Physics

The Department of Physics offers graduate programs leading to the Master of Science (ScM) degree and the Doctor of Philosophy (PhD) Degree. For more information on admission and program requirements, please visit the following website: http://www.brown.edu/academics/gradschool/programs/physics

Master of Science (ScM)

A total of 8 credits in 2000 level courses form the main requirement for the ScM degree in Physics, typically taken over 4 semesters. Of the eight required courses, four must be selected from the six core courses of the graduate program.

Core Courses

PHYS 2010	Techniques in Experimental Physics
PHYS 2030	Classical Theoretical Physics I
PHYS 2040	Classical Theoretical Physics II
PHYS 2050	Quantum Mechanics
PHYS 2060	Quantum Mechanics
PHYS 2140	Statistical Mechanics

Four additional credits at the 2000 level are required. These courses are to be selected from the remaining core courses or the large number of other upper level physics courses. Up to two of these can be taken in research, or taken in another department with prior approval of the program director.

PHYS 2020	Mathematical Methods of Engineers and Physicists
PHYS 2070	Advanced Quantum Mechanics
PHYS 2170	Introduction to Nuclear and High Energy Physics
PHYS 2280	Astrophysics and Cosmology
PHYS 2300	Quantum Theory of Fields I
PHYS 2320	Quantum Theory of Fields II
PHYS 2340	Group Theory
PHYS 2410	Solid State Physics I
PHYS 2420	Solid State Physics II
PHYS 2430	Quantum Many Body Theory
PHYS 2470	Advanced Statistical Mechanics
PHYS 2600	Computational Physics
PHYS 2620H	Quantum Computation, Information, and Sensing
PHYS 2620J	Statistical Physics in Inference and (Deep) Learning
PHYS 2980	Research in Physics
or PHYS 2981	Research in Physics

Doctor of Philosophy (PhD)

Core Courses:

PHYS 2010	Techniques in Experimental Physics
PHYS 2030	Classical Theoretical Physics I
PHYS 2040	Classical Theoretical Physics II
PHYS 2050	Quantum Mechanics
PHYS 2060	Quantum Mechanics
PHYS 2140	Statistical Mechanics

Beyond the core courses, PhD candidates are expected to pass four additional advanced courses. At least one of the courses must fall outside the student's research area. These courses are to be selected from the following:

PHYS 2020	Mathematical Methods of Engineers and Physicists
PHYS 2070	Advanced Quantum Mechanics
PHYS 2100	General Relativity
PHYS 2170	Introduction to Nuclear and High Energy Physics
PHYS 2280	Astrophysics and Cosmology
PHYS 2300	Quantum Theory of Fields I
PHYS 2320	Quantum Theory of Fields II
PHYS 2340	Group Theory
PHYS 2410	Solid State Physics I
PHYS 2420	Solid State Physics II
PHYS 2430	Quantum Many Body Theory
PHYS 2470	Advanced Statistical Mechanics
PHYS 2600	Computational Physics
PHYS 2630	Biological Physics