UNIVERSITY OF MINNESOTA
Driven to Discover℠

Twin Cities Campus

Physics Minor

School of Physics & Astronomy

College of Liberal Arts

- Program Type: Undergraduate minor related to major
- Requirements for this program are current for Spring 2022
- Required credits in this minor: 38 to 40

The principles of physics underlie many areas of science and technology, including engineering, biotechnology, medicine, and other sciences. The physics minor provides a broad introduction to the principles of physics and its use for modeling and solving practical problems.

Program Delivery

This program is available:
- via classroom (the majority of instruction is face-to-face)

Minor Requirements

Students may earn no more than one degree in the Department of Physics: a BA or a BS or a minor.

Mathematics

Take exactly 3 course(s) totaling exactly 12 credit(s) from the following:

Calculus I
- MATH 1271 - Calculus I [MATH] (4.0 cr)
- *or* MATH 1371 - CSE Calculus I [MATH] (4.0 cr)
- *or* MATH 1571H - Honors Calculus I [MATH] (4.0 cr)

•Calculus II
- MATH 1272 - Calculus II (4.0 cr)
- *or* MATH 1372 - CSE Calculus II (4.0 cr)
- *or* MATH 1572H - Honors Calculus II (4.0 cr)

•Linear Algebra
- MATH 2243 - Linear Algebra and Differential Equations (4.0 cr)
- *or* MATH 2373 - CSE Linear Algebra and Differential Equations (4.0 cr)
- *or* MATH 2574H - Honors Calculus IV (4.0 cr)

Physics

Take exactly 4 course(s) totaling exactly 16 credit(s) from the following:

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)

•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)

•Thermodynamics
- PHYS 2201 - Introductory Thermodynamics and Statistical Physics (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)

Quantum Physics

Take exactly 2 course(s) totaling exactly 7 credit(s) from the following:
- PHYS 2601 - Quantum Physics (4.0 cr)
- PHYS 3605W - Modern Physics Laboratory [WI] (3.0 cr)

Physics/Astrophysics Elective

Take 1 or more course(s) totaling 3 - 5 credit(s) from the following:
- AST 4001 - Astrophysics I (4.0 cr)
- AST 4002 - Astrophysics II (4.0 cr)
- AST 4031 - Interpretation and Analysis of Astrophysical Data (4.0 cr)
- AST 5012 - The Interstellar Medium (4.0 cr)

•AST 5201 - Methods of Experimental Astrophysics (4.0 cr)
•PHYS 3022 - Introduction to Cosmology (3.0 cr)
•PHYS 3041 - Mathematical Methods for Physicists (3.0 cr)
•PHYS 4001 - Analytical Mechanics (4.0 cr)
•PHYS 4002 - Electricity and Magnetism (4.0 cr)
•PHYS 4051 - Methods of Experimental Physics I (5.0 cr)
•PHYS 4052W - Methods of Experimental Physics II [WI] (5.0 cr)
•PHYS 4101 - Quantum Mechanics (4.0 cr)
•PHYS 4201 - Statistical and Thermal Physics (3.0 cr)
•PHYS 4211 - Introduction to Solid-State Physics (3.0 cr)
•PHYS 4303 - Electrodynamics and Waves (3.0 cr)
•PHYS 4511 - Introduction to Nuclear and Particle Physics (3.0 cr)
•PHYS 4611 - Introduction to Space Physics (3.0 cr)
•PHYS 5001 - Quantum Mechanics I (4.0 cr)
•PHYS 5002 - Quantum Mechanics II (4.0 cr)
•PHYS 5011 - Classical Physics I (4.0 cr)
•PHYS 5012 - Classical Physics II (4.0 cr)
•PHYS 5041 - Mathematical Methods for Physics (4.0 cr)
•PHYS 5201 - Thermal and Statistical Physics (3.0 cr)
•PHYS 5701 - Solid-State Physics for Engineers and Scientists (4.0 cr)
•PHYS 4041 - Computational Methods in the Physical Sciences (4.0 cr)
or AST 4041 - Computational Methods in the Physical Sciences (4.0 cr)
•PHYS 4121W - History of 20th-Century Physics [WI] (3.0 cr)
or HSCI 4121W - History of 20th-Century Physics [WI] (3.0 cr)
•PHYS 4621 - Introduction to Plasma Physics (3.0 cr)
or PHYS 5621 - Introduction to Plasma Physics (3.0 cr)
•PHYS 4911 - Introduction to Biopolymer Physics (3.0 cr)
or PHYS 5081 - Introduction to Biopolymer Physics (3.0 cr)
•PHYS 5022 - Relativity, Cosmology, and the Universe (4.0 cr)
or AST 5022 - Relativity, Cosmology, and the Universe (4.0 cr)