PHYS 2320 – Introductory Mechanics (CRN 23881)

with Open Educational Resources (OER) and a microcredential

This document last updated: January 21, 2026

Course Information

Term: Spring 2026

Lecture: MW 3:00 pm – 4:20 pm, Physical Science Building (PSCI) 208

Workshops:

- M 10:30 am – PSCI 314 – TA: Pedro Hernandez – RNC 23892
- T 10:30 am – PSCI 314 – TA: Amanda Garnica – RNC 23904
- W 10:30 am – PSCI 314 – TA: Pedro Hernandez– RNC 23905
- W 11:30 am – PSCI 314 – TA: TBA – RNC 28567
- R 10:30 am – PSCI 314 – TA: Amanda Garnica– RNC 23906
- F 10:30 am – PSCI 222A – TA: TBA – RNC 28569

Prerequisite: MATH 1411 (may be taken concurrently) I will provide some intuition about calculus using some computer code.

Instructor & Staff

Instructor: Jorge Munoz
Email: jamunoz@utep.edu
Office: PSCI 312C
Office hours: M 2:00 pm – 3:00 pm or by appointment
Booking link: https://jamunoz.youcanbook.me

Tutor: TBA – tba@miners.utep.edu – Miner Learning Center, Library 205

Teaching Assistants:

- Pedro Hernandez - phernandez46@miners.utep.edu
- Amanda Garnica - agarnica@miners.utep.edu
- TBA

Lab Coordinator: Karla Carmona – kcarmona@utep.edu – PSCI 317

Grading Policy (Gamified)

This course is gamified. Your final grade is determined by how many quests you complete.

- 5 quests completed → A
- 4 quests completed → B
- 3 quests completed → C
- 1–2 quests completed → D
- 0 quests completed → F

Quests

1. Scary World of Exams (3 in-class exams, 15 points each)
Complete standard: 32 / 45
Tokens: 1 token = 1 exam points

2. Mischievous World of Quizzes (15 weekly Blackboard quizzes)
Complete standard: 21 / 30
Tokens: 1 token = 1 quiz point

3. Illusory World of Coding Exercises (weekly workshops)
Complete standard: 24 / 30
Tokens: 1 token = 2 workshop points
Github: https://github.com/jamunozlab/introductory_mechanics_spring_2026/tree/main/workshops

4. Fun World of Coding Projects (7 projects)
Complete standard: 22 / 28
Tokens: 1 token = 2 project points
Github: https://github.com/jamunozlab/introductory_mechanics_spring_2026/tree/main/projects

5. Dangerous World of Final (cumulative final exam)
Complete standard: 16 / 24
Gold: 1 token = 1 final exam points

6. Physics Engines for Video Games (microcredential)

Limited to 10 students. If you: have basic python coding skills, took physics in high school, like video games, want to earn a microcredential from UTEP, and want to replace one of the other quests, please inquire with the instructor.

Gold & Participation

Gold can be earned by:
- Hosting a study group – 2 tokens
- Attending a study group – 1 token

• Miner Learning Center (1-on-1) – 2 tokens
• Miner Learning Center (group) – 1 token
• Reporting problems/errors – 1 token
Additional opportunities may occur.

Objectives & Resources

Students will learn particle and rigid-body dynamics, conservation laws, and kinetic theory.

Textbook: Physics for Scientists & Engineers (Knight, 4th ed., OER)
Additional: Mechanics by Ben Crowell (Creative Commons)
http://www.lightandmatter.com/mechanics/

Exams & Schedule

Exam 1: February 23 – Kinematics
Exam 2: March 30 – Forces
Exam 3: April 27 – Energy & Momentum
Final Exam: Monday May 11, 1:00 pm – 3:45 pm

Policies

Attendance is encouraged but not required. Collaboration is encouraged after attempting problems individually. No makeup exams due to quest structure. Science is incompatible with cheating and will not be tolerated.

Students with Disabilities

Contact the Center for Accommodations and Support Services (CASS).
Phone: 747-5148 | Email: cass@utep.edu
Location: UTEP Union East, Room 106
Website: https://www.utep.edu/student-affairs/cass/

Generative AI

Will be integrated with assignments but will not be available or allowed during exams.

PHYS 2320 – Weekly Schedule and Assignments

Week	Lecture Dates	To Do	Topics (Approx.)
1	January 21	Quiz 1 January 21	Intro to class mechanics
2	January 26 / 28	Quiz 2 January 28	Concepts of motion
3	February 2/ 4	Quiz 3 February 4 Project 1 February 8	Kinematics in 1-D
4	February 9/ 11	Quiz 4 February 11	Vectors and coordinate systems
5	February 16/ 18	Quiz 5 February 18 Project 2 due February 22	Kinematics in 2-D
6	February 23/ 25	Quiz 6 February 25 Exam 1 on February 23	Force and motion
7	March 2 / 4	Quiz 7 March 4 Project 3 due March 8	Dynamics – motion along a line
8	March 9 / 11	Quiz 8 March 11	Newton's third law
	March 16 / 18	SPRING BREAK	
9	March 23 / 25	Quiz 9 March 25. Project 4 due March 29	Dynamics – motion in a plane
10	March 30 / April 1	Quiz 10 April 1. Exam 2 on March 30	Work and kinetic energy
11	April 6 / 8	Quiz 11 March 8. Project 5 due April 12	Interactions and potential energy
12	April 13 / 15	Quiz 12 April 15	Impulse and momentum
13	April 20 / 22	Quiz 13 April 22. Project 6 due April 26	Oscillations
14	April 27 / 29	Quiz 14 April 29. Exam 3 April 27	Rotation of a rigid body
15	May 4 / 6	Quiz 15 May 6 Project 7 due May 10	Newton's theory of gravity
16	—	Final Exam May 11 1:00 pm – 3:45 pm	Cumulative Final