**COURSE SYLLABUS  
Instructor: Dr. Emily Marshman Semester: Spring 2020**

**Course Number: PHY 222L**

**Course Title:**  **Physics for Science & Engineering 2**

**Course Credits: 4.0**

**Lecture hours: 3**

**Lab hours: 3**

**Pre-requisite(s):** **PHY-221**

**Co-requisite(s):** **MAT-202**

This calculus-based physics course stresses experimental and problem-solving techniques. Electricity and magnetism are studied. Topics include electric charge and Coulomb’s Law, electric fields, Gauss’ Law, capacitors and dielectrics, Kirchhoff’s Rules, DC circuits, Oersted Effect, Ampere’s law, Maxwell’s equations and AC circuits.

**Learning Outcomes:** Upon successful completion of this course, a student will be able to:

1. Explain the fundamental laws and principles that form the basis of the physics in electricity and magnetism.
2. Apply calculus in problem solving to develop relationships for interpretation and attain numerical solutions where algebra is inadequate.
3. Synthesize various concepts while applying them to real-world contexts seen in careers in the fields of science, technology and engineering.
4. Apply data reduction/analysis techniques used in the execution of laboratory experiments to test important concepts, theories and principles of physics.
5. Communicate ideas effectively in graphical and written form in homework solutions, examinations and lab reports.

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**Class Section(s):**  AC01 **Dates:** 8/17/20 – 12/7/20 **Time**: remote learning

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| **Instructor:** | Emily Marshman | **Office Hours:** | Via Zoom: Monday, 12:00 – 1:00 pm, Tuesday 10:00am – 1:00 pm, Wednesday 12:00 – 1:00 pm & by appointment |
| **Telephone:** | 412-237-2642 | **Office Location:** | K358 |
| **E-Mail Address:** | emarshman@ccac.edu | | |

**Materials and Resources:**

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| Required Materials: | Lab manuals will be provided, scientific calculator |

**Teaching Methods:** Lab

**Grading:** Each lab will be graded out of 10 points. The lab will count towards 25% of the course grade.

**Lab report write-up:** Lab reports should have a title page and include the following sections:

1. Theory – Which scientific facts will you verify and apply in the lab?
2. Objectives - What are you expecting to do and learn in this lab?
3. Data collection – What data were taken? You can include tables and figures.
4. Data analysis – analyzed data including graphs, calculated quantities, uncertainty estimates, equations and methods used to analyze data.
5. Conclusions – Answer the questions posed in the lab manual and discuss sources of error in the lab experiment.

**Lab Submittal:** Each student will submit a lab report individually via online submission. If the lab is over a week past due, the lab will receive a score of zero unless there is a documented emergency.

**Other Policies and Procedures:**

Attendance: Regular attendance will contribute significantly to your understanding of the material. You are expected to attend and engage with each lab to reinforce concepts learned in lecture.

Communication: Email is the best way to contact me. Please email using your CCAC email account. I will do my best to get back to you within 24 hours.

**Academic Dishonesty:** Academic dishonesty includes, but is not limited to lying, cheating, plagiarism, fabrication of information and citations, facilitating acts of dishonesty by others, submitting the work of another person, or tampering with the academic work of other students. Any instance of academic dishonesty will be subject to the penalties described here (a grade of zero applied for each assignment and every student involved) and these instances will be reported to the CCAC Administration. Unauthorized electronics (i.e. mobile phones, smart watches, etc.) are not permitted during exams. The only electronics permitted are authorized calculators, simple watches and necessary medical devices. If unauthorized devices are detected (whether in use or not), the student will receive an exam score of zero and be reported to the College administration and subject to further disciplinary action.

**MyCCAC Portal and Academic Email:** The MyCCAC portal provides access to all course, grade and administrative information, email, the CCAC student handbook, incident reporting and college services at: <https://my.ccac.edu>. All email correspondence regarding academic work in this class is to be conducted to and from the provided CCAC academic email account. Students are expected to check their CCAC academic email account regularly. CCAC academic email address consists of the assigned NetID username followed by @acd.ccac.edu.

**Drop/ Add/ Withdrawal:** Notifying the instructor of an intention to drop or withdraw does NOT count as an official withdrawal from a course. Procedures for drop/add/withdrawal can be found at [www.ccac.edu/registration-services/](http://www.ccac.edu/registration-services/). Students receiving financial assistance through grants, loans, and veteran’s benefits should consult with the Financial Aid or Military and Veterans Service Center before dropping, adding, or withdrawing from class. Students’ aid may be impacted by a change to the total number of credits in which the student is enrolled, or by receiving a W grade in one or more classes. Consult the Academic Calendar on MyCCAC portal for these important deadline dates. Note that courses that do not meet within the standard 16- and 14-week terms have unique withdrawal deadlines. Failure to process these forms with the Registration office by the official deadline may result in F grades and have financial consequences.

**Accommodations for Individuals with Disabilities:** The College recognizes its responsibility to provide academic and nonacademic services and programs equally to individuals with and without disabilities. To this end, the college provides reasonable accommodations for qualified students and employees with documented disabilities consistent with the requirements of the Americans with Disabilities Act, sections 503 & 504 of the Rehabilitation Act and other federal, state and local laws and regulations. The college maintains an Office of Supportive Services at each campus location to receive, review and evaluate requests from students who require an accommodation with respect to their educational program. Students’ requesting reasonable accommodations due to a documented disability must first register with their campus’ Supportive Services Office and obtain an official letter identifying approved accommodations to be distributed to their faculty members. Students must provide the instructor with a CCAC Disability Certification for Faculty letter to establish the means of providing accommodation(s). Students are also responsible for making all arrangements for accommodations during the semester – this includes making advance arrangements for each assignment through the Office of Supportive Services and informing the instructor in advance of each exam either person or via email. Even though students are receiving the recommended accommodations, they are still expected to fulfill the requirements of the course as listed in the syllabus.

**Attendance Procedure for Pregnancy & Pregnancy Related Conditions:**

In accordance with Title IX of the Education Amendments of 1972, absences due to pregnancy or related conditions, including recovery from childbirth, shall be excused for as long as the absences are determined to be medically necessary. Students will be provided with the opportunity to make up any work missed as a result of such absences, if possible. For more information or requests for accommodations, students should inform their instructor(s) and/or contact the Civil Rights Compliance Officer/Title IX Coordinator, at 412.237.4535 or smisra@ccac.edu.

**Attendance Procedure for Religious Observance**

The college will make reasonable efforts to accommodate students who must be absent from classes or miss scheduled exams in order to observe a religious holiday or participate in some other form of religious observance. Students shall be provided, whenever possible, reasonable opportunity to make up academic assignments missed due to such absences, unless doing so would create or impose an undue burden on other students or the College. It shall be the students’ responsibility to provide written notice via the Request for Accommodation for Religious Observances Form (accessible at https://www.ccac.edu/nondiscrimination/) to every instructor for each course in which an accommodation is being requested. For more information contact the Civil Rights Compliance Officer/Title IX Coordinator, at 412.237.4535 or smisra@ccac.edu.

**Chosen First Name Procedure for Students**

Many individuals use names other than their legal first name to identify themselves for a variety of personal and/or cultural reasons. The college seeks to provide an inclusive and non-discriminatory environment by making it possible for students to use a chosen first name on college records when a legal name is not required. Chosen first names may not be applicable in certain programs due to the requirements of accreditation organizations and clinical sites. For more information, please see the Student Handbook (accessible at https://www.ccac.edu/Academics/Academic-Rules-and-Regulations/CCAC-Student-Handbook/).

# Important Dates to Remember

# Aug 31 Last day to drop classes with 80% of charges

# Oct 8 Midterm grades available on CCAC Central e-services

# Nov 9 Last day to withdraw with a “W” notation

# Dec 16 Grades available to students on CCAC Central e-Services after 12 noon

# Course Outline Corrections: During the semester, reasonable changes to the course outline may be academically appropriate. Students will be notified of these adjustments by the instructor in a timely manner.

# Tentative Schedule

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| Week of Aug 17 | No lab |
| Week of Aug 24 | Coulomb’s law |
| Week of Aug 31 | Electric fields and electric potential |
| Week of Sept 7 | Capacitors |
| Week of Sept 14 | No lab |
| Week of Sept 21 | Conductivity and resistivity |
| Week of Sept 28 | Ohm’s law |
| Week of Oct 5 | DC circuits |
| Week of Oct 12 | DC circuits |
| Week of Oct 19 | No lab |
| Week of Oct 26 | Magnets and electromagnets |
| Week of Nov 2 | Faraday’s law |
| Week of Nov 9 | Generator |
| Week of Nov 16 | No lab |
| Week of Nov 23 | No class Thanksgiving break |
| Week of Nov 30 | RLC circuits |
| Week of Dec 7 | No lab |