Hi Tiffany,

My office hours are still TBD, but here's my syllabus:
Physics 422: Topics in Electricity and Magnetism

Instructor

Prof Eric Corwin
374 Willamette Hall
ecorwin@uoregon.edu (Links to an external site.)

Lectures

TTh 10:00 – 11:50 am, 318 Willamette Hall

Note: The first class will be held in MacKenzie

Office hours

TBD, maybe Thursday 2-3:30pm, Wil 374
You are strongly encouraged to come to office hours, either with course-related questions, or just to chat.

Teaching Assistants (GTF)
Textbook

*Introduction to Electrodynamics*, David J Griffiths

Topics

“I’ve found out so much about electricity that I’ve reached the point where I understand nothing and can explain nothing.”

— Pieter van Musschenbroek (Links to an external site.)

Inventor of the Leyden jar

In this course we will see the ways in which the study of E&M has spread out into many areas of contemporary physics research. Throughout we will focus on building up the ability to tackle new problems and create scientific knowledge from scratch.

We will start with an exploration of the links between Magnetism and special relativity, demonstrating that Maxwell’s equations fundamentally encode the principles of special relativity. We will also discuss electromagnetic waves and radiation.

In addition, we will build up numerical/computational tools with which to explore the Ising model for magnetism, gradually adding complexity until we bump up against the cutting edge of research relating to spin glasses and phase transitions. We will make extensive use of the python3 programming environment.

More broadly, this course aims to assist you in your development as a scientist. We hope to demonstrate to you that physics is not a collection of facts and formulae, nor a series of disconnected topics, but rather a unified (but incomplete) approach towards understanding the world using critical and analytical thinking.

Projects
This course will involve a major computation and analytical project. In this project you will create and implement a novel simulation, perform the requisite data analysis, and present your results in the form of a paper and a short presentation.

**Homework**

There will typically be weekly problem sets due on TBD. Except by prior arrangement late homework will only be accepted until 24 hours after the deadline and will automatically lose 50% of its score.

Problem sets exist to aid you in understanding and reasoning about physics. I don’t care very much about the numerical answer. I care that you understand what you are doing and can articulate your thought-process. To this end, I will require that all problem set solutions be in the form of fully explained well-written English or, in the case of computational assignments, fully commented source code. Each question will be graded out of 15 points total, 10 points for scientific correctness of your answer and 5 points for the clarity and quality of your writing. This means that I expect a well developed logical argument and explanation of your solution. It should go without saying that correct grammar, punctuation, and spelling are required. An example of how to write a problem set solution in plain English can be found here [HWExample.pdf](#).

I understand that this is unusual and may initially chafe. However, I hope to convince you of the merits of this approach, which I believe will aid your understanding and better prepare you to become scientists.

**How to do Homework**

Students are highly encouraged to collaborate on homework, but reminded that the work you submit should be your own. I can almost guarantee that by working with others you will achieve a deeper understanding of physics and get a better grade in the course. If you get stuck on a problem, don’t spin your wheels for very long. It is useful to struggle for a while, but it is a waste of your time to stare at one problem for hours. Instead, talk to your problem set group and come to office hours.

**Course Objectives**
At the end of the course you will be expected to possess:

- Ability to apply principles and concepts to analyze problems.
- Experience with integration of concepts: analysis of complex problems cutting across multiple domains of physics.
- Knowledge of principles and concepts of Electricity and Magnetism.
- Ability to communicate physics concepts orally and in writing.

Grading

Final grades will be determined by a ranked combination of scores on homework, project(s), and potentially a final. Your best performance will receive higher weighting. Your grade may be supplemented by your class participation as measured by engaging in the question to start class as well as asking and answering questions in class.

Students with disabilities

If there are aspects of the instruction or design of this course that result in barriers to your inclusion, please notify me as soon as possible. You are also welcome to contact Disability Services in 164 Oregon Hall, 346-1155.

On Mon, Apr 2, 2018 at 10:20 AM Tiffany Stewart <tiffany@uoregon.edu> wrote:

Hello,

We are compiling our list of Spring 2018 faculty office hours that will be available to all, and located in the Physics office. **Would you please forward your office hours to me** so that we can get this updated and posted as soon as possible?

We are also in the process of gathering **course syllabi; can you please forward these to me** via e-mail as well? This is especially important for 100 & 200 level courses where we are often contacted to supply this information for our students who are working with other institutions to establish transfer credits.
Thanks in advance!

Tiffany Stewart

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