Syllabus for PHYS. 220B – Spring 2021 [17295]

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Office: ONLINE
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Office Hours: M 9:15AM—9:45 AM via ZOOM

Class Schedule
Date and time: **MO & WE 8:00AM – 9:15AM**
Place: **ONLINE via ZOOM**

COURSE DESCRIPTION: This course is a continuation of General Physics 220A, an introductory physics course. The student will apply fundamental principles of physics including electricity and magnetism, waves, optics, and an introduction to modern physics using the tools of calculus and trigonometry

COURSE OBJECTIVES: Students who successfully complete this course should learn the following:

- Conceptual understandings of physics in the areas of electricity, magnetism, and circuits.
- The ability to think critically about and solve problems regarding the above concepts.

Text Book: University physics by Young and Freedman (15^{th}, 14^{th}, 13^{th} Edition). Any of the older editions of this book will be fine. Get the cheapest old edition that you can find.

Course website: I will be posting a lot of class related material on the canvas website (canvas.csun.edu). You will have access to this site if you are signed up in this class.

Join Zoom Meeting

Meeting ID: 899 4912 6165

Passcode: 892953

There will be Zoom meeting every Monday and Wednesday, from 8:00 – 09:15 am. Meetings will be recorded and posted on Canvas later that day.

Homework:
Homework consists of about 10-20 problems assigned each week and due the following week. The homework is online and has to be completed by the due date.

The assigned homework is an essential aspect of the course. Not only is it worth 15% of you grade but I also construct exam problems which are CLOSELY related to the assigned homework and in class problems. So if you do all the homework problems, and understand them well, you will be in a good position to do very well in this course.

The online homework:

- You are enrolled in a course which is part of the *myCSUNDigitalAccess* program.
- The *myCSUNDigitalAccess* program provides digital materials to students at a deeply discounted price.
- ALL enrolled students will have access to the materials through Canvas by the 1st day of class, but more likely earlier.
- If want to keep access throughout the semester need do nothing. A charge for **$53.13** will be placed on your student portal account (just like tuition, but a separate charge) around the 5th or 6th week of classes. You will then be responsible for paying the university.
- If you choose to obtain your materials elsewhere you have until **FRIDAY, 2/12** to **Opt-Out** (see instructions below). Those who Opt-Out by 2/12 will lose access and will not be charged.
- **Anyone who does not Opt-Out by the 2/12 deadline will be charged and those charges will not be reversible.**

OPT-OUT INSTRUCTIONS

If you wish to opt out of this program and not purchase access to the required digital materials you will need to follow the steps below **by February 12, 2021:**

1. Go to https://accessportal.follett.com/0150 .
2. Click on *Create an Account* on the lower right.
3. Create an account using your CSUN email account.
4. Select the course(s) you wish to Opt-Out from.

You will then need to purchase the materials elsewhere on your own.

Recitations:
Each Wednesday there will be a handout Recitation that will be due by Thursday midnight. These problems must be worked out on a clean sheet of paper, labeled all parts, the answers boxed, then the pdf file of the work must be uploaded on Canvas before the due date. The recitation tasks tend to emphasize qualitative conceptual reasoning, and are a part of the course where the students, among other things, have a great opportunity to make explicit interdisciplinary connections between physics and engineering.

After the due date, every student will be assigned to **peer-review** recitations of two fellow student. You can find them on your to do list, or assignments. This allows you to see how other students solve the problem, learn from each other, and leave a valuable feedback for the student work. **You need to post a constructive feedback with the grade you think the student deserved in the comment section. I will use the average of two grades as a final grade. It is VERY IMORTANT that you do all the peer-reviews assigned to you. Your review is anonymous.**

Exams:
Exams will be have problems similar to the problems from the lecture class and the homework. It is ESSENTIAL to do ALL the homework problems, and ATTEND lecture, in order to do well in the exams.

Grading:

Assignments	**Due**	**Weight**
Online homework	**Weekly**	**15%**
Recitations	**Weekly**	**10%**
Midterm 1	March 1st (8:00 – 9:15 am)	**25%**
Midterm 2	April 12th (8:00 – 9:15 am)	**25%**
Midterm 3	May 17th (8:00-10:00 am)	**25%**

I will give bonus worksheet assignments worth up to 5% extra credit points
All late work are subject to heavy penalties, so do your best to submit everything on time!!

Grades will be assigned as follows:

A => 93 above
A- => 88 – 92.9
B+ => 84 – 87.9
B => 78 – 83.9
B- => 75– 77.9
C+ => 69 – 74.9
C => 64 – 68.9
C- => 60 – 63.9
D+ => 56 - 59.9
D => 51 – 55
D- => 46 – 50
F => 45.9 & below

Getting help:
If you are having a hard time with the class material you are encouraged to get help as soon as possible. Physics department has a tutoring center where you can get help with concept or homework problems. You are encouraged to use this resource. Also, I encourage all students to come to my office hours to seek help.

Some suggestions on how to succeed in this class:

1. You have to recognize that you can only get good at solving physics problems by repetition. This means that you will have to work hard. For the average student I expect 5-10 hours of concentrated work per week. This time should be spent mostly working out the homework problems assigned, and then addressing the deficiencies that prevent you from solving the problems.

It is also important to realize that physics is not like biology. You cannot study for a physics test in the same way as a biology test. To do well in physics you have to LEARN how to do problems, not memorize solutions. The key is to work on problems repeatedly until you can do them without looking at a solution or asking a friend.

2. It is extremely important that you DO NOT copy the solutions that you will get by searching on google. If you do this you will get good homework scores but simply fail the exams. You absolutely have to struggle through homework problems and learn how to do them YOURSELF! If you do that you will pass this course and likely get a good grade.

To encourage you to work on homework I will specifically design the exams to reward those students who have spent time on the homeworks. Of course do not expect the exam problems to be identical to the homeworks. Some questions will be similar but not identical. Therefore, if you simply memorize a solution then it will not help you.

3. I encourage students to work together to do problems. However, if you find that you are always copying from your study partner then it will hurt your performance in the tests. Always go home and test yourself that you can do a problem by yourself. If you cannot do it without an aid then you will not be able to solve the problems in the exam.

Class Participation:
Attending lecture and participating in class is essential for success in this course. I encourage all students to ask as many questions in class as possible. I will also construct exam problems based directly on the example problems highlighted or worked on during lecture. If you miss many lectures you will be at a serious disadvantage in the exams.

Cheating:
To prevent cheating please bring your CSUN ID card for all the exams. If I do see a student cheating, you will be reported to the Dean of Students immediately, and you will receive an automatic F for the class.
Emergencies:

Every now and then an unfavorable medical condition will prevent you from taking an exam. If this happens please see a doctor immediately so you can obtain a doctors note explaining your condition. Also, email me immediately so that we can reschedule the exam. I will not reschedule an exam unless I have a valid doctor's note. Also, if you involved in an accident please obtain a police report.

Chapters to be covered in this class:

ELECTROMAGNETISM

21. Electric Charge and Electric Field
22. Gauss's Law
23. Electric Potential
24. Capacitance and Dielectrics
25. Current, Resistance, and Electromotive Force
26. Direct-Current Circuits
27. Magnetic Field and Magnetic Forces
28. Sources of Magnetic Field
29. Electromagnetic Induction
30. Inductance
31. Alternating Current
32. Electromagnetic Waves

Please note that I might not cover all the chapters and I might give you a reading assignment on each chapter! Also, this is a fast paced course and I will cover, on average, one chapter a week!

Please note that if I do not respond to your email within 48 hours, email me again!

DISCLAIMER

Announcements about changes of any kind to the syllabus will be made in class, and posted in the continuously updated online syllabus on the course Canvas page. The continuously updated online syllabus will *take precedence over all previous versions*.

You are responsible for what I say in class, whether or not you are in attendance.