

**The University of Texas at El Paso
Department of Physics
Syllabus**

COURSE INFORMATION

PHYS 3351: Analytical Mechanics I
CRN: 10422
Term: Fall 2023
Delivery Method: In-person
Meeting Day and Time: T, Th: 12:00-13:20
Location: PSCI 222A

INSTRUCTOR INFORMATION

Instructor: Tunna Baruah
Email : tbaruah@utep.edu
Phone Number: (915)747-7529
Office Location: PSCI 120
Office Hours: T, Th 14:00-15:00 or by appointment

COURSE DESCRIPTION

This is a required course for physics majors. The course objective is to teach the students in depth about particle dynamics and various kinds of forces using calculus. The course will cover chapters from 1 to 7 from Marion and Thornton. The topics to be discussed are: vectors and vector calculus, Newtonian mechanics, oscillations, gravitation, calculus of variation, and Lagrangian dynamics. The objective is that students can apply the methods and analyze the behavior of dynamical systems.

COURSE OBJECTIVES AND UNIVERSITY LEARNING OUTCOMES

By the end of the course, students will be able to:

- Understand and apply Newtonian mechanics for particles, damped and driven oscillatory motion, and gravitational force.
- Understand and apply calculus of variation.

REQUIRED TEXTBOOK

Classical Dynamics of particles and systems, by Thornton and Marion, 5th edition

ISBN-13: 978-0534408961

ISBN-10: 0534408966

ASSIGNMENTS AND GRADING

The students will be required to solve textbook problems using the techniques they learn during the course. The assessment will be made based on quizzes, homework, and two midterm and the final tests.

The grades will be determined from three tests including the final (60%), quiz (20%), and homework (20%). Quizzes will be based on class work and home-works.

TECHNOLOGY REQUIREMENTS

The homework will be posted through the Blackboard learning system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers may cause complications. When having technical difficulties, update your browser, clear your cache, or try switching to another browser.

IMPORTANT: If you encounter technical difficulties beyond your scope of troubleshooting, please contact the UTEP [Help Desk](#) as they are trained specifically in assisting with technological needs of students. Please do not contact me for this type of assistance. The Help Desk is much better equipped than I am to assist you!

COURSE COMMUNICATION: How we will stay in contact with each other

Here are the ways we can keep the communication channels open:

- Office Hours: I will have office hours for your questions and comments about the course. My office hours are in-person, however, you can request a virtual meeting and I will send you a Zoom link. Please see the days and times at the top of this syllabus.
- Email: UTEP e-mail is the best way to contact me. When e-mailing me, be sure to email from your UTEP student e-mail 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.
- Announcements: Check the Blackboard announcements for any updates, deadlines, or other important messages.

ATTENDANCE AND PARTICIPATION

Attendance in the course is determined by participation in the learning activities of the course. Your participation in the course is important not only for your learning and success but also to create a community of learners. Participation is determined by the completion of the following activities:

- Reading/Viewing all course materials to ensure understanding of assignment requirements
- Participating in engaging discussions with your peers
- Other activities as indicated in the weekly modules

Because these activities are designed to contribute to your learning each week, they cannot be made up after their due date has passed.

ILLNESS PRECAUTIONS

Please stay home if you have symptoms of a communicable illness. If you are feeling unwell, please let me know as soon as possible, so that we can work on appropriate accommodations.

EXCUSED ABSENCES AND/OR COURSE DROP POLICY

I will not drop you from the course. However, if you feel that you are unable to complete the course successfully, please let me know and then contact the [Registrar's Office](#) to initiate the drop process. If you do not, you are at risk of receiving an "F" for the course.

MAKE-UP TESTS

Make-up tests will be given *only* in the case of a *documented* emergency. Note that make-up work may be in a different format than the original work, may require more intensive preparation, and may be graded with penalty points. If you miss an assignment and the reason is not considered excusable, you will receive a zero. It is therefore important to reach out to me—in advance if at all possible—and explain with proper documentation why you missed a given course requirement. Once a deadline has been established for make-up work, no further extensions or exceptions will be granted.

ALTERNATIVE MEANS OF SUBMITTING WORK IN CASE OF TECHNICAL ISSUES

I strongly suggest that you submit your work with plenty of time to spare in the event that you have a technical issue with the course website, network, and/or your computer. I also suggest you save all your work (answers to discussion points, quizzes, exams, and essays) in a separate Word document as a backup. This way, you will have evidence that you completed the work and will not lose credit. If you are experiencing difficulties submitting your work through Blackboard, please contact the UTEP Help Desk. You can email me your backup document as a last resort.

INCOMPLETE GRADE POLICY

Incomplete grades may be requested only in exceptional circumstances after you have completed at least half of the course requirements. Talk to me immediately if you believe an incomplete is warranted. If granted, we will establish a contract of work to be completed with deadlines.

***ACCOMMODATIONS POLICY**

The University is committed to providing reasonable accommodations and auxiliary services to students, staff, faculty, job applicants, applicants for admissions, and other beneficiaries of University programs, services and activities with documented disabilities in order to provide them with equal opportunities to participate in programs, services, and activities in compliance with sections 503 and 504 of the Rehabilitation Act of 1973, as amended, and the Americans with Disabilities Act (ADA) of 1990 and the Americans with Disabilities Act Amendments Act (ADAAA) of 2008. Reasonable accommodations will be made unless it is determined that doing so would cause undue hardship on the University. Students requesting an accommodation based on a disability must register with the UTEP Center for Accommodations and Support Services (CASS). Contact the Center for Accommodations and Support Services at 915-747-5148, email them at cass@utep.edu, or apply for accommodations online via the CASS portal.

***SCHOLASTIC INTEGRITY**

Academic dishonesty is prohibited and is considered a violation of the UTEP Handbook of Operating Procedures. It includes, but is not limited to, cheating, plagiarism, and collusion. Cheating may involve copying from or providing information to another student, possessing unauthorized materials during a test, or falsifying research data on laboratory reports. Plagiarism occurs when someone intentionally or knowingly represents the words or ideas of another as ones' own. Collusion involves collaborating with another person to commit any academically dishonest act. Any act of academic dishonesty attempted by a UTEP student is unacceptable and will not be tolerated. All

suspected violations of academic integrity at The University of Texas at El Paso must be reported to the [Office of Student Conduct and Conflict Resolution \(OSCCR\)](#) for possible disciplinary action. To learn more, please visit [HOOP: Student Conduct and Discipline](#).

***GUIDANCE ON ARTIFICIAL INTELLIGENCE**

The use of generative AI tools such as Chat GPT is not permitted in this course.

***COURSE RESOURCES:**

UTEP provides a variety of student services and support:

Technology Resources

- [Help Desk](#): Students experiencing technological challenges (email, Blackboard, software, etc.) can submit a ticket to the UTEP Helpdesk for assistance. Contact the Helpdesk via phone, email, chat, website, or in person if on campus.

Academic Resources

- [UTEP Library](#): Access a wide range of resources including online, full-text access to thousands of journals and eBooks plus reference service and librarian assistance for enrolled students.
- [University Writing Center \(UWC\)](#): Submit papers here for assistance with writing style and formatting, ask a tutor for help and explore other writing resources.
- [Math Tutoring Center \(MaRCS\)](#): Ask a tutor for help and explore other available math resources.
- [History Tutoring Center \(HTC\)](#): Receive assistance with writing history papers, get help from a tutor and explore other history resources.
- [RefWorks](#): A bibliographic citation tool; check out the RefWorks tutorial and Fact Sheet and Quick-Start Guide.
- [The Miner Learning Center](#): Join peer-led study sessions in person or online to review content and discover study strategies in core curriculum courses.
- [UTEP Edge](#): UTEP's cross-campus framework for student success and empowerment—develops students' assets through high-impact experiences made possible by the expertise and dedication of faculty, staff, alumni, and community partners.

Individual Resources

- [Student Success Help Desk \(SSHD\)](#): Students experiencing challenges or obstacles to academic success including registration, financial, food, housing, and transposition resources may submit a ticket request assistance to studentsuccess@utep.edu
- [Military Student Success Center](#): Assists personnel in any branch of service to reach their educational goals.
- [Center for Accommodations and Support Services](#): Assists students with ADA-related accommodations for coursework, housing, and internships.
- [Counseling and Psychological Services](#): Provides a variety of counseling services including individual, couples, and group sessions as well as career and disability assessments.

- [UTEP Food Pantry](#): Non-perishable food items are available to students who are currently enrolled in classes. Bring a Miner Gold Card to Memorial Gym, Room 105, Monday through Friday, 10 a.m. to 2 p.m.

Course Schedule: Test dates (tentative):

Midterm I: Sept. 28

Midterm II: Oct. 31

Final : Tuesday, Dec 12, 13:00-15:45