Physics II: E&M APHY 150, Spring 2024, class number 6905 Syllabus (subject to change)
Tuesdays and Thursdays 09:00-10:20 A.M. in the Physics Building in Room 225

3 credit-hours. Associate Professor Matthew Szydagis, mszydagis@albany.edu
albany.edu/physics/faculty/matthew-szydagis (TA = Monireh Pourrahimi mpourrahimi@albany.edu OH = TBD?)
Office Hours: TuTh 4:30-6:30pm, Physics Building Room 312 floor 3 OR, by appointment if you need it

Text: Physics for Scientists and Engineers, R.A. Serway and J.W. Jewett (10th ed) w/ homework in ***WebAssign***
ClassKey: *ALBANY54613471*

Course Description and Prerequisites: An introduction to the fundamentals of physics: electrostatics and magnetism, including the concepts of the electric and magnetic fields, electrical potential, and basic circuits; the laws of Gauss, Ampere, and Faraday; Maxwell's equations; geometrical optics. This course is generally offered in the spring semester; students taking this course in the spring semester may be required to enroll in a discussion section associated with the lecture. Smaller, out-of-sequence sections of this course are offered in the fall and summer semester and do not require enrollment in a discussion section. Prerequisite(s) or corequisite(s): A MAT 113 or A MAT 119; More prerequisite(s): A PHY 140 OR T PHY 141 OR A PHY 142 ***calculus***!

*The Mandatory Learning Objectives for General Education **Natural Sciences** Courses*

Students will demonstrate scientific reasoning applied to the natural world, including:

1. *an understanding of the methods scientists use to explore natural phenomena, including observation, hypothesis development, measurement and data collection, experimentation, evaluation of evidence, and employment of data analysis or mathematical modeling;*
2. *application of scientific data, concepts, and models in one or more of the natural sciences;*
3. *an understanding of the major principles and concepts that form the basis of the knowledge covered in the course and a command of the relevant terminology appropriate for basic discourse in the discipline or disciplines of the course.*

The following is a tentative course plan; it is natural to fall behind or get ahead and adjust topics

	Tuesday	Thursday
1/18		Electric Fields
1/23, 1/25	Cont Charge Distributions	Gauss' Law
1/30, 2/1	Electrical Potential	Electrical Potential
2/6, 2/8	Capacitance	Dielectrics
2/13, 2/15	Current	Resistance
2/20, 2/22	Direct Current Circuits	Direct Current Circuits
2/27, 2/29	Magnetic Fields	Magnetic Fields
3/5, 3/7	Magnetic Field Sources	Ampere's Law
3/12, 3/14	Review for the Midterm	MIDTERM EXAM (whole class time)
3/19, 3/21	*Spring Break [NO CLASSES]*	*Spring Break [NO CLASSES]*
3/26, 3/28	Faraday's Law	Faraday's Law
4/2, 4/4	Inductance	Inductance
4/9, 4/11	Alternating Current Circuits	Alternating Current Circuits
4/16, 4/18	Electromagnetic Waves	Electromagnetic Waves
4/23, 4/25	Electromagnetic Waves	Review for the Final Exam

See the table at left for the topic for each date of each week of this spring

Please note that the final exam will be in person in the same room as the class on Tuesday May 7th 08:00-10:00 a.m. It will be *comprehensive*. Can not miss it or move it. No makeup exams!!!

If you use DAISS, tell me right away (Day 1)

There is a zero-tolerance policy on cheating & plagiarism. If you were to choose to engage in such activities, it would result in being dropped from the course with a failing grade of E, with me notifying the Dean, and your expulsion would be a probable outcome then. So, do not even THINK about it.
Enroll in WebAssign (WA): https://startstrong.cengage.com (no LMS, materials not in tuition)

Course Website: https://www.albany.edu/physics/phy577/ Use grad student tutoring for help: go to main office

Grades will be determined with this rubric

Midterm Exam	25% (exam will consist of similar problems from HW of slightly lower difficulty)
In-Class Quizzes	20% (multiple-choice questions during almost every class, up to 30 minutes long)
Homework	15% (note you get 2 freebies for missed assignments – but, late is never accepted)
Final Exam	30% (largest portion of your grade, so you cannot pass this class w/o taking it)
In-Class Attendance	10% (going to class, with 2 freebie absences no questions asked or notes needed)

A through E with +'s / –'s in 15% blocks: A=100-85% where for example A- is 85-90%, etc. NO CURVE

Extra Credit: You can earn up to 5% in bonus points attending the Tuesday seminars and Friday colloquia at 2:45-4:15 in Physics 129 (rarely on Zoom). Find me and say hello. Will lead to me taking note. You get 1% / talk attended, as long as you don't leave early nor arrive later than start of talk.

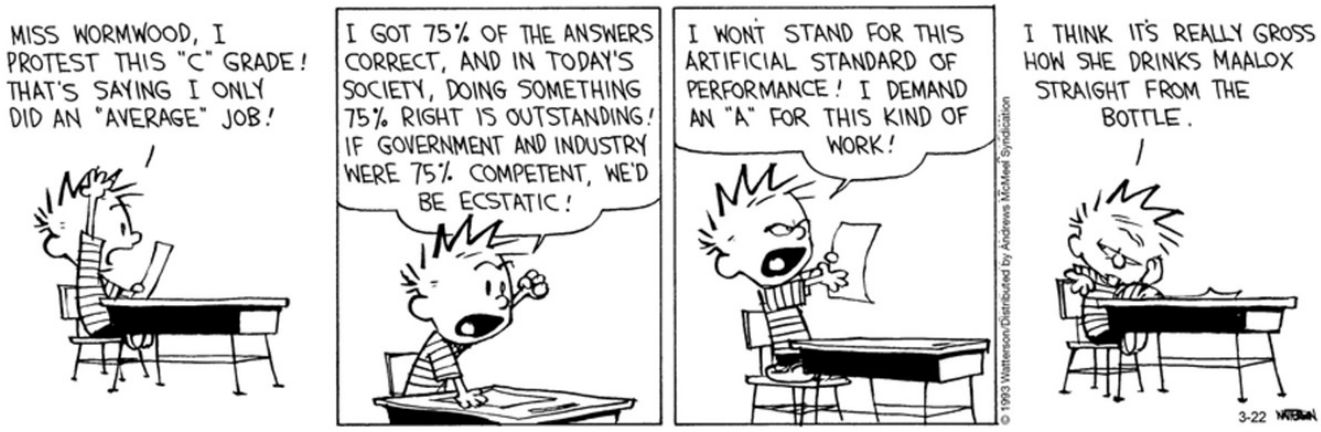
Classroom Conduct: While you are in this class, electronic devices will be a necessary part of many in-class activities, such as notetaking on a laptop computer or a tablet device, and answering in-class questions online. But absolutely no texting, e-mailing, or web surfing is allowed, on a laptop, tablet, smartphone, or a comparable device (forbidden on exams). Lastly, leaving early and/or arriving late hurts not just you but all.

Communication: I will be sending important announcements/updates to you by e-mail (to your UA accounts ONLY) so be sure to check on a regular basis. You'll be informed of your progress this way. Not LMS or WA.

Homework, Quizzes, Exams: Problem sets will be based on WebAssign*. They'll generally be assigned on a weekly basis. Getting the answers from Google and getting 100% on all of the homework is guaranteed to result in your failing the class. Homework is due at 11:59pm on the date specified on the assignment, usually the following week. It is not accepted late under any circumstances. While not counting for much %-wise, homework enforces lecture and serves as exam prep, so take seriously. Quizzes will be a low-pressure way to make sure you are doing well and understand the material, almost every class, using Google Forms. Together, the 2 exams will be worth 55% of your grade but you'll be allowed self-written formula sheets.

Absences: Excusable absences are defined by the university and require documentation. Acceptable excuses include: (a.) illness, tragedy, or other personal emergency; (b.) foreseeable time conflicts resulting from required appointments; and (c.) religious observance (without penalty). For details on university policy, see: https://www.albany.edu/undergraduateeducation/attendance.php (student athletes also an exception) and https://www.albany.edu/health_center/medicalexcuse.shtml For missing class or missing assignments, you do not even need to talk to me unless you have (A.) burned through all freebies, or (B.) you will miss an exam.

Website: Lecture slides and supplements, as well as solutions to quizzes and homework, and the assignments themselves, will appear at **webassign.net** or https://www.albany.edu/physics/phy577/ Please note I do not use BB or BrightSpace, but instead prefer to make my own site: no username \no password.



* https://play.vidyard.com/1zqPAhSGqCaDZ8L2K3xHuD Video tutorial to help you in completing assignments