

Physics 215, Fall 2024
Electromagnetic Universe (EMU)
Syllabus

Instructor: Grace (Grace-e) Kerber '17
Office Hours: TBD - <https://whenisgood.net/nci5ztf>
Email: gkerber1@gustavus.edu
Office: Olin 212
Phone: 507-933-6065 (just email me, please!)
Course meeting times: MWF 11:45 am - 12:50 pm

Introduction to Physics 215

This course is designed for you to learn about the electromagnetic universe in an environment where you as an individual are supported throughout your learning process. The content covered in this course is aligned with the canonical set of concepts and ideas of early undergraduate applications of electromagnetism. This will roughly follow chapters 23 through 34 of Serway & Jewett's *Physics for Scientists and Engineers*.

You as a student in Physics 215

Statement of inclusion:

I firmly believe that every one of you has the potential to succeed in this class, and to thrive within the classroom, department, and college community. All of the identities you hold matter and are welcome. If there is something in our classroom, department, or college that is making you feel a lack of belonging, please let me know that I want to be your advocate. Especially for differences in learning backgrounds and preparation, I will do my best to proactively support you. However, if you feel that I can provide different support, please do make me aware.

Living name/pronouns:

All people have the right to be addressed and referred to in accordance with their personal identity. Please share with me the name you would like to be called and share the pronouns with which you would like to be addressed. As your instructor, I will do my best to address and refer to you accordingly and support your classmates in doing so as well.

Commitment to equal opportunity:

I am committed to a policy of equal opportunity for all persons and do not discriminate on the basis of race, color, national origin, age, marital status, sex, sexual orientation, gender identity, gender expression, disability, religion, height, weight, or veteran status. Please feel free to contact me with any problem, concern, or suggestion. I ask that all students treat each other with respect.

Accommodations for Students with Disabilities:

If you think you need accommodation for a disability (documented or not), please let me know at your earliest convenience. Some aspects of this course, the assignments, the in-class activities, and the way the course is usually taught may be modified to facilitate your participation and progress.

Access to diagnoses (especially for non-visible disabilities) within the US medical system is known to be difficult and cost prohibitive, especially for those of marginalized backgrounds. I try to design assessments of your knowledge and learning to remove barriers so that you can take the accommodations you need regardless of your documentation. Please let me know if I can offer additional accommodations to support your learning.

Below is the college's official statement regarding accessibility:

“Gustavus Adolphus College is committed to ensuring equitable and inclusive learning environments for all students. If you have a disability and anticipate or experience barriers to equal access, please speak with the accessibility resources staff about your needs. A disability may include mental health, attentional, learning, chronic health, sensory, physical, and/or short-term conditions. When appropriate, staff will guide students and professors in making accommodations to ensure equal access. Accommodations cannot be made retroactively; therefore, to maximize your academic success at Gustavus, please contact them as early as possible. Accessibility resources staff are located in the Academic Support Center (<https://gustavus.edu/asc/accessibility/>). The Accessibility Coordinator (ascsupport@gustavus.edu or x7227) in the Academic Support Center can provide further information.”

Student Mental Health and Wellbeing:

I firmly believe that the quality of your health and wellbeing (all aspects including mental and physical) are of utmost importance. If something in this course is having negative effects on your wellbeing, please discuss it with me as soon as possible to co-determine a remedy. Additionally, please discuss with me if I can assist with something occurring outside of our classroom.

Below is the college's official statement regarding mental health and wellbeing:

“The Gustavus community is committed to and cares about all students. Strained relationships, increased anxiety, alcohol or drug problems, feeling down, difficulty concentrating, and/or lack of motivation may affect a student's academic performance or reduce a student's ability to participate in daily activities. If you or someone you know expresses such mental health concerns or experiences a stressful event that can create barriers to learning, Gustavus services are available to assist you, and include online options. You can learn more about the broad range of confidential health services available on campus at <https://gustavus.edu/counseling/> and <https://gustavus.edu/deanofstudents/services/>.”

Physics 215 Course Details

Advisory prerequisites and expectations:

Prerequisites: PHY-205/206, concurrent enrollment in PHY-216, and concurrent or previous enrollment in PHY-250, or permission of the department.

This course will utilize algebra and calculus methods and concepts to develop your understanding of the physics we are studying. I do not want math to be a barrier to your physics learning, so please do let me know as soon as you feel you are struggling so that I can address math more specifically.

Course Schedule:

Please see [this link](#) for an estimated course schedule.

Course Structure:

Before class - read the relevant chapter. Come to class with a list of lingering questions. I do not expect you to be a subject matter expert, just familiarize yourself with the material and terminology.

In class - lecture, demonstrations, and group work. This is your opportunity to use myself and your classmates to support your knowledge development further from your pre-class readings.

After class - review the relevant chapter again, attend office hours, and practice your individual application of the material on your homework.

All grades correlated with the above are for 'formative' assessments, and will be graded primarily for participation and effort, not only for the correct answer.

Exams are your opportunity to show me the material you know, and are the only 'summative' assessments in this course.

How to approach office hours:

- Stuck on a concept from any point during the semester? Come to office hours.
- Not sure what you did wrong or right on a practice problem? Come to office hours.
- Not sure what is confusing you about something from class? Come to office hours.
- Feel like you must have mastered the material before coming to an office hour? You don't, that's what office hours are there to help you with! - come to office hours.

In class team-based work:

Studio time in class will be spent working on problems together in small groups. You'll work collaboratively on these problems. This will be graded for effort and completion only (i.e. full credit once you turn it in) to encourage you and your group members to have a team-based mindset when working on formalizing your learning and understanding of the content.

What do I expect from you at each class meeting?

I expect that you will come to class prepared, having already looked over the material that will be covered that day. During class, we expect that you will contribute productively to your group, and ask questions until you understand things well.

Policies and Grading**Attendance Policy:**

This course relies on team-based work done in class meetings. Attendance at class meetings is of paramount importance. It is expected that you attend as you are able, but you should not come if you are sick. To prevent the spread of illness, I will work with you to make up for missed work if you are feeling unwell.

Final exam: Date and Time TBD

First half: chapters 32-34. Second half: comprehensive (on **all** topics, chapters 23-34).

Grading:

Your overall class score will be calculated based on the following weights:

In class group work - 20%

Homeworks - 20%

Mid semester exams - 36% (3x12% each)

Final exam -24% (chapters 32-34 12% and comprehensive exam 12%)

Late and makeup work:

You have two no-questions-asked excuses for in class work. If you end up missing more than two classes throughout the semester, please come talk to me so we can discuss a way for you to keep on track with the material. Religious holidays and official college events are exempt from this two class maximum. You are still responsible for the material even if you do not attend class.

Late homework will not be accepted after the exam - it is practice for you to learn the material.

Exams will only be available to be made up at the discretion of the instructor, with prior notification and approval only.

Below is the college's official policy regarding religious observance in conflict with course requirements:

“A student whose religious observance conflicts with a course requirement may request an academic accommodation from the instructor. Students should normally make such requests in writing by the end of the second week of classes, but there may be exceptions. Students may also request accommodations for religious traditions surrounding death and dying when the need arises. The Chaplains' Office annually publishes a multifaith holiday calendar with accommodation notations. You can find it here: <https://gustavus.edu/chaplain/multifaith/>.

However, this list is not exhaustive and observances are not necessarily days when individuals will not attend work or school. There are also different levels of observance in different traditions. The Chaplains' Office is available for consultation on any requests for accommodation that are not included in their calendar.”

Letter Grade Determination:

Absolute/fixed (not curved), so it is perfectly possible for everyone to get A's. Divisions (based on all scores weighted as above) are:

Weighted score range	Letter grade
94 to 100	A
90 to 94	A-
86 to 90	B+
82 to 86	B
78 to 82	B-
74 to 78	C+
70 to 74	C
66 to 70	C-
62 to 66	D+
58 to 62	D
<58	F

Please note that these ranges are guidelines. If these boundaries move, they will be lowered (in your favor).

Tips for Success

The ability to do well at physics is not an inborn gift; it is a learnable skill. Becoming proficient at physics is no different than becoming proficient at a sport, a musical instrument, an artistic medium, or a foreign language. Basketball players, concert pianists, sculptors, and others with specialized skills certainly spend *some* time reading books and listening to lectures by experts, but they understand that the *main* way to achieve mastery is to practice, learn from their own mistakes, practice, think hard about what they are doing, and practice. It's the same with learning physics. As a result, we expect each of you to participate actively in the course. This means:

- Coming to every class (well, almost every class, life happens).
- Participating fully while you're there: really trying to answer each question yourself.

- Doing the pre-lecture reading thoughtfully.
- Working all of your homework until you get it right, and understand *why* you got it right.
- Working through additional practice problems in advance of exams.
- Visiting the office hours to get questions answered throughout the course, not just before exams.
- Discussing the material with others in the class. There are few better ways to build an understanding of something than to talk about it with others.
- Being thoughtful about what you know and don't – when you get a question wrong it is your job to think about *why* you got it wrong.

I will foster group interaction in class. You're also encouraged to discuss homework problems and to work together outside of class, but you remain responsible for submitting your own version of the solutions in the end. Remember this important point: the exams are solo experiences--you will not have your friends or study group to help you, so it is crucial to learn how to solve problems on your own. There is no other way to accomplish this other than through practice.

Policies on Classroom Integrity

Academic Integrity:

In my experience, most cases of academic dishonesty result from a desire to cut corners due to time pressure. To avoid this temptation, plan your study time so that you are not leaving a lot of work until the last minute. My goal is to solely base your grade on what you show me you know. I will do everything in my power to remove barriers that get in your way of that.

In a course like this, academic dishonesty can take a variety of forms, including giving or receiving assistance on quizzes/exams; copying answers to the online homework (You are encouraged to work together and get help, but the final work must be your own). If you are ever not sure, err on the side of caution, and ask me for clarifications.

In general, in class work is team-based, so it is expected you work with others. Homework is okay to work with others, but you should know and understand everything you turn in; everything turned in (including the calculations to get to your submitted work) must be your own. Exams are to be completed independently without assistance from sentient (or non-sentient) beings. AI is laughably bad at solving physics problems, and is not your own work, so is not allowed.

Honor Code:

Below is the college's official policy on the Honor Code:

“Gustavus Adolphus College is proud to operate under an honor system (<https://catalog.gustavus.edu/nav-group/honesty>). The faculty and students have jointly created an Honor Board to enforce the Honor Code and the Academic Honesty Policy. Each faculty member is responsible for stating course penalties for academic honesty violations, and for defining the level of authorized aid appropriate to the work in their courses. Each faculty

member is also required to report violations of the Academic Honesty Policy to the Provost's Office. It is your responsibility, as a student, to ask questions if you are not sure about situations such as when to cite a source, how to cite a source, sharing data with lab-mates, and avoiding inadvertent cheating when working in groups. It is also your responsibility to learn about the policy and the consequences for violations so please ask questions!

The overarching principle of the Academic Honesty Policy is that students shall submit their own work, in fairness to others and to self. Your professor wants you, a developing scholar, to be able to take pride in your own academic work and to maintain your academic integrity. Citations must accompany any use of another's words or ideas that are not common knowledge. Quoting or paraphrasing from electronic sources without proper citation is as serious a violation as copying from a book or other printed source. Using content generated by an artificial intelligence third-party service or site (AI-generated content) without proper attribution or authorization would also be a form of plagiarism. A student may not submit work that is substantially the same in two courses without first gaining permission of both instructors if the courses are taken concurrently, or permission of the current instructor if the work has been submitted in a previous semester. Ask your professor if you have questions about a particular assignment or kind of work. Please make sure you fully understand the rules related to online work, as it pertains to this course. Unauthorized aid during online exams and assignments is every bit as serious and inappropriate as it would be in an in-person course. In fact, in the online environment it is sometimes easier for faculty to detect violations.

The sanction in this course for a violation of the Honor Code involving plagiarism, copying another student on an exam, or other kinds of cheating on a single assignment will usually be an "F" on the plagiarized assignment or exam. For a more significant event, I, your professor, reserve the right to assign you a grade of "F" for the course. In addition, for any Honor Code violation, I will notify the Provost's Office. A letter will be generated by the Provost's Office and sent to you. The letter will remain on file. There will be no further consequence, beyond the course penalty and the letter, if you do not commit any further Honor Code violations. Repeat offenses could ultimately lead to dismissal from the College. You have the right to appeal any Honor Code violation through an Honor Board hearing process. In this course, your professor aims for you to learn how to cite sources properly, do your own work on all exams, and function as a scholar with integrity. Please feel welcome to ask questions about the important matter of Academic Honesty and let me know how I can best support your learning."