

PHYSICS 310 – Conceptual Physics

This course covers selected topics in motion, gravity, heat, sound, electricity, magnetism, light, and atomic and nuclear physics. It is designed for liberal arts majors and students who have not taken a course in physics.

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- Office Hours:
 M/W: 8:00 – 9:00 AM
 Tu/Th/F: noon– 1:00 PM
or by appointment
- Textbook:** The Physics of Everyday Phenomena, 8th edition, by Griffith & Broising
 ISBN: 978-0-07-351390-4
- Pre-requisite:** MATH 32 (Pre-Algebra), with a grade of "C" or better; or placement through the assessment process
- Advisory:** Eligible for ENGRD 310 or ENGRD 312 AND ENGWR 300; OR ESLR 340 AND ESLW 340.
- Website:** <http://d2l.losrios.edu>

Course Outline:

The following is a tentative list of the topics covered and estimated dates of exams.

week 1	science, scientific method, physics
week 2	units, vectors, speed, velocity, acceleration, free fall, projectiles
week 3	inertia, forces, Newton's laws, equilibrium
week 4	circular motion, gravity; exam 1
week 5	work, kinetic and potential energy, conservation laws
week 6	momentum, momentum conservation, impulse
week 7	density, pressure, buoyancy; exam 2
week 8	temperature, heat, thermodynamics, calorimetry
week 9	ideal gases, laws of thermodynamics, heat engines, entropy
week 10	exam 3 ; electric charge, force, voltage, current, and power
week 11	magnetism, electromagnetism, electromagnetic induction
week 12	waves, sound, electromagnetic waves, light, color
week 13	<i>spring break</i>
week 14	exam 4 ; interference, diffraction, reflection, refraction, optics
week 15	atomic structure, quantum phenomena
week 16	atomic emission/absorption, nuclear structure, forces, and decay
week 17	nuclear physics, radioactivity

Final Exam: Monday, May 15, 12:45 – 2:45 pm

Course Evaluation:

Your grade in this course is a combination of homework and exams. The points for each are listed here:

Midterm Exams	There will be 4 midterm exams, each worth 40 points.	160
Final Exam	The final exam is worth 80 points.	80
Homework	There are 12 homework assignments, each worth 10 points.	120

Total: 360

In general, your letter grade will be assigned using the following scale:

324-360	A
288-323	B
252-287	C
216-251	D
less than 216	F

BUT if you fail to complete all the required work, (turn in homework only once in a while, come to class only once in a while, leave early, etc...), then your letter grade will be determined by the instructor, based on an evaluation of your overall performance in class.

This is a college level course, so you are expected to be in class on time, work hard, ask questions, participate in the class, be responsible for your own work, present all your work in a professional manner, keep high ethical standards, do your own work without copying from others, and behave as an adult with both your instructor and classmates.

Student Learning Outcomes:

Upon successful completion of this course, you will be able to:

- test the validity of a hypothesis using the scientific method.
- identify the basic physical principles that apply in a particular situation (such as Newton's Laws, energy conservation, or momentum conservation).
- analyze conceptual problems that require the application of basic physics concepts.
- solve simple mathematical problems that require the application of basic physics concepts.
- define common physics terms and physical laws.
- evaluate the pros and cons of topics such as nuclear power, release of greenhouse gases, and humanity's impact on the environment.

PHYS 310 Attendance Policy

Daily Attendance:

Attendance and participation are required. If you know you are going to miss class on a particular day, arrange with the professor to make up the missed work ahead of time.

Athletes may miss a regular class to attend an athletic event if they bring a note from their coach and arrange to make up the work ahead of time. However, athletes may not miss an exam to attend an athletic event.

Since everyone has an occasional issue arise that causes them to miss class, you are allowed up to three absences throughout the semester. More than three absences will result in the lowering of your grade at the end of the semester and may result in you being dropped from the class.

Exam Attendance:

You are responsible to be in class on time and ready to go on exam days. Showing up late or missing an exam will affect your grade significantly. Plan ahead on exam days. Expect bad traffic. Expect to find no parking on campus. Get to campus early and show up to class early to get settled before the exam starts.

If you miss an exam, contact the professor on the same day to arrange a make-up time. Do not wait until the next class to tell me you missed the exam and want to make it up. Make up exams are not guaranteed, even if you have a valid excuse.

Tardiness:

Class starts on time. You are expected to show up sufficiently early to be in your seat and ready to go by the start of class. If you arrive to class late, please enter quietly to minimize the disruption. If you are chronically late to class, your grade will be lowered at the end of the semester.

Homework:

Homework will be collected at the start of class on the day it is due, and the answers will be discussed in class. Your homework score will be reduced by 1 point for every minute you are late to class, and **NO LATE HOMEWORK** will be accepted after the first 10 minutes of class, so come to class early and turn your homework in on time. Turn in your homework early if you know you will be missing class the day it is due.

Academic Misconduct Policy

Academic Misconduct:

Academic misconduct is an act of deception in which the student claims credit for the work or effort of another person, or uses unauthorized materials or fabricated information in any academic work. It occurs whenever students fraudulently attempt to show possession of a level of knowledge or skill that they do not possess.

Campus Policy:

Academic misconduct is a violation of the ARC "Student Standards of Conduct" and will not be tolerated. Ignorance of these academic and behavioral standards will not absolve any student from being held responsible for them or from any disciplinary action that may result. (Please see the ARC website or the current printed class schedule for the full details of campus policies.)

Academic sanctions and penalties may be applied in cases of academic misconduct depending on the seriousness of the infraction and those grading guidelines specified by the instructor of the class.

You may:

- receive a failing grade on a test, paper or exam.
- have your course grade lowered or possibly fail the course.

In addition to these academic sanctions, disciplinary action may be taken in any case of academic misconduct. Such action will be conducted by referral to the college Disciplinary Officer. You may:

- receive a warning that continued misconduct will result in further disciplinary action.
- be placed on disciplinary probation for a specific period of time.
- be removed from the class.
- be suspended from the college for a specific period of time.
- be expelled from the college permanently.

Instructor Policy:

Collaboration is encouraged in this class, but you must do your own work.

Any student who cheats on homework assignments – by copying solutions from another student, a solutions manual, the internet, or any other source of information – will receive no credit for that assignment and will receive a warning from the instructor. Repeated cheating will result in the lowering of the student's course grade at the end of the semester.

Any student who cheats on an exam – by copying from another student, by illicitly obtaining information regarding test questions prior to taking the exam, or through the use of unauthorized materials during the exam – will receive no credit for that exam and will receive a warning from the instructor. Information regarding the student's misconduct will be passed on to the college Disciplinary Officer for further action. Repeated cheating on exams may result in a failing grade or the removal of the student from the class.

PHYS 310 General Information

Keys to Success:

- Attend every class. This course covers a lot of material very quickly. You cannot afford to miss a single day of class.
- Study everyday, not just on the weekends. The class moves very fast. Do not fall behind!
- Do all of the homework. Start working on homework as soon as it is assigned.
- Do not give up if you do not understand a concept or how to answer a particular question. Ask questions in class or during office hours.
- Study with friends. Form study groups to help each other clarify and organize the material. Do not fall in the trap, however, of just copying somebody else's work.
- Concentrate on understanding concepts rather than memorizing facts and equations.

The Importance of Communication:

In this class, you will be evaluated on your ability to:

1. understand the questions I ask you,
2. determine the appropriate answers to those questions, and
3. communicate your answers in a clear and concise manner.

The last point is very important, but often overlooked. You cannot demonstrate that you understand a question and can answer it correctly if you do not communicate your answer clearly. This applies to in-class discussion, homework, and exams.

Guidelines for Writing Up Homework:

1. **Clearly identify the question** being answered, and write up the answers in the order the questions are assigned.
2. **Show your work**. Be reasonably detailed and explain your reasoning.
3. Write in neat, legible print. **Messy homework will not be graded.**

General Information:

- This class uses Desire2Learn (<http://d2l.losrios.edu>) as a class bulletin board. Announcements, assignments, handouts, answer sheets and grades will be posted to the D2L website.
- Cell phones and other electronic devices must be turned off and put away during class. You will be asked to leave if your cell phone rings during class or if you are seen using your cell phone during class. If it becomes a chronic problem, your grade will be lowered and you may be dropped from the class for non-participation.
- Audio and video recording of lectures is not allowed without the consent of the instructor. In addition, you do not have permission to take photographs during class, including notes written on the board. You will be asked to leave if you are caught violating this policy, and points will be deducted from your grade if it is a persistent problem.

- Any students requiring accommodation for disabilities need to contact me during the first week of class so that there is sufficient time to make the necessary arrangements.
- There are a number of campus resources available to help you succeed in this class.

LRC: The Learning Resource Center is a well-equipped, professionally staffed facility that offers students a personal approach to academic success through independent study, individualized tutoring, and alternate modes of instruction.

(www.arc.losrios.edu/LRC.htm)

MESA: MESA is a learning community for students pursuing four-year degrees in the fields of mathematics, science, or engineering. MESA helps students achieve in the classroom, progress academically, and develop professionally. Eligible students have experienced educational and financial disadvantage.

(www.arc.losrios.edu/ARC_Majors/Mathematics/MESA.htm)

DSPS: Disabled Students Programs and Services provides specialized services and academic accommodations to meet the needs of students with disabilities.

(www.arc.losrios.edu/Support_Services/DSPS.htm)

Science Success Center: Work at your own pace on modules designed to help you improve your skills in note taking, paraphrasing, graphics reading, concept mapping, test preparation and test taking for science classes.

(www.arc.losrios.edu/ARC_Majors/Science_And_Engineering/Science_Success_Center.htm)

- This class requires that students can read and write English at the college level and do basic algebra and math reasoning. Students should be able to read and understand questions written in English, and also communicate in English with their classmates and instructor. If your math skills or English language skills are not at the college level then you will not succeed in this class and you should take the appropriate courses to prepare yourself for this course.