

PHYSICS 169 – Introductory Physics 2 – Calculus Treatment

SPRING 2020

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Texts: 1- *MIT course notes*, available on the course website.

Course website: <http://www.lehman.edu/faculty/anchordoqui/169.html>

Lectures: Tuesdays and Thursdays 2:00 – 3:40 PM, Gillet 331. Lectures begin January 28, 2020.

Office Hours: Tuesdays and Thursdays. 3:45 – 4:15 PM

Laboratory: Attendance at the weekly laboratory is mandatory. Department policy is that students who miss more than two labs will fail the course. Labs can only be made up for documented medical emergencies, and only during the week they are originally scheduled. If you miss a lab let me and your lab instructor know as soon as possible.

Worksheets: Homework sets are available on the course website. Each homework set consists of questions used as worked examples in lecture, questions covered during discussion, and questions assigned as homework exercises.

Tests: Three tests will be given during the semester (see schedule on page 3).

Final: There will be a comprehensive final exam; Thursday May 21, 2020 1:30 -3:30 PM.
The final is mandatory and you are responsible for making sure that you can attend at this time.

Grading policy: The overall course grade will be determined as follows:
10 % - from quizzes
45% - midterm exams (15% each)
25% - comprehensive final exam
20% - laboratory

Letter grades will be assigned according to the guidelines

A = 90 - 100
B = 80 - 90
C = 65 - 80
D = 50 - 65
F = below 50

The cutoffs for +'s and -'s will be decided at the end of the semester.

How to be successful in Physics 169 – PLEASE READ CAREFULLY

1. This is not a correspondence course; attendance at lectures and discussions is highly encouraged. Indeed attendance will be taken at each class. A sign-up sheet will be passed around.
2. Make sure you visit the course website regularly. Check the announcements. You will have to download a set of problems every week. Two or three problems from each homework set will be selected at random for quizzes.
3. The importance of basic math cannot be over-emphasized. You absolutely *must* be comfortable with basic algebra, trig, arithmetic, and differential calculus. You are expected to handle problems that use only algebraic variables.
4. QUIZZES: a short (about 10-15 minutes) quiz based on the material covered in recent lectures will be given at the end of the lecture every Tuesday, beginning on February 4, 2020.
5. TESTS: test problems are loosely based on those you will find in the homework sets. Please note that this does not mean these problems will simply be repeated on tests. Please check the schedule of tests for conflicts with religious observance. Please let me know ASAP if you see any conflicts; a different time will be arranged so that you can take the test. Make-up tests will be given only for valid reasons.
6. Make sure you bring a scientific calculator to lecture and discussion. You will need a calculator during tests and quizzes.
7. Please contact me immediately if you think that a genuine mistake has occurred in the grading of tests. Clerical errors in grading will of course be rectified as soon as possible.
8. Students with special requirements/learning disabilities should see me as early as possible during the semester. **Note** that it is the responsibility of students with special accommodations to contact the instructor as early as possible to make the appropriate arrangements for testing. Please note that I cannot allow students to take tests under conditions different from those experienced by the rest of the class (extra time, separate room, etc.) *unless they have the appropriate paperwork (VISA form) from the Student Accessibility Center*. The Student Accessibility Center will issue formal instructions to me about how students with disabilities are to be accommodated.

General Education Requirement (GER):

This course carries GER credit in the area of Natural Sciences. You will explore the foundations underlying our knowledge of the physical world, with the goal of gaining an understanding of the physical laws governing electricity and magnetism. Physics is not about memorizing facts or formulas, but about developing the conceptual framework to connect experiments to the models, theories, and physical laws used to describe the natural world, including how experimental science can be used to distinguish among competing theories. Throughout the course – in classes, discussions, and through homework – you will be required to critically assess the presented concepts and be able to apply your knowledge to the solution of physical problems.

Provisional Course Outline

(Please note this may be revised during the course to match coverage of material during lectures, etc.)

1st week: *Coulomb's law and electric field*

2nd week: *Electric flux and Gauss law*

3th week: *Electric potential*

4th week: *Capacitance*

5th week: *DC circuits*

6th week: *Magnetic field*

7th week: *Ampere's law and magnetic properties of materials*

8th week: *Faraday's law of induction*

9th week: *Inductance*

10th week: *AC circuits*

11th week: *Displacement current, Maxwell's equations, and electromagnetic waves*

12th week: *The nature of light and the laws of geometric optics*

Midterm Exams: *March 5, April 2, May 14, 2020*