

# Applied Physics

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## An Interdisciplinary Program

An interdisciplinary program leading to the degree of Doctor of Philosophy in Engineering with a concentration in Applied Physics is available. A specific program, depending on the research interest of the student, is established by consultation between the student and his/her advisor.

Major areas of study include the following:

Astrochemistry  
 Astrophysics  
 Computational physics  
 Condensed matter physics  
 Experimental and theoretical nuclear physics  
 Experimental and theoretical optics  
 Experimental atomic, molecular, optical, and plasma physics  
 Experimental nanomaterials and nanoelectronics

Graduate research and teaching assistantships are available. For a complete listing of requirements and other pertinent information, please reference information provided in Physics and Astronomy (<http://catalog.msstate.edu/archives/2023-24/graduate/colleges-degree-programs/arts-sciences/physics-astronomy/>), College of Arts and Science, located in this publication.

## Doctor of Philosophy in Engineering, Applied Physics Concentration

### Core Courses

PH 8213	Mechanics	3
PH 8233	Methods of Theoretical Physics I	3
PH 8243	Methods of Theoretical Physics II	3
PH 8313	Electromagnetic Theory	3
PH 8743	Quantum Mechanics I	3
PH 8753	Quantum Mechanics II	3

### Other Requirements

Additional coursework in the area of specialization		
PH 9000	Research in Physics (at least 20 hours)	20

**Total Hours** **38**

All Ph.D. candidates are required to take a minimum of 20 credit hours of PH 9000 Research/Dissertation. The committee for an individual student may require additional courses depending on the research area and background of the student. Ph.D. candidates must pass a comprehensive examination on the proposed dissertation topic. The comprehensive examination is comprised of a written document and an oral examination and must be attempted within the first 36 months of enrolling in the Ph.D. program.