## Syllabus for PHYS 102 (Sections 9 and 10) Introductory Physics II – Spring 2019

**Class Location / Times:** Tuesdays and Thursdays, 4-5:15 PM, RITA 387 We will also do an optional problem-solving session (similar to an SI) most Tuesdays and Thursdays from 5:30-6:20 PM in RITA 385

Instructor Information: Dr. Mike Larsen

Office Phone: 843-953-2128

**Office Hours:** Wednesdays from 10 AM - Noon, and Thursdays from 3:00-4:00. Additionally, I will be available during the optional problem-solving sessions from 5:30-6:20 PM on Tuesdays and Thursdays in room 385, but those are more designed for group problem-solving than individual help. Additional times to meet with me are available by appointment, or just try to flag me down; I'm in the building most days for most of the day, and am usually willing to drop what I'm doing to help you.

Office Location: RITA 317 Larsen Research Lab Location: RITA 392

Instructor Email Address: LarsenML@cofc.edu

Prerequisites: PHYS 101 or HONS 157

Co-requisite or prerequisite: PHYS 102L

Course Webpage: http://larsenml.people.cofc.edu/phys102\_spr19.html (Please see course page for full description of course, rationale, and supplementary information).

## **Course Description**

A continuation of PHYS 101. Subjects covered are: electricity (electric fields, AC and DC circuits); magnetism; optics (geometric and physical); and modern physics.

**Recommended Textbook**: Serway, R.A. and C. Vuille (2018). *College Physics* (11th Ed.) Note: There are many different ways to buy this text and others like it. I will try to make what you do and do not need clear in class. We will not be using any of the on-line homework/web-assign in my section of the course. This semester, we will be covering most of Parts 4-6 of the text.

Alternative Textbook: OpenStax publishes (on-line) a completely *free* introductory algebrabased physics textbook they've called "College Physics". I don't think it is a great book, but I don't think the Recommended Textbook for this class is great either. If money is a concern (or you want an alternative resource to supplement your study), "College Physics" by OpenStax (which can be found at https://openstax.org/details/books/college-physics) should work just fine.

## Tentative In Class Test Dates: (Subject to Change):

Thursday, February 21st, 4-5:15 PM

Thursday, March 28th, 4-5:15 PM

Thursday, April 25th, 2019 (Final Exam) (4-7 PM) (The final will be comprehensive, but will have extra emphasis on the content from after Exam II)

General Education Student Learning Outcomes These General Education Student Learning Outcomes will be assessed in lab.

- Students apply physical/natural principles to analyze and solve problems.
- Students explain how science impacts society.

**Student Learning Outcomes** The student learning outcomes will be directly assessed for each student throughout the course via exams and quizzes.

- Apply conservation laws to analyze the motion of charges in electric and magnetic fields
- Describe the nature of electromagnetic phenomena
- Apply elementary physical and geometrical optics principles
- Describe the nature of the universe on the atomic and nuclear scale
- Describe the postulates of special relativity and their fundamental consequences
- Develop critical thinking and problem solving skills
- Demonstrate the ability to relate physics concepts to other discipline

Attendance Policy It is expected that you will attend class. I will. However, attendance is not a part of your course grade. You are responsible for mastering the material presented, taking announced and unannounced quizzes, completing exams, and adjusting your tentative schedule as the semester progresses, and most of these things can only be done if you are attending class. That being said, you are adults and will be treated as such if you are ready to deal with the consequences of missing a class (which may include missing quizzes or exams and being exposed to testable material that may or may not be covered in your textbook), then attending or not is ultimately your prerogative. It is extremely difficult for most students to do well if you miss class. It is highly recommended that you attend every class if you can.

**Classroom Policies** Please treat your classmates and professor with the respect due to them as fellow adults and human beings. Your professor always reserves the right to dismiss you from the room. Please do not text message, browse the internet, check email, or engage in other non-class-related communications during class.

Cell phones Your instructor is particularly susceptible to disruptive noises; a ringing cell phone is just the worst. Please be considerate and turn all phones on silent during lectures. Also, all cell phones must be turned off (NOT JUST TO SILENT) during all exams. This means you may need to buy a calculator not on your cell phone for use in exams (or be stuck using one of the cheap ones that our department can loan you). If your professor sees a phone out (or hears one ring/vibrate) during an exam, it will be assumed that you were using it to cheat.

Honor Code / Code of Conduct / Academic Integrity Statement It is expected that you will adhere to the university's honor code and student code of conduct, as can be found in your student handbook.

**Students with Disabilities** The College will make reasonable accommodations for persons with documented disabilities. Students should apply at the Center for Disability Services/SNAP located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations are responsible for notifying your professor as soon as possible and subsequently contacting your professor again at least one week before any specific accommodation is needed.

## Grading

Grades will be based on three components:

- Performance on in-class midterm examinations (we plan to have 2) (40%)
- Performance on both announced and unannounced quizzes (30%)
- Performance on the final exam (30%)

If you miss an exam, it is *your* responsibility to find a mutually agreeable time within 5 days of the missed exam to arrange for a make-up examination. Note that the make-up exams will be demonstrably harder than the original exam – it is not in your interest to miss the test unless there has been an emergency. If you have a known conflict with an exam date, it may be possible to take the normal (easier) version of the exam on a date *before* your classmates take the regularly scheduled exam. If you take the exam after the rest of the class, you will be compelled to take the harder version.

No makeup quizzes will be given for any reason. I will drop your lowest quiz score for the semester, so if you miss class on the date of a quiz, that will be the one I drop for you. If you miss two or more quizzes, then there will be at least one quiz score of 0 averaged into your grade.

All quizzes and exams will be short answer/computation (not multiple choice or true-false). You may be allowed to use calculators, 3x5 inch notecards, notesheets, or a supplied formula sheet for some examinations (at the instructor's discretion). All exams will be closed book, closed note, and closed neighbor.

The final exam will be generated based on content from the full semester, but with particular emphasis on the material from the content following the second midterm.

Homework will be assigned, but not collected. That being said, *if you want any realistic chance of success in this class, you will do the assigned homework assignments.* You don't learn Physics by watching someone else do Physics; you learn it by actually DOING it yourself. If you aren't reading the book and doing the assigned homework, your chance of succeeding on the exams is minimal.

**Grading Scale:** The formal numerical scale might move around a little bit depending on the class' performance, but the final grading scale will be *no more stringent* than:

А	>90	C+	79
A-	90	С	71-78
B+	89	C-	70
В	81-88	D	60-69
B-	80	F	<60

**TENTATIVE Schedule** The following is an approximate schedule for the course. All of this (including test dates, with the exception of the final exam date and time) is subject to change. Any change in exam dates will be mentioned in class at least one week prior to the date of the exam.

- 1/8 Introduction / Coulomb Forces
- 1/10 Electric Forces and Fields
- 1/15 Electric Fields and Gauss's Law
- 1/17 Electric Potential
- 1/22 Capacitors and Dielectrics
- 1/24 Ohm's Law
- 1/29 DC Circuit Analysis
- 1/31 RC Circuits
- 2/5 Magnetic Fields
- 2/7 Ampere's Law
- 2/12 Magnetic Induction
- 2/14 Lenz's Law
- 2/19 Introduction to Light
- 2/21 EXAM 1, E&M
- 2/26 Polarization
- 2/28 Law of Reflection / Mirrors
- 3/5 Lenses
- 3/7 Double Slit
- 3/12 Physical Optics
- 3/14 Postulates of Special Relativity
- 3/19 SPRING BREAK!
- 3/21 SPRING BREAK!
- 3/26 Time Dilation and Length Contraction
- 3/28 EXAM 2, Light & Optics
- 4/2 Blackbody Radiation
- 4/4 Photoelectric Effect
- 4/9 Atomic Structure
- 4/11 Nuclear Physics
- 4/16 Elementary Particle Physics
- 4/18 Semester Review and Evaluations
- 4/25 FINAL EXAM (4-7 PM)