

Elective Courses

Rule: Student must complete one of the following courses

Note: BIOB 488 may fulfill this requirement if not taken as part of the core.

Select one of the following:		3
BCH 480	Advanced Biochemistry I	
BIOB 486	Genomics	
BIOB 488	Programming for Biology	
CSCI 444	Data Visualization	
CSCI 448	Pattern Recognition	
Total Hours		3

Minimum Required Grade: C-

Certificate in Computer Programming Professional Certificate - Computer Programming

College Humanities & Sciences

Degree Specific Credits: 12

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Summary

Required Courses	10
Elective Courses	3-4
Total Hours	13-14

Required Courses

Rule: Student must complete the following courses

Note: Students may take either CSCI 135 or CSCI 250 to meet the requirement.

CSCI 135	Fund of Computer Science I	3
or CSCI 250	Computer Mdlng/Science Majors	
CSCI 136	Fund of Computer Science II	3
CSCI 232	Data Structures and Algorithms	4
Total Hours		10

Minimum Required Grade: C-

Elective Courses

Rule: Students must complete one of the following courses

Select one of the following:		3-4
CSCI 205	Programming Languages w/ C/C++	
CSCI 323	Software Science	
CSCI 340	Database Design	
CSCI 411	Advanced Web Programming	
CSCI 412	Game and Mobile App	

CSCI 443	User Interface Design	
Total Hours		3-4

Minimum Required Grade: C-

Programming is an essential skill for solving problems in many fields. Programming gives maximum flexibility in processing and understanding data, constructing computational models, and building user friendly applications. Programming skills are in high demand in the marketplace. Completing this certificate could be the first step towards a career that involves software development.

Students will apply object-oriented principles to develop software systems. Students will learn to apply and program data structures like lists, trees, and hash tables. The elective course allows the student to learn about software engineering, web programming, mobile device programming, or user interface design.

Computer Applications Minor Minor - Computer Applications (Minor)

College Humanities & Sciences

Degree Specific Credits: 21

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Note: The minor in computer applications emphasizes use of applications such as programming languages, word processors, spreadsheets, and data bases in the management and manipulation of electronic information.

Summary

Computer Science Fundamentals	3-6
Computer Science Electives	3-9
Degree Electives	6-15
Total Hours	12-30

Computer Science Fundamentals

Rule: Take 1 or both of the following courses

Select one or both of the following:		3-6
CSCI 100	Intro to Programming	
CSCI 135	Fund of Computer Science I	
Total Hours		3-6

Minimum Required Grade: C-

Computer Science Electives

Select at least 1 and no more than 3 of the following:		3-9
CAPP 171	Communicating via Computers	
CSCI 105	Computer Fluency	
CSCI 172	Intro to Computer Modeling	
CSCI 181	Web Design and Programming	
CSCI 250	Computer Mdlng/Science Majors	
Total Hours		3-9

Minimum Required Grade: C-

Degree Electives

Rule: May complete remaining degree credits from the following courses for a total of 21 degree credits

Note:

- Selection of CSCI 191, CSCI 291, CSCI 391, or CSCI 491 must be pre-approved by the advisor.
- CSCI 135 may not be counted toward 2 categories of requirements.
- 6 credits may be taken outside of the Computer Science department but must be pre-approved by the advisor.

Select 6-15 credits from the following for a total of 21 degree credits: 6-15

CSCI 135	Fund of Computer Science I (may not be counted toward 2 categories of requirements)	
CSCI 136	Fund of Computer Science II	
CSCI 191	Special Topics (must be pre-approved by the advisor)	
CSCI 205	Programming Languages w/ C/C++	
CSCI 232	Data Structures and Algorithms	
CSCI 291	Special Topics (must be pre-approved by the advisor)	
CSCI 391	Special Topics (must be pre-approved by the advisor)	
CSCI 444	Data Visualization	
CSCI 491	Special Topics (must be pre-approved by the advisor)	
Total Hours		6-15

Minimum Required Grade: C-

Computer Science B.S. Bachelor of Science - Computer Science

College Humanities & Sciences

Degree Specific Credits: 87

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umd.edu/academics/general-education-requirements>) of the catalog.

Summary

Computer Science Core Courses	33
Degree Electives	18
Communication	3
Mathematics	18
Science Core	8-10
Biology	

Chemistry	
Physics	
Science Electives	6-10
Total Hours	86-92

Computer Science Core Courses

Rule: Must complete all of the following courses:

Note: 100-level CSCI courses other than CSCI 106, CSCI 135-CSCI 136, and 200-level CSCI courses other than CSCI 205 and CSCI 232 do not count toward the degree or track requirements. However, they do count in the 60 credit limit in the major.

CSCI 315E will fulfill the upper division writing requirement.

CSCI 106	Careers in Computer Science	1
CSCI 135	Fund of Computer Science I	3
or CSCI 250	Computer Mdlng/Science Majors	
CSCI 136	Fund of Computer Science II	3
CSCI 205	Programming Languages w/ C/C++	4
CSCI 232	Data Structures and Algorithms	4
CSCI 315E	Computers, Ethics, and Society	3
CSCI 323	Software Science	3
CSCI 332	Design/Analysis of Algorithms	3
CSCI 361	Computer Architecture	3
CSCI 426	Adv Prgrmg Theory/Practice I	3
CSCI 427	Adv Prgrmg Theory/Practice II	3
Total Hours		33

Minimum Required Grade: C-

Degree Electives

Rule: Must complete 18 credits from the following courses

Note: A total of at most 3 of the 18 credits of CS electives may be in CSCI 398 or CSCI 498.

Select 18 credits from the following:	18
CSCI 340	Database Design
CSCI 390	Research
CSCI 391	Special Topics
CSCI 394	Seminar
CSCI 398	Internship
CSCI 411	Advanced Web Programming
CSCI 412	Game and Mobile App
CSCI 441	Computer Graphics Programming
CSCI 443	User Interface Design
CSCI 444	Data Visualization
CSCI 446	Artificial Intelligence
CSCI 447	Machine Learning
CSCI 448	Pattern Recognition
CSCI 451	Computational Biology
CSCI 460	Operating Systems
CSCI 466	Networks
CSCI 477	Simulation

CSCI 490	Research	
CSCI 491	Special Topics	
CSCI 494	Seminar	
CSCI 498	Internship	
CSCI 499	Senior Thesis/Capstone	

Total Hours 18

Minimum Required Grade: C-

Communication

Rule: Must complete 1 of the following courses

COMX 111A	Intro to Public Speaking	3
or COMX 242	Argumentation	

Total Hours 3

Minimum Required Grade: C-

Mathematics

Rule: Take the following:

M 171	Calculus I	4
M 172	Calculus II	4
M 221	Introduction to Linear Algebra	4
M 225	Introduction to Discrete Mathematics	3
STAT 341	Introduction to Probability and Statistics	3

Total Hours 18

Minimum Required Grade: C-

Science Core

Rule: Must complete 1 of the following subcategories of science sequences

9-10 Total Credits Required

Biology

Rule: May complete the following sequence

BIOB 160N	Principles of Living Systems	3
BIOB 161N	Prncpls of Living Systems Lab	1
BIOB 170N	Prncpls Biological Diversity	3
BIOB 171N	Prncpls Biological Dvrsty Lab	2

Total Hours 9

Minimum Required Grade: C-

Chemistry

Rule: May complete the following sequence

CHMY 141N	College Chemistry I	5
& CHMY 142N	and College Chemistry I Lab	
CHMY 143N	College Chemistry II	5
& CHMY 144N	and College Chemistry II Lab	

Total Hours 10

Minimum Required Grade: C-

Physics

Rule: May complete the following sequence

PHSX 215N	Fund of Physics w/Calc I	4
PHSX 216N	Physics Laboratory I w/Calc	1
PHSX 217N	Fund of Physics w/Calc II	4
PHSX 218N	Physics Laboratory II w/Calc	1

Total Hours 10

Minimum Required Grade: C-

Science Electives

Rule: Must complete 2 of the following courses

Note: The Biology, Chemistry, or Physics sequence chosen to fulfill the science core may not count toward the science electives requirement.

Laboratory courses must be taken in conjunction with their associated lecture course.

Select two of the following: 6-10

ASTR 131N	Planetary Astronomy	
& ASTR 134N	and Planetary Astronomy Lab	
ASTR 132N	Stars, Galaxies, and the Universe	
& ASTR 135N	and Stars, Galaxies, and the Universe Lab	
BIOB 160N	Principles of Living Systems	
& BIOB 161N	and Prncpls of Living Systems Lab	
BIOB 170N	Prncpls Biological Diversity	
& BIOB 171N	and Prncpls Biological Dvrsty Lab	
BIOM 250N	Microbiology for Hlth Sciences	
& BIOM 251	and Microbiology Hlth Sciences Lab	
CHMY 141N	College Chemistry I	
CHMY 143N	College Chemistry II	
FORS 201	Forest Biometrics	
GEO 101N	Introduction to Physical Geology	
& GEO 102N	and Introduction to Physical Geology Lab	
GEO 225	Earth Materials	
PHSX 215N	Fund of Physics w/Calc I	
& PHSX 216N	and Physics Laboratory I w/Calc	
PHSX 217N	Fund of Physics w/Calc II	
& PHSX 218N	and Physics Laboratory II w/Calc	
PHSX 343	Modern Physics	
& PHSX 444	and Advanced Physics Lab	

Total Hours 6-10

Minimum Required Grade: C-

This is an advising track only and not an official program as recognized by the University of Montana (UM) or the Montana University System. This information will not appear on your UM transcript, diploma, university lists, student data system, or university publication. You do not fill out a major change for a track. After completion of this track the student will be awarded a Bachelor of Science in Computer Science.

Computer Science Minor

Minor - Computer Science (Minor)

College Humanities & Sciences

Degree Specific Credits: 21

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Note: The traditional minor in computer science emphasizes computer programming and related skills.

Summary

Computer Science Courses	18
Fundamentals	
Minor Electives	
Total Hours	18

Computer Science Courses

Rule: Must complete the following subcategories

Minimum Required Grade: C-

18 Total Credits Required

Fundamentals

Rule: Must complete all of the following courses

CSCI 135	Fund of Computer Science I	3
CSCI 136	Fund of Computer Science II	3
Total Hours		6

Minor Electives

Select 12 credits with at least 6 credits at the 300 level or above from the following: 12

CSCI 181	Web Design and Programming	
CSCI 100	Intro to Programming	
	or CSCI 250 Computer Mdlng/Science Majors	
CSCI 232	Data Structures and Algorithms	
CSCI 205	Programming Languages w/ C/C++	
CSCI 361	Computer Architecture	
	300-level or above courses	
Total Hours		12

Computer Science Teaching Minor

Minor - Computer Science Teaching

College Humanities & Sciences

Degree Specific Credits: 23

Required Cumulative GPA: 2.75

Catalog Year: 2017-2018

Summary

Core Requirements	19
Teaching Licensure Requirement	4
Total Hours	23

Core Requirements

Complete the following required courses

CSCI 105	Computer Fluency	3
CSCI 135	Fund of Computer Science I	3
CSCI 136	Fund of Computer Science II	3
CSCI 232	Data Structures and Algorithms	4
CSCI 323	Software Science	3
ITS 150	CCNA 1: Exploration	3
Total Hours		19

Minimum Required Grade: C-

Teaching Licensure Requirements

Note: Individuals completing a teaching minor must also complete a teaching major in another content area. Students must be formally admitted to the Teacher Education Program and complete all of the professional education licensure requirements. See the Department of Teaching and Learning (p. 95) in the College of Education and Human Sciences for more information. A minor GPA of 2.75 is required to be eligible for student teaching.

Teaching Methods Course

Rule: Complete the following course.

Note: The EDU 497 course number is used for multiple courses. Students should register for EDU 497 Methods: Teaching and Assessing Computer Science.

EDU 497	Teaching and Assessing	4
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Minimum Required Grade: C-

Computer Science-Mathematical Sciences (Combined Major)

The purpose of the combined program is to provide a thorough background in both allied disciplines and to inculcate a deeper understanding of their goals and methods. A student must complete 60 credits in the two disciplines:

- 30 of these credits in Computer Science courses and
- 30 of these credits in Mathematical Sciences courses.

Each student plans a program in consultation with a Computer Science and a Mathematical Sciences advisor. Students planning to attend graduate school in computer science or the mathematical sciences should consult with their respective advisors.

Bachelor of Science - Computer Sci- Mathematical Sci

College Humanities & Sciences

Degree Specific Credits: 73

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umt.edu/academics/general-education-requirements>) of the catalog.

Summary

Mathematical Sciences	31
Computer Science	30
Science Requirement	9-10
Biology	
Chemistry	
Physics	
Public Speaking Requirement	3
Advanced College Writing Requirement	3
Total Hours	76-77

Mathematical Sciences

Rule: Complete the following subcategories.

31 Total Credits Required

Mathematical Sciences Core

Rule: Complete all of the following courses.

M 171	Calculus I	4
or M 181	Honors Calculus I	
M 172	Calculus II	4
or M 182	Honors Calculus II	
M 221	Introduction to Linear Algebra	4
M 273	Multivariable Calculus	4
M 307	Introduction to Abstract Mathematics	3
or M 225	Introduction to Discrete Mathematics	
Total Hours		19

Minimum Required Grade: C-

Mathematical Sciences Electives

Rule: Complete 12 credits from the following courses.

Note: The combined nine credits of Computer Science Electives and twelve credits of Mathematical Sciences Electives must include at least three 3- or 4-credit courses numbered 400 or above, with at least one chosen from each department (not including M 429 and STAT 451, STAT 452).

Complete 12 credits from the following courses	12
M 311	Ordinary Differential Equations and Systems

M 325	Discrete Mathematics
M 326	Number Theory
M 361	Discrete Optimization
M 362	Linear Optimization
M 381	Advanced Calculus I
M 412	Partial Differential Equations
M 414	Deterministic Models
M 429	History of Mathematics
M 431	Abstract Algebra I
M 432	Abstract Algebra II
M 439	Euclidean and Non-Euclidean Geometry
M 440	Numerical Analysis
M 445	Statistical, Dynamical, and Computational Modeling
M 461	Practical Big Data Analytics
M 462	Theoretical Basics of Big Data Analytics and Real Time Computation Algorithms
M 472	Introduction to Complex Analysis
M 473	Introduction to Real Analysis
M 485	Graph Theory
STAT 341	Introduction to Probability and Statistics
STAT 421	Probability Theory
STAT 422	Mathematical Statistics
STAT 451	Statistical Methods I
STAT 452	Statistical Methods II
Total Hours	12

Minimum Required Grade: C-

Computer Science

Rule: Complete the following subcategories.

30 Total Credits Required

Computer Science Core

Rule: Complete all of the following courses.

CSCI 106	Careers in Computer Science	1
CSCI 135	Fund of Computer Science I	3
CSCI 136	Fund of Computer Science II	3
CSCI 205	Programming Languages w/ C/C++	4
CSCI 232	Data Structures and Algorithms	4
CSCI 332	Design/Analysis of Algorithms	3
CSCI 361	Computer Architecture	3
Total Hours		21

Minimum Required Grade: C-

Computer Science Electives

Rule: Complete 9 credits from the following courses.

Note:

1. A total of at most three of the nine credits of Computer Science Electives may be in CSCI 398 or CSCI 498.
2. The combined nine credits of Computer Science Electives and twelve credits of Mathematical Sciences Electives must include at

least three 3- or 4-credit courses numbered 400 or above, with at least one chosen from each department (not including M 429 and STAT 451, STAT 452).

Complete 9 credits from the following 9

CSCI 315E	Computers, Ethics, and Society	
CSCI 323	Software Science	
CSCI 340	Database Design	
CSCI 390	Research	
CSCI 391	Special Topics	
CSCI 394	Seminar	
CSCI 398	Internship	
CSCI 411	Advanced Web Programming	
CSCI 412	Game and Mobile App	
CSCI 426	Adv Prgrmg Theory/Practice I	
CSCI 427	Adv Prgrmg Theory/Practice II	
CSCI 441	Computer Graphics Programming	
CSCI 443	User Interface Design	
CSCI 444	Data Visualization	
CSCI 446	Artificial Intelligence	
CSCI 447	Machine Learning	
CSCI 448	Pattern Recognition	
CSCI 451	Computational Biology	
CSCI 460	Operating Systems	
CSCI 464	Applications of Mining Big Data	
CSCI 466	Networks	
CSCI 477	Simulation	
CSCI 480	Applied Parallel Computing Techniques	
CSCI 490	Research	
CSCI 491	Special Topics	
CSCI 494	Seminar	
CSCI 498	Internship	
CSCI 499	Senior Thesis/Capstone	

Total Hours 9

Minimum Required Grade: C-

Science Requirement

Rule: Complete the course work from 1 of the following subcategories.

9-10 Total Credits Required

Biology

Rule: If you choose biology, complete all of the following courses.

BIOB 160N	Principles of Living Systems	3
BIOB 161N	Prncpls of Living Systems Lab	1
BIOB 170N	Prncpls Biological Diversity	3
BIOB 171N	Prncpls Biological Dvrsty Lab	2

Total Hours 9

Minimum Required Grade: C-

Chemistry

Rule: If you choose chemistry, complete all of the following courses.

CHMY 141N	College Chemistry I	5
& CHMY 142N	and College Chemistry I Lab	
CHMY 143N	College Chemistry II	5
& CHMY 144N	and College Chemistry II Lab	

Total Hours 10

Minimum Required Grade: C-

Physics

Rule: If you choose physics, complete all of the following courses.

PHSX 215N	Fund of Physics w/Calc I	4
PHSX 216N	Physics Laboratory I w/Calc	1
PHSX 217N	Fund of Physics w/Calc II	4
PHSX 218N	Physics Laboratory II w/Calc	1

Total Hours 10

Minimum Required Grade: C-

Public Speaking Requirement

Rule: Complete 1 of the following courses.

COMX 111A	Intro to Public Speaking	3
or COMX 242	Argumentation	

Total Hours 3

Minimum Required Grade: C-

Advanced College Writing Requirement

Rule: Complete 1 of the following courses.

Note: Any other approved Advanced College Writing course will also fulfill this requirement.

Select 3 credits from the following: 3

CSCI 315E	Computers, Ethics, and Society	
CSCI 499	Senior Thesis/Capstone	
M 429	History of Mathematics	
M 499	Senior Thesis	

Total Hours 3

Minimum Required Grade: C-

Suggested Curricula

Note: Students are encouraged to choose their Computer Science and Mathematical Sciences Electives according to one of the following curricula; these tracks are suggestions only and, as such, optional. Note that the suggested curricula do not include an advanced College Writing Course.

Applied Math-Scientific Programming

M 311	Ordinary Differential Equations and Systems	3
M 412	Partial Differential Equations	3
M 414	Deterministic Models	3

Select one of the following: 3-4

M 381	Advanced Calculus I	
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M 440	Numerical Analysis	
M 472	Introduction to Complex Analysis	
M 473	Introduction to Real Analysis	
STAT 341	Introduction to Probability and Statistics	
Select three of the following:		9
CSCI 441	Computer Graphics Programming	
CSCI 444	Data Visualization	
CSCI 460	Operating Systems	
CSCI 477	Simulation	
Total Hours		21-22

Combinatorics and Optimization–Artificial Intelligence

M 361	Discrete Optimization	3
M 362	Linear Optimization	3
Select two of the following:		6
M 325	Discrete Mathematics	
M 414	Deterministic Models	
M 485	Graph Theory	
STAT 341	Introduction to Probability and Statistics	
CSCI 446	Artificial Intelligence	3
CSCI 447	Machine Learning	3
CSCI 460	Operating Systems	3
Total Hours		21

Data Science (Big Data Analytics)

M 461	Practical Big Data Analytics	3
M 462	Theoretical Basics of Big Data Analytics and Real Time Computation Algorithms	3
STAT 341	Introduction to Probability and Statistics	3
STAT 451	Statistical Methods I	3
STAT 452	Statistical Methods II	3
Select three of the following:		9
CSCI 444	Data Visualization	
CSCI 447	Machine Learning	
CSCI 448	Pattern Recognition	
CSCI 464	Applications of Mining Big Data	
CSCI 480	Applied Parallel Computing Techniques	
Total Hours		24

Statistics–Machine Learning

STAT 341	Introduction to Probability and Statistics	3
STAT 421	Probability Theory	3
Select two of the following:		6
M 325	Discrete Mathematics	
M 362	Linear Optimization	
M 485	Graph Theory	
STAT 422	Mathematical Statistics	
Select three of the following:		9
CSCI 340	Database Design	
CSCI 444	Data Visualization	
CSCI 446	Artificial Intelligence	
CSCI 447	Machine Learning	

CSCI 451	Computational Biology	
Total Hours		21

Algebra–Analysis

M 381	Advanced Calculus I	3
M 431	Abstract Algebra I	4
Select two of the following:		7-8
M 326	Number Theory	
M 432	Abstract Algebra II	
M 472	Introduction to Complex Analysis	
M 473	Introduction to Real Analysis	
CSCI 426	Adv Prgmng Theory/Practice I	3
CSCI 460	Operating Systems	3
CSCI Elective		3
Total Hours		23-24

East Asian Studies**Undergraduate**

- East Asian Studies B.A. (p. 217)

East Asian Studies B.A.**Bachelor of Arts - East Asian Studies****College Humanities & Sciences**

Degree Specific Credits: 44

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018**General Education Requirements**

Information regarding these requirements can be found in the General Education Section (<http://catalog.umt.edu/academics/general-education-requirements>) of the catalog.

Summary

Lower Division Core Courses	6
Fundamentals	
Culture and Civilization	
Upper Division Core Courses	18
Chinese Studies	
Japanese Studies	
East Asian Studies	
Language	20
Chinese Language	
Japanese Language	
Total Hours	44

Lower Division Core Courses

Rule: Complete the following subcategories

6 Total Credits Required

Fundamentals

Rule: Must complete the following course

Note: On occasion the Modern and Classical Languages department offers an alternative Introduction to East Asian Studies course which could fulfill this requirement. Check with the advisor.

HSTR 240	East Asian Civilizations	3
Total Hours		3

Minimum Required Grade: C-

Culture and Civilization

Rule: Must complete 1 of the following courses

CHIN 211H	Chinese Culture and Civiliz	3
	or JPNS 150H Japanese Cult & Civiliz	
Total Hours		3

Minimum Required Grade: C-

Upper Division Core Courses

Rule: Must complete the following subcategories

18 Total Credits Required

Chinese Studies

Rule: Must complete 2 courses of Chinese Studies

Japanese Studies

Rule: Must complete 2 courses of Japanese Studies

East Asian Studies

Rule: Must complete 2 courses of Japanese, Chinese, Viet Nam, pan-East Asia, or Buddhism

Note: Student may select from courses as they are available.

Language

Rule: Must complete one of the following subcategories

20 Total Credits Required

Chinese Language

Rule: May select the following language sequence

CHIN 101	Elementary Chinese I	5
CHIN 102	Elementary Chinese II	5
CHIN 201	Intermediate Chinese I	5
CHIN 202	Intermediate Chinese II	5
Total Hours		20

Minimum Required Grade: C-

Japanese Language

Rule: May select the following language sequence

JPNS 101	Elementary Japanese I	5
JPNS 102	Elementary Japanese II	5
JPNS 201	Intermediate Japanese I	5

JPNS 202	Intermediate Japanese II	5
Total Hours		20

Minimum Required Grade: C-

Economics Department

Jeff Bookwalter, Chairperson

The department considers its teaching goals to be three-fold:

1. To present students with the basic theoretical tools of economic analysis, relevant facts and institutional material, which will assist them as civic leaders.
2. To introduce students majoring in economics to the various special fields of study within economics. This training, along with extensive work in the other liberal arts and sciences, is intended to instill breadth of intellectual interest, critical habits of thought, a problem-solving attitude and facility of expression.
3. To help meet, through graduate work, the increasing demands for competent professional economists in industry, commerce, government and education.

Courses cover general economic theory, environmental economics, monetary theory, international economics, public finance, labor economics, economic development, comparative economic systems, econometrics, and industrial organization.

Students major in economics leading to a Bachelor of Arts degree. Graduate work leads to a Master of Arts degree in economics (see Graduate School catalog).

Undergraduate

- Economics B.A. (p. 218)

Undergraduate Minors

- Economics (p. 220)

Economics B.A.**Bachelor of Arts - Economics****College Humanities & Sciences**

Degree Specific Credits: 47-51

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Note: Refer to graduation requirements (p. 28) listed previously in the catalog. See index.

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umt.edu/academics/general-education-requirements>) of the catalog.

Summary

Economics - Lower-division Core	6
Economics - Upper-division Core	13

Upper-division Electives	17
Non-economics Required Courses	11-15
Total Hours	47-51

Economics - Lower-division Core

Rule: All courses are required.

ECNS 201S	Principles of Microeconomics	3
ECNS 202S	Principles of Macroeconomics	3
Total Hours		6

Minimum Required Grade: C-

Economics - Upper-division Core

Rule: All courses are required.

Note: ECNS 398 credits do not count toward the total credits requirement for the major. The Upper-division Writing Expectation must be met by successfully completing ECNS 481.

ECNS 301	Intermediate Micro with Calc	3
ECNS 302	Intermediate Macroeconomics	3
ECNS 403	Introduction to Econometrics	4
ECNS 481	Communicating Economics	3
Total Hours		13

Minimum Required Grade: C-

Upper-division Electives

Note: ECNS 398 does NOT count toward the total required credits for the major.

Select a minimum of 17 credits from the following: 17

ECNS 310	Intro Health Economics	
ECNS 312	Labor Economics	
ECNS 313	Money and Banking	
ECNS 320	Public Finance	
ECNS 325	Economics of Sports	
ECNS 391	Special Topics	
ECNS 405	Game Theory	
ECNS 406	Industrial Organization	
ECNS 431	International Trade	
ECNS 433	Economics of the Environment	
ECNS 445	Int Env Econ & Clim Change	
ECNS 450	Adv. Topics in Economic Dev.	
ECNS 451	Behavioral and Experimental Economics	
ECNS 491	Special Topics	
ECNS 494	Senior Seminar	
FORS 320	Forest Environmental Economics	
GPHY 323S	Economic Geography of Rural Areas	
NRSM 425	Nat Res & Envir Economics	
PSCI 365	Pub Policy Issues and Analysis	
Total Hours		17

Minimum Required Grade: C-

Non-economics Required Courses

Rule: All courses are required.

Note: M 162 must be taken before ECNS 301. STAT 216 must be taken before ECNS 403. Students planning graduate study in economics should take M 171 and M 172 and consider M 221, M 307 and ECNS 511, ECNS 513 and ECNS 560.

M 115	Probability and Linear Mathematics	3
M 171 & M 172 or M 162	Calculus I and Calculus II Applied Calculus	4-8
STAT 216	Introduction to Statistics (or equivalent)	4
Total Hours		11-15

Minimum Required Grade: C-

Teaching Economics Track

Individuals interested in teaching in K-12 schools must complete a degree in the content area they want to teach plus the teacher preparation program through the Department of Curriculum and Instruction. Individuals must complete the teaching major/teaching track within that degree program, which may contain different course requirements than the academic major since the sequence of courses is designed to meet state standards. Upon completion of the degree program with the teaching track and the secondary licensure program, one will be eligible for a standard Montana teaching license in this content area.

- Secondary Education Licensure Program (<http://www.coehs.umt.edu/departments/currinst/undergradprograms/seced/default.php>)
- Licensure Degree Requirements (p. 101)

Teacher Preparation in Economics

Students who want to be licensed to teach economics at the high-school level must complete the BA degree requirements in economics. They also must complete a teaching major or minor in a second field of their choice and the professional licensure program in the College of Education. Students may also earn a teaching minor in economics. See the Department of Curriculum & Instruction (p. 95) for information about admission to the Teacher Education Program and completion of these licensure programs.

To sign up for this option, you need to contact the Curriculum and Instruction Department. Do not fill out a major/minor form for graduation or the major/minor/concentration section of the major change form. Approvals for this option must come from the Curriculum and Instruction Department.

Tracks will not appear on your UM transcript, diploma, university lists, student data system, or university publication and are used for advising purposes only. You do not fill out a major change for a track.

Note: This major does not qualify as a single field endorsement. Individuals must complete a second teaching major or minor in another content area. Students must be formally admitted to the Teacher Education Program and complete all of the professional education licensure requirements. See the Department of Curriculum & Instruction (p. 95) in the College of Education and Human Sciences for more

information. A major GPA of 2.75 is required to be eligible for student teaching.

Teaching Track

Rule: Must complete the following course

Note: The EDU 497 course number is used for multiple courses. Students should register for EDU 497 Methods: 5-12 Social Studies.

EDU 497	Teaching and Assessing	4
Total Hours		4

Minimum Required Grade: C-

Economics Minor Minor - Economics (Minor)

College Humanities & Sciences

Degree Specific Credits: 25

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Summary

Economics - Lower-division Core	6
Economics - Upper-division Core	6
Economics - Upper-division Electives	6
Non-economics Required Courses	7
Total Hours	25

Economics - Lower-division Core

Rule: All courses are required.

ECNS 201S	Principles of Microeconomics	3
ECNS 202S	Principles of Macroeconomics	3
Total Hours		6

Minimum Required Grade: C-

Economics - Upper-division Core

Rule: All courses are required.

Note: M 115 and M 162 should be taken before enrolling in ECNS 301.

ECNS 301	Intermediate Micro with Calc	3
ECNS 302	Intermediate Macroeconomics	3
Total Hours		6

Minimum Required Grade: C-

Economics - Upper-division Electives

Rule: Six additional credits of economics classes numbered 300 or above

Note: Students are required to complete STAT 216 (or equivalent) with a C- or better before enrolling in ECNS 403.

Select 6 credits from the following: 6

ECNS 310	Intro Health Economics	
ECNS 312	Labor Economics	
ECNS 313	Money and Banking	
ECNS 320	Public Finance	
ECNS 325	Economics of Sports	
ECNS 391	Special Topics	
ECNS 403	Introduction to Econometrics	
ECNS 405	Game Theory	
ECNS 406	Industrial Organization	
ECNS 431	International Trade	
ECNS 433	Economics of the Environment	
ECNS 445	Int Env Econ & Clim Change	
ECNS 450	Adv. Topics in Economic Dev.	
ECNS 451	Behavioral and Experimental Economics	
ECNS 491	Special Topics	
Total Hours		6

Minimum Required Grade: C-

Non-economics Required Courses

Rule: All courses are required.

Note: M 115 (or equivalent) and M 162 should be taken before enrolling in ECNS 301.

M 115	Probability and Linear Mathematics	3
M 162	Applied Calculus	4
Total Hours		7

Minimum Required Grade: C-

Teaching Economics Track

A teaching minor is an academic minor which may contain different course requirements designed to meet state standards. Those interested in teaching in K-12 schools must complete a teaching major in a content area plus the teacher preparation program through the Department of Curriculum and Instruction. Additional teaching areas can be added through completion of either a teaching major or a teaching minor in that content area.

- Secondary Education Licensure Program (<http://www.coehs.umt.edu/departments/currinst/undergradprograms/seced/default.php>)
- Licensure Degree Requirements (p. 101)

The term 'minor' for this teaching option refers to courses that need to be completed. To sign up for this option, you need to contact the Curriculum and Instruction Department. Do not fill out a minor form for graduation or the minor section of the major change form. Approvals for this option must come from the Curriculum and Instruction Department.

Teaching Licensure Requirements

Note: Individuals completing a teaching minor must also complete a teaching major in another content area. Students must be formally

admitted to the Teacher Education Program and complete all of the professional education licensure requirements. See the Department of Curriculum & Instruction (p. 95) in the College of Education and Human Sciences for more information. A minor GPA of 2.75 is required to be eligible for student teaching.

Teaching Methods Course

Rule: Complete the following course

Note: The EDU 497 course number is used for multiple courses. Students should register for EDU 497 Methods: 5-12 Social Studies.

EDU 497	Teaching and Assessing	4
Total Hours		4

Minimum Required Grade: C-

English Department

Beverly Chin, Chair, Director, English Teaching, Director, Montana Writing Project

The Department of English is among the oldest and most prestigious units at the University. As one of the campus's original departments, it offered some of the University's inaugural courses, including literature classes taught by UM's first president, Oscar J. Craig. In 1919, Rhodes Scholar H.G. Merriam inaugurated one of the first creative writing programs in the country. Now, more than a century old, this department offers a

B.A. with options in

- Literature,
- Creative Writing,
- Teaching,
- Film Studies, and
- Linguistics

Graduate degrees in

- Creative Writing (M.F.A.),
- Literature (M.A.), and
- Teaching (M.A.).

Our Composition program serves the entire University by offering the first-year composition requirement, as well as courses in advanced composition and graduate seminars in the teaching of writing. We have a relatively new minor in Irish Studies.

Admission Requirements

To be admitted to any option of the undergraduate English major, a student must satisfy the following requirements:

1. Completion of 24 credits overall with a minimum cumulative GPA of 2.5 or a GPA of 2.5 in the previous two terms.
2. Completion of at least nine credits in English, excluding WRIT (composition) courses, with a minimum GPA of 2.5 and no grade lower than a C (2.00) in those courses.

Students who intend to major in English but who have not yet met the above requirements are admitted to the program as pre-English majors.

Pre-English majors will be assigned to the English department Academic Advisor. Before a student can graduate with a major in English, she or he must meet the requirements to become an English major and declare a specific option within the program.

Undergraduate

- English B.A., Creative Writing Concentration (p. 221)
- English B.A., English Teaching Concentration (p. 229)
- English B.A., Film Studies Concentration (p. 224)
- English B.A., Linguistics Concentration (p. 225)
- English B.A., Literature Concentration (p. 227)
- English B.A., Literature and the Environment Concentration (p. 228)

Undergraduate Minors

- English (p. 222)
- Film Studies (p. 225)
- Irish Studies (p. 226)

Creative Writing

The Creative Writing program is predicated on the model of the workshop, and focuses on three areas of study: poetry, fiction, and nonfiction.

Undergraduates who select the creative writing concentration fulfill some of the same requirements as those in literature, while also participating in a series of small writing workshops, gaining the techniques needed to craft poetry and/or prose that work towards artistic excellence.

Graduate students pursuing an M.F.A. degree complete a series of writing workshops and seminars designed to develop their creative work and expand their understanding of literary technique. The Creative Writing faculty is augmented each year by visiting Hugo and Kittredge fellows.

The program sponsors the graduate literary magazine, *CutBank*, now in its fourth decade of publishing works of poetry, prose and art. Additionally, undergraduate students have the opportunity to contribute to and edit their own literary magazine, *The Oval*.

Bachelor of Arts - English; Creative Writing Concentration

College Humanities & Sciences

Degree Specific Credits: 39

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umn.edu/academics/general-education-requirements>) of the catalog.

Summary

Foundation Courses	21
Upper-level CRWR Requirements	12
English elective courses	6
Modern or Classical Language major requirement	
Total Hours	39

Foundation Courses

LIT 110L	Intro to Lit	3
Select two from the following:		6
LIT 202L	The Environmental Imagination	
LIT 236L	Literary Histories	
LIT 246L	Genres, Themes, Approaches	
Select two from the following:		6
CRWR 210A	Intro Fiction Workshop	
CRWR 211A	Intro Poetry Workshop	
CRWR 212A	Intro Nonfiction Workshop	
LIT 300	Literary Criticism	3
LIT 327	Shakespeare	3
Total Hours		21

Minimum Required Grade: C

Upper-level Creative Writing Courses

Rule: Complete all categories:

Select two from the following:		6
CRWR 310	Intermediate Fiction Workshop	
CRWR 311	Intermediate Poetry Workshop	
CRWR 312A	Intern Nonfiction Workshop	
Select one from the following:		3
CRWR 320	The Art and Craft of Revision	
CRWR 322	Techniques of Modern Essay	
CRWR 391	Special Topics	
CRWR 491	Special Topics	
CRWR 425	Storytelling	
Select one from the following:		3
CRWR 410	Advanced Fiction Workshop	
CRWR 411	Advanced Poetry Workshop	
CRWR 412	Advanced Nonfiction Workshop	
Total Hours		12

Minimum Required Grade: C

Upper-level English Electives

Rule: Select two courses (6 credits) at the 300- or 400-level from offerings in LIT, IRSH, FILM, non-workshop CRWR courses or MCLL literature.

Minimum Required Grade: C-

Modern or Classical Language major requirement

Rule: Complete the 202-level proficiency in either a modern or classical language other than English

Note: Students may either take four sequential semesters (101, 102, 201, 202) of a modern or classical language or exemplify proficiency through examination (available through the Modern and Classical Languages and Literature Department).

Minimum Required Grade: C-

English Minor

Minor - English (Minor)

College Humanities & Sciences

Degree Specific Credits: 12

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Note: English minors must earn at least 18 credits within the English Department (excluding WRIT courses).

Summary

Focus courses	12
Total Hours	12

Foundational courses

Rule: Complete any two 200-level courses with LIT or CRWR prefixes

Minimum Required Grade: C-

6 Total Credits Required

Focus courses

Rule: Complete any four upper-division English elective courses (12 credits).

Note: Students must complete four upper-division English elective courses. Any 300+level courses with the prefixes LIT, ENIR, FILM, and CRWR qualify. Some of these upper-division courses carry pre-requisites, so students should select lower- and upper-division courses carefully to ensure meeting those pre-requisites.

Students wishing to enroll in 300- or 400-level CRWR workshops (CRWR 310/CRWR 311/CRWR 312A/CRWR 410/CRWR 411/CRWR 412) must complete the 200-level CRWR pre-requisite.

CRWR 410/CRWR 411/CRWR 412 also require a writing submission for consent of instructor.

Students wishing to enroll in upper-division LIT courses need to take 6 credits of LIT at the 200-level, LIT 300, and/or receive consent of instructor.

Minimum Required Grade: C-

12 Total Credits Required

Teaching English Track

A teaching minor is an academic minor which may contain different course requirements designed to meet state standards. Those interested in teaching in K-12 schools must complete a teaching major in a content area plus the teacher preparation program through the Department of Curriculum and Instruction. Additional teaching areas can be added through completion of either a teaching major or a teaching minor in that content area.

- Secondary Education Licensure Program (<http://www.coehs.umt.edu/departments/currinst/undergradprograms/seced/default.php>)
- Licensure Degree Requirements (p. 101)

The English Teaching program provides content knowledge, pedagogy, and professional experiences required for teaching literacy in a democratic society. Based on current research and best practices, the English Teaching program integrates the study of language, literature, and media, creating learning communities and supporting teachers as critical thinkers, creative problem solvers, and reflective practitioners. Students who successfully complete this option and the requirements from the College of Education receive both a B.A. in English teaching and a secondary teaching license (grades 5-12) in English. At the graduate level, the English Teaching program offers advanced theory and pedagogy courses, culminating in an M.A. in English (Teaching). The English Teaching Program is also the home of the Montana Writing Project, which is dedicated to improving the teaching and learning of writing at all grade levels and offers a special focus on meeting the state-mandated Indian Education for All.

Individuals interested in teaching in K-12 schools must complete a degree in the content area they want to teach plus the teacher preparation program through the Department of Curriculum and Instruction. Individuals must complete the teaching major /teaching track within that degree program which may contain different course requirements than the academic major since the sequence of courses is designed to meet state standards. Upon completion of the degree program with the teaching track and the secondary licensure program, one will be eligible for a standard Montana teaching license in this content area.

To sign up for this option, you need to contact the Curriculum and Instruction Department. Do not fill out a major/minor form for graduation or the major/minor/concentration section of the major change form. Approvals for this option must come from the Curriculum and Instruction Department.

Note: English Teaching minors must earn 36 credits within the English Department. Individuals completing a teaching minor must also complete a teaching major in another content area. A minor GPA of 2.75 is required to be eligible for student teaching.

Upper Division Requirements

Rule: Complete two courses (6 credits).

Note: ENLI 465/LING 465 and ENT 439 do not carry pre-requisites.

ENLI 465	Structure of Eng for Tchrs	3
ENT 439	Studies in Young Adult Lit	3
Total Hours		6

Minimum Required Grade: C-

English Teaching methods courses

Rule: Complete three courses (9 credits).

Note: Students must be admitted to the Teacher Education Program prior to enrolling in ENT 440, ENT 441, and ENT 442. Other EDU pre-/co-requisites also apply to ENT 440, ENT 441, and ENT 442.

ENT 440	Teaching Writing	3
ENT 441	Tchg Rdng & Literature	3
ENT 442	Tchg Oral Lang & Media Lit	3
Total Hours		9

Minimum Required Grade: C-

Upper Division Literature Electives

Rule: Complete two courses (6 credits).

Note: Please note that most of these courses carry pre-requisites.

Minimum Required Grade: C-

6 Total Credits Required

D Designation: Diversity

Rule: Complete one course (3 credits).

Select one of the following:		3
LIT 304	U.S. Writers of Color	
LIT 305	Lit by & About Native Amer	
LIT 343	African American Lit	
LIT 378L	Gay and Lesbian Studies	
Total Hours		3

Minimum Required Grade: C-

American literature focus

Rule: Complete one course (3 credits).

Select one of the following:		3
LIT 304	U.S. Writers of Color	
LIT 305	Lit by & About Native Amer	
LIT 314	The American Novel	
LIT 315	Voices of the Am Renaissance	
LIT 342	Montana Writers	
LIT 343	African American Lit	
LIT 373	Lit & Environment	
Total Hours		3

Minimum Required Grade: C-

Upper-division Writing Courses

Rule: Complete two courses (6 credits).

Note: English Teaching students may substitute FILM 320 for LIT 327.

LIT 300	Literary Criticism	3
LIT 327	Shakespeare	3
or FILM 320	Shakespeare and Film	
Total Hours		6

Minimum Required Grade: C-

Teaching licensure requirements

Note: Students must be formally admitted to the Teacher Education Program and complete all of the professional education licensure requirements. See the Department of Curriculum and Instruction

(p. 95) in the College of Education and Human Sciences for more information.

Film Studies

In Film Studies, students receive a thorough introduction to the many facets of moving image culture, including a background in film history, theory, and aesthetics. In this interdisciplinary program, students are exposed to a broad array of national and international films, as well as filmic translations of well-known works of literature. Students analyze film from a variety of theoretical perspectives and become critical viewers of what is now one of the most predominant forms of cultural representation. Film Studies currently offers a minor for those students who wish to learn more in this discipline without committing fully to the degree program.

Bachelor of Arts - English; Film Studies Concentration

College Humanities & Sciences

Degree Specific Credits: 45

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Note: Upon successful completion of the Pre-English requirements, students must declare the English major and choose a degree option. English majors with the option in Film Studies must earn 45-60 of their total credits in Department of English courses.

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umt.edu/academics/general-education-requirements>) of the catalog.

Summary

Foundational courses	6
Focus courses	6
Film electives	27
Upper Division Writing Courses	6
Modern or Classical Language major requirement	4-18
Total Hours	49-63

Foundational courses

Rule: Complete course

FILM 103L	Introduction to Film	3
Total Hours		3

Minimum Required Grade: C-

Focus courses

Rule: Complete two courses (6 credits).

FILM 300	History of Film	3
FILM 447	Film Theory	3
Total Hours		6

Minimum Required Grade: C-

Film electives

Rule: Complete 9 courses (27 credits) from the following list.

Note: Special topics courses (FILM 191, FILM 291, FILM 391, FILM 491) have a repeatability of 6 credits for each level; e.g. although the course prefix and number may be the same, different course titles will count toward major requirements and graduation requirements for up to six credits at each course number level (6 credits of FILM 191, 6 credits of FILM 291, etc.).

FILM 327, FILM 381, FILM 481, FILM 484, and FILM 492 have a repeatability of 9 credits.

PHL 427 can count toward the Film Studies major when the topic specifically includes film.

Select 27 credits from the following: 27

ENT 442	Tchg Oral Lang & Media Lit	
FILM 191	Special Topics	
FILM 291	Special Topics	
FILM 308	Russian Cinema and Culture	
FILM 327	Film Genres	
FILM 363	The French Cinema	
FILM 365	Latin Amer Civ Thru Lit & Film	
FILM 381	Studies in the Film	
FILM 391	Special Topics	
FILM 448	Documentary: Thry and Practice	
FILM 481	Advanced Studies in Film	
FILM 484	Film Directors	
FILM 491	Special Topics	
FILM 492	Independent Study	
FILM 495	Practicum	
MART 101L	Intro to Media Arts	
MCLG 339	Surv African Cinema	
NASX 360	Native Amer and Cinema	
PHL 102Y	Topical Intro to Philosophy	
PHL 427	Topics in Philosophy of Art	
Total Hours		27

Minimum Required Grade: C-

Upper Division Writing Courses

Rule: Complete two courses (6 credits).

Note: LIT 300 is open only to English majors who have completed the Pre-English curriculum and have declared a major option.

Note: LIT 300 is the pre-requisite for most other 300- and 400-level LIT courses, including FILM 320.

FILM 320	Shakespeare and Film	3
LIT 300	Literary Criticism	3
Total Hours		6

Minimum Required Grade: C-

Modern or Classical Language major requirement

Rule: Complete the 202-level proficiency in either a modern or classical language other than English

Note: Students may either take four sequential semesters (101, 102, 201, 202) of a modern or classical language or exemplify proficiency through examination (available through the Modern and Classical Languages and Literature Department).

Minimum Required Grade: Pass

4-18 Total Credits Required

Film Studies Minor Minor - Film Studies (Minor)

College Humanities & Sciences

Degree Specific Credits: 27

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Note: Students minoring in Film Studies must earn 27 total credits.

Summary

Foundational courses	6
Focus courses	6
Film electives	15
Total Hours	27

Foundational courses

Rule: Complete course

FILM 103L	Introduction to Film	3
Total Hours		3

Minimum Required Grade: C-

Focus courses

Rule: Complete two courses (6 credits).

FILM 300	History of Film	3
FILM 447	Film Theory	3
Total Hours		6

Minimum Required Grade: C-

Film electives

Rule: Complete 5 courses (15 credits) from the following list.

Note: Special topics courses (FILM 191, FILM 291, FILM 391, FILM 491) have a repeatability of 6 credits for each level; e.g. although the course prefix and number may be the same, different course titles will count toward major requirements and graduation requirements for up to six credits at each course number level (6 credits of FILM 191, 6 credits of FILM 291, etc.).

FILM 327, FILM 381, FILM 481, FILM 484), and FILM 492 have a repeatability of 9 credits.

PHL 427 can count toward the Film Studies minor when the topic specifically includes film.

Select 15 credits from the following: 15

ENT 442	Tchg Oral Lang & Media Lit
FILM 191	Special Topics
FILM 291	Special Topics
FILM 308	Russian Cinema and Culture
FILM 320	Shakespeare and Film
FILM 327	Film Genres
FILM 363	The French Cinema
FILM 365	Latin Amer Civ Thru Lit & Film
FILM 381	Studies in the Film
FILM 391	Special Topics
FILM 448	Documentary: Thry and Practice
FILM 481	Advanced Studies in Film
FILM 484	Film Directors
FILM 491	Special Topics
FILM 492	Independent Study
FILM 495	Practicum
MART 101L	Intro to Media Arts
MCLG 339	Surv African Cinema
NASX 360	Native Amer and Cinema
PHL 102Y	Topical Intro to Philosophy
PHL 427	Topics in Philosophy of Art

Total Hours 15

Minimum Required Grade: C-

Students choosing the English/Film Studies concentration or pursuing the Film Studies minor will receive an excellent liberal arts education through the close examination of the many facets of moving image culture. We believe that a solid understanding of cinema entails a good grasp of history and the philosophical, psychological and political theory from which film theory draws. In this interdisciplinary program, students will also be exposed to a broad array of national and international films, as well as filmic translations of well-known works of literature. Students will analyze film from a variety of theoretical perspectives and become critical viewers of what is now one of the most predominant forms of cultural representation.

General Linguistics

In conjunction with the Linguistics Program, English also offers a concentration in English Linguistics which provides a background in both literature. Students interested in Teaching English as a Second

Language, which prepares students for the particular concerns of second-language acquisition and pedagogy, may pursue the Teaching English as a Second Language Certificate Program through the Anthropology Department. Please note that the Teaching English as a Second Language (ESL) Certificate Program is not a stand-alone route to licensure. For licensure requirements, refer to the College of Education (p. 83) section in this catalog.

Bachelor of Arts - English; Linguistics Concentration

College Humanities & Sciences

Degree Specific Credits: 51

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umt.edu/academics/general-education-requirements>) of the catalog.

Summary

English Core Courses	15
Upper Division Requirements	27
Upper Division English Electives	3
Upper Division Writing Courses	6
Modern or Classical Language major requirement	
Total Hours	51

English Core Courses

Rule: Must complete the following courses:

LIT 110L	Intro to Lit	3
Choose 2 courses from the following:		
LIT 202L	The Environmental Imagination	3
LIT 236L	Literary Histories	
LIT 246L	Genres, Themes, Approaches	
LIT 300	Literary Criticism	3
LIT 327	Shakespeare	3
Total Hours		12

Minimum Required Grade: C

Upper Division Requirements

Rule: Complete nine courses (27 credits).

Note: ENLI 465/LING 465 and LING 470 do not carry pre-requisites. LING 470 is a pre-requisite for all other LING courses above 470 (e.g. 471+).

Select 27 credits from the following:	27
ENLI 465	Structure of Eng for Tchrs
LING 470	Linguistic Analysis
LING 471	Phonetics and Phonology

LING 472	Generative Syntax	
LING 474	Historical Linguistics	
LING 475	Linguistic Field Methods	
LING 477	Bilingualism	
LING 478	Learner Language	
LING 489	Morphology	

Total Hours 27

Minimum Required Grade: C-

Upper Division English Electives

Rule: Complete one course

Note: Please note that these courses carry pre-requisites.

LIT 349L	Medieval Lit	3
or LIT 350L	Chaucer	

Total Hours 3

Minimum Required Grade: C-

Upper Division Writing Courses

Rule: Complete two courses (6 credits).

Note: LIT 300 is open only to English majors who have completed the Pre-English curriculum and have declared a major option.

Note: LIT 300 is the pre-requisite for most other 300- and 400-level LIT courses, including LIT 327. FILM 320 substitutes for LIT 327.

LING 473	Language and Culture	3
LIT 327	Shakespeare	3
or FILM 320	Shakespeare and Film	

Total Hours 6

Minimum Required Grade: C-

Modern or Classical Language major requirement

Rule: Complete the 202-level proficiency in either a modern or classical language other than English

Note: Students may either take four sequential semesters (101, 102, 201, 202) of a modern or classical language or exemplify proficiency through examination (available through the Modern and Classical Languages and Literature Department).

Minimum Required Grade: C-

Irish Studies Minor

Minor - Irish Studies (Minor)

College Humanities & Sciences

Degree Specific Credits: 18

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Note: Irish Studies students must earn at least 18 credits. These credits will include both the required coursework and electives.

Summary

Foundational courses	9
Irish Literature Course	3
Minor electives	6
Total Hours	18

Foundational courses

Rule: Complete 3 courses (9 credits).

IRSH 101	Elementary Irish	4
IRSH 102	Elementary Irish II	4
Select one of the following:		3
IRSH 249	The Irish	
IRSH 345L	Literature in the Irish Lang	
IRSH 360	Irish/N Irish Literature	
Total Hours		11

Minimum Required Grade: C-

Irish Literature Course

Note: LIT 331 can count for the Irish Studies minor when the course focuses on an Irish author (e.g. James Joyce).

Select 3 credits from the following:		3
IRSH 345L	Literature in the Irish Lang	
IRSH 360	Irish/N Irish Literature	
IRSH 380	Topics in Irish Studies	
IRSH 491	Special Topics	
LIT 331	Major Author/s	
Total Hours		3

Minimum Required Grade: C-

Minor electives

Note: Irish Theater is offered intermittently through the School of Fine Arts as THTR 391.

Students who wish to continue with Irish language through the 202 level may do so, but only Irish language IRSH 103 and IRSH 201 can count for minor electives.

LIT 376 & LIT 391 may count toward the Irish Studies minor when the topics cover Irish themes, content, and literature.

Select 6 credits from the following:		6
DANC 160A	Dance Forms: Irish	
IRSH 103	Elementary Irish III	
IRSH 201	Intermediate Irish I	
IRSH 380	Topics in Irish Studies	
IRSH 391	Special topics	

IRSH 492	Independent Study	
LIT 376	Lit & Other Disciplines	
LIT 391	Special Topics	
THTR 391	Special Topics/Exprmtl Courses	
Total Hours		6

Minimum Required Grade: C-

The Department of English offers an interdisciplinary minor in Irish Studies which provides students access to instruction in Irish language, history, literature, and culture. This academic and artistic approach to Irish culture involves an interdisciplinary and inter-collegiate collaboration that brings together leading scholars in the humanities and the creative arts.

Literature

Under the Literature concentration, students ground their study of literature in a series of introductory courses in major themes and historical approaches, intermediate courses in Shakespeare and literary theory, and a senior seminar that requires the development of a research project. Students complement these core courses with a selection of electives that engage specific genres, authors, and periods, as well as different disciplines (e.g. Literature and the Environment) and literatures of diversity (e.g. Native American Literature). M.A. students select graduate seminars in American, British, and world literatures as well as other disciplines, their course work culminating in either a traditional thesis or a portfolio of seminar papers revised in collaboration with a committee. The Literature concentration imparts an understanding of not only the aesthetic richness of canonical and emerging literatures but also the historical and cultural forces that have contributed to their making. The classes are of a size that makes discussion an important part of a student's experience.

Bachelor of Arts - English; Literature Concentration

College Humanities & Sciences

Degree Specific Credits: 36

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Note: English majors with the concentration in Literature must earn 42-60 of their total credits in Department of English courses.

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umt.edu/academics/general-education-requirements>) of the catalog.

Summary

English Core Courses	15
Upper Division Requirements 300-400	12
A Designation: Medieval through early modern British Literature	
B Designation: Enlightenment through Romantic British Literature or pre-1865 American Literature	

C Designation: 400-level theory	
D Designation: Diversity	
Literature Seminar Capstone	3
Upper Division Writing Courses	6
Modern or Classical Language major requirement	
Total Hours	36

English Core Courses

Rule: Must complete the following courses:

LIT 110L	Intro to Lit	3
Choose 2 courses from the following:		6
LIT 202L	The Environmental Imagination	
LIT 236L	Literary Histories	
LIT 246L	Genres, Themes, Approaches	
LIT 300	Literary Criticism	3
LIT 327	Shakespeare	3
Total Hours		15

Minimum Required Grade: C

Upper-Division Courses

Select 3 courses from the following:		9
LIT 301	Studies in Literary Forms	
LIT 304	U.S. Writers of Color	
LIT 305	Lit by & About Native Amer	
LIT 314	The American Novel	
LIT 315	Voices of the Am Renaissance	
LIT 331	Major Author/s	
LIT 342	Montana Writers	
LIT 343	African American Lit	
LIT 344	Asian American Literature	
LIT 349L	Medieval Lit	
LIT 350L	Chaucer	
LIT 353L	Milton	
LIT 355	British Romanticism	
LIT 363	Modern Poetry	
LIT 369	Short Fiction	
LIT 370	Science Fiction	
LIT 373	Lit & Environment	
LIT 376	Lit & Other Disciplines	
LIT 378L	Gay and Lesbian Studies	
LIT 380	Literary Approaches to Drama	
LIT 391	Special Topics	
Total Hours		9

Minimum Required Grade: C

Select one of the following:		3
LIT 402	Literature in Place	
LIT 420	Critical Theory	
LIT 421	History of Criticism & Theory	
LIT 422	Ecocritical Theory & Practice	
LIT 430	Studies in Comparative Lit	

LIT 491	Special Topics	
Total Hours		3

Minimum Required Grade: C-

Literature Seminar Capstone

Must complete the following Course:

LIT 494	Seminar: Lit Capstone	3
Total Hours		3

Minimum Required Grade: C-

Upper Division English Electives

Rule: Select any two upper-division courses (6 credits) from the course prefixes CRWR, IRSH, FILM, LING, LIT, or WRIT. All courses must be 300- or 400-level.

Minimum Required Grade: C-

6 Total Credits Required

Modern or Classical Language major requirement

Rule: Complete the 202-level proficiency in either a modern or classical language other than English

Note: Students may either take four sequential semesters (101, 102, 201, 202) of a modern or classical language or exemplify proficiency through examination (available through the Modern and Classical Languages and Literature Department).

Minimum Required Grade: C-

Literature and the Environment Bachelor of Arts - English; Literature & The Environment Concentration

College Humanities & Sciences

Degree Specific Credits: 36

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umd.edu/academics/general-education-requirements>) of the catalog.

Summary

English Core Courses	24
Upper-Division English Elective Courses	6
A Designation: Medieval through early modern British Literature	
B Designation: Enlightenment through Romantic British Literature or pre-1865 American Literature	

C Designation: 400-level theory	
D Designation: Diversity	
Senior Seminar	3
Foreign Language	
An approved complementary course from a discipline other than English	3
Total Hours	36

English Core Courses

Rule: Must complete the following courses:

LIT 110L	Intro to Lit	3
LIT 202L	The Environmental Imagination	3
LIT 236L	Literary Histories	3
or LIT 246L	Genres, Themes, Approaches	
LIT 300	Literary Criticism	3
LIT 327	Shakespeare	3
LIT 373	Lit & Environment	3
LIT 402	Literature in Place	3
LIT 422	Ecocritical Theory & Practice	3
Total Hours		24

Minimum Required Grade: C-

Upper-Division English Elective Courses

Rule: Must complete three 300- or 400-level English courses

Select two courses from the following: 6

LIT 301	Studies in Literary Forms
LIT 304	U.S. Writers of Color
LIT 305	Lit by & About Native Amer
LIT 314	The American Novel
LIT 315	Voices of the Am Renaissance
LIT 331	Major Author/s
LIT 342	Montana Writers
LIT 343	African American Lit
LIT 344	Asian American Literature
LIT 349L	Medieval Lit
LIT 350L	Chaucer
LIT 353L	Milton
LIT 355	British Romanticism
LIT 363	Modern Poetry
LIT 369	Short Fiction
LIT 370	Science Fiction
LIT 373	Lit & Environment
LIT 376	Lit & Other Disciplines
LIT 378L	Gay and Lesbian Studies
LIT 380	Literary Approaches to Drama
LIT 391	Special Topics
LIT 402	Literature in Place
LIT 420	Critical Theory
LIT 421	History of Criticism & Theory
LIT 422	Ecocritical Theory & Practice

LIT 430	Studies in Comparative Lit	
LIT 491	Special Topics	
Total Hours		6

Minimum Required Grade: C-

Senior Seminar

Rule: Must complete the following courses:

LIT 494	Seminar: Lit Capstone	3
Total Hours		3

Minimum Required Grade: C-

Foreign Language

Note: Foreign Language: Two years of a SINGLE modern or classical language or the equivalent (200+ level) score on a competency exam is required.

An approved complementary course from a discipline other than English

Minimum Required Grade: C-

3 Total Credits Required

Teaching English

The English Teaching program provides content knowledge, pedagogy, and professional experiences required for teaching literacy in a democratic society. Based on current research and best practices, the English Teaching program integrates the study of language, literature, and media, creating learning communities and supporting teachers as critical thinkers, creative problem solvers, and reflective practitioners. Students who successfully complete this concentration and the requirements from the College of Education receive both a B.A. in English teaching and a secondary teaching license (grades 5-12) in English. At the graduate level, the English Teaching program offers advanced theory and pedagogy courses, culminating in an M.A. in teaching. The English Teaching Program is also the home of the Montana Writing Project, which is dedicated to improving the teaching and learning of writing at all grade levels and offers a special focus on meeting the state-mandated Indian Education for All.

Individuals interested in teaching in K-12 schools must complete a degree in the content area they want to teach plus the teacher preparation program through the Department of Teaching and Learning. Individuals must complete the teaching major/teaching track within that degree program, which may contain different course requirements than the academic major since the sequence of courses is designed to meet state standards. Upon completion of the degree program with the teaching track and the secondary licensure program, one will be eligible for a standard Montana teaching license in this content area.

- Secondary Education Licensure Program (<http://www.coehs.umt.edu/departments/currinst/undergradprograms/seced/default.php>)
- Licensure Degree Requirements (p. 101)

Bachelor of Arts - English; English Teaching Concentration

College Humanities & Sciences

Degree Specific Credits: 42

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umt.edu/academics/general-education-requirements>) of the catalog.

Summary

English Core Courses	15
Upper Division Lit Courses	6
English Teaching courses	15
English electives	6
Total Hours	42

English Core Courses

LIT 110L	Intro to Lit	3
	or CRWR 211A Intro Poetry Workshop	
Select two of the following:		6
LIT 202L	The Environmental Imagination	
LIT 236L	Literary Histories	
LIT 246L	Genres, Themes, Approaches	
LIT 300	Literary Criticism	3
LIT 327	Shakespeare	3
Total Hours		15

Minimum Required Grade: C

Upper Division Requirements

Select two from the following:		6
LIT 301	Studies in Literary Forms	
LIT 304	U.S. Writers of Color	
LIT 305	Lit by & About Native Amer	
LIT 314	The American Novel	
LIT 315	Voices of the Am Renaissance	
LIT 331	Major Author/s	
LIT 342	Montana Writers	
LIT 343	African American Lit	
LIT 344	Asian American Literature	
LIT 349L	Medieval Lit	
LIT 350L	Chaucer	
LIT 353L	Milton	
LIT 355	British Romanticism	
LIT 363	Modern Poetry	
LIT 369	Short Fiction	

LIT 370	Science Fiction	
LIT 373	Lit & Environment	
LIT 376	Lit & Other Disciplines	
LIT 378L	Gay and Lesbian Studies	
LIT 380	Literary Approaches to Drama	
LIT 391	Special Topics	
LIT 402	Literature in Place	
LIT 420	Critical Theory	
LIT 421	History of Criticism & Theory	
LIT 422	Ecocritical Theory & Practice	
LIT 430	Studies in Comparative Lit	
LIT 491	Special Topics	

Total Hours 6

Minimum Required Grade: C-

English Teaching methods courses

Note: Students must be admitted to the Teacher Education program prior to enrolling in ENT 440, ENT 441, and ENT 442. Other EDU pre-/co-requisites also apply to ENT 440, ENT 441, and ENT 442.

ENT 439	Studies in Young Adult Lit	3
ENT 440	Teaching Writing	3
ENT 441	Tchg Rdng & Literature	3
ENT 442	Tchg Oral Lang & Media Lit	3
LING 465	Structure & History of English	3
Total Hours		15

Minimum Required Grade: C-

English electives

Rule: Complete two courses (6 credits) in ENT, LIT, CRWR, FILM, IRSH, or WRIT (above WRIT 101 College Writing I)

Minimum Required Grade: C-

6 Total Credits Required

Teaching Licensure Requirements

Note: Students must be formally admitted to the Teacher Education Program and complete all of the professional education licensure requirements. See the Department of Teaching and Learning (p. 95) in the College of Education and Human Sciences for more information.

Environmental Studies

Len Broberg, Interim Director

The Environmental Studies Program (EVST) seeks to provide students with the literacy, skills and commitment needed to foster a healthy natural environment and to create a more sustainable, equitable, and peaceful world. To these ends, the EVST program educates and challenges students to become knowledgeable, motivated, and engaged in environmental affairs. Our students acquire the skills and awareness to promote positive social change and improve the environment

and communities of Montana and the world, for current and future generations. Our program is organized upon the following principles:

- Environmental studies require an interdisciplinary approach that integrates the natural sciences, social sciences, and humanities.
- Creating solutions to environmental problems requires enterprise and performance as well as reflection; therefore, an effective environmental education generates thinkers who can do as well as doers who can think.
- It is important to provide both classroom and experiential learning opportunities in the arts and responsibilities of democratic citizenship, including communication, collaboration, and committed civic participation.
- Students should be co-creators of their educational experience.

High School Preparation: Students in high school who are planning to major in environmental studies should take their school's college preparatory curriculum. Courses in biology, chemistry, math through pre-calculus, and writing are recommended.

Undergraduate

- Environmental Studies B.A. (p. 231)

Undergraduate Minors

- Environmental Studies (p. 233)

Undergraduate Certificates

- Certificate in Community Agriculture (p. 233)

Environmental Studies B.A. Bachelor of Arts - Environmental Studies

College Humanities & Sciences

Degree Specific Credits: 54

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Note: To obtain depth of knowledge in an area of focus, students are expected to select a minor or double major from another campus discipline, or work with an EVST advisor on selecting or designing an EVST focus area.

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umt.edu/academics/general-education-requirements>) of the catalog.

Summary

Lower Division Core Courses	24
Environmental Science and Environmental Studies	
Chemistry	
Math	
Biology	
Quantitative Skills - Statistics	
Upper Division Core	15

Natural Science - Ecology	
Policy	
Humanities	
Social Science	
Approved Community Service/Internship Experience	
Elective Environmental Studies Courses	9
Foreign Language Requirement	10
Additional Requirements	6
Native American Studies	
Additional Science Course	
Total Hours	64

Lower Division Core Courses

Rule: Complete the following subcategories of courses

24 Total Credits Required

Environmental Science and Environmental Studies

Rule: Complete all courses

ENSC 105N	Environmental Science	3
ENST 201	Environmental Info Resources	3
ENST 225	Community & Environment	3
ENST 230H	Nature and Society	3
Total Hours		12

Minimum Required Grade: C-

Chemistry

Rule: Complete the following course

CHMY 121N	Introduction to General Chemistry	3
Total Hours		3

Minimum Required Grade: C-

Math

Rule: Complete the following course

M 115	Probability and Linear Mathematics	3
Total Hours		3

Minimum Required Grade: C-

Biology

Rule: Complete 1 of the following

Select 3 credits from the following:	3	
BIOB 101N	Discover Biology	
BIOB 160N	Principles of Living Systems	
BIOB 161N	Prncpls of Living Systems Lab	
BIOB 170N	Prncpls Biological Diversity	
Total Hours	3	

Minimum Required Grade: C-

Quantitative Skills - Statistics

Select 3 credits from the following:	3	
FORS 201	Forest Biometrics	

PSYX 222	Psychological Statistics	
SOCI 202	Social Statistics	
STAT 216	Introduction to Statistics	
Total Hours		3

Minimum Required Grade: C-

Upper Division Core

Rule: Complete the following subcategories of courses

15 Total Credits Required

Natural Science - Ecology

Select one of the following: 3

BIOE 370	General Ecology	
ENSC 360	Applied Ecology	
FORS 330	Forest Ecology	
Total Hours		3

Minimum Required Grade: C-

Policy

Rule: Complete one of the following:

ENST 367	Environmental Politics & Policies	3
or ENST 382	Environmental Law	
Total Hours		3

Minimum Required Grade: C-

Humanities

Select one of the following: 3

ENST 335L	The Environmental Vision	
ENST 410	TEK of Native Peoples	
ENST 430	Culture & Agriculture	
Total Hours		3

Minimum Required Grade: C-

Social Science

Select 3 credits from the following: 3

ENST 310	Environment Montana: A to Z	
ENST 487	Globalization, Justice & Environment	
ENST 489S	Environmental Justice Issues & Solutions	
Total Hours		3

Minimum Required Grade: C-

Approved Community Service/Internship Experience

Select 3 credits from the following: 3

ENSC 398	Cooperative Education/Intern	
ENST 396	Supervised Internship (PEAS)	
ENST 398	Cooperative Education/Intern	
Total Hours		3

Minimum Required Grade: C-

Elective Environmental Studies Courses

Select 9 credits from the following: 9

COMX 347	Rhetoric Nature & Environmtlsm	
COMX 349	Comm Consump & Climate	
ECNS 433	Economics of the Environment	
ECNS 445	Int Env Econ & Clim Change	
ENSC 391	Special Topics/Experimental Courses	
ENSC 491	Special Topics/Experimental Courses	
ENSC 492	Independent Study	
ENSC 494	Seminar/Workshop	
ENSC 495	Field Study	
ENST 320E	Earth Ethics	
ENST 373A	Nature Works	
ENST 391	Special Topics/Experimental Courses	
ENST 395	Field Studies: Env. Studies	
ENST 420	US Environmental Movement	
ENST 427	Social Issues:The Mekong Delta	
ENST 437	Climate Change: Mekong Delta	
ENST 472	Gen Sci: Conservation Education	
ENST 476	Environmental Citizenship	
ENST 480	Food, Agriculture, Environment	
ENST 491	Special Topics/Experimental Courses	
ENST 492	Independent Study	
ENST 493	Study Abroad: Environmental Justice Latin America	
ENST 494	Seminar/Workshop	
ENST 499	Senior Thesis/Capstone	
GPHY 421	Sustainable Cities	
PHL 323	Ethics of Climate Change	
Total Hours		9

Minimum Required Grade: C-

Additional Requirements

Rule: Complete the following subcategories of courses

6 Total Credits Required

Native American Studies

Select one of the following: 3

ENST 410	TEK of Native Peoples	
NASX 303E	Ecol Persp in Nat Amer Trad	
NASX 304E	Native American Beliefs/Philos	
Total Hours		3

Minimum Required Grade: C-

Additional Science Course

Note: BIOB 170N may only be used to satisfy this requirement if not used to satisfy the introductory Biology requirement.

Select one of the following: 3

BIOB 170N	Princpls Biological Diversity	
BIOO 335	Rocky Mountain Flora	

ERTH 303N	Weather and Climate	
NRSM 210N	Soils, Water and Climate	
NRSM 265	Elements of Ecological Restora	
NRSM 385	Watershed Hydrology	
Total Hours		3

Minimum Required Grade: C-

Environmental Studies Minor Minor - Environmental Studies (Minor)

College Humanities & Sciences

Degree Specific Credits: 25

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

Summary

Lower Core Courses	9
Upper Division Electives	16
Environmental Studies	
Ecology	
Total Hours	25

Lower Core Courses

Rule: Must complete all of the following:

ENSC 105N	Environmental Science	3
ENST 225	Community & Environment	3
ENST 230H	Nature and Society	3
Total Hours		9

Upper Division Electives

Rule: Complete the following subcategories of courses

16 Total Credits Required

Environmental Studies

Select 13 credits from the following: 13

COMX 347	Rhetoric Nature & Environmtlsm	
COMX 349	Comm Consump & Climate	
ECNS 433	Economics of the Environment	
ECNS 445	Int Env Econ & Clim Change	
ENSC 398	Cooperative Education/Intern	
ENSC 491	Special Topics/Experimental Courses	
ENSC 492	Independent Study	
ENSC 495	Field Study	
ENST 310	Environment Montana: A to Z	
ENST 320E	Earth Ethics	
ENST 335L	The Environmental Vision	
ENST 367	Environmental Politics & Policies	

ENST 373A	Nature Works	
ENST 382	Environmental Law	
ENST 391	Special Topics/Experimental Courses	
ENST 395	Field Studies: Env. Studies	
ENST 396	Supervised Internship (PEAS)	
ENST 398	Cooperative Education/Intern	
ENST 420	US Environmental Movement	
ENST 427	Social Issues:The Mekong Delta	
ENST 430	Culture & Agriculture	
ENST 437	Climate Change: Mekong Delta	
ENST 472	Gen Sci: Conservation Education	
ENST 476	Environmental Citizenship	
ENST 480	Food, Agriculture, Environment	
ENST 487	Globalization, Justice & Environment	
ENST 489S	Environmental Justice Issues & Solutions	
ENST 491	Special Topics/Experimental Courses	
ENST 492	Independent Study	
ENST 493	Study Abroad: Environmental Justice Latin America	
ENST 494	Seminar/Workshop	
ENST 499	Senior Thesis/Capstone	
GPHY 421	Sustainable Cities	
PHL 323	Ethics of Climate Change	
Total Hours		13

Minimum Required Grade: C-

Ecology

Select one of the following: 3

BIOE 172N	Introductory Ecology	
BIOE 370	General Ecology	
ENSC 360	Applied Ecology	
FORS 330	Forest Ecology	
Total Hours		3

Minimum Required Grade: C-

Community Agriculture Certificate

General Description

The Certificate in Community Agriculture develops participants' knowledge and skills to effectively participate in or manage urban/ community farms that combine food production with a focus on addressing economic, health, and/or social justice concerns.

NB: Students must achieve at least an overall grade point average of 3.0 for courses within the certificate program. The certificate will only be awarded upon the successful completion of all requirements and the attainment of an undergraduate degree.

CERTIFICATE IN COMMUNITY AGRICULTURE

College of Humanities & Sciences

Degree Specifics: 21

Required Cumulative GPA: 3.0

Catalog Year: 2017-2018

Summary

Required Courses	6
Elective Courses	6
Total Hours	12

Required Courses

Take these courses

ENST 396	Supervised Internship (PEAS)	6
ENST 398	Cooperative Education/Intern	6
ENST 430	Culture & Agriculture	3
ENST 480	Food, Agriculture, Environment	3
Total Hours		18

Elective

Rule: Students must complete a 3-credit course on social organization, social factors influencing human behavior, and/or the practice of facilitating and leading groups (e.g. SOCI 350; S W 300). Advisor approval of course selection is required.

Geography Department

David Shively, Chair

Whether global climate change or local land use change – geography provides an understanding of complex natural, social, and human-environmental processes at different geographic scales. Drawing on and expanding the knowledge base of Natural Sciences, Social Sciences, and Geographic Information Sciences, we focus on

- Mountain Studies,
- Community and Environmental Planning, and
- Geographic Information Systems.

Our graduates are successful in occupying meaningful and challenging positions in public, private, and non-profit sectors. Their contributions speak to the impacts Geographers have in analyzing, understanding, and shaping our natural and human landscapes for the benefit of future generations.

The Department of Geography offers the Bachelor of Arts, Bachelor of Science, Master of Arts, and Master of Sciences degrees in geography. For a B.A. in geography, an option in community and environmental planning is available. For a B.S. in geography an option in physical geography is available. Also offered are a minor in geography and a teaching major and minor in geography. Several interdisciplinary minors are available to students:

- a minor in mountain studies,
- a minor in climate change and
- a minor in international development studies.

See the Graduate School website (<http://www.umt.edu/grad/default.php>) for more information concerning the M.A. and M.S. programs.

A certificate in GIS Sciences and Technologies, jointly offered by the Department of Geography (College of Humanities and Sciences) and the Department of Forest Management (College of Forestry and

Conservation), is also available. This GIST certificate is a complement to an existing major or to a bachelor's degree already obtained. For details, please see below or the GIST website (<http://www.cfc.umt.edu/giscertificate>).

Undergraduate

- Geography B.A. (p. 237)
- Geography B.A., Community & Environmental Planning Concentration (p. 234)
- Geography B.S. (p. 239)
- Geography B.S., Physical Geography Concentration (p. 243)

Undergraduate Minors

- Geography (p. 241)
- Mountain Studies (p. 243)

Undergraduate Certificates

- Geographic Information Systems Certificate of Art (p. 236)

Community and Environmental Planning

Bachelor of Arts - Geography; Community & Environmental Planning Concentration

College Humanities & Sciences

Degree Specific Credits: 43

Required Cumulative GPA: 2.5

Note: An internship is strongly recommended.

Catalog Year: 2017-2018

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umt.edu/academics/general-education-requirements>) of the catalog.

Summary

Introduction to Geography	7
Regional Geography Course	3
Methods	10
Geographic Methods	
Mathematics/Statistics	
Upper Division Systematic Geography	9
Physical Geography	
Geography and Society	
Human Environment Interaction	
Capstone	1
Upper Division Writing	3
Community and Environmental Planning Concentration	13-20
Community and Environmental Planning Core	
Community and Environmental Planning Methods	
Community and Environmental Planning Electives	

General Ed Mathematics	3
Total Hours	49-56

Introduction to Geography

Rule: Must complete all of the following courses:

GPHY 111N	Intro to Physical Geography	3
GPHY 112N	Intro to Phys Geography Lab	1
GPHY 121S	Human Geography	3
Total Hours		7

Minimum Required Grade: C-

Regional Geography Course

Select at least one of the following: 3

GPHY 141S	Geography of World Regions	
GPHY 144	Glacier National Park in Winter	
GPHY 241	Montana	
GPHY 243	Africa	
GPHY 245X	The Middle East	
GPHY 342	North America	
GPHY 344	Crown of the Continent	
GPHY 347	Regional Geography (Multiple Regions)	
GPHY 348	Field Studies in Geography	
GPHY 444	High Asia	
Total Hours		3

Minimum Required Grade: C-

Methods

Rule: Must complete all of the following courses

Minimum Required Grade: C-

10 Total Credits Required

Geographic Methods

GPHY 284	Intro to GIS and Cartography	3
GPHY 385	Field Techniques	3
Total Hours		6

Minimum Required Grade: C-

Mathematics/Statistics

STAT 216		4
Total Hours		4

Minimum Required Grade: C-

Upper Division Systematic Geography

Rule: Must complete the following subcategories of courses

9 Total Credits Required

Physical Geography

Select at least one of the following: 3

ERTH 303N	Weather and Climate	
GPHY 311N	Biogeography	
GPHY 314	Global Mountain Environments	
GPHY 317	Geomorphology	
GPHY 438	Mountain Field Study	
GPHY 525	Advanced Physical Geography	
Total Hours		3

Minimum Required Grade: C-

Geography and Society

Note: GPHY 323S and GPHY 421 count simultaneously toward Upper Division Systematic Geography and CEP electives.

Select at least one of the following: 3

GPHY 323S	Economic Geography of Rural Areas	
GPHY 421	Sustainable Cities	
GPHY 434	Food and Famine	
Total Hours		3

Minimum Required Grade: C-

Human Environment Interaction

Note: GPHY 335 and GPHY 432 count simultaneously toward Upper Division Systematic Geography and CEP electives.

Select at least one of the following: 3

GPHY 335	Water Policy	
GPHY 338	Mountains and Society	
GPHY 432	Human Role Environmental Change	
GPHY 433	Cultural Ecology	
Total Hours		3

Minimum Required Grade: C-

Capstone

Rule: Seniors must complete the following course

Note: Seniors must enroll in GPHY 400 in fall, attend GPHY 500 in fall, and complete course requirements in spring.

GPHY 400	Geography Capstone	1
Total Hours		1

Minimum Required Grade: C-

Upper Division Writing

Note: GPHY 335 or GPHY 433 will also count toward the upper division core requirements

Select one of the following: 3

GPHY 335	Water Policy	
GPHY 433	Cultural Ecology	

GPHY 499	senior thesis / capstone	
Total Hours		3
Minimum Required Grade: C-		

Community and Environmental Planning Concentration

Rule: Must complete the following subcategories

13-20 Total Credits Required

Community and Environmental Planning Core

Rule: Must complete both courses

GPHY 465	Planning Principles & Processes	3
GPHY 466	Environmental Planning	3
Total Hours		6

Minimum Required Grade: C-

Community and Environmental Planning Methods

Rule: Must complete at least 1 of the following course/lab combinations

Note: GPHY 468 must be taken together with GPHY 469. GPHY 486 must be taken together with GPHY 489.

Select one of the following:		4
GPHY 468 & GPHY 469	Community & Regional Analysis and Planning & Analysis Laboratory	
GPHY 486 & GPHY 489	Transport, Planning & GIS and Cartography/GIS Laboratory	
Total Hours		4

Minimum Required Grade: C-

Community and Environmental Planning Electives

Rule: Must complete at least 3 courses from the following courses:

Note: If not previously taken to fulfill CEP Methods, the following courses can be selected as electives:

1. GPHY 468/GPHY 469 - 4 cr
2. GPHY 486/GPHY 489 - 4 cr

Other courses can count towards CEP electives.

- GPHY 323S and GPHY 421 can be used to satisfy upper division requirements in 'Geography and Society'
- GPHY 335 and GPHY 432 can be used to satisfy upper division requirements in 'Human Environment Interaction.'

Select at least three of the following:		9
GPHY 323S	Economic Geography of Rural Areas	
GPHY 335	Water Policy	
GPHY 421	Sustainable Cities	
GPHY 432	Human Role Environmental Change	
Total Hours		9

Minimum Required Grade: C-

General Ed Mathematics

Note: Students are encouraged to take M 115. Students who successfully complete M 122, M 171, or M 172 also meet the degree specific Gen Ed Mathematics requirement. Gen Ed credits do not count towards degree credits.

Select 3 credits from the following:		3
M 115	Probability and Linear Mathematics	
M 121	College Algebra	
M 151	Precalculus	
M 162	Applied Calculus	

Total Hours 3

Minimum Required Grade: C-

Geographic Information Systems Certificate

Certificate in GIS Sciences and Technologies

The Certificate in GIS Sciences and Technologies, jointly offered by the departments of Geography and Forest Management, is aimed at present or future professionals or scientists who require skills in GIS technologies. The purpose of this program is to provide undergraduate students or individuals possessing an undergraduate degree with the training, knowledge, and understanding necessary to acquire, process, analyze, and properly display digital geographic data.

Special Requirements for the Certificate

To earn a certificate in GIS Sciences and Technologies, students must either complete or have completed an undergraduate degree and complete a minimum of 20 semester credit hours of course work, including 9 to 11 required credits and 9 to 11 elective credits as described below. Students must achieve at least an overall grade point average of 3.0 for courses within the program in order to earn a certificate. The certificate will be awarded upon the successful completion of all of the requirements of the certificate and the undergraduate degree.

Certificate of Art - Geographic Information Systems

College Humanities & Sciences

Degree Specific Credits: 20

Required Cumulative GPA: 3.0

Catalog Year: 2017-2018

Summary

Required GIS Core Courses	9-11
Introduction to GIS	
Photogrammetry/Remote Sensing	
Additional Required Courses	3-4
Advanced Elective Courses	
Raster GIS, Remote Sensing, and Image Analysis	

Vector GIS and Networks	
Data Management and Programming	
GIS Applications	
Total Hours	12-15

Required GIS Core Courses

Rule: Must complete 1 from each of the following subcategories

Minimum Required Grade: C-

9-11 Total Credits Required

Introduction to GIS

FORS 250	Intro to GIS for Forest Mgt	3
or GPHY 284	Intro to GIS and Cartography	
Total Hours		3

Minimum Required Grade: C-

Photogrammetry/Remote Sensing

Select one of the following:		
FORS 351	Env Remote Sensing	3-4
GPHY 487 & GPHY 489	Remote Sensing/Raster GIS and Cartography/GIS Laboratory	
Total Hours		3-4

Minimum Required Grade: C-

Additional Required Courses

Select one of the following:		
FORS 350	Forestry Apps of GIS	3-4
GPHY 488 & GPHY 489	Applications of GIS and Cartography/GIS Laboratory	
Total Hours		3-4

Minimum Required Grade: C-

Advanced Elective Courses

Rule: Must complete 9-11 credits of the following subcategories

Minimum Required Grade: C-

9-11 Total Credits Required

Raster GIS, Remote Sensing, and Image Analysis

Select one or both of the following:		
FORS 551	Digital Image Processing	4-8
GPHY 587 & GPHY 589	Image Analysis & Modeling and Cartography/GIS Laboratory	
Total Hours		4-8

Minimum Required Grade: C-

Vector GIS and Networks

Select 3-11 credits from the following:		
GPHY 486 & GPHY 489	Transport, Planning & GIS and Cartography/GIS Laboratory	3-11
GPHY 580	Seminar GIS & Cartography	

GPHY 588 & GPHY 589	Spatial Analysis and Modeling and Cartography/GIS Laboratory	3-11
Total Hours		3-11

Minimum Required Grade: C-

Data Management and Programming

Select 3-10 credits from the following:		
CSCI 250	Computer Mdlng/Science Majors	3-10
FORS 505	Sampling Methods	
GPHY 468 & GPHY 469	Community & Regional Analysis and Planning & Analysis Laboratory	
Total Hours		3-10

Minimum Required Grade: C-

GIS Applications

Select 3-11 credits from the following:		
ANTY 452	GIS in Archaeology	3-11
GPHY 385	Field Techniques	
GPHY 481	Advanced Cartographic Design	
GPHY 482 & GPHY 489	Spatial Analysis & GIS and Cartography/GIS Laboratory	
GPHY 564	Planning Design	
WILD 562	Wildlife Habitat Modeling	
Total Hours		3-11

Minimum Required Grade: C-

Geography B.A.

The general geography B.A. degree (without concentration) is very flexible. In addition to meeting the core requirements for all geography majors, students may take a wide range of electives in geography (minimum 11, maximum 35 elective credits). Electives may be chosen from the fields of regional geography, geographic methods and techniques, or systematic geography (physical geography, human-environment interaction, or geography and society).

Bachelor of Arts - Geography

College Humanities & Sciences

Degree Specific Credits: 36

Required Cumulative GPA: 2.5

Catalog Year: 2017-2018

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umd.edu/academics/general-education-requirements>) of the catalog.

Summary

Introduction to Geography	7
Regional Geography Course	3
Geographic Methods	6
Upper Division Systematic Geography	9

Physical Geography	
Geography and Society	
Human Environment Interaction	
Degree Electives	10
Capstone	1
Upper Division Writing	3
General Ed Statistics	3-10
Total Hours	42-49

Introduction to Geography

Rule: Must complete all of the following courses:

GPHY 111N	Intro to Physical Geography	3
GPHY 112N	Intro to Phys Geography Lab	1
GPHY 121S	Human Geography	3
Total Hours		7

Minimum Required Grade: C-

Regional Geography Course

Select at least one of the following: 3

GPHY 141S	Geography of World Regions	
GPHY 144	Glacier National Park in Winter	
GPHY 241	Montana	
GPHY 245X	The Middle East	
GPHY 342	North America	
GPHY 344	Crown of the Continent	
GPHY 347	Regional Geography (Multiple Regions)	
GPHY 348	Field Studies in Geography	
GPHY 444	High Asia	

Total Hours 3

Minimum Required Grade: C-

Geographic Methods

Rule: Must complete all of the following courses

GPHY 284	Intro to GIS and Cartography	3
GPHY 385	Field Techniques	3
Total Hours		6

Minimum Required Grade: C-

Upper Division Systematic Geography

Rule: Must complete the following subcategories of courses

Minimum Required Grade: C-

9 Total Credits Required

Physical Geography

Select at least one of the following: 3

ERTH 303N	Weather and Climate	
GPHY 311N	Biogeography	
GPHY 314	Global Mountain Environments	

GPHY 317	Geomorphology	
GPHY 438	Mountain Field Study	
GPHY 525	Advanced Physical Geography	
Total Hours		3

Minimum Required Grade: C-

Geography and Society

Select at least one of the following: 3

GPHY 323S	Economic Geography of Rural Areas	
GPHY 421	Sustainable Cities	
GPHY 434	Food and Famine	

Total Hours 3

Minimum Required Grade: C-

Human Environment Interaction

Select at least one of the following: 3

GPHY 335	Water Policy	
GPHY 338	Mountains and Society	
GPHY 432	Human Role Environmental Change	
GPHY 433	Cultural Ecology	

Total Hours 3

Minimum Required Grade: C-

Degree Electives

Rule: Must complete 10 credits of GPHY electives to fulfill the 36 degree credit total

Note: Students must fulfill the degree credit total of 36 credits plus the university requirement for 39 upper division credits.

Minimum Required Grade: C-

10 Total Credits Required

Capstone

Rule: Seniors must complete the following course

Note: Seniors must enroll in GPHY 400 in fall, attend GPHY 500 in fall, and complete course requirements in spring.

GPHY 400	Geography Capstone	1
Total Hours		1

Minimum Required Grade: C-

Upper Division Writing

Rule: Must complete 1 of the following courses

Note: GPHY 335 or GPHY 433 will also count toward the upper division core requirements GPHY 499 will also count toward upper division elective credits.

Select one of the following: 3

GPHY 335	Water Policy	
GPHY 433	Cultural Ecology	

GPHY 499	senior thesis / capstone	
Total Hours		3

Minimum Required Grade: C-

General Ed Modern and Classical Language

Rule: Must complete either 1 year of a foreign language or STAT 216

Note: Gen Ed credits do not count towards degree credits.

Minimum Required Grade: C-

3-10 Total Credits Required

Teaching Geography Track

Individuals interested in teaching in K-12 schools must complete a degree in the content area they want to teach plus the teacher preparation program through the Department of Curriculum and Instruction.

Individuals must complete the teaching major/teaching track within that degree program, which may contain different course requirements than the academic major since the sequence of courses is designed to meet state standards. Upon completion of the degree program with the teaching track and the secondary licensure program, one will be eligible for a standard Montana teaching license in this content area.

- Secondary Education Licensure Program (<http://www.coehs.umt.edu/departments/currinst/undergradprograms/seced/default.php>)
- Licensure Degree Requirements (p. 101)

Students who want to be licensed to teach geography at the middle and high school level must complete the B.A. degree requirements in geography (general geography, no option required). They also must complete a teaching major or minor in a second field of their choice and the professional licensure program in the College of Education. Students may also earn a teaching minor in geography. See the Department of Curriculum & Instruction (p. 95) for information about admission to the Teacher Education Program and completion of the licensure program.

To sign up for this option, you need to contact the Curriculum and Instruction Department. Do not fill out a major/minor form for graduation or the major/minor/concentration section of the major change form. Approvals for this option must come from the Curriculum and Instruction Department.

Tracks will not appear on your UM transcript, diploma, university lists, student data system, or university publication and are used for advising purposes only. You do not fill out a major change for a track.

Teaching Licensure Requirements

Note: Students must be formally admitted to the Teacher Education Program and complete all of the professional education licensure requirements. See the Department of Curriculum & Instruction (p. 95) in the College of Education and Human Sciences for more information. A major GPA of 2.75 is required to be eligible for student teaching. This major does not qualify as a single field endorsement. Individuals must complete a second teaching major or minor in another content area.

Teaching Track

Rule: Must complete the following course

Note: The EDU 497 course number is used for multiple courses. Students should register for EDU 497 Methods: 5-12 Social Studies.

EDU 497	Teaching and Assessing	4
Total Hours		4

Minimum Required Grade: C-

Geography B.S.

The B.S. in Geography is designed to accommodate those students who are interested in pursuing more science-based and technical areas of study and work in the field of Geography, such as aspects involving physical geography and geospatial technologies, or environmental planning. Those pursuing a geography B.S. degree (with or without an option) must complete 6-10 additional credits (a two-course sequence) of science coursework. The classes must be selected and approved by the student and advisor as appropriate to individual student goals (e.g., BIOC 105N, BIOE 172N).

Bachelor of Science - Geography

College Humanities & Sciences

Degree Specific Credits: 36

Required Cumulative GPA: 2.5

Catalog Year: 2017-2018

Note: Depending on the courses selected, the degree requirements vary from 36 to 39 credits.

General Education Requirements

Information regarding these requirements can be found in the General Education Section (<http://catalog.umt.edu/academics/general-education-requirements>) of the catalog.

Summary

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Upper Division Systematic Geography	9
Physical Geography	
Geography and Society	
Human Environment Interaction	
Degree Electives	
Capstone	1
Upper Division Writing	3
Science Electives	6-10
Biology	
Chemistry	
College Chemistry	
College Physics	
Physics with Calculus	
Statistics Course	3-7
Math Fundamentals	

Advanced Math

Total Hours	38-46
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Introduction to Geography**Rule:** Must complete all of the following courses:

GPHY 111N	Intro to Physical Geography	3
GPHY 112N	Intro to Phys Geography Lab	1
GPHY 121S	Human Geography	3
Total Hours		7

Minimum Required Grade: C-

Regional Geography Course

Select at least one of the following: 3

GPHY 141S	Geography of World Regions	
GPHY 144	Glacier National Park in Winter	
GPHY 241	Montana	
GPHY 245X	The Middle East	
GPHY 342	North America	
GPHY 344	Crown of the Continent	
GPHY 347	Regional Geography (Multiple Regions)	
GPHY 348	Field Studies in Geography	
GPHY 444	High Asia	
Total Hours		3

Minimum Required Grade: C-

Geographic Methods**Rule:** Must complete all of the following courses

GPHY 284	Intro to GIS and Cartography	3
GPHY 385	Field Techniques	3
Total Hours		6

Minimum Required Grade: C-

Upper Division Systematic Geography**Rule:** Must complete the following subcategories of courses

Minimum Required Grade: C-

9 Total Credits Required

Physical Geography

Select at least one of the following: 3

ERTH 303N	Weather and Climate	
GPHY 311N	Biogeography	
GPHY 314	Global Mountain Environments	
GPHY 317	Geomorphology	
GPHY 438	Mountain Field Study	
GPHY 525	Advanced Physical Geography	
Total Hours		3

Minimum Required Grade: C-

Geography and Society

Select at least one of the following: 3

GPHY 323S	Economic Geography of Rural Areas	
GPHY 421	Sustainable Cities	
GPHY 434	Food and Famine	
Total Hours		3

Minimum Required Grade: C-

Human Environment Interaction

Select at least one of the following: 3

GPHY 335	Water Policy	
GPHY 338	Mountains and Society	
GPHY 432	Human Role Environmental Change	
GPHY 433	Cultural Ecology	
Total Hours		3

Minimum Required Grade: C-

Degree Electives**Rule:** 36 Geography credits are required for the major. May require additional Geography elective credits to fulfill the major.**Capstone****Rule:** Seniors must complete the following course**Note:** Seniors must enroll in GPHY 400 in fall, attend GPHY 500 in fall, and complete course requirements in spring.

GPHY 400	Geography Capstone	1
Total Hours		1

Minimum Required Grade: C-

Upper Division Writing**Rule:** Must complete 1 of the following courses**Note:**

- GPHY 335 will also count toward the upper division core requirements
- GPHY 499 will also count toward upper division elective credits.

Other science-based writing courses (e.g. GEO 320, GEO 499, BIOO 470, BIOO 475) may be approved by the advisor.

GPHY 335	Water Policy	3
	or GPHY 499 senior thesis / capstone	
Total Hours		3

Minimum Required Grade: C-

Science Electives**Rule:** Must complete 1 of the following science categories