PHYSICS 131 – Conceptual Physics

SPRING 2018

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Texts: You may use any textbook to complement the lecture notes and help you understand the material. However, a textbook is not required.

Course website: http://www.lehman.edu/faculty/dgaranin/teaching-PHY131-Spring-2018.php
See also: http://www.lehman.edu/faculty/anchordoqui/131.html

Lectures: Tuesdays and Thursdays 4:00 – 5:15 PM, Gillet 331. Lectures begin January 30, 2018.
On some Tu there will be labs instead of lectures, total 3 labs.

Office Hours: Tuesdays and Thursdays after the lecture

Laboratory: Attendance of the labs is mandatory. Department policy is that students who miss more than one lab will fail the course. Labs can be made up only for documented medical emergencies, and only during the week, they are originally scheduled. If you miss a lab, let me 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, quizzes, 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; Tuesday May 22, 2018 (3:45 to 5:45).
The final is mandatory and you are responsible for making sure that you can attend at this time.

Grading: The overall course grade will be determined as follows:

45% - midterm exams (15% each)
25% - final exam
15% - quizzes
15% - labs

How to be successful in Physics 131 — *PLEASE READ CAREFULLY*

1. 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.

3. 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.

4. QUIZZES: a short (about 10-15 minutes) quiz based on the material covered in recent lectures will be given at the end of every lecture.

5. Make sure you bring a scientific calculator to lecture and discussion. You will need a calculator during tests.

6. 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.

7. **About the discipline.** Smartphones have to be kept inside the bags all time during the lecture to fight addiction and avoid distraction of smartphone's owner and other students. It is lack of respect toward the instructor to be busy with your smartphone. Students are not allowed to bring meals to the lecture and to have discussions with each other. Late coming is discouraged. In the case of a late coming the student has to apologize and explain the reason of being late. Sleeping during the lecture is not allowed.

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 matter, energy, and physical (as well as chemical and biological) phenomena. 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.

Grading policy:

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.

Tutoring:

Tutoring is available in the Science Learning Center, Gillet 133. Textbooks and study questions are available. Hours for this course will be posted on the door.

Provisional Course Outline

(See actual course at course website)

January 30: Lecture 1: Conservation of energy

February 1: Homework 1

February 6: Lecture 2: Forms of energy

February 8: Homework 2

February 13: Lecture 3: Thermodynamics

February 15: Homework 3

February 20: (no classes)

February 22: Lecture 4: Waves as energy transfer

February 27: Lecture 5: Electricity and magnetism

March 1: Homework 4

March 6: Lecture 6: How light works

March 8: Homework 5

March 13: Midterm 1

March 15: Lab 1: Solar energy and the inverse square law

March 20: Lecture 7: Structure and properties of matter

March 22: Homework 6

March 27: Lecture 8: Radioactivity

March 29: Homework 7

April 3: (no classes, Spring break)

April 5: (no classes, Spring break)

April 10: Lecture 9: Birth and death of the sun

April 12: Lab 2: Ohm's law

April 17 : Midterm 2

April 19: Homework: 8

April 24: Lecture 10: Nuclear processes

April 26: Homework 9

May 1: Lecture 11: Spacetime

May 3: Lab 3: Laws of reflection and refraction

May 8: Lecture 12: Across the universe

May 10: Homework 10

May 15: Midterm 3