mm, polaroid and digital cameras. Particular attention will be focused on forensic and environmental applications. One lecture and one laboratory period. Prerequisite: consent of instructor.

CH 221, 222, 223 General Chemistry (5 each)
An introduction to inorganic chemistry covering atomic and molecular structure, chemical reactions, states of matter, equilibrium, and thermodynamics. Three lectures and one three-hour laboratory. Prerequisite: MTH 111 equivalency, high school chemistry or CH 104; for CH 222 a passing grade in CH 221 is required; for CH 223 a passing grade in CH 222 is required.

CH 310 Environmental Geochemistry (3)
An application of the principles of geology and chemistry to geological processes such as isotopic fractionation, the carbonate cycle, weathering and formation of clays, hydrologic mobility and adsorption of heavy metals to clays and humic substances, groundwater plumes, atmospheric chemistry including the greenhouse effect, global warming and ozone destruction. Three lectures. Prerequisite: one year of college chemistry, ES 201 or ES 202, or consent of instructor.

CH 312 Quantitative Analysis (4)
A study of the fundamental principles of analytical chemistry. Laboratory work consists of standard analysis utilizing titrations, UV-Vis spectroscopy, atomic absorption spectrometry and chromatography. Three lectures and one three-hour lab. Prerequisite: CH 223.

CH 313 Instrumental Analysis (4)
A study of the use of instrumental methods for quantitative determinations of unknown chemical samples. Three lectures and one three-hour lab. Prerequisites: PH 213 or PH 203 and MTH 251.

CH 320 Introduction to Forensic Science (3)
An introduction into the theory and practice of physical evidence analysis. Topics include the recognition, identification and evaluation of physical evidence such as hairs, fibers, drugs, blood, semen, glass, soil, fingerprints and documents. Three lectures. Prerequisite: one year of college chemistry.

CH 322 Medicinal Chemistry and Pharmacology (4)
Surveys the general mechanisms underlying the effects of drug compounds on biological organ systems. Topic areas include: the investigation of different drug classes and their biological targets, the behavior of drugs within the body, drug discovery and design, and the principles of cardiovascular, endocrine, and neuro-pharmacology. Prerequisite: CH 104, CH 105, CH 106; or CH 334 and BI 102; or CH 334 and BI 211; or consent of instructor.

CH 334, 335, 336 Organic Chemistry (3 each)
A study of the chemistry of carbon compounds including their structure, reactions and syntheses. Three lectures. For CH 335, co-enrollment with CH 337 (1 credit) is mandatory. For CH 336, co-enrollment with CH 336 (2 credits) is also mandatory. Prerequisites: CH 223 or consent of instructor; for CH 335 a passing grade in CH 334 is required; for CH 336 a passing grade in CH 335 and CH 337 is required.

CH 337 Organic Chemistry Lab I (1)
Students will learn basic laboratory techniques for purifying and identifying organic compounds. The topics covered will be thin layer chromatography, gas chromatography, extraction, recrystallization, simple and fractional distillation, melting points, boiling points, derivatives, spectroscopy and using the chemical literature for obtaining physical property information. Students enrolled in CH 337 must also be co-enrolled in CH 335.

CH 338 Organic Chemistry Lab II (2)
This laboratory meets twice weekly. Student will study a number of different reactions including nucleophilic substitution, hydration, oxidation-reduction, Diels-Alder, and the use of the Grignard reagent. The significant portion of this term will be spent learning how to identify unknown organic substances. Must also be co-enrolled in CH 335. Prerequisite: passing grade in CH 335 and CH 337.

CH 340 Elementary Physical Chemistry (4)
Fundamental principles of physical chemistry with applications in engineering, biological systems and medicine. This course will count for chemistry major credit only for students in the forensic option. Prerequisites: CH 223, PH 213 or PH 203, or consent of instructor.

CH 345 Introduction to Toxicology (3)
Surveys general mechanisms underlying the effects of toxic compounds on biological systems. Topics covered include: poisons and toxic agents, biotransformation of xenobiotics, reproductive toxicology and teratology, analytical/forensic toxicology, chemical carcinogenesis, and molecular toxicology. Prerequisite: either CH 104, CH 105, and CH 106, or CH 334 and BI 102 or BI 211, or consent of instructor.

CH 347 Biochemistry of Complementary and Alternative Medicines (3)
Course is designed for upper division undergraduate, medicinal chemistry, and nursing students that are interested in learning about the biochemical aspects of complementary and alternative medicines. Topics will include the study of preventative medicine, diet, nutrition, supplementation using herbal and natural remedies; bioenergetics and principles of Traditional Chinese Medicine; biochemical impact of exercise, including weight bearing, cardiovascular, and meditative exercises such as Tai Chi Chuan, Qigong, and Yoga. Prerequisite: CH 104, CH 105, CH 106; or CH 334 and BI 102; or CH 334 and BI 211; or consent of instructor.

CH 350 Chemical Literature (1)
A study of the methods of searching the chemical literature. One class meeting per week. Prerequisite: CH 335 or consent of instructor.

CH 354 Computational Chemistry (2)
A study of statistical and graphical methods of data analysis, numerical methods of common importance in chemistry, problem solving, information handling and retrieval and simulation techniques. Prerequisite: two years of college chemistry or consent of instructor.

CH 360 Nuclear Chemistry (3)
Emphasis will be placed on the atomic nucleus, nuclear properties, nuclear models, radioactivity, nuclear reactions, fission, nuclear reactors and applications of radioactivity. Prerequisites: CH 223, PH 213, or consent of instructor.

CH 361 Energy, Resources and the Environment (3)
A study of the current development and utilization of energy and power, implications of the finite resources, impact on the environment and alternatives.

CH 370 Selected Topics in Chemistry (1-3)
An introduction to contemporary topics in chemistry. Prerequisite: consent of instructor.

CH 371 Environmental Chemistry (3)
A study of current environmental problems such as stratospheric ozone, greenhouse effect, smog, acid rain, pollution, oil spills and pesticides. Prerequisites: CH 104, CH 105, CH 106 or consent of instructor.

CH 401 Research (1-3)
Terms and hours to be arranged. May be repeated for credit.

CH 407 Seminar (1)
Group study and discussions concerning
frontiers of chemistry, current research problems and interaction of chemistry with other disciplines. Students will be required to present a seminar. Prerequisite: CH 350

CH 409 Practicum (1-9)
Terms and hours to be arranged.

CH 411 Advanced Inorganic Chemistry (3)
An introduction to quantum mechanics covering atomic theory, periodic table, symmetry, group theory, molecular orbitals, ionic/covalent bondings, solid state and the molecular structure. Not sequential with CH 412. Prerequisites: CH 223, MTH 252, PH 213 or consent of instructor

CH 412 Inorganic Chemistry of the Environment (4)
Course uses the periodic variations in fundamental atomic properties to predict and explain the chemical behavior of classes of inorganic compounds with special applications to the environment. Three lectures (3 credits) and one lab (1 credit). Not sequential with CH 411. Prerequisites: CH 223, MTH 252, PH 213 or consent of instructor

CH 420 Forensic Chemistry (4)
The applications of chemistry to the analysis of physical evidence. Topics included will be serology, analysis of arson debris, drugs, explosive residues, gunshot residues, papers and inks, paint chips and DNA. Laboratory techniques will include gas chromatography, mass spectroscopy, atomic absorption spectroscopy, electrophoresis, infrared spectroscopy, liquid and thin-layer chromatography. Two lectures and two laboratory periods per week. Prerequisite: CH 313 or consent of instructor

CH 430, 431, 432 Applications of Forensic Science (2 each)
An in-depth examination of subjects in modern forensic science as presented by experts in the field. Topics may be chosen from the following: fingerprinting, forensic serology, hair and fiber analysis, arson accelerant and explosives residues, glass comparisons, drug analysis, bullet and cartridge analysis, serial number restoration, document examination, voiceprint identification, polygraphy, DNA analysis, forensic botany, forensic meteorology, forensic toxicology, photography and forensic psychology. The courses will be taught as topic modules incorporating both lecture and laboratory practice as appropriate. Prerequisite: CH 320 or consent of instructor

CH 440 Physical Chemistry I (3)
A study of the laws of thermodynamics with emphasis on their application to chemical systems. Topics considered include: thermodynamics, equation of states, kinetic-molecular theory, free energy and chemical equilibrium. Prerequisite: CH 223, MTH 254, PH 213

CH 441 Physical Chemistry II (3)
A study of solutions, heterogeneous equilibria, electrochemistry, chemical kinetics, elementary quantum and statistical mechanics. Prerequisite: CH 440

CH 442 Physical Chemistry III (3)
A study of molecular structure and bonding, electronic structure of atoms and molecules, rotational, vibration and electronic spectra of molecules. Prerequisite: CH 441

CH 450/550 Biochemistry I (3)
A study of the chemistry of the individual subunits used to construct biological macromolecules and the chemical bonding within the macromolecules. Emphasis will be placed on the structures of carbohydrates, nucleic acids and proteins. Prerequisite: CH 336 or consent of instructor

CH 451 Biochemistry II (3)
The study of the function of biological macromolecules with emphasis on the mechanisms of protein-ligand binding, metabolic pathways and regulatory enzyme mechanisms. Prerequisite: CH 450

CH 452/552 Biochemistry Lab (3)
An introduction to the basic laboratory techniques used in biochemistry. Topics will include electrophoresis, spectrophotometry, chromatography, centrifugation techniques and protein purification. One hour lecture and one four-hour lab. A research project will be required for graduate credit. Prerequisites: CH 336, CH 450, MTH 251 equivalent or consent of instructor

CH 461, 462, 463 Experimental Chemistry (2 each)
An advanced laboratory course devoted to experimental techniques of analytical, inorganic and physical chemistry. Prerequisites or Corequisite: CH 313, CH 350, CH 440 or consent of instructor

CH 471 Chemical Instrumentation (4)
Theory and operation of instrumentation, including the applications of computer technology, used in modern chemical laboratories. Three lectures and one laboratory. Prerequisite: CH 313

CH 608 Workshop (1-9)
Terms and hours to be arranged.

CH 670 Selected Topics in Chemistry (1-3)
In-depth coverage of selected current problems in chemistry research: analytical, biological, inorganic, organic or physical chemistry. Prerequisite: consent of instructor

Communication Studies

COM 111 Principles of Public Speaking (3)
Instruction and practice in applying the principles of invention, organization, language, and delivery with a focus on the development of skill and confidence in formal public communication.

COM 112 Interpersonal Communication (3)
Practical, theoretically-grounded approaches to developing relational communication skills in a variety of contexts ranging from romantic relationships to friendships to on-the-job communication.

COM 199 Special Studies (1-15)
Terms and hours to be arranged.

COM 211 Introduction to Mass Communication (3)
Introduction to the study of mass communication through the critical engagement and examination of issues relating to the mass communication industry, media production, content, and effects.

COM 236 Contemporary Issues in Media (3)
Developing critical awareness of recent issues in the fast-changing world of media creation, organizations and audience use. This course especially focuses on the impact of media on individual decisions, social organizations and government operations.

COM 270 Principles of Forensics (1-6)
Training and participation in debate, oratory and extemporaneous speaking. Limit of 1 hour credit per term, except with consent of instructor. Prerequisite: COM 111 or consent of instructor

COM 271 Communication Studies Projects (1-3)
Training and participation in communication studies activities in the public setting. Terms and hours arranged with consent of instructor.

COM 312 Public Relations Communication (3)
Instruction and practice in the role of communications in American institutions and writing and editing internal and external communications. Discussion of the relationship between public relations, advertising and marketing and the role of law and ethics in public relations communications.

COM 321 Influence Through Argument (3)
Concepts and processes of argumentation, cogency in oral communication, systems of logic, critical analysis of contemporary efforts to convince, construction and presentation of cases. Prerequisite: COM 111

COM 322 Group Discussion and Leadership (3)
Dynamics of discussion; group thinking and decision making; interpersonal relations; types of leadership and the application of discussion techniques in the classroom and society.

COM 324 Business and Professional Communication (3)
Investigates the role of communication in business and the professions. Areas of study and performance include developing better listening skills, conducting meetings, preparing and presenting reports, improving interpersonal skills in business, and conducting interviews.
ES 303 Geologic Field Techniques (1)
Introduction to the methods and techniques of geological observation and interpretation, with an emphasis on understanding earth processes in the field and reconstructing the physical history of the earth; the stratigraphic, petrologic and structural relations of rocks; geological illustration and report writing. One three-hour lab; required weekend field trips. Prerequisite: ES 203 (may be taken concurrently) or consent of instructor.

ES 304 Survey of the Fossil Record (3)
Explores the 4 billion year fossil record of life on earth. Begins with a survey of the diversity of fossil forms and the criteria used to distinguish fossils on the basis of hard part morphology. Then examines the evolution of increasingly complex forms of life from the pre-Phanerozoic through the recent, from simple prokaryotic cells to complex metazoa. The final week examines the use of fossils as proxies for the measurement of paleotemperature, precipitation, and other climatic variables. The course emphasizes concise and precise writing and critical thinking skills. Two hours of lecture and two hours of lab weekly.

ES 321 Structural Geology (4)
Introduction to mapping, analysis and interpretation of folds, faults, lineations, foliations and other structures exhibited by rocks. Emphasis is on the basic techniques of analyzing geologic structures associated in space and time and interpreting the structural history of the lithosphere. Four hours of lecture and active learning per week; required field trip. Prerequisite: ES 201 or consent of instructor.

ES 322 Geomorphology and Aerial Photo Interpretation (4)
Study of the physical and chemical processes operating at the earth's surface and their resulting landforms. Topics include weathering processes, soils, mass wasting, river systems, glacial phenomena, tectonic landscapes, volcanic areas and coastal regions. Analytical techniques include interpretation of aerial photographs, map analysis and quantitative approaches to geologic problem solving. Four hours of lecture and active learning per week. Supplemental field trips are incorporated as needed. Prerequisites: ES 201, ES 202 or consent of instructor.

ES 331 Introduction to Oceanography (3)
Introduction to physical oceanography with topics including sea floor tectonics, ocean basin physiography, sediment production and transport, physical properties of sea water, chemistry of sea water, air-sea interaction, ocean circulation, tides, waves and coastal processes. Three hours of lecture and active learning per week.

ES 341 Fundamentals of Geographic Information Systems (4)
Introduction to Geographic Information Systems using the ArcGIS software platform. Topics include cartographic principles, coordinate systems, map projections, database concepts, vector/raster data models, attribute/feature editing, geocoding, spatial analysis, and map production. Four hours of lecture and active learning per week. Prerequisite: introductory Earth science or physical geography course, or consent of instructor.

ES 351 Geology for Educators (3)
Introduces future teachers to approaches for using the earth as a natural laboratory to examine scientific issues of societal concern, including the dynamic processes that shape the earth, its landscapes, and its climate. Emphasizes hands-on learning and modern approaches for using Earth science concepts in the classroom. Two hours of lecture and two hours of lab. Will be taught in alternating winter quarters.

ES 354 Volcanoes and Earthquakes (3)
Introduction to earthquake phenomena and volcanic processes, with an emphasis on their impact to people, infrastructure, and natural resources in Oregon and the western United States. Course will focus on the mechanisms that cause earthquakes and volcanoes, relation to plate tectonics, and associated hazards. Three hours of lecture and active learning per week. Prerequisites: introductory geology course, or consent of instructor.

ES 390 Basic Meteorology (3)
An introductory study of atmospheric processes and meteorologic phenomena. Topics include structure of the atmosphere, heat transfer, air pressure, precipitation, circulation, data collection and weather forecasting. Three hours of lecture and active learning per week.

ES 493 Sedimentary Geology (4)
Description and interpretation of sedimentary processes in the field and reconstructing the physical history of the earth; the stratigraphic, petrologic and structural relations of rocks; geological illustration and report writing. One three-hour lab; required weekend field trips. Prerequisites: ES 450 and either ES 431 or ES 491, or consent of instructor. Should be taken during the student's senior year and requires a significant preexisting geological knowledge base.

ES 401 Research (1-15)
Terms and hours to be arranged. Eligible for the RP grade option.

ES 406 Special Individual Studies (1-15)
Terms and hours to be arranged. Eligible for the RP grade option.

ES 407 Senior Seminar (1)
Students will conduct in-depth study and research on a broad-ranging topic in the Earth Sciences. Assessment will be based primarily on a formal presentation, which each student will give on their sub-topic, and on student participation in weekly meetings in which the class will discuss the Earth science topic/issue. Two hours of lecture.
ES 408/508 Workshop (1-15)  
Terms and hours to be arranged. Eligible for the RP grade option.

ES 431/531 Paleobiology (4)  
The evolution of terrestrial and marine ecosystems interpreted from the fossil record; the application of paleontological data to resolving problems in earth history. Four hours of lecture and active learning. Offered alternate years. Prerequisite: a beginning biology course or consent of instructor; recommended: ES 203

ES 450/550 Introduction to Petrology (4)  
Focus on the textures, compositions and genetic associations of diverse suites of rock types. Study of the structure, chemistry, physical properties and occurrences of rock-forming minerals augment the rock study. Emphasis is on the integration of hand sample study, petrographic microscopy and digital image analysis to solve geologic problems. Four hours of lecture and active learning per week. Prerequisite: a general geology course or consent of instructor

ES 453/553 Geology of the Pacific Northwest (4)  
An introduction to geology, geological history, tectonic evolution, geological resources and landscape development of western North America, with an emphasis on the geology of Oregon. Four hours of lecture and active learning per week. Prerequisite: a beginning Earth science course, or consent of instructor

ES 454/554 Volcanology (4)  
Study of the processes and products of volcanism. Focus is on rock types, structures, field relations, tectonic settings, conditions of origin and geologic history of volcanism with specific emphasis on the Pacific Northwest. Four hours of lecture and active learning per week; supplemental field trips will be incorporated as needed. Prerequisite: introductory geology course or consent of instructor

ES 458/558 Field Studies in Geology (1-9)  
Field excursions to study geology at classic localities in the Pacific Northwest and beyond. Terms and hours to be arranged. Eligible for the RP grade option.

ES 460/560 Energy and Mineral Resources (3)  
Focus on the geology of energy and mineral resources in terms of their description, occurrence, origin and distribution. Also considers extraction, treatment, uses, and reserves of mineral and energy resources; the historical, economic and social issues involved with certain resources; and the environmental implications of the use and exploitation of resources. Three hours of lecture and active learning per week. Offered alternate years. Prerequisite: introductory geology course or consent of instructor

ES 473/573 Environmental Geology (4)  
Study of contemporary environmental issues as related to geologic systems. Topics include geologic hazards, land use, groundwater-surface water-soil contamination, remediation technologies, environmental planning, habitat restoration, applied analytical techniques and consulting practice. Four hours of lecture and active learning per week. Supplemental field trips will be incorporated as needed. Prerequisite: ES 201, ES 202, or consent of instructor

ES 476/576 Hydrology (3)  
Investigation of near-surface hydrologic systems of the Earth. Topics include the hydrologic cycle, water budgets, introductory fluid dynamics, groundwater systems, watershed analysis, water quality and water resource evaluation. Three hours of lecture and active learning per week. Supplemental field trips will be incorporated as needed. Offered alternate years. Prerequisites: ES 201, ES 202, or consent of instructor

ES 491/591 Stratigraphy and Depositional Systems (3)  
Course designed for both Earth Science majors and general interest audiences. Course offers an overview of clastic depositional environments and sequences, including continental, marine marginal and deep marine settings. Concepts and applications of facies and stratigraphic modeling will be explored, with an emphasis on natural resource exploration and recovery. Offered alternate years. Three hours of lecture and active learning. Prerequisites: a general geology course or consent of instructor

ES 492/592 GIS Applications in Earth Science (3)  
Focus on the application of geographic information systems to relevant problems in the Earth sciences. Emphasis is placed on the use of computer technology in analyzing spatial and temporal relationships of geologic systems. Three hours of lecture and active learning per week. Offered alternate years. Prerequisites: introductory Earth science course, or consent of instructor; recommended ES 341

ES 601 Research (1-15)  
Terms and hours to be arranged.

ES 603 Thesis or Field Study (1-15)  
Terms and hours to be arranged.

ES 606 Special Individual Studies (1-9)  
Terms and hours to be arranged.

ES 655 Glacial Geology (3)  
A study of glacial processes and products including those associated with alpine, continental and periglacial settings. Work with topographic maps, aerial photographs and examples of glacialion in the Pacific Northwest. Appropriate term paper or project required.

ES 656 Geology of North America (3)  
Study of the geologic structure, evolution and geomorphology of the North American continent. Two lectures and one two-hour laboratory. Prerequisite: consent of instructor – offered summers only

Economics

EC 199 Special Studies (1-6)  
Terms and hours to be arranged. A means by which students may earn lower-division credit for such learning activities as intern programs and writing research reports on small business firms and international conglomerates. Eligible for the RP grade option.

EC 200 Introduction to Economic Perspectives (4)  
An issues-oriented introduction to economics that covers markets, unemployment, inflation, market power, the environment, crime, discrimination, health care, education, poverty, social security, international trade and economic development. Includes intensive writing.

EC 201 Introduction to Microeconomics (4)  
Introduction to consumer and producer behavior and the market process. Theories of production, cost and perfectly and imperfectly competitive market structures will be covered as well as the role of the public sector, input markets and contemporary economic issues such as health care and the environment.

EC 202 Introduction to Macroeconomics (4)  
Introduction to the macroeconomic behavior of the economy. Includes national income accounting, business cycles, growth, recession, inflation, unemployment and monetary-fiscal policies. Current issues in international trade and international finance are covered. Prerequisite: EC 201

EC 311 Intermediate Microeconomics I (4)  
Provides the student with a rigorous grounding in the methods and techniques of microeconomics, with a focus on market equilibrium and consumer theory. The model of indifference analysis will be developed and applied to household decisions including labor supply. Other topics include behavioral economics and decision-making under risk and uncertainty. Prerequisites: EC 202, MTH 111 and sophomore standing

EC 312 Intermediate Microeconomics II (4)  
Provides the student with rigorous grounding in the methods and techniques of microeconomics, with a focus on producer theory. Develops the standard neoclassical theories of exchange and production under the assumption of perfect competition and full information. Situations in which information and markets are imperfect, including price discrimination, monopolistic competition, oligopoly, monopoly and cartels are also covered. Prerequisite: EC 202, MTH 111 and sophomore standing

EC 313 Intermediate Macroeconomics (4)  
Focuses upon the behavior of the economy as a whole. Emphasizes the forces and
agencies; the criminal justice system; courtroom demeanor; cross examination techniques. Eligible for the RP grade option. **Prerequisite:** completion of FSA 319

**FSA 421 Master Planning for Emergency Services** (3)
Major emergency planning; defining problems and problem areas; involving other municipalities or district agencies; the planning process; implementation of plan objectives; review of programs. A pre- or post-session project will be assigned as part of this course. Eligible for the RP grade option.

**FSA 423 Labor Management Relations** (3)
Examines relationships between union and management; negotiations of the labor agreement; grievance handling; agreement administration; and the value of a written agreement. Eligible for the RP grade option. **Prerequisite:** FSA 313 or FSA 325

### French

All courses conducted in French except FR 110.

**FR 101, 102, 103 First Year French** (4 each)
This sequence of courses is open to any student who wishes to begin the study of French or has had less than one year of high school French or its equivalent. Focuses on real-life language use, the integration of culture and language, and the four skills of reading, writing, speaking and listening. **Prerequisite:** FR 101 is a prerequisite for FR 102; FR 102 is a prerequisite for FR 103

**FR 110 Introduction to French Literature in Translation** (4)
A survey of French literary genres involving works in English translations from a variety of periods.

**FR 200 Basic French Conversation** (1)
Conversation practice in the French language, designed for students in the earlier stages of learning the language. Focus on everyday use of language, talking about self, family, activities and daily events. May be repeated. **Prerequisite:** FR 101 or higher, or consent of instructor. P/N only

**FR 201, 202, 203 Second Year French** (4 each)
This sequence focuses on deepening and broadening students’ abilities to understand written and spoken French and to speak and write French, and provides students the opportunity to round out their knowledge of the basics of the French language. By the end of this sequence, students will have acquired sufficient knowledge to move on to the third-year level at WOU or participate in a study abroad program in France. **Prerequisite:** FR 103 is prerequisite for FR 201; FR 201 is prerequisite for FR 202; FR 202 is prerequisite for FR 203

**FR 299 Special Studies** (1-12)
Topics and hours to be arranged.

**FR 300 French Table** (1)
Conversation practice in the French language, designed for intermediate-advanced students. Emphasis on fluent conversation, giving one’s opinion, and discussing current events. May be repeated; a maximum of three credits can apply to the French minor. **Prerequisite:** FR 202 or higher or consent of instructor. P/NC only

**FR 301, 302, 303 Intermediate French Composition and Phonetics** (4 each)
This sequence of courses will help students refine writing and speaking skills. A study of the French sound system will address individual students difficulties. **Prerequisite:** FR 203 prerequisite for FR 301; FR 301 prerequisite for FR 302; FR 302 prerequisite for FR 303

**FR 310 Introduction to French Literature** (3)
Provides grounding in the basic concepts and development of a variety of French literary styles, periods, and genres. **Prerequisite:** concurrent enrollment in or completion of FR 302 or higher

**FR 340 Topics in French Arts and Culture** (3)
Focused study of a topic related to the arts and culture in France; may include study of a particular artist, medium, period, or movement, in a theme that crosses periods or media. Specific focus will be identified in the online course offerings. Can be taken up to three times if content is not repeated. **Prerequisite:** FR 203 or higher

**FR 399 Special Studies** (1-12)
Topics and hours to be arranged. **Prerequisite:** FR 203 or higher

**FR 405 Reading and Conference** (1-3)
Topics and hours to be arranged. Up to three credits can apply to French minor.

**FR 407/507 Seminar** (3-4)
Topics and hours to be identified in schedule of classes. Can be taken twice if content is not repeated. **Prerequisite:** FR 301 or higher

**FR 410/510 Topics in French Language and Literature** (3)
In-depth study of an author, period, genre, or movement in French or Francophone literature or language study. May be taken more than once if content is not repeated; focus will be identified in the online course offerings. **Prerequisite:** FR 302 or higher

**FR 416/516 French Teaching Practicum** (1)
Practice in applying language teaching techniques as an assistant in first-year courses; study of language pedagogy. May repeat for 1-3 credits total.

**FR 440/540 Topics in French Civilization and Culture** (3)
In-depth study of a particular period, or an issue that crosses historical periods. May be repeated if topic is different; focus will be identified in the online course offerings. **Prerequisite:** FR 302 or higher

**FR 499 Special Studies** (1-12)
Topics and hours to be arranged. **Prerequisite:** FR 301 or higher

### General Science

**GS 107 Seminar** (1-3)
**GS 114, 115, 116 Essentials of Physical Science** (4 each)
An examination of the basic scientific concepts underlying familiar physical phenomena; topics may include motion, energy, optics, electromagnetism, nature of matter, atomic theory, chemical bonding, and chemical reactions. Three lectures and one laboratory period per week. **Prerequisite:** MTH 111

**GS 201H, 202H, 203H Natural Science: The Search for Order** (4 each)
A study of major themes from the natural sciences selected to develop understanding of historical perspectives, current interactions and future potentials of earth, physical and biological sciences.

**GS 311 Biological Science for Elementary Schools** (3)
Concepts, experiences and materials from the biological sciences adaptable to the elementary school. Lecture and laboratory combined in two 3-hour sessions. **Prerequisite:** introductory biology course or consent of instructor

**GS 312 Physical Science for Elementary Schools** (3)
Concepts, experiences and materials from the physical sciences adaptable to the elementary school. One lecture, two 2-hour laboratories.

**GS 313 Earth Science for Elementary Schools** (3)
Concepts, experiences and materials from the earth sciences adaptable to the elementary school. One lecture, two 2-hour laboratories.

**GS 314 Classroom and Laboratory Resources in Science** (2)
Presents techniques for the preparation, handling, storage and disposal of laboratory materials. Topics may include laboratory safety regulations, selection of appropriate student laboratory activities, utilization of online and reference resources for selection of classroom and laboratory materials and basic instrument maintenance. Two 3-hour labs a week. **Prerequisites:** CH 223, MTH 112, BI 213

**GS 321 Musical Acoustics** (4)
An integrated lecture-demonstration-laboratory approach to the nature of sound and music with direct student involvement. Topics to include the nature and perception of sound, acoustical characteristics of music instruments, applications of electronics, and architectural acoustics. Three lectures and one two-hour laboratory. **Prerequisite:** MTH 105 or equivalent
GS 325 Science Inquiry and Design for K-8 Teachers (3)
Provides students with a framework for development of pedagogical content knowledge for teaching of science. Introduces future teachers to process-oriented learning, the nature of scientific inquiry and the application of science technology in grades K-8. Course will examine relevant scientific content through appropriate instructional methods, materials and curricula for effective teaching of life, Earth and physical sciences. Lecture and laboratory are combined in two 2-hour sessions per week. Prerequisite: introductory lab science course (e.g. BI 101, ES 104, or ES 106) or consent of instructor.

GS 351 Elements of Astronomy (3)
A study of the structure and evolution of the universe from an observational perspective. Topics to include the night sky, observational techniques, the solar system, stellar and galactic structure, and cosmology. One three-hour lecture. Prerequisite: ES 104 or ES 331

GS 401 Research (1-15)
Terms and hours to be arranged.

GS 406 Special Individual Studies (1-15)
Terms and hours to be arranged.

GS 407/507 Seminar (1-15)
Terms and hours to be arranged.

GS 408 Workshop (1-15)
Terms and hours to be arranged.

GS 409 Practicum (1-9)
Provides the preprofessional experience desired by such professional schools as medicine and physical therapy.

GS 411/511 History of Science (3)
A brief history of the development of the natural sciences up to the 19th century, their social implications, and the growth of scientific philosophy. Three lectures. Prerequisite: two sequences in natural sciences or mathematics or consent of instructor.

GS 420 Selected Field Investigations (1-6)
Field expeditions to unique geological and/or biological areas of western North America. In these undertakings, the students will plan and undertake studies of the areas selected for exploration.

GS 424/524 Astronomy (3)
A study of the solar system, stars, stellar systems, and galaxies including the application of some of the important concepts of physics, chemistry and mathematics to the field of astronomy. Three lectures. Prerequisite: one year each of college physical science and mathematics.

GS 601 Research (1-15)
Terms and hours to be arranged.

GS 602 Independent Study (1-9)
Terms and hours to be arranged.

GS 603 Thesis or Field Study (3-9)

GS 606 Special Individual Studies (1-9)
Terms and hours to be arranged.

GS 607 Seminar (1-9)
Terms and hours to be arranged.

GS 608 Workshop (1-9)
Terms and hours to be arranged.

GS 612 History of Science (3)
Intensive study of the history of one particular branch of the natural sciences with emphasis on the modern period. Usually offered by arrangement with a staff member in that branch. Prerequisite: GS 411 or consent of instructor.

GS 625 A Concept Approach to Science (3)
This course will identify basic concepts common to all disciplines of science, explain their various applications to individual sciences, and expand their application beyond science to a global, interdisciplinary understanding of the concepts.

GS 691 Physical Oceanography for Teachers (3)
Physical processes in the oceans; the origin and distribution of water masses and currents; waves, tides, tidal currents. Prerequisite: chemistry or consent of the instructor.

GS 692 Geological Oceanography for Teachers (3)
The topographic, geologic and geophysical nature of the ocean basins; processes of and distribution of sediments and economic deposits, coastal erosion and sedimentation.

Geography

GEOG 105, 106, 107 Introductory Geography (4 each)
105 Introductory Physical Geography; 106 Introductory Economic Geography; 107 Introductory Cultural Geography.

GEOG 199 Special Studies (1-6)
Terms and hours to be arranged. A means by which students may earn lower-division credit for research, writing, mapping, discussion, career-related and/or participatory skills.

GEOG 207 Geography and Film (4)
Considers the use and representation of space, place and landscape in, on and through film. Specific films, filmmakers and topics will vary, and may include particular places or types of landscapes, and the comparison of films created in different cultural and geographical contexts.

GEOG 211 U.S. and Canada (4)
Understanding of economic and social activities in the major human-use regions of the home continent; description and interpretation of the present occupancy pattern of the major regions of the United States and Canada.

GEOG 240 Map & Air Photo Interpretation (4)
This course explores the use of topographic maps and aerial photographs to measure and interpret geographic patterns of the natural and social environment. Emphasis is on location, landscape patterns and process identification.

GEOG 299 Special Studies (1-4)
Terms and hours to be arranged. A means by which students may earn sophomore-level credit for research, writing, mapping, career-related and/or participatory skills.

GEOG 306 Geographies of Development (4)
Inquiry into why some countries are rich while many others are poor, by understanding the geographic aspects of income distribution and poverty; their relationships with locational distribution of economic activities; and how these changes change over time.

GEOG 307 Canadian Identity Through Film (4)
Explores the construction of Canadian identity and difference as expressed through Canadian films and cinema.

GEOG 310 World Regional (4)
A thematic examination of the principal characteristics of the major geographical regions of the world. Interpretation of present and past patterns of relationships between humans and the natural environment.

GEOG 311 Geography of Europe (4)
Individual European societies’ landscape organization and how each attempts to alleviate cultural problems: international migrations, scarcity of land for agriculture and urban development, economic development and European nationalism.

GEOG 313 The Pacific Northwest (4)
Physical and human resources of the Pacific Northwest. Interpretation of the present pattern of human use of the Pacific Northwest with special emphasis on Oregon.

GEOG 315 The Indian Subcontinent (4)
A survey of the physical and human geography of South Asia. While the entire realm of South Asia will be surveyed, the emphasis is on India; major geographical patterns, processes, issues, and problems related with religious, ethnic and linguistic diversity, the modernization process, economic development and interrelationships between South Asian nations.
with special emphasis on those aspects of English grammar that present difficulty for ESL/EFL speakers. Topics include, the auxiliary system of English, the tense/aspect system, complementation, reference. Prerequisite: LING 210 and LING 315.

LING 496/596 Special Topics in Linguistics (4)
An exploration of selected topics in linguistics. Specific focus will be identified in each year’s schedule of classes. Prerequisite: consent of instructor

LING 606 Special Individual Studies (1-9)
Terms and hours to be arranged. Opportunity to study a special or individual area of interest under the guidance of a designated faculty member. Prerequisite: consent of instructor

LING 610 Theories of Grammar (3)
A survey of grammatical systems (traditional, structural, phrase structure, transformational, case).

LING 615 Applied Linguistics for Teachers (3)
Application of principles of the scientific study of language to areas of interest to teachers, including pronunciation, grammar, dialect, spelling, vocabulary development and English as a second language.

Mathematics

The department offers two calculus sequences to meet students’ needs. MTH 251, 252 is the standard sequence recommended to most students in the physical sciences and mathematics. MTH 241, 242 is designed to serve the mathematical needs of students in the business, managerial and social sciences. The choice between these two sequences is an important one; the choice of MTH 241, 242 effectively closes the door to most advanced mathematics courses.

MTH 070 Introductory Algebra (4)
Basics of algebra, including arithmetic of signed numbers, order of operations, problem solving; linear equations verbally, numerically, graphically and symbolically; linear modeling, regression, inequalities, and systems; and an introduction to functions. Explores topics using a graphing calculator as well as traditional approaches. Credits earned apply for enrollment (eligibility) but do not apply toward a degree; satisfies no university or college requirement. Additional fee applies.

MTH 072 Supplemental Instruction for Introductory Algebra (1)
For students taking MTH 070 who are involved in the Student Enrichment Program. Offered to develop a broader and deeper understanding of course concepts.

MTH 095 Intermediate Algebra (4)
Arithmetic of polynomials; quadratic equations verbally, numerically, graphically and symbolically; problem solving, factoring techniques, graphing linear, exponential, radical, and quadratic functions; and solving rational, and radical equations. Credits earned apply for enrollment (eligibility) but do not apply toward a degree; satisfies no university or college requirement. Additional fee applies. Prerequisite: Math 070 with a grade of C- or better, or satisfactory score on WOU’s math placement test

MTH 097 Supplemental Instruction for Intermediate Algebra (1)
For students taking MTH 095 who are involved in the Student Enrichment Program. Offered to develop a broader and deeper understanding of course concepts.

MTH 105 Introduction to Contemporary Mathematics (4)
Use of mathematical problem solving activities from real world situations designed to convey the application of mathematics. Extensive use of computer and graphics calculator required. The class is intended only for those students obtaining a B.A. degree.

MTH 111 College Algebra (4)
Study of linear, polynomial, rational, exponential, logarithmic, and power families of functions; representation of these functions symbolically, numerically, graphically, and verbally; develop regression and modeling for these function families; use of inverse functions symbolically, numerically, graphically, and verbally; and a rudimentary study of complex numbers. Prerequisite: MTH 095 with grade of C- or better, or satisfactory score on WOU’s math placement test

MTH 112 Elementary Functions (4)
Triangle trigonometry, trigonometric equations and identities, circular functions and graphs, complex numbers, polar coordinates. Prerequisite: MTH 111 with grade of C- or better, or satisfactory score on WOU’s math placement test

MTH 199 Special Studies: Mathematics (1-6)

MTH 201 Foundations of Elementary Mathematics I (4)
Intended for prospective elementary or middle school teachers. Introduction to problem solving, set theory, whole number operations, number theory, and integer operations. Three hours lecture plus two hours lab. Does not apply toward a math major/minor. Prerequisite: MTH 095 with grade of C- or better, or satisfactory score on WOU’s math placement test

MTH 202 Foundations of Elementary Mathematics II (4)
Intended for prospective elementary or middle school teachers. Operations with fractions and decimals, percents, ratio and proportion, real numbers. Introduction to probability and statistics. Three hours lecture plus two hours lab. Does not apply toward a math major/minor. Prerequisite: MTH 211 with a grade of C- or better

MTH 211 Foundations of Elementary Mathematics III (4)
Intended for prospective elementary or middle school teachers. Introduction to geometric figures, congruence and similarity, measurement (area, perimeter, volume and surface area). Three hours lecture plus two hours lab. Does not apply toward a math major/minor. Prerequisite: MTH 212 with a grade of C- or better

MTH 231 Elements of Discrete Mathematics (3)
Includes sets, set operations, sequences, elementary symbolic logic, induction, division in integers, matrices, functions, order of growth, relations. Does not apply toward a math major/minor. Prerequisite: MTH 111 with grade of C- or better, or satisfactory score on WOU’s math placement test

MTH 241 Calculus for Social Science I (4)
Differential calculus with emphasis on applications and model building in business and social science. Does not apply toward a math major/minor. Prerequisite: MTH 111 with grade of C- or better

MTH 242 Calculus for Social Sciences II (4)
Integral and multivariate calculus with emphasis on applications and model building in business and social science. Does not apply toward a math major/minor. Prerequisite: MTH 241 with grade of C- or better

MTH 243 Introduction to Probability and Statistics (4)
Descriptive statistics, discrete and continuous probability models including binomial and normal distributions, sampling distributions; hypothesis testing, point and interval estimation. Does not apply toward a math major/minor. Prerequisite: MTH 111 with minimum grade of C+, or MTH 112 with minimum grade of C-, or MTH 251 with minimum grade of C, or satisfactory score on WOU’s math placement test

MTH 251 Calculus I (5)
Differential calculus of functions of a single variable, including transcendental functions. Prerequisite: MTH 112 with grade of C- or better, or satisfactory score on WOU’s math placement test

MTH 252 Calculus II (5)
Integral calculus of functions of a single variable. The Fundamental Theorem of Calculus. Prerequisite: MTH 251 with grade of C- or better

MTH 253 Calculus III: Sequences and Series (3)
Convergence and divergence of sequences, L'Hopital's rule, improper integrals, infinite series, convergence tests, Taylor's Theorem with remainder, power series. Prerequisite: MTH 252 with grade of C- or better

MTH 254 Multivariate Calculus (5)
Elementary vector algebra. Curves in space. Differential and integral calculus of functions
MTH 280 Introduction to Proof (4)
An introduction to basic proof strategies and elementary logic. Elementary set and function theory. Prerequisite: MTH 252 with grade of C- or better

MTH 311 Advanced Calculus I (4)
A rigorous introduction to analysis. The topology of Euclidean spaces. Completeness, compactness. The Bolzano-Weierstrass Theorem. Limits of sequences and functions. Continuity, uniform continuity. Uniform convergence. Prerequisites: MTH 253, 254, and 280 with grade of C- or better

MTH 312 Advanced Calculus II (4)
A rigorous introduction to differential and integral analysis of functions of one variable. The Mean Value Theorem, Taylor’s Theorem, the Riemann integral, and the Fundamental Theorem of Calculus. Prerequisite: MTH 311 with grade of C- or better

MTH 313 Advanced Calculus III (4)
A rigorous treatment of the differential and integral calculus of functions of several variables. The Inverse Function Theorem, the Implicit Function Theorem, Lagrange’s method of constrained optimization. Representation of functions by infinite series, power series and integrals. Prerequisite: MTH 312 with grade of C- or better

MTH 314 Differential Equations (4)
Introduction to methods of solutions of first and second order differential equations. Linear and nonlinear equations, series solutions, applications. Prerequisites: MTH 253 and 254 with grade of C- or better

MTH 337 Geometry (4)
Selected topics from advanced plane or solid Euclidean, analytic, transformational, spherical geometry. Prerequisite: MTH 254 with grade of C- or better; recommended: MTH 280

MTH 338 Axiomatic Geometry (4)
A formal development of Euclidean and non-Euclidean geometry from axioms. History of geometry. Prerequisites: MTH 280 with grade of C- or better

MTH 341 Linear Algebra I (4)
Vector algebra and geometry of 3-space, systems of linear equations, Gaussian elimination, real vector spaces, determinants, linear transformations. Prerequisite: MTH 252 with grade of C- or better

MTH 344 Group Theory (4)
An introduction to the theory of groups. Lagrange’s Theorem, normal subgroups, homomorphisms and the isomorphism theorems. Prerequisites: MTH 280 and MTH 341 with grade of C- or better

MTH 345 Ring Theory (4)
An introduction to the theory of rings and fields. Prerequisite: MTH 344 with grade of C- or better

MTH 346 Number Theory (4)
Properties of integers. The division and Euclidean algorithms, Diophantine equations, prime numbers, congruencies and residues. Prerequisite: MTH 280 with grade of C- or better

MTH 351 Introduction to Numerical Analysis (4)
Computer representation of numbers, error analysis, root finding, interpolation, approximation of functions, numerical integration and differentiation. Prerequisite: MTH 341 with grade of C- or better

MTH 354 Discrete Mathematics for Computer Science (3)
Enumeration relations, digraphs, trees, graph theory, and related topics for computer science students. Does not apply toward a math major/minor. Prerequisite: MTH 231

MTH 355 Discrete Mathematics (4)
Sets, relations, functions, enumeration, mathematical induction, graph theory. Prerequisite: MTH 253 with grade of C- or better; recommended: MTH 280

MTH 358 Mathematical Modeling (4)
Construction, analysis, and interpretation of a variety of mathematical models that arise from real-world problems. Prerequisite: MTH 254 and MTH 341 with a grade of C- or better

MTH 363 Operations Research (4)
Optimization of functions with linear constraints, convex sets, the simplex method and applications, duality; two person matrix games. Prerequisite: MTH 341 with grade of C- or better

MTH 365 Mathematical Probability (4)
Probability theory developed through moment generating functions. Random variables, classical probability distributions. Prerequisite: MTH 253 or MTH 254 with grade of C- or better

MTH 366 Mathematical Statistics (4)
Theory of point and interval estimation, hypothesis and significance testing. Prerequisite: MTH 365 with grade of C- or better

MTH 371 Manipulatives in Mathematics (3)
Using concrete models to teach mathematics. Extensive use of group activities, technology, and real-world applications are used to gain an understanding of the underlying mathematics and an appreciation of the utility and value of mathematics. Two hours of lecture plus two hours of lab. Does not apply toward a math major/minor. Prerequisite: MTH 213 with a grade of C- or better in MTH 211, 212 and 213

MTH 386 Mathematical Problem Solving (3)
Mathematical problem solving, techniques and materials helpful in improving student problem solving abilities, mentoring of elementary and middle school students in problem solving processes. Two hours lecture plus two hours lab. Does not apply toward a math major/minor. Prerequisite: MTH 253 with a grade of C- or better in MTH 211, 212 and 213

MTH 397 Discrete Mathematics for Elementary and Middle School Teachers (3)
Explores topics in discrete mathematics including set theory, enumeration and graph theory. Topics in graph theory include the multiplication rule, combinations and permutations. Prerequisites: MTH 341, 337

MTH 399 Independent Study (1-3)
Individual study of selected topics. Consent of instructor.}

MTH 399 Independent Study (1-3)
Individual study of selected topics. Consent of instructor.
spanning trees. Two hours of lecture plus two hours lab. Prerequisites: MTH 213 with a grade of C- or better in MTH 211, 212 and 213

MTH 402/502 Independent Study (1-6)
Terms and hours to be arranged. May be repeated for credit.

MTH 403 Senior Project I (2)
Terms to be arranged during final year of study. Eligible for the RP grade option.

MTH 404 Senior Project II (2)
Continuation of MTH 403. Eligible for the RP grade option. Prerequisite: MTH 403 with a grade of C- or better

MTH 407/507 Seminar (1-6)
Terms and hours to be arranged. May be repeated for credit.

MTH 409/509 Practicum; Work Experience; Internship (1-6)
Terms and hours to be arranged. May be repeated for credit.

MTH 410/510 Special Topics: Analysis (3)
Topics in analysis for advanced undergraduate students. Students enrolled in MTH 510 will be expected to complete a graduate project. Prerequisite: MTH 312 with grade of C- or better

MTH 411 Mathematics Education Capstone I (2)
Terms to be arranged before entering the Education Program. May be taken concurrently with MTH 412.

MTH 412 Mathematics Education Capstone II (2)
Terms to be arranged before entering the Education program. May be taken concurrently with MTH 411.

MTH 416 Complex Analysis (4)
The analysis of functions of a single complex variable. Conformal mappings, Cauchy's Theorem, Cauchy's Integral Formula, power series expansions of analytic functions. Prerequisite: MTH 344 with a grade of C- or better, or consent of instructor

MTH 420/520 Special Topics: Applied Mathematics (3)
Topics in applied mathematics for undergraduate students. Students enrolled in MTH 520 will be expected to complete a graduate project. Prerequisite: consent of instructor

MTH 430/530 Special Topics: Geometry (3)
Topics in geometry for advanced undergraduate students. Students enrolled in MTH 530 will be expected to complete a graduate project. Prerequisite: consent of instructor

MTH 440 Special Topics: Algebra (3)
Topics in modern algebra for advanced undergraduate students. Prerequisite: consent of instructor

MTH 441/541 Linear Algebra II (4)
Complex vector spaces, linear transformations, canonical forms, the spectral theorem and eigenvalue problems, applications. Students enrolled in MTH 541 will be expected to complete a graduate project. Prerequisite: MTH 280 and MTH 341 with a grade of C- or better

MTH 451 Numerical Analysis (4)
Introduction to numerical linear algebra, elements of approximation theory including data fitting, Theoretical foundations of numerical analysis. Prerequisites: MTH 311, 351 with a grade of C- or better

MTH 460 Special Topics: Probability and Statistics (3)
Topics in probability and statistics for advanced undergraduate students. Prerequisite: consent of instructor

MTH 472 History of Mathematics (4)
The history of mathematics from ancient to modern times. The effect of mathematics on the development of science. The interaction of mathematics with other fields of human endeavor such as philosophy, arts and social values. Prerequisite: consent of instructor

MTH 489/589 Algebraic Structures for Middle School Teachers (3)
Study of integers and algebraic skills; solving linear and quadratic equations, inequalities, functions, graphing and complex numbers. Connection of visual methods (using Math in the Mind's Eye curriculum) to the NCTM standards with extensive use of group activities and hands-on models. Does not apply toward a math major/minor. Prerequisite: MTH 213 with a grade of C- or better in MTH 211, 212 and 213, or consent of instructor

MTH 491/591 Historical Topics in Mathematics for Middle School Teachers (3)
Survey of the historical development of topics in mathematics from ancient to modern times, with special emphasis on topics in arithmetic, algebra and informal geometry. Does not apply toward a math major/minor. Prerequisite: MTH 213 with a grade of C- or better in MTH 211, 212 and 213, or consent of instructor

MTH 492/592 Abstract Algebra for Middle School Teachers (3)
An introduction to abstract mathematics as a structured mathematical systems. This course will explore number sets and properties, and beginning group theory with concrete applications for the elementary and middle school classroom. Two hours of lecture plus two hours of lab. Does not apply toward a math major/minor. Prerequisite: MTH 396 with a grade of C- or better, or consent of instructor

MTH 493/593 Experimental Probability and Statistics for Middle School Teachers (3)
The study of data collection and hypothesis testing through laboratory experiments, simulations and applications. The use of technology will be an important part of the data collection and analysis. Students may not take both MTH 393 and MTH 493 for their undergraduate program. Does not apply toward a math major/minor. Prerequisite: MTH 213 with a grade of C- or better in MTH 211, 212, and 213, or consent of instructor

MTH 494/594 Geometry for Middle School Teachers (3)
Selected topics in informal geometry through the use of discovery and technology. The studies in how students learn geometry will be used in the development of geometric ideas. Students may not take both MTH 394 and MTH 494 for their undergraduate program. Does not apply toward a math major/minor. Two hours of lecture plus two hours lab. Prerequisite: MTH 396 with a grade of C- or better, or consent of instructor

MTH 495/595 Calculus Concepts for Middle School Teachers (3)
An introduction to the theory of functions of one real variable, the derivative and its applications to optimization, integration theory and its applications to areas and volumes, the Fundamental Theorem of Calculus and infinite series. A hands-on approach with applications to the middle school curriculum. Two hours of lecture plus two hours of lab. Does not apply toward a math major/minor. Prerequisite: MTH 111 or MTH 392 with a grade of C- or better, and MTH 213 with a grade of C- or better in MTH 211, 212 and 213, or consent of instructor

MTH 496/596 Problem Solving for Middle School Teachers (3)
Assists middle school teachers in becoming better mathematical problem solvers. Focuses on general problem solving techniques, introduces techniques and materials helpful in improving student problem solving abilities and suggests ways to organize the curriculum to achieve problem solving goals. Does not apply toward a math major/minor. Prerequisite: MTH 213 with a grade of C- or better in MTH 211, 212 and 213, or consent of instructor

MTH 497/597 Discrete Mathematics for Middle School Teachers (3)
Explores topics of logical operators and sets, experimental vs theoretical probability, the multiplication rule, permutations and combinations, and an introduction to graph theory. Does not apply toward a math major/ minor. Prerequisite: MTH 213 with a grade of C- or better in MTH 211, 212 and 213, or consent of instructor

MTH 499/599 Algebraic Problem Solving for Middle School Teachers (3)
Assists middle school teachers in becoming better mathematical problem solvers. Focuses on algebraic problem solving techniques, introduces materials helpful in improving student problem solving abilities, and suggests ways to organize the curriculum to achieve problem solving goals. Does not apply toward a math major/minor. Prerequisite: MTH 213 with a grade of C- or better in MTH 211, 212 and 213, or consent of instructor
MTH 601 Research (1-9)  
Terms and hours to be arranged.

MTH 602 Independent Study (1-3)  
Terms and hours to be arranged.

MTH 603 Thesis (1-9)  
Terms and hours to be arranged.

MTH 604 Work Experience Internship (1-9)  
Terms and hours to be arranged.

MTH 605 Reading and Conference (1-6)  
Terms and hours to be arranged.

MTH 606 Special Problems/Projects (1-3)  
Terms and hours to be arranged.

MTH 608 Workshop (1-9)  
Terms and hours to be arranged.

MTH 609 Practicum (1-4)  
Terms and hours to be arranged.

MTH 617 Complex Analysis (3)  
The analysis of functions of a single complex variable. Conformal mappings, Cauchy’s Theorem, Cauchy’s Integral Formula, power series expansion of analytic functions. Prerequisite: consent of instructor

MTH 638 Transformational Geometry (3)  
A study of transformations of the plane. Classification of the plane isometries. Crystallographic and frieze groups. Prerequisite: consent of instructor

MTH 647 Abstract Algebra (3)  
Advanced group theory or ring and field theory. Prerequisite: consent of instructor

MTH 652 Numerical Analysis (3)  
Introduction to numerical linear algebra, elements of approximation theory including data fitting. Theoretical foundations of numerical analysis. Prerequisite: consent of instructor

MTH 673 History of Mathematics (3)  
The history of mathematics from ancient to modern times. The effect of mathematics on the development of science. The interaction of mathematics with other fields of human endeavor such as philosophy, arts and social values. Prerequisite: consent of instructor

MTH 681 Foundations of Mathematics (3)  
Selected topics from: axiomatic systems, consistency, completeness, set theory, cardinality. Construction of number systems. Prerequisite: consent of instructor

MTH 690 Advanced Topics: Mathematics Education (3)  
A study of selected topics in the teaching of mathematics. Prerequisite: consent of instructor

Military Science (ROTC)

MS 111 Military Science I: Introduction to ROTC (1)  
Introduction to ROTC, types of jobs available to Army Officers, time and stress management, drill and ceremony, physical fitness, basic rifle marksmanship (includes a familiarization fire with the M16A2 rifle), the use of a magnetic compass with practical exercises.

MS 112 Military Science I: Land Navigation and Squad Fundamentals (1)  
Introduction to customs and traditions of the U.S. Army, map reading and land navigation I, tactics I and II, field craft, and effective communication with practical exercises. Includes a field training exercise as an integrated member of a squad.

MS 113 Military Science I: Adventure Training (1)  
Introduction to leadership values and attributes, U.S. weapons, map reading II, with practical exercises. Includes a field training exercise consisting of negotiating a confidence course, rappelling, urban operations and paintball competition.

MS 118 Military Physical Conditioning (1)  
Designed to prepare Army ROTC students to excel in the Army Physical Fitness Test (APFT). The APFT measures physical endurance in three timed events: two minutes of push ups, two minutes of sit ups, and the two-mile timed run. Other exercises are included to enhance muscular strength, muscular endurance, cardio respiratory endurance, and flexibility. Class is instructed by the Army ROTC Cadre and assisted by the Military Science III Cadets to prepare the MS III’s for the Leadership Development and Assessment Course during the summer of their junior year. May be repeated for a total of 12 credit hours. MS 118 for ROTC students. PE 118 for non-ROTC students.

MS 211 Military Science II: American Military (2)  
Introduction to Army values, principles of war, problem solving, troop leading procedures, basic map reading and land navigation techniques, basic movement techniques at the individual, team and squad levels, battle drills, warrior ethos, effective briefings and communications, and basic rifle marksmanship. This class includes a familiarization fire with the M16A2 rifle.

MS 212 Military Science II: Fundamentals of Military Operations (2)  
Introduction to patrolling, terrain analysis, map reading, land navigation, route planning, team building, leadership styles and traits, effective army writing, and consideration of others. This class also includes a field training exercise as an integrated member of a squad.

MS 213 Military Science II: Military Operations (2)  
Introduction to operations orders, examination of effective leadership styles, methods, and techniques, and offensive and defensive operations. This class includes a field training exercise consisting of squad tactics, military operations in an urban terrain, rappelling, and paintball competition.

MS 214 Basic Summer Camp: Leader’s Training Course (6)  
Six weeks of leadership training at Fort Knox, Kentucky. Substitute for the first two years of the ROTC program. Summer only.

MS 305 American Military History (3)  
Course prepares ROTC students to employ critical thinking through the study of American military history and the development of the profession of arms. The course covers major military engagements from 1865 through the current operating environment. By analyzing these battles the student will gain an understanding of how the principles of war are applied and how leadership decisions affected the outcome of the battle. Prerequisite: consent of instructor

MS 311, 312, 313 Military Science III: Leadership and Management of Military Organizations (3 each)  
The study of military leadership, management, and theory and dynamics of the military team. Apply principles to advanced military operations. Includes: leadership, management, and organizational theory, group dynamics, functions of staff organizations, development of the commander’s estimate, combat orders and plans, troop leading procedures, application of leadership concepts in offensive and defensive operations at the squad, platoon, and company level, and fundamentals of small unit tactics/patrolling.

MS 314 Advanced Summer Camp: Leader Development and Assessment Course (6)  
Practical and theoretical instruction for six weeks at Fort Lewis, Washington. Practical leadership application and experience in a military environment. Prerequisite: MS 311, 312, 313

MS 405 Special Topics (3)  
Terms and hours to be arranged. Course may be repeated if title and topic changes. Course may be taken for a maximum of 15 credits. Prerequisite: consent of instructor

MS 411, 412, 413 Military Science IV: Preparation for Officership (3 each)  
Recent military history, national defense policy and its application in current world events. Includes military law, law of land warfare, small unit administration, and ethics and professionalism with emphasis on applied leadership, management techniques and ethical decision making. Designed to assist the future army officer with the transition from student to junior officer in the armed forces of the United States.
PE 433 Physical Education in the Elementary School (4)
Experiential course provides elementary classroom teachers with an overview of theory and practice for teaching physical education to children in the elementary school (K-6). Methods for integrating physical activity with other disciplines, in the classroom, and as part of a healthy school and community environment will be explored.

PE 434 Elementary Physical Education Teaching Practicum (3)
Course involves students teaching small groups of local home schooled children (pre-K through 6) a series of elementary physical education content and activities. Prerequisite: PE 433

PE 440 Legal Issues in PE and Sport (3)
Familiarizes the students with legal aspects relating to physical education and sport. Student’s constitutional rights in the public school setting, as they relate to physical education and sport, with specific attention given to the First, Fourth and Fourteenth Amendments. Prerequisite: junior, senior or post-baccalaureate standing

PE 444 Lifespan Adapted Physical Activity (4)
Study of problems as they relate to philosophy, procedures, and practices in Adapted Physical Education, and the organization and administration of Adapted Physical Education and Recreation programs for people in all age groups who have disabilities. Prerequisite: PE 230, PE 310, PE 371

PE 445/545 Curricular Issues in Physical Education (4)
Constructing a curriculum for K-12 physical education will be examined from two main perspectives: 1) curriculum as content and 2) curriculum as teacher. Various curricular and instructional models will be explored from a theoretical basis, using the NASPE K-12 content standards as a framework. Prerequisite: PE 430 and 431 and six classes from PE 239-245 series

PE 459 Recognition and Evaluation of Athletic Injuries (2)
Study in the basic principles involved with the prevention, recognition, evaluation, treatment and rehabilitation of athletic injuries. Prerequisite: PE 359

PE 460 Therapeutic Exercise: Foundations and Techniques (2)
Advanced study in the development and application of appropriate exercise principles and techniques used in the care and treatment of muscular skeletal injuries. Prerequisite: PE 359

PE 461 Evaluation and Treatment of Athletic Injuries (3)
Advanced study in the recognition of signs, symptoms, interpretation and application of functional stress tests used to evaluate common athletic injuries. Study will also include the application of appropriate exercise principles and techniques as part of the treatment plan of care. Prerequisite: PE 359

PE 463 Computer Applications in PE and Health (3)
Current software applications in physical education and health. Students will select programs relative to their interest areas to investigate and evaluate. Hardware modifications and the use of interactive devices will be demonstrated. Prerequisite: senior standing

PE 470 Sociological and Psychological Aspects of Physical Activity (4)
This course will focus on social and psychological factors associated with physical activity and sport experiences across the lifespan. Prerequisite: PE 230, PE 310, PE 371

PE 473 Physiology of Exercise (4)
Human physiological response and adaptation to the effects of physical activity, conditioning, and training programs. Exercise implications for both health and human performance. Prerequisites: BI 234, 235, 236, all with a C- or better; MTH 105 or MTH 111 (or higher level math course) with a grade of C- or better; PE 230

PE 480/580 Adventure in Education (3)
Class is experiential in nature using group discussion, team-building activities, and problem solving initiatives to provide opportunities for personal and professional growth. Class is appropriate for all.

PE 483 Biomechanics (4)
Principles from physics will be presented with application in understanding the physical constraints on human movement, and in evaluating various aspects of human performance and injury risk assessment. Prerequisites: MTH 105 or MTH 111 (or higher level math course) with a grade of C- or better; PE 230, PE 371

PE 484 Advanced Topics in Biomechanics (4)
In depth examination of research and practice in biomechanics. Discussion and research topics will vary by term. Prerequisite: PE 483 or consent of instructor

PE 485 Exercise Testing and Prescription (4)
Methods and protocols for screening, evaluating and prescribing exercise programs for healthy adults. Emphasis is on exercise testing procedures and interpretation of results to promote a healthy physically active lifestyle. Prerequisites: HE 325 and PE 473

PE 486/586 Advanced Topics in Motor Behavior (4)
In depth examination of research and practice in Motor Behavior/Motor Learning. Discussion and research topics will vary by term. Topics may include areas such as: dynamic systems, motor control in learning or rehabilitation, program planning, etc. Prerequisites: PE 310 or consent of instructor

PE 487 Advanced Topics in Physiology of Exercise (4)
In depth examination of the human physiological response to the acute and chronic effects of exercise. Research and discussion topics will vary by term. Prerequisites: BI 234, 235, 236

PE 488 Exercise Motivation and Adherence (4)
Social/psychological aspects of self-perceptions and cognitions in explaining motivated behavior in exercise and fitness settings. Focus is on theories and application of strategies for facilitating individual behavior change.

PE 499 Capstone (4)
Demonstration of professional competencies through the development of an electronic portfolio. Prerequisite: senior standing.

PE 606 Special Individual Studies (1-9)
Terms and hours to be arranged.

PE 607 Seminar (1-9)
Terms and hours to be arranged.

PE 608 Workshop (1-9)
Terms and hours to be arranged.

PE 609 Practicum (1-9)
Terms and hours to be arranged.

PE 650 Musculoskeletal Health (4)
Students will examine the impact certain health conditions have on the musculoskeletal system, and the role of movement and exercise in prevention and intervention programs.

PE 659 School Sports Medicine (2)
Study in the management, treatment and disposition of athletic injuries; includes emergency procedures, sports nutrition, therapeutic exercises and assessment of common athletic injuries that occur to participants of school sponsored athletics.

Physics

PH 201, 202, 203 General Physics (4 each)
The study of mechanics, heat, sound, optics, electricity, magnetism and topics in modern physics. Three lectures and one two-hour laboratory per week. Prerequisite: MTH 112 or above; a grade of C or better in PH 201 for admittance into PH 202; a grade of C or better in PH 202 for admittance into PH 203

PH 211, 212, 213 General Physics with Calculus (4 each)
Fundamental principles and applications of classical mechanics, heat, electricity and magnetism, wave motion and optics. For students in pre-engineering and the natural sciences. Three lectures and one three-hour laboratory period. Prerequisite: MTH 251 (can be taken concurrently)

PH 311, 312 Introduction to Modern Physics (4 each)
Physical theories and research of the 20th century, including theories of relativity and quantum-wave mechanics, electrons and X rays, atomic spectra and structure, solid-state physics, low temperature physics, nuclear physics and fundamental particle physics. Three
PHYSICS

PH 470 Selected Topics in Physics (1-3)
Topics of special interest such as cosmology, relativity, medical and radiation physics, and biophysics.

PH 681, 682 Modern Physics (3 each)
A survey of the developments in physics since 1895. Topics include relativity and quantum mechanics, solid-state and low temperature physics, cosmic rays, and fundamental particles and forces. Three lectures. Prerequisites: one year each of college mathematics and physics; offered during summer session.

Political Science

PS 193 Introduction to Model United Nations (3)
An introduction to Model United Nations, international issues, policy making and the activities of the United Nations. Students will also develop public speaking, research and writing, negotiation, interpersonal and leadership skills while role playing United Nations delegates at MUN conferences locally and internationally.

PS 199 Special Studies (1-6)
Terms and hours to be arranged. Special studies designed to develop research, writing, career-related or participatory skills at a basic level in a variety of political science/public policy and administration areas, such as Model United Nations, Great Decisions in U.S. Foreign Policy, government or campaign experiences.

PS 201 American National Government (3)
An introduction to the study of political institutions, public policy and public opinion in the United States.

PS 202 State and Local Government (3)
A survey of government operations, political processes, contemporary issues, problems, and recent reforms relating to the state and local levels, with emphasis on Oregon.

PS 203 International Relations (3)
An introduction to the analysis of relations among nations, international organizations, global problems and possibilities.

PS 204 Introduction to Comparative Politics (3)
An introduction to the comparative method of analysis of different political systems, and to political concepts such as formal government institutions, political participation and socialization, ideologies, power, authority and democratization.

PS 325 Democracy: Theory and Practice (3)
This course integrates political philosophy and modern social science research to examine the nature and relationship between democratic ideals and practices.

PS 350 Introduction to Public Policy (3)
An investigation of the political processes and substantive content of American public policy, patterns of problem identification, policy creation, approval, implementation, and evaluation. Consideration of selected contemporary national, state and local policies.

PS 351 Introduction to Public Administration (3)
An investigation of the role of public administration in the political process; administrative organization; basic problems of management; personnel and financial administration. An analysis of the continuing role of bureaucracy in the solution of public problems.

PS 375 Scope and Methods of Political Science (3)
An introduction to the history, nature and methods of political science as a discipline. Examines a variety of conceptual tools used to study politics, including qualitative and quantitative research methods.

PS 399 Special Studies (1-3)
Special studies designed to develop research, writing, career-related or participatory skills at an advanced level in a variety of political science/public policy and administration areas. Prerequisite: PS 199 or consent of instructor.

PS 406 Special Individual Studies (1-6)
Terms and hours to be arranged. A specialized or individualized course of study within political science/public policy and administration developed in consultation with the instructor. Prerequisite: consent of instructor.

PS 407 Seminar (1-3)
Terms and hours to be arranged. Special seminar topic offerings in the political science/public policy and administration discipline.

PS 409 Practicum: Administrative Internship (3-12)
Terms and hours to be arranged. This course provides opportunities for practical experience in the administrative processes of federal, state and local government agencies and public or nonprofit organizations. Eligible for the RP grade option. Prerequisite: consent of instructor and at least 3.00 GPA.

PS 410 Political Science Internship (3-12)
Provides opportunities for practical experience with the Oregon State Legislature, city councils, legal offices, political campaign or interest group activities. Eligible for the RP grade option. Prerequisite: consent of instructor and at least 3.00 GPA.

PS 414 Political Parties, Pressure Groups and Elections (3)
An analysis of the nature, organization and operation of political parties, pressure groups and elections with special attention to their functions in the American political process. A consideration of current problems and reforms in the area. Prerequisite: PS 201 or consent of instructor.

PS 415 Politics and Psychology (3)
An analysis of the motivations for various forms of political behavior (apathy, voting, revolution) and the creation of political belief systems with emphasis on psychological theories and the socialization process. Prerequisite: PS 201 or consent of instructor.

PS 416 Politics and Communication (3)
An examination of the relationship between politics and communication and how it affects American society. Emphasis is on the politics of communication, the ways in which institutions of mass media, particularly television, help create, advance and reinforce public opinion and political agendas. Prerequisite: PS 201 or consent of instructor.

PS 419 American Presidential Elections (3)
Examination of the processes and outcomes of American presidential elections with emphasis on the period from 1952 to the present. Prerequisite: PS 201 or consent of instructor.

PS 423 Issues in National Policy (3)
A detailed analysis of the functions and policies of American national government with emphasis on selected contemporary problems and issues. Prerequisite: PS 201 or consent of instructor.

PS 424 Policy-making in the States (3)
An examination and analysis of selected key issues and characteristics of contemporary state government. Prerequisite: PS 201 or consent of instructor.

PS 425 Native American Politics and Policy (3)
Course explores the history and current dynamics of Native American politics and public policy. The political and policy elements that all tribes share are considered, as well as the variation among them. The situations and challenges of Oregon tribes receive specific attention.

PS 426 Federalism and Intergovernmental Relations (3)
An investigation of the constitutional, political, financial, and administrative patterns that operate within the American federal system and a comparison of those patterns with ones from selected non-American federal systems. Prerequisites: PS 201, PS 202 or consent of instructor.

PS 430/530 The Aging Society (3)
Analyzes the demographic, economic, social, and political dimensions of our aging population. The unique nature, needs and...
faculty and administrators
President
Mark D. Weiss (2005), president. B.S. 1974, M.B.A. 1975, Rutgers University

President's staff
Peter C. Courtney (1984), assistant to the president; assistant professor. B.A. 1965, M.P.A. 1966, University of Rhode Island; J.D. 1969, Boston University
Gary L. Dukes (2004), vice president for student affairs. B.S. 1985, Oregon State University; M. Ed. 1987, University of Vermont; Ph.D. 1994, University of Washington
Kent Neely (2008), provost, on assignment to OUS; professor of theatre. B.A. 1971, Oklahoma City University; M.A. 1973, Ph.D. 1975, Wayne State University
Stephen H. Scheck (2010), vice president for academic affairs; professor of biology. B.S. 1975, M.S. 1977, Fort Hays State University; Ph.D. 1980, Iowa State University
Eric Yahnke (2010), vice president of finance & administration. B.A. Oregon State University; M.P.A. Portland State University; C.P.A. Oregon; CGFM

Deans
Tina M. Fuchs [1989], dean of students; instructor. B.A. 1985, Pacific University; M.Ed. 1989, Western Washington University
Mark Girod [2001], interim dean of college of education, professor of education. B.S. 1993, Western Oregon State College; M.S. 1996, Western Oregon University; Ph.D. 2001, Michigan State University
David McDonald [2005], associate provost. Double B.S. 1988, University of Oregon; M.P.A. 1990, University of Washington
Allen McKiel [2008], dean, Library. B.A. 1975, Purdue University; M.L.S. 1978, Indiana University; Ph.D. 2001, Indiana State University
Diane Tarter [1993], interim dean of college of liberal arts and sciences, professor of graphic design. B.A. 1976, Willamette University; M.F.A. 1992, University of Oregon

Faculty

A
Jeffrey Armstrong (2008), associate professor of physical education. B.S. 1985, M.S. 1986, West Virginia University; Ph.D. 1998, The University of Toledo

B
Erl Baumgartner (2008), associate professor of biology. B.A. 1996, University of Kansas; Ph.D. 2002, University of Hawaii-Manoa
Scott Beaver (2005), associate professor of mathematics. B.S. 1990, Lehigh University; B.S. 1994 Auburn University; M.S. 1997, University of Arizona, Tucson; Ph.D. 2004, University of California, Davis

C
Peter L. Callero (1985), professor of sociology. B.A. 1977, Seattle University; M.A. 1979, Western Washington University; Ph.D. 1983, University of Wisconsin

Dean M. Braa (1990), associate professor of sociology. B.A. 1976, University of Northern Colorado; M.A. 1980, Ph.D. 1991, University of Kansas
Robert R. Broeg (1996), professor of computer science. B.A. 1973, Dominican College; M.S. 1975, Marquette University; M.T.S. 1979, The Franciscan School of Theology; M.S. 1989, California State University; Ph.D. 1995, Oregon State University
Mary Bucy (2003), associate professor of teacher education. B.S. 1977, Oregon State University; M.S. 1997, Western Oregon University; Ph.D. 2003, Oregon State University

PhD


Karen Clark (2010), assistant professor of criminal justice. B.A. 1994, University of California, San Diego; M.S. 1996, Michigan State University; Ph.D. 2003, University of California, Irvine

Jamie Cloud (2013), assistant professor of psychology. B.A. 2005, Bloomsburg University of Pennsylvania; Ph.D. 2012, University of Texas at Austin


Arlene R. Courtney (1988), professor of chemistry. B.S. 1975, Grove City College; Ph.D. 1980, Texas A&M University


Maria Dantas-Whitey (2004), professor of teacher education. B.A. 1984, Universidade Santa Ursula, Brazil; M.A. 1987, Northern Arizona University; Ph.D. 2003, Oregon State University

Cheryl Davis (1997), professor of special education; Regional Resource Center on Deafness, director. B.A. 1981, University of Arkansas at Little Rock; M.Ed. 1986, University of Arkansas at Fayetteville; Ph.D. 1992, University of Oregon


Eliott Dickinson (2008), associate professor of politics, policy and administration. B.A. 1994, Washington State University; M.A. 1999, Bowling Green State University; Ph.D. 2004, Purdue University


Claire L. Ferraris (1999), professor of communication studies. B.S. 1972, University of Connecticut; M.A. 1990, University of Hartford; Ph.D. 1998, University of Utah


Breean Flesch (2011), assistant professor of mathematics.  B.S. 2001, Rocky Mountain College; M.Ed. 2003, Montana State University, Billings; M.S. 2010, Ph.D. 2011, University of Colorado, Denver

David A. Foster (1999), professor of psychology. B.S. 1986, Florida State University; B.S. 1988, University of South Alabama; Ph.D. 1999, George Washington University


Michael Freeman (2009), associate professor of art history. B.A. 1990, University of Oregon; M.A. 1995, Indiana University; Ph.D. 2000, Indiana University


Scott Grim (1998), professor of theatre; chair, Creative Arts Division. B.S. 1988, Western Oregon State College; M.F.A. 1990, University of Georgia


Sandra Hedgepeth (2005), associate professor of theatre/dance. B.A. 1986, Furman University; M.F.A. 1992, Florida State University


Mark Henkels (1988), professor of politics, policy and administration; chair, Social Science Division. B.A. 1980, Whitman College; M.A. 1984, University of Virginia; Ph.D. 1988, University of Utah

Ryan Hickerson (2005), associate professor of philosophy. B.A. 1995, Carleton College; Ph.D. 2003, University of California, San Diego


Stephanie Hoover (2013), assistant professor of psychology. B.A. 2008, Denison University; M.S. 2010, Ph.D. 2013, University of Utah

Ava Howard (2009), assistant professor of biology. B.S. 2002, Skidmore College; Ph.D. 2009, University of Georgia

Bau Hwa Hsieh (1999), professor of history. B.A. 1976, The National Taiwan University, Taiwan; M.A. 1982 Fu-jen Catholic University, Taiwan; Ph.D. 1992, University of Illinois at Urbana-Champaign

B.A. 1987, Dakota Wesleyan University; M.A. 1990, Ph.D. 2002, Purdue University


Jie Liu (1993), professor of computer science.
B.S. 1983, Nju, Beijing, China; M.A. 1989, Ph.D. 1993, Oregon State University

Isidore Lobnibe (2007), associate professor of anthropology. B.A. 1995, University of Cape Coast, Ghana; M.A. 2002, University of Illinois at Urbana-Champaign; Ph.D. 2007, University of Edinburgh


Jeffrey Myers (1999), professor of geology. B.A. 1982, University of California, Santa Barbara; M.S. 1990, San Diego State University; Ph.D. 1998, University of California, Santa Barbara


B.A. 1989, Lakeland College; M.F.A. 1992, University of Wisconsin-Milwaukee


Deborah L. Jones (1996), professor of dance.
B.A. 1975, University of California, Berkeley; M.F.A. 1986, Mills College

M. Rahim Kazerouni (1986), associate professor of chemistry. B.S. 1972, Pahlavi University, Iran; M.S. 1973, Eastern Michigan University; Ph.D. 1987, Oregon State University


Sriram Khe (2002), associate professor of geography.
B.E. 1985, University of Madras; M.Pl. 1990, Ph.D. 1993, University of Southern California

Marjory Lange (1997), professor of English.
B.Mus. 1977; M.A. 1986; Ph.D. 1993, University of Arizona


Justin Lewis (2013), assistant professor of digital writing. B.A. 2002, University of Georgia; M.A. 2007, University of Tennessee at Chattanooga; Ph.D. 2013, Syracuse University


Margaret Manoogian (2012), associate professor of gerontology. B.A. 1981, University of California; M. Ed. 1984, University of Vermont, Burlington; Ph.D. 2001, Oregon State University


Gianna Martella (2001), professor of Spanish.
B.A. 1986, Mount Holyoke College; M.A. 1989, University of Minnesota; Ph.D. 1998, University of Texas at Austin


B.A. 1971, Harding College; M.M. 1975, Ohio University; D.M.A. 1990, University of Oklahoma


Rebecca McCannell (1995), professor of art.
B.F.A. 1990, Aquinas College; M.F.A. 1995, Northern Illinois University


Ethan McMahan (2011), assistant professor of psychology.
B.A. 2005, University of Colorado; M.S. 2007, Ph.D. 2010, University of Wyoming

Mary (Karie) Mize (2005), associate professor of teacher education.
B.A. 1991, University of Colorado, Boulder; M. Ed. 1994, University of California; M. Ed. 1998, Lesley College; Ed. D. 2004, University of San Francisco


Scot Morse (2000), associate professor of computer science.

David Murphy (2006), associate professor of criminal justice.

Jeffrey Myers (1999), professor of geology.
B.A. 1982, University of California, Santa Barbara; M.S. 1990, San Diego State University; Ph.D. 1998, University of California, Santa Barbara

Matthew Naby (2013), assistant professor of mathematics.
B.S. 2000, University of Nebraska, Lincoln; M.S. 2003, University of Colorado - Boulder; Ph.D. 2011, University of Colorado - Denver

Ike Nail (2005), associate professor of music.
B.Mus. Ed. 1966, M.A. 1970, West Texas University; D.M.A. 1978 University of Texas at Austin

Frank D. Nevius (1990), professor of communication studies.
B.S. 1979, Bowling Green State University; M.S. 1984, University of Oregon; Ph.D. 1990, Ohio State University

Chung-Fan Ni (2008), associate professor of special education.
B.S. 1994, National Cheng-Kung University; M.S. 1998, Hofstra University, Hempstead; Ph.D. 2008, University of Connecticut

B.S. 1984, Lamar University; M.S. 1987, University of Oregon

David M. Olson (1984), professor of computer science; chair, Computer Science Division.
B.S. 1978, M.S. 1982, Western Oregon State College; M.S. 1984, Ph.D. 1986, University of Oregon

B.A. 1980, University of Athens; M.A. 1982, Ph.D. 1987, University of Kansas

E. Michelle Pardew (1991), professor of special education.
B.A. 1969, Elmira College; M.A. 1972, University of North Dakota; Ph.D. 1996, Oregon State University

B.A. 2003, University of Wisconsin-Madison; M.S.I. 2007, University of Michigan

Peggy Pedersen (2004), professor of health; chair, Health and Physical Education Division.
B.S. 1980, Valley City State University; M.S. 1982, Montana State University; Ph.D. 1995, Oregon State University

Mark Perlman (1998), professor of philosophy.
B.A. 1987, M.A. 1989, Ohio State University; Ph.D. 1994, University of Arizona

Mary E. Pettenger (2003), professor of politics, policy and administration.
FACULTY


Pete E. Poston (1990), professor of chemistry. B.S. 1984, Fort Lewis College; Ph.D. 1989, University of Utah


Cindy Ryan (2011), assistant professor of teacher education. B.S. 1987, Moorhead State University; M.S.E. 2006, University of Minnesota Duluth; ABD 2011, University of Minnesota

Mary C. Scarlato (2003), associate professor of special education. B.A. 1977, Cardinal Stritch College; M.S. 1984, University of Wisconsin; Ph.D. 1988, University of Oregon


Katherine M. Schmidt (2003), professor of English; director, Writing Center. B.A. 1994, California State University; M.A. 1996, California State Polytechnic University; Ph.D. 2003, University of Nevada


Thaddeus Shannon, III (2008), associate professor of theatre, lighting design; events coordinator. B.A. 1986, Reed College; M.S. 2001, Ph.D. 2007, Portland State University


Amanda Smith (2008), associate professor of special education. B.S. 2003, Friends University; M.S. 2007 Northeastern University

Julia Smith (1993), associate professor of special education; coordinator of rehabilitation counselor education. B.A. 1976, University of California; M.S. 1979, Oregon College of Education; Ph.D. 2004, Oregon State University


Stephen B. Taylor (1999), professor of geology; chair, Natural Sciences and Mathematics Division. B.S. 1982, Slippery Rock University; M.S. 1985, Washington State University; Ph.D. 1999, West Virginia University


Gay L. Timken (2003), professor of physical education. B.S. 1987, M.S. 1989, Fort Hays State University; Ph.D. 2000, Oregon State University

Tamara Toray (1992), professor of psychology. B.S. 1980, Colorado State University; M.A. 1982, Northeast Missouri State University; Ph.D. 1992, Oregon State University


Mark M. Van Steeter (1999), associate professor of geography. B.S. 1987, University of Utah; M.E.S. 1990, Yale; Ph.D. 1996, University of Colorado


Michael B. Ward (1997), professor of mathematics. B.S. 1974, Utah State University; Ph.D. 1979, University of Utah


Alicia Wenzel (2011), assistant professor of curriculum and instruction. B.S. 1994, Pennsylvania State University; M.S. Ed. 1999, University of Illinois, Urbana-Champaign; Ph.D. 2009, Indiana University Bloomington


Administrative directors

**B**

Don Boderman (1993), director, Student Enrichment Program. B.A. 1976, Columbia Christian College; M.Ed. 1993, Oregon State University

**C**


Andry Clark (2012), director, Service Learning and Career Development. B.S. 1990, California State Polytechnic University, Pomona; M.S. 2002, California State University, Long Beach

**F**


Nancy S. France (1991), registrar. B.S. 1975, Oregon College of Education; M.S. 2004, Western Oregon University

**H**


Rip Horsey (2010), director, Campus Recreation. B.S. 1990, University of Missouri; M.A. 2009, Gonzaga University

**K**


**L**


**M**

Cat McGrew (2008), assistant to the vice president of Academic Affairs, director of Academic Affairs. B.A. 1989, University of Oregon; M.A. 2001, Antioch University; Ph.D. 2008, The Ohio State University

**N**


Karen Nelles (1980), director, Food Service. B.S. 1978, Oregon State University

Dianna L. Nickelson (1985), executive assistant to the president

**P**


**R**

Shondra Russell (1999), director, Upward Bound. B.S. 1998, University of Utah; M.Ed. 2003, Oregon State University

**S**


Linda J. Stonecipher (1994), director, Graduate Programs; Professor of Health and Physical Education. B.S. 1978, Indiana State University; M.A. 1984, University of Iowa; Ph.D. 1990, Purdue University

Karen Sullivan-Vance (2005), director, Academic Advising and Learning Center. B.A. University of Puget Sound; Ed.M. Oregon State University

**T**


**V**


Denise Visuño (1999), director, Public Relations. B.A. 1999, Western Oregon University

**W**


**Y**

The Teaching Research Institute faculty

**A**
- **Patrick Aldrich** (2013), assistant fellow, M.S. 2006, University of Hawaii
- **Ingrid Amerson** (2004), CDC director, project assistant
- **Aimee Anderson** (2007), project assistant
- **Lyn Ayer** (2006), Assistant Fellow, Ph.D. 1992, Ohio State University
- **Robert Ayres** (1975), research professor, Ph.D. 1985, University of Oregon

**B**
- **Patricia Blasco** (2008) associate fellow, Ph.D. 1988 University of Virginia
- **Julia Bulen** (1990), program assistant, M.A. 1987, Western Oregon State College
- **Robbin Bull** (2009), program assistant, B.S. 1991, Western Oregon State College

**C**
- **Laurel Cuthbertson** (1997), assistant fellow, B.S. 1995, Western Oregon State College

**D**
- **Patricia Davies** (1992), assistant fellow, B.A. 1990, Western Oregon State College
- **Mary Ellen Dello Stritto** (2011), assistant fellow, Ph.D. 2001, Claremont Graduate University
- **Jeffrey Denton** (2005), program assistant

**F**
- **Andrea Fewx** (1999), assistant specialist, B.A. 1970, Ottawa University, Kansas

**G**
- **Nancy Ganson** (1998), assistant specialist, B.F.A. 1981, Southwest Missouri State University
- **D. Jay Genese** (2009), associate fellow, Ed. S. 1983 University of Northern Colorado
- **Gary Glasenapp** (1984), assistant fellow, M.S. 1975, University of Oregon
- **Melissa Gritz** (2012), program assistant, B.A. 2010, Washington State University

**J**
- **Brian Johnson** (1987), associate fellow, M.S. 1974, Pacific University
- **Pattie Johnson** (1988), assistant fellow, B.S. 1976, University of Alaska, Fairbanks

**K**
- **Debbie Kenyon** (1996), program assistant, B.S. 1988, Western Oregon State College
- **John Killoran** (1998), associate fellow, M.Ed. 1980, Utah State University
- **Randall Klumph** (1992), program assistant, B.S. 1975, Southern Oregon State College
- **Kenneth Kosko** (1974), associate fellow, M.S. 1974, Oregon College of Education
- **Cassandra Kroeker** (2010), program assistant, B.A. 1987, Western Oregon State College

**L**
- **Gail Leslie** (1992), assistant fellow, M.L.S. 1982, San Jose State University
- **Robyn Lopez Melton** (2012), program assistant, B.A. 2007, Oregon State University

**M**
- **Cindi Mafit** (1998), assistant specialist, B.S. 1981, University of California, Davis
- **Margaret Malloy** (1997), assistant research professor, M.L.S. 1992, University of Washington
- **Doris Maruame** (1988), CDC teacher, project assistant
- **Roxyanna Marvin** (1994), assistant fellow, M.S. 1993, Western Oregon State College
- **Bonnie Morihara** (2004), assistant research professor, Ph.D. 1999, Oregon State University

**P**
- **Amy Parker** (2012), assistant fellow, Ed.D. 2009, Texas Tech University
- **Victoria Piazza Templeman** (1972), associate fellow, M.A. 1975, Oregon College of Education

**R**
- **Christina Reagle** (2008), associate fellow, Ed.D 2007, Fielding Graduate University
- **John Reiman** (1986), associate research professor, Ph.D. 1984, Oregon State University
- **Marlene Richards** (1994), assistant fellow, M.S. 1978, Oregon College of Education

**S**
- **Bennett Samples** (1968), project assistant
- **Mark Schalock** (1982), associate fellow, B.S. 1982, Oregon State University
- **Michael Stewart** (1968), business manager, associate specialist, B.S. 1967, University of Oregon

**T**
- **Ella Taylor** (2003) Director, associate research professor, Ph.D. 2001, University of South Florida
- **Jean Thetford** (2008), CDC teacher, project assistant, B.S. 2008, Oregon State University

**U**
- **Tom Udell** (1987), associate fellow, B.S. 1984, Western Oregon State College

**V**
- **Martha Villegas-Gutierrez** (2003), assistant research professor, Ph.D. 2003, University of Iowa
Emeritus faculty and administrators

A
Charles A. Alva (1964-1985), Ed.D., professor emeritus, humanities

B
Frank Balke (1972-2003), Ph.D., professor emeritus, modern languages
Louis E. Balmer (1977-1993), Ph.D., professor emeritus, education
James A. Barnard (1963-1998), Ph.D., professor emeritus, mathematics
James H. Beard (1962-1993), Ed.D., professor emeritus, psychology
Hermes J. Bergman (1966-1985), Ph.D., professor emeritus, history
Myra J. Brand (1966-2000), D.M.A., professor emeritus, music
L. Carl Brandhorst (1967-1994), Ph.D., professor emeritus, geography
Jenny Braza (1995-2009), Ph.D., professor emeritus, health and physical education
R. John Brinegar (1969-1999), M.S., registrar emeritus
Ray Brodersen (1962-1997), Ph.D., professor emeritus, geology
Meredith Brodsky (1985-2007), Ph.D., professor emeritus, education
William E. Burke (1968-1978), Ph.D., professor emeritus, physical education

C
Joseph R. Caligure (1966-1992), M.S., assistant professor emeritus, health and physical education
Dale Cannon (1977-2003), Ph.D., professor emeritus, philosophy
Daniel G. Cannon (1967-1994), Ph.D., professor emeritus, art
Jon Carey (1976-2011), Ed.M., associate professor emeritus, health and physical education; athletic director
James Chadney (1999-2005), Ph.D., dean emeritus, college of liberal arts and sciences
Michael Cihak (1986-2002), Ed.D., professor emeritus; vice president, student affairs and enrollment management
Gordon W. Clarke (1968-1978), Ph.D., professor emeritus, humanities
Eric Cooley (1976-2011), Ph.D., professor emeritus, psychology
Bill Cowart (1984-1995), Ph.D., professor emeritus, president

D
Merlin D. Darby (1968-1991), Ed.D., professor emeritus, counseling and guidance; director, counseling center
Susan Dauer (1990-2011), Ph.D., professor emeritus, teacher education
Richard Davis (1964-2003), Ph.D., professor emeritus, theatre arts
Steven A. Douglass (1986-2003), Ph.D., associate professor emeritus, mathematics
Susan Dauer (1990-2010), Ph.D., professor emeritus, teacher education

E
Dennis Edings (1968-2001), Ph.D., professor emeritus, English
Jay Evet (1968-1996), Ph.D., professor emeritus, physics

F
Christine Ferris (1988-2007), adjunct instructor emeritus, French
Ronald D. Finster (1971-1999), Ph.D., professor emeritus, economics
Richard Forcier (1972-1996), Ph.D., professor emeritus, secondary education
Anne Fox (1996-2004), Ph.D., associate professor emeritus, public services librarian
John Freeburg (1973-2003), M.S., associate professor emeritus, special education, regional resource center on deafness
Beverly J. Freer (1970-1993), Ph.D., professor emeritus, humanities

G
James W. Gallagher (1969-1990), Ed.D., professor emeritus, geography
Irja Galvan (1998-2010), Ph.D., associate professor emeritus, biology

H
Beverly Herzog (1968-1999), Ph.D., professor emeritus, special education
Betty P. Holdt (1963-1995), Ed.D., professor emeritus, special education
Solveig Holmquist (1996-2011), D.M.A., professor emeritus, music
Don Y. Hoskinson (1971-2003), M.F.A., professor emeritus, art

J
Majuddin Mohammed Jaffer (1958-1989), M.S.Ch.E., associate professor emeritus, chemistry
Elaina Jamieson (1999-2011), M.F.A., associate professor emeritus, art
Gary D. Jensen (1987-2007), Ph.D., dean emeritus, library and media services
Kenneth Jensen (1976-2003), Ph.D., professor emeritus, anthropology

K
James Kesey (1970), Ph.D., associate professor emeritus, psychology
Linda Keller (1998-2011), Ph.D., professor emeritus, special education
Merle A. Kelley (1970-2000), Ph.D., professor emeritus, psychology
Bert Y. Kersh (1960-1985), Ph.D., professor emeritus, psychology
Alice Trower Kirk (1988-2004), M.A.T., adjunct instructor emeritus, French
L. James Kirk (1963-1987), M.A., professor emeritus, art
John W. Knight (1989-2003) M.Ed., assistant professor emeritus, health and physical education; track and cross country coach
Norman Koch (1968-1996), Ed.D., professor emeritus, education
EMERITUS FACULTY AND ADMINISTRATORS

**L**

Gerald Leinwand (1977-1982), Ph.D., president emeritus
Judy M. Lovre (1987-2005), M.Ed., assistant professor emeritus, health and physical education

**M**

Robert Main (1968-1996), Ph.D., professor emeritus, mathematics
Robert Martin (1972-2002), Ph.D., professor emeritus, speech
Harold (Skip) Mason (1966-1991), M.S., associate professor emeritus, education; director of field services
David McCorkle (1962-1997), Ph.D., professor emeritus, biology
Gail McCowen (1986-2000), M.A., adjunct instructor emeritus, history
Lotte Larson Meyer (1976-1998), associate professor emeritus, reference and serials librarian
John P. Minahan (2005-2011), Ph.D., professor emeritus; president
Ronald R. Morgali (1967-1992), Ph.D., professor emeritus, mathematics
Jack D. Morton (1955-1983), M.A., assistant professor emeritus, dean of students
Kenneth H. Myers (1968-1992), Ed.D., professor emeritus; dean, school of education

**O**

Ernest M. Ogard, Jr. (1966-1996), Ed.D., professor emeritus, social science

**P**

Addyse Palagyi (1987-2004), Ph.D., adjunct associate professor emeritus, theatre
Anna M. Penk (1973-1994), Ph.D., professor emeritus, mathematics
Lewis A. Pennock (1968-1993), Ph.D., professor emeritus, biology
Sherry Perry (1972-2003), B.S., assistant professor emeritus; budget director

**R**

Gwenda Rice (1990-2011), Ph.D. professor emeritus, teacher education
Leon Roland (1985-2004), Ph.D., professor emeritus, mathematics
Marion O. Rossi (1965-1996), M.A., associate professor emeritus, humanities
Jack C. Rye (1970-1990), Ph.D., professor emeritus, administration

**S**

Victor E. Savicki (1971-2003), Ph.D., professor emeritus, psychology
Marion Schrock (1970-1999), D.M.A., professor emeritus, music
Roshani Shay (1979-2003), Ph.D., professor emeritus, political science
Richard G. Shollenberger (1965-1983), M.Ed., assistant professor emeritus, physical education
Narasingha “Ram” Sil (1987-2011), Ph.D., professor emeritus, history
Ajmer Singh (1965-1998), Ph.D., professor emeritus, economics
George D. Slawson (1967-1996), M.A., assistant professor emeritus, humanities
Claude (Bud) Smith (1958-1994), M.S., assistant professor emeritus, education; director, educational media
Edwin Snyder (1979-1996), D.M.A., professor emeritus, music
Joseph A. Soldati (1972-1998), Ph.D., professor emeritus, English
Richard Sorenson (1969-1999), Ph.D., professor emeritus, music
Lowell W. Spring (1968-2003), Ph.D., professor emeritus, biology
Carl W. Stevenson (1986-2003), Ph.D., associate professor emeritus, criminal justice
Peter Stone (1968-1994), M.A.T., professor emeritus, art

**T**

Kathryn Thompson (1985-2011), Ph.D. professor emeritus, psychology
Robert Tompkins (1969-1995), Ph.D., professor emeritus, humanities
Robert Turner (1986-2008), Ph.D., associate professor emeritus, biology

**W**

Kenneth M. Walker (1957-1986), Ph.D., professor emeritus, biology
David E. Wallace (1960-1985), Ph.D., professor emeritus, music
Maxine Warnath (1962-1996), Ed.D., professor emeritus, psychology
Wayne White (1967-1997), Ph.D., professor emeritus, geography
Helen E. Woods (1985-2004), Ph.D., professor emeritus, teacher education
David Wright (1985-2006), Ph.D., professor emeritus, teacher education
In the early 1850s, hardy pioneers crossed the Oregon Trail to found a church and school in the Willamette Valley. In 1856, Monmouth University opened with a handful of students. This was the beginning of what is now Western Oregon University, which has grown from a private institution through an era as a prominent teacher preparation school to today’s diverse liberal arts university. Through the years, WOU has undergone seven name changes and with each assumed new responsibilities.

In 1865, it merged with another private institution and became Christian College. In 1882, the Oregon Legislature approved the college’s bid to become a state-supported teacher training (or “normal”) school. Oregon State Normal School, later Oregon Normal School, ushered in the school’s long tradition of excellence in teacher education, which it enjoys to the present day.

The university underwent a spurt of growth in the 1920s and more than tripled its enrollment to nearly 1,000 students. By 1939, the institution had broadened its academic programs in the liberal arts fields so much that it was renamed Western Oregon State College. In 1997, the school’s name was changed to Western Oregon University, recognizing the institution’s broader role as a comprehensive public liberal arts institution.

At the beginning of the 21st century, WOU with an enrollment of about 5,000, continues to thrive as a dynamic institution that meets the needs of students in high quality programs in the liberal arts as well as teacher preparation.