

**THE UNIVERSITY OF TEXAS AT EL PASO
COLLEGE OF SCIENCE
DEPARTMENT OF PHYSICS**

Course #:	PHYS 2325 CRN 12256
Course Title:	Survey of Modern Physics
Credit Hrs:	3.0
Term:	Fall 2022
Course Meetings & Location:	TuTh 1:30PM – 2:50PM, LARTS 319
Instructor:	Dr. José Leo Bañuelos
Office Location:	PSCI 215C
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Emergency Contact:	(915) 747-5715
Office Hrs:	Mon 10:00 AM – 11:00 AM and by appointment
Materials:	<ul style="list-style-type: none">• Required: Modern Physics for Scientists and Engineers, 5th edition, Stephen T. Thornton, Andrew Rex, Carol E. Hood.<ul style="list-style-type: none">○ WebAssign Homework access via Blackboard

Course Objectives (Learning Outcomes):

The objective of PHYS 2325, is to provide students with a survey of special relativity theory and quantum physics applied to atoms, molecules, nuclei, and the solid state.

Students will develop problem-solving skills in a variety of modern physics topics. We will study the following topics: Historical breakthroughs that gave rise to modern physics, the special theory of relativity, experiments leading to quantum physics, the structure of the atom, wave properties of matter and quantum mechanics, the hydrogen atom, atomic physics, statistical physics, molecules and solids, solid state theory, the atomic nucleus, and nuclear interaction and applications.

Grading Policy:

Grades in this course will be based on your scores on two midterm exams, a final exam (comprehensive; but with emphasis on the last part of the course), laboratory, homework assignments, and in-class participation.

Interim exams:	50% (25% each)
Final exam:	25%
Homework	25%

Communication:

Office Hours: I have office hours (posted above) for your questions and comments about the course.

Email: UTEP e-mail is the best way to contact me. I will make every attempt to respond to your e-mail within 24-48 hours of receipt. When e-mailing me, be sure to email from your UTEP student account and please put the course number in the subject line. In the body of your e-mail, clearly state your question. At the end of your e-mail, be sure to put your first and last name, and your university identification number.

Announcements: Check the Blackboard announcements frequently for any updates, deadlines, or other important messages.

Discussion Board: If you have a question that you believe other students may also have, please post it in the Help Board of the discussion boards inside of Blackboard. Please respond to other students' questions if you have a helpful response.

Course Activities/Assignments:

1. Homework

It is essential you develop good problem solving methods: this includes developing writing skills to set up a problem, including diagrams and mathematical manipulation to achieve the final answer. A numerical score will be assigned for each homework set. **Please do not fall behind because future material generally depends on previous material. Seek help immediately.** Please form study groups with your classmates and seek help from the lecture professor and any TA during his/her office hours as you attempt to solve problems. Attend the tutoring sessions offered for this course (schedule to be posted on Blackboard). Make sure that you understand the solutions and write them up yourself!

Tutoring: The TA for this class, Arturo Andujo (aaandujo@miners.utep.edu), feel free to reach out to him for help with this course.

REGISTER FOR ONLINE HOMEWORK BY FOLLOWING INSTRUCTIONS: Check the "Resources" folder on the Blackboard homepage for this course.

I announce homework in advance via email and in the lecture (approximately every week). Each will consist of problems based on the course material. Extra credit problems will be given occasionally.

2. Exams

Exams will consist of problems very similar to the worked example problems in the text and the assigned homework problems. Exams will be closed-book unless I state otherwise. You should bring with you a pocket calculator to work out the answers to numerical problems: **make sure the battery is charged.** Cell phone use is NOT ALLOWED during the exams!

Dates of the midterm exams will be announced in class ahead of time. The **final exam will take place Thursday, December 14th from 1:00pm – 3:45 pm.** More info may be found here:

<https://www.utep.edu/student-affairs/registrar/Scheduling/Final%20Exam%20Schedule%20Fall%202023.pdf>

The best way to prepare for the exams is to study the example problems, work out the assigned homework problems regularly, and complete any revision guides given to you.

You should work as many additional problems from the text as you can: this is the best way to ensure your understanding of the material.

Make-up Policy:

An extension of the due date for the homework as well as the make-up of missing exams will be granted only in extraordinary circumstances. Late homework will be penalized at a rate of 8% of the maximum score for each day it is late.

Attendance Policy: You are expected to arrive to class on time, and participate in problem-solving exercises.

Academic Integrity Policy:

A fundamental principle for any educational institution, academic integrity is highly valued and seriously regarded at The University of Texas at El Paso. More specifically, students are expected to maintain absolute integrity and a high standard of individual honor in scholastic work undertaken at the University.

Any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

Please see: <https://www.utep.edu/student-affairs/osccr/student-conduct/academic-integrity.html> for more information and the UTEP Handbook of Operating Procedures: <https://www.utep.edu/vpba/hoop/>

Civility Statement:

Cell phones and pagers should be turned off during class time.

When absences occur, it is your responsibility to obtain handouts and notes from your peers. When possible you will complete the activities you have missed.

Academic integrity is to be practiced at all times.

Disability Statement:

If you have a disability and need classroom accommodations, please contact the Center for Accommodations and Support Services (CASS) at 747-5148, or by email to cass@utep.edu, or visit their office located in UTEP Union East Building, Room 106. For additional information, please visit the CASS website at <https://www.utep.edu/student-affairs/cass/>. The student is responsible for presenting to the instructor any accommodation letters and instructions.

Military Statement:

If you are a military student with the potential of being called to military service and/or training during the course of the semester, you are encouraged to contact the instructor at the beginning of the semester.

COVID-19 PRECAUTIONS

Please stay home if you have been diagnosed with COVID-19 or are experiencing COVID-19 symptoms. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations. If you have tested positive for COVID-19, you are encouraged to report your results to covidaction@utep.edu, so that the Dean of Students Office can provide you with support and help with communication with your professors. The Student Health Center is equipped to provide COVID 19 testing.

The Center for Disease Control and Prevention recommends that people in areas of substantial or high COVID-19 transmission wear face masks when indoors in groups of people. For more information about the current rates, testing, and vaccinations, please visit epstrong.org. For information on nearby resources for COVID test and vaccines, click the appropriate link on the main school website:

<https://www.utep.edu/>