The University of Mississippi | Department of Physics & Astronomy
College of Liberal Arts | Fall 2021

I. Course Information

A. Description & Goals

This is a three credit-hour course which covers the basic concepts of physics. Topics to be covered include energy, forces, motion, matter, and waves. The goals of this course are to 1) provide an interesting, enjoyable and accurate introduction to the concepts of physics, and 2) hopefully instill a lasting awareness and wonder about our physical world.

B. Philosophy

Physics is the most basic science – it is the foundation of all other nature sciences. Therefore, it should be part of the general education for both science and nonscience students. Physics is essential for understanding the world around you as well as your relationship to it. Unfortunately, the mathematics and problem-solving skills required to "do" physics often deter average nonscience students from an encounter with the subject. In this course we attempt to reduce the requirement on mathematical skills and solve problems through group collaboration. We focus on improving your conceptual understanding in some of the most important topics like Energy, Force, Motion, Matter and Waves. We help you see the connection between physics and other nature science subjects through the in-class activities. We also let you experience the science practices that capture important aspects of the work of scientists.

II. Instructor & TA Information

Name	Office #	Phone	Email
Instructor: Dr. Bin Xiao	Lewis 106	662.915.3887	bxiao@olemiss.edu
Shelby Watson	JAC Suite Q	662.915.6621	sahilton@go.olemiss.edu
Ray Siedlecki	Lewis 30	662.915.1544	rdsiedle@olemiss.edu

Class Time: Monday & Wednesday 8:00 – 9:50 am, Wednesday 6:00-7:30 pm (For exams)
Class Location: JAC Q24, Lewis Hall 101 for exams
Office Hours: by appointment in Lewis 106 or via ZOOM

III. References

The text for this class is mandatory and must be purchased from the bookstore. You will need to bring it to class every day.

Daehler, K. R. & Folsom, J. *Making sense of physical science for undergraduates.* WestEd: Berkeley, CA.

Learning objectives are given at the beginning of each session in the textbook. You are responsible for accomplishing everything listed in the objectives. Tests and homework will examine whether you have achieved these objectives.

IV. Course Objectives

On completion of this course, students should be able to do the following:

- Apply the fundamental physical concepts to explain a wide variety of physical phenomena.
- Use these concepts to predict the behavior of a variety of physical systems.
- Planning and carrying out investigations.
- Build science models based on observation.
- Engaging in argument from evidence.
- Effectively communicate information using scientific language.

V. Course Outline
Please see Google Classroom for the Course Outline & Schedule.

VI. Course Requirements, Policies, and Evaluation Procedures
A. Expectations
Class Preparation
- Students should expect to spend about 8 hours weekly, reading, doing homework and preparing for class in order to do well.
- Study the textbook regularly. Do not wait until just before the homework is due or a test is imminent.
- Assigned readings can be found on the course schedule, and also in the homework instructions. **Make sure you do the course readings, not reading will put you at a severe disadvantage.**
- Identify concepts or reasoning that were not clear to you from the reading.

In Class
- Collaborative work
  - You will be assigned to a group. Class activities are to be performed collaboratively by the group. Each group must designate a manager to organize the work and make certain everyone understands who is supposed to be doing what and a timer who will ensure the group is adhering to the time allotted for the activities. These duties may rotate.
  - Members of the group must agree to a group contract that details the responsibilities of the members. Sample contracts for group members are available. If anyone is unsatisfied with the way the group is working, first discuss it with the group members. If this cannot be solved within the group, discuss this with your instructor.
  - Groups will change after each test.
  - If a group has an average of >80% on a test, then each group member will get a 5% bonus on that test.
- In every meeting there are group classroom activities and assignments that are graded. Students are required to participate in classroom activities to receive credit. There are no make-ups for in-class assignments.
- Students must bring their calculator and textbook to every class meeting.
- If you miss class, it is your responsibility to find out what you missed from members of your group before the next class.

B. Course Requirements

Assignment	Points
Attendance & Participation	140
Homework Assignments	100
Course Summary Table	130
Group Evaluations (4)	60
Mid-term & Final Self Reflections	20
Tests (3)	300
Final Exam	150
TOTAL POINTS POSSIBLE	**900**

C. Assessment Procedure
Products will be used to determine student achievement of the course objectives. All required assignments will be given a specific grade. Grades will be computed using the following scale:
- $93\% \leq \mathbf{A}$
- $90\% \leq \mathbf{A}- < 93\%$
- $87\% \leq \mathbf{B}+ < 90\%$
- $83\% \leq \mathbf{B} \quad < 87\%$
- $80\% \leq \mathbf{B}- < 83\%$
- $77\% \leq \mathbf{C}+ < 80\%$
- $73\% \leq \mathbf{C} \quad < 77\%$
- $70\% \leq \mathbf{C}- < 73\%$
- $60\% \leq \mathbf{D} < 70\%$
- $\mathbf{F} < 60\%$

D. Instructional Strategies
Qualitative reasoning and quantitative evaluation are emphasized in this course. This is done through using interactive instruction, collaborative learning, and whole group discussions. Students are required to perform hands-on tasks, small group discussions, and problem solving in class. There is very little lecturing by the instructor. Students are expected to prepare for class by doing the assigned reading in order to learn the basic material and start working with it before class. Otherwise it will be very difficult to do well on the collaborative in-class activities and problems, which are graded.

E. Attendance Policy
Attendance and participation in class are expected. Excessive absences (more than two) will adversely affect the final grade for the course. Each additional absence results in a 50-point deduction from the total points for this course. Students are responsible for all material covered when absent. Late assignments will not be accepted (see Flexibility Clause). It is the responsibility of the student to make arrangements for turning in assignments on the due date if absent.

F. Disability Access and Inclusion
The University of Mississippi is committed to the creation of inclusive learning environments for all students. If there are aspects of the instruction or design of this course that result in barriers to your full inclusion and participation, or to accurate assessment of your achievement, please contact the course instructor as soon as possible. Barriers may include, but are not necessarily limited to, timed exams and in-class assignments, difficulty with the acquisition of lecture content, inaccessible web content, and the use of non-captioned or non-transcribed video and audio files. If you are approved through SDS, you must log in to your Rebel Access portal at **https://sds.olemiss.edu** to request approved accommodations. If you are NOT approved through SDS, you must contact Student Disability Services at **662-915-7128** so the office can: 1. determine your eligibility for accommodations, 2. disseminate to your instructors a Faculty Notification Letter, 3. facilitate the removal of barriers, and 4. ensure you have equal access to the same opportunities for success that are available to all students.

XI. Special Considerations
A. Academic Integrity and Honesty
Candidates are expected to follow the honor code as outlined in the current University of Mississippi M Book, which can be found online at *http://www.olemiss.edu/depts/deanofstudents/mbook/*. Plagiarism, as defined in the honor code, will not be tolerated.

Cheating is forbidden and will result in a zero grade on the assignment. If a second case of cheating occurs, this will result in an F for the entire course.

UM Creed
The University of Mississippi is a community of learning dedicated to nurturing excellence in intellectual inquiry and personal character in an open and diverse environment. As a voluntary member of this community:

- I believe in respect for the dignity of each person
- I believe in fairness and civility
- I believe in personal and professional integrity
- I believe in academic honesty
- I believe in academic freedom
- I believe in good stewardship of our resources
- I pledge to uphold these values and encourage others to follow my example

All materials distributed electronically and in hard copy in this class are protected under intellectual copyright. Any attempt to upload these documents onto the Internet (or to distribute them by some other means) or to profit from the distribution (by Internet or other means) of these documents constitutes theft and will be in violation of intellectual property law and the UM Academic Conduct Code unless expressly permitted for by the instructor. Accessing such materials for your own use is also in violation of the UM Academic Conduct Code.

B. Writing Center
Aside from one-on-one meetings with teachers during office hours, a great way to improve your writing is to work with writing consultants at one of the University's writing centers. Writing consultants will work with any student writer working on any project in any discipline. To learn more about the writing center locations, hours, scheduling and services, please go to rhetoric.olemiss.edu/writing-centers/

Graduate Writing Center, Lamar 405 (Oxford Campus)
662-915-3173 gwc@olemiss.edu

Tupelo Writing Center, Room 261 (Tupelo Campus)
662-915-6259 writingcentertupelo@olemiss.edu
Oxford Campus Writing Center, Suite C, Lamar Hall
662-915-7689 cwrwc@go.olemiss.edu

Desoto Writing Center, Library (Desoto Campus)
662-280-6209 writingcenterdesoto@olemiss.edu

C. Flexibility Clause
The aforementioned requirements, assignments, policies, evaluation procedures, etc. are subject to change. Candidates' experiences and needs as emerging knowledge, will be considered in modifying this course syllabus.

D. Audio and video recording
Audio and/or video recording of class lectures is not allowed unless explicit permission is given by the instructor. Permission will only be given if the student has a Student Disability Services request. In such cases, recordings may only be used by the student to whom permission is given and all recordings must be deleted at the end of the semester. Recordings may not be distributed online or elsewhere.

E. Classroom Health Requirements
Students are expected to comply with the University's protocols when they are in effect. Currently, a mask requirement is in place for vaccinated and unvaccinated people. As a result, proper mask wearing is required indoors and in the classroom. Current protocols can be found at https://coronavirus.olemiss.edu/.
Students who have a diagnosed health concern that interferes with the wearing of face masks may contact the Student Disabilities Services (SDS) Office to seek a university-approved accommodation. Please contact SDS at https://sds.olemiss.edu/ for more information.
Students are encouraged to visit the University's Keep Learning site https://keeplearning.olemiss.edu/ to access information and resources related to COVID-19 support. The site provides links to university student services to facilitate and support learning.