

1. In your opinion, what is the primary reason your department requires students to take this physics course?

2. How many quarters of physics do you think should be required for your students? 0 1 2 3 4 5 6

3. Many different goals could be addressed through this course. Would you please rate each of the following possible goals in relation to its importance for your students on a scale of 1 to 5?

1=unimportant

2=slightly
important

3=somewhat
important

4=important

5=very
important

Know the basic principles behind all physics (e.g. forces, conservation of energy, ...) 1 2 3 4 5

Know the range of applicability of the principles of physics (e.g. conservation of energy applied to fluid flow, heat transfer, plasmas, ...) 1 2 3 4 5

Be familiar with a wide range of physics topics (e.g. specific heat, AC circuits, rotational motion, geometrical optics,...) 1 2 3 4 5

Solve problems using general quantitative problem solving skills within the context of physics 1 2 3 4 5

Solve problems using general qualitative logical reasoning within the context of physics 1 2 3 4 5

Formulate and carry out experiments 1 2 3 4 5

Analyze data from physical measurements 1 2 3 4 5

Use modern measurement tools for physical measurements (e.g.. oscilloscopes, computer data acquisition, timing techniques,...) 1 2 3 4 5

Program computers to solve problems within the context of physics. 1 2 3 4 5

Overcome misconceptions about the behavior of the physical world 1 2 3 4 5

Understand and appreciate 'modern physics' (e.g. solid state, quantum optics, cosmology, quantum mechanics, nuclei, particles,...) 1 2 3 4 5

Understand and appreciate the historical development and intellectual organization of physics. 1 2 3 4 5

Express, verbally and in writing, logical, qualitative thought in the context of physics. 1 2 3 4 5

Learn to work in teams to solve problems within the context of physics. 1 2 3 4 5

Use with confidence the physics topics covered. 1 2 3 4 5

Apply the physics topics covered to new situations not explicitly taught by the course. 1 2 3 4 5

Other goal. Please specify here 1 2 3 4 5

★ Please place a star (*) next to the TWO goals listed above that you consider to be the MOST IMPORTANT for your students.

4. In three quarters it is impossible to cover every topic in physics, so some topics need to be left out. The purpose of this question is to inform us of your priorities of the topics we might cover in the course. Below are the chapter headings from a typical textbook at this level. Please place the number of weeks you would like to see spent on each chapter. Each week consists of three lectures, one recitation, and a two-hour laboratory. The total number of weeks should equal 24 since there is a week of introduction and organization at the beginning of the quarter and a week of review at the end of the quarter. Please do not use half-week units.

_____	Units, dimensions and vectors
_____	Linear motion
_____	Two dimensional motion
_____	Forces and Newton's Laws
_____	Applications of Newton's laws
_____	Kinetic energy and work
_____	Potential energy and conservation of energy
_____	Momentum and collisions
_____	Rotations and torque
_____	Angular momentum
_____	Statics
_____	Gravitation
_____	Simple harmonic motion
_____	Waves (e.g. standing waves, sound, Doppler effect)
_____	Superposition and interference of waves
_____	Properties of fluids (e.g. pressure, continuity, Bernoulli's equation)
_____	Temperature and ideal gas
_____	Heat flow and the first law of thermodynamics
_____	Molecules and gases (e.g. probability distributions of velocity, equipartition theory)
_____	The second law of thermodynamics
_____	Properties of solids (e.g. stress, strain, thermal expansion)
_____	Electric charge (e.g. Coulomb's law, charge conservation)
_____	Electric field
_____	Gauss' law
_____	Electric potential
_____	Capacitors and dielectrics
_____	Currents in materials (e.g. resistance, insulator, semiconductors)
_____	DC circuits
_____	Effects of magnetic fields (e.g. magnets, magnetic force, Hall effect)
_____	Properties of magnetic fields (e.g. Ampere's law, Biot-Savart law)
_____	Faraday's law
_____	Magnetism and matter (e.g. ferromagnetism, diamagnetism)
_____	Magnetic Inductance
_____	AC circuits
_____	Maxwell's equations and electromagnetic waves
_____	Light (e.g. reflection and refraction)
_____	Mirrors and lenses
_____	Interference
_____	Diffraction
_____	Other. Please specify.
<u> 24 </u>	Total number of weeks

★ Please place a star (*) next to the FOUR chapters listed above that you consider to be the MOST IMPORTANT for your students.

5. The laboratory associated with this course is typically taught by graduate teaching assistants and could be structured in several ways. Please place an 'X' by that structure that you feel would be most appropriate for the students.

- ☐ A lab with well defined directions which verifies a physical principle previously explained to the students using the given apparatus.
- ☐ A lab where the students are given a specific question or problem for which they must conduct an experiment with minimal guidance using the given apparatus.
- ☐ A lab where the students are given a general concept from which they must formulate an experimental question, then design and conduct an experiment from a choice of apparatus.
- ☐ Other. Please describe.

6. The recitation sections associated with this course is typically taught by graduate teaching assistants and could be structured in several ways. Please place an 'X' by that structure that you feel would be most appropriate for the students.

- ☐ Students ask the instructor to solve specific homework problems on the board.
- ☐ Instructor asks students to solve specific homework problems on the board.
- ☐ Instructor asks students to solve unfamiliar textbook problems, then discusses solution with class.
- ☐ Students work in small collaborative groups to solve real-world problems with the guidance of the instructor.
- ☐ Other. Please describe.

7. Would you please give examples of topics or subjects covered in your curriculum that assume some knowledge, skills or understanding which should be imparted by this physics course? Specific course numbers would also be helpful.

Thank you for completing this questionnaire. If you have any material which illustrates the topics or subjects covered in your curriculum which assume knowledge, skill, or understanding which should be imparted in Physics 1251-2-3, we would appreciate receiving a copy.

In order for us to ask you more detailed questions and consult with you as the need arises, we ask that you complete the following information. Thank you.

Name: _____

Department / program: _____

Campus address: _____

Campus phone: _____