Twin Cities Campus

Physics B.A.

School of Physics & Astronomy

College of Liberal Arts

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2017
- Required credits to graduate with this degree: 120
- Required credits within the major: 56
- Degree: Bachelor of Arts

The undergraduate physics program prepares students for employment, often in industrial or governmental laboratories, or for further study at graduate or professional schools in physics, engineering, biophysics, medicine, education, law, or business.

The program integrates a broad foundation in physics that can be flexibly combined with coursework in other technical disciplines or used to specialize in physics. Students should consult a physics adviser to help formulate objectives for undergraduate study.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Admission Requirements

Prior to declaring the major, it is strongly recommended that students complete at least one 2xxx level course required for the major.

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements including writing and liberal education courses. For more information about University-wide requirements, see the liberal education requirements.Required courses for the major or minor in which a student receives a D grade (with or without plus or minus) do not count toward the major or minor (including transfer courses).

Program Requirements

Students are required to take 4 semester(s) of any second language.

CLA BA degrees require 4 semesters or the equivalent of a second language.

CLA degrees require students to complete 48 credits of upper division coursework taken at the 3xxx, 4xxx, or 5xxx level. For a BA at least 18 of the 48 upper division credits must be outside of the major. For some specific majors, there are exceptions to this requirement.

This program requires 18 upper division credits outside the major. See your advisor for a list of courses that can or cannot be used to meet this requirement.

Students may earn no more than one undergraduate degree in the physics program: a BA or a BS or a minor.

All incoming CLA freshmen must complete the First Year Experience course sequence.

Mathematics

Complete a total of four courses from the calculus sequence or honors calculus sequence. These course do not count toward the total number of credits required for the major.

Calculus Sequence

MATH 1271 - Calculus I [MATH] (4.0 cr)
or MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
MATH 1272 - Calculus II (4.0 cr)
or MATH 1372 - CSE Calculus II (4.0 cr)
MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
or MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
MATH 2263 - Multivariable Calculus (4.0 cr)
or MATH 2374 - CSE Multivariable Calculus and Vector Analysis (4.0 cr)

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or **Honors Sequence**
MATH 1571H - Honors Calculus I [MATH] (4.0 cr)
MATH 1572H - Honors Calculus II (4.0 cr)
MATH 2573H - Honors Calculus III (4.0 cr)
MATH 2574H - Honors Calculus IV (4.0 cr)

Major Courses
Physics I
PHYS 1301W - Introductory Physics for Science and Engineering I [PHYS, WI] (4.0 cr)
or PHYS 1401V - Honors Physics I [PHYS, WI] (4.0 cr)
or PHYS 1501V *{Inactive}*[PHYS, WI] (4.0 cr)
Physics II
PHYS 1302W - Introductory Physics for Science and Engineering II [PHYS, WI] (4.0 cr)
or PHYS 1402V - Honors Physics II [PHYS, WI] (4.0 cr)
or PHYS 1502V *{Inactive}*[PHYS, WI] (4.0 cr)
Physics III
PHYS 2503 - Physics III: Intro to Waves, Optics, and Special Relativity (4.0 cr)
or PHYS 2503H - Honors Physics III (4.0 cr)
Other Lower-division Requirements
PHYS 2201 - Introductory Thermodynamics and Statistical Physics (4.0 cr)
PHYS 2601 - Quantum Physics (4.0 cr)
PHYS 2605 *{Inactive}*(3.0 cr)
PHYS 4051 - Methods of Experimental Physics I (5.0 cr)
Upper-Division Requirements
Take 2 or more course(s) from the following:
•PHYS 4001 - Analytical Mechanics (4.0 cr)
•PHYS 4002 - Electricity and Magnetism (4.0 cr)
•PHYS 4101 - Quantum Mechanics (4.0 cr)

Senior Project
The senior project is completed in PHYS 4025W, or by some alternate means subject to prior departmental approval. Should the approved alternate physics project total fewer than 5 credits, an additional physics elective at the 3xxx-level or higher is required to meet the 5-credit senior project minimum.
PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)

Upper Division Writing Intensive within the major
Students are required to take one upper division writing intensive course within the major. If that requirement has not been satisfied within the core major requirements, students must choose one course from the following list. Some of these courses may also fulfill other major requirements.
Take 0 - 1 course(s) from the following:
•PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)

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