Instructor: Dr. Sorinel Adrian Oprisan  
Office: JC Long building, room 228  
Phone: (843) 953-0780  
Email: oprisans@cofc.edu  

Prerequisites: PHYS 111 or HONS 157  
Co-requisite: MATH 220 and PHYS 112 Lab  
Class time & place: MWF 9:30 am - 10:20 am, Harbor Walk West 110  
Office hours: Mondays 2:00pm - 3:00pm; Wednesdays 2:00pm - 3:00pm; or by appointment  

General Physics II (PHYS 112) is the second part of a one-year calculus-based course in physics for science majors. The subject matter offers a broad introduction to principles of physics primarily for scientists and engineers. “Subjects covered are: electricity (electric fields, AC and DC circuits); magnetism; light (geometric and physical optics, spectra); and modern physics (relativity and nuclear physics)” (according to the Catalog’s description).  

Science and technology are central to our everyday lives. This course will present, in a systematic manner, the few great ideas that are the fundamental building blocks of physical sciences. In this class, we will use scientific methods for finding and reporting facts about nature. The experimental observations are reported using mathematics as our language. Therefore, this course will emphasize the usefulness of mathematical language in physics, which will be further practiced in the homework assignments.  

General Education Student Learning Outcomes:  
1. Students apply physical/natural principles to analyze and solve problems.  
2. Students explain how science impacts society.  
These outcomes will be assessed in a signature assignment during the corresponding laboratory section of this lecture.  

Other Learning Outcomes:  
• Develop an understanding of the historical and sociological contexts that lead to major advances in physics.  
• Develop a strong understanding of the principles that form the foundation of Physics. The emphasis will be placed on conceptual understanding rather than memorization of definitions, formulas, etc.  
• Nurture physical curiosity.  
• Augment problem solving and critical thinking skills.  
• Augment investigative and observational skills.  
• Broaden an appreciation for logical qualitative and quantitative reasoning.  
• Develop teamwork skills.  
• Analyze quantitative information using sketches, graphs, tables and statistics.
Necessary materials:
1. "Principles of Physics: A Calculus-Based" (5th edition) by Raymond A. Serway and John W. Jewett. The textbook bundle that also contains the access codes for WebAssign can be purchased directly from the publisher at http://www.cengagebrain.com/micro/1-1RZP96N (be aware of shipping delay), or from the College of Charleston's bookstore.
2. A WebAssign access code for the online homework system. If you buy a used textbook, then it is your responsibility to buy a separate access code for the online homework system from WebAssign (http://www.webassign.net).
3. A basic stand-alone hand-held scientific calculator able to perform elementary operations, simple trigonometric operations, and calculate exponential/logarithmic functions.

The following is a tentative schedule and the topics and/or dates could change during the semester to accommodate unforeseen events.

Jan. 12, 14, 16: Electric Forces and Electric Fields (Ch. 19)
Jan. 21, 23, 26, 28: Electric Potential and Capacitance (Ch. 20)
Jan. 30, Feb. 04, 06: Current and Direct Current Circuits (Ch. 21)
Feb. 09, 11, 13: Test # 1 (chapters 19, 20, 21) Magnetic Forces and Magnetic Fields (Ch. 22)
Feb. 16, 18, 20: Faraday's Law and Inductance (Ch. 23)
Feb. 23, 25, 27: Electromagnetic Waves (Ch. 24)
Mar. 09, 11, 13: Test #2 (chapters 22, 23, 24) Reflection and Refraction of Light (Ch. 25)
Mar. 16, 18, 20: Image Formation by Mirrors and Lenses (Ch. 26)
Mar. 23, 25, 27, 30: Wave Optics (Ch. 27)
Apr. 01, 03, 06: Test #3 (chapters 25, 26, 27) Relativity (Ch. 9)
Apr. 08, 10, 13: Quantum Physics (Ch. 28)
Apr. 15, 17, 20: Atomic Physics (Ch. 29)
Apr. 22, 24, 27: Nuclear Physics (Ch. 30)

The final grade is composed of:
- Final exam 35%
- Three 50-minute tests 40%
- Online homework 11%
- Weekly in-class quiz 11%
- Class participation 3%
Grading scale

<table>
<thead>
<tr>
<th>Letter grade</th>
<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>C-</th>
<th>D+</th>
<th>D</th>
<th>D-</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality points</td>
<td>4.0</td>
<td>3.7</td>
<td>3.3</td>
<td>3.0</td>
<td>2.7</td>
<td>2.3</td>
<td>2.0</td>
<td>1.7</td>
<td>1.3</td>
<td>1.0</td>
<td>0.7</td>
<td>0.0</td>
</tr>
<tr>
<td>Percentage</td>
<td>93.00-100</td>
<td>90.00-92.99</td>
<td>86.00-89.99</td>
<td>83.00-85.99</td>
<td>80.00-82.99</td>
<td>76.00-79.99</td>
<td>73.00-75.99</td>
<td>70.00-72.99</td>
<td>66.00-69.99</td>
<td>63.00-65.99</td>
<td>60.00-62.99</td>
<td>Below 60.00</td>
</tr>
</tbody>
</table>

Final exam

The final exam is comprehensive and scheduled on Friday, May 1st, 2015 from 8 am – 11 am, in Harbor Walk West building (HWWE), room 110. (http://www.cofc.edu/~register/courseCalendars.htm). There will be no make-ups for the tests or the final exam.

In-class tests

There will be three, 50-minute, in-class tests during the semester. The exam questions and problems will be similar to the assigned problems, solved problem from the textbook, and in-class examples. Working assigned problems (both mandatory and extra credit), reviewing conceptual questions, reviewing problems solved in class, and solved problems form textbook is a good way to prepare for any exam. Approximately half the problems will be conceptual questions and the other half will be quantitative problems. There will be no make-ups for the tests or the final exam! No textbooks, notes, or any other kind of help is allowed during tests and final exam, except for the formula sheet that will be provided.

Homework

All homework assignments are based on the end of the chapter problems in your textbook. The mandatory online part of your homework will be submitted via WebAssign (http://www.webassign.net/) environment. Each assignment will consist mostly on quantitative evaluations with the purpose of developing your problem solving skills and sharpen your conceptual understanding of physical laws. You will be allowed multiple attempts to answer, and your grade will be based on the last submission. Solutions will be available on the WebAssign webpage after the due date.

To access WebAssign (https://www.webassign.net/login.html) you will need: 1) Username: your cofc username, 2) Institution: cofc, 3) Password: your cofc username (Please change your password after the first login!). During the first two weeks of class, you can access WebAssign for free. However, after the grace period, you cannot access your account anymore. In order to continue using WebAssign, you will need an access code. If there are any problems with the registration for the online homework system, it is imperative that you let me know about the issue during the first week of the semester.
Alternatively, you may return a hard copy of the mandatory homework assignment for any chapter. Please make sure that your hard copy (1) contains solutions to all assigned problems for that chapter (a legible scanned pdf file sent via email to oprisans@cofc.edu suffices), (2) provides at least the level of details shown on the homework solutions I posted, (3) reaches me either before or no later than the next morning after the deadline passed. For example, if the deadline for the online homework was Wednesday at 11:59 pm, please return the hard copy no later than the following morning (Thursday) by noon. If I do not receive a hard copy by the day after the deadline passed, your grade is whatever webassign shows for that assignment. If you returned a hard copy for grading, then the hard copy grade overrides webassign for the entire assignment, i.e. you cannot have some problems solved and graded in webassign and the rest submitted and graded on a hard copy.

Keep a notebook of your work. This would be useful in preparing for exams as well as used for study sessions.

To make homework meaningful, before attempting it read the assigned sections of the textbook and review the preceding week’s lecture notes. Always work assigned problems as if you were taking a test without looking back in the textbook, in the lecture notes, or solution outlines. Write as much detail as if you were taking a test. If you get stuck, stop the problem and read the relevant sections of the text and lecture notes. If you have difficulty with the assigned problems, do other similar problems in the textbook until the solutions flow smoothly. If this does not help, get help from the instructor.

Weekly in-class quizzes

There will be a problem-solving quiz (usually) on Fridays during the last 10-15 minutes of the lecture, similar to the mandatory online homework problems, or to example solved in class, or the solved problems from your textbook. No make-up quizzes will be given.

Discussion board and virtual office hours

The WebAssing (http://www.webassign.net/) environment provides the opportunity for rapid feedback and help with homework assignments. The discussion board allows everyone in the course to interact by posting or responding to messages related to homework assignments. You can post on the discussion board either by composing a new message (creates a new thread), or by replying to an existing message. By actively participating in the discussion board, you could get help from your colleagues and instructor.

Collaboration

I strongly encourage collaboration in and out of class. I recommend that you form small study groups (3-6 students) and work together on your homework assignments, lab assignments and computational projects. Before working together or consulting others on any assignment, it pays to give yourself the opportunity to work on it alone. Activities
for which collaboration is not permitted are: reading quizzes, in-class tests, and the final exam.

Class conduct
- There shall be no eating, drinking, or sleeping in the classroom.
- Cell phones, beepers, headsets, iPods and any other electronic devices that may disrupt the class must be turned off and put away prior to class unless you have a job requiring them to be on for safety (firefighter, EMT, etc.)
- Computer use is limited to taking notes or participating in classroom activities.
- Refrain from talking out loud and/or inappropriately to the extent that it is disruptive to the learning process.
- Arrive on time to class to avoid disrupting the learning process.
- Do not leave trash behind (e.g., cups, containers, wrappers, etc.)
- Recording (video and/or audio) my lectures is allowed only with my written consent.

See also Section 33 “Classroom Code of Conduct” of the Student Handbook (
http://studentaffairs.cofc.edu/honor-system/studenthandbook/documents-
pdfs/handbook.pdf).

Center for Student Learning (CSL) offers academic support services for assistance in study strategies, speaking & writing skills, and course content. They offer tutoring, Supplemental Instruction, study skills appointments, and workshops. The services are available to you at no additional cost. For more information regarding these services please visit the CSL website at http://csl.cofc.edu or call (843) 953-5635.

Rights of students with disabilities (http://policy.cofc.edu/documents/12.5.2.9.pdf)
“The College of Charleston and the Graduate School actively and affirmatively seek to accommodate any currently enrolled student with a certified disability according to the regulations established by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990. Services for students with disabilities (physical, psychological, learning disabilities, ADD/ADHD) are provided through the Center for Disability Services located in the Lightsey Center, first floor, Rm. 104. The web address is http://disabilityservices.cofc.edu/. Telephone number (843) 953-1431 (voice) and Fax: (843) 953-7731. “Based on these laws, the College of Charleston assures that all programs and services at the College of Charleston are accessible and reasonable academic accommodations that do not affect essential components of the course will be provided to all qualified students.”

Accommodations for SNAP students (http://disabilityservices.cofc.edu/documents/student-guide.pdf)
“Accommodations will be determined on a case-by-case basis and are listed in the student's Professor Notification Letter (PNL). It is the responsibility of the student to give the letter to their professors the first week of the semester. Students are not required to disclose their SNAP status to professors if they choose not to use accommodations in that professor's class.” (http://disabilityservices.cofc.edu/accommodations/index.php)
“Students are asked to sign up for their tests at The Center For Disability Services one week in advance. Professors are not required to accommodate students with extended time if they do not receive advance notice.”  

Honor Code and Academic Integrity (from http://academicaffairs.cofc.edu/documents/honor-code-language.pdf)

“Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved. Incidents where the instructor determines the student’s actions are related more to a misunderstanding will be handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student’s file. Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student’s transcript for two years after which the student may petition for the X to be expunged. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board. Students should be aware that unauthorized collaboration -- working together without permission -- is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others’ exams, fabricating data, and giving unauthorized assistance. Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor. See also Section 9 (page 10) of the Student Handbook (http://studentaffairs.cofc.edu/honor-system/studenthandbook/documents-pdfs/handbook.pdf) and at http://studentaffairs.cofc.edu/honor-system/studenthandbook/index.php