

Department Requirements for a B.S. Degree in Physics Meteorology Area of Concentration

Physics majors interested in atmospheric sciences, may now specialize in meteorology. Meteorology is the scientific study of the atmosphere on many scales, from local atmospheric chemistry to weather forecasting to global climate. Meteorology is also a young field, and students entering it now have the opportunity to make significant contributions to understanding our environment. Through the rigorous study of concepts related to matter, energy, and their interactions, physics majors develop strong analytic and problem solving skills: adapting mathematics to real world situations; using instrumentation and statistics to compare conceptual models to reality; and using computers to handle both these tasks efficiently. For further information about this specialization, please contact the Physics Undergraduate Advisor (phys-ugradinfo@physics.umd.edu) or Professor Robert Hudson (hudson@atmos.umd.edu) in the Meteorology Department.

Required Courses for a Major in Physics

Freshman/Sophomore Level Required Courses:

PHYS 171: *Introductory Physics: Mechanics and Relativity* (3 cr)
PHYS 174: *Physics Laboratory Introduction* (1 cr)
PHYS 272: *Introductory Physics: Fields* (3 cr)
PHYS 275: *Experimental Physics I: Mechanics, Heat and Fields* (2 cr)
PHYS 273: *Introductory Physics: Waves* (3 cr)
PHYS 276: *Experimental Physics II: Electricity and Magnetism* (2 cr)
CHEM 135: General Chemistry for Engineers (3 cr)
CHEM 136: General Chemistry Laboratory for Engineers (1 cr)
CHEM 231: Organic Chemistry I (3 cr)
CHEM 232: Organic Chemistry I Lab (1 cr)

Junior/Senior Required Physics Courses:

PHYS 375: *Experimental Physics III: Waves, Optics and Modern Physics* (3 cr)
PHYS 404: *Introduction to Statistical Thermodynamics* (3 cr)
AOSC 431: Meteorology for Scientists and Engineers I (3 cr)
AOSC 432: Meteorology for Scientists and Engineers II (3 cr)
AOSC 434: Air Pollution (3 cr)

and either Option 1 or Option 2:

Option I

PHYS 401: Quantum Physics I (4 cr)
PHYS 402: Quantum Physics II (4 cr)

Option II

Two of the following:

PHYS 405: Advanced Experiments (3 cr)
PHYS 406: Optics (3 cr)
PHYS 410: Classical Mechanics (4 cr)
PHYS 411: Electricity & Magnetism (4 cr)
PHYS 420: Principles of Modern Physics (3 cr)

Required Supporting Math Courses:

MATH 140: *Calculus I* (4 cr)
MATH 141: *Calculus II* (4 cr)
MATH 241: *Calculus III* (4 cr)
MATH 246: *Differential Equations* (3 cr)
MATH 240: *Linear Algebra* (4 cr) or MATH461: Linear Algebra (3 cr)
MATH 462: Partial Differential Equations (3 cr)