General Curriculum Report #272
UNIVERSITY OF IDAHO - REGISTRAR'S OFFICE
December 6, 2013
TO: MEMBERS OF THE UNIVERSITY OF IDAHO FACULTY

The items listed below, approved by the University Curriculum Committee, will be considered to have the necessary faculty approvals unless a petition requesting further consideration of specific items is signed by five faculty members and submitted to the chair of the Faculty Senate within 14 calendar days after the date of circulation. If no petition is received within 14 days, the entire report will be submitted to the president for approval and transmittal to the regents, if regents' action is required. If a petition is received, the items in the report for which further consideration is requested will be referred to the Faculty Senate and the remainder of the report will move forward. On items referred to it, the council may: (1) affirm the action and report it to a meeting of the university faculty, (2) amend the action and report it to a meeting of the university faculty, or (3) rescind the action. Note: If a petition concerns courses or curricula in the College of Letters, Arts and Social Sciences or in the College of Agricultural and Life Sciences, and is signed by five faculty members of the respective college, those items will be returned to the college concerned for further consideration.

Agricultural Economics and Rural Sociology

1. Drop the following course [Effective: Summer 2014]

   AgEc 427  Mathematics for Economists (3 cr)
   Same as Econ J427/J527. Mathematical methods applicable to economic analysis and research. Additional projects/assignments required for graduate credit. AgEc 527 is a cooperative course available to WSU degree-seeking students. (Fall only)
   Prereq: Econ 352 and Math 160 or Math 170

2. Change the following course [Effective: Summer 2014]

   AgEc 527  Mathematics for Economists (3 cr)
   Same as Econ J427/J527. Mathematical methods applicable to economic analysis and research. Additional projects/assignments required for graduate credit. Cooperative: open to WSU degree-seeking students. (Fall only)
   Prereq: Econ 352 and Math 160 or Math 170
   See AgEc J427/J527.

Agricultural Education and 4-H Youth Development

1. Change the curricular requirements of Agricultural Science, Communication and Leadership (B.S.Ag.L.S.) [Effective: Summer 2014]

   Required course work includes the university requirements (see regulation J-3) and:

   Agricultural and Life Science Core

   ASM 305   GPS and Precision Agriculture (3 cr)
   AgEd 406   Exploring International Agriculture (3 cr)
   Biol 115   Cells and the Evolution of Life (4 cr)
   Comm 101   Fundamentals of Public Speaking (2 cr)
   Soil 205, Soil 206  The Soil Ecosystem and Lab (2-4 cr)
   Stat 251   Statistical Methods (3 cr)

   One of the following (2-3 cr):
   ASM 305   GPS and Precision Agriculture (3 cr)
   ASM 412   Agricultural Safety and Health (2 cr)
   PSc 207   Introduction to Biotechnology (3 cr)

   One of the following (4 cr):
   Chem 101   Introduction to Chemistry I (4 cr)
   Chem 111   Principles of Chemistry I (4 cr)

   One of the following (2-3 cr):
   Comm 101   Fundamentals of Public Speaking (2 cr)
   Engl 207   Persuasive Writing (3 cr)
   Engl 313   Business Writing (3 cr)
   Engl 316   Environmental Writing (3 cr)
   Engl 317   Technical Writing (3 cr)

   One of the following (3-4 cr):
   Math 130   Finite Mathematics (3 cr)
   Math 143   Pre-calculus Algebra and Analytic Geometry (3 cr)
Math 160 Survey of Calculus (4 cr)
Math 170 Analytic Geometry and Calculus I (4 cr)

Agricultural Science, Communication and Leadership Courses
Acct 201 Introduction to Financial Accounting (3 cr)
AgEc 278 Farm and Agribusiness Management (4 cr)
AgEc 289 Agricultural Markets and Prices (3 cr)
AgEd 180 Introduction to Agricultural Education (1 cr)
AgEd 406 Exploring International Agriculture (2 cr)
AgEd 450 Developing Leaders (2 cr)
AgEd 451 Communicating in Agriculture (3 cr)
AgEd 498 Internship (5-10 cr)
Biol 115 Cells and the Evolution of Life (4 cr)
Comm 101 Fundamentals of Public Speaking (2 cr)
Econ 202 Principles of Microeconomics (3 cr)

Additional Natural and Applied Sciences (8-4 cr)
Upper-Division Agricultural Economics elective (3 cr)
One of the following (18 cr)

Nine credits in two different subject areas chosen from Agricultural System Management (ASM), Animal and Veterinary Science (AVS), Entomology (Ent), Family and Consumer Science (FCS), Food Science (FS), Plant Science (PlSc), and Soils (Soil).
12 credits in one subject area chosen from Agricultural System Management (ASM), Animal and Veterinary Science (AVS), Entomology (Ent), Family and Consumer Science (FCS), Food Science (FS), Plant Science (PlSc), and Soils (Soil) and Six credits from a Foreign Language.

Communication Electives including one upper-division course (12 cr):
Comm 233 Interpersonal Communication (3 cr)
Comm 235 Organizational Communication (3 cr)
Comm 332 Communication and the Small Group (3 cr)
Comm 410 Conflict Management (3 cr)
Comm 431 Applied Business and Professional Communication (3 cr)
JAMM 121 Media Writing (3 cr)
JAMM 252 Introduction to Public Relations (3 cr)

Leadership Electives (12 cr):
AgEd 181 Introduction to Extension Education (1 cr)
AgEd 252 Developing Community and Collegiate Organizations (3 cr)
AgEd 359 Developing 4-H Youth Programs (2 cr)
AgEd 448 Foundations of Extension Education (2 cr)
Bus 311 Introduction to Management (3 cr)
Bus 413 Leadership and Organizational Behavior (3 cr)
Bus 418 Organization Design and Changes (3 cr)
CSS 486 Public Involvement in Natural Resource Management (3 cr)
MS 101 Introduction to Military Science (1 cr) and
MS 111 Leadership Lab (1 cr) and
MS 102 Fundamentals of Leadership and Management (1 cr) and
MS 112 Leadership Lab (1 cr) and
MS 201 Applied Leadership and Management (2 cr) and
MS 211 Leadership Lab (1 cr) and
MS 202 Applied Leadership and Management (2 cr) and
MS 212 Leadership Lab (1 cr) and
Rec 254 Camp Leadership in Recreation and Sport (3 cr)

Courses to total 128-120 credits for this degree

Art and Architecture

1. Add the following courses [Effective: Summer 2014]

ID 410 Capstone Proposal Development (1 cr)
Capstone Studio proposal development requiring systematic approach to the development of project proposal in preparation for ID 452. 8 week course/1 credit hour course.

Coreq: ID 451

VTD 444 Other Media (3 cr)
Exploration of new or emerging technologies including but not limited to software and various hardware devices. The focus is on the communicative, affective, and interactive possibilities of the technology and their application within research or creative production.
2. Change the following courses [Effective: Summer 2014]

Art 216 Digital Tools (3 cr)
Introduction to professional design, development, and production workflows related to various aspects of digital design. Demos and lectures cover various industry standard design software. Two 2-hr studios a week and assigned work. Introduction to professional design/development and production workflows for web and print delivery. Introduction to industry standard applications and various Open Source tools. Exploring design sustainability by designing once and delivering via various technologies. Two 2-hr studios a wk and assigned work.
Prereq: Art 110 and Art 121; or Permission

Art 271 Interaction Design I (3 cr)
Introduction to technical and aesthetic concepts of interaction design, including user based interaction design methodologies and standards based practices for the Web and other interactive media. Preparation of basic media assets (graphics, video, animation and sound) for interactive delivery. Introduction to basic design methodologies; structured versus unstructured projects, project brief, personas, scenarios, flowcharting, storyboarding and development and production project workflows. Introduction to interactive design methodologies, including usability strategies and best practices for interaction design. Various industry standard software and Open Source Tools will be introduced. Relevant industry standard programming languages will be covered throughout semester. Exercises and projects assigned will address production project workflows including: project proposal, mind mapping, wireframes & flowcharts, layout design, and technical development. Recommended Preparation: Basic knowledge of digital design software or Art 216 (strongly recommended).

Art 272 Interaction Design II (3 cr)
Intermediate interaction design. Self-initiated interactive design projects using industry standard methodologies and practices, to include pre-design project analysis and description, design development and production. Introduction to information design concepts and practices and to various technologies for providing user based interaction: scripting, Flash, and databases, etc. Readings in current design issues and industry trends. Introduction to time-based (narrative) design strategies and how they are utilized as tools of communication in interaction design. Analysis of various case studies that use narrative story telling as a means to communicate information. Industry standard Digital Design and Motion Design software will be introduced. Demos and topic discussion including a wide variety of time-based mediums (video, animation, motion design, stop-motion). Recommended Preparation: Basic knowledge of digital design software or Art 216 (strongly recommended).
Prereq: Art 271 or Permission

Art 370 Intermediate/Advanced Interaction Design (3 cr, max 9)
Advanced analysis of both design and development techniques, and strategies used in various interactive mediums. Relevant industry standard programming languages will be introduced throughout semester. Discussions, exercises and projects assigned will address interactive design best practices, trends and current industry standards: Advanced interaction design projects. Individual and small team design projects. Emphasis on team dynamics, project analysis and description, development and production. Focus on interactive information design projects, project management and production. Readings and assigned writings focus on current design industry issues, practices, trends and methodologies.
Prereq: Art 271 or Art 272; or Permission

Recommended Short Course Title: Int/AdvInteraction Design

ID 152 Interior Design I (2-3 cr)
Study of the relationship of design theories to the interior environment; exploration, through a variety of media, of the elements and principles of design, with emphasis on spatial relationships and color theory. Focus of design problems is residential design and small-scale contract design. Attendance at outside events; some class critique sessions outside of scheduled hours at student expense.
Prereq: Arch 154 and ID 151; or Permission
Coreq: Arch 154

ID 351 Interior Design III (5-6 cr)
Sequence of advanced residential and small scale contract design projects requiring integration of design theories and process in relationship to critical problem solving. Emphasis on formation of interior spaces to correspond to function and flow patterns. Nine hours of studio a week; field trips reqd at student expense; some class jury sessions outside of scheduled hours.
Prereq: ID 152 and 254 or Permission

ID 352 Interior Design IV (5-6 cr)
Sequence of large scale contact and other design problems requiring application of expanded design process including problem identification, analysis, program development, conceptual and design development and solution presentation. Implementation of lighting, codes, systems furniture, and interior specifications in the design process. Nine hours of studio a week; field trips required at student expense; some class jury sessions outside of scheduled hours.
Prereq: ID 351
ID 451  Interior Design V (5-6 cr)
Advanced problems in mixed use contract interior design requiring synthesis of related course work into comprehensive design resolution that communicates design impact on sense of place and place making; projects will seek to refine the design decision making process by requiring in-depth programming, client participation, and development beyond schematic phases, e.g., integration of building systems, lighting design, interdisciplinary investigation, and understanding of cultural/environmental context. Nine hrs of studio a wk and assigned work; field trips reqd at student expense; some class jury sessions will meet outside of scheduled hours. 
Recommended Preparation: VTD 244Arch 244, ID 386, and ID 443.  
Prereq:  ID 352

ID 452  Interior Design VI (5-6 cr)
Capstone studio course featuring advanced applications of design theories and processes focusing on complex design issues, synthesis and implementation of previous course work in appropriate student selected project, from the initial programming through the final complete design documentation and presentation. Nine hrs of studio a wk and assigned work; field trips required at student expense; some class jury sessions will meet outside of scheduled hours. 
Prereq: ID 410 and ID 451

VTD 457 Capstone Design Studio I (9-6 cr)
Sequential contract courses built around the collective content of five interdisciplinary clusters; research, design & implementation of comprehensive virtual design project. Three 43-hr studios a wk and associated work. 
Prereq: VTD 356

VTD 458 Capstone Design Studio II (9-6 cr)
Sequential contract courses built around the collective content of five interdisciplinary clusters; research, design & implementation of comprehensive virtual design project. Three 43-hr studios a wk and associated work. 
Prereq: VTD 457

3. Change the curricular requirements of Interior Design (B.I.D.) [Effective: Summer 2014]

...  
Arch 151  Introduction to the Built Environment (2 cr) 
Arch 154  Introduction to Architectural Graphics (3 cr) 
Arch 243  Digital Design Tools for Architecture and Interior Design (2 cr) 
Arch 244  Computer Aided Drafting and Modeling (2 cr) 
Arch 253  Architectural Design I (3 cr) 
Arch 266  Materials and Methods (3 cr) 
Arch 385  History of Architecture I (3 cr) 
Arch 386  History of Architecture II (3 cr) 
Arch 463  Environmental Control Systems I (3 cr) 
Arch 463L  Environmental Control Systems I Lab (1 cr) 
Arch 464  Environmental Control Systems II (3 cr) 
Arch 464L  Environmental Control Systems II Lab (1 cr) 
Art 110  Integrated Art and Design Communication (2 cr) 
Art 112  Drawing as Integrated Design Thinking (2 cr) 
Art 121  Integrated Design Process (2 cr) 
ID 151  Introduction to Interior Design (3 cr) 
ID 152  Interior Design I (2 cr) 
ID 254  Architectural Design II (4 cr) 
ID 281  History of Interiors I (3 cr) 
ID 282  History of Interiors II (3 cr) 
ID 332  Furniture Design and Construction (3 cr) 
ID 351  Interior Design III (5 cr) 
ID 352  Interior Design IV (5 cr) 
ID 368  Materials and Specifications (3 cr) 
ID 404  Special Topics (2 cr) 
ID 443  Universal Design (3 cr) 
ID 451  Interior Design V (5 cr) 
ID 452  Interior Design VI (5 cr) 
Arch 475  Professional Practice (3 cr) 

Courses to total 128-127 credits for this degree (including 4-63 cr from a list of advisor-directed electives)

4. Change the curricular requirements of Integrated Architecture and Design (M.S.) [Effective: Summer 2014]

Master of Science. Major in Integrated Architecture and Design. The Master of Science offers a research program open to candidates who hold a non-professional degree in any design discipline and/or who hold a professional degree in architecture (B.S.Arch. or M.Arch.), B.S.Arch., or other degree holders who desire to embark on a career in architectural consulting, research, and/or scholarship. The program is designed for independent study within one or more of the following areas of specialization: Computing and Visualization, Environment and Behavior, Urban Design, Community Design and Planning, Universal Design, Landscape Design,
Media Design, and Sustainable Architecture and Planning. Graduate students work closely with their graduate committee to develop a detailed program of study that borrows from three disciplines within the College of Art and Architecture as well as studies with other programs throughout the university. Acceptance into the program is contingent on the Graduate Program Committee's review of the candidate's statement of intent describing the area of specialization in which the candidate will focus, three letters of recommendation, and a portfolio. The Graduate School requires a completed application, university transcripts, a resume, and an official TOEFL score, when appropriate. Prospective students are encouraged to first correspond with the Chair of the Graduate Program about their interests. The chair will then direct the applicant to further sources if needed. The M.S. degree with a major in Integrated Architecture and Design requires the completion of 30 credits of course work in either a thesis or non-thesis (project-based) option. The M.S. degree requires the completion of 30 credits of course work including a research thesis: Arch 550 Architectural Research Methods (3 cr), Arch 510 Graduate Seminar (3 cr), 16 credits of electives, and 8 credits for the research thesis.

Thesis option:
Arch 500 Master's Research and Thesis (8-10 cr)
Arch 520 Architectural Research Methods (3 cr)
Graduate Seminars in three disciplines (Two disciplines from within the College of Art and Architecture and one discipline from outside the college) (12 cr)
Electives (5-7 cr)
Non-thesis option:
Graduate Studios (12 cr)
Graduate Seminars in three disciplines (Two disciplines from within the College of Art and Architecture and one discipline from outside the college) (12 cr)
Electives (6 cr)

5. Change the curricular requirements of Art (B.A.) [Effective: Summer 2014]

... 200-level studio courses selected from the following (students pursuing a studio emphasis in graphic design must include Art 222; and interaction design majors must include Art 272) (15-18 cr):
- Art 211 Drawing III (3 cr)
- Art 216 Digital Tools (3 cr)
- Art 221 Introduction to Graphic Design (3 cr)
- Art 222 Introduction to Typography (3 cr)
- Art 231 Painting I (3 cr)
- Art 241 Sculpture I (3 cr)
- Art 251 Printmaking I (3 cr)
- Art 261 Ceramics I (3 cr)
- Art 271-272 Interaction Design I-III (3 cr)
- Art 280 Understanding Photography (3 cr)

300-level studio courses selected from the following (at least 6 cr must be taken in one studio area, i.e., Art 330, no more than 6 cr in one studio area may be counted toward this requirement) (15 cr):
- Art 321 Graphic Design Concepts (3 cr, max 6)
- Art 322 Graphic Design Studio (3 cr, max 6)
- Art 330 Intermediate/Advanced Painting (3 cr, max 9)
- Art 340 Intermediate/Advanced Sculpture (3 cr, max 9)
- Art 350 Intermediate/Advanced Printmaking (3 cr, max 9)
- Art 370 Advanced Interaction Design (3 cr, max 9)
- Art 380 Digital Imaging (3 cr)
- Art 390 Mixed Media (3 cr, max 9)
- Art 491 Information Design (3 cr, max 9)

Courses to total 120 credits for this degree

6. Change the curricular requirements of Art Education (B.S.Art Ed.) [Effective: Summer 2014]

...
EDSP 300  Educating for Exceptionalities (2 cr)

200-level studio courses selected from the following (students pursuing a studio emphasis in graphic design must include Art 222; and interaction design majors must include Art 272) (15 cr):
- Art 211  Drawing III (3 cr)
- Art 216  Digital Tools (3 cr)
- Art 221  Introduction to Graphic Design (3 cr)
- Art 222  Introduction to Typography (3 cr)
- Art 231  Painting I (3 cr)
- Art 241  Sculpture I (3 cr)
- Art 251  Printmaking I (3 cr)
- Art 261  Ceramics I (3 cr)
- Art 271-272  Interaction Design I-II (3 cr)
- Art 280  Understanding Photography (3 cr)

300-level studio courses selected from the following (at least 6 cr must be taken in one studio area, i.e., Art 330, no more than 6 cr in one studio area may be counted toward this requirement) (12 cr):
- Art 321  Graphic Design Concepts (3 cr, max 6)
- Art 322  Graphic Design Studio (3 cr, max 6)
- Art 330  Intermediate/Advanced Painting (3 cr, max 9)
- Art 340  Intermediate/Advanced Sculpture (3 cr, max 9)
- Art 350  Intermediate/Advanced Printmaking (3 cr, max 9)
- Art 370  Advanced Interaction Design (3 cr, max 9)
- Art 380  Digital Imaging (3 cr)
- Art 390  Mixed Media (3 cr, max 9)
- Art 491  Information Design (3 cr, max 9)
- Advisor Approved electives in art/design history/theory (9 cr)

Courses to total 120 credits for this degree

7. Change the curricular requirements of Studio Art and Design (B.F.A.) [Effective: Summer 2014]

...
No more than a combined total of 9 credits of the following courses may be applied toward a B.F.A. degree: Art 404, 488, 497, 498, and 499.

8. Change the curricular requirements of Virtual Technology and Design (B.S.) [Effective: Summer 2014]

... Art 110 Integrated Art and Design Communication (2 cr)
Art 112 Drawing as Integrated Design Thinking (2 cr)
Art 121 Integrated Design Process (2 cr)
CS 112 Introduction to Problem Solving and Programming (3 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)
Phys 111 General Physics (4 cr)
Phys 111L
Physics 101 Introduction to Psychology (3 cr)
VTD 152 Introduction to Virtual Design (2 cr)
VTD 244 Introduction to 3D Modeling (3 cr)
VTD 245 Advanced Modeling (3 cr)
VTD 246 Advanced Lighting and Materials (3 cr)
VTD 253 Virtual Design I (3 cr)
VTD 254 Virtual Design II (3 cr)
VTD 266 Animation (3 cr)
VTD 271 Interactive Technologies (3 cr)
VTD 355 Virtual Design III (4 cr)
VTD 356 Virtual Design IV (4 cr)
VTD 367 Advanced Animation (3 cr)
VTD 372 Advanced Interactive Technologies (3 cr)
VTD 400 Seminar (2-3 cr)
VTD 457 Capstone Design Studio I (3-6 cr)
VTD 458 Capstone Design Studio II (3-6 cr)
Two history or theory courses, that are associated with the disciplines of architecture, art, film, media, music or theatre, with approval of the VTD program (6 cr).
Three directed elective courses that allow a student to develop an emphasis area or breadth in a supporting discipline, with approval of VTD program (8-9cr).
Courses to total **128-130** credits for this degree

Biological and Agricultural Engineering

1. Change the curricular requirements of Agricultural System Management (B.S.Ag.L.S.) [Effective: Summer 2014]

Required course work includes the university requirements (see regulation J-3) and:

Agricultural and Life Science Core

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<tr>
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<tr>
<td>ASM 305</td>
<td>GPS and Precision Agriculture (3 cr)</td>
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<td>AgEd 406</td>
<td>Exploring International Agriculture (3 cr)</td>
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<td>Biol 115</td>
<td>Cells and the Evolution of Life (4 cr)</td>
</tr>
<tr>
<td>Comm 101</td>
<td>Fundamentals of Public Speaking (2 cr)</td>
</tr>
<tr>
<td>Soil 205, Soil 206</td>
<td>The Soil Ecosystem and Lab (3-4 cr)</td>
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<tr>
<td>Stat 251</td>
<td>Statistical Methods (3 cr)</td>
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One of the following (2-3cr):

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<tr>
<td>ASM 305</td>
<td>GPS and Precision Agriculture (3 cr)</td>
</tr>
<tr>
<td>ASM 412</td>
<td>Agricultural Safety and Health (2 cr)</td>
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<tr>
<td>PSc 207</td>
<td>Introduction to Biotechnology (3 cr)</td>
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One of the following (4cr):

<table>
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<tr>
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<tbody>
<tr>
<td>Chem 101</td>
<td>Introduction to Chemistry I (4 cr)</td>
</tr>
<tr>
<td>Chem 111</td>
<td>Principles of Chemistry I (4 cr)</td>
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One of the following (2-3-4cr):

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<tbody>
<tr>
<td>Comm 101</td>
<td>Fundamentals of Public Speaking (2 cr)</td>
</tr>
<tr>
<td>Engl 207</td>
<td>Persuasive Writing (3 cr)</td>
</tr>
<tr>
<td>Engl 313</td>
<td>Business Writing (3cr)</td>
</tr>
<tr>
<td>Engl 316</td>
<td>Environmental Writing (3 cr)</td>
</tr>
<tr>
<td>Engl 317</td>
<td>Technical Writing (3 cr)</td>
</tr>
</tbody>
</table>

One of the following (3-4cr):

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<tbody>
<tr>
<td>Math 130</td>
<td>Finite Mathematics (3 cr)</td>
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</tbody>
</table>

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Math 143  Pre-calculus Algebra and Analytic Geometry (3 cr)
Math 160  Survey of Calculus (4 cr)
Math 170  Analytic Geometry and Calculus I (4 cr)

Agricultural Systems Management Courses
Acct 201  Introduction to Financial Accounting (3 cr)
Acct 202  Introduction to Managerial Accounting (3 cr)
AgEc 278  Farm and Agribusiness Management (4 cr)
AgEc 289  Agricultural Markets and Prices (3 cr)
AgEc 356  Agricultural and Rural Policy (3 cr)
AgEd 406  Exploring International Agriculture (2 cr)
ASM 107  Beginning Welding (2 cr)
ASM 112  Introduction to Agricultural Systems Management (3 cr)
ASM 200  Seminar (1 cr)
ASM 202  Agricultural Shop Practices (2 cr)
ASM 305  GPS and Precision Agriculture (3 cr)
ASM 315  Irrigation Systems and Water Management (3 cr)
ASM 331  Electric Power Systems for Agriculture (3 cr)
ASM 409  Agricultural Tractors, Power Units and Machinery Management (4 cr)
ASM 412  Agricultural Safety and Health (2 cr)
ASM 433  Agricultural Processing Systems (3 cr)
BAE 491  Senior Seminar (1 cr)
Biol 102  Biology and Society and Lab (4 cr)
Bus 101  Introduction to Business Enterprises (3 cr)
Bus 190  Integrated Business and Value Creation (3 cr)
BLaw 265  Legal Environment of Business (3 cr)
Comm 101  Fundamentals of Public Speaking (2 cr)
Econ 201  Principles of Microeconomics (3 cr)
Econ 202  Principles of Microeconomics (3 cr)
PISc 102  The Science of Plants in Agriculture (3 cr)
Soil 206  The Soil Ecosystem Lab (1 cr)

Agricultural and Technical Electives (13 cr)
Life Science Elective (3 cr)
One of the following (2-3 cr):
Engr 205  Engineering Graphics (2 cr)
CTE 267  Computer Aided Drafting/Design (3 cr)

One of the following (4 cr):
Phys 100,  Fundamentals of Physics and Lab (4 cr)
Phys 100L
Phys 111,  General Physics I and Lab (4 cr)
Phys 111L
Phys 211,  Engineering Physics I and Lab (4 cr)
Phys 211L

Three credits from the following (3 cr):
AgEc 411  The World of International Agribusiness (1 cr)
AgEc 413  Management of Human Resources in Agribusiness Firms (1 cr)
AgEc 414  Financial Analysis of Agricultural Firms (1 cr)
AgEc 415  Entrepreneurial Skills in Agribusiness Management (1 cr)
AgEc 418  Developing Negotiation Skills in Agribusiness (1 cr)
AgEc 419  Development and Analysis of Enterprise Budgets (1 cr)

Courses to total 128 credits for this degree

2. Change the curricular requirements of Biological and Agricultural Engineering (B.S.B.A.E.) [Effective: Summer 2014]

E. Eco-Hydrological Engineering Option
BAE 355  Fundamentals of Hydrologic Engineering (3 cr)
BAE 450  Environmental Hydrology (3 cr)
BAE 451  Engineering Hydrology (3 cr)
BAE 452  Environmental Water Quality (3 cr)
BAE 458  Open Channel Hydraulics (3 cr)
CE 211  Engineering Surveying (3 cr)
CE 322  Hydraulics (3 cr)
Engr 220  Engineering Dynamics (3 cr)
Soil 205  The Soil Ecosystem (3 cr)
2. Change the curricular requirements of Biological Sciences

1. Drop the following courses **[Effective: Summer 2014]**

   MMBB 416 Food Microbiology (3 cr)
   See FS 416. (Fall only)

   MMBB 417 Food Microbiology Laboratory (2 cr)
   See FS 417. (Fall only)

   MMBB 520 Instrumental Analysis (2 cr)
   Same as FS 520. Theory and techniques involved in the use of various instruments in modern biological laboratories; topics include chromatography, spectrometry, sterilization, sample preparation, radioisotope techniques, electrophoresis, centrifugation, and fermentation. (Spring only)
   **Prereq:** Permission

2. Change the curricular requirements of **Biology; and Microbiology, Molecular Biology and Biochemistry (M.S. and Ph.D.)** **[Effective: Summer 2014]**

Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Biological Sciences. See the College of Graduate Studies section for the general requirements applicable to each degree and the **Department of Biological Sciences** Graduate Student Handbook for required courses and procedures.

**Master of Science.** Major in Biology or Microbiology, Molecular Biology and Biochemistry. The M.S. program emphasizes research including, but not limited to the departmental and multidisciplinary areas described above. In addition to the requirements listed above, admission is based upon the compatibility of the student’s research interests with the areas of concentration offered by the department and the availability of a faculty member to be the student’s mentor. An incoming student arranges a formal graduate program of at least 30 semester hours in consultation with his or her major professor and graduate committee. A laboratory research based thesis is required.

**Seamless Bachelor of Science/Master of Science, MMBB Program.** Theses and non-thesis options are offered. The seamless B.S./M.S. degree program in microbiology, molecular biology and biochemistry enables qualified students to pursue the M.S. degree before completion of a B.S. degree in either microbiology, biochemistry or molecular biology/biotechnology. The classical B.S. degree from MMBB is typically completed by the fourth year of undergraduate training and will continue to be the route selected by most students. However, students accepted into the seamless program may work toward completion of both the B.S. and M.S. requirements during their fourth and fifth years or additional years if necessary. Successful students will receive both degrees upon completion of their studies. Provided that adequate academic and research progress is achieved, some students could complete the requirements for both the B.S. and M.S. in five years. Requirements for completion of the B.S. and M.S. degrees through the seamless program and qualifications of graduates are expected to be identical to those earning the degrees through the conventional path in which the two degrees are earned sequentially. Students interested in this program should discuss their options with their academic advisors. Identification of a graduate advisor plus formal application and acceptance to the MMBB graduate program and the College of Graduate Studies must be completed before the beginning of the fourth year. Once accepted, students must work toward completing the requirements for both degrees under the supervision of their graduate advisors and graduate committees in accordance with departmental and university guidelines. In regard to official standing within the university, students in the seamless program are classified as graduate students during their fourth and fifth years.

**Master of Science, Program in MMBB.** Thesis and non-thesis options are offered. The M.S. degree may be earned in microbiology, molecular biology and biochemistry. An incoming student arranges a formal graduate program of at least 30 semester hours in consultation with his or her major professor and graduate committee. Students must take MMBB 589 during the fall and spring of the first year and take MMBB 511 for 1 credit every year. The student is also expected to include MMBB 501 (terminal) each semester. One semester of teaching is required and is obtained through participation in the department’s teaching programs. Students are required to pass the core courses MMBB 541, MMBB 542, and either MMBB 585 or MMBB 587. The final exam for MMBB 589 serves as the qualifying exam and is given in May of the first year. A master’s candidate prepares a written thesis documenting completion of a laboratory research program. The thesis must be approved by the student’s major professor and supervisory committee and be defended during an oral examination. Publication of data from the thesis in the peer-reviewed literature is expected.

**Master of Science, Major in Microbiology, Molecular Biology and Biochemistry (non-thesis option).** This degree option has the same course credit requirements as the Master of Science thesis option except that students pursuing the non-thesis option enroll in MMBB 599 Non-thesis Master’s Research rather than MMBB 500 Master’s Research and Thesis. Instead of a laboratory research-based thesis the student must submit a final report on a suitable subject that has been approved by the student’s advisor and the Department Chair. The report should be prepared in the format of a publishable review article.
Doctor of Philosophy. Major in biology, biology or microbiology, molecular biology, and biochemistry. The Ph.D. program emphasizes research including, but not limited to the departmental and multidisciplinary area described above. In addition to the requirements listed above, admission is based upon the compatibility of the student's research interests with the areas of concentration offered by the department, and the availability of a faculty member to be the student's mentor. A doctoral student develops a graduate program of at least 78 semester hours in consultation with his or her major professor and graduate committee. A doctoral student develops a graduate program of at least 78 semester hours in consultation with his or her major professor and graduate committee. A laboratory research based thesis is required.

Doctor of Philosophy. Major in microbiology, molecular biology, and biochemistry. The Ph.D. degree may be earned in microbiology, molecular biology, and biochemistry. A doctoral student develops a graduate program of at least 78 semester hours in consultation with his or her major professor and graduate committee. Students must take MMBB 589 during the fall and spring of the first year. The final exam for MMBB 589 serves as the qualifying exam and is given in May of the first year. Defense of a formal research proposal is required during the second year as part of the preliminary exam. The student is also required to take MMBB 511 every year, and enroll in 501 (seminar) each semester, with active participation in the form of one or more seminar presentations during the course of his or her graduate career. Students are required to pass the core courses MMBB 541, MMBB 542, and either MMBB 585 or MMBB 587. Two semesters of participation in the department's teaching programs are required. A preliminary examination is required in year two prior to admission to final candidacy for the degree. All candidates prepare a formal dissertation reflecting original thought and independent laboratory investigation and defend it during an oral presentation as a final step toward their degree. Publication of data from the dissertation in the peer-reviewed, scientific literature is expected.

**Chemical and Materials Engineering**

1. Change the curricular requirements of Chemical Engineering (B.S.Ch.E.) [Effective: Summer 2014]

   ... Chemical engineering or Material Science and Engineering numbered 390 or greater technical electives (3 cr)
   Chemical/bioscience elective course (3 cr)
   Chemical/bioscience elective lab (1 cr)
   Computer science elective in a programming language (3 cr)
   Economics elective (3 cr)
   Humanities and Social Sciences electives (9 cr)
   Communication electives (2 cr)
   Mathematics electives numbered 300 or greater (3 cr)
   Technical electives in math, science, or engineering numbered 300 or greater (excluding any 398, 498, or 598 Internship) (6 cr)
   Courses to total 128 credits for this degree, not counting Engl 101, any 398 (Internship), any 498 (Internship), any 598 (Internship), or Math mathematics courses numbered lower than Math 170. 443, and other courses that might be required to remove deficiencies.

   ...

2. Change the curricular requirements of Materials Science and Engineering (B.S.M.S.E.) [Effective: Summer 2014]

   ... Computer Science elective in a programming language (3 cr)
   Economics Elective (3 cr)
   Humanities and Social Science electives (6 cr)
   MSE or ChE elective numbered 300 or greater (3 cr)
   Technical electives in math, science, or engineering numbered 300 or greater (excluding any 398, 498, or 598 Internship) (3 cr)
   Courses to total 127 credits for this degree, not counting Engl 101, any 398 (Internship), any 498 (Internship), any 598 (Internship), or and mathematics courses numbered lower than Math 170, and other courses that might be required to remove deficiencies.

   ...

**Civil Engineering**

1. Add the following courses [Effective: Summer 2014]

   **CE 512 Advanced Topics in Waste Management and Treatment (3 cr)**
   Modeling, analysis, and design of advanced and emerging engineering technologies and processes for waste management/treatment and resource recovery.  
   Prereq: Instructor Permission
   Recommended Short Course Title: Adv Topic Waste Management

   **CE 516 River Restoration (3 cr)**
   This course focuses on the principles, assumptions and practices used in river restoration. The use of channel form, channel classification, reference reaches, sediment transport equations, hydraulic structures, 1-D and 2-D flow models, and aquatic habitat modeling to design restoration projects are discussed. The course also includes topics such as adaptive management, restoration
evaluation and monitoring, basic ecological design goals, and a number of local case studies. The course has a mandatory field trip
to a local restored site. Recommended classes to take prior to this include at least one of the following: CE 535, CE 322, CE 428, or
CE 520.

Prereq: Engr 335 or Instructor Permission

2. Change the following course [Effective: Summer 2014]

CE 460 Geotechnical Engineering Design (3 cr)
Applications of soil mechanics in design of shallow and deep foundations, earth retaining structures, embankments, slopes, excavations, and soil exploration programs.

Prereq: CE 360; and CE 441 or CE 444; or Permission

3. Change the following courses from Dormant Status to Active Status [Effective: Summer 2014]

CE 473 Highway Design (3 cr)
Theory and practice in highway design, highway functional classification concepts, design controls and criteria, geometric design of
highways and streets, cross section and roadside design, and highway safety manual applications. Planning, horizontal and vertical
alignments, field data collection, location and design of highway systems. Demonstrated competence in the operation of electronic
total stations and land development software required for permission. Two lec and one 3-hr lab a wk.

Prereq: CE 211 and Permission
Coreq: CE 372

CE 484 Engineering Law and Contracts (2 cr)
Project engineering techniques for planning, scheduling, and controlling typical engineering and construction projects. Contract law
and application to engineering services agreements and construction contracts; preparing technical specifications, agency, torts,
professional liability, and alternate dispute resolution.

Prereq: Senior standing in engineering

4. Change the curricular requirements of Civil Engineering (Ph.D.) [Effective: Summer 2014]

Doctor of Philosophy. Major in Civil Engineering. Persons interested in pursuing a doctoral degree must contact a correspondent in
the department well in advance of admission to the Graduate College. Preliminary screening of candidates and program planning for
those admitted are essential features of the Ph.D. program. Programs are offered with specialization in the following general areas:
(1) water resources and hydraulics; (2) structures, structural mechanics, and construction materials; (3) geotechnical engineering
with a major in soil mechanics; (4) transportation engineering; and (5) environmental engineering. The qualifying examination is
written and/or oral, and the preliminary examination is written and oral. In addition, one of the following requirements must be
satisfied: (1) satisfactory completion of a foreign language examination conducted by the Department of Modern Languages &
Cultures; or (2) completion of a humanistic-social study program approved by the Department of Civil Engineering.

Computer Science

1. Add the following course [Effective: Summer 2014]

CS 328 Introduction to Computer Game Development (3 cr)
An introduction to data structures, algorithms, and programming techniques useful in the development of computer games. Topics
including 2D graphics, sound programming, user interfaces, game genres, computerization of classic board games and simulation
games.

Prereq: CS 210 and CS 240

Recommended Short Course Title: Game Development

2. Change the following courses [Effective: Summer 2014]

CS J428/J528 Multi-User Games and Virtual Environments (3 cr)
Software design and programming issues involved in constructing multi-user computer games and multi-user virtual environments,
incorporating networking and 3D graphics. Additional projects and assignments are required for graduate credit.

Prereq: CS 210, and CS 324, and CS 328

Recommended Short Course Title: Games and Virtual Environments

Conservation Social Sciences

1. Add the following course [Effective: Summer 2014]
**CSS 593 PR and Communications in Natural Resource Management (3 cr)**

Key concepts, principles and practices of good public relations, clear communications, and proactive social marketing in the context of natural resource management; practical applications and skills development for increased effectiveness of resource management professionals through case studies and related exercises focused on communication skills, IT tools, media relations, social marketing, and public involvement.

Recommended Short Course Title: PR/Communication in Res Mgt

2. **Change the curricular requirements of Natural Resource Conservation (B.S.Nat.Resc.Consv.) [Effective: Summer 2014]**

   Required Course work includes the university requirements (see regulation J-3) and:

   - **CSS 235** Society and Natural Resources (3 cr)
   - **CSS 287** Foundations of Conservation Leadership and Management (taken simultaneously with NR 101) (3 cr)
   - **CSS 383** Natural Resource and Ecosystem Service Economics (3 cr)
   - **CSS 387** Environmental Communication Skills (3 cr)
   - **Econ 202** Principles of Microeconomics (3 cr)
   - **For 375** Introduction to Spatial Analysis for Natural Resource Management (3 cr)
   - **NR 101** Exploring Natural Resources (taken simultaneously with CSS 287) (1 cr)
   - **Stat 251** Statistical Methods (3 cr)

   One writing course, such as **Engl 207, Engl 208, Engl 313, Engl 316, Engl 317** (3 cr)

   One of the following (3 cr):
   - **For 221** Ecology (3 cr)
   - **REM 221** Ecology (3 cr)

   One of the following (3-4 cr):
   - **Math 143** Pre-calculus Algebra and Analytic Geometry (3 cr)
   - **Math 160** Survey of Calculus (4 cr)
   - **Math 170** Analytic Geometry and Calculus I (4 cr)

   And one of the following emphases:

   **A. Conservation Planning and Management Emphasis**

   Students must attend one, two-week long field studies course during summer session. Special fees are required for this and a few other courses. To graduate a student must earn an average GPA 2.30 or higher in all CSS courses.

   - **CSS 304** Conservation Social Sciences Field Studies (3 cr)
   - **CSS 310** Social Research Methods in Conservation (4 cr)
   - **CSS 364** Politics of the Environment (3 cr)
   - **CSS 385** Conservation Management and Planning I (4 cr)
   - **CSS 475** Conservation Management and Planning II (4 cr)
   - **CSS 486** Public Involvement in Natural Resource Management (3 cr)
   - **CSS 489** Personalities and Philosophies in Conservation (3 cr)

   One of the following (4 cr):
   - **Biol 102, Biol 102L** Biology and Society and Lab (4 cr)
   - **Biol 115** Cells and the Evolution of Life (4 cr)

   One of the following (2-4 cr):
   - **Comm 101** Fundamentals of Public Speaking (2 cr)
   - One semester of a foreign language course

   One of the following (3 cr):
   - **PolS 101** Intro to Political Science and American Government (3 cr)
   - **PolS 275** American State and Local Government (3 cr)

   One of the following (4 cr):
   - **Chem 101** Introduction to Chem I (4 cr)
   - **Chem 111** Principles of Chem I (4 cr)
   - **Geol 101, Geol 101L** Physical Geology and Lab (4 cr)

   One of the following (3 cr):
   - **For 326** Fire Ecology and Management (3 cr)
   - **For 426** Global Fire Ecology and Management (3 cr)
   - **REM 440** Wildland Restoration Ecology (3 cr)
REM 459,  Rangeland Ecology (2 cr); and Rangeland Ecology
REM 460  Integrating GIS and Field Studies in Rangelands (3-2
Current Topics and Field Studies (3 cr)
WLF 314  Wildlife Ecology I (3 cr)

Two of the following (6 cr):
CSS 490  Wilderness and Protected Area Management (3 cr)
CSS 493  International Land Preservation and Conservation
Systems (3 cr)
LArC 480  The Emerging Landscape (3 cr)
WLF 440  Conservation Biology (3 cr)

Two of the following (6 cr):
Anth 100  Introduction to Anthropology (3 cr)
Psyc 101  Introduction to Psychology (3 cr)
Soc 101  Introduction to Sociology (3 cr)

12 credits (if not chosen above) from the following, in at least 2 disciplines with at least 2 courses in one discipline:
AgEc 477  Law, Ethics, and the Environment (3 cr)
Anth 428  Social and Political Organization (3 cr)
Bus 321  Marketing (3 cr)
Comm 410  Conflict Management (3 cr)
CSS 462  Natural Resource Policy (3 cr)
CSS 487  Environmental Education (3 cr)
CSS 490  Wilderness and Protected Area Management (3 cr)
CSS 492  Ecotourism Principles and Issues (3 cr)
CSS 493  International Land Preservation and Conservation
Systems (3 cr)
CSS 496  Monitoring Impacts in Protected Areas and Wilderness
(3 cr)
CSS 498  Internship (3-6 cr)
Geog 360  Population Dynamics and Distribution (3-4 cr)
Hist 423  Idaho and the Pacific Northwest (3 cr)
Hist 424  American Environmental History (3 cr)
JAMM 350  Public Relations Writing and Production (3 cr)
JAMM 444  Mass Media and Public Opinion (3 cr)
Phil 452  Environmental Philosophy (3 cr)
PoIS 451  Public Administration (3 cr)
PoIS 453  Public Management Techniques (3 cr)
PoIS 454  Public Organization Theory (3 cr)
PoIS 473  Sustainable Community Development Planning (3 cr)
PoIS 480  Politics of Development (3 cr)
Psyc 320  Social Psychology (3 cr)
Psyc 325  Cognitive Psychology (3 cr)
Soc 313  Collective Behavior (3 cr)
Soc 343  Political Sociology (3 cr)

Courses to total 120 credits for this degree

B. Conservation Science Emphasis
To graduate a student must earn an average GPA of 2.00 or higher in all courses taught in the College of Natural Resources and
complete an approved professional work experience in natural resources.

One of the following (4 cr):
Biol 115  Cells and the Evolution of Life (4 cr)
Biol 116  Organisms and Environments (4 cr)

One of the following (4 cr):
Chem 101  Introduction to Chem I (4 cr)
Chem 111  Principles of Chem I (4 cr)

One of the following (4 cr):
CSS 364  Politics of the Environment (3 cr)
CSS 462  Natural Resource Policy (3 cr)

One of the following (4 cr):
CSS 385  Conservation Management and Planning I (4 cr)
CSS 490  Wilderness and Protected Area Management (3 cr)

Natural Resource Science Restricted Electives (33 cr), at least 15 cr must be at the 400-level:
Fishery Science (6 cr):
Fish 314  Fish Ecology (3 cr)
Fish 315  Fish Ecology Lab (1 cr)
Fish 316  Principles of Population Dynamics (2 cr)
Fish 415  Limnology (4 cr)
Fish 418  Fisheries Management (4 cr)
Fish 422  Concepts in Aquaculture (3 cr)
Fish 424  Fish Health Management (4 cr)
Fish 430  Riparian Ecology and Management (3 cr)

Fire Ecology and Management (3 cr):
For 326  Fire Ecology and Management (3 cr)
For 426  Global Fire Ecology and Management (3 cr)
For 433  Fire and Fuel Modeling (2 cr)
For 450  Fire Behavior (2 cr)
For 454  Air Quality and Smoke Management (3 cr)

Forestry (6 cr):
For 320  Dendrology (4 cr)
For 324  Forest Regeneration (3 cr)
For 330  Forest Soil and Canopy Processes (4 cr)
For 373  Forestry Sampling Methods (2 cr)
For 424  Forest Dynamics and Management (4 cr)
For 425  Forest and Soil Nutrient Cycling (3 cr)
For 430  Forest Operations (3 cr)
For 431  Low Volume Forest Roads (2 cr)
For 436  Cable Systems (2 cr)
For 462  Watershed Science and Management (3 cr)
For 468  Forest and Plant Pathology (2 cr)
For 472  Remote Sensing of the Environment (4 cr)

Renewable Materials (6 cr):
RMat 321  Properties of Renewable Materials (3 cr)
RMat 365  Wood Building Technology (3 cr)
RMat 436  Biocomposites (3 cr)
RMat 438  Introduction to Lignocellulosic Chemistry (1 cr)
RMat 444  Primary Products Manufacturing (3 cr)
RMat 450  Biomaterials Deterioration and Protection (2 cr)
RMat 491  Biomaterials Product and Process Development Lab (2 cr)
RMat 495  Product Development and Brand Management (3 cr)

Rangeland Ecology and Management (6 cr):
REM 341  Systematic Botany (3 cr)
REM 410  Principles of Vegetation Measurement and Assessment (2 cr)
REM 411  Rangeland Ecology Current Topics and Field Studies (1 cr)
REM 440  Wildland Restoration Ecology (3 cr)
REM 452  Western Wildland Landscapes (2 cr)
REM 456  Integrated Rangeland Management (3 cr)
REM 459  Rangeland Ecology (2 cr)
REM 460  Integrating GIS and Field Studies in Rangelands (2 cr)
REM 472  Remote Sensing of the Environment (3-4 cr)

Wildlife Science (6 cr):
WLF 314  Wildlife Ecology I (3 cr)
WLF 315  Wildlife Ecology I Laboratory (1 cr)
WLF 316  Wildlife Ecology II (4 cr)
WLF 440  Conservation Biology (3 cr)
WLF 448  Fish and Wildlife Population Ecology (4 cr)
WLF 482  Ornithology (4 cr)
WLF 492  Wildlife Management (4 cr)

Courses to total 120 credits for this degree

3. Change the curricular requirements of Environmental Education (GR Academic Certificate) [Effective: Summer 2014]

CSS 481  Conservation Leadership (3 cr)
CSS 559  Writing Research and Project Proposals (1 cr)
CSS 560  Community Ecology for Env. Educators (3 cr)
CSS 561  Ecological Inquiry for Environmental Educators (2 cr)
CSS 562  Field Science Teaching (2 cr)
CSS 563  Place Based Env. Education (3 cr)
CSS 566  Adv. Field Ecology Course Design (5 cr)
CSS 567  Environmental Education Teaching Practicum I (2 cr)
CSS 568  Environmental Education Teaching Practicum II (1 cr)
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CSS 569  Environmental Education Teaching Practicum III (2 cr)
CSS 575  Leadership for the Environmental Educator (2 cr)

Courses to total 12-22 credits for this certificate

Electrical and Computer Engineering

1. Change the following courses [Effective: Summer 2014]

ECE 310  Fundamentals of ElectronicsMicroelectronics I (3 cr)
Operational amplifier fundamentals and applications, introduction to electronic devices such as diodes, bipolar junction transistor (BJT) and metal oxide semiconductor field effect transistors (MOSFET), large and small-signal modeling of non-linear electronic devices, DC and small-signal analysis of circuits with non-linear electronic devices, biasing of electronic circuits using passive and active elements such as current mirrors, frequency response of electronic circuits, introduction to the analysis, design, and applications of electronic circuits such as rectifiers, power supplies, and low-frequency single-stage amplifiers. Practical limitations of amplifiers of electronic circuits.
Prereq: ECE 212 and ECE 213
Coreq: ECE 311

ECE 311  Fundamentals of ElectronicsMicroelectronics I Lab (1 cr)
Lab to accompany ECE 310.
Coreq: ECE 310

ECE 410  Advanced ElectronicsMicroelectronics II (3 cr)
Introduction to analog integrated circuit (IC) implementation and design, differential and common-mode signal concepts, differential amplifiers, multistage amplifiers, operational amplifier design, frequency response of electronic circuits, feedback in electronic circuits, large-signal/power amplifiers, advanced current sources and mirrors, and fundamentals of analog filters.
Prereq: ECE 310 and 311; or Permission

ECE 411 Advanced Electronics LaboratoryMicroelectronics II Lab (1 cr)
Lab to accompany or follow ECE 410.
Prereq or Coreq: ECE 410

ECE J413/J513  Communication CircuitsRadio-Frequency IC Design (3 cr)
Radio frequency (RF) communications concepts, integrated circuit (IC) transceiver architectures, low-noise amplifier, mixers, passive devices and matching networks, oscillators, power amplifiers, phase-locked loops, and frequency synthesizers. Additional projects/assignments are required for graduate students. Impedance transforms and matching networks, small-signal high frequency amplifiers, distortion in amplifiers, noise calculations and considerations, sinewave oscillators, mixers and frequency translators, phase-locked loops, and power amplifiers. Additional projects/assignments reqd for grad cr.
Prereq: ECE 410 or Permission

ECE J415/J515  Analog Integrated Circuit Design (3 cr)
Analog integrated circuit (IC) analysis, design, simulation, and layout, advanced biasing techniques, voltage references and regulators, operational amplifiers, frequency compensation techniques, noise analysis in analog circuits, and comparators: continuous-time integrated circuit filter design. Additional projects/assignments required for graduate credit.
Prereq: ECE 410 or Permission

ECE J417/J517  Pulse and Digital CircuitsMixed Signal IC Design (3 cr)
Sample and hold (S/H) circuits, comparators, data-converter fundamentals, Nyquist-rate digital-to-analog converters (DAC) and analog-to-digital converters (ADC), over-sampling data converters, and phase-locked loops. Additional projects/assignments are required for graduate credit. Electronic switching, timing, and pulse-shaping techniques; logic functions, realization with diodes, transistors, and FETs. Additional projects/assignments reqd for grad cr.
Prereq: ECE 310-410 or Permission

ECE J419/J516  Image Sensors and Systems (3 cr)
This course introduces various concepts and fundamentals related to semiconductor image sensors. Topics cover light production and detection, video image formats, image sensor characteristics and performance metrics, basic and advanced operation principals and types of semiconductor image sensors (CCD and CMOS), noise in imagers, image and color processing, and issues related to camera system design, integration and signal processing. Additional projects/assignments are required for graduate credit. Recommended preparation: ECE 410 or equivalent.
Prereq: ECE 310

ECE 480 EE Senior Design I (3 cr)
The capstone design sequence for electrical engineering majors. Course topics include design, research, simulation, and experimental methods; specifications, prototyping, troubleshooting and verification; report writing, documentation and oral
presentations. Topics are considered in the context of a major design project involving a team of students. Projects incorporate realistic engineering constraints; i.e. environmental, sustainability, manufacturability, ethical, safety, social and political considerations.

**Prereq:** ECE 240, ECE 241, ECE 310, ECE 311, ECE 320, ECE 321, ECE 330, ECE 331, ECE 340, ECE 341, ECE 350, ECE 351 and Stat 301, or Permission

**ECE 481 EE Senior Design II (3 cr)**
May be used as general education credit in J-3.d. The capstone design sequence for electrical engineering majors. Course topics include design, research, simulation, and experimental methods; specifications, prototyping, troubleshooting and verification; report writing, documentation and oral presentations. Topics are considered in the context of a major design project involving a team of students. Projects incorporate realistic engineering constraints; i.e. environmental, sustainability, manufacturability, ethical, safety, social and political considerations.

**Prereq:** ECE 230, 321 and 480, or Permission

**ECE 513 Radio-Frequency IC Design/Communication Circuits (3 cr)**
See ECE J413/J513.

**ECE 517 Mixed Signal IC Design/Pulse and Digital Circuits (3 cr)**
See ECE J417/J517.

2. Change the curricular requirements of **Computer Engineering (B.S. Comp.E.)** [Effective: Summer 2014]

Any student majoring in computer engineering may accumulate no more than five (5) letter grades of D’s and F’s in lower-division mathematics, science, or engineering courses that are used to satisfy graduation requirements. Included in this number are multiple repeats of a single class or single repeats in multiple classes and courses transferred from other institutions. Specifically excluded are D or F grades from laboratory sections associated with courses.

3. Change the curricular requirements of **Electrical Engineering (B.S.E.E.)** [Effective: Summer 2014]

Upper-division engineering science elective chosen from Engr 320, Engr 335, Engr 350, Engr 428, Math 428, or Phys 428 (3 cr)
Technical electives taken from upper-division Engineering, Math, Physics, Statistics, and Computer Science courses. Students may request, after approval by their academic advisor and the Petition Committee, to use other upper division technical courses in the College of Science or in Engineering Management (EM) in partial fulfillment of this requirement. Of these eighteen credits a minimum of twelve credits must be selected from electrical engineering courses including at least nine credits from the follow courses: ECE 410 or ECE 416, ECE 420, ECE 430, ECE 440 or ECE 443, ECE 450 and ECE 460 or ECE 465, (18 cr)

Courses to total 128 credits for this degree, not counting Engl 101, Math 143, and other courses that might be required to remove deficiencies.

Students majoring in electrical engineering must earn a grade of P in ECE 292 and a grade of C or better in each of the following courses for graduation and before registration is permitted in upper-division electrical and computer engineering courses: Chem 111, CS 120, ECE 210, ECE 211, ECE 212, ECE 213, ECE 240 and ECE 241; Engr 210, and Engr 220; Math 170, Math 175, Math 275, and Math 310; and Phys 211, Phys 212. Students majoring in electrical engineering or computer engineering must meet the college requirements for admission to classes (see "Admission to Classes" under College of Engineering, part four).

Any student majoring in electrical engineering may accumulate no more than five (5) letter grades of D’s and F’s in lower-division mathematics, science, or engineering courses that are used to satisfy graduation requirements. Included in this number are multiple repeats of a single class or single repeats in multiple classes and courses transferred from other institutions. Specifically excluded are D or F grades from laboratory sections associated with courses.

Within the constraints on choice of technical electives noted above, students may choose sets of electives to develop proficiencies in certain areas of emphasis. Three such areas are currently available, one in communications, one in integrated circuit design, and one in power. The course requirements for each of these areas are described below.

The **Communications** emphasis prepares students for a variety of careers in the communications industry. Students should take a total of 18 credits from the following: (a) core courses: 9 credits from ECE 410, ECE 430, ECE 450, and (b) technical electives: 9 credits from ECE 413, ECE 432, ECE 445, ECE 452, ECE 455.

The **Microelectronics** emphasis prepares students for careers in the semiconductor industry. It includes courses in analog/RF and mixed-signal integrated circuit (IC) design, semiconductors, and IC packaging. Students should take a total of 18 credits from the following: (a) 6 required credits: ECE 410, ECE 460, and (b) 3 core credits: ECE 413, ECE 415, ECE 418, and (c) 3 credits of ECE 440, ECE 430, ECE 450 and ECE 465, and (d) 6 additional credits of technical electives from ECE 413, ECE 415, ECE 417, ECE 418, ECE 419, ECE 445, ECE 462, ECE 465. The Integrated Circuit Design emphasis prepares students for careers in the field of integrated circuit design. It includes courses in analog and digital integrated circuit at both the system and transistor level. Students should take a total of 18 credits from the following: (a) core courses: 13 credits from ECE 410, ECE 411, ECE 415, ECE 445, ECE 460 and (b) technical electives: 3 credits from ECE 412, ECE 413, ECE 416, ECE 417, ECE 440, ECE 462, ECE 470, ECE 476.

The **Power** emphasis prepares students for a variety of careers with electric utilities, consulting firms, and with manufacturing and
design firms. Students should take a total of 18 credits from the following: (a) 12 credits: ECE 420, ECE 422, ECE 427 and ECE 450, and (b) 3 core credits from: ECE 410, ECE 430, ECE 440, and (c) 3 additional credits of technical electives.

**Engineering**

1. Drop the following courses [Effective: Summer 2014]

   **EM J484/JS84 Writing Winning Proposals (3 cr)**
   Practical course to define the process for developing and submitting proposals. Topics include RFP identification, budgeting, scheduling, proposal writing, proposal reviews, and other topics in the proposal writing process. Guest lecturers will discuss their successful experiences. Students will produce one submission-ready proposal for review of technical writing skills. Additional projects reqd for grad cr.

   **EM 511 Legal Process for Engineers (3 cr)**
   Designed to acquaint engineering management students with the legal process in general and the role of the judiciary in issues encountered by engineering managers. The course is intended to prepare professionals and managers for legal problems and potential liabilities they may encounter in their work as managers. Course employs the Socratic process to explore business organizations, employment law, contract law and other related topics.

   **TM 527 Occupational Health Hazards (3 cr)**
   In-depth examination and implementation of the field of industrial hygiene practice; focus on recognition, evaluation, and control of occupational health hazards.

   Recommended Equivalent Course: TM 533

2. Add the following courses [Effective: Summer 2014]

   **EM 515 (s) Advanced Topics in Engineering Management (2-9 cr, max 9)**
   Same as TM 515. Advanced topics in Engineering Management and Technology Management.
   **Prereq:** Instructor Permission

   Recommended Short Course Title: Adv Topics in EM

   **EM 560 Project Risk Management (3 cr)**
   Application of project risk assessment tools and techniques that help increase the probability of project success. Discover different approaches used by commercial and federal agencies to identify, assess, and quantify risks and their impacts on projects.
   **Prereq:** EM 510 or TM 510; or Instructor Permission

   **TM 515 (s) Advanced Topics in Engineering Management (2-9 cr, max 9)**
   See EM 515.

**English**

1. Drop the following course [Effective: Summer 2014]

   **Engl 443 Language Variation (3 cr)**
   Geographic and social dialects (e.g., Black English), levels of formality and their linguistic consequences; literary use of language variation (as in Dickens and Hardy, Twain and Faulkner); occupational dialects and jargons. (Alt/ysrs)
   **Prereq or Corq:** Engl 441 or Permission

2. Change the following course [Effective: Summer 2014]

   **Engl J444/J544 Sociolinguistics (3 cr)**
   Introduces the study of the relationship among language, society and culture. Specific topics include (1) native and nonnative variation of English, (2) language attitudes and ideology, (3) multilingualism, and (4) social class and gender. Provides practice in the methods for collecting and analyzing sociolinguistic data. Examines educational and political implications. **Additional projects required for graduate credit.** (Spring, alt/years)
   **Prereq:** Engl 444 or Permission

3. Change the curricular requirements of **English (B.A.)** [Effective: Summer 2014]
D. Teaching Emphasis

Foundations (3 cr)
Engl 215 Introduction to English Studies (3 cr)

Literary History (15 cr)
Engl 257 or Engl 258 Literature of Western Civilization (3 cr)
Engl 341 or Engl 342 Survey of British Literature (3 cr)
Engl 343 Survey of American Literature (3 cr)
Engl 344 Survey of American Literature (3 cr)
Engl 345 Shakespeare (3 cr)

Language (10 cr):
Engl 201 English Grammar, Key Concepts and Terms (1 cr)
Engl 441 241 Intro to the Study of Language (3 cr)
Two linguistics courses from the following (6 cr)
Engl 442 Introduction to English Syntax (3 cr)
Engl 443 Language Variation (3 cr)
Engl 444 Sociolinguistics (3 cr)
Engl 496 History of the English Language (3 cr)

Writing (9 cr):
Engl 309 Advanced Prose Writing (3 cr)
Engl 401 Writing Workshop for Teachers (3 cr)
One course from the following (3 cr):
Engl 208 (s) Personal and Exploratory Writing (3 cr)
Engl 291 Beginning Poetry Writing (3 cr)
Engl 292 Beginning Fiction Writing (3 cr)
Engl 293 Beginning Nonfiction Writing (3 cr)

Cultural Diversity (One course in non-canonical or underrepresented literatures) (3 cr):
Engl 380 Introduction to U.S. Ethnic Literatures (3 cr)
Engl 481 Women's Literature (3 cr).
Engl 483 African American Literature (3 cr)
Engl 484 American Indian Literature (3 cr)

Or an adviser-approved special topics or extra-departmental course (3 cr)
One 400-level literature course (3 cr)
One 300 or 400-level literature course (3 cr)
One elective course at the 300 or 400-level (3 cr)

Capstone
This requirement is fulfilled for Teaching Emphasis majors by EDCI 485, Internship.

Courses to total 120 credits for this degree

Environmental Science

1. Add the following course [Effective: Summer 2014]

   **EnvS 450 Environmental Hydrology (3 cr)**

   Carries no credit after BAE 355 or CE 325. Comprehensive understanding of the hydrologic processes associated with the environmental processes. Includes components of the hydrologic cycle, analysis of precipitation and run off, evapotranspiration, routing, peak flow, infiltration, soil and water relationships, snowmelt, and frequency analysis. (Spring only)

   **Prereq:** Math 170

2. Change the curricular requirements of Environmental Science (B.S.Env.S.) [Effective: Summer 2014]

   Required course work includes the university requirements (see regulation J-3), the general requirements for the B.S. degree, and:

   - Biol 115 Cells and the Evolution of Life (4 cr)
   - Chem 111 Principles of Chemistry I (students in social science option may substitute Chem 101) (4 cr)
   - Comm 101 Fundamentals of Public Speaking or 3-4 cr in foreign language courses (2-4 cr)
   - EnvS 101 Introduction to Environmental Science (3 cr)
   - EnvS 102 Field Activities in Environmental Sciences (1 cr)
   - EnvS 225 International Environmental Issues Seminar (3 cr)
   - EnvS 400 Seminar (1 cr)
   - Phil 452 Environmental Philosophy (3 cr)

   One of the following (3 cr):
   - Stat 251 Statistical Methods (3 cr)
   - Stat 301 Probability and Statistics (3 cr)

   And one of the following options:

   **A. Biological Science Option**

   This option is suitable for students wishing to pursue technically oriented careers in environmental professions such as natural resource management, bioremediation, and environmental impact analysis.

   - Chem 112 Principles of Chemistry II (5 cr)
   - Engl 317 Technical Writing (3 cr)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>EnvS 497</td>
<td>Senior Research (4 cr)</td>
</tr>
<tr>
<td>MMBB 250</td>
<td>General Microbiology (3 cr)</td>
</tr>
<tr>
<td>Geog 100</td>
<td>Physical Geography and Lab (4 cr)</td>
</tr>
<tr>
<td>Geog 100L</td>
<td>Physical Geography and Lab (4 cr)</td>
</tr>
<tr>
<td>Geol 101</td>
<td>Physical Geology and Lab (4 cr)</td>
</tr>
<tr>
<td>Geol 101L</td>
<td>Physical Geology and Lab (4 cr)</td>
</tr>
<tr>
<td>Math 160</td>
<td>Survey of Calculus (4 cr)</td>
</tr>
<tr>
<td>Math 170</td>
<td>Analytic Geometry and Calculus I (4 cr)</td>
</tr>
<tr>
<td>Advisor-directed breadth electives, including at least one course from the first four areas and 9 credits from the technical area (24 cr):</td>
<td></td>
</tr>
<tr>
<td>Biology</td>
<td>Ecology</td>
</tr>
<tr>
<td>Biol 314</td>
<td>Ecology and Population Biology (4 cr)</td>
</tr>
<tr>
<td>For 221</td>
<td>Ecology (3 cr)</td>
</tr>
<tr>
<td>Geog 410</td>
<td>Biogeography (3 cr)</td>
</tr>
<tr>
<td>REM 221</td>
<td>Ecology (3 cr)</td>
</tr>
<tr>
<td>Geospatial Tools</td>
<td></td>
</tr>
<tr>
<td>For 472</td>
<td>Forest Policy and Administration (2 cr)</td>
</tr>
<tr>
<td>Geog 411</td>
<td>Natural Hazards and Society (3 cr)</td>
</tr>
<tr>
<td>History, Philosophy, and Political Science</td>
<td></td>
</tr>
<tr>
<td>AgEc 477</td>
<td>Law, Ethics, and the Environment (3 cr)</td>
</tr>
<tr>
<td>CSS 489</td>
<td>Personalities and Philosophies in Conservation (2 cr)</td>
</tr>
<tr>
<td>EnvS 484</td>
<td>History of Energy (3 cr)</td>
</tr>
<tr>
<td>Hist 424</td>
<td>American Environmental History (3 cr)</td>
</tr>
<tr>
<td>Phil 351</td>
<td>Philosophy of Science (3 cr)</td>
</tr>
<tr>
<td>PolS 364</td>
<td>Politics of the Environment (3 cr)</td>
</tr>
<tr>
<td>Technical</td>
<td>Organisms and Environment (4 cr)</td>
</tr>
<tr>
<td>Biol 416</td>
<td>Principles of Biological Structure and Function (4 cr)</td>
</tr>
<tr>
<td>Chem 253</td>
<td>Quantitative Analysis and Lab (5 cr)</td>
</tr>
<tr>
<td>Chem 254</td>
<td>Carbon Compounds (3 cr)*</td>
</tr>
<tr>
<td>Chem 275</td>
<td>Organic Chemistry (3 cr)*</td>
</tr>
<tr>
<td>Chem 277</td>
<td>Environmental Audits (3 cr)</td>
</tr>
<tr>
<td>EnvS 479</td>
<td>Introduction to Environmental Regulation (3 cr)</td>
</tr>
<tr>
<td>Soil 205</td>
<td>The Soil Ecosystem (3 cr)</td>
</tr>
<tr>
<td>*Note: Either Chem 275 or Chem 277 may be used as a technical breadth elective. **Note: Either Phys 111/111L or Phys 211/211L may be used as a technical breadth elective. ***Note: Either Phys 112/112L or Phys 212/212L may be used as a technical breadth elective. Advisor-approved depth electives – take 4 courses in any depth area unless otherwise noted from at least two of the following areas (20 cr):</td>
<td></td>
</tr>
<tr>
<td>Plant Protection</td>
<td></td>
</tr>
<tr>
<td>Ent 322</td>
<td>General and Applied Entomology (3 cr)</td>
</tr>
<tr>
<td>PIsc 338</td>
<td>Weed Control (3 cr)</td>
</tr>
<tr>
<td>PIsc 410</td>
<td>Invasive Plant Biology (3 cr)</td>
</tr>
<tr>
<td>PIsc 415</td>
<td>Plant Pathology (3 cr)</td>
</tr>
<tr>
<td>Soil 446</td>
<td>Soil Fertility (1-3 cr, max 3)</td>
</tr>
<tr>
<td>Animal Ecology</td>
<td></td>
</tr>
<tr>
<td>WLF 314</td>
<td>Wildlife Ecology I (3 cr)</td>
</tr>
<tr>
<td>WLF 315</td>
<td>Wildlife Ecology I Laboratory (1 cr)</td>
</tr>
<tr>
<td>WLF 316</td>
<td>Wildlife Ecology II (4 cr)</td>
</tr>
<tr>
<td>WLF 440</td>
<td>Conservation Biology (3 cr)*</td>
</tr>
<tr>
<td>WLF 448</td>
<td>Fish and Wildlife Population Ecology (4 cr)*</td>
</tr>
<tr>
<td>*Note: Either WLF 440 or WLF 448 may be used as a depth elective. Aquatic Ecology Take 3 of the 4 courses listed below:</td>
<td></td>
</tr>
<tr>
<td>Ent 472</td>
<td>Aquatic Entomology (3 cr)</td>
</tr>
<tr>
<td>Fish 314</td>
<td>Fish Ecology (3 cr)</td>
</tr>
<tr>
<td>Fish 415</td>
<td>Limnology (4 cr)</td>
</tr>
<tr>
<td>Fish 430</td>
<td>Riparian Ecology and Management (3 cr)</td>
</tr>
<tr>
<td>Forest and Range Systems</td>
<td></td>
</tr>
<tr>
<td>For 330</td>
<td>Forest Soil and Canopy Processes (4 cr)</td>
</tr>
<tr>
<td>For 426</td>
<td>Global Fire Ecology and Management (3 cr)</td>
</tr>
<tr>
<td>REM 411</td>
<td>Ecological Monitoring and Analysis (2 cr)</td>
</tr>
<tr>
<td>REM 429</td>
<td>Landscape Ecology (3 cr)</td>
</tr>
<tr>
<td>REM 440</td>
<td>Wildland Restoration Ecology (3 cr)</td>
</tr>
<tr>
<td>REM 459</td>
<td>Rangeland Ecology (2 cr)</td>
</tr>
<tr>
<td>Soil 409</td>
<td>Principles of Environmental Toxicology (3 cr)</td>
</tr>
<tr>
<td>Soil 425</td>
<td>Microbial Ecology (3 cr)</td>
</tr>
<tr>
<td>Soil 438</td>
<td>Pesticides in the Environment (3 cr)</td>
</tr>
<tr>
<td>Soil 454</td>
<td>Pedology (3 cr)</td>
</tr>
<tr>
<td>Water</td>
<td></td>
</tr>
<tr>
<td>BAE 450</td>
<td>Environmental Hydrology (2 cr)</td>
</tr>
<tr>
<td>EnvS 450</td>
<td>Environmental Hydrology (3 cr)</td>
</tr>
<tr>
<td>EnvS 446</td>
<td>Drinking Water and Human Health (3 cr)</td>
</tr>
<tr>
<td>Geol 309</td>
<td>Ground Water Hydrology (3 cr)</td>
</tr>
<tr>
<td>Geol 410</td>
<td>Techniques of Ground Water Study (3 cr)</td>
</tr>
<tr>
<td>LArc 495</td>
<td>Computer-Aided Regional Landscape Planning (3 cr)</td>
</tr>
<tr>
<td>Climate Change and Ecosystems (take all 3):</td>
<td></td>
</tr>
<tr>
<td>CSS 383</td>
<td>Natural Resource and Ecosystem Service Economics (3 cr)</td>
</tr>
<tr>
<td>Geog 313</td>
<td>Global Climate Change (3 cr)</td>
</tr>
<tr>
<td>Geog 410</td>
<td>Biogeography (3 cr)</td>
</tr>
</tbody>
</table>
Courses to total 120 credits for this degree

### B. Physical Science Option

This option is suitable for students wishing to pursue technical careers in environmental professions such as air, soil, and water pollution abatement, hazardous waste management, waste minimization, and ecological restoration.

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 112</td>
<td>Principles of Chemistry II (5 cr)</td>
</tr>
<tr>
<td>Engl 317</td>
<td>Technical Writing (3 cr)</td>
</tr>
<tr>
<td>EnvS 497</td>
<td>Senior Research (4 cr)</td>
</tr>
<tr>
<td>Math 170</td>
<td>Analytic Geometry and Calculus I (4 cr)</td>
</tr>
<tr>
<td>Phys 111</td>
<td>General Physics I and Lab (4 cr)</td>
</tr>
</tbody>
</table>

One of the following (4 cr):

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geog 100</td>
<td>Physical Geography and Lab (4 cr)</td>
</tr>
<tr>
<td>Geog 100L</td>
<td>Physical Geography and Lab (4 cr)</td>
</tr>
<tr>
<td>Geog 101</td>
<td>Physical Geology and Lab (4 cr)</td>
</tr>
<tr>
<td>Geog 101L</td>
<td>Geology (4 cr)</td>
</tr>
</tbody>
</table>

Advisor-directed breadth electives, including at least one course from the first four areas and 9 credits from the technical area (24 cr):

#### Ecology

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 314</td>
<td>Ecology and Population Biology (4 cr)</td>
</tr>
<tr>
<td>For 221</td>
<td>Ecology (3 cr)</td>
</tr>
<tr>
<td>Geog 410</td>
<td>Biogeography (3 cr)</td>
</tr>
<tr>
<td>REM 221</td>
<td>Ecology (3 cr)</td>
</tr>
</tbody>
</table>

#### Natural Resource Economics and Sociology

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AgEc 451</td>
<td>Applied Environmental and Natural Resource Economics (3 cr)</td>
</tr>
<tr>
<td>CSS 383</td>
<td>Natural Resource and Ecosystem Service Economics (3 cr)</td>
</tr>
<tr>
<td>Econ 385</td>
<td>Environmental Economics (3 cr)</td>
</tr>
<tr>
<td>For 235</td>
<td>Society and Natural Resources (3 cr)</td>
</tr>
</tbody>
</table>

#### Management

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus 378</td>
<td>Project Management (3 cr)</td>
</tr>
<tr>
<td>CSS 486</td>
<td>Public Involvement in Natural Resource Mgt (3 cr)</td>
</tr>
<tr>
<td>EnvS 428</td>
<td>Pollution Prevention (3 cr)</td>
</tr>
</tbody>
</table>

#### Geog 411 | Natural Hazards and Society (3 cr) |

#### REM 456 | Integrated Rangeland Management |

#### History, Philosophy, and Political Science

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AgEc 477</td>
<td>Law, Ethics, and the Environment (3 cr)</td>
</tr>
<tr>
<td>CSS 489</td>
<td>Personalities and Philosophies in Conservation (2 cr)</td>
</tr>
<tr>
<td>Hist 424</td>
<td>American Environmental History (3 cr)</td>
</tr>
<tr>
<td>Phil 351</td>
<td>Philosophy of Science (3 cr)</td>
</tr>
<tr>
<td>PolS 364</td>
<td>Politics of the Environment (3 cr)</td>
</tr>
</tbody>
</table>

#### Technical

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 116</td>
<td>Organisms and Environments (4 cr)</td>
</tr>
<tr>
<td>Biol 213</td>
<td>Principles of Biological Structure and Function (4 cr)</td>
</tr>
<tr>
<td>Chem 253</td>
<td>Quantitative Analysis and Lab (5 cr)</td>
</tr>
<tr>
<td>Chem 254</td>
<td>Geology and the Environment (3 cr)</td>
</tr>
<tr>
<td>Chem 211L</td>
<td>Analytic Geometry and Calculus II (4 cr)</td>
</tr>
<tr>
<td>Phys 211L</td>
<td>Engineering Physics I and Lab (4 cr)</td>
</tr>
<tr>
<td>Phys 112</td>
<td>General Physics II and Lab (4 cr)**</td>
</tr>
<tr>
<td>Phys 212, 212L</td>
<td>Engineering Physics II and Lab (4 cr)**</td>
</tr>
<tr>
<td>Soil 205</td>
<td>The Soil Ecosystem (3 cr)</td>
</tr>
</tbody>
</table>

*Note: Either Chem 275 or Chem 277 may be used as a technical breadth elective.

**Note: Either Phys 112/112L or Phys 212/212L may be used as a technical breadth elective.

Advisor-approved depth electives – take 4 courses in any depth area unless otherwise noted from at least two of the following areas (20 cr):

#### Water

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAE 450</td>
<td>Environmental Hydrology (3 cr)</td>
</tr>
<tr>
<td>EnvS 450</td>
<td>Environmental Hydrology (3 cr)</td>
</tr>
<tr>
<td>EnvS 446</td>
<td>Drinking Water and Human Health (3 cr)</td>
</tr>
<tr>
<td>For 462</td>
<td>Watershed Management (3 cr)</td>
</tr>
<tr>
<td>Geol 309</td>
<td>Ground Water Hydrology (3 cr)</td>
</tr>
<tr>
<td>Geol 410</td>
<td>Techniques of Ground Water Study (3 cr)</td>
</tr>
<tr>
<td>Hydr 412</td>
<td>Environmental Hydrogeology (3 cr)</td>
</tr>
</tbody>
</table>

#### Hazardous Waste

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BAE 433</td>
<td>Bioremediation (3 cr)</td>
</tr>
<tr>
<td>BAE 452</td>
<td>Environmental Water Quality (3 cr)</td>
</tr>
<tr>
<td>Chem 418</td>
<td>Environmental Chemistry (3 cr)</td>
</tr>
<tr>
<td>EnvS 479</td>
<td>Introduction to Environmental Regulations (3 cr)</td>
</tr>
<tr>
<td>FS 409</td>
<td>Principles of Environmental Toxicology (3 cr)</td>
</tr>
<tr>
<td>MMBB 380</td>
<td>Introductory Biochemistry (4 cr)</td>
</tr>
</tbody>
</table>

#### Geology

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geol 335</td>
<td>Geomorphology (3 cr)</td>
</tr>
<tr>
<td>Geol 361</td>
<td>Geology and the Environment (3 cr)</td>
</tr>
<tr>
<td>Geol 422</td>
<td>Principles of Geophysics (3 cr)</td>
</tr>
<tr>
<td>Geol 423</td>
<td>Principles of Geochromy (3 cr)</td>
</tr>
</tbody>
</table>

#### Mathematics and Statistics

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Math 175</td>
<td>Analytic Geometry and Calculus II (4 cr)</td>
</tr>
<tr>
<td>Math 275</td>
<td>Analytic Geometry and Calculus III (3 cr)</td>
</tr>
<tr>
<td>Math 310</td>
<td>Ordinary Differential Equations (3 cr)</td>
</tr>
<tr>
<td>Stat 431</td>
<td>Statistical Analysis (3 cr)</td>
</tr>
</tbody>
</table>

#### Soils

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chem 418</td>
<td>Environmental Chemistry (3 cr)</td>
</tr>
<tr>
<td>Soil 415</td>
<td>Soil Physics (3 cr)</td>
</tr>
<tr>
<td>Soil 422</td>
<td>Environmental Soil Chemistry (3 cr)</td>
</tr>
<tr>
<td>Soil 454</td>
<td>Soil Development and Classification (3 cr)</td>
</tr>
</tbody>
</table>

#### Economics and Management

Take all three courses listed below:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus 378</td>
<td>Project Management (3 cr)</td>
</tr>
<tr>
<td>Econ 385</td>
<td>Environmental Economics (3 cr)</td>
</tr>
<tr>
<td>EnvS 428</td>
<td>Pollution Prevention (3 cr)</td>
</tr>
</tbody>
</table>

#### Geospatial Tools

Take at least 3 of the 4 courses listed below:

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geog 385</td>
<td>GIS Primer (3 cr)</td>
</tr>
<tr>
<td>Geog 424</td>
<td>Hydrogeologic Applications in GIS and Remote Sensing (3 cr)</td>
</tr>
<tr>
<td>Geog 483</td>
<td>Remote Sensing/GIS Integration (3 cr)</td>
</tr>
</tbody>
</table>

#### Climate Change and Emissions Reduction

<table>
<thead>
<tr>
<th>Course</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>EnvS 485</td>
<td>Energy Efficiency and Conservation (3 cr)</td>
</tr>
<tr>
<td>Geog 513</td>
<td>Global Climate Change (3 cr)</td>
</tr>
<tr>
<td>Geog 413</td>
<td>Climatology (3 cr)</td>
</tr>
<tr>
<td>Geog 435</td>
<td>Climate Change Mitigation (3 cr)</td>
</tr>
</tbody>
</table>

**Courses to total 120 credits for this degree**
Advisor-approved depth electives – take 4 courses in any used as a technical breadth elective.

- Soil 205
- REM 440
- REM 407
- Phys 111, Phys 111L
- Phys 112, Phys 112L
- Math 175
- Geol 375
- Geol 309
- Geog 385
- EnvS 498
- EnvS 429
- EnvS 428
- Chem 277
- Chem 254
- Chem 253
- Biol 116
- PolS 364
- Hist 423
- Econ 202
- Econ 201
- Math 175
- Math 170
- Math 160
- One of the following (4 cr):
  - Geog 101L, Geog 100L
  - Geog 100, Geog 101
  - Math 170, Math 160
- One of the following (4 cr):
  - Engl 316, Engl 317

One of the following (4 cr):

Mathematics and Statistics
- Math 175
- Math 275
- Math 310
- Stat 431

Management Tools
Take 3 courses:
- EnvS 415
- EnvS 428
- Geog 385

Environmental Policy & Regulations
Take 3 courses:
- CSS 572
- EnvS 429
- EnvS 485

Energy Systems
- EnvS 483
- EnvS 484
- EnvS 485

Sustainability Science
- EnvS 415
- EnvS 428
- FS 409

Courses to total 120 credits for this degree

D. Social Science Option
This option is suitable for students wishing to pursue careers in environmental professions such as environmental regulation, land use planning, environmental administration, and as a pre-law program for environmental law.

- EnvS 497
- Geog 100
- Geog 100L
- Geog 101
- Math 143

One of the following (3 cr):
- Engl 309
- JAMM 428

One of the following (3 cr):
- Engl 316
- Phil 201
3. Change the curricular requirements of **Natural Resources and Environmental Science (P.S.M.)** [Effective: Summer 2014]

From College of Graduate Studies section:

**Professional Science Master.** Consult the departmental section for specific descriptions. Contact the Director of the Environmental Science and Water Resources Program for information regarding this degree. Of the minimum 20-35 credits required for the degree, at least 15-26 credits must be at the 500 level; the remainder may include 400 level courses in the major and 300 or 400 level courses in supporting areas. For the thesis student, a thesis is required. For the non-thesis student, a non-thesis requirement must be met. This is a professional fee program; consult the program for details. This is a non-thesis program. Consult the departmental section for specific descriptions. Of the

<table>
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<tr>
<th>Advisor-directed breadth electives, including at least one course from the first four areas and 9 credits from the technical area (24 cr):</th>
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<td>Ec</td>
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**Natural Resource Economics and Sociology**

| AgEc | AgEc 451 Applied Environmental and Natural Resource Economics (3 cr) |
| CSS | CSS 383 Natural Resource and Ecosystem Service Economics (3 cr) |
| Econ | Econ 385 Environmental Economics (3 cr) |
| For | For 235 Society and Natural Resources (3 cr) |

**Management**

| Bus | Bus 378 Project Management (3 cr) |
| CSS | CSS 486 Public Involvement in Natural Resource Mgt (3 cr) |
| EnvS | EnvS 428 Pollution Prevention (3 cr) |
| For | For 484 Forest Policy and Administration (2 cr) |
| Geol | Geol 411 Natural Hazards and Society (3 cr) |
| REM | REM 456 Integrated Rangeland Management (3 cr) |

**History, Philosophy, and Political Science**

| AgEc | AgEc 477 Law, Ethics, and the Environment (3 cr) |
| CSS | CSS 489 Personalities and Philosophies in Conservation (2 cr) |
| EnvS | EnvS 484 History of Energy (3 cr) |
| Hist | Hist 424 American Environmental History (3 cr) |
| Phil | Phil 351 Philosophy of Science (3 cr) |
| Pol | Pol 364 Politics of the Environment (3 cr) |

**Technical**

| Biol | Biol 116 Organisms and Environments (4 cr) |
| Biol | Biol 213 Principles of Biological Structure and Function (4 cr) |
| Chem | Chem 253, Quantitative Analysis and Lab (5 cr) |
| Chem | Chem 254 |
| Chem | Chem 275 Carbon Compounds (3 cr) |
| EnvS | EnvS 428 Pollution Prevention (3 cr) |
| EnvS | EnvS 429 Environmental Audit (3 cr) |
| EnvS | EnvS 479 Introduction to Environmental Regulation (3 cr) |
| EnvS | EnvS 498 Internship (1-3 cr) |
| For | For 472 or Remote Sensing of Environment (4 cr) |
| REM | REM 472 |
| Geol | Geol 301 Meteorology (3 cr) |
| Geol | Geol 313 Global Climate Change (3 cr) |
| Geol | Geol 401 Climatology (3 cr) |
| Geol | Geol 485 GIS Primer (3 cr) |
| Geol | Geol 309 Ground Water Hydrology (3 cr) |
| Geol | Geol 361 Geology and the Environment (3 cr) |
| Math | Math 175 Analytic Geometry and Calculus II (4 cr) |
| Phys | Phys 111, General Physics I and Lab (4 cr) *** |
| Phys | Phys 111L Engineering Physics I and Lab (4 cr) *** |
| Phys | Phys 211, Engineering Physics II and Lab (4 cr) *** |
| Phys | Phys 211L General Physics II and Lab (4 cr) **** |
| Phys | Phys 112L |
| Phys | Phys 212, Engineering Physics II and Lab (4 cr) **** |

**Phys 212L**

**Soil 205** The Soil Ecosystem (3 cr)

*Note: Either Chem 275 or Chem 277 may be used as a technical breadth elective.

**Phys 401**

**Geog 301**

**Geog 401**

**Geog 111/111L or Phys 211/211L may be used as a technical breadth elective.

**Phys 112/112L or Phys 212/212L may be used as a technical breadth elective.

Advisor-approved depth electives chosen from the following, including five courses from one of the following areas:

**Policy and Law**

| EnvS | EnvS 479 Introduction to Environmental Regulations (3 cr) |
| Phil | Phil 470 Philosophy of Law (3 cr) |
| Pol | Pol 364 Politics of the Environment (3 cr) |
| Pol | Pol 467 Constitutional Law (3 cr) |
| Pol | Pol 468 Civil Liberties (3 cr) |

**Administration and Planning**

| Act | Act 482 Enterprise Accounting (3 cr) |
| Comm | Comm 410 Conflict Management (3 cr) |
| CSS | CSS 385 Conservation Management and Planning I (3 cr) |
| CSS | CSS 387 Environmental Communication Skills (3 cr) |
| Econ | Econ 385 Environmental Economics (3 cr) |
| For | For 484 Forest Policy and Administration (2 cr) |
| Geog | Geog 330 Urban Geography (3 cr) |
| Pol | Pol 364 Politics of the Environment (3 cr) |
| Pol | Pol 451 Public Administration (3 cr) |
| Pol | Pol 454 Public Organization Theory (3 cr) |
| Pol | Pol 462 Natural Resource Policy (3 cr) |
| Psyc | Psyc 416 Industrial/Organizational Psychology (3 cr) |

**Green Building and Community Design**

| Arch | Arch 151 Introduction to the Built Environment (2 cr) |
| Arch | Arch 266 Materials and Methods (3 cr) |
| Arch | Arch 463 Environmental Control Systems I (4 cr) |
| Arch | Arch 464 Environmental Control Systems II (4 cr) |
| Geog | Geog 345 Climate Change Mitigation (3 cr) |
| Geog | Geog 486 Transportation, GIS and Planning (3 cr) |
| LArc | LArc 380 Water in the Urban Context (2 cr) |
| LArc | LArc 480 The Emerging Landscape (3 cr) |
| RMat | RMat 365 Wood Building Technology (3 cr) |

**Climate Change - Human Dimensions:**

| CSS | CSS 383 Natural Resource and Ecosystem Service Economics (3 cr) |
| Econ | Econ 385 Environmental Economics (3 cr) |
| EnvS | EnvS 479 Introduction to Environmental Regulations (3 cr) |
| EnvS | EnvS 484 History of Energy (3 cr) |
| EnvS | EnvS 485 Energy Efficiency and Conservation (3 cr) |
| Geog | Geog 313 Global Climate Change (3 cr) |
| Geog | Geog 435 Climate Change Mitigation (3 cr) |
| Geog | Geog 455 Societal Resilience and Adaptation to Climate Change (3 cr) |

**Courses to total 120 credits for this degree**
minimum 30 credits required for the degree, at least 18 credits must be at the 500 level; the remainder may include 400 level courses in the major, and 300 or 400 level courses in supporting areas. For the thesis student, a thesis is required. For the non-thesis student, a non-thesis requirement must be met. This is a professional fee program; consult the program for details.

From Program in Environmental Science section:

Professional Science Master, Major in Natural Resources and Environmental Science major. Contact the Director of the Environmental Sciences and Water Resources programs for information regarding this degree.

Family and Consumer Sciences

1. Change the following courses [Effective: Summer 2014]

**FCS 119 Introduction to Fashion and the Apparel Industry (3 cr)**
Introduction to the sewn product manufacturing and merchandising industry; overview of socio-cultural, historic, aesthetic, design, business, and economic factors; emphasis on careers in the sewn products industry. Students must complete this course with a grade of 'C' or higher as a prerequisite to future Clothing, Textiles and Design courses. (Fall only)
**Prereq:** Clothing, Textiles and Design major; or Child, Family, and Consumer Studies major; or Permission

Recommended Short Course Title: Intro Fashion/Apparel Industry

**FCS 123 Textiles (3 cr)**
Fiber, yarn, and fabric properties, color and finishes as they relate to performance, care, and consumer satisfaction. Students must complete this course with a grade of 'C' or higher as a prerequisite to future Clothing, Textiles and Design courses.
**Prereq:** Clothing, Textiles, and Design; or Child, Family, and Consumer Sciences/Family Life major; or Permission

**FCS 224 Apparel Construction and Assembly Processes (3 cr)**
Design conception, fabric characteristics, garment construction and assembly, principles of fitting, quality control for the apparel industry. Two 3-hour studios a week and assigned work. Students must complete this course with a grade of 'C' or higher as a prerequisite to future Clothing, Textiles and Design courses. (Spring only)
**Prereq:** FCS 123 with a grade of 'C' or better; and Clothing, Textiles, and Design; or Child, Family, and Consumer Sciences/Family Life major; or Permission

Recommended Short Course Title: Apparel Constructn & Assembly

**FCS 233 Principles and Methods of Child Observation (3 cr)**
Development of skills necessary to observe, record, and interpret child behavior; observations to be arranged. (Fall only)
**Prereq:** FCS 234 with a grade of 'C' or better or Permission (Fall only)

**FCS 323 Apparel Product Development (3 cr)**
Analysis of textile and apparel products and processes relative to design, development, and production methods, including evaluation of consumer value. Students must complete this course with a grade of 'C' or higher as a prerequisite to future Clothing, Textiles and Design courses.
**Prereq:** FCS 123 with a grade of 'C' or better and FCS 224 with a grade of 'C' or better; or Permission

**FCS 324 Patternmaking (3 cr)**
Methods and principles of flat pattern and draping design; use of pattern making skills and advanced construction skills in apparel product development; developing specifications for apparel production. Two 3-hour studios a week and assigned work. Students must complete this course with a grade of 'C' or higher as a prerequisite to future Clothing, Textiles and Design courses.
**Prereq:** FCS 224 with a grade of 'C' or better and Clothing, Textiles, and Design major; or Permission

**FCS 333 Developmental Curriculum for Young Children (4 cr)**
Principles and practices of a developmentally based curriculum, assessment, intervention, and evaluation. Three hrs of lec and two hrs of lab a wk. (Spring only)
**Prereq:** FCS 235 with a grade of 'C' or better or Permission

**FCS 395 Career Development in Apparel & Textiles (1 cr, max 2)**
Preparation for professional internship and job search experiences, including identifying goals, skills, opportunities and strategies, fine-tuning resumes, the application processes, preparing for interviews, analyzing the internship, and introductory portfolio preparation. (Fall only)
**Prereq:** Cloth, Textiles and Design major or Permission

Recommended Short Course Title: Career Development in Apparel
FCS 423 Sewn Product Industry Tour (1 cr, max 3 cr)
Field site tours of apparel industry firms representing design, manufacturing, merchandising, sourcing, retailing, and other aspects of the industry. Forty-five hours of instruction, field experience, and follow-up project work (3 hours prep, 32 hours tours/company visits, 10 hours project). Variable field trip fee depending on actual cost.
Prereq: CTD Clothing, Textiles and Design major and junior standing; or Permission

FCS 497 PracticumInternship Preschool (cr arr)
On- or off-campus supervised applied experience in family and consumer sciences major areas: child development and family relations, clothing, textiles, and home design; food and nutrition; consumer education; and cooperative extension. The field experience offers opportunity for students to learn about working in settings for children and families.
Prereq: FCS 234 with a grade of 'C' or better, FCS 235 with a grade of 'C' or better, FCS with a grade of 'C' or better, and Permission

2. Change the curricular requirements of Child, Family, and Consumer Studies (B.S.F.C.S.) [Effective: Summer 2014]

The minimum credits required for graduation are 132/128, including at least 36 credits at the 300-level or above. Required course work includes the university requirements (see regulation J-3) and one of the following options:

A. Child Development/Family Relations Option
The CDFR option allows students to develop individualized programs to meet personal and career goals. Careers include opportunities to provide direct services to children and families through teaching or child care, to fill advocacy roles, or to be involved with parent education.

Comm 101 Fundamentals of Public Speaking (2 cr)
EDCI 201 Contexts of Education (2 cr)
EDSP 300 Educating for Exceptionalities (2 cr)
FCS 105 Individual and Family Development (3 cr)
FCS 205 Concepts in Human Nutrition (3 cr)
FCS 234 Infancy and Early Childhood (3 cr)
FCS 235 Principles and Methods of Child Observation (3 cr)
FCS 240 Intimate Relationships (3 cr)
FCS 333 Developmental Curriculum for Young Children (3 cr)
FCS 334 Middle Childhood-Adolescence (3 cr)
FCS 340 Parent-Child Relationships in Family and Community (3 cr)
FCS 346 Personal and Family Finance and Management (4 cr)
FCS 419 Dress and Culture (3 cr)
FCS 428 Housing America’s Families (3 cr)
FCS 434 Adulthood and Aging Within the Context of Family (3 cr)
FCS 445 Issues in Work and Family Life (3 cr)
FCS 497 Internship PreschoolPracticum (9 cr)
H&S 288 First Aid: Emergency Response (2 cr)

General Education Mathematics Math 130 or higher; or Stat 251 or higher (3 cr)

Courses to total 128 credits for this degree

B. Family Life Option
The Family Life Option provides a general preparation in family science. Students may select to pursue course preparation for Accredited Financial Counselor or Certified Family Life Educator. Career options include jobs in business firms, government agencies, and nonprofit organizations. Students could also declare a minor in Aging. See Advisor for specific coursework to pursue these options.

FCS 105 Individual and Family Development (3 cr)
FCS 123 Textiles (3 cr)
FCS 205 Concepts in Human Nutrition (3 cr)
FCS 234 Infancy and Early Childhood (3 cr)
FCS 240 Intimate Relationships (3 cr)
FCS 251 Survey of FCS Professions (1 cr)
FCS 323 Apparel Product Development (3 cr)
FCS 329 History of Western Dress (3 cr)
FCS 334 Middle Childhood-Adolescence (3 cr)
FCS 346 Personal and Family Finance and Management (4 cr)
FCS 419 Dress and Culture (3 cr)
FCS 428 Housing America’s Families (3 cr)
FCS 434 Adulthood and Aging Within the Context of Family (3 cr)
FCS 445 Issues in Work and Family Life (3 cr)
FCS 448 Consumer Economic Issues (3 cr)
Stat 251 Statistical Methods (3 cr)

One of the following (3 cr):
FCS 340 Parent-Child Relationships in Family & Community (3 cr)
FCS 440 Contemporary Family Relationships (3 cr)

Courses to total 128 credits for this degree

3. Change the curricular requirements of Food and Nutrition (B.S.F.C.S.) [Effective: Summer 2014]

Required course work includes the university requirements (see regulation J-3) and one of the following options.
A. Coordinated Program in Dietetics
Upon acceptance to the professional phase of the CPD during the second semester of the sophomore year, students must maintain a cumulative grade-point average of at least 2.80 to remain in and graduate from the program. Students must also obtain at least a B (80%) in all CPD courses required by the American Dietetic Association.

Biol 120  Human Anatomy (4 cr)
Biol 121  Human Physiology (4 cr)
Chem 275  Carbon Compounds (3 cr)
FCS 105  Individual and Family Development (3 cr)
FCS 170  Introductory Foods (3 cr)
FCS 175  Introductory Foods Laboratory (1 cr)
FCS 205  Concepts in Human Nutrition (3 cr)
FCS 270  Intermediate Foods (3 cr)
FCS 301  Professional Skills in Dietetics I (1 cr)
FCS 302  Professional Skills in Dietetics II (1 cr)
FCS 361  Advanced Nutrition (3 cr)
FCS 362  Introduction to Clinical Dietetics (3 cr)
FCS 363  Medical Nutrition Therapy (4 cr)
FCS 364  Clinical Dietetics I (4 cr)
FCS 365  Advanced Nutrition Lab (1 cr)
FCS 384  Quantity Food Production and Equipment (3 cr)
FCS 385  Intro Dietetics Supervised Practice I (2 cr)
FCS 387  Food Systems Management (3 cr)
FCS 388  Food Systems Management Lab (1 cr)
FCS 411  Global Nutrition (3 cr)
FCS 463  Helping Skills in Dietetics (2 cr)
FCS 472  Clinical Dietetics II (8 cr)
FCS 473  Community Nutrition (3 cr)
FCS 486  Nutrition in the Life Cycle (3 cr)
FCS 487  Community Nutrition Supervised Practice (4 cr)
FCS 488  Management Supervised Practice (8 cr)
FCS 491  Research Methods in Food Nutrition (3 cr)
FCS 492  Nutrition Education in the Life Cycle (2 cr)
Math 143  Pre-calculus Algebra and Analytic Geometry (3 cr)
MMBB 154,  MMBB 155 Survey of Biochemistry (3 cr)
Psyc 101  Introduction to Psychology (3 cr)
Soc 101  Introduction to Sociology (3 cr)
Stat 251  Statistical Methods (3 cr)
One of the following (3 cr):
Acct 201  Introduction to Financial Accounting (3 cr)
Acct 202  Introduction to Managerial Accounting (3 cr)
One of the following (3 cr):
Chem 101  Intro to Chemistry I (4 cr)
Chem 111  Principles of Chemistry I (4 cr)

2 credits selected from the following:
FCS 305  Nutrition Related to Fitness and Sport (2 cr)
FCS 435  Feeding Young Children in Group Settings (1 cr)
FCS 462  Eating Disorders (2 cr)
FCS 475  Food Preservation (1 cr)

Courses to total 132 credits for this degree

B. Nutrition Option

Fish and Wildlife Sciences

1. Change the following courses [Effective: Summer 2014]

WLF 561 Landscape Genetics (2 cr)
Landscape genetics is an interdisciplinary field of study that evaluates how landscape and environmental features influence gene flow, population structure and local adaptation by integrating landscape ecology, population genetics and spatial statistics. This course covers applications of landscape genetics that can improve our understanding of ecology, evolution, and management of wild populations. Recommended Preparation: Population genetics or conservation genetics, and multivariate or spatial statistics. Cooperative: open to WSU degree-seeking students. (Spring, alt/even yrs)

WLF 562 Landscape Genetics Lab (1-2 cr)
This optional lab course is a complement to WLF561 Landscape genetics and should be taken concurrently. Students will learn to analyze and interpret landscape genetic datasets using a variety of methods. If taken for two credits, students will do a project analyzing landscape genetic
data. Recommended Preparation: Population genetics or conservation genetics, and multivariate or spatial statistics. Cooperative: open to WSU degree-seeking students. Coreq: WLF 561

Food Science

1. Drop the following courses [Effective: Summer 2014]

   FS 154 Introductory Microbiology (3 cr)
   See MMBB 154.

   FS 250 General Microbiology (3 cr)
   See MMBB 250.

   FS 255 General Microbiology Lab (2 cr)
   See Biol 255.

   FS J442/J542 Advanced Biochemistry II (3 cr)
   See MMBB J442/J542.

2. Add the following course [Effective: Summer 2014]

   FS 532 Advanced Food Microbiology (3 cr)

3. Change the following courses [Effective: Summer 2014]

   FS 416 Food Microbiology (3 cr)
   Same as MMBB 416. Purpose for enumeration, detection, and identification of microorganisms in food products; physical, chemical, and environmental factors influencing growth and survival of foodborne microorganisms; pathogenic and spoilage microorganisms in food and their control. Cooperative: open to WSU degree-seeking students.
   Prereq: MMBB 250 and MMBB 255

   FS 417 Food Microbiology Laboratory (2 cr)
   Same as MMBB 417. Methods for enumeration, detection, and identification of spoilage and pathogenic microorganisms in foods. Two 3-hr labs a wk. Cooperative: open to WSU degree-seeking students.
   Prereq or Coreq: FS 416 or MMBB 416

   FS 520 Instrumental Analysis (2 cr)
   Theory and techniques involved in the use of various instruments in modern biological laboratories; topics include chromatography, spectrometry, sterilization, sample preparation, radioisotope techniques, electrophoresis, centrifugation, and fermentation. (Spring only) See MMBB 520. Cooperative: open to WSU degree-seeking students.
   Prereq: Permission

Forest, Rangeland and Fire Sciences

1. Add the following courses [Effective: Summer 2014]

   For 255 Nursery Irrigation and Fertilization (1 cr)
   An introduction to nursery irrigation and fertilization practices commonly found in forest tree seedling and native plant nurseries. This course aims to provide some of the important theory behind the practices used every day in successful crop production. The course will be taught by faculty and staff at the UI Pitkin Forest Nursery and managed as part of the annual Position Description process. The course is developed and is presently offered online.
   Recommended Short Course Title: Nursery Irrigation/Fertilization

   For 310 Indigenous Culture and Ecology (3 cr, max 9)
   Students will explore how both endemic plant and animal species and native culture have been impacted by non-native species. A roughly 10 day field trip to remote communities requires active and effective participation, hands-on projects are conducted in those communities based on preparatory materials, and there is a major presentation for Idaho stakeholders upon completion of the field trip.

   REM 152 Rangeland Ecosystem Exploration (1 cr)
   Students will explore the climates, plants, animals, and human communities of rangeland throughout North America and the globe. The grasslands, shrublands, woodlands, and deserts that are collectively called rangelands include extensive challenges and opportunities for management and conservation. Students will individually explore these ecosystems through photos, ecosystem descriptions, videos, and
internet-based tools. In discussions and presentations, students will collectively share their findings about these incredible rangeland ecosystems. (Fall only)

Recommended Short Course Title: Rangeland Ecosystem Expirtin

REM 280  Introduction to Wildland Restoration (2 cr)
History and overview of the ecological, social, and economic aspects of wildland restoration using case studies. Students will explore approaches and philosophies towards restoring and rehabilitating wildlands that have been damaged through natural forces and human activities such as wildfire, overgrazing, cultivation, and weed invasion.

Recommended Short Course Title: Intro to Wildland Restoration

REM J480/J580  Ecological Restoration (3 cr)
Planning and implementing restoration projects in conjunction with land agencies and stakeholders. Includes service-learning projects. Field trip(s) required. Additional literature review, reports, discussion and/or a class project are required for students pursuing this as a 500-level course.
Prereq: REM 440 or Permission

REM J495/J595  Teaching Practicum (1-3 cr, max arr)
Provides students with peer teaching experience and assisting an instructor. May include classroom activities, grading assignments, developing materials, and/or participating in field trips. Students who take this course as the graduate level, as REM 595, will be asked to do additional work related to developing a teaching philosophy, developing assessment, or experimenting with specific pedagogical approaches with the faculty supervisor.
Prereq: Permission

2. Change the following courses [Effective: Summer 2014]

For 274  Forest Measurement and Inventory (3 cr)
Practical techniques for the design and execution of vegetation measurements for the inventory of forests, shrublands, and fire-fuels. Three one-hour lectures and one three-hour lab per week. (Fall only)
Prereq: Math 143; or SAT math score of 610 or above, or ACT math score of 27 or above.
Prereq or Coreq: Math 144
Coreq: Stat 251

For 426  Global Fire Ecology and Management (3 cr)
Credit may only be earned in For 326 or For 426, but not both. This course is only available to distance education students. Integrated fire-related ecological effects of fire on vegetation, soils, and air quality; natural and changing role of fire in forests, woodlands, shrublands and rangelands; influence of global change including climate and invasive species; fire as a management tool; application to current issues. One-day field trip. (Fall only)
Prereq: For 221 or REM 221; and Instructor Permission

For 427  Prescribed Burning Lab (3 cr)
Planning, conducting and evaluating prescribed burns designed to accomplish natural resource management objectives. Sampling, models and analysis used in writing required fire use plan. 5 days of field trips; some on Saturdays. (Fall only)
Prereq: For 426, REM 244, and Senior standing; and Permission
Prereq or Coreq: For 426, 426

For 430  Forest Operations (3 cr)
Overview of the primary equipment and harvesting systems used in modern forest operations, including field design, layout, and administration of timber sales, logging production and cost estimation, laws, and certification. A brief introduction to quantitative forest planning methods is also provided. There are 2-3 early morning trips and one Saturday field lab. (Fall only)
Prereq: Math 144; and Phys 100/100L or Phys 111/111L
Prereq or Coreq: Math 144

For 431  Low Volume Forest Roads (2 cr)
Design and field layout of access roads for forest management, through a combination of field labs and use of modern, GIS-based forest road engineering software. Field study includes design of at least one current industry or agency forest road design project. There are 2-3 early morning trips and one Saturday field lab. (Fall, Alt/yr)
Prereq or Coreq: Math 144
Coreq: For 430 or Permission

For 436  Cable Systems (2 cr)
Overview of the major cable logging systems. Trigonometry and physical mechanics of cable systems, including analysis of forces, tensions, and payload capacity. Field layout and analysis of cable corridors using small yarders on the UI Experimental Forest using integrated field planning and GIS-based cable system design software. There are 2-3 early morning trips and one Saturday field lab. (Fall, Alt/yr)
Prereq or Coreq: Math 144
Coreq: For 430 or Permission
For 450 Fire Behavior (2 cr)
Understand the physical and chemical processes controlling combustion and fire behavior. Gain in-depth knowledge of commonly-used, point-scale fire behavior models and tools, including key assumptions and limitations. Critically review and discuss scientific literature, current topics, and case studies. Lab sessions include designing and undertaking small-scale fire behavior experiments, developing simple quantitative models, and a field trip.

Prereq: For 426326; and Phys 100/100L or Phys 111/111L
Coreq: For 433

For 451 Fuels Inventory and Management (3 cr)
Tools, quantitative analysis, and approaches for inventory and management of fuels for wildland fires over large, diverse areas in forests, woodlands, shrubland, and grasslands. Critically review and synthesize relevant scientific literature. Field trips.

Prereq: For 375, REM 244 and For 274 or REM 411
Coreq: For 450

For J454/J554 Air Quality and Smoke Management (3 cr)
Assessment of the controls and drivers of emission processes and impacts on air quality from agricultural, prescribed, and wildfires. Overview of the combustion and emission process, how these emissions impact the 'quality of air', and what models exist to monitor the emission. Other topics to include: recent EPA and other guidelines for smoke management planning, attainment issues, collaborative process for implementing smoke management plans. Additional work required for graduate credit.

Prereq: For 426326

REM 460 Rangeland Ecology Current Topics Integrating GIS and Field Studies in Rangelands (1-2 cr)
Discussion of topics related to changing knowledge and technology relevant to ecology of grasslands, shrublands and woodlands. Min. six integrated GIS labs; discussion classes; one five-day field trip. Required for REM majors. (Fall only)
Coreq: REM 459

Recommended Short Course Title: Rangeland GIS & Field Studies

RMat 438 Introduction to Lignocellulosic Chemistry (1 cr)
The chemistry of lignocellulosic fiber (natural fiber and wood) formation and structure. Two lectures a week for the first half of the semester. This course meets concurrently with RMat 538. (Spring only)
Prereq: Chem 101 or Chem 111; and Chem 275 or Chem 277

RMat J436/J536 Biocomposites (3 cr)
Raw material, processes, properties, and their applications for a number of natural fiber and wood composites made of veneers, particles and fibers. Additional projects and assignments reqd for grad cr. Two half day field trips. Two lectures and one 3-hr lab a week. Recommended Preparation: RMat 321—REM 536 only: Cooperative: open to WSU degree-seeking students. (Fall only)
Prereq: Chem 101 and REM 321; and Chem 275 or Chem 277

RMat 538 Lignocellulosic Biomass Chemistry (3 cr)
The chemistry of lignocellulosic fiber (natural fiber and wood) formation, agricultural/natural fiber and wood structure and reactions of lignocellulosic compounds. Two lec and one 3-hr lab a wk. Recommended Preparation: Chem 101, Chem 275, and RMat 321—Cooperative: open to WSU degree-seeking students. (Spring only)
Prereq: Chem 101 and RMat 321; and Chem 275 or Chem 277

3. Change the curricular requirements of Forest Resources (B.S.For.Res.) [Effective: Summer 2014]
Students pursuing a B.S. degree in forest resources must receive a grade of C or better in the following indicator courses to register for upper-division courses in forest resources and to graduate with a B.S.For.Res.: Math 143, Stat 251, For 221, and For 274. Students must also have a minimum cumulative grade-point average of 2.00 in forest resource (For) courses to qualify for the B.S. degree in forest resources.

Required course work includes the university requirements (see regulation J-3) and:

Biol 115 Cells and the Evolution of Life (4 cr)
CSS 383 Natural Resource and Ecosystem Service Economics (3 cr)
Econ 202 Principles of Microeconomics (3 cr)
For 102 Introduction to Forest Management (1 cr)
For 235 or CSS 235 Society and Natural Resources (3 cr)
Ent 469 Introduction to Forest Insects (2 cr)
For 274 Forest Measurement and Inventory (3 cr)
For 320 Dendrology (4 cr)
For 324 Forest Regeneration (3 cr)
For 330 Forest Soil and Canopy Processes (4 cr)
For 373 Forestry Sampling Methods (2 cr)
For 375 Introduction to Spatial Analysis for Natural Resource Management (3 cr)
For 424 Forest Dynamics and Management (4 cr)
For 430 Forest Operations (3 cr)
For 462 Watershed Science and Management (3 cr)
For 430 Forest Operations (3 cr)
For 468 Forest and Plant Pathology (2 cr)
For 484 Forest Policy and Administration (2 cr)
Math 143 Pre-calculus Algebra and Analytic Geometry (3 cr)*
Math 144 Analytic Trigonometry (1 cr)
NR 101 Exploring Natural Resources (1 cr)
Soil 205, 206 The Soil Ecosystem and Lab (4 cr)
Stat 251 Statistical Methods (3 cr)

One of the following (4 cr):
Biol 116 Organisms and Environments (4 cr)
PlSc 205 General Botany (4 cr)

One of the following (4 cr):
Chem 101 Introduction to Chem I (4 cr)
Chem 111 Principles of Chem I (4 cr)

One of the following (3 cr):
Engl 313 Business Writing (3 cr)
Engl 317 Technical Writing (3 cr)

One of the following (3 cr):
For 221 Ecology (3 cr)
REM 221 Ecology (3 cr)

One of the following (4 cr):
Phys 100, Phys 100L Fundamentals of Physics and Lab (4 cr)
Phys 111, Phys 111L General Physics I and Lab (4 cr)

Restricted Electives (11 cr):
AgEc 477 Law, Ethics, and the Environment (3 cr)
Biol 213 Principles of Biological Structure and Function (4 cr)
Biol 421 Advanced Evolutionary Biology (3 cr)
CSS 486 Public Involvement in Natural Resource Management (3 cr)
CSS 490 Wilderness and Protected Area Management (3 cr)
Fish 314 Fish Ecology (3 cr)
Fish 415 Limnology (4 cr)
Fish 430 Riparian Ecology and Management (3 cr)
For 426 Global Fire Ecology and Management (3 cr)
For 427 Prescribed Burning Lab (3 cr)
For 430 Forest Operations (3 cr)
For 431 Low Volume Forest Roads (2 cr)
For 436 Cable Systems (2 cr)
For 472 or Remote Sensing of the Environment (4 cr)
REM 472
For 497 Senior Thesis (2-4 cr)
Geog 301 Meteorology (3 cr)
Geog 385 GIS Primer (3 cr)
Geol 111, Geol 111L Physical Geology for Science Majors (4 cr)
Math 160 Survey of Calculus (4 cr)**
Math 170 Analytic Geometry and Calculus I (4 cr)**
PolS 364 or CSS 364 Politics of the Environment (3 cr)
REM 407 GIS Applications in Fire Ecology and Management (2 cr)
REM 410 Principles of Vegetation Measurement and Assessment (2 cr)
REM 411 Ecological Monitoring and Analysis (2 cr)
REM 429 Landscape Ecology (3 cr)
REM 440 Wildland Restoration Ecology (2 cr)
REM 459 Rangeland Ecology (2 cr)
REM 460 Integrating GIS and Field Studies in Rangelands (2 cr)
REM 460 Rangeland Ecology: Current Topics and Field Studies (1 cr)
RMat 321 Renewable Materials Anatomy and Properties (3 cr)
RMat 444 Primary Products Manufacturing (3 cr)
Soil 446 Soil Fertility (1-3 cr)
Soil 454 Soil Development and Classification (3 cr)
Stat 431 Statistical Analysis (3 cr)
WLF 314 Wildlife Ecology I (3 cr)
WLF 316 Wildlife Ecology II (3 cr)
WLF 440 Conservation Biology (3 cr)
Courses to total 120 credits for this degree

*Note: A SAT math score of 610 or above, or ACT math score of 27 or above can be used to satisfy the Math 143 and Math 144 requirements.

**Note: Either Math 160 or Math 170 may be used as a restricted elective, but not both.


Required course work includes the university requirements (see regulation J-3) and:

**First and Second Years**
- Biol 115  Cells and the Evolution of Life (4 cr)
- Chem 275  Carbon Compounds (3 cr)
- Comm 101  Fundamentals of Public Speaking (2 cr)
- Econ 202  Principles of Microeconomics (3 cr)
- For 235 or Society and Natural Resources (3 cr)
- CSS 235
- NR 101  Exploring Natural Resources (1 cr)
- REM 151  Rangeland Principles (2 cr)
- REM 152  Rangeland Ecosystem Exploration (1 cr)
- Soil 205  The Soil Ecosystem (3 cr)
- Soil 206  The Soil Ecosystem Lab (1 cr)
- Stat 251  Pr **inciples of Statistics (3 cr)**

One of the following (4 cr):
- Biol 213  Principles of Biological Structure and Function (4 cr)
- PiSc 205  General Botany (4 cr)

One of the following (4 cr):
- Chem 101  Introduction to Chem I (4 cr)
- Chem 111  Principles of Chem I (4 cr)

One of the following (3-4 cr):
- Math 143  Pre-calculus Algebra and Analytic Geometry (3 cr)
- Math 160  Survey of Calculus (3-4 cr)

One of the following (3 cr):
- For 221  Ecology (3 cr)
- REM 221  Ecology (3 cr)

**Third and Fourth Years**
- CSS 383  Natural Resource and Ecosystem Service Economics (3 cr)
- For 375  Introduction to Spatial Analysis for Natural Resource Management (2-3 cr)
- Fish 430  Riparian Ecology and Management (3 cr)
- REM 252  Wildland Plant Identification Field Studies (3 cr)
- REM 341  Systematic Botany (3 cr)
- REM 410  Principles of Vegetation Measurement and Assessment (2 cr)
- REM 411  Ecological Monitoring and Analysis (4 cr)
- REM 440  Wildland Restoration Ecology (3 cr)
- REM 456  Integrated Rangeland Management (3 cr)
- REM 459  Rangeland Ecology (2 cr)
- REM 460  Integrating GIS and Field Studies in Rangelands (2 cr)
- Soil 454  Pedology (3 cr)

One of the following (3 cr):
- AVS 474  Beef Cattle Science (3 cr)
- AVS 476  Sheep Science (3 cr)

One of the following (3 cr):
- Engl 313  Business Writing (3 cr)
- Engl 317  Technical Writing (3 cr)

One of the following (3 cr):
- Fish 430  Riparian Ecology and Management (3 cr)
- For 462  Watershed Science and Management (3 cr)

One of the following (2-3 cr):
- REM 429  Landscape Ecology (3 cr)
- REM 452  Western Wildland Landscapes (2 cr)

Students must also complete 12 credits of advisor approved electives in emphasis areas that include: Restoration Ecology, Field Botany, Spatial Ecology, Watershed Science, Wildland Fire Management, Invasive Plant Management, Wildlife Habitat Management, Tribal Land Management, Rangeland Economics, Natural Resource Communication, and Environmental Consulting.
Courses to total 122 credits for this degree

5. Change the curricular requirements of **Renewable Materials (B.S.Renew.Mat.)** [Effective: Summer 2014]

Required course work includes the university requirements (see regulation J-3) and one of the following options:

- **Acct 201** Introduction to Financial Accounting (3 cr)
- **Acct 202** Introduction to Managerial Accounting (3 cr)
- **Biol 102, Biol 102L** Biology and Society and Lab (4 cr)
- **BLaw 265** Legal Environment of Business (3 cr)
- **Comm 101** Fundamentals of Public Speaking (2 cr)
- **CSS 383** Natural Resource and Ecosystem Service Economics (3 cr)
- **Econ 202** Principles of Microeconomics (3 cr)
- **For 235 or CSS 235** Society and Natural Resources (3 cr)
- **CSS 235**
- **For 375** Introduction to Spatial Analysis for Natural Resource Management (3 cr)
- **NR 101** Exploring Natural Resources (1 cr)
- **Phys 111** General Physics I (3 cr)
- **Stat 251** Statistical Methods (3 cr)
- **RMat 100** Introduction to Renewable Materials (2 cr)
- **RMat 321** Properties of Renewable Materials (3 cr)
- **RMat 436** Biocomposites (3 cr)
- **RMat 438** Introduction to Lignocellulosic Chemistry (1 cr)
- **RMat 444** Primary Products Manufacturing (3 cr)
- **RMat 450** Biomaterials Deterioration and Protection (2 cr)
- **RMat 491** Biomaterial Product and Process Development Lab (2 cr)
- **RMat 495** Product Development and Brand Management (3 cr)
- **RMat 498** Renewable Natural Resources Internship (1 cr)
- **Stat 251** Statistical Methods (3 cr)
- One of the following (4 cr):
  - **Chem 101** Introduction to Chemistry I (4 cr)
  - **Chem 111** Principles of Chemistry I (4 cr)
- One of the following (3 cr):
  - **Chem 275** Carbon Compounds (3 cr)
  - **Chem 277** Organic Chemistry I (3 cr)
- One of the following (3-4 cr):
  - **Engl 313** Business Writing (3 cr)
  - **Engl 317** Technical Writing (3 cr)
- One of the following (3 cr):
  - **For 221** Ecology (3 cr)
  - **REM 221** Ecology (3 cr)
- One of the following (3-4 cr):
  - **Math 143** Pre-calculus Algebra and Analytic Geometry (3 cr)
  - **Math 160** Survey of Calculus (3-4 cr)
  - **Math 170** Analytic Geometry and Calculus I (4 cr)
- **Restricted Electives (21-24 cr):**
  - **Acct 482** Enterprise Accounting (3 cr)
  - **Arch 154** Introduction to Architectural Graphics (3 cr)
  - **Arch 266** Materials and Methods (3 cr)
  - **Arch 462** Building Technology II - Concrete (2 cr)
  - **Arch 463** Environmental Control Systems I (3 cr)
  - **Arch 464** Environmental Control Systems II (3 cr)
  - **BAE 485** Fundamentals of Bioenergy and Bioproducts (3 cr)
  - **BAE 492** Biofuels (3 cr)
  - **BAE 494** Thermochemical Technologies for Biomass Conversion (3 cr)
  - **Bus 101** Introduction to Business Enterprises (3 cr)
  - **Bus 190** Integrated Business and Value Creation (3 cr)
  - **Bus 301** Financial Resources Management (3 cr)
  - **Bus 311** Introduction to Management (3 cr)
  - **Bus 321** Marketing (3 cr)
  - **Bus 340** Team Building and Group Dynamics (2 cr)
  - **Bus 341** Business Systems (4 cr)
  - **Bus 342** Product and Process Planning (3 cr)
  - **Bus 343** Planning and Decision Making in Organizations (2 cr)
  - **Bus 344** Managing the Firm's Resources (3 cr)
Bus 345  **Business Operating Decisions (3 cr)**  
Bus 350  **Managing Information Systems Management Information Systems (3 cr)**  
Bus 351  Introduction to Electronic Commerce (3 cr)  
Bus 370  **Process Management Introduction to Operations Management (3 cr)**  
Bus 378  **Project Management (3 cr)**  
Bus 414  Entrepreneurship (3 cr)  
Bus 415  New Venture Creation (3 cr)  
Bus 424  Pricing Strategy and Tactics (3 cr)  
Bus 456  Quality Management (3 cr)  
Stat 456  **Quality Management (3 cr)**  
Chem 275  **Carbon Compounds (3 cr)**  
Chem 277  **Organic Chemistry I (3 cr)**  
Chem 278  **Organic Chemistry II Lab (1 cr)**  
Econ 272  Foundations of Economic Analysis (4 cr)  
For 430  Forest Operations (3 cr)  
For 431  Low Volume Forest Roads (2 cr)  
For 436  Cable Systems (2 cr)  
Arc 251  Introduction to Principles of Site Design (3 cr)  
MSE 434  Fundamentals of Polymeric Materials (3 cr)  
RMat 365  Wood Building Technology (3 cr)  
RMat 538  Lignocellulosic Biomass Chemistry (3 cr)  
Stat 301  Probability and Statistics (3 cr)  

**Courses to total 120 credits for this degree**

6. Change the curricular requirements of **Fire Ecology and Management (Minor)** [Effective: Summer 2014]

**Fire Core (4-5 cr):**
- For 326  Fire Ecology and Management (3 cr)  
- For 426  Global Fire Ecology and Management (3 cr)  
- REM 244  Wildland Fire Management (2 cr)

One of the following (2-3 cr):
- For 427  Prescribed Burning Laboratory (3 cr)  
- For 433  Fire and Fuel Modeling (2 cr)  
- For 450  Fire Behavior (2 cr)  

**Ecology (2-3 cr):**
- For 330  Forest Soil and Canopy Processes (4 cr)  
- REM 429  Landscape Ecology (3 cr)  
- REM 440  Wildland Restoration Ecology (3 cr)  
- REM 459  Rangeland Ecology (2 cr)  
- REM 460  **Integrating GIS and Field Studies in Rangelands (1-2 cr)**  
  **Rangeland Ecology Current Topics and Field Studies (1 cr)**

- WLF 314  Wildlife Ecology I (3 cr)

**Applied Tools and Technology (3 cr):**
- For 435  Remote Sensing of Fire (3 cr)  
- Geog 301  Meteorology (3 cr)  
- Geog 385  GIS Primer (3 cr)  
- Geog 401  Climatology (3 cr)  
- Geog 475  Intermediate GIS (3 cr)

**Management, Planning, & Policy (6 cr):**
- CSS 490  Wilderness and Protected Area Management (3 cr)  
- For 324  Forest Regeneration (3 cr)  
- For 424  Forest Dynamics and Management (4 cr)  
- For 430  Forest Operations (3 cr)  
- For 462  Watershed Science and Management (3 cr)  
- For 484  Forest Policy and Administration (2 cr)  
- REM 456  Integrated Rangeland Management (3 cr)

**Courses to total 20 credits for this minor, with at least 12 credits in courses numbered 400 or above.**

7. Change the curricular requirements of **Rangeland Ecology and Management (Minor)** [Effective: Summer 2014]

**Note:** At least 12 credits in courses numbered 300 or higher are required to satisfy the requirements of this minor.

- REM 151  Rangeland Principles (2 cr)  
- REM 252  Wildland Plant Identification Field Studies (3 cr)  
- REM 459  Rangeland Ecology (2 cr)  
- REM 460  **Integrating GIS and Field Studies in Rangelands (1-2 cr)**  
  **Rangeland Ecology Current Topics and Field Studies (1 cr)**
One of the following (3 cr):
For 221 Ecology (3 cr)
REM 221 Ecology (3 cr)

Two of the following courses (6 cr):
REM 410 Principles of Vegetation Measurement and Assessment (2 cr)
REM 411 Ecological Monitoring and Analysis (2 cr)
REM 429 Landscape Ecology (3 cr)
REM 440 Wildland Restoration Ecology (3 cr)
REM 452 Western Wildland Landscapes (2 cr)
REM 456 Integrated Rangeland Management (3 cr)

One of the following courses (or a course not chosen above) (2-3 cr):
AVS 474 Beef Cattle Science (3 cr)
AVS 476 Sheep Science (3 cr)
Fish 430 Riparian Ecology and Management (3 cr)
For 326 Fire Ecology and Management (3 cr)
For 426 Global Fire Ecology and Management (3 cr)
For 462 Watershed Management (3 cr)
PlSc 338 Weed Control (3 cr)
PlSc 410 Invasive Plant Biology (3 cr)
REM 244 Wildland Fire Management (2 cr)
Soil 454 Pedology (3 cr) Soil Development and Classification (3 cr)
WLF 314 Wildlife Ecology I (3 cr)

Courses to total 20 credits for this minor


Note: A grade of 'B' or higher is required in all coursework for this academic certificate.

Fire Ecology Course Group (3 cr):
For 326 Fire Ecology and Management (3 cr)
For 426 Global Fire Ecology and Management (3 cr)
For 526 Fire Ecology (3 cr)

Ecology Course Group (2-3 cr):
For 330 Forest Soil and Canopy Processes (4 cr)
For 531 Invasion Biology (3 cr)
REM 429 Landscape Ecology (3 cr)
REM 440 Wildland Restoration Ecology (3 cr)
REM 459 Rangeland Ecology (2 cr)
REM 460 Integrating GIS and Field Studies in Rangelands (1-2 cr) Rangeland Ecology Current Topics and Field Studies (1-4 cr)

Fuels and Fuels Management Course Group (2-3 cr):
For 427 Prescribed Burning Lab (3 cr)
For 433 Fire and Fuel Modeling (2 cr)
For 450 Fire Behavior (2 cr)
For 451 Fuels Inventory and Management (3 cr)

Applied Tools and Analysis Course Group (2-3 cr):
For 375 Introduction to Spatial Analysis for Natural Resource Management (3 cr)
For 435 or For 535 Remote Sensing of Fire (3 cr)
For 472 or REM 472 Advanced Remote Sensing Measurement Methods (3 cr)
For 570 Advanced Remote Sensing Measurement Methods (3 cr)
Geog 475 Intermediate GIS (3 cr)
REM 407 GIS Application in Fire Ecology and Management (2 cr)

Management, Planning and Policy Course Group (2-3 cr):
CSS 490 Wilderness and Protected Area Management (3 cr)
CSS 573 Planning & Decision Making for Watershed Management (3 cr)
For 424 Forest Dynamics and Management (4 cr)
For 430 Forest Operations (3 cr)
For 454 Air Quality and Smoke Management (3 cr)
For 462 Watershed Science and Management (3 cr)
For 484 Forest Policy and Administration (2 cr)
For 529 Forest Ecosystem Analysis (3 cr)
For 585  Natural Resources Policy Analysis (2 cr)
REM 456  Integrated Rangeland Management (3 cr)
WLF 492  Wildlife Management (4 cr)
Electives to total 15 for the certificate

**Geography**

1. Add the following course [Effective: Summer 2014]

   **Geog 402 GIS Skills Development (1 cr, max 6)**
   Hands-on skills development in GIS and related technologies. Primary topics vary by semester, but may include topics such as GPS/GIS integration, server GIS and cartographic design. May be taken for credit multiple times.

**History**

1. Add the following course [Effective: Summer 2014]

   **Hist 395 (s) Themes and Issues in History (3 cr, max 6)**
   Examines changing themes and issues in the historical discipline; emphasis on approaches and problems in historical research; key focus on research, reading, and writing in the historical field; content will vary according to instructor.
   *Prereq: Hist 290 or Instructor Permission*

**Journalism and Mass Media**

1. Add the following courses [Effective: Summer 2014]

   **JAMM 472 Photojournalism (1 cr)**
   In a workshop environment, students learn techniques for creating documentary still images and gain experience shooting and editing digitally. Criticism, revision, troubleshooting and journalistic ethics are emphasized.
   *Prereq: Instructor Permission*

   **JAMM 473 Lighting for Digital Media Production (1 cr)**
   In a workshop environment, students learn various lighting styles and techniques through hands-on experience, practical application and analysis. Students will create digital media images with natural and artificial light sources. Criticism, revision, problem solving and troubleshooting are emphasized.
   *Prereq: JAMM 275 and Instructor Permission*

   Recommended Short Course Title: Lighting Dig Media Production (1 cr)

   **JAMM 474 Video Editing (1 cr)**
   Exploration of post-production processes, roles, aesthetics, and techniques. Students learn to effectively manipulate video and audio into creative and cohesive works.
   *Prereq: JAMM 275 and Instructor Permission*

2. Change the following course [Effective: Summer 2014]

   **JAMM 458 Public Relations Research and Case Studies and Issues Management (3 cr)**
   Basic research techniques used by the public relations practitioners, including philosophy and ethics of research, content analysis, focus groups and surveys. Analysis of public relations case studies and reasons for their success or failure. Examination of actual and created public relations case studies; reasons for their success or failure examined and evaluated.
   *Prereq: JAMM 252*

   Recommended Short Course Title: PR Research & Case Studies

3. Change the curricular requirements of Broadcasting and Digital Media (Minor) [Effective: Summer 2014]

   **JAMM 100 Media and Society (3 cr)**
   **JAMM 121 Media Writing (3 cr)**
   **JAMM 275 Introduction to Broadcasting and Digital Media Production (4 cr)**

   Three radio-televisionbroadcasting or digital media courses to meet specific career goals (6-9 cr)

   Courses to total 18-19 credits for this minor

**Letters, Arts, and Social Sciences**
1. Change the curricular requirements of **College Degree Requirements (B.A.) [Effective: Summer 2014]**

**Requirements for the B.A. Degree:**

**Humanities.** 6 credits (two courses) in addition to the minimum university-wide general education requirement in humanities/social sciences.

**Social Sciences.** 3 credits (one course) in addition to the minimum university-wide general education requirement in humanities/social sciences.

**Foreign/Second Language.** 0-16 credits (zero-four courses), i.e., competence in one foreign/second language equivalent to that gained by the completion of four semesters of college courses (through the intermediate level). This requirement may be satisfied by the completion of either of the following options: (1) 16 credits or four high-school units in one foreign/second language, or (2) 12 credits in one foreign/second language, and one three-credit course in literature translated from the same language. The 12 credits may be satisfied by three high-school units in one foreign/second language. A student may use coursework in American Sign Language offered at other institutions to fulfill this requirement. The coursework must be equivalent to that required at UI to fulfill this requirement.

**Mechanical Engineering**

1. Add the following courses [Effective: Summer 2014]

   **ME J423/J523 Human Factors and Ergonomics in Product Design (3 cr)**
   Introduction to and application of Human Factors & Ergonomics Engineering principles in product design. Engineers design systems (e.g., work environments or products) where the human is an integral component. Human Factors & Ergonomics Engineering puts emphasis on how products should be designed so that they are safe, comfortable, and efficient for the human user. This course will focus on how body characteristics, physical and cognitive abilities, and the environment affect how products should be designed to accommodate the intended user(s). Additional projects/assignments are required for graduate credit.
   **Prereq:** Senior standing in the College of Engineering; or Permission

   Recommended Short Course Title: Human Factors & Ergonomics

   **ME 490 Solid Modeling, Simulation and Manufacturing Capstone (3 cr)**
   Use of solid modeling software focused on preparation for certification examinations, introduction to multi-physics numerical simulation, and computer aided manufacturing (CAM). A major final project is required. (Fall only)
   **Prereq:** Permission

   Recommended Short Course Title: Solid Model, Sim & Manuf Caps

2. Change the following courses [Effective: Summer 2014]

   **ME J421/J521 (s) Advanced Computer Aided Design (3 cr)**
   Use of solid modeling software for advanced component design, creation of complex multi-component assemblies, animation studies, and rendering. Course concludes with one month-long final project.
   **Prereq:** ME 301 and ME 341
   **Coreq:** ME 341

   **ME 521 Advanced Computer Aided Design Design Synthesis with Solid Modeling (3 cr)**
   Use of solid modeling in the design synthesis process that focuses on optimized designs, reverse engineering to understand design intent, and aesthetics. Course concludes with one month-long final project. See ME J421/J521.
   **Prereq:** Graduate Standing or ME 421

   Recommended Short Course Title: Design Synth w/ Solid Model

**Modern Languages and Cultures**

1. Drop the following courses [Effective: Summer 2014]

   **Arbc 103 (s) Arabic Language Lab (1 cr, max 2)**
   Practice in listening comprehension and conversational skills. Graded P/F.
   **Coreq:** Arbc 101 or Arbc 102

   Recommended Equivalent Course: Arbc 101L and Arbc 102L

   **Fren 103 (s) French Language Lab (1 cr, max 4)**
   Practice in listening comprehension, pronunciation, and grammatical structures. Graded P/F.
   **Coreq:** Elementary or Intermediate French (Fren 101-Fren 102, Fren 201-Fren 202)

   Recommended Equivalent Course: Fren 101L, Fren 102L, and Fren 201L
2. Add the following courses [Effective: Summer 2014]

- **Chin 110** Elementary Chinese I (4 cr)
  Writing system, pronunciation, vocabulary, and functional grammar. Four lec and one 1-hr lab a wk.
  **Coreq:** Chin 110L

- **Chin 110L** Elementary Chinese I Lab (1 cr)
  Writing system, pronunciation, vocabulary, and functional grammar. Four lec and one 1-hr lab a wk.
  **Coreq:** Chin 110

- **Chin 112** Elementary Chinese II (4 cr)
  Writing system, pronunciation, vocabulary, and functional grammar. Four lec and one 1-hr lab a wk.
  **Coreq:** Chin 112L

- **Chin 112L** Elementary Chinese II Lab (1 cr)
  Writing system, pronunciation, vocabulary, and functional grammar. Four lec and one 1-hr lab a wk.
  **Coreq:** Chin 112

- **Chin 210** Intermediate Chinese I (4 cr)
  Review and practice of basic language skills; increased emphasis on reading, writing, and free discussion. Four lec and one 1-hr lab a wk.
  **Coreq:** Chin 210L

- **Chin 210L** Intermediate Chinese I Lab (1 cr)
  Review and practice of basic language skills; increased emphasis on reading, writing, and free discussion. Four lec and one 1-hr lab a wk.
  **Coreq:** Chin 210

- **Chin 212** Intermediate Chinese II (4 cr)
  Review and practice of basic language skills; increased emphasis on reading, writing, and free discussion. Four lec and one 1-hr lab a wk.
  **Coreq:** Chin 212L

- **Chin 212L** Intermediate Chinese II Lab (1 cr)
  Review and practice of basic language skills; increased emphasis on reading, writing, and free discussion. Four lec and one 1-hr lab a wk.
  **Coreq:** Chin 212

- **Fren 101L** Elementary French I Lab (1 cr)
  Pronunciation, vocabulary, reading, spoken French, and functional grammar. Students with two or more years of high school French may not enroll in Fren 101, but may earn credit for Fren 101 by successfully completing a higher vertically-related course. Four lec and one 1-hr lab a wk.
  **Coreq:** Fren 101

- **Fren 102L** Elementary French II Lab (1 cr)
  Pronunciation, vocabulary, reading, spoken French, and functional grammar. Four lec and one 1-hr lab a wk.
  **Coreq:** Fren 102

- **Fren 201L** Intermediate French I Lab (1 cr)
  Reading, grammar review, speaking, and writing. Recommended Preparation: Fren 102. Four lec and one 1-hr lab a wk.
  **Coreq:** Fren 201

- **Germ 101L** Elementary German I Lab (1 cr)
  Pronunciation, vocabulary, reading, spoken German, and functional grammar. Four lec and one 1-hr lab a wk.
  **Coreq:** Germ 101

- **Germ 102L** Elementary German II Lab (1 cr)
  Pronunciation, vocabulary, reading, spoken German, and functional grammar. Four lec and one 1-hr lab a wk.
**Coreq: Germ 102**

**Germ 201L Intermediate German I Lab (1 cr)**
Review and practice of basic language skills; increased emphasis on reading and free discussion. Appropriate starting point for students with two or three yrs of high school German. Recommended Preparation: Germ 102 or Equivalent. Four lec and one 1-hr lab a wk.
**Coreq: Germ 201**

**Japn 101L Elementary Japanese I Lab (1 cr)**
Writing system, pronunciation, vocabulary, and functional grammar. Four lec and one 1-hr lab a wk.
**Coreq: Japn 101**

**Japn 102L Elementary Japanese II Lab (1 cr)**
Writing system, pronunciation, vocabulary, and functional grammar. Four lec and one 1-hr lab a wk.
**Coreq: Japn 102**

**Japn 201L Intermediate Japanese I Lab (1 cr)**
A beginning intermediate course; review and practice of basic language skills; increased emphasis on reading and free discussion. Four lec and one 1-hr lab a wk.
**Coreq: Japn 201**

**Span 101L Elementary Spanish I Lab (1 cr)**
Credit not given for Span 101 after 104 with the exception of vertical credit (see Regulation I-2-d). Pronunciation, vocabulary, reading, spoken Spanish, and functional grammar. Students who have completed one or more high school units in Spanish may not enroll in Span 101 but may earn credit for Span 101 by successfully completing a higher vertically related course. Four lec and one 1-hr lab a wk.
**Coreq: Span 101**

**Span 102L Elementary Spanish II Lab (1 cr)**
Credit not given for Span 102 after 104. Pronunciation, vocabulary, reading, spoken Spanish, and functional grammar. Four lec and one 1-hr lab a wk.
**Coreq: Span 102**

**Span 201L Intermediate Spanish I Lab**
Reading, grammar review, speaking, and writing. Recommended Preparation: Span 102. Four lec and one 1-hr lab a wk.
**Coreq: Span 201**

3. Change the following courses [Effective: Summer 2014]

**Fren 101 Elementary French I (4 cr)**
*May be used as general education credit in J-3-d.* Pronunciation, vocabulary, reading, spoken French, and functional grammar. Students with two or more years of high school French may not enroll in Fren 101, but may earn credit for Fren 101 by successfully completing a higher vertically-related course.
**Coreq: Fren 101L**

**Fren 102 Elementary French II (4 cr)**
*May be used as general education credit in J-3-d.* Pronunciation, vocabulary, reading, spoken French, and functional grammar.
**Coreq: Fren 102L**

**Fren 201 Intermediate French I (4 cr)**
*May be used as general education credit in J-3-d.* Reading, grammar review, speaking, and writing. Recommended Preparation: Fren 102.
**Coreq: Fren 201L**

**Germ 101 Elementary German I (4 cr)**
*May be used as general education credit in J-3-d.* Pronunciation, vocabulary, reading, spoken German, and functional grammar.
**Coreq: Germ 101L**

**Germ 102 Elementary German II (4 cr)**
*May be used as general education credit in J-3-d.* Pronunciation, vocabulary, reading, spoken German, and functional grammar.
**Coreq: Germ 102L**

**Germ 201 Intermediate German I (4 cr)**
*May be used as general education credit in J-3-d.* Review and practice of basic language skills; increased emphasis on reading and free discussion. Appropriate starting point for students with two or three yrs of high school German. Recommended Preparation: Germ 102 or Equivalent
**Coreq: Germ 201**

**Japn 101 Elementary Japanese I (4 cr)**
*May be used as general education credit in J-3-d.* Cooperative: open to WSU degree-seeking students.
**Coreq: Japn 101L**
**Japn 102 Elementary Japanese II (4 cr)**
May be used as general education credit in J-3-d. Cooperative: open to WSU degree-seeking students.
Coreq: Japn 102L

**Japn 201 Intermediate Japanese I (4 cr)**
May be used as general education credit in J-3-d. Cooperative: open to WSU degree-seeking students.
Coreq: Japn 201

**Span 101 Elementary Spanish I (4 cr)**
May be used as general education credit in J-3-d. Credit not given for Span 101 after 104 with the exception of vertical credit (see Regulation I-2-d). Pronunciation, vocabulary, reading, spoken Spanish, and functional grammar. Students who have completed one or more high school units in Spanish may not enroll in Span 101 but may earn credit for Span 101 by successfully completing a higher vertically related course.
Coreq: Span 101L

**Span 102 Elementary Spanish II (4 cr)**
May be used as general education credit in J-3-d. Credit not given for Span 102 after 104. Pronunciation, vocabulary, reading, spoken Spanish, and functional grammar.
Coreq: Span 102L

**Span 201 Intermediate Spanish I (4 cr)**
May be used as general education credit in J-3-d. Reading, grammar review, speaking, and writing. Recommended Preparation: Span 102.
Coreq: Span 201

4. Change the following vertical course sequence [Effective: Summer 2014]

Vertically-related courses in this subject field are: Arbc 101-102; Fren 101/101L-102/102L-201/201L-202; Germ 101/101L-102/102L-201/201L-202; Japn 101/101L-102/102L-201/201L-202; NezP 101-102-201-202; Span 101/101L-102/102L (or 104)-201/201L-202.
Any one of the following courses may be considered the terminal course for the related vertical sequence above: Fren 301 or 302; Germ 301 or 302; Span 301 or 302. A maximum of 16 credits may be earned for vertical credit in any language, in the Department of Modern Languages & Cultures.

5. Change the curricular requirements of Foreign Language (B.A.) [Effective: Summer 2014]

Required course work includes the university requirements (see regulation J-3), the general requirements for the B.A. degree, and:

In addition to the course work specified for this major, an international experience is required. This requirement will normally be fulfilled by completing a program of studies abroad which takes place after the student has finished language study through the intermediate (200) level. The specific program must receive prior approval from the student’s MLC advisor and must be one that lasts a minimum of 12-15 weeks. The classes taken must earn a minimum of 12 upper-division (300/400 level) academic credits and be in subjects pertinent to the student’s language option. Such credits may be obtained by two consecutive summer programs.

**Business Option**

One modern language (Chinese, French, German, Japanese, or Spanish), elementary and intermediate (16-19 cr)
Approved upper-division courses in the same language (including one business course or approved alternative in the target language) (21 cr)

| Acct 201 | Introduction to Financial Accounting (3 cr) |
| Econ 202 | Principles of Microeconomics (3 cr) |
| Econ 272 | Foundations of Econ Analysis (4 cr) |

One of the following groups of courses (15-17.18 cr):

**Group A:**

| Bus 301 | Financial Management (3 cr) |
| Bus 311 | Introduction to Management (3 cr) |
| Bus 321 | Marketing (3 cr) |

Six credits taken from Bus 101 or any other 300- or 400-level BUS prefix course

or

**One of the following (3 cr) Group B:**

| Bus 340 | Team Building and Group Dynamics (2 cr) |
| Bus 341 | Business Systems (4 cr) |
| Bus 342 | Product and Process Planning (3 cr) |
| Bus 343 | Planning and Decision-Making in Organizations (3 cr) |
| Bus 344 | Managing the Firm’s Resources (3 cr) |
| Bus 345 | Business Operating Decisions (3 cr) |
| Bus 390 | Leading Organizations and People (3 cr) |
| Bus 301 | Financial Resources Management (3 cr) |
| Bus 321 | Marketing (3 cr) |
| Bus 350 | Managing Information (3 cr) |
| Bus 370 | Process Management (3 cr) |
| Bus 390 | Integrated Topics in Business (3 cr, max 6) |
6. Change the curricular requirements of French (B.A.) [Effective: Summer 2014]

Required course work includes the university requirements (see regulation J-3), the general requirements for the B.A. degree, and:

In addition to an international experience and the course work listed below, is required of students. This requirement will normally be fulfilled by completing a program of studies abroad which takes place after the student has finished language study through the intermediate (200) level. The specific program must receive prior approval from the student’s FLL MLC advisor and must be one that lasts a minimum of 12-15 weeks. The classes taken must earn a minimum of 12 upper-division (300/400 level) academic credits, be in subjects pertinent to the student’s language option, and offered in that language. Such credits may be obtained by two consecutive summer programs.

It is strongly suggested (but not required) that students completing a major in a foreign language offered in the Department of Modern Languages & Cultures (see below) also complete some of their credits through an international experience.

8-9 FLEN credits, of which a minimum of 5-6 FLEN credits is outside of one’s language option (8-9 cr)

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fren 101 and Fren 102</td>
<td>Elementary French I and II or equivalent (8 cr)</td>
</tr>
<tr>
<td>Fren 102</td>
<td>Intermediate French I or II or equivalent (8 cr)</td>
</tr>
<tr>
<td>FREN 313</td>
<td>Modern French Literature in Translation (3 cr)</td>
</tr>
<tr>
<td>One of the following (3 cr)</td>
<td></td>
</tr>
<tr>
<td>Fren 407</td>
<td>French &amp; Francophone Literatures (3 cr)</td>
</tr>
<tr>
<td>Fren 408</td>
<td>French and Francophone Culture and Institutions (3 cr)</td>
</tr>
<tr>
<td>Fren 410</td>
<td>French and Francophone Arts (3 cr)</td>
</tr>
</tbody>
</table>

300-level French courses (20 cr)

Additional electives in upper division French or related fields approved by the chair (9 cr)

A second foreign language (elem & interm or equivalent), waived for students with a double major (FL plus another major) or a 30-credit pre-professional emphasis approved by the department chair (16-30 cr)

Courses to total 120 credits for this degree

7. Change the curricular requirements of Spanish (B.A.) [Effective: Summer 2014]

Required course work includes the university requirements (see regulation J-3 on page Error! Bookmark not defined.), the general requirements for the B.A. degree, and:

In addition to an international experience and the course work listed below, is required of students. This requirement will normally be fulfilled by completing a program of studies abroad which takes place after the student has finished language study through the intermediate (200) level. The specific program must receive prior approval from the student’s FLL MLC advisor and must be one that lasts a minimum of 12-15 weeks. The classes taken must earn a minimum of 12 upper-division (300/400 level) academic credits, be in subjects pertinent to the student’s language option, and offered in that language. Such credits may be obtained by two consecutive summer programs.

It is strongly suggested (but not required) that students completing a major in a foreign language offered in the Department of Modern Languages & Cultures (see below) also complete some of their credits through an international experience.

8-9 FLEN credits, of which a minimum of 5-6 FLEN credits is outside of one’s language option (8-9 cr)

<table>
<thead>
<tr>
<th>Course(s)</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Span 101 and Span 102</td>
<td>Elementary Spanish I-II (or equivalent) (8 cr)</td>
</tr>
<tr>
<td>Span 201 and Span 202</td>
<td>Intermediate Spanish I-II (or equivalent) (8 cr)</td>
</tr>
<tr>
<td>Span 101</td>
<td>Elementary Spanish I (4 cr)</td>
</tr>
<tr>
<td>Span 101L</td>
<td>Elementary Spanish I Lab (1 cr)</td>
</tr>
<tr>
<td>Span 102</td>
<td>Elementary Spanish II (4 cr)</td>
</tr>
<tr>
<td>Span 102L</td>
<td>Elementary Spanish II Lab (1 cr)</td>
</tr>
<tr>
<td>Span 201</td>
<td>Intermediate Spanish I (4 cr)</td>
</tr>
<tr>
<td>Span 201L</td>
<td>Intermediate Spanish I Lab (1 cr)</td>
</tr>
<tr>
<td>Span 202</td>
<td>Intermediate Spanish II (4 cr)</td>
</tr>
<tr>
<td>Span 202L</td>
<td>Intermediate Spanish II Lab (1 cr)</td>
</tr>
<tr>
<td>Span 301</td>
<td>Advanced Grammar (3 cr)</td>
</tr>
<tr>
<td>Span 302</td>
<td>Advanced Composition (3 cr)</td>
</tr>
<tr>
<td>Span 305</td>
<td>Culture &amp; Institutions of Spain (3 cr)</td>
</tr>
<tr>
<td>Span 306</td>
<td>Culture &amp; Institutions of Latin America (3 cr)</td>
</tr>
</tbody>
</table>

Upper-division courses in Spanish language (9 credits must be 400 level) (12 cr)
Additional electives in upper-division Spanish or related fields approved by the department chair (6 cr)
A second foreign language (elem & intern or equivalent), waived for students with a double major (FL plus another major) or a 30-credit pre-professional emphasis approved by the department chair (16-30 cr)

Courses to total 120 credits for this degree

8. Change the curricular requirements of General Minor Requirements (Minors) [Effective: Summer 2014]

Students must complete 20 credits for the Asian Studies, French, German, or Spanish minor, of which at least 9 must be upper-division.

Vertical credits may be acquired per Regulation I for the 101/101L, 102/102L, 201/201L, and 202 courses as part of the 20 credits, but vertical credits may not be acquired per Regulation I for 300/400-level courses. It is not possible to challenge any upper-division courses for the minor. Study abroad credits with the number 449, 498, or 499 will not automatically count toward the minor; they will be evaluated by a Modern Languages & Cultures advisor and may be used to complete the minor only upon approval.

Transfer credits may be applied toward a minor with the approval of the department offering the minor; however, the last nine credits applied to completion of the minor must be earned in 1) UI courses, 2) through UI study abroad, or 3) through student exchange programs, and may not include credits earned through correspondence study.

Students must complete at least 6 credits of the 9 credits of upper-division course work at the University of Idaho to complete the Asian Studies, French, German or Spanish minor.

A student must receive a C or better in any course to count for the Asian Studies, French, German, or Spanish minor.

9. Change the curricular requirements of French (Minor) [Effective: Summer 2014]

Fren 101 - Elementary French I (4 cr)
Fren 101L - Elementary French I Lab (1 cr)
Fren 102 - Elementary French II (4 cr)
Fren 102L - Elementary French II Lab (1 cr)
Fren 201 - Intermediate French I (4 cr)
Fren 201L - Intermediate French I Lab (1 cr)
Fren 202 - Intermediate French II (4 cr)

Nine credits of upper-division French courses (not including lab-based, FLEN, or lit/film in translation courses) (9 cr) Students must complete 6 of these 9 credits of upper-division coursework at the University of Idaho to complete the French minor.

Courses to total 20 credits for this minor

10. Change the curricular requirements of German (Minor) [Effective: Summer 2014]

Germ 101 - Elementary German I (4 cr)
Germ 101L - Elementary German I Lab (1 cr)
Germ 102 - Elementary German II (4 cr)
Germ 102L - Elementary German II Lab (1 cr)
Germ 201 - Intermediate German I (4 cr)
Germ 201L - Intermediate German I Lab (1 cr)
Germ 202 - Intermediate German II (4 cr)

Nine credits of upper-division German courses (not including lab-based, FLEN, or lit/film in translation courses) (9 cr) Students must complete 6 of these 9 credits of upper-division coursework at the University of Idaho to complete the German minor.

Courses to total 20 credits for this minor

11. Change the curricular requirements of Spanish (Minor) [Effective: Summer 2014]

Span 101 - Elementary Spanish I (4 cr)
Span 101L - Elementary Spanish I Lab (1 cr)
Span 102 - Elementary Spanish II (4 cr)
Span 102L - Elementary Spanish II Lab (1 cr)
Span 201 - Intermediate Spanish I (4 cr)
Span 201L - Intermediate Spanish I Lab (1 cr)
Span 202 - Intermediate Spanish II (4 cr)

Nine credits of upper-division Spanish courses including Span 301 and Span 302, but not including lab-based, FLEN, or lit/film in translation courses, (9 cr) Students must complete 6 of these 9 credits of upper-division coursework at the University of Idaho to complete the Spanish minor.

Courses to total 20 credits for this minor
Natural Resources

1. Add the following course [Effective: Summer 2014]

   **NR 511 Preparing Scientific Manuscripts (1 cr)**
   Details the preparation of manuscripts for thesis chapters and submission to peer-reviewed journals. Exercises include identifying scope, unique requirements for manuscript parts, use of graphing and reference database tools, editing and peer reviewing. Two 75 min classes per week, first half of semester. Second half of semester involves weekly writing workshops to finalize projects. Entry into class requires possession of analyzed dataset.
   **Prereq:** Instructor Permission
   
   Recommended Short Course Title: Preparing Science Manuscripts


   Required course work includes the university requirements (see regulation J-3) and:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Biol 115</td>
<td>Cells and the Evolution of Life (4 cr)</td>
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<tr>
<td>Biol 116</td>
<td>Organisms and Environments (4 cr)</td>
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<tr>
<td>Biol 213</td>
<td>Principles of Biological Structure and Function (4 cr)</td>
<td></td>
</tr>
<tr>
<td>Comm 101</td>
<td>Fundamentals of Public Speaking (2 cr)</td>
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</tr>
<tr>
<td>CSS 383</td>
<td>Natural Resource and Ecosystem Service Economics (3 cr)</td>
<td></td>
</tr>
<tr>
<td>Engl 317</td>
<td>Technical Writing (3 cr)</td>
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<tr>
<td>For 235 or</td>
<td>Society and Natural Resources (3 cr)</td>
<td></td>
</tr>
<tr>
<td>CSS 375</td>
<td>Introduction to Spatial Analysis for Natural Resource Management (3 cr)</td>
<td></td>
</tr>
<tr>
<td>NR 101</td>
<td>Exploring Natural Resources (1 cr)</td>
<td></td>
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<tr>
<td>NR 200</td>
<td>(s) Seminar (1 cr)</td>
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<tr>
<td>Stat 251</td>
<td>Statistical Methods (3 cr)</td>
<td></td>
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<tr>
<td>One of the following (4 cr):</td>
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<tr>
<td>Chem 101</td>
<td>Introduction to Chemistry I (4 cr)</td>
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<tr>
<td>Chem 111</td>
<td>Principles of Chemistry I (4 cr)</td>
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<tr>
<td>One of the following (3-4 cr):</td>
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<tr>
<td>Econ 202</td>
<td>Principles of Microeconomics (3 cr)</td>
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<tr>
<td>Econ 272</td>
<td>Foundations of Economic Analysis (3-4 cr)</td>
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<tr>
<td>One of the following (3-4 cr):</td>
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<tr>
<td>For 221</td>
<td>Ecology (3 cr)</td>
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<tr>
<td>REM 221</td>
<td>Ecology (3 cr)</td>
<td></td>
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<tr>
<td>Biol 314</td>
<td>Ecology and Population Biology (4 cr)</td>
<td></td>
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<tr>
<td>One of the following (4 cr):</td>
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<tr>
<td>Math 160</td>
<td>Survey of Calculus (4 cr)</td>
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<tr>
<td>Math 170</td>
<td>Analytic Geometry and Calculus I (4 cr)</td>
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<tr>
<td>One of the following (3-4 cr):</td>
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<tr>
<td>For 320</td>
<td>Dendrology (4 cr)</td>
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<tr>
<td>REM 341</td>
<td>Systematic Botany (3 cr)</td>
<td></td>
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<tr>
<td>Choose one of the following (1 cr):</td>
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</tr>
<tr>
<td>CSS 483</td>
<td>Senior Project Presentation (1 cr)</td>
<td></td>
</tr>
<tr>
<td>Fish 483</td>
<td>Senior Project Presentation (1 cr)</td>
<td></td>
</tr>
<tr>
<td>For 483</td>
<td>Senior Project Presentation (1 cr)</td>
<td></td>
</tr>
<tr>
<td>REM 483</td>
<td>Senior Project Presentation (1 cr)</td>
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<tr>
<td>WLF 483</td>
<td>Senior Project Presentation (1 cr)</td>
<td></td>
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<tr>
<td>Choose one of the following (3 cr):</td>
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<tr>
<td>CSS 485</td>
<td>Ecology and Conservation Biology Internship (3 cr)</td>
<td></td>
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<tr>
<td>Fish 485</td>
<td>Ecology and Conservation Biology Internship (3 cr)</td>
<td></td>
</tr>
<tr>
<td>Fish 497</td>
<td>Senior Thesis (3 cr)</td>
<td></td>
</tr>
<tr>
<td>For 485</td>
<td>Ecology and Conservation Biology Internship (3 cr)</td>
<td></td>
</tr>
<tr>
<td>For 497</td>
<td>Senior Thesis (3 cr)</td>
<td></td>
</tr>
<tr>
<td>NR 497</td>
<td>Senior Thesis (3 cr)</td>
<td></td>
</tr>
<tr>
<td>REM 485</td>
<td>Ecology and Conservation Biology Internship (3 cr)</td>
<td></td>
</tr>
<tr>
<td>REM 497</td>
<td>Senior Thesis (3 cr)</td>
<td></td>
</tr>
<tr>
<td>WLF 485</td>
<td>Ecology and Conservation Biology Internship (3 cr)</td>
<td></td>
</tr>
<tr>
<td>WLF 497</td>
<td>Senior Thesis (3 cr)</td>
<td></td>
</tr>
<tr>
<td>And one of the following options:</td>
<td></td>
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</tr>
</tbody>
</table>
A. Natural Resources Ecology Option

The natural resources ecology option combines ecological theory, field experience, and quantitative tools to gain an interdisciplinary understanding of the structure and function of ecosystems. This field covers ecological topics from local, regional, and landscape scales while integrating the social and biophysical worlds.

To graduate in this option, students must achieve a "C" or better in the following six core courses: NR 200, For 330, REM 429, Soil 205/206, and WLF 316 or Fish 316.

For 330 Forest Soil and Canopy Processes (4 cr)
REM 429 Landscape Ecology (3 cr)
Soil 205 The Soil Ecosystem (3 cr)
Soil 206 The Soil Ecosystem Lab (1 cr)

One of the following (3 cr):
Phys 100, Fundamentals of Physics and Lab (4 cr)
Phys 100L
Phys 111, General Physics I and Lab (4 cr)
Phys 111L

One of the following (2-4 cr):
WLF 316 Wildlife Ecology II (4 cr)
Fish 316 Principles of Population Dynamics (2 cr)

Quantitative Resource Analysis Restricted Electives (one course from the following):
CSS 310 Social Research Methods in Conservation (4 cr)
For 472 or Remote Sensing of Environment (4 cr)
REM 472
Geog 385 GIS Primer (3 cr)
REM 410 Principles of Vegetation Measurement and Assessment (2 cr)
REM 411 Ecological Monitoring and Analysis (2 cr)*
Stat 431 Statistical Analysis (3 cr)
Stat 422 Sample Survey Methods (2 cr)
WLF 448 Fish & Wildlife Population Ecology (4 cr)

Resource Management Restricted Electives (one course from the following):
CSS 385 Conservation Management and Planning I (4 cr)
CSS 490 Wilderness and Protected Area Management (3 cr)
CSS 496 Monitoring Impacts in Protected Areas and Wilderness (3 cr)
Fish 418 Fisheries Management (4 cr)
For 424 Forest Dynamics and Management (4 cr)
For 462 Watershed Science and Management (3 cr)
REM 456 Integrated Rangeland Management (3 cr)
WLF 492 Wildlife Management (4 cr)

Ecology Restricted Electives (at least 2 credits from Fish 315, Fish 415, Fish 430, REM 460, and/or WLF 315) (10 cr):
Biol 421 Advanced Evolutionary Biology (3 cr)
Biol 478 Animal Behavior (3 cr)
Ent 469 Introduction to Forest Insects (2 cr)
Ent 472 Aquatic Entomology (3 cr)
Fish 314 Fish Ecology (3 cr)
Fish 315 Fish Ecology Lab (1 cr)
Fish 415 Limnology (4 cr)
Fish 430 Riparian Ecology and Management (3 cr)
For 326 Fire Ecology and Management (3 cr)
For 428 Global Fire Ecology and Management (3 cr)
For 468 Forest and Plant Pathology (2 cr)
Geog 410 Biogeography (3 cr)
Geog 450 or Global Environmental Change (3 cr)
REM 450
MMBB 425 Microbial Ecology (3 cr)
PSc 410 Invasive Plant Biology (3 cr)
REM 440 Wildland Restoration Ecology (3 cr)
REM 459 Rangeland Ecology (2 cr)
REM 460 Integrating GIS and Field Studies in Rangelands (4.2 cr) [Rangeland Ecology Current Topics and Field Studies (1 cr)]
WLF 314 Wildlife Ecology I (3 cr)
WLF 315 Wildlife Ecology I Lab (1 cr)
WLF 440 Conservation Biology (3 cr)

Social/Political Restricted Electives (one course from the following):
Comm 410 Conflict Management (3 cr)
CSS 387 Environmental Communication Skills (3 cr)
CSS 481 Conservation Leadership (3 cr)
CSS 486 Public Involvement in Natural Resource Management (3 cr)
CSS 489  Personalities and Philosophies in Conservation (3 cr)
CSS 492  Ecotourism Principles and Issues (3 cr)
CSS 493  International Land Preservation and Conservation Systems (3 cr)
For 484  Forest Policy and Administration (2 cr)
Geog 420  Land, Resources, and Environment (3 cr)
Hist 424  American Environmental History (3 cr)
Phil 452  Environmental Philosophy (3 cr)
PoIS 364 or  Politics of the Environment (3 cr)
CSS 364

Courses to total 120 credits for this degree

*Note: Both REM 410 and REM 411 must be completed to satisfy Quantitative Resource Analysis Restricted Elective requirement.

B. Conservation Biology Option

The conservation biology option is centered around a multidisciplinary curriculum that provides students with training to work in jobs aimed at conserving the earth’s biodiversity. This option provides a broad-based education that covers biological diversity from the genetic level to the landscape level, and provides additional training in social sciences and management. In the words of Hunter (1996), "Conservation biology is cross-disciplinary, reaching far beyond biology into subjects such as philosophy, economics, and sociology; disciplines that are concerned with the social environment in which we practice conservation--as well as into subjects such as law and education that determine the ways we implement conservation."

To graduate in this option, students must achieve a "C" or better in the following seven core courses: Biol 421, NR 200, REM 429, Phil 452, CSS 492 or CSS 493, Fish or WLF 316, and WLF 440.

Biol 421  Advanced Evolutionary Biology (3 cr)
Gene 314  General Genetics (3 cr)
Phil 452  Environmental Philosophy (3 cr)
REM 429  Landscape Ecology (3 cr)
WLF 440  Conservation Biology (3 cr)

One of the following (3-4 cr):
Biol 310  Genetics (4 cr)
Gene 314  General Genetics (3 cr)

One of the following (3 cr):
CSS 492  Ecotourism Principles and Issues (3 cr)
CSS 493  International Land Preservation and Conservation Systems (3 cr)

One of the following (2-4 cr):
WLF 316  Wildlife Ecology II (4 cr)
Fish 316  Principles of Population Dynamics (2 cr)

Quantitative Resource Analysis Restricted Electives (one course from the following):
CSS 310  Social Research Methods in Conservation (4 cr)
For 472 or  REM 472
REM 472
Geog 385  GIS Primer (3 cr)
REM 410  Principles of Vegetation Measurement and Assessment (2 cr)*
REM 411  Ecological Monitoring and Analysis (2 cr)*
Stat 422  Sample Survey Methods (2-3 cr)
Stat 431  Statistical Analysis (3 cr)
WLF 448  Fish & Wildlife Population Ecology (4 cr)

Resource Management Restricted Electives (one course from the following):
CSS 385  Conservation Management and Planning I (4 cr)
CSS 490  Wilderness and Protected Area Management (3 cr)
CSS 496  Monitoring Impacts in Protected Areas and Wilderness (3 cr)
Fish 418  Fisheries Management (4 cr)
For 424  Forest Dynamics and Management (4 cr)
For 462  Watershed Science and Management (3 cr)
REM 456  Integrated Rangeland Management (3 cr)
WLF 492  Wildlife Management (4 cr)

Ecology Restricted Electives (at least 2 credits from Fish 315, Fish 415, Fish 430, REM 460, and/or WLF 315) (6 cr):
Biol 478  Animal Behavior (3 cr)
Ent 469  Introduction to Forest Insects (2 cr)
Ent 472  Aquatic Entomology (3 cr)
Fish 314  Fish Ecology (3 cr)
Fish 315  Fish Ecology Lab (1 cr)
Fish 415  Limnology (4 cr)
Fish 430  Riparian Ecology and Management (3 cr)
For 330  Forest Soil and Canopy Processes (4 cr)
For 326  Fire Ecology and Management (3 cr)
For 426  Global Fire Ecology and Management (3 cr)
For 468  Forest and Plant Pathology (2 cr)
<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geog 410</td>
<td>Biogeography</td>
<td>3 cr</td>
</tr>
<tr>
<td>Geog 450 or REM 450</td>
<td>Global Environmental Change</td>
<td>3 cr</td>
</tr>
<tr>
<td>REM 450</td>
<td>Microbial Ecology</td>
<td>3 cr</td>
</tr>
<tr>
<td>MMBB 425</td>
<td>Invasive Plant Biology</td>
<td>3 cr</td>
</tr>
<tr>
<td>PIsc 410</td>
<td>Wildland Restoration Ecology</td>
<td>3 cr</td>
</tr>
<tr>
<td>REM 440</td>
<td>Rangeland Ecology</td>
<td>2 cr</td>
</tr>
<tr>
<td>REM 459</td>
<td>Integrating GIS and Field Studies in Rangelands</td>
<td>1-2 cr</td>
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<tr>
<td>REM 460</td>
<td>Rangeland Ecology Current Topics and Field Studies</td>
<td>1 cr</td>
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<tr>
<td>WLF 314</td>
<td>Wildlife Ecology I</td>
<td>3 cr</td>
</tr>
<tr>
<td>WLF 315</td>
<td>Wildlife Ecology I Lab</td>
<td>1 cr</td>
</tr>
</tbody>
</table>

Organismal Biology Restricted Elective (one course from the following):
- Biol 481: Ichthyology (4 cr)
- Biol 483: Mammalogy (3 cr)
- Biol 489: Herpetology (4 cr)
- WLF 482: Ornithology (4 cr)

Social/Political Restricted Electives (one course from the following):
- Comm 410: Conflict Management (3 cr)
- CSS 387: Environmental Communication Skills (3 cr)
- CSS 486: Public Involvement in Natural Resource Management (3 cr)
- CSS 489: Personalities and Philosophies in Conservation (3 cr)
- For 484: Forest Policy and Administration (2 cr)
- Hist 424: American Environmental History (3 cr)
- PoIs 364 or CSS 364: Politics of the Environment (3 cr)

Courses total 120 credits for this degree

*Note: Both REM 410 and REM 411 must be completed to satisfy Quantitative Resource Analysis Restricted Elective requirement.

3. Change the curricular requirements of **Natural Resources** (M.N.R.)  
   **[Effective: Summer 2014]**

**Master of Natural Resources.** Major in Natural Resources. The Master of Natural Resources (MNR) is an interdisciplinary course-based graduate program designed for mid- and executive-level professionals who wish to enhance their educational credentials for a career in natural resources. The fundamental objective of the MNR graduate program is to integrate and scale various perspectives – ecological, the human dimension, planning, policy and law, and practical tools – into a systems view of natural resources. This unique professional degree is accessible to students of diverse academic backgrounds and will help graduates develop credentials and skills for the effective management of natural resources. The degree consists of 30 semester credits (five credits from each of four MNR program categories – Ecology & Management, Law, Human Dimensions, Policy, Planning, and Tools & Technology, eight elective course credits from the MNR curriculum, and two credits for a case study project). Up to 12 semester credits can be transferred into the program from other institutions. General MNR requirements apply.

The MNR program can be combined with two different certificate programs specializing in restoration ecology and fire science. Admission to the College of Graduate Studies requires a minimum graduate point average (GPA) of 3.0, three letters of reference, and the Graduate Record Examination (GRE).

Complete admission and degree information available online at MyMNR.net. General MNR requirements apply. To provide the breadth of knowledge required in this 30-credit degree, students must complete a minimum of two courses in each of the four major concentration areas (policy, planning, law, human dimensions; ecology and resources; and tools and technology). Students will select courses based on their academic background and career goals. Students must also complete two 3-day, 1-credit colloquia to be offered on the UI campus. An additional 6 credits of advisor-approved electives is to be selected from nonlisted courses. The M.N.R. Committee may approve course substitutions.

**Organizational Sciences**

1. Add the following courses  
   **[Effective: Summer 2014]**

   **Orgs 110 Governance in Small Organizations (3 cr)**
   The basics of organizational structure, leadership, interpersonal relations, fiscal responsibility, and accountability. The course is designed to serve students who may be engaged in student or community leadership positions.

   Recommended Short Course Title: Governance in Small Orgs

   **Orgs 155 Financial Literacy (3 cr)**
   Basics of financial literacy including terms and concepts. Topics include: influences on financial decisions, goal setting, spending plans, saving and organizing, controlling debt, banking, credit, housing, cars, cell phones, college, careers, life's financial phases, protecting assets, investing, and financial current events.

   **Orgs 220 Budgeting for Small Organizations (1 cr)**
A basic introduction to budgets and the budgeting process, focusing on how to prepare, interpret, use, and manage organizational budgets to increase students' likelihood of future success.

Recommended Short Course Title: Budgeting for Small Orgs

**OrgS 407 Advanced Nonprofit Organizations (3 cr)**

Provides an in-depth exploration of nonprofit organizations and their role in society, nonprofit purpose, mission, characteristics and structure. Topics include how nonprofits differ from for-profit and governmental organizations, nonprofit industry and careers, starting a nonprofit; nonprofit operations (accountability, reporting, staffing, marketing, technology); planning, strategy, governance (boards and volunteers); nonprofit law; nonprofit programs and program evaluation.

**Prereq:** OrgS 305 or Instructor Permission

Recommended Short Course Title: Adv Nonprofit Orgs

2. **Change the curricular requirements of Organizational Sciences (B.A. or B.S.) [Effective: Summer 2014]**

Required course work includes the university requirements (see regulation J-3), the general requirements for either the B.A. or B.S. degree, and:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>OrgS 210</td>
<td>Introduction to Organizational Sciences</td>
<td>1 cr</td>
</tr>
<tr>
<td>OrgS 220</td>
<td>Budgeting for Small Organizations</td>
<td>1 cr</td>
</tr>
<tr>
<td>OrgS 410</td>
<td>Capstone Project in Organizational Sciences</td>
<td>1-6 cr</td>
</tr>
<tr>
<td>OrgS 444</td>
<td>Methods and Analysis in Organizational Science</td>
<td>4 cr</td>
</tr>
</tbody>
</table>

Complete three of the following courses (9 cr):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anth 100</td>
<td>Introduction to Anthropology</td>
<td>3 cr</td>
</tr>
<tr>
<td>Bus 101</td>
<td>Introduction to Business Enterprises</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 111</td>
<td>Introduction to Communication Studies</td>
<td>3 cr</td>
</tr>
<tr>
<td>JAMM 100</td>
<td>Media and Society</td>
<td>3 cr</td>
</tr>
<tr>
<td>PoIS 101</td>
<td>Introduction to Political Science and American</td>
<td></td>
</tr>
<tr>
<td>Psyc 101</td>
<td>Introduction to Psychology</td>
<td>3 cr</td>
</tr>
<tr>
<td>OrgS 110</td>
<td>Governance in Small Organizations</td>
<td>3 cr</td>
</tr>
<tr>
<td>OrgS 155</td>
<td>Financial Literacy</td>
<td>3 cr</td>
</tr>
<tr>
<td>Soc 101</td>
<td>Introduction to Sociology</td>
<td>3 cr</td>
</tr>
</tbody>
</table>

**Choose a specialization from one of the following areas:**

Organizational Communication

Select 6 courses from Comm and 2 from other disciplines for this specialization. Student may not pursue both this specialization and a minor in Communication Studies (24 cr):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comm 233</td>
<td>Interpersonal Communication</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 235</td>
<td>Organizational Communication</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 332</td>
<td>Communication and the Small Group</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 335</td>
<td>Intercultural Communication</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 347</td>
<td>Persuasion</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 410</td>
<td>Conflict Management</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 421</td>
<td>Nonverbal Communication</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 431</td>
<td>Applied Business and Professional Communication</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 433</td>
<td>Organizational Communication Theory, Research, and</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Application</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 456</td>
<td>Nonprofit Fundraising</td>
<td>3 cr</td>
</tr>
<tr>
<td>Engl 207</td>
<td>Persuasive Writing</td>
<td>3 cr</td>
</tr>
<tr>
<td>JAMM 265</td>
<td>Principles of Advertising</td>
<td>3 cr</td>
</tr>
<tr>
<td>JAMM 440</td>
<td>Critical Issues in Mass Media</td>
<td>3 cr</td>
</tr>
<tr>
<td>JAMM 444</td>
<td>Mass Media and Public Opinion</td>
<td>3 cr</td>
</tr>
<tr>
<td>OrgS 305</td>
<td>Nonprofit Organizations</td>
<td>3 cr</td>
</tr>
<tr>
<td>OrgS 317</td>
<td>Explore Mentoring &amp; Leadership</td>
<td>3 cr</td>
</tr>
<tr>
<td>OrgS 407</td>
<td>Advanced Nonprofit Organizations</td>
<td>3 cr</td>
</tr>
<tr>
<td>OrgS 415</td>
<td>Planning Professional Conferences and Events</td>
<td>3 cr</td>
</tr>
<tr>
<td>Psyc 320</td>
<td>Introduction to Social Psychology</td>
<td>3 cr</td>
</tr>
<tr>
<td>Psyc 345</td>
<td>Group Dynamics</td>
<td>3 cr</td>
</tr>
<tr>
<td>Psyc 441</td>
<td>Psychology in the Workplace</td>
<td>3 cr</td>
</tr>
</tbody>
</table>

Organizations and Communities

Select 7 courses from at least 3 different disciplines from the courses listed for this specialization (18 cr):

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Name</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bus 311</td>
<td>Introduction to Management</td>
<td>3 cr</td>
</tr>
<tr>
<td>Bus 413</td>
<td>Leadership and Organizational Behavior</td>
<td>3 cr</td>
</tr>
<tr>
<td>Bus 414</td>
<td>Entrepreneurship</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 235</td>
<td>Organizational Communication</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 332</td>
<td>Communication and the Small Group</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 335</td>
<td>Intercultural Communication</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 347</td>
<td>Persuasion</td>
<td>3 cr</td>
</tr>
<tr>
<td>Comm 410</td>
<td>Conflict Management</td>
<td>3 cr</td>
</tr>
</tbody>
</table>
### Comm 456 or JAMM 456
Nonprofit Fundraising (3 cr)

### Comm 492
Dark Side of Communication (3 cr)

### FCS 448
Consumer Economics Issues (3 cr)

### Hist 425
Immigration and Ethnicity in the United States (3 cr)

### JAMM 252
Introduction to Public Relations (3 cr)

### JAMM 325
Publications Editing (3 cr)

### JAMM 350
Public Relations Writing and Production (3 cr)

### JAMM 444
Mass Media and Public Opinion (3 cr)

### JAMM 452
Public Relations Campaign Design (3 cr)

### OrgS 305
Nonprofit Organizations (3 cr)

### OrgS 317
Explore Mentoring & Leadership (3 cr)

### OrgS 404
Special Topics (3 cr)*

### OrgS 407
Advanced Nonprofit Organizations (3 cr)

### OrgS 415
Planning Professional Conferences and Events (3 cr)

### OrgS 416
Planning Professional Conferences and Events Laboratory (1 cr)

### OrgS 435
Personnel (3 cr)

### OrgS 450
Training and Performance Support (3 cr)

### PoS 452
Administrative Law and Regulation (3 cr)

### Psyc 320
Introduction to Social Psychology (3 cr)

### Psyc 345
Group Dynamics (3 cr)

### Psyc 404
Special Topics (3 cr)**

### Psyc 441
Social Psychology in the Workplace (3 cr)

### Psyc 470
Introduction to Chemical Addictions (3 cr)

### Soc 250
Social Conflict (3 cr)

### Soc 301
Introduction to Diversity and Stratification (3 cr)

### Anth 301

### Soc 313
Collective Behavior (3 cr)

### Soc 423
Social Class & Stratification (3 cr)

### Soc 424
Sociology of Gender (3 cr)

*Note: a maximum of 3 credits of OrgS 404 may be used towards the completion of this major.

**Note: a maximum of 3 credits of Psyc 404 may be used towards the completion of this major.

### A second major, An an academic minor, an academic certificate, or a CLASS approved emphasis*

Courses to total 120 credits for this degree

*Note: If a second major or an academic minor is used to satisfy this requirement, the area of emphasis or academic minor required for the CLASS general B.S. requirements is also considered satisfied.

### Physics

1. Change the curricular requirements of **Physics (Ph.D.)** [Effective: Summer 2014]

   **Doctor of Philosophy, Major in Physics.** General Ph.D. requirements apply. Correspondence concerning the student's specific goals is encouraged in the preliminary planning of the Ph.D. program.

   Specific departmental course requirements are: Phys 501 (2 cr), **Phys 511**, Phys 521, Phys 533, Phys 541, Phys 542, Phys 550, Phys 551, Phys 571, and at least nine additional semester-hours of physics courses at the 500 level. A typical study plan would include 40 to 50 credits of course work at the 500 level in physics and about 30 credits in research and thesis. The study plan also would include at least six units of upper-division or graduate course work outside of physics. The nature and number of these additional units will depend upon the professional goals of the individual student. In planning a program, the student should consult with the departmental Academic Standards Committee for approval of any particular choice of nonphysics course work. The Ph.D. degree in physics is primarily a recognition of ability and accomplishment in research. The purpose of the course work is to provide the factual and theoretical background for research. Successful completion of course work is not in itself considered as completion of the major requirement for the degree.

   ...

### Plant, Soil, and Entomological Sciences

1. Add the following course [Effective: Summer 2014]

   **Soil 210 Food Systems and Healthy Lifestyles (3 cr)**

   Introduction to food systems including the historical development of our current global food system. Linkages among the production, marketing and transportation of food and food policy on human health will be explored. Students will complete a semester-long assessment of the local food system and its impacts on individual, school and community health and strategies to improve the food system.

   Recommended Short Course Title: Food Systems

2. Change the following courses [Effective: Summer 2014]
Soil J427/J527 Sustainable Food Systems-Based Approaches to Ecological Resilience (3 cr)
The purpose of this course is to help students apply systems thinking and systems-methodological problem solving skills to identify and describe current and future food system issues. Through lectures, case studies and research students will explore elements and behavior of food systems that impart sustainability. Students taking the course for graduate credit will complete additional readings, research and presentations. The purpose of the course is to help students apply systems thinking and systems-methodological problem solving skills to identify and describe current and future problems facing ecological systems, including problems caused by climate change. Students will gain a better understanding of the complex, cross-disciplinary, multi-scalar and systemic (emergent) nature of problems related to sustainability. Team-based problem solving and trans-disciplinary communication will be stressed. Additional projects/assignments required for graduate credit.
Prereq: EnvS 101, For 221, Geog 313, REM 221, or Soil 210/205; or Instructor Permission

3. Change the curricular requirements of Soil Science (Minor) [Effective: Summer 2014]

Soil 205, Soil 206
Soil 415, Soil Physics (3 cr)
Soil 422, Environmental Soil Chemistry (3 cr)
Soil 438, Pesticides in the Environment (3 cr)
Soil 446, Soil Fertility (3 cr)
Soil 454, Soil Development and Classification (3 cr)

Courses selected from the following to total at least 20 cr for the minor:
Soil 417, Market Garden Practicum (1-6 cr)
Soil 426, Microbial Ecology (3 cr)
Soil 437, Soil Biology (3 cr)

Courses to total 20 credits for this minor

Political Science

1. Add the following course [Effective: Summer 2014]

PolS J441/J541 Genes and Justice: Comparative Biotechnology Policy Formation
This course introduces students to the basic theoretical, ethical, and practical issues surrounding the rise and regulation of recent biotechnological and biomedical advances, including genetically modified animals and plants in agriculture, stem cell research and cloning in biomedical research, and reproductsics in medically assisted reproductive technology. Students will learn about theoretical and ethical frameworks to investigate questions of domestic and international policy making and the task of governing modern biosciences, including food safety, fair-trade, consumer well-being, informed choice in medical treatment, conservation, biodiversity, and sustainability. Additional projects/assignments required for graduate credit. Recommended Preparation: PlSc 207 or 3 credits of another science course or 3 credits of political science

Recommended Short Course Title: Genes and Justice

Sociology and Anthropology

1. Change the curricular requirements of Anthropology (M.A.) [Effective: Summer 2014]

Master of Arts, Major in Anthropology. Candidates must fulfill the requirements of the College of Graduate Studies and of the Department of Sociology & Anthropology. See the College of Graduate Studies section for the general requirements applicable to each M.A. degree.

Thesis option. Only the thesis option for the M.A. degree in anthropology is available. Course work will include either 30 credits plus a foreign language proficiency examination or 36 credits and no foreign language requirement. Students who as undergraduates did not take at least one course in each of the four subfields of anthropology and a course in statistics will be asked to do so (in consultation with an advisor) at the beginning of their graduate programs. No graduate credit will be awarded for courses taken to satisfy such deficiencies. Graduate students must demonstrate competence in each of the four subfields of anthropology. The thesis option M.A. core along with the expected undergraduate preparation (or courses taken as deficiencies as a graduate student) are designed for this purpose. Thesis students complete the core courses, supporting field’s electives, the anthropology electives, and the thesis credits.

Anth 420, Anthropological History and Theory (3 cr, max 9)
Anth 500, Master’s Research and Thesis (6-10 cr)
Anth 510, Research Methods in Anthropology (3 cr)
Anth 511, Human Evolution (3 cr)
Anth 521, Contemporary Issues in Anthropological Theory (3 cr)
Anth 530, Introduction to Archaeological Method and Theory (3 cr)

Thesis Supporting Field’s Electives (up to 6 cr)
Thesis Anthropology Electives

Both the 30- and 36-credit M.A. program must include at least 6 but no more than 10 thesis credits, although more than 10 credits of Anth 500 may be taken. A minimum of 18 credits must be at the 500 level. Anthropology courses must be at the 400 or 500 level, while supporting courses can include 300 level. No more than 12 credits can be transferred from other institutions and an official copy of the student's
transcripts from each institution must be on file in the Registrar’s Office. Such institutions must have a graduate program and the work taken for graduate credit.

**Note:** Students who have already received credit for Anth 410, Anth 411, Anth 420 or Anth 430 will substitute appropriate courses for Anth 420, Anth 510, Anth 511, or Anth 530 with approval from the student’s advisor.

**Non-thesis option.** Course work will include either 30 credits plus a foreign language (or language other than the student’s native language) proficiency examination or 36 credits and no foreign language requirement. Students who as undergraduates did not take at least one course in cultural anthropology, archaeology, and physical anthropology and a course in statistics will be required to do so in consultation with an advisor at the beginning of their graduate programs. In general, no graduate credit will be awarded for courses taken to satisfy such deficiencies. Non-thesis students complete the core courses, the support field’s electives, the anthropology electives, non-thesis credits, and select one subfield emphasis.

- **Anth 420** Anthropological History and Theory (3 cr, max 9)
- **Anth 510** Research Methods in Anthropology (3 cr)
- **Anth 521** Contemporary Issues in Anthropological Theory (3 cr)
- **Anth 530** Introduction to Archaeological Method and Theory (3 cr)
- **Anth 599** Non-thesis Master’s Research (6 cr)
- **Non-thesis Supporting Field’s electives** (up to 6 cr)
- **Non-thesis Anthropology Electives**

**One of the following:**
- **Anth 509** Anthropological Field Methods (1-8 cr, max 8)
- **Anth 598** Internship (cr arr)

**Non-thesis Subfield (complete one subfield):**

- **Physical Anthropology**
  - **Anth 511** Human Evolution (3 cr)
  - **Anth 512** Human Races (3 cr)

- **Archaeology**
  - **Anth 530** Introduction to Archaeological Method and Theory (3 cr)

**One of the following:**
- **Anth 453** Archaeological Lab Techniques (3 cr)
- **Anth 532** Historical Artifact Analysis (3 cr)
- **Anth 549** Lithic Technology (3 cr)

- **Cultural Anthropology**
  - **Anth 528** Social and Political Organization (3 cr)
  - **Anth 562** Human Issues in International Development (3 cr)

A minimum of 18 credits must be at the 500 level. Anthropology courses must be at 400 or 500 levels (cross-listed 400-level/500-level courses must be taken at the 500-level), while supporting courses can include 300 level. No more than 12 credits can be transferred from other institutions and an official copy of the student’s transcripts from each institution must be on file in the Registrar’s Office. Such institutions must have a graduate program and the work taken for graduate credit.

**Note:** Students who have already received credit for any core course or an equivalent, except for the field school or internship, will not need to retake it, but will substitute appropriate courses with approval from their advisor.

The core of the M.A. program consists of Anth 420, Anth 510, Anth 511, Anth 521, and Anth 530. Students who have already received credit for Anth 410, Anth 411, Anth 420 or Anth 430 will substitute appropriate courses for Anth 420, Anth 510, Anth 511, or Anth 530 with approval from the student’s advisor. The remaining credits will be distributed among courses in supporting fields (at least 6) and anthropology electives. Both the 30- and 36-credit M.A. program must include at least 6 but no more than 10 thesis credits, although more than 10 credits of thesis may be taken. A minimum of 18 credits must be at the 500 level. Anthropology courses must be at the 400 or 500 level, while supporting courses can include 300 level. No more than 12 credits can be transferred from other institutions and an official copy of the student’s transcripts from each institution must be on file in the Registrar’s Office. Such institutions must have a graduate program and the work taken for graduate credit.

### Statistical Science

1. Change the following courses [Effective: Summer 2014]

   **Stat 251 Statistical Methods (3 cr)**
   
   *May be used as general education credit in J-3-c. Credit awarded for only one of Stat 251, Stat 301, and Stat 416. Intro to statistical methods including design of statistical studies, basic sampling methods, descriptive statistics, probability and sampling distributions; inference in surveys and experiments, regression, and analysis of variance.*

   **Prereq:** One of the following: Math 108, Math 137, Math 143, Math 160, Math 170, or Sufficient score on SAT, ACT, or COMPASS Math Test to qualify for registration in Math 148/150

   Editor’s Note: The original intent of Statistical Science was to require the test scores necessary to register in Math 130.

### Women’s Studies
1. Add the following course [Effective: Summer 2014]

   WmSt 367 (s) Topics in Women’s Studies (3 cr, max arr)
   Topical examination of issues in women and gender studies.

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FOR THE FACULTY’S INFORMATION

Correction to General Curriculum Report 271:

Changes to Cooperative Courses Approved Since Last General Curriculum Report:
(ID = taught only at UI; WS = taught only at WSU; LC = taught only at LCSC; ID&WS = can be taught at both UI & WSU; ID&LC = can be taught at both UI & LCSC)

Other Informational Changes: