

SYLLABUS – PHY 2049H PHYSICS FOR SCIENTISTS AND ENGINEERS II - SEC. 206

Fall 2015 (4 credit hours) – M/W/F 8:30 - 9:20 AM – Classroom MSB 306

Instructor: Prof. Mike Chini

Office: PSB 147

Office hours: W 1:30-2:30 PM, F 9:30-10:30 AM and by appointment

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Required Materials:

Textbook: Physics for Scientists and Engineers: A Strategic Approach, 3rd edition, Randall D. Knight.

i>clicker: This course will require the use of the i>clicker-2 response system. It will be necessary for you to purchase an i>clicker-2 remote **OR** to purchase access to the iClicker REEF polling application on your smart phone. Register your clicker at www.iclicker.com/registration. Be sure to enter your **NID** in the “Student ID” field on the website, **including the two leading letters**.

WebAssign: The laboratory section of this course will require you to purchase a WebAssign access code. *You do not need a WebAssign code for the lecture section.* Please refer to the lab syllabus for details.

Course Description: PHY 2049 is the second of a two-semester sequence in introductory physics offered primarily to students majoring in Physics and Engineering, who have the appropriate background in mathematics. Special emphasis is placed on fundamental understanding of major principles which govern general phenomena in Nature. Course topics include electric and magnetic fields, electric circuits, electromagnetic waves, and optics.

Course Requirements: Success in PHY 2049 requires a working knowledge of mathematics, including vector algebra and some vector calculus. We will be applying mathematical techniques to problem solving. The course moves quickly and covers many challenging topics; therefore you should expect to invest a considerable amount of time in studying (including reading the textbook) and problem solving. You will obtain the most benefit from the lectures by reading the textbook *both before and after the material is covered in class*.

Course Structure: The lecture component of the course will consist of a set of class lectures, including interactive demonstrations, i>clicker-2 questions, and problem solving exercises. Attending and participating in every lecture is extremely important, since this is a difficult course to catch up in if you fall behind. Lecture materials will be posted on the WebCourses@UCF site, but these are not a substitute for attending class.

Assessment:

Participation: Participation in class will be assessed via the i>clicker response system. Approximately half of the in-class i>clicker grade will be based on participation, while the remainder will be determined by responding with the correct answer. In general, it will be clear from the wording of the question (i.e.; “*What do you think will happen if...*”) whether a given response will be graded for participation or for

correctness. **There will be no opportunity to make up missed i>clicker questions**; however, the i>clicker portion of the grade will be scaled by 1.05 in order to account for absences.

Homework: Homework problem sets and required readings will be announced in class and posted to WebCourses@UCF approximately every week. Typically, 5-10 problems will be assigned each week and you will be given approximately 7 days to work on these. Homework assignments will be due at the beginning of class on the due date, and **late assignments will not be accepted**. 50% of the homework grade will be based on completeness (making a serious attempt at every question). The other 50% will be based on the solutions to 1-2 selected problems on each assignment, which will not be announced in advance. **There will be no make-up homework assignments**, but the lowest two homework grades will be dropped.

Quizzes: It is anticipated that 6-8 quizzes will be given during the semester. Quizzes will in general not be announced in advance, and will be based on previously covered material up to and including the day of the quiz. Typically, a quiz will have 1-2 multiple choice or short answer questions and 1-2 problems which you will be given 15 minutes to complete. **There will be no make-up quizzes**, but the lowest two quiz grades will be dropped.

Labs: Laboratory experiments will be done independently of the lecture, and will be led by your laboratory instructor. The laboratory experiments will (approximately) line up with topics covered during that week in the lecture. Please see the laboratory syllabus for more details.

Exams: There will be two 50 minute in-class midterm exams and one comprehensive 150 minute final exam. The dates and details of the in-class exams will be announced in class, and at least one week notice will be given. Midterm exams will have approximately 5-10 short answer or multiple choice questions and 3-4 problems which you will be given 50 minutes to complete. A photo ID is required, and it is recommended that you bring several sheets of blank paper and a non- programmable calculator.

The final exam will have approximately 40-50 multiple choice questions. A No. 2 pencil and computer-scored answer sheet are required, as well as a photo ID. It is also recommended that you bring several sheets of blank paper and a non-graphing, non-programmable calculator. The final exam will be held Wednesday, December 9, 2015 from 7:00 AM – 9:50 AM.

Grade Dissemination: Graded tests and materials in this course will be returned individually during class. You can access your grade at any time using the Grade Book function of WebCourses@UCF. Please note that scores returned mid-semester are unofficial.

Basis for Final Grade:

The final grade will be determined as follows:

Homework	20%
In-class iClicker questions	10%
In-class quizzes (6-8)	10%
Laboratory	20%
Exam 1	10%
Exam 2	10%
Final exam	20%
Total	100%

The letter grade for the course will be determined after rounding the final grade to the nearest percentage point with the following grade scale: A (85-100%), B (75-84%), C (60-74%), D (50-59%), F (0-49%). Plus and minus grades (A-, B+, etc) will not be given. I reserve the right to adjust the grade scale, and any adjustments (“curves”) to exam grades will be posted after the exam. **Grades will not be discussed on the phone or in e-mail.**

Course Schedule:

Week 1	Ch. 26, 27	Coulomb’s Law, Electric Fields
Week 2	Ch. 27, 28	Electric Fields, Gauss’s Law
Monday 9/7		No class (Labor Day)
Week 3	Ch. 28, 29	Gauss’s Law, Electric Potential
Week 4	Ch. 29, 30	Electric Potential
Friday 9/18		Exam 1
Week 5	Ch 31	Current and Resistance
Week 6	Ch. 32	DC Circuits
Week 7	Ch. 33	Magnetic Fields, Ampere’s Law
Week 8	Ch. 33	Magnetic Force
Week 9	Ch. 34	Induction, Faraday’s Law
Week 10	Ch. 34	Faraday’s Law, Inductors in Circuits
Week 11	Ch. 36	AC Circuits
Week 12	Ch. 36	AC Circuits
Wednesday 11/11		No class (Veterans Day)
Friday 11/13		Exam 2
Week 13	Ch. 35	EM Fields and Waves
Week 14	Ch. 35, 23	EM Waves, Geometrical Optics
Friday 11/27		No class (Thanksgiving)
Week 15	Ch. 23, 22	Geometric Optics, Wave Optics
Monday 12/7		Final review
Wednesday 12/9		Final Exam

*Note: This schedule is subject to revision.

Missed Work Policy: It is Physics Department policy that making up missed work will only be permitted for University-sanctioned activities and bona fide medical or family reasons. Authentic justifying documentation must be provided in every case (and in advance for University sanctioned activities). At the discretion of the instructor, the make-up may take any reasonable and appropriate form including but not limited to the following: giving a replacement exam, replacing the missed work with the same score as a later exam, allowing a dropped exam, replacing the missed work with the homework or quiz average.

Golden Rule: Academic dishonesty in any form will not be tolerated. If you are uncertain as to what constitutes academic dishonesty, please consult the UCF Golden Rule at the website <http://goldenrule.sdes.ucf.edu>. Violation of these rules will result in a record of the infraction being placed in your file and receiving a zero on the work in question AT A MINIMUM. At the instructor’s discretion, you may also receive a failing grade for the course. Confirmation of such incidents can also result in expulsion from the University.

Collaboration policy: You may not collaborate on exams or quizzes. Exams and quizzes will be of the closed-book, closed-notes type.

Clicker policy: Collaboration on i>clicker questions is encouraged. However, you are required to use your own, and only your own, i>clicker. **If you are found to be using anyone else's i>clicker, you will both receive a grade of F in the class.**

Conduct: Please refrain from cell phone use during class, and please do not have sidebar conversations during class. There will be opportunity to talk during class, as you will be encouraged to discuss clicker questions with one another and I encourage you to raise your hand to ask relevant questions.

While you may use a laptop or tablet for note taking, **you may not use your laptop for web surfing, social media, or other activities unrelated to the class.**

Email: It is very likely that I will need to send email to you regarding class logistics or material. These e-mails will go to your @knights.ucf.edu e-mail. **Please check it on a regular basis.** In addition, announcements will be posted on WebCourses@UCF. If you write an email to me, please identify yourself in it, and please include PHY2049 in the subject line. **Send e-mail to my @ucf.edu e-mail (given above),** not within Webcourses@UCF or WebAssign.

UCF Creed: Please read the information on the UCF Creed at the website <http://www.campuslife.sdes.ucf.edu/UCFcreedpage.html>.

Disability Access Statement: As stated on the website http://www.sds.ucf.edu/Faculty_Guide, "The University of Central Florida is committed to providing reasonable accommodations for all persons with disabilities. This syllabus is available in alternate formats upon request. Students with disabilities who need accommodations in this course must contact the professor at the beginning of the semester to discuss needed accommodations. No accommodations will be provided until the student has met with the professor to request accommodations. Students who need accommodations must be registered with Student Disability Services, Student Resource Center Room 132, phone (407) 823-2371, TTY/TDD only phone (407) 823-2116, before requesting accommodations from the professor."

Revisions: This syllabus may be revised during the semester. The latest version will always be available on WebCourses@UCF.

Revision history:

V1: Original