Instructor: **Samuel Levenson**

Office: **Y103F**

Phone: **(847) 925-6591**

E-mail: [slevenso@harpercollege.edu](mailto:slevenso@harpercollege.edu)

Use your Harper email account for all correspondence. Email from other accounts is not guaranteed to reach me. I will only send mail to your Harper email account.

# Course Description and Prerequisites

Introduces electricity and magnetism using calculus. Topics include charge; electric field and potential; resistance, capacitance, and inductance; DC and AC circuits; magnetic fields; laws of Gauss, Ampere and Faraday; Maxwell's equations and electromagnetic waves; geometric optics, lenses and mirrors, interference and diffraction, and polarization. For students in chemistry, engineering, mathematics and physics. Prerequisite: MTH 202 with a grade of C or better or concurrent enrollment, and PHY 201 with a grade of C or better.

## **Class Schedule**

Room – Z126

PHY202-003

Class/Lab 6:00 PM- 8:50 PM TR

##### Office Hours

M 11:00-1:00 W 10:00-1:00

T 4:00-6:00 R 3:00-6:00

## **Course Objectives**

At the end of the course, the student should:

* collect, analyze, and classify scientific information.
* communicate scientific information effectively in written and oral form.
* apply Maxwell’s equations.
* analyze basic AC and DC circuits.
* understand performance of basic optical systems.

## **Academic Calendar**

August 21, 2017 16-week classes begin this week

August 28, 2017 Last day to drop for 100% refund for 16 week classes

September 4, 2017 College closed in observance of Labor Day

September 6, 2017 First financial aid disbursement date for Fall 2017.

November 20, 2017 Last day to withdraw from 16-week classes

November 22-26, 2017 Campus closed for Thanksgiving Break

December 11-15, 2017 Final exam week

**Course Materials**

Text (recommended): Physics For Scientists and Engineers 9th Edition Serway and Jewett

Volume 2 ISBN: 9781305714892

Homework system (Required)

WebAssign: Enroll through Blackboard

FlipItPhysics: course key: 05e728db

Lab Manual Labs will be posted and submitted on Blackboard

Supplies: Scientific Calculator and USB Drive

Software:

Most labs and class assignments will be submitted online through Blackboard. Microsoft Office, MATLAB or Octave files, pdf and jpeg are accepted formats for submission. Open Office documents are not.

In addition to our class’ Blackboard site, you can also access a site with the full worked solutions . This site has a generic login, with username physics student and password harper1.

**Grades**

For purposes of determining your final course grade the following weights have been assigned to in- and out-of-class activities:

Exams (3) 40%

In-class assignments and written HW 5%

WebAssign 10%

FlipItPhysics 5% (Lectures and Checkpoints only)

Lab Assignments 20% (Lowest 1 dropped)

Final Exam 20%

Total 100%

\*cannot be the formal lab report or the last lab

Note that anyone who fails to take the final exam will automatically be given a grade of F. Your average will be rounded to the nearest tenth of a percentage and grades will be assigned according to the following scale:

A 90.0-100%

B 80.0-89.9%

C 70.0-79.9%

D 60.0-69.9%

F 59.9% and below

There will be no curve in this class. Keep track of your performance.

Blackboard grades are not the official grades. Ask the instructor if you have questions about your current grade s

**Dispute Resolution**

If you have a problem with this class or difficulty with another student, please bring it to my attention. I am available to meet with you privately. If I cannot reach a solution, I will forward the problem to the department Co-Chair and then to the Dean of the Mathematics and Science Division. The MS Division office is room Y-103 and the phone number is 847-925-6370. DO NOT TAKE PROBLEMS TO THE PROVOST OR PRESIDENT! They will be referred back to me or to the Dean for resolution.

**Homework – WebAssign, FlipItPhysics and Written Assignments**

**No credit is given for late submission-**

*WebAssign* is the homework management website offered by the publisher of our book. You can access WebAssign by going to http://www.webassign.net. Please note that it is possible to set up a WebAssign account without paying, but you will not be able to get into a section without doing so. The test review homework will be accessed through WebAssign. Guided solutions and hints are available. Answers and solutions will be available after the due date. Therefore, there are no late submissions accepted.

There are two types of WebAaasign assignmnets, problems and short (hopefully easy) concept quizzes.

*FlipItPhysics*  is found at http://www.smartphysics.com. This website uses interactive videos to help students understand physics concepts. You are expected to view several pre-lectures before each week of class and also take the checkpoint quizzes each week (see FlipItPhysics calendar). Students who view the pre-lectures and do the checkpoint quizzes will receive full credit for them. Students who do not will receive a zero. The FlipItPhysics is automatically graded.

If you have trouble entering your answer into either system let me know. For example if you think you have the correct answer but it keeps being marked wrong, email me for help rather than continuing entering the same answer. Sometimes it is just a simple formatting issue and if you have the correct answer, I can override the automatic grade.

*Written homework and in class assignments/quizzes will* also be given throughout the semester.

**Exams**

You will be given 3 in-class exams over the course of the semester. Exam dates are specified on your schedule. No exams can be missed and made up later. Anyone who is not in class and does not contact me by the time class starts OR does not have a documented emergency event on the date of an exam will be given a grade of zero for the exam given on that day. If you have made arrangements with me before the exam or have experienced a documented emergency, your final exam score will be used as that exam score. Only one exam score can be replaced.

Partial credit will be given when some demonstration of the understanding of the physical principles of the problem is given. If I can’t read your solution or locate your answer, I cannot give you credit for the problem. Units must be included for every solution and points will be deducted for missing or incorrect units. Use of a cell phone during any exam is considered cheating and will result in a 0 for that exam. A sheet of formulas and constant values will be provided to you.

**I will return all graded exams and I will go over the tests with you in class. If you have any questions, I will be happy to discuss them with you in my office or via email no sooner than the day after the exam was returned, but no later than one week after you have your score. I scan all exams so you can ask me questions via email and I can see your exam. *No exam scores will be discussed after that week has passed*.**

**Final Exam**

Your final exam will be given on the last day of class as shown on the schedule.Make your travel plans accordingly. No incompletes will be given for students who do not take the final. You will be given a score of zero for the final exam and an F for your overall class grade. Final exam scores will be posted in Blackboard, but the exams will not be returned with solutions.

**Laboratory**

Experiments will be a group effort. All students must participate and will be asked to leave lab with no credit if they do not participate. Each student must submit her/his own report/quiz/exercise consisting of her/his own work when requested. Copying is NOT permitted. Students are required to read the appropriate experiment before coming to lab and there may be a pre-lab quiz every week in the first 5 minutes of lab. Labs will be due before the beginning of the following lab period as shown in the schedule and submitted online through Blackboard unless instructed otherwise. Students who are 10 minutes (or more) late will automatically receive a “0” for the pre-lab quiz. Students who are 15 minutes late (or more) for lab may not be allowed to participate in lab and will receive a “0” for that lab. Student's missing a lab for any reasons will receive a "0" for that lab. We drop the lowest lab.

Important lab policies

* Late material will be accepted for a maximum of 70% (if complete) if submitted within a week of the due date. After that no credit is given.
* With prior consent, you may email me the lab report if there are issues with Blackboard submission. Do not assume I received the email until you get my confirming email.
* You need a 70% or better on the lab component to pass the course.

*Typical Lab grading. Not all labs have all of these components; howeve, all labs count equally.*

Completion of lab manual questions, prelab questions and calculations: 45pts

Prelab quizzes 5pts

Graphical presentation as described 1st lab: 10pts

Additional lab assignments 20pts

Post lab quizzes on selected labs 20pts

All labs count equally. If one of the components in the grading description is not present for a lab, the total score is normalized to 100 pts.

**Student Conduct Code**

Discipline may be imposed whenever a student or student group commits or attempts to commit any act of misconduct on the College campus, or at an activity, function, or event sponsored or supervised by the College, including but not limited to the disruption of the educational process. For further information, see the Student Handbook regarding Policies and Procedures.

In order to maintain an appropriate environment that serves all the students in class be in class on time and to make sure that all phones are turned off before entering class. All cell phones must be turned off and placed in zipped backpacks or purses during exams. Use of a cellphone during an exam is considered cheating

Cheating is a VERY serious act of academic dishonesty.  Although I encourage you to work on problem solving and lab analysis with others in the class, I expect that ALL work that you turn in is your own.  If I even suspect that cheating has taken place, I will immediately take action.  I have a ZERO tolerance policy on cheating.  For the first incident of cheating, the minimum consequence will be that each student will be given a zero for the assignment in question and paperwork regarding an academic dishonesty violation will be filed.  For the second incident of cheating by a student, the student will be FAILED FOR THE CLASS AND AGAIN REPORTED TO THE COLLEGE for academic dishonesty.  Additional disciplinary action, including expulsion, may be taken by the College.

**Military Accommodations**

I recognize the complexities of being a member of the military community and also a student. If you are a member of the military community, please inform me if you are in need of accommodations. Drill schedules, calls to active duty, complications with GI Bill disbursement, and other unforeseen military and veteran related developments can complicate your academic life. If you make me aware of a complication, I will do everything I can to assist you or put you in contact with college staff trained to assist you.

**Request for Accommodations**

If you have a disability and may require some accommodation or modification in procedures, class activity, instruction, requirements, etc., please contact me at the beginning of the semester so we can discuss and arrange for any necessary accommodations and/or modifications with the Access and Disability Services Office (D119, ext. 6266).

**Attendance**

I do not maintain formal attendance records for this class, nor is it taken into account in grading. *Students are responsible for material including in class assignments and changes to other assignments presented in class.*

**Notice**

The information in this syllabus was, to the best knowledge of the instructor, correct and complete when distributed for use at the beginning of the semester. The instructor reserves the right, acting within the policies and procedures of Harper College, to make changes in course content, instructional procedures, assignments, and the course schedule. You will be notified if any changes are made.

**Equal Opportunity Statement**

William Rainey Harper College provides equal opportunity in education and does not discriminate on the basis of race, color, religion, national origin, age, marital status, sexual orientation, or disability.

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| Week | Thursday (Lab) | Sunday (due 11:59 PM) |
| 1: Ch 23 | 8/24/2017 | 8/27/2017 |
| Charge, Coulomb Force and Field | Lab 0 Intro - MatLab and Instrumentation | WebAssign Ch 23 – Electric force  FlipItPhysics |
| 2: Ch 23 & 24 | 8/31/2017 | 9/3/2017 |
| Gauss's Law | Lab 1 Plotting Electric Field Lines | WebAssign Ch 23 – Electric field  FlipItPhysics Lab 0 Due |
| 3: Ch 25 | 9/7/2017 | 9/10/2017 |
| Electric Potential | Lab 2 Resistance and Ohm's Law | WebAssign Ch 24 – Gauss’s law  FlipItPhysics Lab 1 due |
| 4: Ch 26 & 27 | 9/14/2017 | 9/17/2017 |
| Capacitance & Current | Lab 3 Series and Parallel Circuits | WebAssignCh 25 Electric Potential FlipItPhysics |
| 5: Ch 27 & 28 | 9/21/2017 | 9/24/2017 |
| Ohm's Law and DC Circuits | Exam 1 CH 23-25 | WebAssignCh 26 Capacitance  FlipItPhysics |
| 6: Ch 27 & 28 | 9/28/2017 | 10/1/2017 |
| Circuits Continued | Lab 4 RC Time Constant | WebAssignCh 27 & 28 Current & DC Circuits  FlipItPhysics Lab 3 due |
| 7: Ch 29 | 10/5/2017 | 10/8/2017 |
| Magnetic Force and Field | Lab 5 Simple Electric Motors | WebAssignCh 29 B Field and Force  Lab 4 due |
| 8: Ch 30 | 10/12/2017 | 10/15/2017 |
| Sources of Magnetism | Lab 6 B Field of a Slinky | WebAssignCh 30 Source of Magnetism  FlipItPhysics Lab 54 due |
| 9: Ch 31 & 32 | 10/19/2017 | 10/22/2017 |
| Magnetic Flux and Induction | Exam 2- Chapters 26-30 | FlipItPhysics |
| 10: Ch 31 & 32 | 10/26/2017 | 10/29/2017 |
| Magnetic Flux and Induction | Lab 7 RL Time Constant | WebAssignCh 31 & 32 Induction  FlipItPhysics Lab 6 due |
| 11: Ch 33 | 11/2/2017 | 11/5/2017 |
| AC Circuits | Lab 8 AC Circuits | FlipItPhysics lab 7 due |
| 12: Ch 34 & 35 | 11/9/2017 | 11/12/2017 |
| Maxwell's Equations & EM Radiation | Lab 9 Polarization | FlipItPhysics & WebAssign Lab 8 due |
| 13: Ch 34 & 35 | 11/16/2017 | 11/19/2017 |
| Maxwell's Equations & EM Radiation | Exam 3 Chapters 31-34 | WebAssignCh 34 Maxwell  FlipItPhysics |
|  | 11/23/2017 | 11/26/2017 |
| Geometric Optics | Thanksgiving | FlipItPhysics |
| 15: Ch 35 & 36 | 11/30/2017 | 12/3/2017 |
| Geometric Optics | Lab 10 Refraction and Lenses | FlipItPhysics |
| 16: Ch 37 | 12/7/2017 | 12/10/2017 |
| Physical Optics | Lab 11 Interference and Diffraction | FlipItPhysics  Lab 10 due |
|  | 12/11/2017 | 12/17/2017 |
| Finals | Monday 1:45-5:00 PM |  |