

# 2012-2013 Undergraduate Calendar

The information published in this Undergraduate Calendar outlines the rules, regulations, curricula, programs and fees for the 2012-2013 academic year, including the Summer Semester 2012, the Fall Semester 2012 and the Winter Semester 2013.

For your convenience the Undergraduate Calendar is available in PDF format.

If you wish to link to the Undergraduate Calendar please refer to the [Linking Guidelines](#).

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The logo for the University of Guelph, featuring the text "UNIVERSITY of GUELPH" in a stylized font.The tagline "CHANGING LIVES IMPROVING LIFE" in a bold, sans-serif font.

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# Disclaimer

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## University of Guelph 2012

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The information published in this Undergraduate Calendar outlines the rules, regulations, curricula, programs and fees for the 2012-2013 academic year, including the Summer Semester 2012, the Fall Semester 2012 and the Winter Semester 2013.

The University reserves the right to change without notice any information contained in this calendar, including fees, any rule or regulation pertaining to the standards for admission to, the requirements for the continuation of study in, and the requirements for the granting of degrees or diplomas in any or all of its programs. The publication of information in this calendar does not bind the University to the provision of courses, programs, schedules of studies, or facilities as listed herein.

The University will not be liable for any interruption in, or cancellation of, any academic activities as set forth in this calendar and related information where such interruption is caused by fire, strike, lock-out, inability to procure materials or trades, restrictive laws or governmental regulations, actions taken by faculty, staff or students of the University or by others, civil unrest or disobedience, public health emergencies, or any other cause of any kind beyond the reasonable control of the University.

In the event of a discrepancy between a print version (downloaded) and the Web version, the Web version will apply.

Published by: Enrolment Services

## **Introduction**

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### **Collection, Use and Disclosure of Personal Information**

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Personal information is collected under the authority of the University of Guelph Act (1964), and in accordance with Ontario's Freedom of Information and Protection of Privacy Act (FIPPA) <http://www.e-laws.gov.on.ca/index.html>. This information is used by University officials in order to carry out their authorized academic and administrative responsibilities and also to establish a relationship for alumni and development purposes. Certain personal information is disclosed to external agencies, including the Ontario Universities Application Centre, the Ministry of Training, Colleges and Universities, and Statistics Canada, for statistical and planning purposes, and is disclosed to other individuals or organizations in accordance with the Office of Registrarial Services Departmental Policy on the Release of Student Information. For details on the use and disclosure of this information call the Office of Registrarial Services at the University at (519) 824-4120 or see <http://www.uoguelph.ca/registrar/registrar/index.cfm?index>.

### **Statistics Canada - Notification of Disclosure**

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For further information, please see Statistics Canada's web site at <http://www.statcan.ca> and Section XIV Statistics Canada.

### **Address for University Communication**

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Depending on the nature and timing of the communication, the University may use one of these addresses to communicate with students. Students are, therefore, responsible for checking all of the following on a regular basis:

#### **Email Address**

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The University issued email address is considered an official means of communication with the student and will be used for correspondence from the University. Students are responsible for monitoring their University-issued email account regularly. See Section I--Statement of Students' Academic Responsibilities for more information.

#### **Home Address**

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Students are responsible for maintaining a current mailing address with the University. Address changes can be made, in writing, through Enrolment Services.

#### **Name Changes**

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The University of Guelph is committed to the integrity of its student records, therefore, each student is required to provide either on application for admission or on personal data forms required for registration, his/her complete, legal name. Any requests to change a name, by means of alteration, deletion, substitution or addition, must be accompanied by appropriate supporting documentation.

### **Student Confidentiality and Release of Student Information Policy Excerpt**

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The University undertakes to protect the privacy of each student and the confidentiality of his or her record. To this end the University shall refuse to disclose personal information to any person other than the individual to whom the information relates where disclosure would constitute an unjustified invasion of the personal privacy of that person or of any other individual. All members of the University community must respect the confidential nature of the student information which they acquire in the course of their work.

Complete policy at <http://www.uoguelph.ca/policies/pdf/ORSInfoReleasePolicy060610.pdf>.



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## Table of Contents

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<b>Bachelor of Bio-Resource Management Degree (B.B.R.M.) .....</b>	<b>278</b>
Program Information .....	278
Environmental Management Major (EM) .....	278
Equine Management Major (EQM) .....	279

## Bachelor of Bio-Resource Management Degree (B.B.R.M.)

The University of Guelph, in collaboration with the regional campuses at Ridgetown and Kemptville, offers a 20.00 credit program, normally completed over 8 semesters, leading to a Bachelor of Bio-Resource Management degree (B.B.R.M.).

This degree is a unique blend of applied and theoretical learning, with an emphasis on experiential learning opportunities. At the present time, two majors, Environmental Management and Equine Management, are available in the program through University of Guelph's Ridgetown campus and Kemptville campus respectively with Semester 5 to 8 offered at the Guelph campus.

### Program Information

The Bachelor of Bio-Resource Management degree program combines business studies and technical training with a strong emphasis on hands-on learning. A solid foundation in applied aspects of science, technology and business provides graduates with sufficient breadth and expertise to become competent managers in the environmental or equine fields. Students begin studying in one of the following management majors during the first semester: Environmental Management, Equine Management.

The first 10.00 credits of the Environmental Management Major are available through the Ridgetown campus and the first 10.00 credits of the Equine Management Major are available through the Kemptville campus. The additional 10.00 credits for both majors are available through the Guelph Campus.

Students will be encouraged to integrate their academic program with a well-planned series of employment activities in the summer months and to develop their leadership and interpersonal skills in on-campus and community activities. There is a strong commitment in the curriculum to personal development and students are encouraged to identify goals that they wish to accomplish throughout their university career.

### Academic Advising and Counselling

#### Program Counselling

Program Counsellors are available at both the Ridgetown, Kemptville and Guelph campuses to assist in-course students who require information or advice about their program or other academic regulations and who seek information about resources available to students. For information about how to contact a program counsellor, and for more information about program counselling, see Section VII -- Academic Counselling of the current Undergraduate Calendar.

#### Departmental Advising

On entering the program all students are assigned to a faculty advisor who will mentor them throughout their first two years. The faculty advisor is familiar with the academic requirements of the program and is aware of career opportunities. Students are strongly encouraged to attend all meetings called by their advisor, and to set up individual meetings with him/her when they have questions or concerns about their performance or progress in the program.

#### Continuation of Study

Students are advised to consult the regulations for Continuation of Study which are outlined in detail in Section VIII -- Undergraduate Degree Regulations & Procedures in the current calendar.

#### Conditions for Graduation

To qualify for the degree Bachelor of Bio-Resource Management, the student must successfully complete a minimum of 20.00 credits as set out in the Schedule of Studies as listed. In addition, students must meet the continuation of study requirements at the time of graduation and have a minimum cumulative average of 60%.

#### Schedule of Studies

Courses specified in the Schedule of Studies are required courses and must be successfully completed. A full time course load normally includes 2.50 credits.

#### Special Expenses

Equine Management students may have the opportunity to board their horse on campus or at a local facilities. Please contact BBRM program counsellor Katrina Merkies at <kmerkies@kemptvillec.uoguelph.ca> for more information.

### B.B.R.M. Program Regulations

#### Recommendations

Students entering the degree program who are deficient in U level Mathematics or Chemistry should consult with the program counsellor.

### Environmental Management Major (EM)

School of Environmental Sciences and Department of Food, Agricultural and Resource Economics

This major will require the completion of 20.00 credits.

#### Semesters 1 to 4 offered at the Ridgetown campus

##### Semester 1

BIOL\*1070 [0.50] Discovering Biodiversity

CHEM\*1040 [0.50] General Chemistry I  
ENVM\*1200 [1.00] Introduction to Environmental Science and Ecology  
FARE\*1100 [0.50] Introduction to Business

##### Semester 2

ENVM\*1020 [0.50] Introduction to Environmental Microbiology  
ENVM\*1120 [0.50] Environmental Monitoring  
ENVS\*2060 [0.50] Soil Science  
FARE\*1040 [1.00] Intro to Environmental Economics, Law & Policy

##### Semester 3

ACCT\*2220 [0.50] Financial Accounting  
BIOL\*1050 [0.50] Biology of Plants & Animals in Managed Ecosystems  
ENVM\*1050 [0.50] Surveying and GIS  
ENVM\*1130 [0.50] Introduction to Renewable Energy  
ENVM\*2050 [0.50] Agriculture and Environmental Stewardship

##### Semester 4

ENVM\*3500 [1.00] Environmental Management Integrated Project  
ENVS\*2040 [0.50] Plant Health and the Environment  
ENVS\*3020 [0.50] Pesticides and the Environment  
ENVS\*3060 [0.50] Groundwater

#### Semesters 5 to 8 offered on Guelph campus

##### Semester 5

BIOL\*2060 [0.50] Ecology  
ENVS\*2230 [0.50] Communications in Environmental Science  
FARE\*2700 [0.50] Survey of Natural Resource Economics

One of:

GEOG\*2460 [0.50] Analysis in Geography  
STAT\*2060 [0.50] Statistics for Business Decisions

0.50 electives or restricted electives

##### Semester 6

2.50 electives or restricted electives

##### Semester 7

2.50 electives or restricted electives

##### Semester 8

2.50 electives or restricted electives

#### Restricted Electives

1. Students must successfully complete a minimum of 6.00 credits at the 3000 level or higher, of which at least 2.00 credits must be at the 4000 level. Those credits at the 3000 level or above selected to satisfy Item # 2 below will be applied to satisfy these minimum credit requirements.

Students should note that some restricted electives require other courses not included among the required courses for the major as prerequisites. Students should consult the most recent undergraduate calendar for specific requirements.

Students should consult with a faculty advisor before Semester 5 in planning their restricted elective choices. Students are advised to pay particular attention to prerequisite requirements when choosing individual courses and seek advice as needed.

2. Students must select a minimum of 6.00 credits from the following lists of restricted electives.

A minimum of 3.00 credits from any of the following lists without regard to group of which at least 1.00 credits must be at the 4000 level:

#### Aquatic Science:

BIOL\*3450 [0.50] Introduction to Aquatic Environments  
CHEM\*3360 [0.50] Environmental Chemistry and Toxicology  
EDRD\*3450 [0.50] Watershed Planning Practice  
ENVS\*2320 [0.50] Current Issues in Microbial and Molecular Science  
ENVS\*3130 [0.50] Lab and Field Methods in Groundwater  
ENVS\*3190 [0.50] Environmental Water Chemistry  
GEOG\*3610 [0.50] Environmental Hydrology

#### Atmospheric Science:

ENVS\*2020 [0.50] Agrometeorology  
ENVS\*2030 [0.50] Meteorology and Climatology  
ENVS\*2310 [0.50] Current Issues in Earth Surface Processes  
ENVS\*3050 [0.50] Microclimatology  
ENVS\*4210 [0.50] Atmospheric Experimentation and Instrumentation  
GEOG\*2110 [0.50] Climate and the Biophysical Environment

#### Conservation and Biodiversity Science:

BIOL\*3120 [0.50] Community Ecology  
BIOL\*3130 [0.50] Conservation Biology  
ENVS\*2210 [0.50] Introductory Apiculture  
ENVS\*2330 [0.50] Current Issues in Ecosystem Science and Biodiversity  
ENVS\*3000 [0.50] Nature Interpretation  
ENVS\*3010 [0.50] Climate Change Biology  
ENVS\*3090 [0.50] Insect Diversity and Biology

ENVS*3230	[0.50]	Agroforestry Systems
ENVS*3250	[0.50]	Forest Health and Disease
ENVS*3270	[0.50]	Forest Biodiversity
ENVS*4040	[0.50]	Behaviour of Insects
ENVS*4230	[0.50]	Biology of Aquatic Insects
ENVS*4260	[0.50]	Field Entomology
ENVS*4350	[0.50]	Forest Ecology
GEOG*3320	[0.50]	Food Systems: Issues in Security and Sustainability

**Ecosystem and Resource Management:**

BIOL*4500	[0.50]	Natural Resource Policy Analysis
EDRD*4500	[1.00]	Planning Industrial Ecology: Design for Sustainability
ENVS*2120	[0.50]	Introduction to Environmental Stewardship
ENVS*3030	[0.50]	Conservation Field Course
ENVS*3110	[0.50]	Resource Planning Techniques
ENVS*3120	[0.50]	Land Utilization
ENVS*4150	[0.50]	Natural Resources Management Field Camp
GEOG*2210	[0.50]	Environment and Resources
GEOG*3020	[0.50]	Global Environmental Change
GEOG*3110	[0.50]	Biotic and Natural Resources
GEOG*3210	[0.50]	Management of the Biophysical Environment
GEOG*3420	[0.50]	Remote Sensing of the Environment
GEOG*3480	[0.50]	GIS and Spatial Analysis
GEOG*4110	[1.00]	Environmental Systems Analysis
GEOG*4220	[0.50]	Local Environmental Management
GEOG*4230	[0.50]	Environmental Impact Assessment

**Plant Health:**

ENVB*4070	[0.50]	Biological and Cultural Control of Plant Diseases
ENVS*2340	[0.50]	Current Issues in Agriculture and Landscape Mgmt
ENVS*3040	[0.50]	Natural Chemicals in the Environment
ENVS*3210	[0.50]	Plant Pathology
ENVS*4100	[0.50]	Integrated Management of Invasive Insect Pests
ENVS*4130	[0.50]	Chemical Ecology: Principles & Practice
ENVS*4240	[0.50]	Biological Activity of Pesticides

**Soil and Nutrient Management:**

ENVS*3070	[0.50]	Environmental Soil Chemistry
ENVS*3080	[0.50]	Soil and Water Conservation
ENVS*3130	[0.50]	Lab and Field Methods in Groundwater
ENVS*3200	[0.50]	Environmental Soil Biology
ENVS*4090	[0.50]	Soil Management
ENVS*4160	[0.50]	Soil and Nutrient Management
ENVS*4250	[0.50]	Soils in the Landscape
PBIO*4100	[0.50]	Soil Plant Relationships

3. A minimum of 2.00 credits from any of the following lists without regard to group of which at least 0.50 credits must be at the 4000 level:

**Accounting:**

ACCT*2230	[0.50]	Management Accounting
ACCT*3230	[0.50]	Intermediate Management Accounting
ACCT*2240	[0.50]	Applied Financial Accounting
ACCT*4230	[0.50]	Advanced Management Accounting

**Business and Management:**

MGMT*2150	[0.50]	Introduction to Canadian Business Management
MGMT*3020	[0.50]	Corporate Social Responsibility
MGMT*3320	[0.50]	Financial Management

**Food, Agricultural and Resource Economics:**

FARE*3170	[0.50]	Cost-Benefit Analysis
FARE*3310	[0.50]	Operations Management
FARE*4290	[0.50]	Land Economics
FARE*4310	[0.50]	Resource Economics
FARE*4360	[0.50]	Marketing Research
FARE*4370	[0.50]	Food & Agri Marketing Management

**Leadership and Communications:**

BUS*2090	[0.50]	Individuals and Groups in Organizations
EDRD*2020	[0.50]	Interpersonal Communication
EDRD*3140	[0.50]	Organizational Communication
EDRD*3400	[0.50]	Sustainable Communities
EDRD*4120	[0.50]	Leadership Development in Small Organizations
HROB*2010	[0.50]	Foundations of Leadership
HROB*4010	[0.50]	Leadership Capstone

4. Students may also select any of the following courses a restricted electives:

AGR*3450	[0.50]	Research Methods in Agricultural Science
AGR*3500	[0.50]	Experiential Education I
BIOC*2580	[0.50]	Introduction to Biochemistry
CHEM*1050	[0.50]	General Chemistry II
ECON*1100	[0.50]	Introductory Macroeconomics
GEOG*1300	[0.50]	Introduction to the Biophysical Environment

GEOG*1350	[0.50]	Earth: Hazards and Global Change
5. Students considering graduate studies are encouraged to take at least 1.00 credits from the following list of restricted electives:		
AGR*4450	[1.00]	Research Project I
AGR*4460	[1.00]	Research Project II
AGR*4600	[1.00]	Agriculture and Food Issues Problem Solving
ENVS*3410	[0.50]	Independent Research I
ENVS*3420	[0.50]	Independent Research II
ENVS*3430	[1.00]	Independent Research
ENVS*4410	[1.00]	Advanced Independent Research I
ENVS*4420	[1.00]	Advanced Independent Research II
ENVS*4430	[2.00]	Advanced Independent Research
FARE*4550	[0.50]	Independent Studies I
FARE*4560	[0.50]	Independent Studies II

**Equine Management Major (EQM)**

Department of Animal and Poultry Science and the Department of Food, Agricultural and Resource Economics

The major in Equine Management focuses on the development of leaders with a genuine regard for all horses and their well-being, a conscious concern for the environment, and a passionate interest in all aspects of the horse industry. The program combines a solid background in business, biological sciences and equine management through practical and theoretical experience. It provides in-depth understanding of the economic, environmental and social dimensions of all equine disciplines with a broad and current knowledge of horse industry issues and develops the skills to gather, access, interpret and apply industry data. The flexibility provided in semesters 6 and 7 permits students to participate in international exchanges and semesters abroad. Students can also incorporate a variety of field trips, experiential learning in the workplace and independent research projects into their program.

This major will require the completion of 20.00 credits.

**Semesters 1 to 4 offered at the Kemptville campus****Semester 1 - Fall**

BIOL*1050	[0.50]	Biology of Plants & Animals in Managed Ecosystems
ECON*1050	[0.50]	Introductory Microeconomics
EQN*1010	[1.00]	Introduction to Equine Management
EQN*1060	[0.50]	Equine Event Management I

**Semester 2 - Winter**

CHEM*1100	[0.50]	Chemistry Today
ECON*1100	[0.50]	Introductory Macroeconomics
ENVS*2060	[0.50]	Soil Science
EQN*1070	[0.50]	Equine Event Management II
EQN*2150	[0.50]	Equine Facility Management and Design

**Semester 3 - Fall**

ACCT*2220	[0.50]	Financial Accounting
AGR*2030	[0.50]	Pasture Management
BIOL*1090	[0.50]	Introduction to Molecular and Cellular Biology
EQN*2040	[0.50]	Equine Anatomy and Physiology
EQN*2200	[0.50]	Equine Industry Trends and Issues I

**Semester 4 - Winter**

EQN*2050	[0.50]	Introduction to Equine Nutrition
EQN*3060	[0.50]	Equine Reproduction
EQN*3070	[0.50]	Equine Health Management
EQN*3500	[1.00]	Equine Integrated Project

**Semesters 5 to 8 offered at the Guelph campus****Semester 5 - Fall**

ACCT*2230	[0.50]	Management Accounting
ANSC*3080	[0.50]	Agricultural Animal Physiology
STAT*2060	[0.50]	Statistics for Business Decisions

1.00 electives or restricted electives

**Semester 6 - Winter**

EQN*3050	[0.50]	Equine Exercise Physiology
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2.00 electives or restricted electives

**Semester 7 - Fall**

2.50 electives or restricted electives

**Semester 8 - Winter**

EQN*4020	[0.50]	Feeding the Performance Horse
EQN*4400	[0.50]	Equine Industry Trends and Issues II

1.50 electives or restricted electives

**Restricted Electives**

Students must select a minimum of 6.00 credits from the following lists of restricted electives.

Students should note that some restricted electives require other courses not included among the required courses for the major as prerequisites. Students should consult the most recent undergraduate calendar for specific requirements.

1. Students must select a minimum of 1.50 credits during semesters 5-8 from any of the following lists (grouped by topic areas):

Animal Biology:

AGR*2350	[0.50]	Animal Production Systems, Health and Industry
ANSC*3210	[0.50]	Principles of Animal Care and Welfare
ANSC*4090	[0.50]	Applied Animal Behaviour
ANSC*4100	[0.50]	Applied Environmental Physiology and Animal Housing
ANSC*4490	[0.50]	Applied Endocrinology
ANSC*4650	[0.50]	Comparative Immunology
POPM*4230	[0.50]	Animal Health

Genetics:

ANSC*4020	[0.50]	Genetics of Companion Animals
MBG*2400	[0.50]	Fundamentals of Plant and Animal Genetics
MBG*3060	[0.50]	Quantitative Genetics
MBG*4030	[0.50]	Animal Breeding Methods and Applications

Pasture and Turf Management:

CROP*3340	[0.50]	Managed Grasslands
ENVS*3080	[0.50]	Soil and Water Conservation
ENVS*3140	[0.50]	Management of Turfgrass Diseases

One of:

ENVS*4090	[0.50]	Soil Management
ENVS*4160	[0.50]	Soil and Nutrient Management
HORT*2450	[0.50]	Introduction to Turfgrass Science
HORT*3050	[0.50]	Management of Turfgrass Insect Pests and Weeds
HORT*4450	[0.50]	Advanced Turfgrass Science
PBIO*4100	[0.50]	Soil Plant Relationships

Advanced Nutrition:

BIOC*2580	[0.50]	Introduction to Biochemistry
CHEM*1040	[0.50]	General Chemistry I
CHEM*1050	[0.50]	General Chemistry II
NUTR*3210	[0.50]	Fundamentals of Nutrition

2. Students must select a minimum of 1.50 credits during semesters 5-8 from any of the following lists (grouped by topic areas):

Accounting:

ACCT*2240	[0.50]	Applied Financial Accounting
ACCT*3230	[0.50]	Intermediate Management Accounting
ACCT*4230	[0.50]	Advanced Management Accounting

Business and Management:

BUS*2090	[0.50]	Individuals and Groups in Organizations
HROB*2010	[0.50]	Foundations of Leadership
HROB*4010	[0.50]	Leadership Capstone
MGMT*2150	[0.50]	Introduction to Canadian Business Management
MGMT*3020	[0.50]	Corporate Social Responsibility
MGMT*3320	[0.50]	Financial Management

Food, Agricultural and Resource Economics :

FARE*2700	[0.50]	Survey of Natural Resource Economics
FARE*3310	[0.50]	Operations Management
FARE*3170	[0.50]	Cost-Benefit Analysis
FARE*4220	[0.50]	Advanced Agribusiness Management
FARE*4360	[0.50]	Marketing Research
FARE*4370	[0.50]	Food & Agri Marketing Management
FARE*4290	[0.50]	Land Economics
FARE*4550	[0.50]	Independent Studies I

Marketing:

MCS*1000	[0.50]	Introductory Marketing
MCS*2020	[0.50]	Marketing Information Management
MCS*2600	[0.50]	Fundamentals of Consumer Behaviour
MCS*3000	[0.50]	Advanced Marketing
MCS*3040	[0.50]	Business and Consumer Law
MCS*3620	[0.50]	Marketing Communications

3. Students must select a minimum of 1.00 credits during semesters 5-8 from any of the following lists:

AGR*3010	[0.50]	Special Studies in Agricultural Science I
AGR*4010	[0.50]	Special Studies in Agricultural Science II
AGR*4600	[1.00]	Agriculture and Food Issues Problem Solving
AGR*4450	[1.00]	Research Project I
AGR*4460	[1.00]	Research Project II
ANSC*4610	[0.50]	Critical Analysis in Animal Science

4. Students may also count any of the following courses as restricted electives:

AGR*3500	[0.50]	Experiential Education I
AGR*3510	[0.50]	Experiential Education II
EDRD*2020	[0.50]	Interpersonal Communication

EDRD*3050	[0.50]	Agricultural Communication I
EDRD*3140	[0.50]	Organizational Communication
EDRD*3400	[0.50]	Sustainable Communities
EDRD*4120	[0.50]	Leadership Development in Small Organizations
EQN*2500	[0.50]	Equine Field Course
PSYC*1000	[0.50]	Introduction to Psychology

5. Students must successfully complete a minimum of 6.00 credits at the 3000 level or higher, of which at least 2.00 credits must be at the 4000 level.