Physics

MAJOR

MINOR

TRACKS IN:
- TRADITIONAL PHYSICS
- ENGINEERING PHYSICS

Professors: Deng-Luzader, J. Hoffman, Latta, Plitnik, O. Soysal, Wang
Associate Professors: Doyle, Eltayeb, E. Moore (Chair), Tidrow
Assistant Professors: Norouzi, Speights, Wondmagegn

- You may not use courses listed under the heading Physical Science to satisfy the requirements of a major or minor in Physics.
- For engineering programs offered by the Dept. of Physics and Engineering, see the Engineering section of this catalog.
- The Traditional Physics track is recommended if you plan to attend graduate school.

Program Requirements


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<th>MAJOR</th>
<th>MINOR</th>
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<tbody>
<tr>
<td>Hours Required in Physics:</td>
<td>38</td>
<td>17</td>
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<td>Hours Required in Other Departments:</td>
<td>18</td>
<td>8</td>
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<td>Total Hours Required:</td>
<td>56</td>
<td>25</td>
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Requirements for Major in Physics

1. Introductory Level Courses: (12 hours)
   PHYS 261 Principles of Physics I: Mechanics, Waves and Oscillations (GEP Group C)
   PHYS 262 Principles of Physics II: Thermodynamics, Electricity and Magnetism
   PHYS 263 Principles of Physics III: Light and Modern Physics

2. Advanced Courses: (17 hours)
   PHYS 310 Classical Mechanics
   PHYS 312 Electricity & Magnetism
   PHYS 320 Experimental Physics
   PHYS 420 Introduction to Computational Physics
   PHYS 491 Seminar
   PHYS 492 Capstone Senior Research and Seminar

3. Required Courses in Other Departments:
   (18 hours)
   ENES 100 Intro. to Engineering Design
   MATH 236 Calculus I (Core Skill 3)
   MATH 237 Calculus II
   MATH 238 Calculus III
   MATH 432 Differential Equations

4. Choice of Track: (9 hours)
   Majors must choose a track in: Traditional Physics or Engineering Physics
   (requirements listed below)

Traditional Physics Track

1. Courses required for all majors: (47 hours)
   Listed above.

2. Advanced Courses in the Department: (9 hours)
   Choose three of the following:
   PHYS 300 Introductory Astrophysics
   PHYS 311 Thermodynamics
   PHYS 313 Optics
   PHYS 410 Theoretical Mechanics
   PHYS 412 Theoretical Electromagnetism
   PHYS 417 Quantum Physics
   PHYS 436 Mathematical Physics
   PHYS 440 Acoustics
   PHYS 495 Physics Internship
   PHYS 499 Special Projects

Engineering Physics Track

1. Courses required for all majors: (47 hours)
   Listed above.

2. Elective Hours in the Department: (9 hours)
   With permission of the Department Chair, as many as 6 credits of mechanical engineering or electrical engineering at the 200 level or above may be applied.

Requirements for Minor in Physics

1. Introductory Level Courses: (12 hours)
   PHYS 261 Principles of Physics I: Mechanics, Waves and Oscillations (GEP Group C)
   PHYS 262 Principles of Physics II: Thermodynamics, Electricity and Magnetism
   PHYS 263 Principles of Physics III: Light and Modern Physics

2. Advanced Courses: (5 hours)
   PHYS 320 Experimental Physics
   One additional 300-400 level physics or engineering course

3. Required Courses in Other Departments: (8 hours)
   MATH 236 Calculus I (Core Skill 3)
If you are interested in teaching physics ...

Students wishing to teach physics at the secondary school level (middle and high school) can obtain both a Bachelor of Science in Physics and a Master of Arts in Teaching – Secondary (MATS) in five years through the following pathway offered by the MATS program. This pathway allows students to take up to nine credits of required graduate courses while completing their undergraduate program in physics. These nine graduate credits will be used as electives toward their undergraduate degree as well as the requirements of the MATS.

Students interested in this pathway should:

1. Discuss the MATS pathway option with their first-year advisor.
2. Meet with the MATS Coordinator as a first-year or sophomore.
3. Apply to the MATS program in the Spring of their sophomore year (February 1 application deadline).
4. Once conditionally admitted (a requirement for the following graduate courses to count as electives in the undergraduate program as well as in the MATS program) take:
   a. REED 517 Reading in the Content Area (Fall or Spring of Junior or Senior year).
   b. SPED 551 Adapting Instruction in Diverse Classrooms (Fall Senior year).
   c. SCED 510 Secondary Methods in Curriculum (Spring Senior year).

Please note that students who are considering this pathway should work with their advisor to create a plan of study that allows these nine credits of graduate courses to be taken in the Junior and Senior years in addition to a minimum of 12 undergraduate credits per semester.