

SYLLABUS

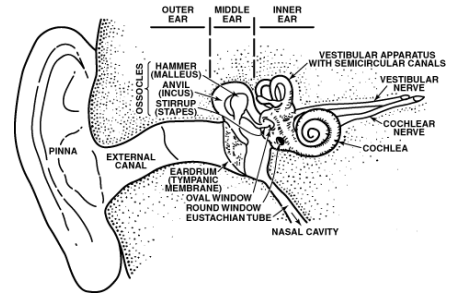
Boston University

CAS PY 241

Principles of General

Physics I

Fall 2010



PY 241 is intended for well-prepared students of the life sciences, particularly those interested in a degree in medicine, and especially students in the 7-Year Medical Program. It is a fast-paced course that, including PY242, will cover Classical Mechanics, Thermal Physics, Fluids, Electricity, Magnetism, Optics, and the basics of Quantum Mechanics and Nuclear Physics.

Instructors:

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Prerequisites: A good grasp of mathematics is essential. Students should be fluent with algebra, trigonometry, vectors, and arithmetic. This course will be taught using calculus. MA123 (Differential Calculus) or equivalent is a prerequisite, and MA124 (Integral Calculus) should be taken concurrently or already be satisfied by an equivalent. Many freshmen will have satisfied the prerequisites through Advanced Placement.

Online Material: Material such as homework assignments and solutions will be posted on the Boston University Blackboard site shown below. Office hours are listed here as well. Any updates to this syllabus will also be posted there. You should also use this service to verify the grades of your assignments and exams. This is restricted material and you will use your Kerberos password for access.

http://blackboard.bu.edu/bin/course.pl?course_id=10fallcaspy241_a1

Calendar: The schedule for the course is kept using Google Calendar. A link is posted on Blackboard and is available here:

http://www.google.com/calendar/embed?src=mqgms0s6kni7008tnnhh4dmcb0%40grouop.calendar.google.com&ctz=America/New_York

Lectures: The topic to be presented during each lecture is listed on the course calendar, and generally matches with a chapter of the textbook. Attendance at lectures is required. In order to gain the most from each lecture, you should read the chapters in advance. The lecture may occasionally include an impromptu short quiz. Such quiz grades, attendance, and active participation will be allocated up to 4% of the final score used to determine your letter grade, at the discretion of the instructor.

Lectures are Tuesday-Thursday in SCI-113 from 12:30 to 2:00 PM.

Textbook: General Physics, 2nd Edition, by Sternheim and Kane.

Exams: There will be three exams: two midterms plus a final during the regularly scheduled final exam period. These three exams will represent 2/3 of your course grade: 30% for the final and 18% for the midterms. The midterms will be scheduled for evenings.

Discussion Sections: Discussion sections are a required part of the course. You must have an assigned discussion section. The teaching assistant will supplement the lecture material, assist in problem solving, and help prepare you for exams. Several times per semester, graded quizzes will be given. The discussion quizzes will account for 10% of your grade.

Discussion Section D1: Friday, 10-11 AM in SCI-B58.

Discussion Section D2: Friday, 3-4 PM, in SCI-B58.

Homework: Problem sets will be handed out in lecture, generally on Tuesday, and are posted on the Blackboard site. Homework sets are due when scheduled in boxes located in the basement of the Metcalf Science Center, generally Monday at 5 PM. You may work together to tackle questions, but the solution you turn in must be your own. Your problem sets should be neat, readable, and sufficiently well organized that your approach to the problem is clear to the grader. For most full-length problems, at least one page of paper per problem is appropriate. Place a box around final answers so they are easy to find. The homework will be graded by the teaching assistant and will be returned during discussion section or lecture. Solutions will be posted on Blackboard. Once the solutions are posted we cannot accept homework for grading. Homework scores will account for 10% of your grade.

Labs: Laboratory sections are a required part of the course. You will perform six or seven experiments and write up your observations and measurements in a suitable laboratory notebook. A low-cost, quadrille, spiral-bound notebook is satisfactory. The notebooks are due at the end of each laboratory

period. Laboratory scores will account for 10% of your grade. **All labs are required.** Turning in fewer than all assigned labs will result in a grade of F. Lab write-ups are available from:

http://physics.bu.edu/ulab/all_labs.html

Lab Section L1: Mondays, 6-9 PM.

Lab Section L2: Tuesdays, 3:30-6:30 PM.

The definitive lab schedule is on the Google Calendar, but here is the plan:

1. Sep. 20/21 Projectile Motion
2. Oct. 4/5 Torque and Moments of Inertia
3. Oct. 18/19 Energy Conservation
4. Nov. 1/2 Simple Harmonic Motion
5. Nov. 15/16 Mechanical Equivalent of Heat
6. Nov. 29/30 Specific Heat

Makeup rules: For students with valid excuses (determined by your assigned lab or discussion TF, in consultation with the lecturer), you may be allowed to attend an alternate section. If you need to miss a section, we would rather have you complete the work the same week. There will be an opportunity to makeup one missing lab at the end of the semester, again if a valid excuse is authorized in advance. There will be no makeup exams except for very serious, documented excuses such as illness. There will be no makeups for discussion or lecture quizzes; however, a liberal number of the lowest quiz grades will be dropped.

Grading Summary:

- 30% Final Exam
- 18% Midterm 1
- 18% Midterm 2
- 10% Discussion Quizzes
- 10% Homework
- 10% Laboratory
- 4% Lecture Activities

Academic Conduct: You are expected to be familiar with and adhere to the [College's Academic Conduct Code](#). The homework and labs you turn in must be your own work, subject to reasonable collaboration with your peers in this class as discussed above. Use of solution manuals, solutions from previous years, or help from postings on the Internet is expressly forbidden. Cheating on exams, quizzes, or other course work will not be tolerated. Evidence of cheating will be reported to your college's Academic Conduct Committee. This is a serious matter and has resulted in both grade penalties and program expulsion in recent years.