



WACO, TEXAS

**COURSE SYLLABUS
AND
INSTRUCTOR PLAN**

**College Physics II
PHYS 1402 87**

Dr. Bernard Smith

NOTE: This is a Summer Course (6-week).

NOTE: This is an Online 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:

Algebra-level physics sequence, with laboratories, that includes study of wave mechanics, optics, electricity, magnetism, and radioactivity.

Prerequisites and/or Corequisites: Prerequisite: PHYS 1401 (General Physics I).

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:	Virtual by appointment.

Required Text & Materials: [MCC Bookstore Website](#)

- *Physics*, 5th Edition
James S. Walker
- *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.

[Click Here for the Minimum System Requirements to Utilize MCC’s D2L|Brightspace](https://www.mclennan.edu/center-for-teaching-and-learning/Faculty%20and%20Staff%20Commons/requirements.html)
(<https://www.mclennan.edu/center-for-teaching-and-learning/Faculty%20and%20Staff%20Commons/requirements.html>)

Click on the link above for information on the minimum system requirements needed to reliably access your courses in MCC’s D2L|Brightspace learning management system.

Additional requirements: 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.

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. Articulate the fundamental concepts of electricity and electromagnetism, including electrostatic potential energy, electrostatic potential, potential difference, magnetic field, and induction.
2. State the general nature of electrical forces and electrical charges, and their relationship to electrical current.
3. Solve problems involving the inter-relationship of electrical charges, electrical forces, and electrical fields.

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4. Apply Kirchhoff's Laws to analysis of circuits with potential sources, capacitance, and resistance, including parallel and series capacitance and resistance.
5. Apply Ohm's law to the solutions of problems.
6. Use Faraday's and Lenz's laws to find the electromotive forces.
7. Discuss and solve AC circuit problems.
8. Discuss simple harmonic motion and its application to real-world problems.
9. Describe the components of a wave and relate those components to mechanical vibrations, sound, and decibel level.
10. Articulate the principles of reflection, refraction, diffraction, interference, and superposition of waves.
11. Solve real-world problems involving optics, lenses, and mirrors.
12. Prepare laboratory reports that clearly communicate experimental information in a logical and scientific manner.
13. Articulate the principles of special and general relativity; and the physical consequences of these theories.
14. Discuss quantum mechanics and its effects on the macroscopic physical world.
15. Articulate the principles of atomic physics and nuclear physics and their effects.
16. Conduct basic laboratory experiments involving physics.
17. Relate physical observations and measurements involving classical mechanics to theoretical principles.
18. Evaluate the accuracy of physical measurements and the potential sources of error in the measurements.
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 or Schedule:

This course will encompass the following material to be divided into three sections. Objectives 16-19 are covered in laboratory. SLOs are covered throughout the entire semester.

Chapter 13 – Oscillations about Equilibrium
Chapter 14 – Waves and Sound
Chapter 19 – Electric Charges, Forces, and Fields
Chapter 20 – Electric Potential and Electric Potential Energy
Chapter 21 – Electric Current and Direct-Current Circuits
Chapter 22 – Magnetism
Chapter 23 – Magnetic Flux and Faraday's Law of Induction
Chapter 24 – Alternating-Current Circuits

Chapter 25 – Electromagnetic Waves
Chapter 26 – Geometric Optics
Chapter 27 – Optical Instruments
Chapter 28 – Physical Optics: Interference and Diffraction
Chapter 29 – Relativity
Chapter 30 – Quantum Physics
Chapter 31 – Atomic Physics
Chapter 32 – Nuclear Physics and Nuclear Radiation

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Course Grading Information:

Homework	20%	Lab	20%
Exams (4)	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: Due to being online, the “lab” material will be similar but separate from the homework.

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. Student absences have no effect on the due date and time.

Lab: Lab reports are due one week after the lab is completed. Students who miss a lab are responsible for getting a data set from the instructor and completing the lab on time. Students who miss an in-class problem set are responsible for turning those problems in during the next class period.

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. Any unexcused absence for the final exam will result in a grade of zero for that exam.

Attendance is mandatory. *Per MCC policy, you will be automatically dropped after missing 25% of assignments, or 7 assignments.* 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](http://www.mclennan.edu/academic-integrity) (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](http://www.mclennan.edu/highlander-guide-2014-15/policies)
(www.mclennan.edu/highlander-guide-2014-15/policies)

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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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. For more information about your student email account, go to www.mclennan.edu/student-email.

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.

You can find help on the McLennan website about connecting your McLennan email account to your mobile device:

- [Email Setup for iPhones and iPads](https://support.microsoft.com/en-us/office/set-up-an-outlook-account-in-the-ios-mail-app-b2de2161-cc1d-49ef-9ef9-81acd1c8e234?ui=en-us&rs=en-us&ad=us) (<https://support.microsoft.com/en-us/office/set-up-an-outlook-account-in-the-ios-mail-app-b2de2161-cc1d-49ef-9ef9-81acd1c8e234?ui=en-us&rs=en-us&ad=us>)
- [Email Setup for Androids](https://support.microsoft.com/en-us/office/set-up-email-in-android-email-app-71147974-7aca-491b-978a-ab15e360434c?ui=en-us&rs=en-us&ad=us) (<https://support.microsoft.com/en-us/office/set-up-email-in-android-email-app-71147974-7aca-491b-978a-ab15e360434c?ui=en-us&rs=en-us&ad=us>)

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.

For more helpful information about technology at MCC, go to [MCC's Tech Support Cheat Sheet](#) or email helpdesk@mclennan.edu.

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.