Physics 2220 Physics for Scientists and Engineers II

Online - Interactive Video Conference Course - Fall 2020

**Instructor**

Professor Anthony Pantziris,

Faster email: [2220physics@gmail.com](mailto:2220physics@gmail.com)

**Discussion Sections TAs**

Course Marshal: Sam Liebersbach, [samuel.liebersbach@gmail.com](mailto:samuel.liebersbach@gmail.com)

Paul Bailey, [u0972040@utah.edu](mailto:u0972040@utah.edu)

Devon Fischer, [devon.fisch@gmail.com](mailto:devon.fisch@gmail.com)

Zane Garber, [zane.gerber@utah.edu](mailto:zane.gerber@utah.edu)

Sean Johnson, [u0940249@utah.edu](mailto:u0940249@utah.edu)

Shaun McKellar, [Shaun.mckellar@utah.edu](mailto:Shaun.mckellar@utah.edu)

Hoang Nguyen, [u1134317@utah.edu](mailto:u1134317@utah.edu)

Ron Putnam, [u1325541@utah.edu](mailto:u1325541@utah.edu)

**Discussion Sections LAs**

Alan Beukers, [abeukers2@gmail.com](mailto:abeukers2@gmail.com)

Jude Horsley, [Judehorsley4@gmail.com](mailto:Judehorsley4@gmail.com)

Susanna Jones, [jones.susann19@gmail.com](mailto:jones.susann19@gmail.com)

Ali-Abbas Sial, [ali-abbas@emeraldproject.org](mailto:ali-abbas@emeraldproject.org)

**DISCUSSION SECTIONS AND ZOOM LINKS**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| DISCUSSION  SECTION | TAs | LAs | ZOOM LINK | PASSWORD | TIME  Tu,Th |
| 2220-002  2220-012 | **Zane**  **Hoang** | **Alan**  **Susanna**  **Jude** | <https://utah.zoom.us/j/92358274367> | Maxw3ll | 7:30-8:20am  55 |
| 2220-003  2220-013 | **Paul**  **Ron** | **Ali-Abbas**  **Jude** | <https://utah.zoom.us/j/91857648379> | Maxw3ll | 9:40-10:30am  80 |
| 2220-014 | **Sean** | **Alan**  **Susanna** | <https://utah.zoom.us/j/97625995946> | Maxw3ll | 9:40-10:30am  40 |
| 2220-004 | **Devon Shawn** | **Jude** | <https://utah.zoom.us/j/94363694231> | Maxw3ll | 10:45-11:35am  40 |
| 2220-005  2220-015 | **Sean**  **Paul**  **Devon** | **Jude**  **Ali-Abbas**  **Susanna** | <https://utah.zoom.us/j/92413700077> | Maxw3ll | 12:55-1:45pm  80 |
| 2220-006  2220-016 | **Zane**  **Ron**  **Sam** | **Jude**  **Ali-Abbas**  **Alan** | <https://utah.zoom.us/j/93757176206> | Maxw3ll | 2:00-2:50pm  79 |

**1. Course Organization**

**Textbook, Inclusive Access and MasteringPhysics**

The textbook adopted for this course is Physics for Scientists and Engineers: A Strategic Approach with Modern Physics with MasteringPhysics, Fourth Edition, by Randall D. Knight. The electronic version of the textbook and associated resources and access to MasteringPhysics are available to you as part of the Inclusive Access Program. The Inclusive Access Program delivers all required course material as part of your tuition or fees. If you are participating in this program you do not need to buy course material, as they will be provided to you starting the first day of class (an access code will be provided to you on the Canvas website). You will get the required resources and access to the book directly through the Canvas site. A paper copy of the book is not necessary. You can order an “unbound” copy through the MasteringPhysics web interface ($44.97, free shipping). Homework submission will happen through MasteringPhysics. You will need to make sure to have a MasteringPhysics account set up starting the first day of class. Instructions will be given on Canvas and discussed in the first Lecture.

**Course Objectives**

The course will help you to understand and solve problems that occur in a broad range of disciplines. The primary subject of this course is Electricity, Magnetism and Optics. It includes electric fields and electric potential, current flow, resistance and capacitance, magnetic fields, Faraday's law and inductance, electric circuits and electromagnetic oscillations, and electromagnetic waves and light propagation.

The three most important objectives of this course are to:

(**1) Learn some of the fundamental principles of physics.**

**(2) Learn how to describe real world phenomena quantitatively.**

**(3) Acquire problem-solving skills that can be applied to other areas of science, engineering and in your life in general.**

The achievement of these goals will require a **conceptual understanding of the physical principles, an ability to use equations** to describe a particular phenomenon, and **a methodical approach to problem solving**.

This understanding is achieved by a combination of reading the texts, doing the practice assignments before class, listening to lectures, working through examples, discussing questions with your TAs and other students, and doing problems. **The assigned homework problems are ABSOLUTELY NECESSARY to develop this understanding.** They are your practice "**sessions**."

**Course Content**

This is an introductory course in **Electromagnetism**. It introduces the basic concepts of electric charge, electric and magnetic fields; electric current and electric circuits; the fundamental laws of electromagnetism; and electromagnetic waves and light propagation. **You are expected to learn to solve physics problems using calculus. Most students will find this to be a very demanding course that requires a significant amount of work and study time. For some, this will be the most challenging course they will encounter at the college level.** We will study the material in **chapters 22 – 31.** Unless specifically announced, you are responsible for all material in these chapters, whether it is covered in lecture or not, as well as any supplemental material actually covered in the lectures. Please see the Course Schedule on Canvas for details.

**Lectures**

The class will meet for live and interactive lectures online **through Zoom,** **three times a week**, on M, W, F at 12:55 – 1:45 pm (2220-001) and again at 2:00 – 2:50 pm (2220-011).The lectures will be recorded and posted on canvas afterwards. Reading assignments from the textbook will be posted on canvas before the lectures.

**How you can do well in this class**

1. Be sure to schedule enough study time. Typically, one should expect to spend no less than 3 hours on pre-lecture and reading assignments, homework problems and review for every hour spent in lecture.

2. **Practice, practice, practice!** The only way to understand physics concepts well enough to use them is to practice on problems. Do the assigned pre-lecture assignments, the homework problems, the review problems (before exams), and other related problems in the textbook. Practice homework assignments by mimicking the exam situation: start with a blank sheet of paper and work the problem through as far as possible without looking for help from the text, notes, or solutions until necessary. **Doing the homework the RIGHT way is the most important factor for doing well in this course.**

**2. Online Office Hours**

I, the TAs, and the LAs will post office hours when we will be available to help you personally using Zoom. This is a **VERY** **important resource for students**. If you have questions that you have not been able to get answered in the discussion sections or during the lectures be sure to join our office hours. **Doing something about getting your questions answered is your responsibility.**

**3. Assignments**

**Homework Assignments**

You will **complete all homework assignments online and get immediate feedback (grading). For most problems you will be given up to SIX opportunities to enter the correct answer (multiple choice questions are an exception to this rule).**  This means that **you will only be entering answers to the homework. There is a great danger in this. In contrast, on examinations, you will be required to present full solutions (showing all work) and will only have 1 try. Hence, I strongly recommend that you work out all homework problems on a clean sheet of paper and compare these to the solutions provided by the TAs**. Please note that in order to be marked correct for the problems that require numerical answers, **you must pay close attention to the rules for handling significant figures**, enter the correct number of significant figures (three is the typical value), and be within 3% of the answer (the actual numerical values used in each problem are randomized). You must also **pay close attention to the units** (provided in the question) in which the numerical answer must be given. **MasteringPhysics provides hints for formatting any answers that must be expressed using variables (symbolic formatting) and for cases where you have the right answer but an insufficient number of significant figures. At the end of the term, your four (4) lowest homework scores will be automatically dropped**. No re-grades will be allowed, and **NO LATE HOMEWORK WILL BE ACCEPTED**. Please don't even ask. Homework is due so often and for so many students that there is no time to handle it. Solutions will be posted on canvas right away. **All homework should be completed on Wednesdays and Sundays by 11:59PM.** **Due dates and times, point values for each problem, and maximum number of submissions are clearly indicated on MasteringPhysics for each assignment.**

**Discussion Sections**

To be in this course, you must register for a particular discussion section. **Discussion sections meet online twice a week on Tuesdays and Thursdays according to your discussion section through Zoom Video Conference**. Attendance and participation in discussion sections is required and it will count 10% of your final course grade. During the discussion sections you will work on problems that are meant to help you understand and apply the concepts, complete the homework, and prepare you for the exams. In the discussion sections most of the time you will be working in groups. In order to get full credit for attending a discussion section, you need to:

1. Come on time and stay until the end of the section.

2. Work and participate actively with your classmates following the activities assigned by your TA.

3. Upload your work to canvas at the end of the Section.

You are allowed to drop fourdiscussion sections.

**Quizzes**

Every **Wednesday** you will be assigned a timed graded quiz, accessed on canvas > mastering physics, that is meant to assess your understanding of previous and current material. Quizzes will make up 10% of your grade and the four lowest score quizzes will be automatically dropped.

**Practice and Pre-lecture Assignments (Optional)**

I will assign regular pre-lecture assignments pertaining to the new material to be presented in the lectures. The purpose of doing these assignments is to make you acquainted with a lecture topic **ahead of time** so you will be better prepared to follow the lecture. These assignments **do not have a grade value**. However, studies have shown that the more prepared students are for the lecture, the more they get out of it and the better they perform in the course. You are strongly encouraged to complete at least parts of them. I will also add optional practice assignments for students who would like to get more experience by doing some extra problems, but these **do not have a grade value**.

**4. Midterms and Final Exam**

Approximately every four weeks on a Friday, during regular class hours, there will be a **50-minute** **midterm proctored with Zoom**. You will be able to access the exam on Canvas. You will have **65 minutes** to **download**, **complete your work, scan** and **upload** it as a pdf file on canvas. All exam dates and times are set in advance, before the semester starts. All exams are closed book. You may not bring any materials to the exams but a single page (both sides), with helpful equations and formulas on it, and a calculator. The exams will not be easy. **Normal scientific and graphing calculators are allowed during exams. Exams MUST be done in black pen, in order to be visible to the graders** when you upload it to canvas.

**All midterms, as well as the Final Exam are comprehensive. Before each midterm a review containing problems from previous exams will be posted on canvas.** They are a good measure of what this semester's exams will be like. [**Other old midterm exams**](http://www.physics.utah.edu/~woolf/reviews.html) from previous versions of this course are available. I do not guarantee that they will be completely relevant to the present exams, as the course content and emphasis has changed over the years.

Midterm Exam Schedule

Midterm 1: Friday, September 25

Midterm 2: Friday, October 23

Midterm 3: Friday, November 20

**There will be NO make-up exams**. **The only exceptions to this rule are (a) absence due to a University sponsored activity, conflict with another exam, military duty, and (b) serious medical emergencies**. In either case the student must provide complete documentation. All requests for exam accommodations are handled exclusively by Professor Pantziris. In the case of exceptions (a), the request for a make-up exam must be filed with Professor Pantziris **at least one week in advance** of the anticipated absence. **Please note that all exam dates and times have already been determined; mark your calendars now! Resolve any conflicts as soon as possible.**

Final Exam Schedule

**The final exam is one and a half hours long. It will take place on Tuesday, December 8 at 3:30pm – 5:00pm**. This is a University scheduled **Departmental Exam**. You will have one hour and fifty minutes to submit it on Canvas, from the moment it becomes available at 3:30pm.

**5. Grades**

**Grading Scheme**

**Your grade for the course will be based on your homework assignments, discussion attendance records, quizzes and midterm and final exam scores. Homework assignments: 25%, discussion participation: 10%, quizzes: 10%, midterm exams: 30%, and the final exam: 25%. The lowest four (4) homework scores will automatically be dropped. The lowest midterm exam score will be automatically dropped.** The lowest four (4) discussion sections and the four (4) lowest score quizzes will be automatically dropped.

**Grading Scale**

|  |  |
| --- | --- |
| GRADING SCALE | |
| A | 93 – 100 |
| A- | 90 – 92.99 |
| B+ | 87 – 89.99 |
| B | 83 – 86.99 |
| B- | 80 – 82.99 |
| C+ | 77 – 79.99 |
| C | 73 – 76.99 |
| C- | 70 – 72.99 |
| D+ | 67 – 69.99 |
| D | 63 – 66.99 |
| D- | 60 – 62.99 |
| E | 0 – 59.99 |

**Re-Grades**

**Any request for re-grading of a problem on an exam must be made before the following exam.** You must fill out a re-grade form and attach it to the entire problem (not just one part) to be re-graded. (Do **NOT submit problems that you are not asking to be re-graded.**) You must use a separate re-grade form for each problem. These sheets should be sent to Professor Pantziris before the next midterm exam. In the case of Midterm #3 (last midterm), you must submit a request for re-grading before the final exam. **Problems will NOT be re-graded after the next exam occurs**. When you submit a request for the re-grading of a problem, the entire problem will be re-graded, not just the parts that you are disputing. It is **usually** the case that you will not lose points by submitting a re-grade, but this is not guaranteed. Submitted problems for re-grade will be evaluated and returned with the following exam. You are allowed to ask for re-grades on the final exam. This request will only be considered in the case that you are near a course grade boundary, and there are some additional special rules. The request must be made by 5 pm on December 15. You must turn in a re-grade form for each problem, just as with the midterms. However, you must turn in the entire final exam for a re-grade. **The entire exam will be re-graded** (not just the problems you submit for a re-grade).

**Students Must Check Course Grades**

It is the **student's responsibility to ensure the accuracy of all recorded homework, attendance records and exam grades.** Please check your scores on canvas regularly, keep all your exams, and contact your discussion TA in case of an error.

**6. Office Hours**

**I have office hours on Wednesdays and Fridays at 3:00PM using Zoom. The Zoom link is: TBA**

The password is **Tony**

**To contact me use my 2220physics@gmail.com email**.

**7. Important Dates**

**Drop/Add/Withdrawal**

Last day to add without permission code is Friday, August 22

Last day to drop (delete) classes with no tuition penalty is Friday, September 4.

Last day to add classes is Friday, September 4.

Last day to withdraw from term length classes is Friday, October 16.

Last day to reverse CR/NC options is Friday, November 27.

**Holidays**

|  |  |
| --- | --- |
| Monday, September 7 | Memorial Day |
| November 26-27 | Thanksgiving Break |

**8. Policies and Resources**

**Academic Integrity**

**Cheating of any kind on an exam is a very serious violation of University rules and is unethical**. Students caught cheating will receive a failing grade for the course and will be sent on to the University Disciplinary Committee for further action. All teaching assistants, including the course Marshal and the administrative assistant for the course are to be considered proxies for Dr. Pantziris when you are dealing with them regarding this course. They are to be listened to and treated with respect at all times.

All students and faculty need to be aware of important changes in the Student Code that went into effect in the last couple of years. Students now have only 20 business days to appeal grades and other "academic actions" (e.g., results of comprehensive exams). The date that grades are posted on the web is considered the date of notification. A "business day" is every day the university is open for business, excluding weekends and University-recognized holidays. If the student cannot get a response from the faculty member after ten days of reasonable efforts to contact him or her, the student may appeal to the Department Chair if done within 40 days of being notified of the academic action. Students should definitely document their efforts to contact a faculty member. Similarly, faculty members who discover or receive a complaint of academic misconduct (e.g., cheating, plagiarism) have 20 business days to "make reasonable efforts" to contact the student and discuss the alleged misconduct. Within 10 more business days the faculty member must give the student written notice of the sanction, if any, and the student's right to appeal to the college Academic Appeals Committee.

All students and faculty members are urged to consult the exact text of the Student Code if a relevant situation arises. The code is on the University web site at http://www.admin.utah.edu/ppmanual/8/8-10.html.

**Accommodations**

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in this course, reasonable prior notice must be given to the instructor and to the Center for Disability and Access, 162 Olpin Union Bldg, 581-5020 to make arrangements for accommodations. You are strongly encouraged to come and talk to the instructor about your disability and necessary accommodations within the first two weeks of the semester.

**Addressing Sexual Misconduct**

Title IX makes it clear that violence and harassment based on sex and gender (which Includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran’s status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801- 581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

**Learners of English as an Additional/Second Language**

If you are an English language learner, please be aware of several resources on campus that will support you with your language and writing development. These resources include: the Writing Center; the Writing Program; and the English Language Institute. Please let me know if there is any additional support you would like to discuss for this class.

**Office of the Dean of Students**

The Office of the Dean of Students is dedicated to being a resource to students through support, advocacy, involvement, and accountability. It serves as a support for students facing challenges to their success as students, and assist with the interpretation of University policy and regulations. Please consider reaching

out to the Office of Dean of Students for any questions, issues and concerns. 200 South Centeral Campus Dr., Suite 270. Monday-Friday 8 am-5 pm.

**Student Names and Personal Pronouns Statement**

Class rosters are provided to the instructor with the student’s legal name as well as “Preferred first name” (if previously entered by you in the Student Profile section of your CIS account). While CIS refers to this as merely a preference, I will honor you by referring to you with the name and pronoun that feels best for you in class, on papers, exams, group projects, etc. Please advise me of any name or pronoun changes (and update CIS) so I can help create a learning environment in which you, your name, and your pronoun will be respected. If you need assistance getting your preferred name on your uID card, please visit the LGBT Resource Center Room 409 in the Olpin Union Building, or email bpeacock@sa.utah.edu to schedule a time to drop by. The LGBT Resource Center hours are: M, W-F 8am-5pm, and 8am-6pm on Tuesdays.

**University Counseling Center**

The University Counseling Center (UCC) provides developmental, preventive, and therapeutic services and programs that promote the intellectual, emotional, cultural, and social development of University of Utah students. They advocate a philosophy of acceptance, compassion, and support for those they serve, as well as for each other. They aspire to respect cultural, individual and role differences as they continually work toward creating a safe and affirming climate for individuals of all ages, cultures, ethnicities, genders, gender identities, languages, mental and physical abilities, national origins, races, religions, sexual orientations, sizes and socioeconomic statuses.

**University Safety Statement**

The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit safeu.utah.edu

**Veterans Center**

If you are a student veteran, the University of Utah has a Veterans Support Center located in Room 161 in the Olpin Union Building. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources. Please also let me know if you need any additional support in this class for any reason.

**Wellness Statement**

Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources, contact the Center for Student Wellness; 801-581-7776.