

# PHYSICS

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Physics is the science of matter, energy and their interactions. Physics majors learn the fundamental laws governing the natural world, and in so doing develop critical skills of observation and quantitative analysis in both experimental and theoretical settings. Because those skills are increasingly valued in diverse fields in today's technological society, persons trained in physics are found not only in science, but also in fields where analytical skills are vital to success, such as finance, medicine, law and engineering.

The Department of Physics offers three different degree options for students. First, the "BS in Physics" degree is designed for students who seek a broad, comprehensive study of the set of traditional as well as contemporary topics which together comprise the subject of physics, and who ultimately may be interested in obtaining master's and/or doctoral degrees and becoming professional physicists or astronomers. In contrast, the "BS in Applied Physics" degree concentration has been developed for students who wish to combine studies in physics with studies in other areas such as engineering, biology and microbiology (including Pre-Med requirements), geology, business, computer science, mathematics, or perhaps in preparation for graduate degrees in those areas. Our "BS in Physics, Secondary Teacher Certification" degree is aimed to provide students with the basic foundation in physics needed to prepare for a professional career in secondary education. Students who complete this degree are fully certified to teach Physics in the state of Oklahoma upon graduation. The Department also encourages students to consider interdisciplinary study opportunities afforded from a double major or minor with physics. The detailed requirements for all degree programs of the Physics Department can be obtained from the department office or its website: <https://physics.okstate.edu/>.

During their first two years, physics majors learn the laws of mechanics (forces and motion) and electromagnetism which epitomize the work of Newton and Maxwell, among others. At the same time, students develop their mathematical skills through courses in calculus and differential equations.

During their last two years, physics majors delve into advanced topics including the quantum and relativistic physics of Schroedinger, Einstein and their colleagues. Courses in laboratory and computational methods further develop experimental abilities. Students are also encouraged to work in the department's research labs or astronomical observatory. Students pursuing the BS in physics take additional physics courses and do a senior project. Students seeking the BS in applied physics replace the additional physics courses with upper-division courses in their chosen areas.

Please contact Sheri Orr, Sr. Academic Advisor ([sheri.m.orr@okstate.edu](mailto:sheri.m.orr@okstate.edu)), to learn more!