

Physics 2207-2208 is a two-semester introductory calculus-based physics sequence. It covers a wide range of topics essential to those interested in pursuing careers in medicine, biology, chemistry and other science-related professions, and to others who would like to develop a more detailed and quantitative understanding of how the physical world works. Our emphasis is on developing your scientific literacy, i.e., your familiarity with the day-to-day language and concepts used by science-related professionals; on developing specific problem-solving skills such as graphing, estimation, and working with physical units; and on developing your ability to formulate questions and solve problems both on your own and as part of a team.

As with most of our introductory physics courses, Physics 2208 will use a largely “flipped” format: you’ll start learning the core course material by reading the textbook. Lectures will focus on problem solving, demonstrations, and physics applications; we won’t be re-deriving all the results presented in the textbook.

Lead Instructor: Prof. Matthias Liepe, MUL2@cornell.edu

Senior Staff:

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- For general course questions, comments on lectures and recitations, help with study habits, and personal emergencies, contact Liepe.
- For questions about labs, contact Arias.
- For questions about registration and records, contact Mueller.
- For questions about exams and make-up exams, contact Mueller.
- For physics questions about assignments, lab, coop, etc., contact any TA, and attend office hours, or post your question on Ed Discussion.
- For issues involving TAs (grading consistency, tardiness, etc.), contact Liepe.
- For issues involving academic integrity, please contact Liepe.

Note: If at all possible, please try to talk with us during our office hours, or ask your classmates and the course staff via the Ed Discussion site (see link on Canvas). We will issue responses to the entire class for issues you raise of general interest.

Course Website

Go to the PHYS2208 **Canvas** site for spring 2022. This site contains announcements, pre-lecture reading quizzes, practice assignments and solutions, simulations, study tips, practice exams, and other useful things, including a link to the P2208 discussion board (Ed Discussion). We will use email to notify you of late breaking course news.

Texts and other resources you’ll need

- **Textbook:** College Physics - a strategic approach, 4e, by Knight, Jones, and Field (see link on Canvas for Instant Access to electronic version of the textbook; if you are not interested in this option, you will have to opt out by 04/14/2021!).
- **iClicker student subscription** (go to <https://student.iclicker.com/#/login> ; for the Cornell NetID field, you must use your Cornell NetID (such as ewe2)! Do not use your Cornell Student ID or an email address.) Note: If you already own an iClicker remote, you can use that instead of buying a subscription (but make sure to register your remote on our course Canvas site!!). The remote will only work during in-person lectures, but we will not count iClicker participation during the first two weeks of online classes.
- A copy of the **PHYS2208 Lab Manual**, available at the Campus Store. You will need this to attend the labs.
- A copy of the **PHYS2208 Workbook**, available at the Campus Store. You will need this to attend the recitation sections.

Lectures, Reading Assignments, and Reading Quizzes

The lectures are Mondays, Wednesdays, and Fridays at 9:05 am and 11:20 am, in-person in ROCK 203. During the first two weeks, classes will be online (see Zoom connection posted on Canvas). You can attend either of the two lectures on a given day; whichever works better for your schedule on that day. **We expect that you will attend lectures regularly, and actively participate during in-lecture problem solving.**

Lecture slides will be posted on Canvas prior to each lecture (typically on the day before). Updated slides will be posted on Canvas after each lecture, that will include all handwritten annotations made during lecture. **Come to lecture regularly, focus on learning physics (you will only learn well if you focus your attention on physics during the lecture and are not distracted by other things...), be active, and participate in the in-lecture questions!**

Please use your cell phone with the iClicker app or your iClicker remote (in-person lectures only) to participate in the in-lecture questions. Copies of the in-lecture questions are included in the PHYS2208 Workbook, so please bring your copy of the workbook to lecture so that you can record your work directly on the printed questions.

Lectures will go over the key ideas and concepts of the new material again, but will assume that you have completed the reading assignments before coming to class. We will spend most of the time in lecture on applications, lecture demonstrations, and practicing the new material. So please read the assigned sections of the textbook as indicated on the course Syllabus (posted on Canvas), and take a short **Reading Quiz posted on Canvas by 9 am before each lecture** (including the first lecture). Reading quizzes for the first few lectures are available soon, so you can work ahead if you like. Each quiz can be attempted *twice* and only your *best* score will be retained. The quizzes provide you instant feedback on your understanding of the reading assignment. If you answer incorrectly, you'll get a hint after you submitted the quiz. Your quiz answers will also help us focus on the most challenging topics in lecture. Reading quizzes will be based on the textbook, and **your lowest 10 reading quiz scores will be dropped.**

These reading quizzes will be open book, so you can refer to the textbook and any of your notes. But you absolutely are not allowed to have someone else help you with these, or to get the solutions from someone else (including from online resources), or to share the quiz questions online or with someone else!

Discussion Sections

Recitations begin the first week of class. **Attendance and active participation are expected. You must attend the section you have signed up for.** If a spot opens in a section you prefer, you can swap into that section using the directions at www.physics.cornell.edu/swap. Please note that this will only work for open sections. Recitations will focus on working on Co-Op questions in groups and on answering common questions (for specific questions, please come to our online office hours). The Co-Ops are included in the PHYS2208 Workbook, so please make sure to get your copy and bring it with you to section so that you can record your group's work directly on the printed Co-Op for later review.

Your group's work on each Co-Op will be scored by your TA *during* sections (there is nothing you need to turn in after section). You will get one point for answering the starter question, one point for making good effort on the Co-Op questions, and one point for working on the Co-Ops as a group, for a maximum total of 3 points per Co-Op. **Solutions will not be posted**, so be sure that you (mostly) complete and understand these Co-Op problems in discussion section and have a good record of your work in your workbook!

For the first two weeks only: Section will meet online, and we will be using Zoom breakout rooms for group work. When you are in a breakout room, please **turn on your camera and microphone** so that you can work as a team on the Co-Ops! Use the Zoom whiteboard feature to work on the coop together and share your work. Your TA will be joining the individual breakout rooms and you can also reach out to your TA for help by clicking on "Ask for help" at the bottom

of the Zoom window. Zoom links for your online discussion session will be posted on Canvas as an announcement; you will use the same link each time during those two weeks.

Labs

Labs begin the week of **February 7**, and will meet in-person 7 times this semester (roughly every other week, see syllabus posted on Canvas). **You must attend the lab section you have signed up for.** If a spot opens in a lab section you prefer, you can swap into that lab section using the directions at www.physics.cornell.edu/swap. Please make sure to bring your copy of the PHYS2208 Lab Manual to your lab to record your work (needed to get credit!). **Lab attendance is mandatory, but you are allowed to miss one lab** (we will drop your lowest lab score). Questions about the lab should be directed to your TA or to Prof. Arias.

You will again work in groups on the lab units. Your group's work on each lab unit will be scored by your TA *during* lab sections. There is no work you need to do or submit for the labs outside of the lab sections. You will get up to two points for making good effort on the labs, and one point for working on the labs as a team, for a maximum total of 3 points per lab unit.

If you must miss a lab for any *good* reason, please **immediately** email Prof. Arias and your lab TA, so that arrangements can be made for you to make up the lab. **To email Prof. Arias, you must include "2208 Lab" in the subject line**, otherwise your email may go to his spam folder.

Practice Assignments

Although the reading assignments and the pre-lecture and in-lecture questions will help to orient you, the best (in fact, *only*) way to master physics is to solve lots and lots of problems. **Practice assignments** will be posted on **Canvas**, and your written solutions will be due by **Friday 11:59 PM EST** most weeks (see syllabus for exceptions).

You have two options to get credit for your practice work:

1. Please take pictures of each page of your work, convert these to a **single .pdf file for each week** (via free cellphone apps; **Adobe Scan** works very well), and upload the single .pdf file on Canvas for grading under the practice assignment for that week.
2. Bring your work to our TA office hours (or even better, work on these during office hours) and have the TA check and grade your work. Note: Office hours will be busy at times and the TA might not have sufficient time to check off your work during these peak times. If that happens, see if you can find a less busy office hour time, or submit your work on Canvas as listed above. This office hour option is only available during weeks with in-person office hours (hopefully starting with week 3).

Solutions will be posted on Saturday so that you can refer to these to prepare for the weekly quiz. Late submissions will not be accepted (contact Liepe in special cases). To mitigate unfortunate circumstances, your **three lowest practice assignment scores will be dropped**.

Practice assignments will be graded out of 10 as follows: 8 points for overall effort (we don't expect you to get everything right on the first try!) including **1 point for neatness/legibility, and 2 points for one randomly selected question which will be graded like an exam question. Please note that you must show all your work and explain your answers in detail.**

We encourage you to study in groups and to help each other on assignments. Explaining a point is often the best way to learn it yourself (as those of us who teach quickly discover), and you'll develop communication skills essential in the modern workplace. On the other hand, it's really important that you **make a serious effort to solve the problems before you begin consulting with others**. Being able to generate the solution yourself, which requires you to choose the "right" solution method from many possibilities, is very different from being able to follow someone else's solution. You need to learn why other possible solution methods are wrong so that you don't try them, e.g., on an exam. After discussions, be sure to work through and write up your solution yourself, on your own. If you are looking for a study partner, the Learning Strategies Center's (LSC) Find Study Partners tool (<http://lsc.cornell.edu/studying-together/find-study-partners/>) can help you find study partners and form study groups.

Collaboration is encouraged, but copying is not and will be treated as a violation of academic integrity, with stiff penalties (**this includes copying from old solutions!!**). Your ability to solve problems *on your own* is the gold standard against which to assess your understanding.

Weekly Quizzes

Regular low-stakes testing is one of the best ways to consolidate long term memories and improve learning. You will be quizzed almost every week (see syllabus), based on the practice work you have turned in on the Friday before. Quiz questions will test whether you have understood the practice problems. **The weekly quiz will be posted on Canvas and will be due by Tuesdays, 11:59PM EST.** To mitigate unfortunate circumstances and give you flexibility in allocating your study time among your courses, especially during prelim weeks, your **four lowest quiz scores will be dropped** in forming your quiz average. These weekly quizzes will be open book, so you can refer to any of your notes. But you absolutely are not allowed to have someone else help you with these, or to get the solutions from someone else (including from online resources), or to share the quiz questions online or with someone else!

Exams

There are two evening prelims and a final exam (see Canvas course site for details). You may expect material from **all** parts of the course, including lecture, practice assignments, discussion, and lab. The final exam will be comprehensive, but will emphasize material from the last part of the course not covered on the two prelims. The exam questions will be slightly modified versions of questions that you have seen in lecture, section, practice, and lab. Exams will be closed book. We will give you an “official” formula sheet during the exams. You are not permitted to bring any note pages with you to the exams.

Exciting news: We will only count the higher score of your two prelims! So, if your first prelim does not go so well, you can recover from that with prelim 2. Or if you are happy with your prelim 1 score, you can even decide to skip the second prelim and focus on other prelims during that time. I hope that this will help to lighten your load and stress level a bit this semester.

Our general policy is not to allow make-up exams except in the case of direct, documented conflicts with other scheduled exams. **Please use the online form available on Canvas to notify us of exam conflicts.** Only Prof. Mueller can make alternate arrangements for prelims and exams, and he must be notified **at least two weeks in advance by filling out the online form.**

Grading

Your final course grade will be comprised of the following components:

- Exams: 65%. The *higher* of your two prelim scores will count 30%, your lower prelim score will be dropped, and your final exam will count 35%. The exams will be prepared to gauge prescribed levels of achievement and **will not be curved**. We'll do our best to make all the exams manageable and of consistent difficulty. But if we goof and make an exam that's too hard, we'll curve the grades upward.
- Weekly quizzes: 10%. Your lowest 4 scores will be dropped.
- Practice assignments: 5%. Your lowest 3 scores will be dropped.
- Labs: 5%. Your lowest score will be dropped.
- Coop: 5%. Your lowest 5 scores will be dropped.
- Reading quizzes: 5%. Your lowest 10 scores will be dropped.
- In-lecture iClicker questions: 4%, based 50% on effort, and 50% on correctness. Your lowest 30% of individual answer scores will be dropped.
- Completing and making a good effort on the two department surveys (given at the start and end of the semester) and the Academic Integrity IQ Quiz at the beginning of the semester: 1%

One important word of advice: **Be sure to turn in all the assigned work and attend lecture, discussion sections, and labs regularly!** You'll get most of the points just by showing up and making a good effort regardless of whether you get the right answers. Don't throw these points away!

Getting Help in Physics 2208

We will hold extensive office hours on **Mondays to Fridays** (see schedule posted on Canvas under "Schedules"), so you will have plenty of opportunities to reach out to us for help with assignments and the course material.... **Make sure to attend these regularly for help!!**

In addition, in Canvas you will find a link to the Ed Discussion board where you can post questions and respond to questions posted by your classmates. Physics 2208 staff will monitor the discussions and make posts when appropriate. We will also post important announcements on Ed Discussion, so make sure to monitor posts on Ed Discussion closely.

Make sure to check out the Learning Strategy Center (<https://lsc.cornell.edu>). They can help with tutoring, finding study partners.... The Skorton Center for Health Thrive @ Cornell newsletter is a treasure trove of health and well-being resources and activities available to you (<https://health.cornell.edu/get-care/care-during-covid-19/coping-during-covid-19/thrive-newsletter>). Cornell Health and the Office of Spirituality and Meaning-Making offer many workshops (see <http://t01.list.cornell.edu/t/3265678/47393877/1131048/1056/> and <https://scl.cornell.edu/osmm>) that you might find useful.

Professional Conduct

Since you are all future professionals, we expect that you will abide by professional standards of ethical conduct. We will rely on the honor code for all parts of this course, including the online quizzes and exams. We believe this is a far better option under the given circumstances than trying to closely monitor you while taking the quizzes. We hope that you agree and trust that you will follow the Cornell Academic Integrity Code (<http://theuniversityfaculty.cornell.edu/academic-integrity/code-of-academic-integrity/#principle>). Integrity and honesty are essential in our pursuit of learning, and they are defining characteristics of a professional. If we would lose our joint trust in integrity and honesty at Cornell, the consequences for everyone on campus would be very sad. Prof. Liepe had to hold a number of primary academic integrity hearings over the years, and is a member of Cornell's academic integrity hearing board, and has seen many tragic cases. In some cases, the consequences of an academic integrity violation can be very severe. Unfortunately, frequently students seem unaware of these consequences until it is too late. So, please don't copy answers from our solutions, online resources or from another student. Don't use online services to have them solve assignments or quiz questions for you. Don't even consider cheating on an exam. Don't share/post exam or quiz questions, and please don't violate our copyright by posting our lecture slides, our quizzes, our homework solutions, etc. somewhere online. Obviously, this is an incomplete list of possible violations.

If you ever feel like considering an academic integrity violation because you just feel not prepared for an exam, or are overwhelmed by assignments all due at the same time... please don't take this path. Instead, reach out to Prof. Liepe. He will listen and will work with you on finding a better path forward. Please don't forget that we designed this course such that most students will end up with a final grade in the A or B range. This is far better than risking getting caught on an academic integrity violation. If you have questions or concerns, please reach out to Prof. Liepe.

All students enrolled in Physics 2208 must take the Academic Integrity IQ quiz, available in Canvas under "Week 1" in "Modules", which will test your knowledge of our academic integrity policies. This quiz is mandatory and must be completed by **February 4**. Also, make sure to read the document "Academic Integrity in Physics 2208", available on Canvas (under "Course Info").

Course Feedback

The course staff is committed to continuing evolution and improvement of P2208 to better meet your needs. We need your help. We have set up an **anonymous feedback form**, which can be **accessed in Canvas**. All identifying information will be stripped from the comments we receive, and all comments will only be read by Prof. Liepe. Please feel free to comment on any aspect of the course and on any staff member. If a lecture is too confusing or too boring, if a TA is lecturing rather than having you solve problems, or if a quiz or exam question was unfair or too tedious, we want to hear about it! And if there's something you like, please tell us so we can do it more often. We especially welcome suggestions for how we can improve the course.

Diversity and Inclusiveness

In an increasingly global community facing inter-connected global challenges, advances in science and technology critically depend on involving a diverse body of people. We believe that our scientific and educational mission must be grounded in equality, inclusiveness, and respect for others. We are committed to providing a supportive, diverse, and inclusive learning environment for all students, and we hold our students to the same core standards in this course. We support a variety of learning needs. Please meet with Prof. Liepe if you would like to talk about how we can best help you.

Final Thoughts

We will make this semester work for all. We will prioritize supporting each other. We will remain flexible and adjust as needed. Everybody needs support and understanding during this unusual time. We are here to listen and help.