



PHYSICS
Science
Waves, Optics & Modern Physics

There are two grading schemes. **Your final grade will be the higher of the two schemes.**

Assignments, quizzes and class tests ^y	55%	35%
Laboratory activities	15%	15%
Final examination	30%	50%

^yYour teacher will provide a detailed breakdown of these components and a tentative test schedule during the first week of class.

In order to pass the course, students must show a basic understanding of the course material at the level

Intensive course contacts

If a student is attending an intensive course, the student must inform the teacher, within the first two weeks of class, of the specific dates of any anticipated absences.

Policy on religious observance

Students who intend to observe religious holidays must inform their teachers in writing as prescribed in the ISEP Policy on Religious Observance (ISEP Section IV-D), within the first two weeks of the semester. Forms for this purpose are available from your teacher. Your teacher will inform you of any modifications to planned course activities resulting from the teacher's own religious commitments.

Course content

The material to be covered is contained in the following chapters and sections of **Physics for Scientists and Engineers by Serway & Jewett, 9th edition**.

Weeks	Topics	Chapter & Section
1{2}	Periodic motion	Ch.15: 1{5; sections 6 and 7 qualitatively (quantitative optional for 6, 7)
2{4}	Mechanical waves	Ch.16: 1{5 (6 optional)
4{6}	Sound waves and hearing	Ch.17: 1 and 2 qualitatively; 3, 4
6{7}	Superposition and standing waves	Ch.18: 1{5, 7; 8 qualitatively
8	Electromagnetic waves	Ch.34: 7 (EM spectrum)
8	Nature and propagation of light	Ch.35: all; Ch.38: 6 qualitatively
9	Interference	Ch.37: 1{5
10	Diffraction	Ch.38: 1, 2 (intensity optional), 3, 4 without derivations
11	Relativity	Ch.39: 1, 3, 4, 7, 8
12{13}	Introduction to quantum mechanics	Ch.40: 1, 2, 4, 5, 7 (8 optional)
14	Atomic physics	Ch.42: 1{3 (9, 10 optional)
14{15}	Nuclear physics	Ch.44: 1, 2, 4{6 (8 optional)
15	Applications of nuclear physics	Ch.45: (all optional)

The material to be covered is contained in the following chapters and sections of **Physics for Scientists and Engineers by Knight, 4th edition**.

Weeks	Topics	Chapter & Section
1{2}	Oscillations	Ch.15: 1{6 (physical pendulum optional), 7{8 (qualitatively)
3{4}	Travelling waves	Ch.16: 1{3, 4 (optional), 5, 6 (qualitatively), 7{9
5{6}	Superposition	Ch.17: 1{7
7{8}	Wave optics	Ch.33: 1{7
9	Ray optics	Ch.34: 1{3
10	Relativity	Ch.36: 3, 6, 7, 9 and 10 (1, 2, 4, 5, 8 optional)
11	Foundations of modern physics	Ch.37: 1, 2 (3{8 qualitatively)
11{13}	Quantization	Ch.38: 1{7
14	Wave functions and uncertainty	Ch.39: 6 (optional)
14{15}	Nuclear physics	Ch.42: 1{3, 5, 6 (4 and 7 optional)

Comprehensive examination

Second-year students can opt to complete the independent study portion of their comprehensive examination in this course. (This option is not available in continuing education courses.) The project will be evaluated on pass or fail basis independently from the course grade.

**Questions
outside class**

All regular day program teachers will be available in their respective offices to their students during posted office hours. In the first week, your teacher will inform you of their schedule and will post it outside their office.

Room 7A.1 is the physics study room. At scheduled times, a teacher or peer tutor will be on duty there to answer your questions. The schedule of teachers and peer tutors will be posted outside of 7A.1 in the 2nd or 3rd week of term.