PHY 2049 – Physics with Calculus II

General Information

Lecture Time: Monday, Wednesday 9:30AM – 11:45AM; Friday 9:30 AM – 1:00 PM
Location: Academic Health Center 3 -110 (AHC3-110)
Instructors: Dr. Hebin Li (June 22 ~ July 13)
(Office: CP222; Email: hebin.li@fiu.edu; Phone: 305-348-7641)
Dr. Daniel Rodriguez (July 14 ~ July 31)
(Email: danrodri@fiu.edu)
Office Hours: Dr. Hebin Li: Monday & Wednesday 1 pm ~ 3 pm
Dr. Daniel Rodriguez: Monday & Wednesday 12 pm ~ 2 pm (at CP274)
Textbook: Ch.21~ 35 in "University Physics" 13th ed. by Young, Freedman and Ford
Course Website: http://faculty.fiu.edu/~hebli/summer2015
Prerequisite: PHY2048, MAC2312 or equivalent
HW Website: http://www.masteringphysics.com (Course ID: **PHY2049SUMMERB2015**)

Overview

Physics with Calculus II (PHY2049) serves as a calculus based introduction to physics. This is the second semester of a two-semester course. The topics in this semester include electric charge, electric field, Gauss's law, magnetic field, electromagnetic induction, Maxwell's equations, electromagnetic waves, capacitance, resistance, inductance, basic circuits, and basic optics. It is assumed that you have good knowledge of introductory physics I (PHY2048), introductory calculus and good working knowledge of algebra and trigonometry. The corresponding lab is PHY 2049L. Problem solving class PHZ 2103 is strongly recommended.

Course objectives

By the end of the semester, students will develop a working knowledge of the principles and concepts of university-level, calculus-based physics. Students will be able to construct complete and correct solutions to physics problems within the covered topics. Students will also learn critic thinking and problem solving skills for physics-related problems in general. Overall, students will develop a rigorous physics foundation for their careers in science and engineering.

Course schedule

A course schedule is attached to this syllabus. It shows the topics that will be covered in each lecture and corresponding reading assignment. **Please note that reading should be done prior to the lecture that covers the topic**. The professor reserves the right to change, add or omit any material in the course outline as is needed throughout the course. Any changes will be announced in class. Students are responsible for obtaining all information given in class, even if the student is absent.

Exams and Grading

There will be three exams including two midterms and a final exam. Each exam covers specific chapters noted in the course schedule. You might need a non-programmable scientific calculator (<$20) to use on exams and make sure you know how to use it before exams. You may NOT use calculators on cell phone/iPad or other similar devices. Midterm exams will be held in class on **July 6 and July 17**. The final exam will be held on **July 31**. Please mark your calendar and plan accordingly. **Missing an exam will result in a zero score on that exam. No make-up exams will be given.**

The midterm exams will be reviewed and returned to you in class. It is students' responsibility to attend the class and retrieve the exam. **Any questions regarding the grading have to be brought up to the professor within a week from when the exam is reviewed**. The scores will be official and cannot be modified after a week.

Student understanding of the course materials will be assessed using both homework and exams. Grad percentages will be based on the following breakdown.

Course requirement	Distribution of final grade	Date
Homework	25%	See HW assignments
Exam 1	25%	**July 6 (in class)**
Exam 2	25%	**July 17 (in class)**
Final exam (cumulative)	25%	**July 31 (in class)**

A letter grade will be assigned only at the end of the semester. The following table shows how the letter grade will be assigned based on your total score.

Letter grade	**Range**	**Letter grade**	**Range**
A	90% –100%	C	70% – 72.9%
A-	86% – 89.9%	C-	66% – 69.9%
B+	83% – 85.9%	D+	63% – 65.9%
B	80% – 82.9%	D	60% – 62.9%
B-	76% – 79.9%	D-	56% – 59.9%
C+	73% – 75.9%	F	00 – 55.9%

Homework

Finishing homework on time is critical in this course. The homework will count for 25% of your final grade. More importantly, the homework is directly relevant to the exams. Doing well on homework is one of the most important preparations for you to do well on exams.

You will need access to Mastering Physics (www.masteringphysics.com) to turn in homework. It requires an access code that comes with new textbooks or can be purchased separately if you have a used book. You must add this course with Course ID (**PHY2049SUMMERB2015**) to have the full access to the homework assignments. There is a

series of tutorial exercises in the first assignment with which you should practice to get familiar with the system.

There are some rules in Mastering Physics.

1. When sign up the account, please use your **official name** as it appears on your Panthersoft account. Please make sure to use **the correct Panther ID** in your account. Any accounts that do not match the official record on Panthersoft **will be removed** in the second week.
2. Each student should **only sign up one account, duplicated accounts will receive no credits on all accounts**.
3. No credit for late submission.
4. The number of attempts per question is limited to 6.
5. For a multiple-choice or true/false question, the credit is deducted for each incorrect answer by 100% / (# 0f answer options – 1).
6. You are encouraged to use hints. No penalty for using a hint, no bonus credit for not opening a hint.

There will be 10-20 homework problems for each chapter. Most problems will be taken from the textbook but will have different numbers to plug in for each student. The homework assignments and due dates will be posted on the course website, Mastering Physics, and will be announced in class. The assignments are due at 11:59pm on due date. **No late submission is accepted.**

Academic Integrity Statement

The academic integrity of the classes offered by any universities solidifies the foundation of its mission and cannot be sacrificed to expediency, ignorance, or fraud. Therefore, I will enforce rigorous standards of academic integrity in all aspects and assignments of this course. For the detailed policy and rules, please refer to the FIU Student Code of Conduct (http://regulations.fiu.edu/regulation=FIU-2501).

Disability Notice

The Disability Resource Center collaborates with students, faculty, staff, and community members to create diverse learning environments that are usable, equitable, inclusive and sustainable. The DRC provides FIU students with disabilities the necessary support to successfully complete their education and participate in activities available to all students. If you have a diagnosed disability and plan to utilize academic accommodations, please contact the Center at 305-348-3532 or visit them at the Graham Center GC 190.

Course Schedule for PHY 2049

This is a tentative course schedule of *Physics with Calculus II* – PHY 2049. This schedule is also available and will be updated on the course website (http://faculty.fiu.edu/~hebli/summer2015).

Week	Lecture	Topic	Reading	HW
1	Jun. 22	Chapter 21: Electric charge and electric field	p 687-714	
	Jun. 24	Chapter 22: Gauss's law	p 725-746	
	Jun. 26	Chapter 22: Gauss's law (cont.)		
2	Jun. 29	Chapter 23: Electric potential	p 754-777	
	Jul. 1	Chapter 24: Capacitance and dielectrics	p 788-809	
	Jul. 3	Independence Day Holiday, No Class		
3	**Jul. 6**	**Exam 1 (Two hours, Ch. 21 – 24)**		
	Jul. 8	Chapter 25: Current, resistance, and electromotive force	p 818-841	
	Jul. 10	Chapter 26: Direct-current circuits	p 850-873	
4	Jul. 13	Chapter 27: Magnetic field and magnetic forces	p 883-911	
	Jul. 15	Chapter 28: Sources of magnetic field	p 923-947	
	Jul. 17	**Exam 2 (Two hours, Ch. 25~28)**		
5	Jul. 20	Chapter 29: Electromagnetic induction	p 957-981	
	Jul. 22	Chapter 32: Electromagnetic waves	p 1051-1073	
	Jul. 24	Chapter 33: The nature and propagation of light	p 1080-1105	
6	Jul. 27	Chapter 34: Geometric optics	p 1114-1152	
	Jul. 29	Chapter 35: Interference	p 1163-1183	
	Jul. 31	**Final Exam (Two hours, Ch. 29 – 35))**		