



# Syllabus

## College Physics 1

PHY / 81167 / Fall 2026

3 credit hours / 3 contact hours

Pre-requisites: MAC 1114 and MAC 1140 / Co-requisite: PHY 2053L

## Contact Information

### Instructor

Name: Jessica Edwards, Ph.D.

Title: Professor

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### Division Chair

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### Division Administrative Assistant

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## Course Information

### Catalog Description:

This course is the first in a two-part series intended for non-physics majors, offering an algebra and trigonometry approach to topics such as kinematics, dynamics, energy, momentum, rotational motion, fluid dynamics, oscillatory motion, and waves. The course fosters analytical and critical thinking skills to promote a scientific understanding of the real world.

Selected topics from mechanics and thermodynamics. Application is towards non-engineering fields.

## Student Learning Outcomes:

- Students will solve analytical problems describing different types of motion, including transitional, rotational, and simple harmonic motion using algebra and trigonometry.
- Students will apply Newton's Laws, and conservation laws by using algebra and trigonometry 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.

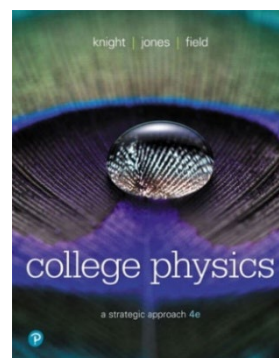
## Course Materials & Resources:

### Book:

*Title: College Physics: A Strategic Approach, 4<sup>th</sup> edition, Authors: Knight and Field, published 2018, © 2019, Publisher: Pearson,*

Some book options:

- ISBN: 9780134609034 (hardback text available in bookstore)
- ISBN: 9780134700502 (loose leaf)
- ISBN: 9780134703930 (eText **with** Mastering Access included for 24 months)



## Delivery Method:

This course meets face to face. Course material, assignments, and announcements may be offered via Canvas as a supplemental approach to learning at the discretion of the instructor. Please make sure that you have access to a computer with a webcam and internet service in the event a change in course delivery is needed.

## Student Expectations

In this course, communication and feedback will occur through various channels, including Canvas Inbox, Canvas Announcements, Canvas Discussions, Zoom, assignment feedback, and instructor office hours. Review the statements below so that you understand the expectations for communication.

As a student at Gulf Coast State College, you are expected to:

- **Adhere to Course Guidelines:** Follow the guidelines detailed in the course syllabus, along with any additional instructions provided by the instructor. This includes understanding and complying with the course objectives, grading criteria, and academic policies.
- **Maintain Regular Contact:** Keep in touch with your instructor and classmates via the Canvas course or other designated communication channels. Regular contact helps clarify doubts, share ideas, and foster a collaborative learning environment.

- **Active Participation:** Engage actively in class discussions and submit assignments on time. Your active participation is crucial for your academic success and contributes to a vibrant learning community.

As your instructor, my commitment to you is to:

- **Provide Timely Feedback:** I will review and provide feedback on your assignments and submissions promptly. Course exams are usually graded within a week. My goal is to help you understand your strengths and areas for improvement, which is crucial for your academic growth.
- **Respond Via Canvas Inbox:** I will respond to your messages within 24-48 hours (excluding weekends), unless otherwise noted. I understand the importance of clear and timely communication in addressing your questions and concerns.
- **Post Regular Announcements:** To keep you updated and help you manage your time effectively, I will post “to do lists” and reminders via Canvas announcements. These reminders will include upcoming assignments, what you should currently be working on, and any changes to the course schedule. The overall course schedule will be posted on the Canvas home page.
- **Maintain Weekly Office Hours:** I will maintain regular weekly office hours, but I can also be available by appointment. This is to ensure I'm available for any questions or concerns that may come up during the week.

## Course Schedule

Exam Date	Module	Description*
Week 2	1	Chapter 1: Representing Motion
Week 5	2	Chapter 2: Motion in One Dimension Chapter 3: Vectors and Motion in Two Dimensions
Week 8	3	Chapter 4: Forces and Newton’s Laws of Motion Chapter 5: Applying Newton’s Laws Chapter 6: Circular Motion, Orbits, and Gravity
Week 10	4	Chapter 7: Rotational Motion
Week 12	5	Chapter 8: Equilibrium and Elasticity Chapter 9: Momentum Chapter 10: Energy and Work
Week 14	6	Chapter 11: Using Energy Chapter 12: Thermal Properties of Matter Chapter 13: Fluids
December 9 <sup>th</sup>	Final Exam	Cumulative (All Chapters Covered)

\*Topics covered listed at end of syllabus.

## Grading

### GCSC Grading Scale

All grades will be posted in the student grade book in Canvas and will be assigned according to the following scale:

A	90%-100%
B	80%-89%
C	70%-79%
D	60%-69%
F	59% and below

### Calculation of Grades

- **Regular semester exams** are worth **60%** of your total course grade. The lowest regular exam grade will be dropped. (The final exam is NOT a regular exam.)
- **Homework** is worth **10%** of the course grade.
- **Quizzes, and pre-lecture book note checks** are worth **8%** of the course grade.
- The **Final Exam** counts for **22%** of the course grade. (Equivalent of ~ 2 tests)

## Course Policies

### Accessibility Statement

Gulf Coast State College supports an inclusive learning environment for all students. If there are aspects of the instruction or design of this course that hinder your full participation, reasonable accommodations can be arranged. Prior to receiving accommodations, you must register with Student Accessibility Resources. Appropriate academic accommodations will be determined based on the documented needs of the student. Please visit [GCSC's Student Accessibility Resource \(SAR\) webpage](#) to learn more. For information regarding the registration process, email [sar@gulfcoast.edu](mailto:sar@gulfcoast.edu) or call 850-747-3243.

## Attendance Policy

- Regular class attendance and participation are **essential** to your success in this course. Students are expected to attend all class meetings of all courses for which they are registered. Attendance will be taken at the beginning of each class.
- **Daily** monitoring of the Course shell in Canvas, and your GCSC email account, is essential for obtaining course-related information. Course supplements, and important announcements for this course **will be posted to Canvas**. **Failure to check Canvas is *NOT* a valid excuse for not receiving information** communicated via this pathway.
- Missing class is the fastest way to feeling overwhelmed with Physics.
- If you are absent from class, you are responsible for collecting missed lecture notes from fellow students and then bring specific questions to your instructor during office hours.
- *You* are responsible for ALL missed material.
- Punctuality is important. Showing up late can be a disruption. If this happens regularly, you will be required to talk to the Division Chair of Natural Sciences.
- Make-up work is offered solely at the discretion of your professor. Appropriate documentation may be required to justify assignment extensions.
- If absences in a class become excessive (more than three unexcused absences), your professor may contact you, indicating that further absence may result in your withdrawal from the course. Your professor can withdraw you from a course for excessive absences without your permission.
- Instructors will monitor attendance at the beginning of each semester. If you are not in attendance during this period, you may be withdrawn from the course. You will be financially responsible for the course and a "W or NS" will appear on your transcript. Withdrawal from a course may also have implications for financial aid.
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## Withdrawal Policy

Two withdrawals are permitted per credit course. After that, a grade will be assigned. Please be concerned about withdrawals. When admitting students into certain programs, universities may calculate withdrawals as grades. It is your responsibility to verify the effects of enrollment and/or withdrawal upon your financial assistance (financial aid, scholarships, grants, etc.). There are two kinds of withdrawals---student and administrative.

- *Student Withdrawal (W1)* - Students wishing to withdraw must complete the online Student Withdrawal Form before the scheduled withdrawal deadline as published in the College catalog. Student withdrawals initiated prior to the scheduled withdrawal deadline will be recorded as a grade of "W." The withdrawal deadline for an off-term or condensed term is one week after midterm.
- *Administrative Withdrawal (W2)* – A faculty member may withdraw a student up to the published withdrawal deadline for violation of the class attendance policy in which case the student will receive a grade of "W." The withdrawal deadline for an off-term or condensed term is one week after midterm.

Students cannot withdraw from developmental studies courses (college-preparatory classes) after the drop/add period without written permission from their instructor and/or their academic advisor.

## Academic Integrity

Honest participation in academic endeavors fosters an environment in which optimal learning can take place and is consistent with the college's mission. Academic misconduct, including cheating or plagiarism, is destructive to the spirit of an educational environment. GCSC professors report every instance of student academic misconduct to the college for inclusion on the student's records.

Most course syllabi include an academic honesty policy and the consequences for violating this policy. Familiarize yourself with course policies regarding authorized or unauthorized use of AI to avoid the pitfalls of academic dishonesty.

The following definitions will apply:

"Cheating"

includes but is not limited to use of any unauthorized assistance in taking quizzes, tests, or examinations; dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; the acquisition without permission of tests or other academic materials belonging to a member of the College's faculty.

"Plagiarism"

includes, but is not limited to, the use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgment as well as the purchase of papers or projects. It can also include overuse of an editing program like Grammarly or submitting work written by an Artificial Intelligence (AI) generator like ChatGPT. Make certain to consult your course syllabi for your instructor's guidelines of AI material.

"Self-plagiarism"

occurs when a student submits the same or considerably similar document to fulfill requirements in different classes. For example, if a student submits a term paper in Religion they originally wrote for an English class, this is self-plagiarism. Once a paper receives a grade in one class, it cannot be submitted again for another class.

"Generative Artificial Intelligence (AI)"

is technology that uses machine learning to create new content, such as text, images or code, based on user input. These systems are trained on vast amounts of data, including large language models and image or code generators. Common examples include ChatGPT, GitHub, Copilot, Google Gemini, Perplexity, and the Grammarly AI function.

Sanctions for incidences of academic misconduct, depending on the severity of the incidence and/or its repetition, may range from receiving an F grade (or 0) for the test, assignment, or activity, to failure of the course, to suspension or dismissal from the college.

## Classroom Recording

In accordance with federal and state privacy laws, students may record class lectures for their own personal educational use, in connection with a complaint to the college, or as evidence in internal or external legal proceedings. Students may not publish or upload the recordings or any components thereof without the knowledge and written permission of the faculty member. Failure to obtain permission to publish could lead to the students' having to pay damages, attorney fees, and court costs. For more information about what can be recorded, please see the guidelines in the GCSC Student Handbook.

## Generative Artificial Intelligence (AI) Policy

The use of generative AI tools in academic work requires clear guidelines to maintain academic integrity. Please review the policy selected for this course regarding the use of AI tools such as ChatGPT, Copilot, Grammarly's AI features, and similar platforms for assignments, research, and other coursework.

See the student handbook for further information. Students with questions about acceptable use should consult their instructor.

Limited Assistive Use Only

*Students may use basic assistive technologies for spelling, grammar, and formatting (e.g., PaperRater or SpellCheckPLUS); however, the use of AI tools (e.g., ChatGPT, Copilot, Grammarly's AI function, etc.) for generating, rewriting, or enhancing content is not permitted. All work must reflect the student's original ideas and writing. Representing work created by AI as one's own is a violation of academic integrity and may result in penalties, including a zero on the assignment and additional disciplinary actions as outlined in the college's academic integrity policy.*

## Anti-Discrimination Policy

Gulf Coast State College does not discriminate against any person in its programs, activities, policies or procedures on the basis of race, ethnicity, color, national origin, marital status, religion, age, gender, sex, pregnancy, sexual orientation, gender identity, genetic information, disability, or veteran status. All questions or inquiries regarding compliance with laws relating to non-discrimination and all complaints regarding sexual misconduct or discrimination may be directed to Amanda Reed, Executive Director of Human Resources/Title II/504/Title IX Coordinator and Employment Equity Officer, Gulf Coast State College, 5230 W. US Highway 98, Panama City, FL 32401; 850-769-1551, ext. 3516. Rules, policies, fees, and courses described in this catalog are subject to change without notice.

## Syllabus Policy

For any syllabus posted prior to the beginning of the term, the instructor reserves the right to make minor changes prior to or during the term. The instructor will notify students via e-mail or Canvas announcement when changes are made in the requirements and/or grading of the course.

## Student Support Resources

Gulf Coast State College is committed to providing you with the resources you need for success as a student and beyond. View all the academic and student support resources provided at GCSC on the [Student Services web page](#).

## Course Technology & Support

To successfully participate in this online course, students must have basic computer and digital information literacy skills and meet the following technology requirements:

- **Computer:** Up-to-date web browser that supports the Canvas learning management system; please refer to the system requirements for compatibility and information on using the Canvas app on mobile devices.
- **Internet Speed:** Minimum bandwidth of 8 Mbps upload/download speed to effectively engage in online activities and access multimedia.
- **Office 365 software:** Available for free download through GCSC Information Technology Services (ITS).

If you need technical support, contact the ITS Help Desk, available 24/7 at (850) 913-3303.

## Chapter 1: Representing Motion

- 1.1 - Draw and interpret motion diagrams to represent motion.
- 1.2 - Describe motion in terms of position, velocity, and time.
- 1.3 - Calculate the speed and velocity of an object.
- 1.4 - Use scientific notation.
- 1.5 - Express quantities with the appropriate units and the proper number of significant figures.
- 1.6 - Perform unit conversions.
- 1.7 - Describe motion using vectors and trigonometry.

## Chapter 2: Motion in One Dimension

- 2.1 - Use motion diagrams to interpret motion.
- 2.2 - Use and interpret motion graphs.
- 2.3 - Calculate the velocity of an object.
- 2.4 - Solve problems about an object in uniform motion.
- 2.5 - Calculate the acceleration of an object.
- 2.6 - Determine and interpret the sign of acceleration.
- 2.7 - Use the problem-solving approach to solve problems of motion with constant acceleration and free fall.

## Chapter 3: Vectors and Motion in Two Dimensions

- 3.1 - Add and subtract vectors graphically.
- 3.2 - Use vectors and motion diagrams to find acceleration.
- 3.3 - Perform vector calculations using vector components.
- 3.4 - Solve problems about an object moving on a ramp.
- 3.5 - Understand and use relative velocity.
- 3.6 - Solve problems for projectiles that follow parabolic trajectories.
- 3.7 - Calculate and use centripetal acceleration.

## Chapter 4: Forces and Newton's Laws of Motion

- 4.1 - Recognize and identify the forces acting on an object.
- 4.2 - Combine multiple forces acting on an object.
- 4.3 - Draw a free-body diagram.
- 4.4 - Understand the connection between force and motion.
- 4.5 - Use Newton's second law.
- 4.6 - Identify action/reaction pairs of forces on interacting objects.

## Chapter 5: Applying Newton's Laws

- 5.1 - Solve problems about objects in equilibrium.
- 5.2 - Use free-body diagrams, Newton's second law, and the problem-solving approach to solve dynamics problems.
- 5.3 - Work with and distinguish between mass and weight.
- 5.4 - Solve problems with sliding and rolling friction; understand how static friction can prevent motion.
- 5.5 - Use the linear and quadratic models of drag to solve problems about motion through a fluid and to calculate terminal speeds.
- 5.6 - Use Newton's third law to identify forces on and to solve problems about interacting objects.
- 5.7 - Calculate the tension in ropes and solve problems involving ropes and pulleys.

## Chapter 6: Circular Motion, Orbits, and Gravity

- 6.1 - Calculate period, frequency, and speed for objects in circular motion.
- 6.2 - Use Newton's laws to solve dynamics problems for objects in uniform circular motion.
- 6.3 - Understand the apparent weight of an object in circular motion.
- 6.4 - Analyze the circular orbits of planets and satellites.
- 6.5 - Use Newton's law of gravity to calculate long-range gravitational forces.
- 6.6 - Solve problems about gravity and orbits.

## Chapter 7: Rotational Motion

- 7.1 - Calculate angular velocity and interpret motion graphs for rotational motion.
- 7.2 - Calculate angular acceleration and tangential acceleration.
- 7.3 - Calculate the torque exerted on an extended object.
- 7.4 - Determine an object's center of gravity and gravitational torque.
- 7.5 - Calculate an object's moment of inertia.
- 7.6 - Use Newton's second law for rotational motion to solve problems about rotational dynamics
- 7.7 - Analyze rolling motion.

## Chapter 8: Equilibrium and Elasticity

- 8.1 - Use force and torque to solve static equilibrium problems.
- 8.2 - Determine an object's stability.
- 8.3 - Use Hooke's law to calculate the force exerted by a spring.
- 8.4 - Use stress, strain, and Young's modulus to calculate the elastic properties of materials.

## Chapter 9: Momentum

- 9.1 - Calculate the momentum of and impulse on an object.
- 9.2 - Use the impulse-momentum theorem to solve impulse and momentum problems.
- 9.3 - Use Problem-Solving Approach 9.1 to solve conservation of momentum problems.
- 9.4 - Apply conservation of momentum to collisions and explosions.
- 9.5 - Use momentum in two dimensions.
- 9.6 - Understand and use angular momentum and its conservation.

## Chapter 10: Energy and Work

- 10.1 - Calculate the work done on an object.
- 10.2 - Calculate an object's kinetic and potential energy.
- 10.3 - Understand and calculate the change in thermal energy.
- 10.4 - Use the problem-solving approach to solve conservation of energy problems.
- 10.5 - Draw and interpret energy diagrams.
- 10.6 - Interpret and use molecular bond energies.
- 10.7 - Apply energy and momentum conservation to elastic collisions.
- 10.8 - Understand and calculate power.

## Chapter 11: Using Energy

- 11.1 - Identify transformations of energy and calculate their efficiencies.
- 11.2 - Understand how energy is used and stored in the body.
- 11.3 - Distinguish between work, heat, temperature, and thermal energy.
- 11.4 - Apply the first law of thermodynamics to heat engines, heat pumps, and refrigerators.
- 11.5 - Understand the concept of entropy and the limitations that the second law of thermodynamics places on energy transformations.

## Chapter 12: Thermal Properties of Matter

- 12.1 - Work with moles and atomic masses.
- 12.2 - Understand the atomic model of gas temperature and pressure.
- 12.3 - Use the ideal-gas law,  $pV$  diagrams, and the first law of thermodynamics to solve problems about ideal-gas processes.

## Chapter 13: Fluids

- 13.1 - Work with the density of gases and liquids.
- 13.2 - Calculate and use the pressure in a liquid.
- 13.3 - Use Archimedes' principle to understand buoyancy.
- 13.4 - Use the equation of continuity to solve problems about fluid flow.
- 13.5 - Use Bernoulli's and Poiseuille's equations to solve problems about fluid dynamics.
- 13.6 - Understand the motion of blood in the circulatory system.