

PHYSICS 1111 (52478): Introductory Physics-Mechanics, Waves, Thermodynamics
The University of Georgia, Summer 2021
Syllabus

I. Course Information

University Designation: Physics 1111 Face to Face/Hybrid – General Physics I

Credit Hours: 4 Credit Hours

Description: This is the first semester course introductory level physics sequence for science majors. This class focuses on classical mechanics, the study of motion. You will learn about the concepts associated with the other through the Laws of Mechanics. In addition, you will be introduced to gravitation. Through study in this class you will develop strong techniques for problem solving involving motion.

Prerequisites: A basic understanding of college algebra, trigonometry and basic geometry. Chapter 1 and Appendix A in the textbook are helpful tools for mathematics.

Meeting Time/Location: Monday, Tuesday, Wednesday, Thursday, Friday 9:15 – 10:15 AM (Lecture)

ZOOM for lecture: <https://zoom.us/j/93646595414>

First day of class: Friday, June 11, 2021

Last day of class: August 4, 2020

II. Instructor Information

Name: Jason P. Gilchrist

Office Location: Physics Building Room 330A (Beside room 329)

Office Hours: Daily 10:30 – 11:30 am, or by appointment via ZOOM or email

E-Mail: wildstar@uga.edu

III. Course Purpose, Student Learning Outcomes, and Course Learning Goals

Physics is the study of the forces and energies that drive our natural world. It is the most basic of the natural sciences and provides the foundation for chemistry, biology, engineering, and technology. A physics course is essentially a problem-solving course that uses mathematics as its natural language. The ability to solve a problem depends on identifying exactly what the problem is, which, in turn, depends on understanding the concepts and terminology of physics. My main goal as instructor is to give you a thorough grounding in the language and principles of physics in class and illustrate these by solving a sample problem or two. Outside of class, you will sharpen your problem-solving skills through lots and lots of practice problems. It is important that you work the suggested practice problems and meet with me outside of class to discuss your understanding and solutions. A secondary, but important, goal is to show the applicability of physics to other disciplines and demonstrate how physics principles underlie all of our engineering and technology.

Student Learning Outcomes:

[NW] Knowledge of the Physical and Natural World

Students will demonstrate an ability to use methodologies to study, through observation and experimentation, the structures and behaviors of the created physical and natural world. Students will recognize the interdependence of humanity and the natural environment, and the

value of the Christian virtue of stewardship.

[CT] Critical Thinking - Inquiry, Analysis and Creative Problem-Solving

Students will be able to articulate vital questions and problems; gather, assess, and interpret relevant information; and generate evidence in support of a claim or well-reasoned conclusions. Students will be able to use various systems of thought and to communicate effectively when presenting evidence in support of claims or creating solutions to complex problems.

[QL] Quantitative Literacy

Students will demonstrate the ability to present accurate calculations and symbolic operations, and to explain how such calculations and operations are used in either specific fields of study or in interpreting social or economic trends. Students will demonstrate the ability to translate verbal problems into mathematical algorithms and to construct valid mathematical arguments.

[TD] Collaboration and Teamwork Dynamics

Students will be able to perform in various contributing, facilitating, and leadership roles necessary for solving complex problems within a group dynamic.

Course Learning Goals:

- Students will be able to demonstrate knowledge of the fundamental concepts of the scientific method as applied to the relevant course content.
- Students will be able to analyze a complex problem and break it up into smaller workable sizes and proceed to solve the problem
- Students will be able to properly evaluate problems accurately using the right set of equations

IDEA Course Evaluation Objectives:

- Gaining a basic understanding of the subject (e.g., factual knowledge, methods, principles, generalizations, theories)
- Learning to apply course material (to improve thinking, problem solving, and decisions)
- Learning appropriate methods for collecting, analyzing, and interpreting numerical information

IV. Method(s) Of Instruction / General Operating Procedures

I will share my slides with the class before class begins so you can review the material before class starts and make notes on them during the lecture. I will share videos and other images or in-class demonstrations to enhance the understanding of key concepts.

Some quizzes may be given during class and used as a form of attendance and class participation grade

V. Content Outline / Course Calendar

Class Schedule: *I reserve the right to modify the schedule as required based on pace and interest level of the entire class.*

Date	Chapter and Topic	Comments
June 11, 14	Chapter 1: Intro. To Physics	
June 15, 16	Chapter 2: One-Dimensional Kinematics	
June 17-22	Chapter 3: Vectors in Physics Chapter 4: Two-Dimensional Kinematics	
	TEST 1 (Wednesday June 23, 2021)	Will cover content covered through (Chap 1 – 4) unless otherwise specified

June 24, 25, 28	Chapter 5: Newton's Laws of Motion	
June 29-30, July 1, 2, 5, 6, 7	Chapter 6: Applications of Newton's Laws	
July 8-14	Chapter 7: Work and Kinetic Energy Chapter 8: Potential Energy and Conservation of Energy	
	TEST 2 (Thursday July 15, 2021)	Will cover content covered through (Chap 5 – 8) unless otherwise specified
July 16	Chapter 9: Linear Momentum and Collisions	
July 19	Chapter 10: Rotational Kinematics and Energy	
July 20	Chapter 11: Rotational Dynamics and Static Equilibrium	
	TEST 3 (Wednesday July 21, 2021)	Will cover content covered through (Chap 9 – 11) unless otherwise specified
July 22, 23	Chapter 12: Gravity	
July 26, 27	Chapter 13: Oscillations About Equilibrium	
July 28, 29	Chapter 14: Waves and Sound Chapter 15: Fluids	
July 30	Chapter 16: Temperature and Heat	
Aug. 2	Chapter 17: Phases and Phase Changes	
	TEST 4 (Tuesday August 3, 2021)	Will cover content covered through (Chap 12 – 17) unless otherwise specified
Aug. 4	Chapter 18: The Laws of Thermodynamics	
	FINAL EXAM (Friday August 6, 2021 8:00 am – 11:00 am)	Will be comprehensive. Time: 3 hours

VI. Assignments; Method(s) Of Assessing Achievement of Student Learning Outcomes; Student Feedback and Grading Policies and Procedures

The breakdown for computing your Final Grade for the course is

Laboratory Average	15 %
Attendance & Participation	10 %
Homework Average	10 %
Tests (4 tests taken, lowest dropped)	40 %
Final Exam	25 %

All grades are kept in a spreadsheet and updated continuously. The final grade in the course is based on the ten-point spread: 90 and above is an "A", 80 – 89 is a "B", 70 – 79 is a "C", 60 – 69 is a "D", and 59 and below is an "F". NO "+"s or "-"s will be used.

During the semester, assessing the achievement of learning objectives will be done through laboratory reports and hourly exams. The only end-of-course assessment tool is the course final exam.

Daily Attendance and participation: Attendance will be taken every class day and there will be a graded in-class activity each day. I will not give make-ups unless it is for an excused absence. An absence of any kind will mean a grade of "0" for that day.

Hourly Tests: There will be four hourly tests during the semester and the lowest will be dropped. Here are the dates of the Hourly Tests:

Test #	Date
Test 1	June 23
Test 2	July 15
Test 3	July 21
Test 4	August 3

The time limit for each Hourly Test is 60 minutes (during the regular scheduled class time). If you are absent on the day and the absence is an EXCUSED one, according to University of Georgia policy, you will be allowed to take a make-up examination. It is the responsibility of the student to follow University procedure and to notify the instructor in writing (e-mail) of the excused absence. Upon notification that the absence has been excused, a time for a make-up exam will be set that is convenient for both student and instructor, but in any case will be within two course days of the original hourly test date, unless extremely extenuating circumstances prevail.

Each test will be a combination of multiple choice questions, conceptual questions and problem-solving questions.

Students will be permitted to use an equation sheet provided by the professor.

No phones or any device that transmits a signal will be permitted during a test. No student will be allowed in after other students have finished the test and left the room.

Laboratories: Lab assignments will be done with your instructor during the assigned lab time. You can find the syllabus for you lab course using the following link: [UGA Physics and Astronomy • Courses](#)

- Labs begin on June 21 and 22
- This course requires a laboratory component, PHYS 1111L, that will account for a portion of your grade (you sign up for the laboratory section separately). No course grade will be assigned until laboratory requirement is completed.

In-Class Activities: You will be asked in class to work on conceptual and quantitative questions, both individually and in small groups.

Final Exam: The final exam is cumulative and mandatory. There are no exemptions. The Final Exam date for this section is Friday, **August 6, 2021**

The Final Exam is 3 hours, during the time frame of, 8:00 am – 11:00 am.

The final exam is comprehensive, and can only be made up in case of death, hospitalization, or conflicts with other final exams. Students will use assigned equation sheets to solve the problems

VII. Textbook(s), Supplementary Readings, Required Materials

Textbook: Lecture: Physics, 5th ed.

By James S. Walker

Publisher: Pearson

You may also use older editions if you wish, or even other algebra based Introductory Physics textbooks, but you are responsible for knowing about any changes in content.

Online Resources:

- The eLearning Commons (<http://www.elc.uga.edu/>) will serve as a repository for course information: homework and exam solutions, grades, announcements, etc.;
- Check your UGA and eLC (eLearning Commons) daily.

- Online assignments are an essential part of the course. You'll complete this work on LON-CAPA homework system at <https://spock.physast.uga.edu/>.

Other Resources:

- Tutors are available through the Division of Academic Enhancement (<https://dae.uga.edu/services/tutoring/>) at Milledge Hall and Miller Learning Center, or through the Department of Physics and Astronomy (<https://www.physast.uga.edu/tutors/>).
- There will be a physics help room, in the physics building, available daily.

VIII. Computer and Information Technology Use

You are allowed to use your devices in class as long as it displays just the lecture slides for that day or any relevant app or information as requested by the instructor

IX. Course Policies

Academic Honesty

- UGA has a comprehensive academic honesty policy, **A Culture of Honesty**, which is available from the Office of Instruction at <http://honesty.uga.edu/>. This policy covers all academic work. All students are responsible for fully understanding and abiding by 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 evidence of dishonesty to the Office of the Vice President for Instruction. Typical consequences of academic dishonesty on homework or an exam range from receiving a zero for that grade, to failing the course, to being suspended from the university.

Disability Accommodations:

- I will make every reasonable effort to accommodate students with documented disabilities. Students re-requesting accommodations must provide documentation from the Disability Resource Center during the first two weeks of class (or within two weeks of DRC certification).

Withdrawals/ Incompletes:

- The Undergraduate Bulletin (<http://www.bulletin.uga.edu/>) and the Registrar's Office website describe the University policies regarding withdrawals and incompletes (<http://reg.uga.edu/policies/withdrawals>). If you don't complete the initial required administrative tasks of the course (e.g., the questionnaire), or are demonstrably not attending class and completing work, I may withdraw you from the course for "excessive absence";
- If you are considering withdrawing from the course, you should discuss your choice with me beforehand (In many cases, students are doing better in the course than they think they are);
- A grade of incomplete is not appropriate for a student who has missed a large portion of the course assessments, for whatever reason.

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 Student Care and Outreach (<http://sco.uga.edu/>), part of the Office of the Dean of Students. It is always easier to address exceptional circumstances when these issues are raised as early as possible. Waiting until the end of the semester to take action may limit my ability to provide appropriate support.

Technology Policy:

- Cell phones should be turned to silent or off during class. Texting, checking email, posting to Facebook, etc. are not allowed during class. These activities are distracting to your fellow students.

Permission for or Prohibition of Recording Lecture/Class Meetings:

Audio or video recordings of lectures and classroom discussions are not permitted in this class. AU values the open exchange of ideas, which occurs more freely if the participants know that comments and discussions will not be recorded and shared. Recordings of lectures are permitted only if permission is secured in advance from the Center for student Success and the course instructor is notified. Recordings can be used only to assist the individual student in that class. Publishing, distributing, or using classroom recordings in violation of these restrictions is a violation of the student code of conduct and may be a violation of federal copyright laws.

Late Work Policy:

No late work will be accepted unless it has been cleared with me.

Covid Policies:

- Social distancing is recommended.
- Masks will not be required, but are encouraged for unvaccinated individuals.
- Please wear a mask if you are not vaccinated against SARS-CoV-2.
- Check the following url for more information about UGA COVID Policies:
<https://coronavirus.uga.edu/2021/05/14/return-to-campus-guidelines-2/>