FLORIDA STATE UNIVERSITY
REPUBLIC OF PANAMA CAMPUS
PHY2048C: GENERAL PHYSICS A STUDIO (INCLUDES LAB)-SECTION 0008

SPRING 2025

Professor: Dr. Daniel Sega. Room 309. T/Th. 9:30 – 12:00/ F.1 – 2:30 Final Exam: T. 9:00-11:30
Office Hours: 2nd Floor, Faculty Wing, or Room 309. 12:15 – 12:45 pm. M to F.
Class webpage**(lab guides, extra credit readings and homework are there):**
astrosega.github.io/teaching/

Course Description:
This calculus-based course serves as the first in a two-part series, covering topics like kinematics, dynamics, energy, momentum, rotational motion, fluid dynamics, oscillatory motion, and waves. Designed for science and engineering majors, the course integrates critical thinking, analytical skills, and real-world applications.

Student Learning Outcomes:
- Students will solve analytical problems describing different types of motion, including translational, rotational, and simple harmonic motion.
- Students will apply Newton's laws, and conservation laws to solve analytical problems of mechanics.
- Students will identify and analyze relevant information presented in various formats such as graphs, tables, diagrams, and/or mathematical formulations.
- Students will solve real-world problems using critical thinking skills and knowledge developed from this course.

Required Text: University Physics 1 & 2 **Additional Text:** Fundamentals of Physics I by R. Shankar.

Required Lab Equipment: Some labs will use the free smartphone app phyphox. The lab guides specify which, but if you want to have the app ready to use, you can download is here.

Additionally, a **composition notebook** is required, as lab reports will be handwritten and turned in individually via each student's lab notebook. The notebooks are to be turned in at the end of the lab. Assigned **pre-labs** and the **lab guides** are found in the class webpage.

Grading Assignments:

- Laboratory reports (25 %)
- Homework (20 %)
- Final Exam (30 %)
- Quizzes (25%)
- Extra Credit Readings (up to 80% of the Final Exam Credit)

Either two (2) quizzes or two (2) homeworks are dropped for the final grade. If a Laboratory is missed, the student must stay until the end of a class (the date to be scheduled with the instructor) to perform said lab. Quizzes will be 50 minutes long and recurrent (every two weeks on average). The Final exam is cumulative. If the Final Exam grade (without the extra credit) is higher than the course average grade, the Final Exam grade will be your course grade. The number to letter grade key is as follows:

A (93 and up) **A–** (90 to 93) **B+** (87 to 90) **B** (83 to 87)
B– (80 to 83) **C+** (77 to 80) **C** (73 to 77) **C–** (70 to 73)
D+ (67 to 70) **D** (63 to 67) **D–** (60 to 63) **F** (below 60)

Extra Credit Readings: After reading, students must list **10 questions or uptakes** about the essay and submit them via Canvas **at any point before the final week of lectures**, and after the reading has been assigned. An Oxford-style tutorial will take place: these consist in discussing the student's questions and uptakes about the reading during office hours, for 30 mins. Each reading+tutorial is worth 20% of the Final Exam's grade.

LIBERAL STUDIES STATEMENT

This course has been approved to meet FSU's Liberal Studies Natural Sciences requirement and helps you become an effective interpreter of scientific results and a critical analyst of claims about the natural world. This course has a philosophy of science component that further reinforces critical thinking skills.

By the end of this course, students will:
1. Pose questions or hypotheses based on scientific principles.
2. Use appropriate scientific methods and evidence to evaluate claims or theoretical arguments about the natural world.
3. Analyze and interpret research results using appropriate methods.

ACADEMIC SUCCESS

Your academic success is a top priority for Florida State University. University resources to help you succeed include tutoring centers, computer labs, counseling and health services, and services for designated groups, such as veterans and students with disabilities. The following information is not exhaustive, so please check with your advisor or the Dean of Students office to learn more.

UNIVERSITY ATTENDANCE POLICY

Excused absences include documented illness, deaths in the family and other documented crises, call to active military duty or jury duty, religious holy days, and official University activities. These absences will be accommodated in a way that does not arbitrarily penalize students who have a valid excuse. Consideration will also be given to students whose dependent children experience serious illness.

ACADEMIC HONOR POLICY

The Florida State University Academic Honor Policy outlines the University's expectations for the integrity of students' academic work, the procedures for resolving alleged violations of those expectations, and the rights and responsibilities of students and faculty members throughout the process. Students are responsible for reading the Academic Honor Policy and for living up to their pledge to "...be honest and truthful and...[to] strive for personal and institutional integrity at Florida State University." (Florida State University Academic Honor Policy, found at http://fda.fsu.edu/Academics/Academic-Honor-Policy).); the Academic Honor Policy and the procedure for handling its violations at our campus can be found here: https://panama.fsu.edu/overview/policies-and-information/academic-honor-policy.

AMERICANS WITH DISABILITIES ACT

Florida State University (FSU) values diversity and inclusion; we are committed to a climate of mutual respect and full participation. Our goal is to create learning environments that are usable, equitable, inclusive, and welcoming. FSU is committed to providing reasonable accommodations for all persons with disabilities in a manner that is consistent with academic standards of the course while empowering the student to meet integral requirements of the course.

To receive academic accommodations, a student should: (1) register with and provide Documentation to the Office of Accessibility Services (OAS); and (2) request a letter from OAS to be sent to the instructor indicating the need for accommodation and what type; and, (3) meet (in person, via phone, email, skype, zoom, etc...) with each instructor to whom a letter of accommodation was sent to review approved accommodations. Please note that instructors are not allowed to provide classroom accommodations to a student until appropriate verification from the Office of Accessibility Services has been provided. This syllabus and other class materials are available in an alternative format upon request. For the latest version of this statement and more information about services available to FSU students with disabilities, contact the:

Office of Accessibility Services

874 Traditions Way 108 Student Services Building Florida State University Tallahassee, FL 32306-4167 (850) 644-9566 (voice) (850) 644-8504 (TDD) oas@fsu.edu/ https://dsst.fsu.edu/oas

EMOTIONAL AND WELLNESS RESOURCES

FSU Panama believes firmly in the importance of mental health and has taken significant steps to support students. Dr. Maria Claudia Uribe, alumna and former professor of FSU, brings over two decades of experience as a psychotherapist and is here to enhance the well-being of our campus community. She will be offering on-site and online counseling, referrals, and additional resources upon request.

Dr. Uribe will be on campus during the first week of classes, and she will introduce herself. Her office will be room 301, which has been converted into a Wellness Room. **A telehealth service** has also been added to our array of support tools, and more information about it will be provided by the Director of Student Affairs, Dr. Adam Tratner (**atratner@fsu.edu**), and Dr. Uribe

(**m.uribe@fsu.edu**). Finally, several Wellness Workshops are organized every semester. The Workshops cover important topics on mental and physical health, academic success, study habits and tools, and many others.

SYLLABUS CHANGE POLICY:
Except for changes that substantially affect implementation of the evaluation (grading) statement, this syllabus is a guide for the course and is subject to change with advance notice.

Tentative Schedule (see also the detailed schedule on the webpage)

Week	Tuesday	Thursday	Friday
1	Lecture: Motion in 1D (Ch 1 & 3)	No Classes	Quiz. Ch. 1, 3/ Lecture: motion in higher dimensions (Ch 2, 4)
2	Lecture: (Ch 2, 4)	Lecture (Ch 2, 4)	Lecture: Newton's laws (Ch 5) Lab 1: Measurements.
3	Lecture (Ch 5, 6) ECR assigned	Lecture (Ch 6)	Quiz (Ch 5)/ Lecture (Ch 6)
4	Lecture: Work (Ch 7)	Lecture: Conservation in 2D (Ch 8)	Lecture (Ch 8)
5	Lecture: Gravitation (Ch 13). ECR assigned	Lecture: Multiparticle Dynamics (Ch 9)	Quiz (Ch 13, 9 thus far). Lecture (Ch 9). Lab 2: Pendulum
6	Lecture (Ch 9)	Lecture: Rotation I (Ch 10)	Lecture (Ch 10)
7	Lecture: Rotation II (Ch 11)	Lecture (Ch 12)	Lecture: Rotation III (Ch 12)
8	Lecture (Ch 12)	Lecture (Ch 9)	Quiz (Ch 12)/Lecture : Math
9	Spring Break		
10	Lecture: Simple Harmonic Motion (Ch 15)	Lecture (Ch 15)	Lecture (Ch 15) Lab 3: the definition of mass
11	Lecture (Ch 15)	Lecture: Waves (Ch 16)	Quiz (Ch 15)/Lecture (Ch 16)
12	Lecture (Ch 16)	Lecture: Fluids (Ch 14)	Lecture (Ch 14) Lab 4: Archimedes
13	Lecture: Sound Waves (Ch 17)	Lecture (Ch 17)	Quiz (Ch 14, 17)/Lecture (Ch 16) Lab 5: Speed of sound
14	Lecture: Heat (Ch 1b = Ch 1 from Volume 2)	Lecture (Ch 2b)	Lecture (Ch 2b) ECR assigned
15	Lecture (Ch 3b): Thermodynamics II	Lecture (Ch 3b)	No Class
16	Lecture (Ch 4b) : Entropy ECR assigned	Final Review	Final Review Lab 6: Thermal expansion
17	Final Exam: 9:00 – 11:30		

Legend: PSS = Problem-Solving Sessions, aka recitation. ECR = Extra credit reading is assigned.

I strive to provide a supportive learning environment for everyone, and it's always helpful for me to hear what works best for you. Have a great semester!