McLennan COMMUNITY COLLEGE

WACO, TEXAS

COURSE SYLLABUS
AND
INSTRUCTOR PLAN

University Physics I
PHYS 2425 01
PHYS 2425 03

Dr. Bernard Smith

NOTE: This is a 16-week course.

COVID 19 Notice:

McLennan Community College is committed to providing you with every resource you need to reach your academic goals including your safety. We will continue to monitor the evolving situation with COVID 19 and adjust our safety guidelines to make sure we offer a safe environment for you and our faculty. Please make sure to consult your faculty and the MCC website at https://www.mclennan.edu/crisis-management/coronavirus-updates/index.html on any changes to these guidelines.

I reserve the right to change any term on this syllabus at any time during the semester.

Course Description: This is a calculus-based physics course which includes a study of linear mechanics, energy, rotational mechanics, and harmonic motion. It is designed for pre-engineering, physics, mathematics, and chemistry majors.

Prerequisites and/or Corequisites: Prerequisite: MATH 2413 (Calculus I).

Course Notes and Instructor Recommendations: Students must have a reliable computer and internet connection. Students must be able to demonstrate basic computer literacy skills such as keyboarding, sending and receiving email, and using a web browser.

Instructor Information:

Instructor Name:	Dr. Bernard Smith
MCC E-mail:	bsmith@mclennan.edu
Office Phone Number:	(254) 299-8196
Office Location:	SB 210
Office Hours:	Online by appointment.

Required Text & Materials: MCC Bookstore Website

- *Physics for Scientists and Engineers with Modern Physics*, 4th Edition
  Douglas C. Giancoli
- *Mastering Physics Student Access Kit*
  License can be purchased online through http://www.pearsonmylabandmastering.com/northamerica/
- A "scientific" calculator: This means something that can handle exponents, trig functions, hyperbolic trig functions, and logarithms.
- Access to Brightspace: This course will have a significant component on Brightspace. If you haven't yet logged into the system, learn how to do so. Log in, and make sure you can access this course's materials.

Methods of Teaching and Learning: Students will learn through lecture and reading, as well as through work on homework, labs, and exams. Additional methods may be used as opportunities present themselves.

Course Objectives:

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 different types of equilibrium.
12. Discuss simple harmonic motion and its application to real-world problems.
13. Solve problems involving the First and Second Laws of Thermodynamics.
14. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.
15. Conduct basic laboratory experiments involving classical mechanics.
16. Relate physical observations and measurements involving classical mechanics to theoretical principles.
17. Evaluate the accuracy of physical measurements and the potential sources of error in the measurements.
18. Design fundamental experiments involving principles of classical mechanics.
19. Identify appropriate sources of information for conducting laboratory experiments involving classical mechanics.

CORE OBJECTIVES – LIFE AND PHYSICAL SCIENCES: Courses in this category focus on describing, explaining, and predicting natural phenomena using the scientific method. Courses involve the understanding of interactions among natural phenomena and the implications of scientific principles on the physical world and on human experiences.

A. Critical Thinking Skills - to include creative thinking, innovation, inquiry, and analysis, evaluation, and synthesis of information. These will be assessed through lecture exams, problems assigned for homework, and/or laboratory exercises.
B. Communication Skills - to include effective development, interpretation, and expression of ideas through written, oral and visual communication. These will be assessed by presentations and/or reports based on laboratories, problems, and/or research.
C. Empirical and Quantitative Skills - to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions. These will be assessed through lecture exams, problems assigned for homework, and/or laboratory exercises.
D. Teamwork - to include the ability to consider different points of view and to work effectively with others to support a shared purpose or goal. This will be evaluated through group discussions, group laboratory projects, and/or through group presentations.

Course Outline:
This course will encompass the following material to be divided into three sections. Objectives 14-19 are covered in laboratory. SLOs are covered throughout the entire semester.

Chapter 1 – Introduction, Measurement, Estimating
Chapter 2 – Kinematics in One Dimension
Chapter 3 – Kinematics in Two or Three Dimensions; Vectors
Chapter 4 – Newton's Laws of Motion
Chapter 5 – Friction, Circular Motion, Drag Forces
Chapter 6 – Gravitation
Chapter 7 – Work and Energy
Chapter 8 – Conservation of Energy
Chapter 9 – Linear Momentum
Chapter 10 – Rotational Motion
Chapter 11 – Angular Momentum
Chapter 12 – Static Equilibrium
Chapter 13 – Fluids
Chapter 14 – Oscillations
Chapter 17 – Temperature, Thermal Expansion, and the Ideal Gas Law
Chapter 18 – Kinetic Theory of Gases
Chapter 19 – Heat and the First Law of Thermodynamics
Chapter 20 – Second Law of Thermodynamics

	Chapter Coverage	Objectives		Chapter Coverage	Objectives
Week 1	1, 2	1	Week 9	11, 12	9, 10
Week 2	3	1	Week 10	Exam 2	11
Week 3	4, 5	2, 3	Week 11	13	
Week 4	6	2, 3	Week 12	14, 17	12
Week 5	Exam 1	2, 3	Week 13	18, 19	13
Week 6	7, 8	2, 4, 5	Week 14	Exam 3	13
Week 7	9	6, 7, 8	Week 15	20	13
Week 8	10	9, 10		Final Exam	13

Course Grading Information:

Homework	20%	**Lab**	20%
Exams (3)	40%	**Final Exam**	20%

Homework: Homework assignments are involved numeric problems designed to challenge you to gain a deeper understanding of the course material. Homework will be turned in and graded utilizing Mastering Physics.
Lab: The "lab" material will consist of problems completed in class and lab reports to be written outside of class.

Exams: There will be four major exams during the semester. Exam questions will come from the material covered in class, the textbook, and laboratory exercises. Each exam will be split into two parts: one multiple-choice and one workout problems. Both parts are timed.
Final Exam: The final exam is comprehensive and has the same format as the other exams.

Late Work, Attendance, and Make Up Work Policies:
Homework: Students lose 2% credit per hour for problems completed after the due date and time on Mastering Physics.
Lab: Lab work will be posted on Brightspace on the day it is first worked on during class. Due dates will be set as needed. Labwork can be made up, but those arrangements need to be made with me.
Exams: Unless there is a college approved, documented excused absence no major exam may be made up. Any unexcused absence for an exam will result in a grade of zero for that exam.
Final Exam: The final exam is required for all students. Unless there is a college approved, documented, excused absence the final exam may not be made up.

Participation is mandatory. Attendance is mandatory. ***Per MCC policy, you will be automatically dropped after missing 25% of class meetings, or 8 lectures.*** If you are dropped before the official drop date, you will receive a grade of W. If you are dropped after the official drop date, you will receive a grade of F, unless there are highly unusual circumstances.

Student Behavioral Expectations or Conduct Policy: Students are expected to maintain classroom decorum that includes respect for other students and the instructor, prompt and regular attendance, and an attitude that seeks to take full advantage of the education opportunity.

Click Here for the MCC Academic Integrity Statement
(www.mclennan.edu/academic-integrity)
The link above will provide you with information about academic integrity, dishonesty, and cheating.

Click Here for the MCC Attendance/Absences Policy
(https://www.mclennan.edu/highlander-guide/policies.html)
Click on the link above for the college policies on attendance and absences. Your instructor may have guidelines specific to this course.

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McLennan COMMUNITY COLLEGE

ACADEMIC RESOURCES/POLICIES

Accommodations/ADA Statement:
Any student who is a qualified individual with a disability may request reasonable accommodations to assist with providing equal access to educational opportunities. Students should contact the Accommodations Coordinator as soon as possible to provide documentation and make necessary arrangements. Once that process is completed, appropriate verification will be provided to the student and instructor. Please note that instructors are not required to provide classroom accommodations to students until appropriate verification has been provided by the Accommodations Coordinator. For additional information, please visit www.mclennan.edu/disability.

Students with questions or who require assistance with disabilities involving physical, classroom, or testing accommodations should contact:

disabilities@mclennan.edu
254-299-8122
Room 319, Student Services Center

Title IX:
We care about your safety, and value an environment where students and instructors can successfully teach and learn together. If you or someone you know experiences unwelcomed behavior, we are here to help. Individuals who would like to report an incident of sexual misconduct are encouraged to immediately contact the Title IX Coordinator at titleix@mclennan.edu or by calling Dr. Drew Canham (Chief of Staff for Diversity, Equity & Inclusion/Title IX) at (254) 299-8645. Individuals also may contact the MCC Police Department at 299-8911 or the MCC Student Counseling Center at MCC at (254) 299-8210. The MCC Student Counseling Center is a confidential resource for students. Any student or employee may report sexual harassment anonymously by visiting http://www.lighthouse-services.com/mclennan/.

Go to McLennan's Title IX webpage at www.mclennan.edu/titleix/. It contains more information about definitions, reporting, confidentiality, resources, and what to do if you or someone you know is a victim of sexual misconduct, gender-based violence or the crimes of rape, acquaintance rape, sexual assault, sexual harassment, stalking, dating violence, or domestic violence.

Student Support/Resources:
MCC provides a variety of services to support student success in the classroom and in your academic pursuits to include counseling, tutors, technology help desk, advising, financial aid, etc. A listing of these and the many other services available to our students is available at http://www.mclennan.edu/campus-resource-guide/

College personnel recognize that food, housing, and transportation are essential for student success. If you are having trouble securing these resources or want to explore strategies for balancing life and school, we encourage you to contact a Success Coach by calling (254) 299-8226 or emailing SuccessCoach@mclennan.edu. Students may visit the Completion Center Monday-Friday from 8 a.m.-5 p.m. to schedule a meeting with a Success Coach and receive additional resources and support to help reach academic and personal goals. Paulanne's Pantry (MCC's food pantry) provides free food by appointment to students, faculty and staff based on household size. Text (254) 870-7573 to schedule a pantry appointment. The Completion Center and pantry are located on the Second Floor of the Student Services Center (SSC).

MCC Foundation Emergency Grant Fund:
Unanticipated expenses, such as car repairs, medical bills, housing, or job loss can affect us all. Should an unexpected expense arise, the MCC Foundation has an emergency grant fund that may be able to assist you. Please go to https://www.mclennan.edu/foundation/scholarships-and-resources/emergencygrant.html to find out more about the emergency grant. The application can be found at https://www.mclennan.edu/foundation/docs/Emergency_Grant_Application.pdf.

MCC Academic Integrity Statement:
Go to www.mclennan.edu/academic-integrity for information about academic integrity, dishonesty, and cheating.

Minimum System Requirements to Utilize MCC's D2L|Brightspace:
Go to https://www.mclennan.edu/center-for-teaching-and-learning/Faculty-and-Staff-Commons/requirements.html for information on the minimum system requirements needed to reliably access your courses in MCC's D2L|Brightspace learning management system.

Minimum Technical Skills:
Students should have basic computer skills, knowledge of word processing software, and a basic understanding of how to use search engines and common web browsers.

Backup Plan for Technology:
In the event MCC's technology systems are down, you will be notified via your MCC student email address. Please note that all assignments and activities will be due on the date specified in the Instructor Plan, unless otherwise noted by the instructor.

Email Policy:
McLennan Community College would like to remind you of the policy (http://www.mclennan.edu/employees/policy-manual/docs/E-XXXI-B.pdf) regarding college email. All students, faculty, and staff are encouraged to use their McLennan email addresses when conducting college business.

A student's McLennan email address is the preferred email address that college employees should use for official college information or business. Students are expected to read and, if needed, respond in a timely manner to college emails.

Instructional Uses of Email:
Faculty members can determine classroom use of email or electronic communications. Faculty should expect and encourage students to check the college email on a regular basis. Faculty should inform students in the course syllabus if another communication method is to be used and of any special or unusual expectations for electronic communications.

If a faculty member prefers not to communicate by email with their students, it should be reflected in the course syllabus and information should be provided for the preferred form of communication.

Email on Mobile Devices:
The College recommends that you set up your mobile device to receive McLennan emails. If you need assistance with set-up, you may email Helpdesk@mclennan.edu for help.

Forwarding Emails:
You may forward emails that come to your McLennan address to alternate email addresses; however, the College will not be held responsible for emails forwarded to an alternate address that may be lost or placed in junk or spam filters.

Disclaimer:
The resources and policies listed above are merely for informational purposes and are subject to change without notice or obligation. The College reserves the right to change policies and other requirements in compliance with State and Federal laws. The provisions of this document do not constitute a contract.