PHYSICS B.A.

Bachelor of Arts - Physics

College of Humanities & Sciences

Degree Specific Credits: 68

Required Cumulative GPA: 2.0

Catalog Year: 2018-2019

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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<th>Code</th>
<th>Title</th>
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<td>Lower-Division Physics</td>
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<td>Physics Electives</td>
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<td>Teaching Physics Track</td>
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<td>Total Hours</td>
<td>68</td>
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Lower-Division Physics

Complete one of the following Physics sequences:

Algebra- and Trigonometry-based Physics:
- PHSX 205N & PHSX 206N
- PHSX 207N & PHSX 208N

Calculus-based Physics (strongly recommended):
- PHSX 215N & PHSX 216N
- PHSX 217N & PHSX 218N

Total Hours: 10

Minimum Required Grade: C-

Upper-Division Physics

Complete all of the following courses:

- PHSX 301 Intro Theoretical Physics
- PHSX 311 Oscillations and Waves
- PHSX 320 Classical Mechanics
- PHSX 323 Intermediate Physics Lab
- PHSX 343 Modern Physics
- PHSX 423 Electricity & Magnetism I

Total Hours: 30

Minimum Required Grade: C-

Physics Electives

Note: Other PHSX courses may be substituted with adviser approval.

Complete two of the following courses:

- PHSX 141N Einstein's Relativity
- or ASTR 142 The Evolving Universe
- PHSX 327 Optics
- PHSX 330 Communicating Physics
- PHSX 333 Computational Physics
- PHSX 425 Electricity & Magnetism II (2 of these 3 courses must be taken in the physics core, the remaining course can be used as an elective)
- or PHSX 446 Thermodyn & Stat Mech
- or PHSX 462 Quantum Mechanics II

Total Hours: 6

Minimum Required Grade: C-

Math Requirements

Note: M 317, M 412, and M 418 are recommended as well

Complete all of the following courses:

- M 171 Calculus I
- M 172 Calculus II
- M 221 Introduction to Linear Algebra
- M 273 Multivariable Calculus

Total Hours: 16

Minimum Required Grade: C-

Computer Science Requirements

Complete one of the following courses:

- CSCI 100 Intro to Programming
- CSCI 135 Fund of Computer Science I
- PHSX 333 Computational Physics (strongly recommended)

Total Hours: 3
Minimum Required Grade: C-

Advanced College Writing Requirement

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

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<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tbody>
<tr>
<td>PHSX 330</td>
<td>Communicating Physics</td>
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<tr>
<td><strong>Total Hours</strong></td>
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</tbody>
</table>

Minimum Required Grade: C-

Teaching Physics Track

Notes:

- This teaching track contains different/additional course requirements designed to meet state standards. Those interested in teaching in K-12 schools must complete the teaching track 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 teaching track of a major or 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-human-sciences/teaching-learning/lic-secondary-licensure)
- To complete this teaching track, you need to contact the Teaching and Learning Department. You do not fill out a major/minor form for graduation or the major/minor/concentration section of the major change form. Approvals for this track must come from the Teaching and Learning Department.
- Tracks will not appear on your UM transcript, diploma, university lists, student data system, or university publications. They are used for advising purposes only. You do not fill out a major change for a track.

Teaching Physics Track Requirement

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

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<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
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<tr>
<td>EDU 497</td>
<td>Teaching and Assessing</td>
<td>4</td>
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<tr>
<td><strong>Total Hours</strong></td>
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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).