PHYS 1111 Syllabus

Introductory Physics – Mechanics, Waves, Thermodynamics

CRN

University of Georgia, Fall 2022

Instructor Information:

- Professor: Eric Suter
- Office: 239 Physics Building
- Email: esuter@uga.edu

Course Description:

Welcome to Physics 1111. This is the first of a two-course sequence on introductory physics. This first semester focuses on Mechanics, the study of motion. The mathematical description of laws to describe the dynamics and interactions of objects in the world is one of the principal goals of physics. We'll study fundamental concepts of motion such as position, velocity, acceleration, forces, momentum, and energy.

My goal with this course is not only to develop your understanding of these concepts, but also to hone your intuition for critical thinking and problem solving. Physics is by nature a quantitative science. As such, you'll be required to communicate your understanding of the material in a variety of ways – mathematically, graphically, visually. You are expected to have a working knowledge of college algebra, trigonometry, and basic geometry. If you feel you need to brush up, it's recommended that you read Chapter 1 of the text (see below) and Appendix A. *Please let me know if you are concerned about your preparation for this course.*

This course also requires a laboratory component PHYS1111L that will account for a portion of your grade. (you sign up for the laboratory section separately). No course grade will be assigned until the laboratory requirement is completed. See the lab syllabus for more information: http://www.physast.uga.edu/courses

If you are a physics, astronomy, or engineering major, or if you are considering other options this course may not be right for you. Please talk with Dr. Cooley (physics) or Dr. Magnani (astronomy) if you feel this applies to you.

Basic Class Information:

- MWF 4:10 – 5:00 p.m.
- Classroom: 202 Auditorium of the Physics Building
- Labs: Location and times may vary
- Final exam: Tuesday, Dec. 13 7:00 – 10:00 p.m.
- Office hours: To be Determined

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Required Course Materials:

- *Physics*, vol. 1, 5th ed. by James S. Walker. You may use older editions if you wish, but please be aware of any content changes.
- Laboratory Manual: *Experiments for an Introductory Physics Course* ed., Hayden- McNeil Publishing. This same manual is used for Physics 1112 also, so you may not need to purchase another. Visit https://www.physast.uga.edu/courses for the lab syllabus.
- Homework assignments will be performed online and are necessary to develop understanding throughout the course. You will access them with an account on LON-CAPA at http://spock.physast.uga.edu/.
- Please check your *UGA email* daily. The UGA email system will be used (infrequently) for announcements.

Grading Policy:

Your overall grade will be weighted as follows:

15% Cumulative final exam grade
36% Three in-class exams (16% for top exam grade, 12% for next highest, 8% lowest)
15% Laboratory grade
34% Homework grade

Letter grades will be assigned following:

A 93.0 – 100.0
A- 90.0 – 92.99
B+ 86.0 – 89.99
B 83.0 – 85.99
B- 80.0 – 82.99
C+ 76.0 – 79.99
C 73.0 – 75.99
C- 70.0 – 72.99
D 60.0 – 69.99
F less than 60.0

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Regrade requests:

Any requests for a regrade of an assignment or an exam will be granted at my discretion. The request must be made no later than one week after the item has been returned. Bear in mind, that I will look at the entire assignment/exam which may raise or lower your score. Arithmetic errors made when adding up points will be handled separately.

Withdrawal and Incomplete:

The Undergraduate Bulletin and the Registrar's office website describe the University policies regarding withdrawals and incompletes (http://reg.uga.edu/policies/withdrawals). If you are demonstrably not attending class or completing work, this will not constitute justification to submit a withdrawal. Please bear in mind that the withdrawal deadline is October 27, 2020.

Exam Policy:

Exams will be administered in-class during the time allotted for our class. The exams will be designed to be completed in this time. The format and method of testing will be discussed in class, but they will involve both qualitative and quantitative portions.

Make-up midterm exams will only be considered on a case-by-case basis; if you do not take an exam, your grade for it will be a zero. If you miss an exam for a serious, documentable reason, **you must contact me as soon as possible and submit documentation of your absence within a week**. Please don't presume that your situation or documentation will automatically be accepted. There are multiple ways that we can arrange for make-up exams, and these will be discussed on an individual level. They may include, but are not limited to, taking a re-designed test at an agreed date, replacing your test grade with the grade you get on your final exam, etc. Make-up final exams will also require a legitimate, documentable reason and **MUST BE ARRANGED PRIOR TO THE FINAL EXAM**.

I will post solutions to the exams on eLC after the exams are returned.

Homework policy:

Homework is an essential part of learning and understanding physics. Working through problems enables you to practice problem solving techniques, apply the methods you learn in class, and recognize areas where you may struggle with the material. Homework assignments will be assigned weekly to keep up with the pace of the class and ensure you master the concepts before moving to the next.

Weekly problems sets will generally be due at **midnight (11:59 pm)** on the assigned day online through the LON-CAPA system. Your best preparation for the exams will be to complete the homework assignments. You can access the homework sets through http://spock.physast.uga.edu and login with your UGA ID. Each assignment will be weighted equally unless otherwise specified.

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My policy is to drop your lowest homework grade at the end of the semester **on the condition that you complete the online course evaluation.** This is both to encourage you to complete an evaluation (your input can help me refine my course and to see what works and what doesn't), and to account for unavoidable circumstances that might be encountered.

A small note about the difference between plagiarism and teamwork. I strongly encourage you to work with your fellow classmates, however the goal of any problem set is to test your individual understanding of the material. Discussing physics concepts with your peers is a great way to deepen your understanding and refine your thought process, however simply asking how one of your peers solved a problem is doing a disservice to yourself. I can guarantee you that knowing how to think about a problem and being able to solve it for yourself will do much more for your success in this class than knowing an answer.

Student Distress

If your course performance is significantly affected by issues beyond your control, I urge you to let me know and to seek assistance promptly from the Office of Student Support Services. It is always easier to address exceptional circumstances when you raise these concerns as early as possible. Waiting until the end of the semester to take action may limit my ability to provide appropriate support.

Academic Support

The Division of Academic Enhancement (DAE) offers free peer tutoring for some of UGA's most challenging courses. For courses, locations, and times, please visit the website listed below. In addition to peer tutoring, the DAE also provides Academic Coaching, Student Success Workshops and more. The DAE is committed to the success of all students at the University of Georgia. For more on these and other resources, please visit dae.uga.edu.

Additionally, the Department of Physics and Astronomy has some graduate students who provide tutoring services at their individual discretion. Their contact information is available on the departmental web page.

Academic Honesty

The University of Georgia has a comprehensive policy on academic honesty, described in a document entitled A Culture of Honesty. This document is available through the Office of the Vice President for Instruction or online at https://ovpi.uga.edu/academic-honesty. This policy covers all academic work.

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As a UGA student, you are responsible for knowing and understanding this policy. If you have any questions about the appropriateness of your actions or your work, you are obligated to ask me for clarification.

I take the issue of academic honesty very seriously, and it is my responsibility to uphold the University's policy. This means, among other things, that I won't hesitate to report my suspicions of dishonesty to the Office of the Vice President for Instruction. Typical consequences of cheating on homework or an exam range from receiving a zero for that grade, to failing the course.

Coronavirus Information for Students

Effective May, 16 2022, the University of Georgia has removed a number of restrictions and measures taken to promote health and public safety which were enacted during the height of the COVID-19 pandemic.

While the University no longer mandates the use of face coverings or specific social distancing measures, I would like to emphasize that the pandemic is not over. If you feel that attending class in-person is a significant risk to your personal health, please contact the University's Disability Resource Center to see what kinds of accommodations you may be able to pursue.

My personal opinion is that if possible, you should receive a vaccine and any available boosters prior to attending class in-person, though I have no authority to enforce any such mandate.

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Prospective Schedule of Course Topics:

Presented here is a tentative schedule of the topics of the course we'll cover and the approximate dates we intend to cover them. **PLEASE NOTE: This calendar is created at the beginning of the semester and is subject to significant change throughout the course of the semester, although I will not update it here**

DATE	DAY OF WEEK	TOPIC
Aug 17	Wed	Introductory Material
Aug 19	Fri	Vector Basics
Aug 22	Mon	1D Kinematics
Aug 24	Wed	1D Kinematics
Aug 26	Fri	1D Kinematics
Aug 29	Mon	1D Kinematics
Aug 31	Wed	Vector Mechanics (Adv.)
Sep 2	Fri	Vector Form Kinematics
Sep 5	Mon	HOLIDAY
Sep 7	Wed	Vector Form Kinematics
Sep 9	Fri	Relative Motion
Sep 12	Mon	Exam 1 Review
Sep 14	Wed	Exam 1 (Tentative)
Sep 16	Fri	Intro to Forces
Sep 19	Mon	Newton's 2nd Law
Sep 21	Wed	Newton's 2nd Law
Sep 23	Fri	Newton's 3rd Law
Sep 26	Mon	Newton's 3rd Law
Sep 28	Wed	Friction
Sep 30	Fri	Uniform Circular Motion
Oct 3	Mon	Uniform Circular Motion
Oct 5	Wed	(Floating Topic)
Oct 7	Fri	Exam 2 Review
Oct 10	Mon	Exam 2 (Tentative)
Oct 12	Wed	Work and Energy
Oct 14	Fri	Work and Energy
Oct 17	Mon	Conservation of Energy
Oct 19	Wed	Conservation of Energy

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Oct 21	Fri	Conservation of Energy
Oct 24	Mon	Momentum
Oct 26	Wed	Momentum
Oct 28	Fri	FALL BREAK
Oct 31	Mon	Conservation of Momentum
Nov 2	Wed	Conservation of Momentum
Nov 4	Fri	(Floating Topic)
Nov 7	Mon	(Floating Topic)
Nov 9	Wed	Exam 3 Review
Nov 11	Fri	Exam 3 (Tentative)
Nov 14	Mon	Angular Kinematics
Nov 16	Wed	Angular Kinematics
Nov 18	Fri	Rotational Dynamics
Nov 21	Mon	Torque
Nov 23	Wed	HOLIDAY
Nov 25	Fri	HOLIDAY
Nov 28	Mon	Torque
Nov 30	Wed	Angular Momentum
Dec 2	Fri	Gravitation
Dec 5	Mon	Course Review
Dec 6	Tue (Friday schedule)	Course Review
Dec 7	Wed	Reading Day