GULF COAST STATE COLLEGE
DIVISION OF NATURAL SCIENCES

PHY 1020 - Basic Concepts of Physics, 3 credit hours—Spring 2025

Section: 10346

Instructor: Clifford Harris, Ph.D Physics

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Office: Natural Sciences A 118, 850-769-1551 ext 2865

Office Hours: The instructor is available for short periods in the room both before class and after. Longer discussions should take place during 10 weekly office hours.

Administrative Assistant: Kathy Bleday, kbleday@gulfcoast.edu 850-872-3851

Natural Sciences Division Chair: Fledia Ellis, fellis@gulfcoast.edu 850-872-3848

Late Registration Drop/Add deadline: Jan. 10

Withdrawal deadline to receive a "W": Mar. 7

Course Description: This is a basic overview course presenting physics concepts with a minimum emphasis on mathematics. As a conceptual course, it is designed to help students develop a clear and logical understanding of the fundamental physics principles to include motion, gravity, vectors, momentum, energy, vibrations, waves, heat and thermodynamics. Further, it will include practical examples that demonstrate the role of physics in other disciplines.

Prerequisite: none

Corequisite: none

Course Materials:

Textbook: Conceptual Physics, 11th Edition, 2009, by Paul Hewitt, Publisher: Addison-Wesley

Textbook Options: The textbook is available in the bookstore. The other option is to purchase the textbook from elsewhere. It is required to have a copy of the textbook. The options below include both.

ISBN-13: 978-0321568090
ISBN-10: 0321568095

This course is a 3-credit course, which means that in addition to the scheduled meeting times, students are expected to do **at least 6 hours** of course-related work outside of class **each week** during the semester. This includes time spent completing assigned readings, doing homework, and studying for tests and examinations.

In-Class Content Delivery: In-class instruction is by lecture, supplemented with white-board figures and PowerPoint-style presentations. Lectures may consist of presentations, worked example problems, group activities, and individual assessments. There are both presenter and hands-on demonstrations and exhibits. Lectures will occur in the designated classroom during the scheduled class time and will include periodic assessments that contribute to the final grade. Office hours will be in the office. Exams will be taken in-person on campus.

Broad Goals of the Course:

1. gaining factual knowledge in physics (terminology, classifications, methods, trends)
2. learning fundamental principles, relationships, generalizations, and theories
3. gaining a broader understanding and appreciation of physics

Attendance and Participation: Your full presence at all class meetings is expected. You may withdraw yourself from this class up to the withdrawal deadline (Academic Calendar); to do so, you must submit a withdrawal form to the Office of Admissions and Records. If you do not submit a withdrawal by this date, you will receive a letter grade (not a "W").

Canvas: Students should be familiar with the college Learning Management System (LMS) Canvas. Course evaluations will be conducted via Canvas.

Email/Voicemail: The instructor will ***NOT*** email you everything you missed in class if you did not attend that day. Any high priority/urgent message sent will be returned as soon as possible during the regular workweek. Emails will be replied to within a week. Voicemail messages may be responded to via email.

Evaluation: Regular exams will count for 60% of the final grade. The lowest regular exam score will be dropped. There will be no make-up exams - not even if you scored low on a previous exam and you want to drop that one. The comprehensive final exam is worth 30% of the final grade and homework projects count 10%.

Letter grades: Grading will be on a percentage system:
90-100 = A 80-89 = B 70-79 = C 60-69 = D below 60 = F

Exams: Exams may be made up of any of the following types of questions: True-False, multiple choice, short answer, fill-in-the-blank and short problems. There will be some problems requiring calculation, but even if you get every one of the numeric calculations wrong, it is still possible to get an "A" in this course. Exams are cumulative; your instructor encourages you to use exams as a learning tool. Go to the restroom before the exam; you will not be allowed to continue the exam if you have left the room.

Homework beyond the reading: Weekly projects will be assigned. Feel free to explore unassigned exercises and problems. **Homework is due on the Monday following the assignment** (except when Monday is a holiday in which case it is due the next class meeting). Late homework may not receive full score.

Student Absences for Participation in Official University Events. Students at Gulf Coast have the opportunity to participate in many extracurricular activities that either contribute to the quality of their college experience or promote their post-graduation goals. At times, students' participation requires them to be absent from regularly scheduled class. Students are responsible for all work missed. According to the Student Handbook, **"It is the student's responsibility to notify his/her instructor or supervisor in advance and identify what tasks or assignments must be made-up before missing class or work hours."** If notice is not provided in a timely manner, accommodations will not be provided.

Students with Religious Obligations: We will make every effort to accommodate students with religious obligations for any part of this course. However, students should notify the instructor at the beginning of the semester of the requirements.

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. For information regarding the registration process email sar@gulfcoast.edu or call (850) 747-3243.

Academic Integrity Policy: 1. 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 is destructive to the spirit of an educational environment and therefore will not be tolerated.

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. It also includes the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials.
  c. The term "academic misconduct" includes any or all forms of cheating and plagiarism. In addition, academic misconduct may include the following:

- Destroying, damaging, or stealing another person's work or work materials including, but not limited to, lab experiments, computer programs/files, term papers, projects, or copy of an examination.

- Theft, damage, or misuse of library resources; removing uncharged material from the library; defacing or damaging library materials; intentionally displacing or hoarding library materials within the library for one's unauthorized private use, or any other abuse of reserved materials.

- Theft, damage, or misuse of computer resources including, but not limited to, computer accounts codes, passwords, or facilities; damaging computer equipment or interfering with the operation of any computer system in the college.

2. Individual instructors or programs may provide students with additional academic integrity policy statements at the start of a semester.

3. 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 zero) for the test, assignment, or activity to failure of the course, to suspension, or dismissal from the program or the college.

4. An instructor who believes that an incidence of academic misconduct has occurred will discuss it immediately with the student. If, in the judgment of the instructor, the student has committed an act of academic misconduct, or if the student admits that there has been misconduct, the instructor will assess the appropriate penalty.

5. Instances of admitted or proven academic misconduct should be reported in writing to the Dean of Student Life. The purpose of this reporting is to track individuals who have repeated incidences. The Vice President of Academic Affairs reserves the right to pursue disciplinary action against a student if deemed necessary.

6. Students who think they have been treated unfairly may invoke the Student Academic Grievance Procedure.

Assessments: Homework, regular exams (4) and a Final Exam.

HB233 statement: 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 current Student Handbook on the Gulf Coast State College website.

Learning Objectives - understand the reading assignments

Reading Assignment Topics:

Exam 1: Mechanics

Chapter 1 - About Science
Chapter 2 - Newton's First Law of Motion
Chapter 3 - Linear Motion
Chapter 4 - Newton's Second Law of Motion
Chapter 5 - Newton's Third Law of Motion
Chapter 6 - Momentum (Read up to and including "Conservation laws" on page 91) Appendix A - On Measurement and Unit Conversions
Chapter 6 - Momentum (continue with Collisions on page 91)
Chapter 7 - Energy
Chapter 8 - Rotational Motion
Chapter 9 - Gravity
Chapter 10 - Projectile and Satellite Motion

Exam 2: Properties of Matter and Heat

Chapter 11 - The Atomic Nature of Matter
Chapter 12 - Solids
Chapter 13 - Liquids
Chapter 14 - Gases
Chapter 15 - Temperature, Heat and Expansion Chapter 16 - Heat Transfer
Chapter 17 - Change of Phase
Chapter 18 - Thermodynamics

Exam 3: Sound, Electricity, Magnetism, Induction and some Light

Chapter 19 - Vibrations and Waves
Chapter 20 - Sound
Chapter 21 - Musical Sounds
Chapter 22 - Electrostatics
Chapter 23 - Electric Current
Chapter 24 - Magnetism
Chapter 25 - Electromagnetic Induction
Chapter 26 - Properties of Light
Chapter 27 - Color
Chapter 28 - Reflection and Refraction

Exam 4: more Light, Atomic and Nuclear Physics, and Relativity

Chapter 29 - Light Waves
Chapter 30 - Light Emission
Chapter 31 - Light Quanta
Chapter 32 - The Atom and the Quantum
Chapter 33 - The Atomic Nucleus and Radioactivity Chapter 34 - Nuclear Fission and Fusion
Chapter 35 - Special Theory of Relativity
Chapter 36 - General Theory of Relativity