

PHYSICS - TEACHING BROADFIELD SCIENCE

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 (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/education-human-sciences/teaching-learning/lic-secondary-licensure>)

Bachelor of Arts - Physics; Broadfield Teaching Science Concentration

College Humanities & Sciences

Degree Specific Credits: 83

Required Cumulative GPA: 2.0

Catalog Year: 2017-2018

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 (<http://catalog.umt.edu/past-catalogs/2017-2018/colleges-schools-programs/education-human-sciences/teaching-learning>) 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.

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

Physics Requirements	24
Required Physics Courses	
Physics Elective	
Math Requirements	15
Statistics Requirements	3-4
Astronomy Requirements	4
Geology Requirements	7
Biology Requirements	12
Chemistry Requirements	11
Advanced College Writing Requirement	3

Teaching Methods Requirement	4
Total Hours	83-84

Physics Requirements

Rule: Must complete all of the following subcategories

Minimum Required Grade: C-

24 Total Credits Required

Required Physics Courses

Rule: All courses are required

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
PHSX 301	Intro Theoretical Physics	3
PHSX 311	Oscillations and Waves	2
PHSX 330	Communicating Physics	3
PHSX 343	Modern Physics	3
Total Hours		21

Minimum Required Grade: C-

Physics Elective

Rule: Must complete 1 additional upper division Physics course

Math Requirements

Rule: All courses are required

M 171	Calculus I	4
M 172	Calculus II	4
M 273	Multivariable Calculus	4
M 311	Ordinary Differential Equations and Systems	3
Total Hours		15

Minimum Required Grade: C-

Statistics Requirements

Rule: Must complete 1 of the following courses

STAT 216	Introduction to Statistics	3-4
or STAT 341	Introduction to Probability and Statistics	
Total Hours		3-4

Minimum Required Grade: C-

Astronomy Requirements

Rule: All courses are required

ASTR 131N	Planetary Astronomy	3
ASTR 134N	Planetary Astronomy Lab	1
Total Hours		4

Minimum Required Grade: C-

Geology Requirements**Rule:** Must complete the following subcategories

7 Total Credits Required

Required Geology Courses**Rule:** All courses are required

GEO 101N	Introduction to Physical Geology	3
GEO 102N	Introduction to Physical Geology Lab	1
Total Hours		4

Minimum Required Grade: C-

Geology Electives

Select one of the following: 3

ASTR 351	Planetary Science	
GEO 105N	Oceanography	
Total Hours		3

Minimum Required Grade: C-

Biology Requirements**Rule:** Must complete all of the following courses

BIOB 160N	Principles of Living Systems	3
BIOB 161N	Prncpls of Living Systems Lab	1
BIOB 260	Cellular and Molecular Biology	4
BIOB 272	Genetics and Evolution	4
Total Hours		12

Minimum Required Grade: C-

Chemistry Requirements**Rule:** Must 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	
CHMY 485	Laboratory Safety	1
Total Hours		11

Minimum Required Grade: C-

Advanced College Writing Requirement**Rule:** Must take the following course**Note:** May substitute another advanced writing course as approved by the department chair.

PHSX 330	Communicating Physics	3
Total Hours		3

Minimum Required Grade: C-

Teaching Methods Requirement**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 Science.

EDU 497	Teaching and Assessing	4
Total Hours		4

Minimum Required Grade: C-