

PHYSICS EDUCATION MINOR

- This minor contains course requirements designed to meet state standards. Those interested in teaching in K-12 schools must complete the education/teaching concentration of a major in a teaching content area plus the Teacher Education Program through the Department of Teaching and Learning. Additional teaching areas can be added through completion of the education/teaching concentration of a major or education/teaching minor in that content area.
 - Secondary Education Licensure Program (<http://www.coehs.umt.edu/departments/currinst/undergradprograms/seced/default.php>)
 - Licensure Degree Requirements (<http://catalog.umt.edu/colleges-schools-programs/education/teaching-learning/lic-secondary-licensure/>)
- To complete this concentration, you need to contact the Teaching and Learning Department. Approvals for this track must come from the Teaching and Learning Department.
- Individuals completing this minor must also complete the education/teaching concentration of a major in another teaching content area.

Minor - Physics Education

Summary

Code	Title	Hours
	Required Lower-Division Courses	10
	Upper-Division Core Course	12
	Mathematics and Statistics	18-19
	Additional Science Courses	13-14
	Physics Education Minor Requirement	3
	Total Hours	56-58

Degree Specific Credits: 56-58

Required Cumulative GPA: 2.0

Note: Mathematics prerequisites for the physics minor are M 171, M 172, M 273, (and M 221 if needed).

Required Lower-Division Courses

Note: The Physics with Calculus series (PHSX 215N - PHSX 218N) is strongly recommended.

Code	Title	Hours
	Complete one of the following Physics sequences:	10
	Algebra- and Trigonometry-based Physics:	
PHSX 205N & PHSX 206N	College Physics I and College Physics I Laboratory	
PHSX 207N & PHSX 208N	College Physics II and College Physics II Laboratory	
	Calculus-based Physics (strongly recommended):	
PHSX 215N & PHSX 216N	Fundamentals of Physics with Calculus I and Physics Laboratory I with Calculus	

PHSX 217N Fundamentals of Physics with Calculus II
& PHSX 218N and Physics Laboratory II with Calculus

Total Hours 10

Minimum Required Grade: C-

Upper-Division Core Course

Code	Title	Hours
	Complete all of the following courses:	
PHSX 301	Intro Theoretical Physics	3
PHSX 320	Classical Mechanics	3
PHSX 330	Communicating Physics	3
PHSX 343	Modern Physics	3
	Total Hours	12

Minimum Required Grade: C-

Mathematics and Statistics

Code	Title	Hours
	Complete all of the following courses:	
M 171	Calculus I	4
M 172	Calculus II	4
STAT 216 or STAT 341	Introduction to Statistics Introduction to Probability and Statistics	3-4
M 273	Multivariable Calculus	4
M 274	Introduction to Differential Equations	3
	Total Hours	18-19

Minimum Required Grade: C-

Additional Science Courses

Code	Title	Hours
	Complete all of the following:	
ASTR 131N or ASTR 132N	Planetary Astronomy Stars, Galaxies, and the Universe	3
BIOB 160N or BIOB 170N or BIOE 172N or BIOO 105N	Principles of Living Systems Principles of Biological Diversity Introductory Ecology Introduction to Botany	3
CHMY 121N	Introduction to General Chemistry	4
CHMY 485	Laboratory Safety	1
CSCI 150 or CSCI 151	Introduction to Computer Science Interdisciplinary Computer Science I	3
	Total Hours	14

Minimum Required Grade: C-

Physics Education 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	3
Total Hours		3

Minimum Required Grade: C-

Secondary Teaching Licensure

Note: For endorsement to teach Biology, 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/teaching-learning/lic-secondary-licensure/>). For more information, see the Teaching and Learning Department (<http://catalog.umt.edu/colleges-schools-programs/education/teaching-learning/>).