

I. Requirements Common to All Physics Programs:

The common requirements (Physics, Math, and Chemistry) total **44 Cr.** With 2 additional credits (PHYS 217/217H and PHYS 235) highly recommended. *Please note that ALL physics courses typically taken in the first 4 semesters are common to ALL physics programs. Different programs separate only in the 5th semester and beyond.*

a) **Physics Courses** (24 Cr. Required, 2 additional Cr. recommended)

Required:

- 172H (Modern Mechanics) – 4 Cr.
- 272H (Electric and Magnetic Interactions) – 4 Cr.
- 312* (Math Methods I) – 3 Cr. (*provisional course number)
Given in Fall 2007/2008 as 290F. Focus on single- and multi-variate Calculus, Complex Analysis, and Vector Calculus with applications in Physics.
- 313* (Math Methods II) – 3 Cr. New course, will be first offered in Spring 2009.
Ordinary and Partial Differential Equations, Linear Algebra, and some topics from Probability and Statistics, with applications in Physics.
- 344 (Modern Physics) – 4 Cr.
- 342L (Modern Physics Laboratory) – 1 Cr.
- 422 (Waves and Oscillations) – 3 Cr.
This course will be built on the current 422 (Optics, Honors) but will systematically introduce the general concept of waves and oscillations.
- 450 (Intermediate Laboratory) – 2 Cr.
(Currently listed as Optics Laboratory)

Note: Substitution of courses taken from the Math Department for the two Math Methods courses PHYS 312*/313* may be approved by petition depending on the content and performance.

Recommended:

- 217/217H (Introduction to Current Physics and Forefront Research) – 1 Cr.
- 235 (Seminar in Careers in Physics) – 1 Cr.

b) **Math Courses** (12 Cr. required)

- Math 165 (Analytic Geometry and Calculus I) – 4 Cr.
- Math 166 (Analytic Geometry and Calculus II) – 4 Cr.
- Math 261 (Multivariate Calculus) – 4 Cr.

c) **Chemistry Courses** (8 Cr. required)

- CHEM 115 (Chemistry I) – 4 Cr.
- CHEM 116 (Chemistry II) – 4 Cr.

II. Additional Requirements for the Regular Physics Program (7PA):

The Regular Physics Program will have the following additional requirements on top of the common requirement shown in (I) above. These additional courses total **25 Cr.** or more depending on which advanced lab and elective courses are taken.

- 310 (Intermediate Mechanics) – 4 Cr.
- 330 (Intermediate Electricity and Magnetism) – 3 Cr.
- 360 (Quantum Mechanics) – 3 Cr.
- 515 (Thermal and Statistical Physics) – 3 Cr.
- Advanced lab:
536 (Electronics Laboratory) – 4 Cr. or 580 (Computational Physics) – 3 Cr.
- 2 Science/Engineering Electives (6 Cr.) (300-level or higher or by approval)
- 1 Physics/Astronomy Elective (3 Cr.) (300-level or higher or by approval)

III. Additional Requirements for the Honors Physics Program (7PH):

The Honors Physics Program will have the following additional requirements on top of the common requirement shown in I above. These additional courses total **38 Cr.** or more depending on which advanced lab and elective courses are taken. *All of these courses are typically taken in the 5th semester and beyond.*

- 410 (Physical Mechanics I, Honors) – 3 Cr.
- 411 (Physical Mechanics II, Honors) – 2 Cr.
- 430 (Electricity and Magnetism I, Honors) – 3 Cr.
- 431 (Electricity and Magnetism II, Honors) – 2 Cr.
- 460 (Quantum Mechanics I, Honors) – 3 Cr.
- 461 (Quantum Mechanics II, Honors) – 3 Cr.
- 416 (Thermal and Statistical Physics, Honors) – 4 Cr.
- Advanced lab:
536 (Electronics Laboratory) – 4Cr. or 580 (Computational Physics) – 3 Cr.
- 593 (Independent Project) with written report (3 Cr.)
Honors requirement includes a written report
- 2 Science/Engineering Electives (6 Cr.) (300-level or higher or by approval)
- Physics Electives Requirement: 2 PHYS 5xx – 6 Cr. (500-level specialty courses)

Note: In order to graduate with **Honors in Physics (and in Applied Physics)**, the following additional requirements apply:

- No grade of D+ or worse is allowed in any course.
- No more than one C grade (i.e., C+, C, or C-) is allowed in all physics courses taken.
- The Physics and the overall GPA must both be at or above 3.00.
- The grade requirements above can be met by grades from courses retaken. However, while the above requirements are not met, the student will not be classified as in an Honors Program, and thus a special permission would be required if they wish to take courses restricted to the Honors majors. *These new requirements can be elected by current students as well.*

IV. Additional Requirements for the Applied Physics Program (7PB):

The applied Physics Program will have the following requirements in addition to the common requirements shown in I. These additional courses total **43 Cr.**

- 310 (Intermediate Mechanics) – 4 Cr.
- 330 (Intermediate Electricity and Magnetism) – 3 Cr.
- 360 (Quantum Mechanics) – 3 Cr.
- 515 (Thermal and Statistical Physics) – 3 Cr.
- 30 Cr. Additional in chosen applied area(s) as approved by the Department.

V. Additional Requirements for the Applied Physics Honors Program (7PC):

The Applied Physics Honors Program will have the following requirements in addition to the common requirements shown in I. These additional courses total **46 Cr.** *All of these courses are typically taken in the 5th semester and beyond.*

- 410 (Physical Mechanics I, Honors) – 3 Cr.
- 430 (Electricity and Magnetism I, Honors) – 3 Cr.
- 460 (Quantum Mechanics I, Honors) – 3 Cr.
- 416 (Thermal and Statistical Physics, Honors) – 4 Cr.
- 30 Cr. Additional in chosen applied area(s) as in current requirement
- 593 (Independent Project) with a report – 3 Cr.

VI. Additional Requirements for the Physics Teaching Program (7PT):

The requirements for this program are the same as Regular Physics Program minus 515, as far as non-teaching related courses are concerned. Thus the total number of additional credits (non-teaching portion) is **24 Cr.** or more depending on the advanced lab and elective courses taken. There are **32 Cr.** of requirement for Professional Education Courses in addition to all these.