

PHYSICS B.A. - 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 Education Program through the Department of Teaching and Learning. Individuals must complete the teaching track within that degree program, which may contain different course requirements than the non-teaching track 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.umn.edu/departments/currinst/undergradprograms/seced/default.php>)
- Licensure Degree Requirements (<http://catalog.umn.edu/colleges-schools-programs/education-human-sciences/teaching-learning/lic-secondary-licensure>)

Bachelor of Arts - Physics; Broadfield Teaching Science Concentration

College of Humanities & Sciences

Degree Specific Credits: 83-84

Required Cumulative GPA: 2.0

Catalog Year: 2018-2019

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.umn.edu/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.umn.edu/academics/general-education-requirements>) of the catalog.

Summary

Code	Title	Hours
	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: Complete the following subcategories. 24 total credits required.

Required Physics Courses

Code	Title	Hours
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
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

Code	Title	Hours
Complete 1 additional upper division Physics course.		3
Total Hours		3

Math Requirements

Code	Title	Hours
Complete all of the following courses:		
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

Code	Title	Hours
Complete one 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

Code	Title	Hours
Complete all of the following courses:		
ASTR 131N	Planetary Astronomy	3

ASTR 134N	Planetary Astronomy Lab	1
Total Hours		4
Minimum Required Grade: C-		

Geology Requirements

Rule: Complete the following subcategories. 7 total credits required.

Required Geology Courses

Code	Title	Hours
Complete all of the following courses:		
GEO 101N	Introduction to Physical Geology	3
GEO 102N	Introduction to Physical Geology Lab	1
Total Hours		4

Minimum Required Grade: C-

Geology Electives

Code	Title	Hours
Complete one of the following courses:		
ASTR 351	Planetary Science	3
GEO 105N	Oceanography	3
Total Hours		3

Minimum Required Grade: C-

Biology Requirements

Code	Title	Hours
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

Code	Title	Hours
Complete all of the following courses:		
CHMY 141N & CHMY 142N	College Chemistry I and College Chemistry I Lab	5
CHMY 143N & CHMY 144N	College Chemistry II and College Chemistry II Lab	5
CHMY 485	Laboratory Safety	1
Total Hours		11

Minimum Required Grade: C-

Advanced College Writing Requirement

Note: May substitute another advanced writing course as approved by the department chair.

Code	Title	Hours
Complete the following course:		
PHSX 330	Communicating Physics	3
Total Hours		3

Minimum Required Grade: C-

Teaching Methods Requirement

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

Code	Title	Hours
Complete the following course:		
EDU 497	Teaching and Assessing	4
Total Hours		4

Minimum Required Grade: C-

Secondary Teaching Licensure

Note: For endorsement to teach physics, a student also must gain admission to the Teacher Education Program and meet all the requirements for secondary teaching licensure (<http://catalog.umt.edu/colleges-schools-programs/education-human-sciences/teaching-learning/lic-secondary-licensure>). For more information, see the Teaching and Learning Department (<http://catalog.umt.edu/colleges-schools-programs/education-human-sciences/teaching-learning>).