

University Physics I (PHYS 2325 1A1)

CREDIT

3 Semester Credit Hours (3 hours lecture, 0 hours lab)

MODE OF INSTRUCTION

Hybrid

PREREQUISITE/CO-REQUISITE:

MATH2413 Calculus I (4 SCH version)

COURSE DESCRIPTION

Fundamental principles of physics, using calculus, for science, computer science, and engineering majors; the principles and applications of classical mechanics, including harmonic motion, physical systems and thermodynamics; and emphasis on problem solving.

COURSE OBJECTIVES

Upon completion of this course, the student will be able to:

1. Determine the components of linear motion (displacement, velocity, and acceleration), and especially motion under conditions of constant acceleration.
2. Solve problems involving forces and work.
3. Apply Newton's laws to physical problems.
4. Identify the different types of energy.
5. Solve problems using principles of conservation of energy.
6. Define the principles of impulse, momentum, and collisions.
7. Use principles of impulse and momentum to solve problems.
8. Determine the location of the center of mass and center of rotation for rigid bodies in motion.
9. Discuss rotational kinematics and dynamics and the relationship between linear and rotational motion.
10. Solve problems involving rotational and linear motion.
11. Define equilibrium, including the different types of equilibrium.
12. Discuss simple harmonic motion and its application to real-world problems.

CORE OBJECTIVES

Upon completion of the required Core Assessment, the student will demonstrate appropriate

1. **Critical Thinking Skills (CT)** - creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.
2. **Communication Skills (COM)** - effective development, interpretation and expression of ideas through written, oral and visual communication
3. **Empirical and Quantitative Skills (EQS)** - manipulation and analysis of numerical data or observable facts resulting in informed conclusions
4. **Teamwork (TW)** - ability to consider different points of view and to work effectively with others to support a shared purpose or goal

Approved: Initials/date



**LAMAR INSTITUTE
OF TECHNOLOGY**

INSTRUCTOR CONTACT INFORMATION

Instructor: Bryan Neal
Email: bkneal@lit.edu
Office Phone: (409)247-5103
Office Location: MPC215
Office Hours: Appointments may be requested by email or Starfish

REQUIRED TEXTBOOK AND MATERIALS

1. *University Physics Vol. 1* by William Moebbs, Samuel Ling, and Jeff Sanny, 2016 Ed. OpenStax.
<https://openstax.org/details/books/university-physics-volume-1>
2. Three-ring binder (2 inches recommended) with tabbed dividers.
3. Scientific calculator.
4. Pens or pencils.

ATTENDANCE POLICY

The specific Participation grade will initially come from the combined scores on the assignments in Module 0. There may be “Extra Credit” at the end of the semester.

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process by the specified date as listed in the College Calendar on the [Student Success](#) web page. If you stop coming to class and fail to drop the course, you will earn an “F” in the course.

COURSE CALENDAR

Module	TOPIC	READINGS	Start	End
0	General/Persistent Information	Bb Module 0 Folder	Mo, 08/24	Su, 08/30
1	Units and Measurement, Vectors	CH1, CH2	Mo, 08/24	Su, 08/25
	Motion Along a Straight Line	CH3	Mo, 08/31	Su, 09/06
	Motion in Two and Three Dimensions	CH4	Mo, 09/07	Su, 09/13
2	Newton’s Laws of Motion, Applications	CH5, CH6	Mo, 09/14	Su, 09/20
	Work and Kinetic Energy	CH7	Mo, 09/21	Su, 09/27
	Potential Energy, Conservation of energy	CH8	Mo, 09/28	Su, 10/04
3	Linear Momentum and Collisions	CH9	Mo, 10/05	Su, 10/11
	Fixed-axis Rotation	CH10	Mo, 10/12	Su, 10/18
	Angular Momentum	CH11	Mo, 10/19	Su, 10/25
4	Static Equilibrium and Elasticity	CH12	Mo, 10/26	Su, 11/01
	Gravitation	CH13	Mo, 11/02	Su, 11/08
	Fluid Mechanics	CH14	Mo, 11/09	Su, 11/15
5	Oscillations	CH15	Mo, 11/16	Su, 11/22
	Waves	CH16	Mo, 11/23	Su, 11/29
	Sound	CH17	Mo, 11/30	Su, 12/06

Note: These are the intended dates students should be reviewing the indicated materials.
Due Dates for specific Assignments/Assessments can be found in Blackboard.

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

1. Participation	10%
2. Question Analyses (5)	15%
3. Module Quizzes (3)	15%
4. REQUIRED Midterm Exam	20%
5. Group Project Submissions (5)	20%
6. REQUIRED Final Exam	20%

Note: Due Dates for specific Assignments/Assessments can be found in Blackboard.

GRADE SCALE

- 90-100 A
- 80-89 B
- 70-79 C
- 60-69 D
- 0-59 F

TECHNICAL REQUIREMENTS

For the latest technical requirements, including hardware, compatible browsers, operating systems, etc., review the Minimum Computer and Equipment Requirements on the [LIT Online Experience](#) page. A functional broadband internet connection, such as DSL, cable, or WiFi is necessary to maximize the use of online technology and resources.

DISABILITIES STATEMENT

The Americans with Disabilities Act of 1990 and Section 504 of the Rehabilitation Act of 1973 are federal anti-discrimination statutes that provide comprehensive civil rights for persons with disabilities. LIT provides reasonable accommodations as defined in the Rehabilitation Act of 1973, Section 504 and the Americans with Disabilities Act of 1990, to students with a diagnosed disability. The Special Populations Office is located in the Eagles' Nest Room 129 and helps foster a supportive and inclusive educational environment by maintaining partnerships with faculty and staff, as well as promoting awareness among all members of the Lamar Institute of Technology community. If you believe you have a disability requiring an accommodation, please contact the Special Populations Coordinator at (409)-951-5708 or email specialpopulations@lit.edu. You may also visit the online resource at [Special Populations - Lamar Institute of Technology \(lit.edu\)](#).

STUDENT CODE OF CONDUCT STATEMENT

It is the responsibility of all registered Lamar Institute of Technology students to access, read, understand and abide by all published policies, regulations, and procedures listed in the *LIT Catalog and Student Handbook*. The *LIT Catalog and Student Handbook* may be accessed at www.lit.edu. Please note that the online version of the *LIT Catalog and Student Handbook* supersedes all other versions of the same document.

ARTIFICIAL INTELLIGENCE STATEMENT

Lamar Institute of Technology (LIT) recognizes the recent advances in Artificial Intelligence (AI), such as ChatGPT, have changed the landscape of many career disciplines and will impact many students in and out of the classroom. To prepare students for their selected careers, LIT desires to guide students in the ethical use of these technologies and incorporate AI into classroom instruction and assignments appropriately. Appropriate use of these technologies is at the discretion of the instructor. Students are reminded that all submitted work must be their own original work unless otherwise specified. Students should contact their instructor with any questions as to the acceptable use of AI/ChatGPT in their courses.

STARFISH

LIT utilizes an early alert system called Starfish. Throughout the semester, you may receive emails from Starfish regarding your course grades, attendance, or academic performance. Faculty members record student attendance, raise flags and kudos to express concern or give praise, and you can make an appointment with faculty and staff all through the Starfish home page. You can also login to Blackboard or MyLIT and click on the Starfish link to view academic alerts and detailed information. It is the responsibility of the student to pay attention to these emails and information in Starfish and consider taking the recommended actions. Starfish is used to help you be a successful student at LIT.

ADDITIONAL COURSE POLICIES/INFORMATION

0. Students should ALWAYS contact the Instructor IMMEDIATELY with ANY concerns.
1. Students should typically expect typed communication responses within two business days.
2. Safety and etiquette must always be observed in any physical or digital environment.
3. Any student who breaks safety rules and/or does not conduct themselves properly in any situation can be removed from class to ensure the safety and comfort of others.
4. Children and/or guests are not allowed in the lecture classroom, the laboratory room, or the instructor's office at any time. This includes any scheduled/unscheduled lessons or meetings.
5. If class times and/or delivery method are incompatible with any student's needs, then the student is responsible for switching to a different class section in the first week. If no suitable options are available, then the student should consider dropping the course.
6. The following small rounding allowances will be made: 89.4X→90→A, 79.4X→80→B, 69.XX→70→C, 59.XX→60→D. No other exceptions will be made.
7. Expected weekly preparation includes working through the relevant Textbook Chapters, simulations/software, shared video content, Question Lists, etc.
8. Each Module contains multiple electronic assignments necessary to show mastery of content. The associated due dates are set and visible in multiple locations in Blackboard and are generally inflexible.
9. TO REITERATE, ASSIGNMENTS USUALLY CANNOT BE EXTENDED INDIVIDUALLY.
10. As a consequence, missing any of the Quizzes, Exams, Group Project submissions, and/or Question Analysis submissions can potentially cause students to drop multiple Final Letter Grades.
11. Course material is "recycled" throughout the semester, and Activities [EXCLUDING Quizzes/Exams] provide "hints" for future Assessments. It is a VERY bad idea to discard any of this information.
12. Students are NOT permitted to maintain or share physical and/or digital copies of any resources, scratch work, materials, or any other content directly present on any Quizzes/Exams.
13. Respondus Lockdown Browser [with Video Monitoring] will be required for ALL Quizzes/Exams.
14. Module 0 in Blackboard will hold this document and a number of other resource/policy documents.
15. Additional instructions and expectations will be communicated through Blackboard and/or email.
16. Students will be notified by Announcement and/or Email if any policies or dates change.