

The Physics program under semesters will consist of 4 different options, each of which leads to a Bachelor of Sciences degree in physics. The options each consist of a common core of Physics, Math and prerequisite courses, along with additional required and/or recommended courses in Physics, Math, and/or other departments.

- I. Core Physics (Required for all Physics Degree Options)
 - A. Physics 1250: Introductory Mechanics, thermodynamic and waves
 - B. Physics 1251: Introductory Electricity & Magnetism, Special Relativity and Quantum Mechanics
 - C. Physics 2300: Intermediate mechanics and mathematical methods for physicists I
 - D. Physics 2301: Intermediate mechanics and mathematical methods for physicists II
 - E. Physics 2295: Physics undergraduate seminar
 - F. Physics 3700: Methods in experimental physics Lab
 - G. Physics 5400/H5400: Electricity and Magnetism I (regular/honors)
 - H. Physics 5500/H5500: Quantum Mechanics I (regular/honors)
 - I. Specialized Laboratory: Physics 4700: Electronics Laboratory or Physics 6810: Computational Physics Laboratory
 - J. Physics 5700: Advanced Laboratory
- II. Prerequisite Math (For all Physics Degree Options)
 - A. Math 1151: Calculus I
 - B. Math 1152: Calculus II
 - C. Math 2513: Vector Calculus
 - D. Math 2568: Linear Algebra and Differential Equations
- III. Other Prerequisites (Required for all Physics Degree Options)
 - A. CSE 1222: Introduction to C++ programming
- IV. Additional Recommended Math
 - A. Math 5514: Complex variables (analytic functions, complex integrals, residues, etc.; recommended for Advanced Physics Option)
 - B. Math 5581/5582: Abstract Algebra (Number spaces, group theory, etc; recommended for Advanced Physics Option)
- V. Elective Physics
 - A. Physics H5501: Honors Quantum Mechanics II
 - B. Physics H5401: Honors Electricity and Magnetism II
 - C. Physics 5600: Thermodynamics and Statistical Physics
 - D. Physics 3470: Optics

- E. Physics H3455: Honors Holography
- F. Physics 68xx: Special Topics in Physics
- G. Physics 5300: Classical Mechanics

As mentioned above, the B.S. requirements are composed of a core, which all physics students must take, and a set of technical and other electives chosen arranged in four possible options depending on the interests of the student. The options along with the additional courses are listed here.

I. Advanced Physics option: This option is designed for those intending graduate level (Ph.D.) studies in physics. It provides an excellent preparation for graduate school in physics.

Required courses:

- A. The Core Physics, Math, and Prerequisite courses listed above.
- B. Physics H5501 or another Physics elective.
- C. Physics H5401 or another Physics elective.
- D. Physics 5600.
- E. Physics 5300.

II. Applied Physics option: This option is a flexible program that combines a strong foundation in physics with a set of technical electives designed for those with special interests. The program of technical electives could include courses of study from other programs in the Colleges of Mathematical and Physical Sciences, or Engineering, or other programs such as meteorology, economics, history of science, or primary education.

Required courses:

- A. The Core Physics, Math, and Prerequisite courses listed above.
- B. At least one course chosen from the Physics Elective above.
- C. Additional courses: A set of technical electives designed in consultation with the Undergraduate Studies Committee in Physics or their designee. Courses utilized in pursuit of a minor, additional major, or dual degree are acceptable and encouraged. A minimum of 15 semester credit hours is required.

III. Physics teaching option: This option is designed for those seeking secondary level certification in physics (i.e., to be a high school teacher). It is been designed to satisfy College of Education Master of Education (Physics Certification) curriculum.

Required courses:

- A. The Core Physics, Math, and Prerequisite courses listed above.
- B. At least one course chosen from the Physics Electives above.
- C. Physics 5100: Physics for Teachers

D. Semester versions of the following courses: Bio 113, Chem 121, Chem 122, Astro 291, Earth Sciences 110 or 122: History of life on earth; Earth through time, Geog 520: Climatology

IV. Physics Life Sciences option: This option is designed for those intending to attend medical school. It satisfies all of the OSU medical school admission requirements, when combined with the required physics and math courses in the physics core curriculum. Required courses:

A. The Core Physics, Math, and Prerequisite courses listed above.

B. At least one course chosen from the Physics Elective above.

C. Semester versions of the following courses: Bio 113, Bio 114, Chem 121, Chem 122, Chem 251, Chem 252, Chem 254, Chem 255, Biochem 511