

# **Physics 205: The Mechanical Universe**

## **Gustavus Adolphus College Spring 2020**

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**Class Meetings:** The class will meet on MTWRF 12:30-1:20.  
**Students are expected to have read the text before coming to class.**

### **Textbooks:**

*Physics for Scientists and Engineers* (10<sup>th</sup> Edition), by Serway and Jewett

(Note any edition from 8<sup>th</sup>-10<sup>th</sup> are nearly identical and should all be able to be used. Homework problems will be provided in Moodle)

PHY-206 Laboratory Manual (for the lab course, PHY206)

### **Textbook coverage and extra topics:**

In general, we will cover all the material in assigned chapters. It is best to read the entire chapter before lecture to keep up with lectures. Due to the pace of this course, lectures may not cover all the material in the reading. The purpose of the lectures will be to explain and clarify the book, to give examples, to practice, and to answer your questions. Occasionally, material in lectures will be in addition to what is in the textbook. You are responsible for **all** the material covered by **both** the text and lectures.

### **Course website: Moodle**

### **Course Policies and Evaluation**

**1. Objectives: The Mechanical Universe** is the second course in the physics introductory sequence. In this course we will:

Develop understanding in:

The action of forces (mechanics)

Properties of oscillations and waves

Thermodynamics

Error analysis

Continue to develop:

Problem solving skills through group and individual work

Computer and calculation skills and reasoning through relevant assignments

Quantitative and empirical reasoning skills through conceptual questions

Give exposure to:

New mathematical tools and new applications of previous mathematical skills

Demonstrations of content learned

Successful completion of this course and lab with a C or better in each (*not C-*) is required for continuation in the physics major.

**2. Calculus:** Students in PHY205 are expected to have a solid background and have passed Calculus I with a C- or better, and also passed or be currently enrolled in Calculus II. Material from these courses will be used frequently in PHY205 including in homework **and exam** problems.

**3. Homework:** Problems sets will be assigned approximately every week. Written homework sets should be neat and organized. Legibility and thorough explanations of answers are required. Each student will submit their own assignment, but you are encouraged to discuss and work problems with each other, and your instructor. Copying of homework from any source, including using answers found from the internet, is considered a violation of the academic honor code.

**4. Late Homework:** Late homework will be accepted at the discretion of the instructor with loss of points. No homework will be accepted after the problems have been returned to the class.

**5. Attendance:** Students are expected to attend all classes during the scheduled hours. Students are responsible for informing themselves of material and assignments covered during absences. Students must advise the instructor in writing during the first week of class of any scheduled athletic, music, or other college activities that will require their absence during the semester. Such written notice does not imply a waiver of course requirements or an agreement to reschedule exams.

**6. Exams/Quizzes:** There will be four one-hour exams, four section quizzes, and a two-hour written final exam. Pop quizzes will be given at the discretion of the professor.

**7. Missed Exams/Quizzes:** Students are expected to arrange in writing with the instructor well in advance to take an exam/quiz at other than the announced time. Requests to reschedule exams/quizzes for non-emergency reasons will be declined. Missed exams for an unexcused absence will result in a score of zero.

**8. Academic Honesty:** You will abide by the academic honesty policy printed in the Academic Bulletin, the academic honor code, and abide by decisions of the joint student/faculty Honor Board.

**9. Incompletes:** A grade of incomplete will only be given for work not completed due to circumstances beyond the control of the student (college policy).

**10. Disability:** Gustavus Adolphus College is committed to ensuring the full participation of all students in its programs. If you have a documented disability (or you think you may have a disability of any nature) and, as a result, need reasonable academic accommodation to participate in class, take tests or benefit from the College's services, then you should speak with the Disability Services staff, for a confidential discussion of your needs and appropriate plans. Course requirements cannot be waived, but reasonable accommodations may be provided based on disability documentation and course outcomes. Accommodations cannot be made retroactively; therefore, to maximize your academic success at Gustavus, please contact the college's disability services as early as possible.

## **11. ESL/ELL**

The Writing Center has on staff a part-time tutor with professional training in ESL/ELL instruction. Students can schedule work with this tutor by contacting the Writing Center. Students may bring their instructors documentation concerning their ELL status. Where it is appropriate, faculty may choose to allow such students more time to complete either in- or out-of-class writing assignments. For further information, contact the Academic Advising Office.

## **12. Evaluation:**

Hour exams 40%	Quizzes 16%	Homework 20%	Final Exam 18%
In class (clickers, group problems, participation, etc)	6%		

**13. Tutors:** Tutoring for this course will be available at times announced in the departmental tutoring schedule.

**14. Office Hours:** I am available by appointment, *or any time my door is open.*

Course grades will be assigned using the following scale as a guide:

94-100 A	82-86 B	70-74 C	58-62 D
90-94 A-	78-82 B-	66-70 C-	0-58 F
86-90 B+	74-78 C+	62-66 D+	

Assignment of the final letter grades will also consider other factors including the instructor's subjective evaluation of the student's attendance, initiative, evidence of improvement, and the quality of independent work.