

# Physics Courses

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## Courses

### PHYS 5195. Graduate Seminar.

Graduate Seminar: May be repeated three times for credit.

**Department:** Physics

**1 Credit Hour**

**1 Total Contact Hour**

0 Lab Hour

1 Lecture Hour

0 Other Hour

### PHYS 5196. Graduate Research in Physics.

Graduate Research in Physics: This course may be taken as often as needed, but no more than 3 semester credit hours may be applied to satisfy the requirements for the master's degree. A student will receive only a P or F grade, except when the student has filed a preliminary degree plan in which this course appears. Prerequisite: Department approval.

**Department:** Physics

**1 Credit Hour**

**1 Total Contact Hour**

0 Lab Hour

0 Lecture Hour

1 Other Hour

### PHYS 5321. Mechanics.

Mechanics: Lagrange's equations, nonholonomic constraints, Hamilton's principles, two-body central force, rigid body dynamics, Lagrangian relativistic mechanics, Hamilton and Hamilton-Jacobi equations, canonical transformations. Prerequisite: PHYS 3352. Offered Fall semester.

**Department:** Physics

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours

3 Lecture Hours

0 Other Hours

**Prerequisite(s):** (PHYS 3352 w/C or better)

### PHYS 5325. Mathematical Physics.

Mathematical Physics: Linear systems, special functions, complex variables, and tensor problems in physics. Offered Fall semester.

**Department:** Physics

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours

3 Lecture Hours

0 Other Hours

### PHYS 5341. Electrodynamics.

Electrodynamics: Boundary value problems, polarization and stress tensor. Conservation laws and energy momentum tensor. Relativistic electrodynamics. Covariant form of field equations. Potentials and gauge invariance. Prerequisite: PHYS 4342.

**Department:** Physics

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours

3 Lecture Hours

0 Other Hours

**Prerequisite(s):** (PHYS 4342 w/C or better)

**PHYS 5361. Quantum Mechanics.**

Quantum Mechanics: Solution of the Schrodinger wave equation for discrete and continuous energy eigenvalues; representation of physical variables as operators and the matrix formulation of quantum mechanics; approximation methods. Prerequisite: PHYS 4356.

**Department:** Physics

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours

3 Lecture Hours

0 Other Hours

**Prerequisite(s):** (PHYS 4356 w/C or better)

**PHYS 5365. Advanced Statistical Mechanics.**

Advanced Statistical Mechanics: Classical and quantum statistics of systems in equilibrium. Treatment of fluctuations and transport phenomena. Introduction to many body problems. Prerequisite: PHYS 3331 with a grade of "C" or better.

**Department:** Physics

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours

3 Lecture Hours

0 Other Hours

**Prerequisite(s):** (PHYS 3331 w/C or better)

**PHYS 5371. Solid State Physics.**

Solid State Physics: Electromagnetic, elastic and particle waves in periodic lattices as applied to the electrical, magnetic and thermal properties of solids. Prerequisite: PHYS 4356 or department approval.

**Department:** Physics

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours

3 Lecture Hours

0 Other Hours

**Prerequisite(s):** (PHYS 4356 w/C or better)

**PHYS 5391. Research Problems in Physics.**

Research Problems in Physics: Required course for the 36-hour non-thesis option. Requires two copies of a type-written report. May be repeated for credit; maximum credit allowed six hours. May not be counted as thesis research but may be taken one time as a preparatory investigation course prior to the beginning of thesis research. Prerequisites: Submission of the Petition of Candidacy and department approval.

**Department:** Physics

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours

0 Lecture Hours

3 Other Hours

**PHYS 5393. Special Topics in Physics.**

Special Topics in Physics: Topics to be announced. May be repeated for credit.

**Department:** Physics

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours

3 Lecture Hours

0 Other Hours

**PHYS 5396. Graduate Research in Physics.**

Graduate Research in Physics: This course may be taken as often as needed, but no more than 3 semester credit hours may be applied to satisfy the requirements for the master's degree. A student will receive only a pass/fail grade except when the student has filed a preliminary degree plan in which this course appears. Prerequisite: Department approval.

**Department:** Physics

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours

3 Lecture Hours

0 Other Hours

**PHYS 5398. Thesis.**

Thesis. Prerequisite: Department approval.

**Department:** Physics

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours

0 Lecture Hours

3 Other Hours

**PHYS 5399. Thesis.**

Thesis. Prerequisite: PHYS 5398 and department approval.

**Department:** Physics

**3 Credit Hours**

**3 Total Contact Hours**

0 Lab Hours

0 Lecture Hours

3 Other Hours

**Prerequisite(s):** (PHYS 5398 w/P or better)

**PHYS 5696. Graduate Research in Physics.**

Graduate Research in Physics (0-0-6) This course may be taken as often as needed, but no more than three semester hours may be applied to satisfy the requirements for the master's degree. A student will receive only a pass/fail grade except when the student has filed a preliminary degree plan in which this course appears. Prerequisite: Department approval.

**Department:** Physics

**6 Credit Hours**

**6 Total Contact Hours**

0 Lab Hours

0 Lecture Hours

6 Other Hours