University Physics I (PHYS 2325)

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.

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

Approved: Initials/date

REQUIRED TEXTBOOK AND MATERIALS

1. *University Physics Vol. 1* by William Moebs, 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

Participation is vital to understanding Physics, so student activity will be recorded weekly in Starfish. Students must attend the scheduled weekly meeting, and participate in the scheduled activities, or they will lose 20 points for Participation for the week. There may be infrequent chances for students to get small amounts of "bonus" Participation points. **Absences cannot be excused without documentation covering the meeting in question.**

DROP POLICY

If you wish to drop a course, you are responsible for initiating and completing the drop process. If you stop coming to class and fail to drop the course, you will earn an "F" in the course.

COURSE CALENDAR

Section	TOPIC	READINGS	Start	End
0	General/Persistent Information	Module 0	Mo, 08/25	Tu, 09/02
1	Units and Measurement, Vectors	CH1, CH2	Mo, 08/25	Sa, 09/06
2	Motion Along a Straight Line	CH3	Mo, 08/25	Sa, 09/06
3	Motion in Two and Three Dimensions	CH4	Sa, 09/06	Sa, 09/13
4	Newton's Laws of Motion, Applications	CH5, CH6	Sa, 09/13	Sa, 09/20
5	Work and Kinetic Energy	CH7	Sa, 09/20	Sa, 09/27
6	Potential Energy, Conservation of energy	CH8	Sa, 09/27	Sa, 10/04
7	Linear Momentum and Collisions	CH9	Sa, 10/04	Sa, 10/11
8	Fixed-axis Rotation	CH10	Sa, 10/11	Sa, 10/18
9	Angular Momentum	CH11	Sa, 10/18	Sa, 10/25
	MANDATORY Midterm Exam	CH1 – CH11	Th, 10/23	Tu, 10/28
10	Static Equilibrium and Elasticity	CH12	Sa, 10/25	Sa, 11/01
11	Gravitation	CH13	Sa, 11/01	Sa, 11/08
12	Fluid Mechanics	CH14	Sa, 11/08	Sa, 11/15
13	Oscillations	CH15	Sa, 11/15	Sa, 11/22
14	Waves	CH16	Sa, 11/22	Sa, 11/29
15	Sound	CH17	Sa, 11/29	Sa, 12/06
	MANDATORY Final Exam	CH12 – CH17	Th, 12/04	Tu, 12/09

Note: A FULL Assignment Calendar will be shared later in the document.

COURSE EVALUATION

Final grades will be calculated according to the following criteria:

1. Participation	10%
2. Discussions (15)	15%
3. Quizzes (15)	15%
4. MANDATORY Midterm Exam	20%
5. Group Project Average (5)	20%
6. MANDATORY Final Exam	20%

Note: Additional information will be shared later in the document.

GRADE SCALE

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

TECHNICAL REQUIREMENTS

The latest technical requirements, including hardware, compatible browsers, operating systems, etc. can be online at https://lit.edu/online-learning/online-learning-minimum-computer-requirements. 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. Safety and etiquette must always be observed in any physical or digital environment. Any student who breaks safety rules and/or does not conduct themselves properly in any situation will be removed from class to ensure the safety and comfort of others.
2. 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.
3. Each week has several electronic assignments due as indicated in the Course Calendar in this Syllabus. The due dates are set and visible in multiple locations in Blackboard.
4. Students are expected to maintain physical and/or digital copies of all resources and scratch work.
5. Individual extensions on Quizzes will need to be made in time so that the student can complete the assignment within 1 week of the original due date. Extended Quizzes will have the grade capped at 70. [An 80 would be adjusted to a 70, but a 40 would not be further penalized.]
6. NO OTHER ASSIGNMENTS CAN BE EXTENDED INDIVIDUALLY.
7. Students will be notified by Announcement and/or Email if any policies or dates change.
8. Respondus Lockdown Browser [with Monitoring] will be required for the MANDATORY Exams.
9. Participation points can go above 100 with bonus points. This will not be capped. However, if a student technically earns negative Participation points, they will be "rounded up" to zero.
10. The MANDATORY Midterm Exam, Project Steps, and MANDATORY Final Exam cannot be late for any reason. Missing any of these will cost up to 2 Final Letter Grades.
11. Discussions cannot be extended because of Blackboard settings.
12. The lowest 2 Discussion grades AND the lowest 2 Quiz grades will automatically be dropped. They will still show in the Gradebook, but they will not count towards the Final Average.
13. Addendum files will be added to the Module 0 Folder in Blackboard to provide more information for complicated assignments. Typically, there will also be Guidance in Announcements.
14. Students should typically expect typed communication responses within two business days.
15. Additional instructions and expectations will be communicated through Blackboard and/or email.

ASSIGNMENT CALENDAR

Section	Assignment [Course Weight %]	Start	End
0	Lecture Participation Contract [10%*]	Monday, 08/25	Tuesday, 09/02
1	Lecture Discussion 1 [~1%]	Monday, 08/25	Thursday, 09/04
	Lecture Quiz 1 [~1%]	Monday, 08/25	Saturday, 09/06
2	Lecture Discussion 2 [~1%]	Monday, 08/25	Thursday, 09/04
	Lecture Quiz 2 [~1%]	Monday, 08/25	Saturday, 09/06
3	Lecture Discussion 3 [~1%]	Saturday, 09/06	Thursday, 09/11
	Lecture Quiz 3 [~1%]	Monday, 09/08	Saturday, 09/13
+	Lecture Group Project Part A [4%]	Monday, 09/08	Monday, 09/15
4	Lecture Discussion 4 [~1%]	Saturday, 09/13	Thursday, 09/18
	Lecture Quiz 4 [~1%]	Monday, 09/15	Saturday, 09/20
5	Lecture Discussion 5 [~1%]	Saturday, 09/20	Thursday, 09/25
	Lecture Quiz 5 [~1%]	Monday, 09/22	Saturday, 09/27
6	Lecture Discussion 6 [~1%]	Saturday, 09/27	Thursday, 10/02
	Lecture Quiz 6 [~1%]	Monday, 09/29	Saturday, 10/04
+	Lecture Group Project Part B [4%]	Monday, 09/29	Monday, 10/06
7	Lecture Discussion 7 [~1%]	Saturday, 10/04	Thursday, 10/09
	Lecture Quiz 7 [~1%]	Monday, 10/06	Saturday, 10/11
8	Lecture Discussion 8 [~1%]	Saturday, 10/11	Thursday, 10/16
	Lecture Quiz 8 [~1%]	Monday, 10/13	Saturday, 10/18
9	Lecture Discussion 9 [~1%]	Saturday, 10/18	Thursday, 10/23
	Lecture Quiz 9 [~1%]	Monday, 10/20	Saturday, 10/25
+	Lecture Group Project Part C [4%]	Monday, 10/20	Monday, 10/27
++	MANDATORY Lecture Midterm Exam [20%]	Thursday, 10/23	Tuesday, 10/28
10	Lecture Discussion 10 [~1%]	Saturday, 10/25	Thursday, 10/30
	Lecture Quiz 10 [~1%]	Monday, 10/27	Saturday, 11/01
11	Lecture Discussion 11 [~1%]	Saturday, 11/01	Thursday, 11/06
	Lecture Quiz 11 [~1%]	Monday, 11/03	Saturday, 11/08
12	Lecture Discussion 12 [~1%]	Saturday, 11/08	Thursday, 11/13
	Lecture Quiz 12 [~1%]	Monday, 11/10	Saturday, 11/15
+	Lecture Group Project Part D [4%]	Monday, 11/10	Monday, 11/17
13	Lecture Discussion 13 [~1%]	Saturday, 11/15	Thursday, 11/20
	Lecture Quiz 13 [~1%]	Monday, 11/17	Saturday, 11/22
14	Lecture Discussion 14 [~1%]	Saturday, 11/22	Thursday, 11/27
	Lecture Quiz 14 [~1%]	Monday, 11/24	Saturday, 11/29
15	Lecture Discussion 15 [~1%]	Saturday, 11/29	Thursday, 12/04
	Lecture Quiz 15 [~1%]	Monday, 12/01	Saturday, 12/06
+	Lecture Group Project Part E [4%]	Monday, 12/01	Monday, 12/08
++	MANDATORY Lecture Final Exam [20%]	Thursday, 12/04	Tuesday, 12/09

Note: Subject to change. Changes would be communicated through Blackboard and/or Email.