

Physics 212: Physics for Science and Engineering II

Section 1, Fall 2024

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Office: Lewis 202
Office Hours: T TH 9:30 - 10:30 am
and by appointment

TA: Ms. Farhana Sonia (fsonia@go.olemiss.edu)

Class Time: T TH 8:00 - 9:15 am
Tutoring Hours: TH 5:30-7:00 pm
Tutoring Hours Location: Lewis 101

Course Description

This is a three credit-hour, calculus-based physics course which covers electricity and magnetism, modern physics, and physical optics. This course deals with electric and magnetic interactions, which are central to the structure of matter, to chemical and biological phenomena, and to the design and operation of most modern technology.

Course Prerequisites and Corequisites

- Prerequisite: Physics 211
- Corequisite: Physics 222 and Math 262

Course Objectives

Students should be able to complete the textbook learning objectives given in each section. Homework, in class activities, quizzes, and tests are intended to assess whether students have achieved these objectives.

Required Text

University Physics Volume 2 and 3, by OpenStax.

<https://openstax.org/details/books/university-physics-volume-2>

<https://openstax.org/details/books/university-physics-volume-3>

This is an open source textbook from OpenStax at Rice University. It is available for free online in a variety of formats, including html, pdf, Apple iBooks, and Amazon Kindle. If you prefer, you can also purchase a print version via OpenStax on Amazon.com. If you do choose to buy from Amazon, be sure to use the link on the textbook page at openstax.org to ensure that you get the official OpenStax print version.

Other Required Items

- *Online homework and classroom activity system: Webassign.* The system can be accessed through Blackboard (blackboard.olemiss.edu). Students must purchase access to Webassign for this class.
- *Scientific calculator.* Any calculator with trigonometric functions, exponential functions and scientific notation. If purchasing a new one I recommend Casio fx-115ESPLUS2.

Expectations

Class participation

- **Students should expect to spend about 8 hours per week reading, doing homework and preparing for class in order to do well.**
- Study the textbook regularly. Do not wait until just before the homework is due or a test is imminent. Class discussion will not cover all of the assigned material, but students will have the opportunity to ask questions about any of the assigned material.
- When reading the assigned textbook sections, complete the *Check your understanding* problems interspersed in the text.
- Identify concepts or reasoning that were not clear to you from the reading.
- Complete the WebAssign questions after reading. It will take longer to complete the WebAssign homework if the textbook reading assignments are not completed first.

Homeworks

- As scientists and engineers normally work in groups, students are encouraged to work together on homework to teach and learn from each other. However, each student is responsible for understanding all details of a problem solution.
- Homework help sites such as Chegg are a liability, not a resource. Depending on sites like these is a sure way to do poorly on a quiz or exam. Instead, work with group members, the TA, or the instructor. Teaching peers is a great way to solidify your understanding!
- You are highly encouraged to ask questions before, during, or after class.
- Come to office hours. Email me to set up an appointment if my office hours don't work for you.
- You can also seek help with understanding concepts or homework problems during the tutoring hours as mentioned on the first page of the syllabus.

Attendance

- Attendance is strongly correlated with your overall performance in this class.
- You are expected to come to every class and actively participate in class discussion and activities.

Assessments

- Online Homework (20%) Online homeworks will be assigned using the WebAssign online homework system that can be accessed through Blackboard. Online homeworks are due every Friday at 11.59 pm. It is very important to start early and finish homework on time. There is a 25% penalty for each submission beyond 3. To avoid this penalty, students should work each problem carefully on paper before submitting solutions. This will also be very helpful for studying for tests. You can ask for an extension through WebAssign but there will be a 10% penalty per day after the due date.
- Offline Homework (20%) Offline homework sets will be uploaded on Blackboard. They are due every Tuesday at 8 am before the class begins. **No late submissions will be accepted.** Any offline homework not turned in or turned in late will receive zero points. For each question you must very clearly and neatly show all the steps involved. You should also write in words explaining how you are solving the problem.
- Exam 1 (18%) **The Exam 1 date is Thursday, September 26th, from 5:30-7:00 pm in Lewis 101**
- Exam 2 (18%) **The Exam 2 date is Thursday, October 31st, from 5:30-7:00 pm in Lewis 101**

- **Final Exam (24%)** There will be two mid-term exams and a **comprehensive** final as shown on the last page of the syllabus. Each exam can have multiple question formats, including true-or-false, multiple choice, fill-in-the-blank, and free-response. All exams are closed book (no books, notes, "cheat-sheets", assignments, etc). Calculators are allowed and a formula sheet will be provided. The dates of the exams will not change unless class is canceled for unforeseen reasons (weather, emergency, etc). The chapters covered on each exam may change and will be announced in class. **The final exam date is Tuesday, December 10th, at 8:00 - 11:00 am in Lewis 101**
- **Surprise Tests (+3% Bonus Points)** I'll be taking a few surprise tests throughout the semester. Based on the correct responses in these surprise tests you could receive upto 3% bonus points towards the final grade. There will be no penalty if you provide wrong answers or miss the surprise test. This is another motivation to be present in the class so that you can earn some bonus points.
- **Attendance (+3% Bonus Points)** Attendance to the class is mandatory and is strongly correlated to better performance in the class. Please don't come to class if you are sick. You need to scan your ID on the attendance scanners upon entering the class room, so please don't forget to bring your ID. **Your attendance will not be counted if you scan your ID after 15 mins of class start time (8.15am).** Based on your attendance you will receive upto 3% bonus points towards your final grade.

Grading Scale

- $92\% \leq A \leq 100\%$
- $88\% \leq A- < 92\%$
- $84\% \leq B+ < 88\%$
- $80\% \leq B < 84\%$
- $76\% \leq B- < 80\%$
- $72\% \leq C+ < 76\%$
- $68\% \leq C < 72\%$
- $64\% \leq C- < 68\%$
- $60\% \leq D < 64\%$
- $F < 60\%$

Policies

Academic Integrity

Every student of the University of Mississippi, by virtue of choosing to be part of the university community agrees to abide by the University of Mississippi Creed and the UM Academic Integrity Policy which covers academic integrity. Please consult the M-Book, Academic Integrity document for details on university policy and the academic creed.

Cheating is forbidden and will result in a zero grade on the assignment. If a second case of cheating occurs, this will result in an F for the entire course.

UM Creed The University of Mississippi is a community of learning dedicated to nurturing excellence in intellectual inquiry and personal character in an open and diverse environment. As a voluntary member of this community:

- I believe in respect for the dignity of each person
- I believe in fairness and civility
- I believe in personal and professional integrity

- I believe in academic honesty
- I believe in academic freedom
- I believe in good stewardship of our resources
- I pledge to uphold these values and encourage others to follow my example

All materials distributed electronically and in hard copy in this class are protected under intellectual copyright. Any attempt to upload these documents onto the Internet (or to distribute them by some other means) or to profit from the distribution (by Internet or other means) of these documents constitutes theft and will be in violation of intellectual property law and the UM Academic Conduct Code unless expressly permitted for by the instructor. Accessing such materials for your own use is also in violation of the UM Academic Conduct Code.

Disability Access and Inclusion:

Disability Access and Inclusion: The University of Mississippi is committed to the creation of inclusive learning environments for all students. If there are aspects of the instruction or design of this course that result in barriers to your full inclusion and participation, or to accurate assessment of your achievement, please contact the course instructor as soon as possible. Barriers may include, but are not necessarily limited to, timed exams and in-class assignments, difficulty with the acquisition of lecture content, inaccessible web content, and the use of non-captioned or non-transcribed video and audio files. If you are registered with SDS, you must log in to your Rebel Access portal at <https://sds.olemiss.edu/rebel-access-portal> to request approved accommodations. If you are NOT registered with SDS, you must complete the process to become registered. To begin that process, please visit our website at <https://sds.olemiss.edu/apply-for-services>. SDS will: 1. Complete a comprehensive review to determine your eligibility for accommodations, 2. If approved, disseminate to your instructors a Faculty Notification Letter, 3. Facilitate the removal of barriers, and, 4. Ensure you have equal access to the same opportunities for success that are available to all students. If you have questions, contact SDS at 662-915-7128 or sds@olemiss.edu.

Audio and video recording

Audio and/or video recording of class lectures is not allowed unless explicit permission is given by the instructor. Permission will only be given if the student has a Student Disability Services request. In such cases, recordings may only be used by the student to whom permission is given and all recordings must be deleted at the end of the semester. Recordings may not be distributed online or elsewhere.

Important Dates

See the academic calendar (<https://registrar.olemiss.edu/fall-2024/>)

Test dates and topics are tentative and subject to change. The final exam date is fixed and cannot be changed.

Mid-Term Exams

Exam 1: Thursday, September 26th, from 5:30-7:00 pm in Lewis 101

Exam 2: Thursday, October 31st, from 5:30-7:00 pm in Lewis 101

Final Exam

Tuesday, December 10th, at 8:00 - 11:00 am in Lewis 101

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1 8/26 – 8/30		Syllabus/Intro 5.1 – 5.2		5.3 – 5.4	
Week 2 9/2 – 9/6		5.5 – 5.6 Offline HW1 due		6.1 – 6.2	Online HW1 due
Week 3 9/9 – 9/13		6.3 - 6.4 Offline HW2 due		7.1 - 7.2	Online HW2 due
Week 4 9/16 – 9/20		7.3 – 7.4 Offline HW3 due		7.5 – 7.6	Online HW3 due
Week 5 9/23 – 9/27		8.1 – 8.2 Offline HW4 due		8.3 – 8.5 Exam 1 (5-7)	Online HW4 due

Week 6 9/30 – 10/4		9.1 – 9.3 Offline HW5 due		9.4 – 9.6	Online HW5 due
Week 7 10/7 – 10/11		10.1 – 10.2 Offline HW6 due		10.3 – 10.4	Online HW6 due
Week 8 10/14– 10/18		10.5 – 10.6 Offline HW7 due		11.1 – 11.4	Online HW7 due
Week 9 10/21– 10/25		11.5 – 11.7 Offline HW8 due		12.1 – 12.2	Online HW8 due
Week 10 10/28–11/1		12.3 – 12.5 Offline HW9 due		12.6 – 12.7 Exam 2 (8-11)	Online HW9 due

Week 11 11/4 – 11/8		13.1 – 13.3 Offline HW10 due		13.4 – 13.7	Online HW10 due
Week 12 11/11– 11/15		14.1 – 14.3 Offline HW11 due		14.4 – 14.6	Online HW11 due
Week 13 11/18– 11/22		15.1 – 15.2 Offline HW12 due		15.3 – 15.6	Online HW12 due
Break Week 11/25– 11/29	No class	No class	No class	No class	No class
Week 14 12/2 – 12/6		Vol 3: Ch 1 Offline HW13 due		Vol 3: Ch 2,3	Online HW13 due
Finals Week 12/9 – 12/13		Final Exam (Everything)			