

CLIMATE CHANGE STUDIES

Steven Running, Director

Climate Change Studies is an inter-disciplinary program open to all majors. The program educates students in three areas of the climate change issue: science, society, and solutions. Coursework in the minor provides a foundation that enables students to engage the scientific, societal, and political dimensions of global climate change. Further, the focus on solutions with its orientation toward applied learning will help students develop critical thinking and problem solving skills. Participating students will enhance their major field of study. They will be better prepared to enter a broad range of professions and graduate programs where they can meet the emerging challenges and opportunities arising from climate change. Climate Change Studies is a joint program between the College of Forestry and Conservation, College of Arts and Sciences, and College of Technology.

Requirements for a Minor

To earn a minor in Climate Change Studies, students must successfully complete 21.0 credits: a 3.0 credit interdisciplinary introductory course (CCS 203) and 6.0 credits in each of the three areas listed below.

Course # and Description	Credits
CCS 103X Climate Change: Science & Society	3
Six credits from the following: Climate Change Science Courses	Credits
CCS/GEO 108N (GEOS 108N) Climate Change - Past and Future	3
CCS/ERTH 303N Weather and Climate	3
CCS/GEO 482 (GEOS 382) (UG) Global Change	3
CCS/NRSM 408 (FOR 408/BIOL 408/GEO 408) Global Cycles and the Climate Change	3
CCS/GEO 488 (GEOS 488) (UG) Snow, Ice and Climate	3
Six credits from the following: Climate Change Science and Society Courses	Credits
CCS 324 Sustainable Climate Policies: China and the USA	3
CCS 379-COMX/NRSM 349 (COMM 379/EVST 379) Communication, Consumption and Climate	3
CCS/NRSM 449E (RSCN 449) Climate Change Ethics and Policy	3
CCS/ECNS 445 (ECON 445) International Environmental Economics and Climate Change	3
NRSM 426 Climate and Society	3
Six credits from the following climate change solutions courses, with at least one course taken in category A, which requires practical application	Credits
Climate Change Solutions Courses: Category A	
CCS/NRG 298 Energy Internship	2
CCS 398 Climate Change Internship/Service Learning	2-4
CCS 391 Climate Change Practicum	2-4
CCS/ENST 485 (EVST 485) Environmental Citizenship	3
Category B	
CCS/NRG 102 Intro to Energy Systems II	3
CCS/BGEN 160S (TASK 160S/BUS 160S) Issues in Sustainability	3
CCS/NRG 191 Energy Practicum	2
CCS/NRG 235 (CAR 235T) Building Energy Conservation	3
CCS/NRG 242 Solar & Wind Systems	3
CCS 352 Climate Change Field Studies	3

Faculty

Science Area

Dr. Rebecca Bendick, Assistant Professor, Department of Geosciences

Dr. Cory Cleveland, Assistant Professor of Soil Science

Dr. Michael De Grandpre, Professor, Department of Chemistry

Dr. Sarah Halvorson, Associate Professor and Departmental Chair of Geography

Dr. Joel Harper, Associate Professor, Department of Geosciences

Dr. Anna Klene, Associate Professor, Department of Geography

Dr. Scott Mills, Professor of Wildlife Population Ecology

Dr. Curtis Noonan, Associate Professor, Department of Biomedical and Pharmaceutical Sciences

Dr. Steve Running, Regent's Professor of Ecology, Director of Numerical Terradynamics Simulation Group

Society Area

Dr. Richard Barrett, Emeritus Professor, Department of Economics, State Legislator

Dr. Len Broberg, Professor, Department of Environmental Studies

Dr. James Burchfield, Interim Dean and Research Professor, College of Forestry and Conservation

Dr. Ulrich Kamp, Associate Professor, Department of Geography

Dr. Derek Kellenberg, Assistant Professor, Department of Economics

Dr. Peter Koehn, Professor, Department of Political Science

Dr. Anna Prentiss, Associate Professor, Department of Anthropology

Dr. Christopher Preston, Associate Professor, Department of Philosophy

Dr. Rebecca Richards, Professor, Department of Sociology

Dr. Steve Schwarze, Associate Professor, Department of Communication Studies

Dr. Dane Scott, Director, Center of Ethics, Associate Professor, Department of Society and Conservation

Dr. Terry Weidner, Director, Mansfield Center

Solutions Area

Dr. Georgia Cobbs, Associate Professor, Department of Curriculum and Instruction

Dr. Brian Kerns, Engineer, Alternative Energy Technology Program

Dr. Martin Horejsi, Assistant Professor, Department of Curriculum and Instruction

Nicky Phear, Instructor and Program Coordinator, Climate Change Studies

Dr. Bradley Layton, Program Director, Energy Technology Program

Dr. Robin Saha, Assistant Professor, Department of Environmental Studies

Lisa Swallow, Program Director, Department of Business Technology

Nadia White, Assistant Professor, School of Journalism

Dr. Laurie Yung, Director of Wilderness Institute; Research Assistant Professor

College of Forestry and Conservation Course Descriptions

Courses

R- before the course description indicates the course may be repeated for credit to the maximum indicated after the R. Credits beyond this maximum do not count toward a degree.

Animal Science (ANSC) - Course Descriptions

262, 320

Forestry (FORS) - Course Descriptions

140, 191, 192, 200, 201, 230, 232, 235, 240, 241N, 250, 291, 292, 302, 307, 320, 330, 331, 333, 340, 341, 342, 347, 350, 351, 391, 392, 398, 430, 434, 435, 436, 437, 440, 441, 442, 447, 480, 481, 491, 492, 495, 498, 499, 500, 503, 504, 505, 508, 521, 533, 538, 544, 545, 547, 548, 551, 594, 595, 596, 598, 599, 697, 699

Natural Resource Science and Management (NRSM) - Course Descriptions

121S, 170, 180, 191, 246N, 265, 271N, 273, 311, 321, 335, 345, 346, 352, 360, 363, 365, 370S, 371, 373, 374, 379, 380, 385, 386, 398, 404, 405, 406, 408, 410, 415, 422, 424, 425, 444, 449E, 455, 460, 462, 463, 475, 485, 489E, 494, 495, 499, 501, 511, 513, 515, 520, 524, 532, 560, 561, 563, 565, 570, 571, 575, 579, 582, 586, 594, 595, 596, 597, 598, 599, 622, 697, 699

Parks, Tourism & Recreation Management (PTRM) - Course Descriptions

110S, 191, 210, 217S, 230, 291, 300, 310, 345X, 353, 355, 356, 380, 391, 392, 398, 407, 418, 450, 451, 481, 482, 483, 484, 485, 491, 492, 495, 498, 499, 500, 562, 582, 594, 595, 596, 597, 598, 599, 697, 699

Fish and Wildlife Science and Management (WILD) - Course Descriptions

105N, 170, 191, 240, 275, 291, 346, 370, 373, 374, 391, 392, 398, 408, 410, 460, 470, 472, 480, 491, 492, 494, 499, 540, 542, 545, 560, 562, 563, 564, 568, 570, 572, 575, 576, 580, 591, 594, 596, 597, 599, 697, 699

College of Forestry and Conservation**Faculty**

James Burchfield, Dean

Mike Patterson, Associate Dean

The undergraduate curricular programs at the College of Forestry and Conservation (CFC) provide the knowledge and skills for students to become effective natural resource professionals. They offer a sequence of learning experiences that build the necessary confidence and critical thinking capabilities to help solve some of humanity's most pressing problems in the stewardship of our shared natural heritage.

Undergraduate programs at the College of Forestry and Conservation have evolved into a unique action-oriented, interdisciplinary experience where students integrate real-world issues into their coursework. Students will utilize the latest technologies in the assessment and analysis of natural resource challenges, and they will simultaneously apply this learning in multiple field settings across the unparalleled natural settings of Montana.

The five undergraduate majors in the College are science degrees, leading to a Baccalaureate of Science (B.S.) degree. These majors are Forestry; Parks, Tourism, and Recreation Management; Wildlife Biology; Resource Conservation; and Wildland Restoration. These majors provide a strong foundation in knowledge about natural systems, science, analytical skills, and policy, but each is tailored to the specialized needs of a particular career track or research discipline in the natural resources management professions. Students have an opportunity to emphasize the disciplinary concentration of their choosing, but all students will receive a balance of ecological, physical, and social sciences.

Students uncertain about which specific major best meets their interests and needs will find that the ability to move between majors early in their student career is facilitated by a common foundational core of coursework. Each major's curricular program is designed to fulfill the broad educational goals for all graduates of The University of Montana, as well as the specific disciplinary requirements of civil service and professional accrediting organizations.

Preparation to Enter the College of Forestry and Conservation

Students planning to enter the College of Forestry and Conservation should attain a sound background in English,

social studies, mathematics, biology, and other sciences. Entering freshmen and non-resident transfer students will be admitted in accordance with general university admission requirements listed previously in this catalogue. Resident transfer students or current UM students wanting to change their major to the College of Forestry and Conservation must have a grade point average of 2.0 or higher to be admitted.

Educational Framework at the College of Forestry and Conservation

Students at the College of Forestry and Conservation are expected to demonstrate a range of capabilities before graduation so they can better address the multiple demands facing modern natural resource managers. The College fosters learning through a combination of innovative teaching and scholarship with a focus on state of the art knowledge in the major fields and emerging natural resource challenges. Each major's curriculum follows a similar seven part structure that encourages the sequenced development of foundational knowledge, applied skills, and creative problem-solving. The following description illustrates how the curricula are organized to present the most efficient and engaging pathway to the full development of student capabilities:

Foundations of Science

Students will be required to have a solid understanding of the primary physical, chemical, and biological drivers of natural systems. Required for all students are an introductory course in inorganic chemistry and a basic biological science course (there are several introductory biology classes that will apply, depending on a student's major). Students in the Wildland Restoration major and the Forest Operations option within the Forest Management major will also take an introductory course in physics. Parks, Tourism, and Recreation Management majors will take introductory coursework in psychology or sociology to understand social drivers in relation to natural systems. Additionally, all students are encouraged to take one of the four introductory courses offered by the College that draw together multiple disciplines to demonstrate the historical and cultural dimensions of conservation: The Nature of Montana (NRSM 121S (RSCN 121S)); Careers in Natural Resources (NRSM 180 (WBIO/FOR 180)); Wildlife and People (WILD 105N (WBIO 105N)); or International Forestry (NRSM 170 (RSCN/FOR 170)). In the sophomore year most students will take an introductory course in soils to become familiar with the cycling of energy and nutrients in terrestrial ecosystems while students in the Wildlife Biology major will take coursework in molecular biology and genetics. In their junior year all students take an upper division ecology class. The University's general education requirements and specific College majors ensure all students take additional natural and social science classes to provide the foundations necessary to understand and manage the natural and social systems underlying human uses of natural resources.

Quantitative and Analytical Skills

All students at the College will attain the quantitative analytical and measurement foundations needed for their professional or research career path. The freshmen level quantitative requirement rests on a proficiency in mathematics that is obtained through one of two routes depending on major: a college algebra/linear math/probability track or an introductory calculus track. All sophomore students take a statistics class which many fulfill through a special course in the analysis of multiple forms of measurement of natural resource characteristics, called Biometrics. Although not required for all majors, most students decide to take a special course in mapping that combines the common applications of geographic information systems (GIS) and the basic attributes of spatial analysis.

Applied Field Skills

A tremendous advantage of an education at the College of Forestry and Conservation is the proximity of an unlimited field laboratory in both the managed and untrammeled landscapes of Montana. All undergraduates will have multiple opportunities to learn in field settings as a part of lab sections associated with many of CFC's courses. Some specific academic opportunities, such as the College's Wilderness and Civilization Program, will take students on extended backcountry trips to gain first-hand knowledge of wild settings. Exceptional hands-on learning experiences are provided at the College's Lubrecht Experimental Forest located less than 30 miles from campus on the Blackfoot River. Since students must demonstrate competency and confidence in outdoor field work to be a successful natural

resource professional, students are required to select a sophomore-level field measurements course within their major. Although advanced transfer students (>59 transfer credits) to the College; Parks, Tourism, and Recreation Students; and Wildlife Biology students may apply other relevant experiences to their field training requirement, completion of a field measurements course is expected before students may enroll in upper division courses, as the needed skills to succeed in subsequent, more advanced field labs depend on a solid core of field capabilities.

Communication

Effectiveness in addressing our shared problems in natural resource management depends on a person's ability to communicate. College of Forestry and Conservation students will graduate with considerable training in written communication with both lower-division requirements at the 200-level and a series of upper division courses where writing constitutes the major part of course expectations. Each major in the College provides a "distributed writing" menu for students entering into upper-division courses, such that each student will take at least three classes where writing skills are evaluated. Students will also fulfill university-wide writing requirements, including the successful passage of the Writing Proficiency Examination prior to entering into upper division coursework. All students take a public speaking class. Students wishing to gain more experience in public speaking and communication can also take a special class Natural Resources Interpretation (PTRM 310 (RECM 310)).

Professional Specialization

Each academic major in the College contains a sequence of courses and learning experiences tailored to the student's specific professional aspirations. Clusters of courses within a major prepare students to obtain the necessary knowledge and professional competencies to perform the tasks of a modern resource manager or research scientist. Course work combines biophysical and social science training to allow students to recognize and navigate the complexities and context of conservation sciences and natural resources management. Thus, each major has courses representing both ecological and policy development processes, as well as a progression of classes covering the knowledge areas and topics of major natural resources disciplines. Students will take a core of required courses (described in the sections below) as well as a balanced selection of "professional electives" to acquire sufficient balance and depth in their chosen field to emerge with an identified professional specialty.

Work Experience and Service Learning

Students at the College of Forestry and Conservation will apply what they have learned in real-world settings prior to graduation. This work experience can be obtained in many ways, via internships, summer employment, study abroad opportunities, or specially designed "service learning" courses. Service experiences will allow students to obtain credit, learn new material, and offer critical work to established organizations to advance conservation goals. In general, requirements for work experience or internships will be counted based on the number of hours worked over the course of a student's entire undergraduate career, with 400 hours or more of work necessary for graduation.

Capstone Experience

Each academic major in the College offers an opportunity for students to synthesize previous learning in a real-world project via either an undergraduate research project or the completion of a special, integrative "capstone" course. Undergraduate research projects are designed through close supervision of a student's academic advisor, while the capstone courses bring together a team of faculty who facilitate student oriented problem solving through a focus on an applied management problem or real world case studies that offer vital experience in the preparation of students for their professional careers.

Other University-wide Requirements for Academic Achievement

The University of Montana has established standards for graduation of all students that include demonstrated proficiencies in oral and written communication and symbolic systems as well as a selection of diverse learning experiences identified as "general education courses." The College's expectations for writing and quantitative skills more than fulfill university-wide requirements for communication and symbolic systems, and many of the courses

offered by CFC also fulfill the categories within general education requirements. All CFC majors also offer sufficient opportunity for students to choose among the full range of UM courses as "free electives," such that each person might be able to explore new areas of learning at their own discretion.

Student Advising

All College of Forestry and Conservation students will have a full-time faculty advisor as well as the extensive advising support provided by the College's Office of Student Services. Students are paired with a faculty advisor who matches their academic and professional interests and serves as a mentor and advocate for students as they progress through individual academic achievements. Students may change their advisor at any time as their specific interests develop or change. New students needing an advisor and current students who wish to change advisors should contact the College's Office of Student Services. Students are required to consult with their advisors before each registration period but remain responsible for ensuring they fulfill the published requirements for graduation.

Graduation Auditing

All students will complete a graduation audit in the semester prior to their graduation to make sure that they have a sure pathway for successful completion of their chosen major.

Faculty

Professors

Jill M. Belsky, Ph.D., Cornell University, 1991

William T. Borrie, Ph.D., Virginia Polytechnic Institute and State University, 1995 (Director, Parks, Tourism & Recreation Management Program)

Perry J. Brown, Ph.D., Utah State University, 1971

James A. Burchfield, Ph.D., University of Michigan, 1991 (Dean)

Edwin J. Burke, Ph.D., Colorado State University, 1978

Wayne A. Freimund, Ph.D., University of Minnesota, 1993

Paul R. Krausman, Ph.D., University of California-Santa Cruz, 1993

L. Scott Mills, Ph.D., University of California, Santa Cruz, 1993

R. Neil Moisey, Ph.D., The University of Montana, 1997

Norma Nickerson, Ph.D., University of Utah, 1989 (Research)

Martin Nie, Ph.D., Northern Arizona, 1998

Michael Patterson, Ph.D., Virginia Polytechnic Institute and State University, 1993 (Associate Dean)

Daniel H. Pletscher, Ph.D., Yale University, 1982 (Director, Wildlife Biology Program)

LLoyd Queen, Ph.D., University of Nebraska, Lincoln, 1988

David Naugle, Ph.D., South Dakota State University, 1998

Steven W. Running, Ph.D., Colorado State University, 1979 (Chair of Ecosystem & Conservation Sciences)

Stephen F. Siebert, Ph.D., Cornell University, 1990

Diana Six, Ph.D., University of California, Riverside, 1997

Ronald H. Wakimoto, Ph.D., University of California-Berkeley, 1978

Associate Professors

Woodman Chung, Ph.D., Oregon State University, 2002

Elizabeth M. Dodson, Ph.D., Oregon State University, 2004 (Director, Forestry Program)

Lisa A. Eby, Ph.D., Duke University, 2001

Solomon Dobrowski, Ph.D., University of California (Davis), 2005

John M. Goodburn, Ph.D., University of Wisconsin, Madison, 2004

Mark Hebblewhite, Ph.D., University of Alberta, 2006

Christopher Keyes, Ph.D., Oregon State University, 2002 (Research)

John Kimble, Ph.D., Oregon State University, 1995 (Research)

Dane Scott, Ph.D., Vanderbilt University, 1999

Carl Seielstad, Ph.D., University of Montana, 2003 (Research)

Tyron Venn, Ph.D., University of Queensland, 2004

Laurie Yung, Ph.D., University of Montana, 2003 (Director, Resource Conservation Program)

Assistant Professors

Brady Allred, Ph.D., Oklahoma State University, 2012

David Affleck, Ph.D., Yale University, 2006

Ashley Ballantyne, Ph.D., Duke University, 2006

Keith Bosak, Ph.D., University of Georgia, Athens, 2006

Cory Cleveland, Ph.D., University of Colorado-Boulder, 2001

Elizabeth Covelli, Ph.D., The Pennsylvania State University, 2011

Kelsey Jensco, Ph.D., Montana State University, 2010

Andrew Larson, Ph.D., University of Washington, 2009

Paul Lukacs, Ph.D., Colorado State University, 2005

Laurie Marczak, Ph.D., University of British Columbia, 2007

Alexander Metcalf, Ph.D., The Pennsylvania State University, 2010

Cara R. Nelson, Ph.D., University of Washington, 2004 (Director, Wildland Restoration Program)

James Riddering, Ph.D., University of Montana, 2004 (Research)

Faculty Associates

Carol Brewer, Ph.D., University of Wyoming, 1993

Robert Crabtree, Ph.D., University of Idaho, 1988

Thomas DeLuca, Ph.D., Iowa State University, 1993

Rich Harris, Ph.D., University of Montana, 1993

Peter Kolb, Ph.D., University of Idaho, 1996

Michael Mitchell, Ph.D., North Carolina State University, 1995

Anna Sala, Ph.D., University of Barcelona, 1992

Michael Schwartz, Ph.D., University of Montana, 2001

Christopher Servheen, Ph.D., University of Montana, 1981

Kathy Tonnessen, Ph.D., University of California, Berkley, 1982

Emeritus Professors

Paul B. Alaback, Ph.D., Oregon State University, 1980

David H. Jackson, Ph.D., University of Washington, 1975

Stephen F. McCool, Ph.D., University of Minnesota, 1970

Alan McQuillan, Ph.D., University of Montana, 1981

Thomas J. Nimlos, Ph.D., University of Wisconsin, 1959

Robert D. Pfister, Ph.D., Washington State University, 1972

Donald F. Potts, Ph.D., State University of New York, 1979

Robert R. Ream, Ph.D., University of Wisconsin, 1963

Jack Ward Thomas, Ph.D., University of Massachusetts, 1972

Hans R. Zuuring, Ph.D., Iowa State University, 1975

Forestry

Bachelor of Science in Forestry

Forest Operations and Applied Restoration Option

In addition to special degree requirements listed previously, the students selecting the Forest Operations and Applied Restoration option must complete the following required courses or their equivalent, if transferred from another college or university. Transference and equivalency will be determined by the University and College of Forestry and Conservation. Electives may be taken at any time, keeping in mind these requirements as well as the University's General Education requirements for graduation.

First Year	Credits
CHMY 121N (CHEM 151N) Introduction to General Chemistry	3
WRIT 101 (ENEX 101) College Writing I	3
M 151 (MATH 121) Precalculus	4
BIOO 105N (BIOL 120N) Introduction to Botany	3
M 162 (MATH 150) Applied Calculus	4
PHSX 205N and 206N (PHYS 111N and PHYS 113N) College Physics I and Lab	5
ECNS 201S (ECON 111S) Introduction to Microeconomics	3
NRSM 180 (FOR 180) Careers in Natural Resources or NRSM 121S (RSCN 121S) Nature of Montana	2
FORS 200 (FOR 200) Forest Resources Measurements Camp	2
Electives and General Education	4
Second Year	Credits
FORS 235 (FOR 235) Problem Solving for Forest Operations	4

FORS 201 (FOR 201) Forest Biometrics	3
ENSC 245N (FOR 210N) Introductory Soils	3
NRSM 200 Natural Resources Professional Writing	3
FORS 241N (FOR 241N) Dendrology	3
GPHY 284 Introduction to GIS and Cartography	3
NRSM 265 (FOR 265) Elements of Ecological Restoration	3
Nature and Society Elective	3
Electives and General Education	3
Third and Fourth Years	Credits
FORS 302 (FOR 302) Forest Mensuration	3
FORS 320 (FOR 320) Forest Environmental Economics	3
FORS 330 (FOR 330) Forest Ecology	3
NRSM 385 (FOR 385) Watershed Hydrology	3
FORS 340 (FOR 340) Forest Products Manufacturing	2
FORS 341 (FOR 341) Timber Harvesting and Roads	3
FORS 347 (FOR 347) Multiple Resource Silviculture	3
FORS 351 (FOR 351) Photogrammetry and Remote Sensing	3
NRSM 422 (FOR 422) Natural Resources Policy & Administration	3
FORS 434 (FOR 434) Advanced Forest Roads	2
FORS 435 (FOR 435) Advanced Timber Harvesting	2
FORS 436 (FOR 436) Forest Operations Evaluation and Project Planning	3
FORS 437 (FOR 437) Forest Operations and Applied Restoration Capstone	3
NRSM 455 (FOR 455) Riparian Ecology and Management	3
Electives and General Education	22
The following courses satisfy the nature and society elective requirement:	
ENST 230H (EVST 167H) Nature and Society	3
ENST 225 (EVST 225) Community and Environment	3
PHL 422 (PHIL 427E) Environmental Philosophy	3

Forest Resources Management Option

In addition to special degree requirements listed previously, the students selecting the Forest Resources Management option must complete the following required courses or their equivalent, if transferred from another college or university. Transference and equivalency will be determined by the University and College of Forestry and Conservation. Electives may be taken at any time, keeping in mind these requirements as well as the University's General Education requirements for graduation.

First Year	Credits
BIOO 105N (BIOL 120N) Introduction to Botany	3
CHMY 121N (CHEM 151N) Introduction to General Chemistry	3
COMX 111A (COMM 111A) Introduction to Public Speaking OR THTR 120A (DRAM 111A) Acting for Non-Majors	3
ECNS 201S (ECON 111S) Introduction to Microeconomics	3
WRIT 101 (ENEX) College Writing I	3
M 151 (MATH 121) Precalculus	4
M 162 (MATH 150) Applied Calculus	4
Electives and General Education	5
Second Year	Credit
FORS 201 (FOR 201) Forest Biometrics	3
NRSM 200 Natural Resources Professional Writing	3
ENSC 245N (FOR 210N)Soils	3
FORS 240 (FOR 240) Tree Biology	2
FORS 241N (FOR 241N) Dendrology	3
GPHY 284 Introduction to GIS and Cartography	3
Social Science Restricted Elective (Select one course from the following list)	
SOCI/ENST 225 (EVST 225) Community and Environment	3
ENST 230H (EVST 167H) Nature and Society	3
NRSM 370S (RSCN 370S) Wildland Conservation Policy and Governance	3
Management Applications Restricted Elective (Select at least five credits from the following list)	
FORS 230 (FOR 230) Forest Fire Management	2
FORS 232 (FOR 232) Forest Insects and Diseases	2
NRSM 360 (FOR 360) Range Management	3
PTRM 217S (RECM 217S) Wildland Recreation Management	3
WILD 275 (FOR 275) Wildlife Conservation	2
Electives and General Education	4
Third and Fourth Years	Credits
FORS 302 (FOR 302) Forest Mensuration	3
FORS 320 (FOR 320) Forest Environmental Economics	3
FORS 330 (FOR 330) Forest Ecology	3

FORS 340 (FOR 340) Forest Products Manufacturing	2
FORS 341 (FOR 341) Timber Harvesting and Roads	3
FORS 347 (FOR 347) Multiple Resource Silviculture	3
FORS 351 (FOR 351) Photogrammetry and Remote Sensing	3
NRSM 385 (FOR 385) Watershed Hydrology	3
NRSM 422 (FOR 422) Natural Resource Policy/Administration	3
FORS 440 (FOR 440) Timber Management I	3
FORS 481 (FOR 481) Forest Planning	3
Professional Electives	15
Electives and General Education	26
Professional Electives: Students must select at least five courses among the three areas of emphasis listed below so that at least 15 total professional elective credits are included in the degree program.	
Biophysical Sciences (select at least one course)	
WILD 373 (WBIO 373) Wildlife Techniques	2
WILD 370 (WBIO 370) Wildlife Habitat Conservation & Management	3
NRSM 335 (FOR 332) Environmental Entomology	3
FORS 342 (FOR 342) Wood Anatomy, Properties and Identification	3
BIOO 320 (BIOL 316) Plant Form and Function	5
BIOO 335 (BIOL 350) Rocky Mountain Flora	3
BIOO 433 (BIOL 444) Plant Physiology	4
BIOB 272 (BIOL 223) Genetics and Evolution	4
PHSX 205N and 206N (PHYS 111N and PHYS 113N) College Physics I and Lab	5
FORS 430 (FOR 430) Forest Meteorology	3
FORS 350 (FOR 350) Forestry Applications of GIS	3
Management Applications (select at least one course)	
FORS 230 (FOR 230) Fire Management*	2
NRSM 360 (FOR 360) Rangeland Management*	3
PTRM 217S (RECM 217S) Wildland Recreation Management*	3
NRSM 455 (FOR 455) Riparian Ecology and Management	3
FORS 307 (FOR 307) Forest Vegetation Management Models	3
FORS 447 (FOR 447) Advanced Silviculture	3
FORS 331 (FOR 331) Wildland Fuel Management	3
NRSM 385 (FOR 485) Watershed Management	3
FORS 441 (FOR 441) Timber Management II	3
FORS 480 (FOR 480) Forest and Rangeland Area Planning and Design	3
PTRM 310 (RECM 310) Natural Resources Interpretation	3
Policy and Social Sciences (select at least one course)	
SOCI/ENST 225 (EVST 225) Community and Environment*	3
ENST 230H (EVST 167H) Nature and Society*	3
NRSM 424 (FOR 424) Community Forestry and Conservation	3
NRSM 379 (FOR 379) Collaboration in Natural Resources Decisions	3
NRSM 475 (FOR 475) Environment and Development	3
NRSM 425 (FOR 425) Natural Resource and Environmental Economics	3
NRSM 370S (RSCN 370S) Wildland Conservation Policy and Governance*	3
PTRM 482 (RECM 482) Wilderness and Protected Area Management	3
PTRM 485 (RECM 485) Recreation Planning	3
*If these courses are selected as restricted electives they may not be used to fulfill professional electives	

Parks, Tourism, & Recreation Management

Special Degree Requirements

The B.S. in Parks, Tourism & Recreation Management degree is designed to prepare students for professional positions developing and managing nature-based recreation experiences and park resources for public land management agencies, nonprofit organizations, and the nature-based tourism industry. Students pursuing this degree must choose between an option in Recreation Resources Management or Nature-Based Tourism. The Recreation Resources Management option provides the educational background necessary for evaluating and managing wild lands to protect their recreational, heritage, and ecological values. The Nature-Based Tourism option is designed to combine an understanding of social, cultural, political, environmental, and economic contexts surrounding tourism in a natural resource setting. All students learn the processes and conceptual skills needed to determine alternative management strategies, make management decisions, and carry out management programs. Included are courses leading to an understanding of the basic ecological characteristics of recreational lands. Students also take courses dealing with human behavior and management. Emphasis is placed on presenting problems that would be encountered while managing national parks and forests, state and

regional parks, wilderness areas, and other recreation resources of international and national significance.

Special Degree Requirements

Students pursuing the B.S. in Parks, Tourism & Recreation Management degree complete the following courses (or their equivalent if transferred from another college or university). Transfer credits and course equivalency will be determined by the University and the College of Forestry and Conservation. In addition, students are required to take a practicum in Parks, Tourism & Recreation Management, PTRM 495 (RECM 460). This is a work-learning experience that involves at least 10 weeks full-time employment in a professional work environment.

PTRM 495 (RECM 460) has a prerequisite of 400 previous hours of relevant work experience. Electives may be taken at any time, keeping in mind these courses as well as the University's General Education requirements for graduation. See also the graduation requirements for the College of Forestry and Conservation listed previously in the catalog.

Recreation Resources Management Option

First Year	Credits
PTRM 110S (RECM 110S) Introduction to Parks, Recreation and Tourism	3
NRSM 180 (RECM 180) Careers in Natural Resources, or WILD 105N (WBIO 105N) Wildlife and People, or NRSM 121S (RSCN 121S) Nature of Montana	2-3
WRIT 101 (ENEX 101) College Writing I	3
BIOB 170N (BIOL 108N) Principles Biological Diversity or BIOE 172 (BIOL 121N) Introductory Ecology	3
PSYX 100S (PSYC 100S) Introduction to Psychology	4
CHMY 121N (CHEM 151N) Intro to General Chemistry	3
COMX 111A (COMM 111A) Introduction to Public Speaking	3
M 115 (MATH 117) Probability and Linear Mathematics	3
Electives and General Education	6
Second Year	Credits
ENSC 245N (FOR 210N) Soils	3
PTRM 210 (RECM 210) Nature-Based Tourism	3
PTRM 230 (RECM 230) Programming in Recreation	3
STAT 216 (MATH 241) Statistics, or FORS 201 (FOR 201) Forest Biometrics, or SOCI 202 (SOC 202) Social Statistics	3-4
PTRM 217S (RECM 217S) Wildland Recreation Management	3
NRSM 200 Natural Resources Professional Writing	3
ECNS 201S (ECON 111S) Principles of Microeconomics	3
GPHY 284 Introduction to GIS and Cartography	3
Electives and General Education	6
Third Year	Credits
FORS 330 (FOR 330) Forest Ecology, or NRSM 462 (FOR 462) Range Ecology	3
PTRM 380 (RECM 380) Recreation Administration and Leadership	4
NRSM 385 (FOR 385) Watershed Hydrology	3
PTRM 300 (RECM 300) Recreation Behavior	3
PTRM 310 (RECM 310) Natural Resources Interpretation	3
PTRM 450 (RECM 450) Pre-practicum Professional Preparation	1
Electives and General Education	9
Summer	Credits
PTRM 495 (RECM 460) Practicum in Parks, Tourism and Recreation Management	6-9
Fourth Year	Credits
PTRM 482 (RECM 482) Wilderness and Protected Area Managements	3
PTRM 484 (RECM 484) Parks, Tourism & Recreation Management Field Measurement Techniques	3
PTRM 485 (RECM 485) Recreation Planning	4
NRSM 422 (FOR 422) Natural Resource Policy/Administration, or WILD 410 (WBIO 410) Wildlife Biology and Biopolitics	3
Electives and General Education	9-14

Nature-Based Tourism Option

First Year	Credits
PTRM 110S (RECM 110S) Introduction to Parks, Recreation, and Tourism	3
NRSM 180 (RECM 180) Careers in Natural Resources, or WILD 105N (WBIO 105N) Wildlife and People, or NRSM 121S (RSCN 121S) Nature of Montana	2-3
WRIT 101 (ENEX 101) College Writing I	3
BIOB 170N (BIOL 108N) Principles Biological Diversity or BIOE 172N (BIOL 121N) Introductory Ecology	3
SOCI 101S (SOC 110S) Introduction to Sociology	3
COMX 111A (COMM 111A) Introduction to Public Speaking	3
CHMY 121N (CHEM 151N) Intro to General Chemistry	3
M 115 (MATH 117) Probability and Linear Mathematics	3

Electives and General Education		6
	Second Year	Credits
ENSC 245N (FOR 210N) Soils		3
PTRM 210 (RECM 210) Nature-Based Tourism		3
PTRM 230 (RECM 230) Programming in Recreation		3
STAT 216 (MATH 241) Statistics, or FORS 201 (FOR 201) Forest Biometrics, or SOCI 202 (SOC 202) Social Statistics		3-4
PTRM 217S (RECM 217S) Wildland Recreation Management		3
NRSM 200 Natural Resources Professional Writing		3
ACTG 201 (ACCT 201) Principles of Financial Accounting		3
ECNS 201S (ECON 111S) Principles of Microeconomics		3
Electives and General Education		6
	Third Year	Credits
FORS 330 (FOR 330) Forest Ecology or NRSM 462 (FOR 462) Range Ecology		3
BMKT 325 (MKTG 360) Principles of Marketing		3
PTRM 380 (RECM 380) Recreation Administration and Leadership		4
PTRM 300 (RECM 300) Recreation Behavior		3
BMKT 337 (MKTG 362) Consumer Behavior		3
PTRM 310 (RECM 310) Natural Resources Interpretation		3
PTRM 450 (RECM 450) Pre-practicum Professional Preparation		1
Electives and General Education		12
	Summer	Credits
PTRM 495 (RECM 460) Practicum in Parks, Tourism and Recreation Management		6-9
	Fourth Year	Credits
PTRM 451 (RECM 451) Tourism and Sustainability		3
PTRM 483 (RECM 483) Commercial Recreation, Marketing, and Tourism		3
PTRM 484 (RECM 484) Parks, Tourism & Recreation Management Field Measurement Techniques		3
NRSM 475 (FOR 475) Environment and Development		3
NRSM 422 (FOR 422) Natural Resource Policy/Administration or WILD 410 (WBIO 410) Wildlife Biology and Biopolitics		3
NRSM 379 (FOR 379) Collaboration in Natural Resource Decisions		3
Electives and General Education		3-7

Resource Conservation

Laurie Yung, Associate Professor, Resource Conservation Program Director

The challenging and rapidly evolving field of environmental conservation requires broad training and the ability to integrate and communicate across disciplines. Resource Conservation is an interdepartmental undergraduate major that prepares students for the diverse opportunities that now exist in environmental conservation, natural resource management, and sustainable livelihoods and communities. Students can choose a more structured area of study in the natural sciences, such as ecology or hydrology, or emphasize emerging sub-disciplines such as wildland fire management, natural resource economics, or climate and environmental change. Students can also integrate across disciplines and focus on environmental policy and natural resources planning, wilderness studies, sustainable livelihoods and community conservation, or international conservation. For more information on different curricular tracks within the Resource Conservation major, please see: www.cfc.umt.edu/rc. In addition to degree requirements listed below, students selecting the Bachelor of Science in Resource Conservation should contact their faculty advisor to approve their curriculum.

Core Resource Conservation Requirements

Oral and Written Communication:

- COMX 111A (COMM 111A) (Introduction to Public Speaking) OR THTR 120A (DRAM 111) (Introduction to Acting)
- WRIT 222 (Technical Writing) or NRSM 200 Natural Resources Professional Writing
- At least three of the following courses (to fulfill the major requirement and the general education requirement for upper division writing): PTRM 300 (RECM 300), FORS 330 (FOR 330), FORS 341 (FOR 341), FORS 342 (FOR 342), FORS 347 (FOR 347), NRSM 379 (EVST/FOR/RSCN 379), NASX 403 (NAS 403), WILD 410 (WBIO 410), BIOE 428 (BIOL 366), FORS 437 (FOR 437), FORS 440 (FOR 440), NSRM 444 (FOR 444), NRSM 445, NRSM 462 (FOR/RSCN 462), NRSM 475 (FOR 475), NRSM 489E (FOR 489E), FORS 499 (FOR 497), or NRSM 499 (or, one writing course, such as PTRM 451 (RECM 451) or PTRM 482 (RECM 482))

Quantitative Skills:

- . Math, one of the following courses: M 115 (MATH 117) (Probability and Linear Math), M 121 (MATH 111) (College Algebra), M 122 (MATH 112)(College Trigonometry), M 151 (MATH 121) (Precalculus), M 162 (MATH 150) (Applied Calculus)
- . Statistics, one of the following courses: STAT 216 (MATH 241) (Introduction to Statistics), SOCI 202 (SOC 202) (Social Statistics), FORS 201 (FOR 201) (Forest Biometrics)
- . GPHY 284 (Intro to GIS and Cartography) or equivalent, or an additional math course (a math course listed above, but not already taken)

Natural and Social Sciences:

- . Biology, one of the following Courses: BIOB 160N (BIOL 110N) (Principles of Living Systems), BIOB 170N (BIOL 108N) (Principles Biological Diversity), BIOO 105N (BIOL 120N) (Introduction to Botany), BIOE 172N (BIOL 121N) (Introductory Ecology)
- . CHMY 121N (CHEM 151N) Introduction to General Chemistry
- . ENSC 245N (FOR 210) (Soils) (prerequisite: CHMY 121N (CHEM 151N))
- . Ecology, one of the following courses: FORS 330 (FOR 330) (Forest Ecology), BIOE 370 (BIOL 340) (General Ecology) (prerequisites: BIOB 275 (BIOL 223), STAT 216 (MATH 241)), NRSM 462 (RSCN 462) (Range Ecology) (prerequisites: NRSM 360 (RSCN 360) and plant ecology course)
- . Policy, one of the following courses: NRSM 422 (FOR 422) (Natural Resource Policy/Administration), NRSM 370S (RSCN 370S) (Wildland Conserv Pol/Govrnance), WILD 410 (WBIO 410) (Wildlife Policy & Biopolitics)
- . Social science, one of the following courses: NRSM 379 (FOR/EVST/RSCN 379) (Collaboration in Natural Resource Decisions), NRSM 424 (FOR/RSCN 424) (Community Forestry and Conservation), NRSM 475 (FOR 475) (Environment and Development), NRSM 426 (Climate and Society) or PTRM 300 (RECM 300) (Recreation Behavior)
- . NRSM 489E (FOR 489E) (Ethics, Forestry, and Conservation) or NRSM 449E (Climate Change Ethics and Policy)

Additional Resource Conservation Requirements

Students have to take at least 36 traditional letter-graded credits within the College of Forestry and Conservation – all courses with the FORS, NRSM, PTRM, and WILD prefixes will work. In addition, WRIT 222 (FOR 220), ENSC 245N (FOR/RSCN 210N), BIOE 447, and CCS courses taught by College of Forestry and Conservation faculty count toward this requirement. Resource Conservation students typically use these additional credits in the College to obtain depth and/or breadth in areas of interest. There are a number of advising “tracks” that enable specialization within the major. Go to www.cfc.umt.edu/rc and click on *Areas of Study* for more information.

Wildlife Biology

- . Special Degree Requirements
- . Requirements for a Minor

Daniel H. Pletscher, Professor, Wildlife Biology Director

The Wildlife Biology Program combines the best features of a liberal arts curriculum with scientific preparation in wildlife conservation. The Program provides students with an extensive knowledge in ecology, population biology, conservation biology, and critical thinking and quantitative skills. Our students receive a strong academic and scientific background with an emphasis on hands-on, experiential learning. The educational requirements for certification by The Wildlife Society can be met within the framework of the undergraduate program.

While some employment opportunities exist in wildlife conservation for students with the baccalaureate degree, we encourage students to continue their education through the master's degree to qualify for most state, federal, and private positions.

Three optional curricula are offered in the Wildlife Biology Program: terrestrial, aquatic, and honors. All three options follow the same schedule of courses for the freshman and most of the sophomore year and then pursue different curricula for the last two years. Each leads to a B.S. in Wildlife Biology. The University is well-suited for instruction in wildlife biology because of the excellent opportunities for field instruction and research at Lubrecht Experimental Forest, Flathead Lake Biological Station, and the Theodore Roosevelt Memorial and Bandy ranches. The Montana Forest and Conservation Experiment Station, the Division of Biological Sciences, and the Montana Cooperative Wildlife Research Unit facilitate research.

High School Preparation: In addition to general University admission requirements, the student should elect four years of mathematics and three years of science, including biology, chemistry and physics.

Special Degree Requirements

Refer to graduation requirements listed previously in the catalog. See index.

The Upper-division Writing Expectation must be met by successfully completing BIOE 371 (BIOL 341) and two courses selected from BIOO 470, 475, 320, (BIOL 304, 306, 316), BIOE 428 (BIOL 366); and WILD 408, 470, 499 (WBIO 408, 470, 497).

The student must complete the requirements for one of the options indicated below.

To obtain the B.S. in Wildlife Biology, the student must have a 2.5 grade point average or higher in all courses taken at The University of Montana.

Suggested sequence subject to frequent change. Some courses are offered more than one semester/year.

Terrestrial and Aquatic Options

Terrestrial Option

First Year	Credits
BIOB 160N (BIOL 110N) Principles of Living Systems	4
CHMY 121N (CHEM 151N) Introduction to General Chemistry	3
CHMY 123N (CHEM 152N) Introduction to Organic and Biochem	3
CHMY 124N (CHEM 154N) Introduction Organic & Biochem Laboratory	2
WRIT 101 (ENEX 101) College Writing I	3
NRSM 180 (WBIO 180) Careers in Natural Resources	2
M 162 (MATH 150) Applied Calculus	4
Electives and General Education	8-14
Summer	Credits
Experiential Learning (For a list of options, contact the Wildlife Biology Office.)	2
Second Year	Credits
BIOB 260 (BIOL 221) Cellular and Molecular Biology	4
BIOB 272 (BIOL 223) Genetics and Evolution	4
BIOO 335 (BIOL 350)* Rocky Mountain Flora	3
COMX 111A (COMM 111A) Introduction to Public Speaking	3
STAT 216 (MATH 241) Statistics or WILD 240 (WBIO 240) Introduction to Biostatistics	3-4
WRIT 222 (FOR 220) Technical Approach to Writing or WRIT 325 Science Writing or WRIT 201 (ENEX 200) College Writing II	2-3
Electives and General Education	11-15
*BIOO 335(BIOL 350)is not required for the Aquatic option	
Third Year	Credits
Two of the following:	
BIOO 470 (BIOL 304) Ornithology	4
BIOO 475 (BIOL 306) Mammalogy	4
BIOO 340 (BIOL 308) Biology and Management of Fishes	4
And one of the following	
FORS 347 (FOR 347) Multiple Resource Silviculture	3
NRSM 360 (FOR 360) Rangeland Management	3
And	
BIOE 370 (BIOL 340) General Ecology	3
BIOE 371 (BIOL 341) General Ecology Lab	2
WILD 346 (WBIO 446) Wildlife Physiological Ecology	3
WILD 370 (WBIO 370) Wildlife Habitat Conservation and Management	3

Electives and General Education	8-14
Fourth Year	
WILD 470 (WBIO 470) Conservation of Wildlife Populations	3
WILD 494 (WBIO 494) Senior Wildlife Seminar	1
WILD 480 (WBIO 480) The Upshot: Applied Wildlife Management	3
And one of the following	
WILD 410 (WBIO 410) Wildlife Policy and Biopolitics	3
NRSM 422 (FOR 422) Natural Resources Policy and Administration	3
Electives and General Education	16-22

Aquatic Option

Third Year		Credits
BIOO 320 (BIOL 316) General Botany		5
BIOO 340 (BIOL 308) Biology and Management of Fishes		4
BIOE 370 (BIOL 340) Ecology		3
BIOE 371 (BIOL 341) Ecology Lab		2
BIOM 427/428 (BIOL 400-401) General Parasitology and Laboratory OR		
BIOE 406 (BIOL 406) Behavior and Evolution OR		4
BIOO 462 (BIOL 410) Entomology or WILD 491 Aquatic Invertebrate Ecology		
WILD 346 (WBIO 446) Wildlife Physiological Ecology		3
Electives and General Education		5-11
Fourth Year		Credits
WILD 494 (WBIO 494) Senior Seminar		1
BIOE 428 (BIOL 366) Freshwater Ecology		5
WILD 408 (WBIO 408) Advanced Fisheries		3
NRSM 385 (FOR 385) Watershed Hydrology		3
WILD 480 (WBIO 480) The Upshot-Applied Wildlife Management		3
And one of the following		
WILD 410 (WBIO 410) Wildlife Policy and Biopolitics		3
NRSM 422 (FOR 422) Natural Resource Policy and Administration		3
Electives and General Education		12-18

Wildlife Biology Honors Emphasis

The honors curriculum is designed particularly for students with strong academic records who intend to do graduate work. Entrance into this emphasis is open to students who, at the beginning of the junior year of the wildlife biology curriculum, have a grade-point average of 3.5 or above and who petition the faculty for entrance (transfer students must have >30 credits at UM).

Honors students must complete either WILD 370, 470, and 494 (WBIO 370, 470 and 494) (terrestrial option) or BIOO 340 (BIOL 308), BIOE 428 (BIOL 366), and WILD 494 (WBIO 494) (aquatic option). Honors students are encouraged to enroll also in WILD 499 (WBIO 497) Senior Thesis. The balance of the coursework for the junior and senior years will be developed in consultation with the honors student's faculty advisor and committee.

All students in the honors emphasis are required to meet with their faculty advisor prior to autumn semester registration of their junior and senior years to work out their course schedules.

Requirements for a Minor

To earn a minor in wildlife biology, the student must successfully complete the following coursework: BIOB 170N, 171N (BIOL 108N, 109N); BIOO 101N (BIOL 201N), BIOO 335 (BIOL 350); WILD 105N (WIOB 105N), WILD 275 (FOR 275); FORS 330 (FOR 330) or NRSM 360 (FOR 360); WILD 105N (WBIO 105), NRSM 180 (WBIO 180).

Wilderness Studies

Wayne Freimund (Professor) Director of Wilderness Institute

Students who successfully complete the requirements of the Wilderness and Civilization Program are eligible for the Wilderness Studies minor. Wilderness and Civilization is an interdisciplinary campus and field-based program. Each year, 25 students investigate wildland conservation and the human-nature relationship through the lenses of policy, ecology, art, Native American Studies, and literature. Wilderness and Civilization combines the strengths of classroom and field learning, interactive classes, innovative faculty, and applied learning through internships. Field

trips include extended backcountry trips as well as shorter field trips examining ecology, environmental issues, land use, and natural history. Wilderness and Civilization offers students the opportunity to explore contemporary conservation debates, make connections between disciplines, and learn how to work for positive change.

Wilderness and Civilization is an undergraduate, immersion program geared toward sophomore-, junior-, and senior-level students in any major. Students take 17.0 credits of campus and field-based courses during the fall, and then continue in the spring with an art course, an internship, a 1.0 credit field course, and a 1.0 credit lecture series. The Wilderness and Civilization program is administered by the Wilderness Institute of the College of Forestry and Conservation. The program is offered in collaboration with the College of Arts and Sciences, the College of Visual and Performing Arts, and the Davidson Honors College.

Students must apply for admission to the Wilderness and Civilization program, which is limited to 25 students each year. Applicants must have a cumulative GPA of 3.0 or higher for all college and university work. Applications are due by April 1 and are available at the Wilderness Institute, University Hall 303.

Requirements for a Minor in Wilderness Studies

To earn a minor in wilderness studies the student must successfully complete the Wilderness and Civilization program and the course requirements below (24.0 credits).

Course # and Description	Credits
NRSM 373 (RSCN 373) Wilderness and Civilization	3
LIT 373L (ENLT 371) Literature and the Environment/Honors	3
NRSM 271N (RSCN 271N) Conservation Ecology/Honors	3
NRSM 370S (RSCN 370S) Wildland Conservation Policy and Governance	3
NASX 303E (NAS 303E) Ecological Perspectives of Native American Tradition	3
NRSM 273 (RSCN 273) Wilderness and Civilization Field Studies	2
NRSM 398 (RSCN 398) Internship: Wildland Community Project	2
NRSM 371 (RECM 371) Wilderness Issues Lecture Series	1
and	
ARTZ 324A (ART 324A) Environmental Drawing	3
or	
MUSI 304A Sound in the Natural World	3
Total	24

Faculty

Mary Ann Bonjorni, Professor of Art, College of Visual and Performing Arts

Rich Clow, Professor of Native American Studies, College of Arts and Sciences

Natalie Dawson, Associate Director, Wilderness Institute, College of Forestry and Conservation

Louise Economides, Assistant Professor of English, College of Arts and Sciences

Lee Heuermann, Instructor, School of Music, College of Visual and Performing Arts

Andrew Larson, Assistant Professor of Forest Ecology, College of Forestry and Conservation

David Moore, Professor of English, College of Arts and Sciences

Martin Nie, Professor of Natural Resource Policy, College of Forestry and Conservation

Laurie Yung, Assistant Professor, Director, Resource Conservation, College of Forestry and Conservation

Wildland Restoration

Bachelor of Science in Wildland Restoration

Ecological restoration — the process of assisting in the repair of damaged ecosystems— is one of the fastest growing areas of natural resource management. With increasing interest, there is a corresponding need for trained

professionals who understand not only the science of restoration ecology but also the management practices and social factors that lead to successful project implementation. The College of Forestry and Conservation offers a Bachelor of Science and a minor in Wildland Restoration (for more information see: <http://www.cfc.umt.edu/wildland/>).

Bachelor of Science in Wildland Restoration (Aquatic and Terrestrial Options)

The major in Wildland Restoration prepares students to tackle the complex challenges associated with repairing degraded ecosystems. Students can select one of two options: the Terrestrial Option, which focuses on the repair of terrestrial ecosystems; and the Aquatic Option which focuses on stream, wetland, and groundwater restoration. Both options provide in-depth training in the science of restoration ecology and the management activities and human dimensions of restoration practice. Students engage in field-based learning, contribute to cutting-edge restoration projects, and are challenged to apply ecological theory to restoration practice. The major requires completion of a nine-credit restoration capstone, during which students gain hands-on real-world experience planning and implementing restoration projects in partnership with natural resource management agencies and organizations in western Montana.

A degree in Wildland Restoration prepares students for careers as restoration practitioners with non-profit, private, or governmental agencies and for graduate school in ecology or natural resource management. Students who graduate with this major may qualify for the following federal civil service jobs: biological technician (Series 0404), ecologist (Series GS-408), forester (Series G-460), hydrologist (Series GS-1315) and soil conservationist (Series GS-457). More information on federal civil service requirements can be found at: <http://www.opm.gov/qualifications/standards/indexes/alph-ndx.asp>.

Minor in Wildland Restoration

In addition to the major, the Wildland Restoration program also offers a minor for students who wish to gain basic competency in restoration while pursuing another UM major.

Bachelors in Wildland Restoration - Aquatic Option

First Year	Credits
BIOB 160N (BIOL 110N) Principles of Living Systems	4
CHMY 121N (CHEM 151N) Introduction to General Chemistry	3
CHMY 123N (CHEM 152N) Introduction to Organic and Biological Chemistry	3
COMX 111A (COMM 111A) Introduction to Public Speaking	3
GEO 101N/102N (GEOS 100N/101N) General Geology/Lab	3
M 171 (MATH 152) Calculus I	4
NRSM 121S (RSCN 121S) Nature of Montana or NRSM 170 (RSCN 170) International Environmental Change or NRSM 180 (FOR/RECM/WBIO 180) Careers in Natural Resources	2-3
WRIT 101 (ENEX 101) College Writing I	3
Electives and General Education	6
Second Year	Credits
BIOB 260 (BIOL 221) Cellular and Molecular Biology	4
BIOB 272 (BIOL 223) Genetics and Evolution	4
M 172 (MATH 153) Calculus II	4
NRSM 265 (FOR 265) Elements of Ecological Restoration	3
FORS 201 (FOR 201) Forest Biometrics or STAT 216 (MATH 241) Statistics or WILD 240 (WBIO 240) Introduction to Biostatistics	3-4
WRIT 222 Technical Writing or WRIT 325 Science Writing (honors)	2-3
Electives and General Education	7-8
Third and Fourth Years	Credits
BIOE 370 (BIOL 340) General Ecology	3
BIOE 428 (BIOL 366) Freshwater Ecology	5
NRSM 365 (FOR 365) Foundation of Restoration Ecology	3
NRSM 385 (FOR 385) Watershed Hydrology	3
NRSM 422 (FOR 422) Natural Resource Policy and Administration	3
NRSM 444 (FOR 444) Ecological Restoration Capstone	5
NRSM 494 (FOR 494) Seminar in Ecological Restoration	1
NRSM 495 (FOR 445) Ecological Restoration Practicum	3-6
NRSM 489E (FOR 489E) Ethics Forestry and Conservation	3
Restoration/Aquatic Electives	9
Restoration/Social-Sci. Elective	3

Electives and General Education		14-17
Rest/Aquatic Electives: At least nine credits must be completed from:		
BIOO 340 (BIOL 308) Biology and Management of Fishes		4
ENSC 245N (FOR 210N) Soils		3
GEO 420 (GEOS 480) Hydrogeology		3
GEO 460 (GEOS 460) Process Geomorphology		4
GPHY 284 Introduction to GIS and Cartography		3
NRSM 455 (FOR 455) Riparian Ecology and Management		3
NRSM 485 (FOR 485) Watershed Management		3
WILD 491 Aquatic Macroinvertebrate Ecology		3
Rest/ Social-Science Electives: At least three credits must be completed from:		
ECNS 433 (ECON 440) Environmental Economics		3
FORS 320 (FOR 320) Forest Environmental Economics		3
NRSM 379 (FOR 379) Collaboration in Natural Resource Decisions		3
NRSM 426 Climate and Society		3
NRSM 475 (FOR 475) Environment and Development		3
Bachelors in Wildland Restoration - Terrestrial Option		
First Year		Credits
BIOB 160N (BIOL 110) Principles of Living Systems		4
BIOO 105N (BIOL 120) Introduction to Botany		3
CHMY 121N (CHEM 151N) Introduction to General Chemistry		3
CHMY 123N (CHEM 152N) Introduction to Organic and Biological Chemistry		3
COMX 111A (COMM 111A) Introduction to Public Speaking		3
M 162 (MATH 150) Calculus		4
NRSM 121S (RSCN 121S) Nature of Montana or NRS 170 (RSCN 170) International Environmental Change or NRS 180 (FOR/RECM/WBIO 180) Careers in Natural Resources		2-3
WRIT 101 (ENEX 101) College Writing I		3
Electives and General Education		6
Second Year		Credits
BIOB 260 (BIOL 221) Cellular and Molecular Biology		4
BIOB 272 (BIOL 223) Genetics and Evolution		4
ENSC 245N (FOR 210N) Soils		3
NRSM 265 (FOR 265) Elements of Ecological Restoration		3
FORS 201 (FOR 201) Forest Biometrics or STAT 216 (MATH 241) Statistics or WILD 240 (WBIO 240) Introduction to Biostatistics		3-4
WRIT 222 Technical Writing or WRIT 325 Science Writing (Honors)		2-3
Electives and General Education		9-10
Third and Fourth Years		Credits
BIOE 370 (BIOL 340) General Ecology		3
BIOE 448 Terrestrial Ecosystem Ecology or BIOE 448 (BIOL 448) Terrestrial Plant Ecology or FORS 330 (FOR 330) Forest Ecology or		3-4
NRSM 462 (FOR 462) Range Ecology		
BIOO 335 (BIOL 350) Rocky Mountain Flora		3
NRSM 365 (FOR 365) Restoration Ecology		3
NRSM 385 (RSCN 385) Watershed Hydrology		3
NRSM 422 (FOR 422) Natural Resource Policy and Administration		3
NRSM 444 (FOR 444) Ecological Restoration Capstone		5
NRSM 489E (FOR 489E) Ethics, Forestry and Conservation		3
NRSM 494 (FOR 494) Seminar in Ecological Restoration		1
NRSM 495 (FOR 445) Ecological Restoration Practicum		3-6
Electives and General Education		14-17
Rest/Terrestrial Electives: At least nine credits must be completed from (students may not select an elective that is being used to fulfill any of the course requirements above):		
BIOE 447 Ecosystem Ecology		3
BIOE 448 (BIOL 448) Terrestrial Plant Ecology		4
BIOO 320 (BIOL 316) General Botany		5
BIOO 433 (BIOL 444) Plant Physiology		3
BIOM 430 (MICB 423) Applied and Environmental Microbiology		3
FORS 330 (FOR 330) Forest Ecology		3
FORS 331 (FOR 331) Wildland Fuels Management		3
FORS 347 (FORS 347) Silviculture		3
GPHY 284 Intro to GIS and Cartography		3
NRSM 335 (FOR 335) Environmental Entomology		3
NRSM 360 (FOR 360) Rangeland Management		3
NRSM 363 (FOR 361) Range Forage Plants		3
NRSM 415 (FOR 415) Environmental Soil Science		3
NRSM 462 (FOR 462) Range Ecology		3
NRSM 485 (FOR 485) Watershed Management		3
WILD 470 (WBIO 470) Conservation of Wildlife Populations		3
Rest/Social-Science Electives: At least three credits must be completed from:		
		Credits

ECNS 433 (ECON 440) Environmental Economics	3
FORS 320 (FOR 320) Forest Environment Economics	3
NRSM 379 (FOR 379) Collaboration in Natural Resource Decisions	3
NRSM 426 Climate and Society	3
NRSM 475 (FOR 475) Environment and Development	3

Wildland Restoration Minor

To earn a minor in Wildland Restoration, students must fulfill the course requirements listed below.

Minor in Wildland Restoration	Credits
NRSM 265 (FOR 265) Elements of Ecological Restoration	3
NRSM 365 (FOR 365) Foundations of Restoration Ecology	3
BIOE 370 (BIOL 340) General Ecology or BIOE 428 (BIOL 366) Freshwater Ecology or FORS 330 (FOR 330) Forest Ecology or NRSM 462 (FOR 462) Range Ecology	3
FORS 201 (FOR 201) Forest Biometrics or STAT 216 (MATH 241) or WILD 240 (WBIO 240) Introduction to Biostatistics	3-4
ENSC 245N (FOR 210N) Soils	3
BIOO 335 (BIOL 350) Rocky Mountain Flora or NRSM 385 (FOR 385) Watershed Hydrology	3
Rest/Natural Science Electives: At least three credits must be completed from the following: (Students may not select an elective that is being used to fulfill any of the course requirements above):	Credits
BIOE 370 (BIOL 340) General Ecology	3
BIOE 428 (BIOL 366) Freshwater Ecology	5
BIOE 448 (BIOL 448) Terrestrial Plant Ecology	3
BIOO 335 (BIOL 350) Rocky Mountain Flora	3
BIOO 340 (BIOL 308) Biology and Management of Fishes	3
BIOO 433 (BIOL444) Plant Physiology	3
FORS 330 (FOR 330) Forest Ecology	3
FORS 331 (FOR 331) Wildland Fuel Management	3
FORS 347 (FOR 347) Multiple Resource Silviculture	3
GEO 420 (GEOS 480) Hydrogeology	3
GEO 460 (GEOS 460) Process Geomorphology	3
NRSM 335 (FOR 335) Environmental Entomology	3
NRSM 360 (FOR 360) Range Management	3
NRSM 385 (FOR 385) Watershed Hydrology	3
NRSM 415 (FOR 415) Environmental Soil Science	3
NRSM 455 (RSCN 455) Riparian Ecology and Management	3
NRSM 462 (FOR 462) Range Ecology	3
NRSM 485 (RSCN 485) Watershed Management	3
WILD 470 (WBIO 470) Conservation of Wildlife Populations	3
WILD 491 Aquatic Macroinvertebrate Ecology	3
Rest/Social - Science Electives: At least three credits must be completed from the following (student may not select an elective that is also required for the student's major degree):	Credits
ECSN 433 (ECON 440) Economics of the Environment	3
FORS 320 (FOR 320) Forest Environmental Economics	3
NRSM 379 (FOR 379) Collaboration in Natural Resource Decisions	3
NRSM 422 (FOR 422) Natural Resource Policy and Administration	3
NRSM 426 Climate and Society	3
NRSM 449E (FOR/RSCN 449) Climate Change Ethics and Policy	3
NSRM 475 (FOR 475) Environment and Development	3
NRSM 489E (FOR 489E) Ethics Forestry and Conservation	3
PTRM 482 (RECM 482) Wilderness & Protected Areas Management	3
Total	24-25

College of Health Professions and Biomedical Sciences

David S. Forbes, Dean

Lori J. Morin, Assistant Dean for Student Affairs

The College of Health Professions and Biomedical Sciences offers the Bachelor of Arts in Social Work, the Doctor of Pharmacy (Pharm.D.) degree; the Master of Science degrees in Neuroscience, Pharmaceutical Sciences, Toxicology, and Medicinal Chemistry; the Master of Public Health degree, the Master of Social Work degree, the Doctor of Physical Therapy degree, and the Doctor of Philosophy (Ph.D.) degrees in Biomedical Sciences, Neuroscience, Toxicology, and Medicinal Chemistry.

The focus of these programs is to provide a composite of educational experiences that will produce a well-educated person and a highly trained, professional social worker, health care practitioner or scientist.

Health Sciences

Courses

Health science courses are concerned with fundamental issues in human health and disease and are, therefore, interdisciplinary in both scope and content. They have been designed not only for students anticipating careers in medicine, dentistry, nursing, public health, pharmacy, social work, medical technology, physical therapy, cytotechnology, and numerous other health care professions and services, but for all students interested in individual and community health, the clinical and paramedical arts, and the biomedical sciences. Health sciences courses are listed under two designations: 1) Allied Health: Health Sciences; 2) other disciplines.

Health Sciences Courses

Allied Health: Health Sciences

- . AHHS 191 (HS 195) Special Topics
- . AHHS 201 (HS 201) Living Well: Health and Disability
- . AHHS 291 (HS 295) Special Topics
- . AHHS 320 (HS 320) American Indian Health Issues
- . AHHS 324 (HS 324) Medicinal Plants
- . AHHS 325 (HS 325) Introduction to Gerontology
- . AHHS 327 (HS 327) Montana Gerontology Society Meeting
- . AHHS 389 (HS 389) Recent Advances in Clinical Medicine
- . AHHS 390 (HS 390) Research
- . AHHS 391 (HS 395) Special Topics
- . AHHS 391 (HS 395) ST:Introduction to Dentistry
- . AHHS 394 (HS 394) Medical Preparation and Overview
- . AHHS 395 (HS 326) Geriatric Practicum
- . AHHS 420 (HS 420) Geriatric Health Issues
- . AHHS 430 (HS 430) Health Aspects of Aging
- . AHHS 440 (HS 440) Psychosocial Aspects of Illness and Disability in Older Persons
- . AHHS 490 (HS 490) Research
- . AHHS 491 (HS 495) Special Topics

Anthropology

- . ANTY 211 (ANTH 211) Anthropological Genetics
- . ANTY 227 (ANTH 201) Human Sexuality
- . ANTY 333 (ANTH 343) Culture and Population
- . ANTY 426 (ANTH 444) Culture, Health and Healing

Economics

- . ECNS 310 (ECON 320) Health Economics

Health and Human Performance

- . HEE 110 (HHP 184) Personal Health and Wellness
- . NUTR 221N (HHP 236N) Nutrition

Microbiology

- . BIOM 250N (BIOL 106N) Elementary Microbiology
- . BIOM 251 (BIOL/MICB 107) Elementary Microbiology Laboratory
- . BIOM 400 (MICB 302) Medical Microbiology

Native American Studies

- . NASX 388 (NAS 388) Native American Health and Healing

Social Work

- . SW 423 Addiction Studies
- . SW 455 Social Gerontology

Pharmacy

- . PHAR 110N Use and Abuse of Drugs
- . PHAR 145N Intro to Cancer Biology
- . PHAR 320 American Indian Health Issues
- . PHAR 324 Medicinal Plants

Philosophy

- . PHL 321E (PHIL 421) Philosophy and Biomedical Ethics

Courses

R- before the course description indicates the course may be repeated for credit to the maximum indicated after the R. Credits beyond this maximum do not count toward a degree.

Allied Health - Health Sciences (AHHS) - Course Descriptions

191, 201, 291, 320, 324, 325, 327, 389, 390, 391, 394, 395, 420, 430, 440, 490, 491

School of Physical Therapy and Rehabilitation Science

- . Curriculum and Application Process
- . Special Degree Requirements
- . Courses
- . Faculty

Reed Humphrey, Chair

The professional program in physical therapy grants the Doctor of Physical Therapy (D.P.T.) degree. The program has an entry-level D.P.T. program, an entry-level D.P.T./M.B.A. program, and a post-entry level transitional D.P.T. curriculum leading to the D.P.T. degree. The following section describes the profession and the pre-professional requirements and application procedures. This information also is available on the program website at www.health.umt.edu/schools/pt.

The Profession

Physical Therapy is a health care profession concerned with the habilitation and rehabilitation of individuals having limitations resulting from pathological, surgical, or traumatic conditions. The profession is also concerned with health, wellness and prevention of disability in an effort to promote maximal use of an individual's capacities and reduce their risk of illness. Physical therapists are trained to evaluate neurological, musculoskeletal, cardiovascular, respiratory, and integumentary disorders. Exercise and physical agents, such as heat, cold, light, electricity, and massage are used to promote healing, relieve pain, maintain or restore strength, and improve joint range of motion and functional capabilities. Physical therapists play key roles in: 1) the physical therapy diagnosis and treatment of musculoskeletal injuries, 2) wellness and injury prevention, 3) rehabilitating injured workers to return to their jobs, 4) rehabilitating senior citizens after debilitating disease to enable them to remain independent, 5) helping handicapped children to live within the least restrictive environment, 6) preventing and treating sports-related injuries, and 7) conducting research in the basic and clinical sciences. Knowledge of the psychological and social ramifications of disability affecting the individual and his or her family is an integral part of physical therapy intervention.

Physical therapy is practiced in diverse settings, including hospitals, clinics, skilled nursing facilities, sports medicine programs, public schools, and private practices. Legislation in Montana permits direct public access to physical therapists for evaluation and treatment without a physician referral. Even so, physical therapists remain committed to functioning as an integral member of the health care team.

The physical therapy educational program at The University of Montana seeks to prepare physical therapists who have a broad base of skills upon graduation, and who will be able to implement physical therapy services in many settings, especially rural environments. Rural settings require a physical therapist to serve not only as a provider of

direct patient care, but also to fulfill the roles of administrator, supervisor, teacher, consultant, and researcher. Students successfully completing the professional program meet the competencies for physical therapy as determined by the Commission on Accreditation in Physical Therapy Education of the American Physical Therapy Association, receive a Doctor of Physical Therapy degree, and are prepared for state licensure.

The Physical Therapy Program is accredited by the Commission on Accreditation in Physical Therapy Education of the American Physical Therapy Association through 2018.

High School Preparation:

Specific high school courses are not required but a background is recommended in mathematics, chemistry, biology, physics, English, and communication skills.

Pre-Professional Physical Therapy Curriculum and Application Process

Students wishing to apply to the professional physical therapy program at The University of Montana-Missoula may select any major for their undergraduate degree. While pre-physical therapy is not a degree granting major at the University, prospective applicants should list pre-professional physical therapy (PPPT) as their second major. This will allow them also to receive advising from the School of Physical Therapy and Rehabilitation Science in order to assure adequate preparation for the professional program. In addition to completing a baccalaureate degree, applicants must take the following prerequisite courses and meet the additional application requirements listed. All prerequisite courses must be taken for a traditional letter grade and must be completed with a grade of "C" (2.00) or better.

Prerequisite Courses and Credits

Human Anatomy and Physiology: minimum of two semesters or two to three quarters of human anatomy and physiology. This course work must be completed in a Biology, Anatomy and/or Physiology department. A full sequence must be completed of two semesters or two to three quarters, depending upon what is offered by the institution. A comparative vertebrate anatomy and an animal physiology course may be substituted for human anatomy and physiology.

Chemistry: minimum of two semesters or two quarters of chemistry with laboratory. A full sequence must be completed of two semesters or two to three quarters, depending upon what is offered by the institution.

Physics: minimum of two semesters or two quarters of physics with laboratory. A full sequence must be completed of two semesters or two to three quarters, depending upon what is offered by the institution.

Statistics: minimum of one semester or quarter of statistics course work.

Social Sciences: minimum of two semesters or three quarters of social/behavioral science classes. These classes may include courses offered by Psychology, Educational Psychology, Sociology, Social Work, Cultural Geography and Anthropology departments.

Certification in adult, child, and infant CPR is assumed.

Computer literacy is assumed. You should be able to utilize email communication, word processing, statistical and spreadsheet programs and be able to complete searches on the Web.

Suggested Prerequisite Courses at The University of Montana-Missoula

BIOH 365, 370 (BIOL 312, 313) Human Anatomy and Physiology I, II for Health Professionals or BIOH 201N, 211N (SCN 201, 202) Human Anatomy and Physiology I, II	8
CHMY 121N, 123N, 124N (CHEM 151N, 152N, 154N) Intro to General Chemistry and Laboratory, Intro to Organic & Biochemistry and Laboratory	8
PHSX 205N/206N, 207N/208N (PHYS 111N/113N, 112N/114N) College Physics I, II and Laboratory	10
PSYX 100S (PSYC 100S) Introduction to Psychology or SOCI 101S (SOC 110) Introduction to Sociology or ANTH 101H Introduction to Anthropology or PSYX 340S (PSYC 330S) Abnormal Psychology or PSYX 230S (PSYC 240S) Developmental Psychology	7
STAT 216 (MATH 241) Introduction to Statistics or PSYX 222 (PSYC 240S) Psychological Statistics or SOCI 202 (SOC 202) Social Statistics	

or STAT 341 (MATH 341) Intro to Probability and Stat or STAT 421 (MATH 441) Mathematical Statistics or STAT 422 (MATH 442) Advanced Mathematical Statistics, or STAT 451 (MATH 444) Statistical Methods I or STAT 452 (MATH 445) Statistical Methods II, or FOR 201, or HHP 486

Additional Requirements for Application

Because the professional program is sequential, students must enter the program in the autumn semester of the first professional year.

Online application and information about admissions policies for the professional program are available from the School of Physical Therapy and Rehabilitation Science website <http://physicaltherapy.health.umt.edu/>. The online applications are typically available beginning in July for each application cycle. Application fees are required with one going to PTCAS and another going to the School of Physical Therapy and Rehabilitation Science. Questions about admission should be addressed to physical.therapy@umontana.edu.

The application documentation must be submitted online by October 15 (PTCAS application and School Supplemental application) and the supporting documents must be forwarded directly to the Chair, Student Selection Committee, School of Physical Therapy and Rehabilitation Science, arriving no later than October 15, preceding the autumn semester of the year for which admission is requested. The Graduate Record Exam (GRE) must be completed and the scores sent to The University of Montana. (Institution code 4489) Seven of the nine prerequisite courses must be completed at the time of application (October 15), including at least one course from both the chemistry and physics class sequences.

To be considered for admission, an applicant must have obtained a cumulative grade average of at least 3.0 (on a four-point scale) in all college courses for which the applicant has registered, as well as a minimum of 3.0 in the required prerequisite course work. Some preference will be given to Montana residents as well as students from states with no public physical therapy school. In addition to meeting the minimum grade point average (3.0 for both cumulative and prerequisite GPA) it may be useful for applicants to appreciate that GRE scores below the following thresholds are unlikely to result in admission to our program:

- . GRE Verbal Reasoning score of 146 (formerly 400)
- . GRE Quantitative Reasoning score of 146 (formerly 560)
- . Analytical Writing score of 3.5

To qualify as a resident applicant, the student must be a Montana resident, or be in the process of establishing residency in Montana.

In addition to these requirements, applicants must demonstrate an appreciation and knowledge of the practical duties and responsibilities of the physical therapist through direct exposure in a variety of clinical settings (a minimum of 80 hours of work or observation under the direct supervision of a physical therapist before application). At least 3 different clinical settings are required in the 80 hours of observation - outpatient, inpatient acute care, rehab/sub-acute rehab, skilled nursing/extended care, school/pediatrics, or home health. Documentation of these hours is included in the PTCAS application. These observation hours must be completed before application submission. Applicants are expected to participate in activities beyond their academic pursuits; such activities should include employment, volunteer activities (school, sport, community, or church) and employment/volunteer activities interacting with people with disabilities.

Application documentation includes three letters of recommendation, one of which must be from a licensed physical therapist. These letters will be submitted electronically through the PTCAS application.

After completed applications have been received, the Selection Committee will screen the applications based on grade point average in prerequisite courses, overall grade point average, GRE scores, evidence of leadership, community service, and letters of recommendation. Based upon the results of this screening, only those applicants who appear best qualified will be invited for a personal interview. Although an invitation to appear for interview does not assure the applicant a place in the class, the final selection will be made from those interviewed. All applicants will

be notified of their status.

Professional Physical Therapy Program

The professional entry-level D.P.T. program is 33 months in length. Enrollment is limited to 34 students in each class. All students pay first-level graduate tuition and fees plus a tuition surcharge each Autumn and Spring semester. The students will also pay first-level tuition and fees for two summer sessions.

Joint MBA/DPT Program

Students who wish to participate in this joint dual degree program must satisfy the normal admission requirements for both The School of Physical Therapy and Rehabilitation Science's entry level DPT program and The School of Business Administration's MBA program. Students cannot enter the joint program until they have been accepted separately by both schools. If accepted by both programs, permission to participate in the joint program must be obtained from both the Chair of the DPT program and the Director of the MBA program. Students completing this dual degree program will receive two separate degrees, the DPT and the MBA. Requirements consist of competing 32 credits for the MBA including 8 transferred in from the School of Physical Therapy and Rehabilitation Science and 118 total credits for the DPT including 8 transferred from the School of Business Administration. Students will work with faculty advisors from both programs to determine an appropriate curricular schedule.

Special Degree Requirements

Once admitted into the professional entry-level Physical Therapy Program, all students must achieve a C grade or higher (or a CR, in credit/no credit) in all required courses in the physical therapy curriculum. Because courses in the curriculum are sequential, a student who fails to achieve a C grade (or a CR, in credit/noncredit courses) in any course may not be allowed to continue in the next semester of the professional program. The student must retake the course at the next offering. Students must maintain a minimum 2.50 grade average while in the professional entry-level D.P.T. program. Students who do not maintain this average will be on academic probation and must achieve the 2.50 grade average in order to graduate. Students who fail to progress in the expected manner for two consecutive years will be dismissed from the Physical Therapy Program subject to review by the Academic Requirements Committee and the Dean of the College of Health Professions and Biomedical Sciences. Students also must comply with all School academic and professional conduct policies as outlined in the Physical Therapy Program Student Handbook. All students enrolled in the program are expected to maintain a full-time academic course load (minimum of 12 semester credits) during each semester of the program.

Professional Physical Therapy Curriculum

First Professional Year		A	S
PT 503 Physical Therapy and Health Care System	4	-	
PT 510 Applied Clinical Anatomy	5	-	
PT 516 Movement System Exam and Evaluation	5	-	
PT 519 Musculoskeletal Management I	-	4	
PT 520 Development Through the Life Span	-	2	
PT 523 Clinical Medicine I	1	-	
PT 524 Clinical Medicine II	-	1	
PT 526 Foundational Skills and Interventions	4	-	
PT 527 Electrophysiological Testing and Interventions	-	2	
PT 529 Biomechanics	4	-	
PT 530 Clinically Applied Exercise Physiology	-	4	
PT 536 Neurosciences for the Health Professions	-	5	
PT 560 Clinical Reasoning I	-	1	
PT 582 Clinical Experience I	-	1	
Total	22	20	
Summer Session Credits			
PT 587 Clinical Internship I	4		
Second Professional Year		A	S
PT 525 Clinical Medicine III: Pathophysiology & Pharmacology for Physical Therapists	2	-	
PT 561 Research in Physical Therapy	2	-	
PT 563 Cardiopulmonary Physical Therapy	3	-	
PT 565 Physical Therapy for Children	2	-	

PT 567 Neurorehabilitation I	3 -
PT 568 Neurorehabilitation II	- 3
PT 569 Musculoskeletal Management II	5 -
PT 572 Practice and Administration	- 2
PT 573 Musculoskeletal Management III	- 4
PT 576 Clinical Reasoning II	- 1
PT 578 Physical Therapy for Select Populations	- 6
PT 588 Clinical Internship II	- 4
Total	17 20

Summer Session Credits	
PT 589 Clinical Internship III 5	
Third Professional Year A S	
PT 626 Clinical Medicine IV	3 -
PT 627 Prevention, Wellness, and Education	2 -
PT 672 Research in Physical Therapy II	2 -
PT 570 Psychology of Illness and Disability	2 -
PT 676 Reasoning III	3 -
PT 679 Current Trends & Scholarly Activities in Physical Therapy 1-6	-
PT 680 Clinical Internship IV	- 12
Total	18 12

Six credits of professional elective course work are required for the D.P.T. These may be satisfied by PT 672 or 679 sections or courses outside the school. Only 6 credits may be independent study.

Total credits required for graduation: 118

Transitional D.P.T. Curriculum

The mission of the transitional Doctor of Physical Therapy (tDPT) curriculum is to provide an affordable, practical, and career-enhancing plan of study that allows licensed physical therapists to transition their current entry-level professional degree to the Doctor of Physical Therapy degree. The program of study offers licensed physical therapists with an academic degree in Physical Therapy the opportunity to earn the Doctor of Physical Therapy (DPT) degree. The focus of the program is to bridge the gap between current DPT and prior degree entry-level expectations. The program is delivered in a distance-education format, although students are required to attend a weekend during the course of study for a two-day seminar in concepts of professionalism in an autonomous profession and other requirements as identified in the program of study.

Admission Requirements

Applicants must:

- . Provide evidence of being currently credentialed, licensed, registered, or equivalent to practice physical therapy;
- . Complete an admission application supplied through the School of Physical Therapy and Rehabilitation Science at The University of Montana;
- . For those in the BS tDPT curricular track, provision of official transcripts and evidence of an entry-level degree in physical therapy from an accredited institution;
- . For those in the MS tDPT curricular track provision of official transcripts of an entry-level or advanced master's degree (MS or higher) from an accredited institution in physical therapy;
- . In addition to numbers 1-4, for students graduating from a foreign institution, certification of entry-level equivalence through an approved credentialing agency, such as Silvergate (<http://www.silvergateevaluations.com/>) International Consultants of Delaware (<http://www.icdeval.com/>) the Foreign Credentialing Commission on Physical Therapy ([www.http://www.fccpt.org](http://www.fccpt.org)) or World Education Services (<http://www.wes.org>) is required;
- . Non-US licensed applicants whose native language is not English must submit qualifying TOEFL (Test of English as a Foreign Language), IELTS (International English Language Testing System) or MELAB (Michigan English Language Assessment Battery) scores to be admitted into the tDPT curriculum. If the TOEFL score is below 580 (paper-based test), 237 (computer-based test) or 92 (internet-based test), the IELTS score is below 6.5 or the MELAB score is below 82, applicants are encouraged to complete English as a Second Language course(s) and