West Chester University

PHY 140-05: General Physics II
Spring 2020

Course Overview: PHY 140 is a continuation of PHY 130. Over the course of the semester, we will study the topics of electricity, magnetism, electrical circuits, light, and optics. Our goals in doing so are to investigate and analyze physical phenomena in the world around us in order to gain a better understanding of how and why they occur. In our study of these physical phenomena, we will use mathematical tools to aid us in gaining a quantitative perspective of them; those mathematical tools will also aid in our conceptual, qualitative understanding of course topics. We will begin our studies in PHY 140 by developing the electric charge model, and learning about the forces between electric charges. Then, we will turn our attention to the conceptual core of the course: developing an understanding of field theory, and in particular an understanding of electric and magnetic fields. Along the way, we will apply our growing knowledge of field theory to electric circuits, electromagnetic waves, and light. Finally, we will discuss geometrical optics and physical optics. A laboratory portion of this course will provide hands-on experience with the above-listed phenomena.

Course Credit: PHY 140 is a 4-credit class.

Course Prerequisite: PHY 130 is the prerequisite for PHY 140.

Meeting Times: Mondays, Wednesdays, and Fridays from 12:00 PM to 12:50 PM, in MSC 112
Discussion (140-95) on Tuesdays from 2:00 PM to 3:00 PM, in SSN 191

Required Course Materials:

Textbook: *Physics*, by James S. Walker, 5th edition (ISBN 9780321976444)
An e-text of this book is accessible on Modified Mastering Physics. You may also upgrade to a physical copy of the textbook at an additional cost. (See the topic "D2L/Modified Mastering" below.)

Other Required Materials: Access to Learning Catalytics through the Modified Mastering Physics platform (See the topic "Class participation and Attendance" below.)
A stand-alone scientific calculator which is ***not*** part of a cell phone or other internet-accessible personal electronic device and which has no communication capability
a laboratory notebook (see lab syllabus for details)
the PHY 140 lab manual (see lab syllabus for details)

Instructor Information:

Dr. Michelle A. Caler
office: 135 Merion Science Center
office hours: Mondays, Wednesdays, and Fridays from 10:00AM to 11:00AM
Tuesdays from 11:00AM to 1:00PM
Thursdays from 2:00PM to 3:00PM
Office hours are available by appointment for students with an ongoing conflict with my scheduled hours.
email: mcaler@wcupa.edu
office phone: 610-436-2320

Course Goals: In PHY 140, we will develop and exercise quantitative reasoning skills, and develop problem solving skills in the specific context of the physical theories studied in class. In terms of specific learning outcomes arising from the discussion of the topics covered by the course schedule, students completing this course will be able to:

- analyze problems involving electrical forces and fields
- analyze problems involving electric potential energy and electric potential
- categorize and analyze electrical circuits
- analyze problems involving magnetic forces and fields
- summarize and interpret Faraday's and Lenz's laws
- synthesize their understanding of mechanical wave interference with interference of electromagnetic waves
- analyze problems involving geometric optics, and specifically the geometrical optics of thin lenses and mirrors

In-class example problems and practice problems, as well as assigned homework problems, will contribute to students' achievement of the above Course Goals. Course Goals will be assessed on exams.

D2L/Modified Mastering: We will be using **two** online platforms for this course: Modified Mastering Physics (the publisher's homework system) and D2L.
Homework assignments are to be performed on Modified Mastering Physics. Class participation credit will be awarded via the Learning Catalytics system, which is accessible through Modified Mastering Physics. The folks at Pearson advise me that it is best to ALWAYS access Modified Mastering Physics from the "Access VitalSource" link in the "Inclusive Access: START HERE" module of the "Content" area of our course's D2L site. Note that access to Modified Mastering Physics is **not free**; it is provided via the Inclusive Access program. More information about the Inclusive Access program is contained in an email sent to your WCUPA email account from the WCU campus store. Questions about Inclusive Access should be directed to inclusiveaccess@wcupa.edu. If you already have a paid, active subscription for Modified Mastering Physics for Physics 5/e by Walker, then you may opt out of Inclusive Access and will not be charged by the Bursar's Office. To opt out you must use the link provided in the email sent to your WCUPA email account from the WCU campus store. Note carefully that there is no way to share a subscription to Modified Mastering Physics with another person, or to transfer a subscription from one person to another. **Prompt enrollment in Modified Mastering Physics is a course requirement.** Students who are not enrolled in Modified Mastering Physics will not be able to access homework assignments or Learning Catalytics.
As for D2L, to allow for *structured note taking*, I will post ***modified*** lecture slides prior to class. These slides intentionally leave out some information, including but not limited to solutions to example problems, and provide space to fill in that material during lecture. **It is your responsibility to check BOTH of these online resources (Modified Mastering Physics and D2L) periodically for any updates and announcements.** You may want to set D2L to notify you when new content is posted.

Expectations: If you take a look at the schedule at the end of this syllabus, you will see that we cover approximately one chapter every 1.5 to 2.5 weeks. Thus, the pace of this course moves fairly quickly. Such a quick pace is necessary in order to cover the required course material and topics within the space of a semester. It is in your best interest to keep up to speed by **reading the sections in the text indicated in the schedule before you get to class**. Since PHY 140 is a continuation of PHY 130, we will also be using concepts from PHY 130 on a daily (or near-daily) basis, as well as a good deal of algebra. If you feel that your skills are weak in either of these two areas, please feel free to come and see me during office hours or by appointment. I am willing to work with you and help you catch up. Also feel free to come by during my office hours with questions about the lecture, laboratory, reading, homework, exams, grading, or anything else of concern or interest.

Grading: Class Participation: 5%
Labs: 15%
Homework: 15%
Exams: 45% (3 at 15% each)
Cumulative Final Exam: 20%

I will be using the official WCU scale for grades. Please note that the scale has a one percentage point gap between letter grades. I will round your final scores to the closest percentage. I do reserve the right to adjust grade cutoffs, and

in extreme circumstances adjust the weights of individual components, to account for unforeseen circumstances. The official WCU scale for grades is:

Letter	Grade Points	Percentage	
A	4.000	93 - 100	Excellent
A-	3.670	90 - 92	
B+	3.330	87 - 89	Superior
B	3.000	83 - 86	
B-	2.670	80 - 82	
C+	2.330	77 - 79	Average
C	2.000	73 - 76	
C-	1.670	70 - 72	
D+	1.330	67 - 69	Below Average
D	1.000	63 - 66	
D-	0.670	60 - 62	
F	0.000	59 or lower	Failure

Course Schedule: Please see the Course Schedule enclosed at the end of this document. If the course schedule is adjusted due to unforeseen circumstances, a revised course schedule will be posted to D2L and there will be an announcement made in class. An announcement will also be placed on D2L indicating that the course schedule has been updated. This syllabus will also be updated with the revised course schedule.

Class Participation and Attendance: We will be using the Learning Catalytics classroom response system in class. Learning Catalytics is **FREE** to access **if you have purchased access to Modified Mastering Physics with e-text or have purchased access to Modified Mastering Physics through the Inclusive Access program**. If you have purchased access to Modified Mastering Physics only, without the e-text, access to Learning Catalytics can be purchased for $12 for 6 months or $16 for one year. You will be able to access Learning Catalytics from our course's Modified Mastering Physics homepage. As a reminder, it is best to ALWAYS access Modified Mastering Physics from the "Access VitalSource" link in the "Inclusive Access: START HERE" module of the "Content" area of our course's D2L site. A document which provides instructions on how to access Learning Catalytics from within Modified Mastering Physics will be posted to our course's D2L page. I am **REQUIRING** that you obtain access to Learning Catalytics by **WEDNESDAY JANUARY 29TH.** Starting on that date, I will be using Learning Catalytics in class to assign class participation points.

With very few exceptions, each class I will ask questions during my PowerPoint presentations that you will use Learning Catalytics to respond to. You will earn class participation credit for responding to those questions with your smartphone, tablet, or laptop. The number of questions will vary from class to class depending on the difficulty of the material and the time allotted to each topic. The questions I will ask with Learning Catalytics will consist of (but are not necessarily limited to) "Voting Opportunities," "Prediction Opportunities," and numerical answer problems. I reserve the right to introduce ways in addition to these to earn class participation credit. Please note that, at times, I will ask you to talk to a neighbor and respond again to a question using Learning Catalytics; that re-asking of the question **will count** as a new class participation point, so if you do not respond to a re-asked question you will miss out on one class participation point for that class.

Each class meeting I will ask ONE question which can only be correctly answered by students physically present in the classroom; this question may be asked during the beginning, middle, or end of a lecture. That question, which will clearly be labeled "Attendance Question" when asked in class, is the only question that will be graded on the basis of correctness. If you fail to answer the Attendance Question correctly, you will earn ZERO class participation points for that date. Except for the Attendance Question, you ***DO NOT*** have to answer Learning Catalytics response questions *correctly* in order to get credit for them: you just have to attempt them. It is in your best interest to do your best to get the correct answers, though, so don't just choose a response at random when questions come up. Give them your best go.

In order to earn class participation points, ***YOU*** must present in class submitting responses via the Learning Catalytics using ***YOUR*** personal device. If I catch ***ANYONE*** answering questions via Learning Catalytics while not actually present in the classroom, this will be construed as cheating, and AT THE MINIMUM you will lose ALL class participation points for the entire semester. If I notice that there are more responses coming in to Leaning

Catalytics than there are students present in class, I **WILL** introduce a second method to verify in-class presence, in the form of a paper sign-in sheet. I reserve the right to introduce additional ways to verify in-class presence as circumstances warrant. Further, I have a zero-tolerance policy for ANYONE who authorizes a classmate to use their Learning Catalytics account for them in class. If I catch ***ANYONE*** using multiple Leaning Catalytics accounts during a class, this will also be construed as cheating, and ***ALL*** involved parties will lose ***ALL*** class participation points for the semester.

You ***MUST*** be present in class responding via the Learning Catalytics system in order to receive class participation credit. Thus, I am requiring you to attend **ALL** scheduled classes, **INCLUDING** scheduled discussion periods, for the entire scheduled time. I do understand that on occasion something unforeseen will pop up and prevent you from attending class; therefore, at the end of the term I will drop five (5) days of class participation points. Any additional unexcused absences will result in ZERO class participation points for those dates. If you miss class due to an excused absence, it is ***IT IS YOUR RESPONSIBILITY*** to contact me by email to arrange a way to make up the class participation points that you missed. My excused absences policy follows the Excused Absence Policy as described in the West Chester University Undergraduate Catalog.

If you are absent, whether excused or unexcused, ***IT IS YOUR RESPONSIBILITY*** to get the notes that you missed from a classmate, and to learn of any important announcements that were made. You are welcome to seek assistance in office hours, but I cannot and will not reproduce an entire lecture outside of class. Students will be held responsible for all course materials missed due to class absences, whether excused or unexcused. Missing class does not excuse you from completing other aspects of the course on time.

As with any technology, problems with the Learning Catalytics classroom response system can pop up unexpectedly. Thus, in the event that unforeseen circumstances arise, I reserve the right to change details about how class participation credit is awarded on a particular day as circumstances warrant it. You will be notified of any such changes both in class and on D2L. I also reserve the right to increase the number of dropped days of class participation due to unforeseen circumstances.

Please note that this course does have a laboratory component, and that the course's lab component has a different attendance policy. **Please see the lab syllabus for the lab attendance policy**.

Homework: This course will utilize an online homework system via Modified Mastering Physics. Please note that **prompt enrollment in Modified Mastering Physics is a course requirement**. Homework will be assigned almost every week, starting from the first week of classes; see the paragraph regarding the homework schedule below. All homeworks will be posted on Modified Mastering Physics at 8:00AM on the day they are scheduled to be posted; all homeworks will be due at 11PM on Modified Mastering Physics on their due date. Each time I post a graded homework assignment, I will post an **ungraded**, completely optional, set of practice problems. This **ungraded** set of practice problems, which will be clearly labeled as "practice," is meant to give you additional, optional practice with the material. I will ensure that ALL graded (i.e., for credit) assignments have a clearly labeled due date on Modified Mastering Physics. **It is your responsibility to check Modified Mastering Physics periodically for assignments.** I reserve the right to modify homework frequency, the number of homeworks assigned, homework assign-dates, and homework due-dates to reflect unforeseen circumstances.

To help you keep track of when to expect homeworks to be posted, and when they will be due, I have included a column in the class schedule that tells you, sequentially, the date a homework will be posted and the date it will be due. If I need to modify this homework schedule due to unforeseen circumstances, I will post a revised class schedule to D2L and there will be an announcement made in class. An announcement will also be placed on D2L indicating that the class schedule has been updated. Life can get very busy during a semester, so it can be hard to remember to log in to do homeworks even when you know the dates that they are being posted and will be available. Thus, you may wish to set up pre-timed reminders to check in on Modified Mastering Physics.

The number of problems in each assignment will vary somewhat depending on the topic and difficulty of the questions asked. You will have **six** attempts at each problem for full credit; after these attempts the problem will close and you will receive no credit. Please note that any work completed on a homework prior to the due date and time will be counted, so you do not have to complete the assignment to receive partial credit.

Numerical answers to homework problems will be available on Modified Mastering Physics shortly after the assignment deadline. Solutions are available to students during office hours, or by appointment if you cannot make my office hours. ***NO LATE HOMEWORK SUBMISSIONS WILL BE ACCEPTED***. At the end of the term, ***I will drop your two (2) lowest homework grades***. So, if you miss a couple of assignments, it's not going to affect your grade drastically.

But, if not doing homework becomes a habit, your grade **will** suffer come the end of the semester. Note that homework amounts to 15% of your total grade. **You cannot get an A if you do not do your homework assignments!** Please remember that YOU ARE RESPONSIBLE for completing homework assignments in a timely manner and informing me of problems, if any, in accessing the homework. Failure to complete an assignment because you could not access the homework an hour before it is due is not an excuse.

Laboratory: This course has a laboratory component. Your lab grade will be factored into your final grade for this course. You are expected to attend all labs. Please see the lab syllabus for more details.

Regular Exams: There will be four in-class exams given over the course of the semester. The dates of these exams are:

February 21
March 23
April 13
May 1

I make every effort to keep exam dates as listed, but please be aware that they may shift to reflect unforeseen events.

The range of chapters each exam covers is given in the course schedule, which can be found at the end of this syllabus. (Please note carefully that even though earlier material is not explicitly tested, it may still appear on an exam! **YOU HAVE BEEN WARNED.**) If the course schedule is adjusted from what appears at the end of this document, it will be posted to D2L and there will be an announcement made in class. Make sure to check D2L regularly to ensure that you have an up-to-date class schedule. ***You*** will be responsible for knowing what chapters will be covered on an exam, and when that exam is.

YOUR LOWEST EXAM GRADE WILL BE DROPPED. Only your three highest exam grades will be counted. A missed exam will be treated as your dropped exam. YOU CANNOT TAKE AN EXAM EARLY. I WILL NOT GIVE MAKE-UP EXAMS. The exceptions to the no make-up exams policy are limited to absences related to University Sanctioned Events and Excused Absences as outlined in the Excused Absences Policy contained in the WCU Undergraduate Catalog. If you miss an exam for a University Sanctioned Event, or due to some other Excused Absence (as outlined in the Excused Absences Policy contained in the WCU Undergraduate Catalog), you must contact me **BEFORE** the exam, you must provide some form of written documentation, and we will arrange for you to take the exam in a manner consistent with its integrity. If you have a letter of accommodation from the OSSD, it is ***your responsibility*** to contact me with the letter prior to any exams where it will be used. You are also responsible for arranging accommodation at least one week prior to any exam date.

All exams will be *closed book* and *closed notebook*. They will consist of a combination of multiple-choice questions (conceptual and numerical) and open-ended numerical problems for which you will be expected to show all the work (i.e., math steps). An equations sheet will be provided for exams. You are permitted to use 1 stand-alone calculator (i.e., a calculator that is ***not*** part of an iPod/iPad, cell phone, tablet PC, Kindle, etc.) during exams. If I catch you using an internet-accessible personal electronic device as a calculator during an exam, I will take your exam and you will get a zero on it. No exceptions. If you will be using a graphing calculator, I must personally see you clear its memory before you receive your exam (i.e., remove any files which may be stored on the device). I will NOT bring extra calculators for you to use during exams. It is ***your responsibility*** to make sure you have a working stand-alone calculator for exams.

Final Exam: The final exam for this course will be given on Friday, May 8th from 1:00 PM—3:00 PM. This is the time scheduled by the University Registrar for our final exam. The final exam will be held in MSC 112. ***You should plan to be available for the entire finals week.*** We have in past semesters had to reschedule finals due to weather related events.

The final will be ***closed book*** and ***closed notebook***, ***it will be cumulative***, and ***IT IS MANDATORY.*** It will consist of multiple-choice questions (conceptual and numerical) and a few open-ended questions. Missing the final exam will result in a zero for the exam unless EXTREME circumstances apply. Your final exam grade **cannot** be counted as your dropped exam score. There is no final exam "exemption."

Extra Credit: I will not be offering extra credit for PHY 140. There will be no opportunities for extra credit for any reason. There are no exceptions to this policy, period.

Teaching Style: I will be using Microsoft PowerPoint slides a great deal when going over course material in class; when example problems come up, I will use the white board to work through them. I will try to write big enough so that everyone can see, but if you do have trouble seeing what I write please move to the front of the room. Before the class period on which we will begin covering a chapter, I will post to D2L **modified copies** of the PowerPoint slides I will use in class, in the so-called "structured note-taking" style. There **WILL** be blank areas in the modified lecture slides where material is intentionally omitted. The slides I put up on D2L are **NOT** meant to take the place of your own personal note-taking. ***YOU*** will be responsible for that. I provide these modified slide copies to give you the text for in-class activities that we will do, so that you do not need to worry about copying them down and can instead concentrate on the activities themselves. I will also leave plenty of room on the modified slides for you to write down key equations, words, and other ideas so that you'll remember them later. Please note carefully that the modified slides I post will NOT contain solutions to example problems done in class, nor will they contain each and every word seen on the in-class slides. If you want notes on these things, you'll need to take them for yourself as we go through the material in class.

During class time, I will do my best to make sure that you are engaging interactively with the course material. In-class activities may include, but are not necessarily limited to, conceptual questions to be discussed with a neighbour, practice problems, "Voting Opportunities," "Prediction Opportunities," interactive problem-solving sessions, and interactive lecture demonstrations. I hope that these activities both enhance your learning and help make class a little more exciting for you. The cooperative in-class activities listed above, in addition to assigned homeworks and exams, are designed to contribute to your achievement of the course goals that this class has been designed to meet.

Excused Absences Policy: Students are advised to carefully read and comply with the excused absences policy, including absences for university-sanctioned events, contained in the WCU Undergraduate Catalog. In particular, please note that the "responsibility for meeting academic requirements rests with the student," that this policy does not excuse students from completing required academic work, and that professors can require a "fair alternative" to attendance on those days that students must be absent from class in order to participate in a University-Sanctioned Event.

Intellectual Property Statement: The instructor for this course utilizes copyrighted materials under the "Freedom and Innovation Revitalizing United States Entrepreneurship Act of 2007" (Fair Use Act). Apart from such copyrighted materials, all other intellectual property associated with this course is owned and copyright protected by the instructor, including, but not limited to, lectures, course discussions, course notes and supplementary materials posted or provided to students authored by the instructor, assessment instruments such as quizzes and exams, and PowerPoint presentations. No recording, copying, storage in a retrieval system, or dissemination in any form, whether electronic or other format, by any means of the intellectual property of the instructor, either in whole or in part, is permitted without the prior written permission of the instructor. When such permission is granted, it must specify the utilization of the intellectual property and all such permissions and waivers shall terminate on the last day of finals in the semester in which this course is held.

Links and references to on-line resources provided by the instructor may lead to other sites. The instructor does not sponsor, endorse or otherwise approve of any information appearing in those sites, nor is responsible for the availability of, or the content located on or through, external sites. Apart from materials used in accordance with the Fair Use Act, the instructor takes no responsibility for material that is otherwise offered at web sites and makes no warranty that such material does not infringe any third party rights. However, should any of this type of material be present and this fact is brought to the attention of the instructor, they will remove references to it from course materials.

Tutoring: Tutoring for PHY 140 is offered by the Learning Assistance Resource Center (LARC), 224 Lawrence Center, phone number 610-436-2535. LARC tutoring is free of charge, but you must sign up at the beginning of the semester. See the following website for more information: https://www.wcupa.edu/universityCollege/larc/. A list of physics majors offering tutoring will also be made available on the physics department website.

Electronic Mail Policy: It is expected that faculty, staff, and students activate and maintain regular access to University provided e-mail accounts. Official university communications, including those from your instructor, will be sent through your university e-mail account. You are responsible for accessing that mail to be sure to obtain official University communications. Failure to access will not exempt individuals from the responsibilities associated with this course.

Ye Olde Technology Policy: You are permitted to use laptops, cell phones, smart phones, iPhones, iPads, and tablet PCs in class in order to make use of the Learning Catalytics classroom response system. However, you are ***NOT ALLOWED*** to use personal electronic devices for social networking or gaming during class. If I catch you using a personal electronic device inappropriately during class, ***I will take 5 points off of the nearest exam grade***! **NO EXCEPTIONS**. Try to make it a rule that, when you are in class, Learning Catalytics is the only application open on your personal device.
I do not permit audio and/or video recording of my classes. However, I do understand that recordings of class and/or use of certain personal electronic devices may be required to accommodate certain disabilities. Terms of use in these cases can be discussed with me on an individual basis. See the topic "Students with Disabilities" below.

Academic & Personal Integrity: It is the responsibility of each student to adhere to the University's standards for academic integrity. Violations of academic integrity include any act that violates the rights of another student in academic work, that involves misrepresentation of your own work, or that disrupts the instruction of the course. Other violations include (but are not limited to): cheating on assignments or examinations; plagiarizing, which means copying any part of another's work and/or using ideas of another and presenting them as one's own without giving proper credit to the source; selling, purchasing, or exchanging of term papers; falsifying of information; and using your own work from one class to fulfill the assignment for another class without significant modification. Proof of academic misconduct can result in automatic failure and removal from this course.
For questions regarding Academic Dishonesty, the No-Grade Policy, Sexual Harassment, or the Student Code of Conduct, students are encouraged to refer to their major department's handbook, the West Chester University Undergraduate Catalog, the Rams Eye View, or the University Web Site. Please understand that improper conduct in any of these areas will not be tolerated and may result in immediate ejection from the class.

Reporting Incidents Of Sexual Violence: West Chester University and its faculty are committed to assuring a safe and productive educational environment for all students. In order to meet this commitment and to comply with Title IX of the Education Amendments of 1972 and guidance from the Office for Civil Rights, the University requires faculty members to report incidents of sexual violence shared by students to the University's Title IX Coordinator, Ms. Lynn Klingensmith. The only exceptions to the faculty member's reporting obligation are when incidents of sexual violence are communicated by a student during a classroom discussion, in a writing assignment for a class, or as part of a University-approved research project. Faculty members are obligated to report sexual violence or any other abuse of a student who was, or is, a child (a person under 18 years of age) when the abuse allegedly occurred to the person designated in the University protection of minors policy. Information regarding the reporting of sexual violence and the resources that are available to victims of sexual violence is set forth at the webpage for the Office for Diversity, Equity, and Inclusion at https://www.wcupa.edu/_admin/diversityEquityInclusion/.

Students With Disabilities: If you have a disability that requires accommodations under the Americans with Disabilities Act (ADA), please present your letter of accommodations and meet with me as soon as possible so that I can support your success in an informed manner. Accommodations cannot be granted retroactively. If you would like to know more about West Chester University's Office of Services for Students with Disabilities (OSSD), please contact the OSSD which is located at 223 Lawrence Center. The OSSD hours of Operation are Monday – Friday 8:30 a.m. – 4:00 p.m. Their phone number is 610-436-2564, their fax number is 610-436-2600, and their email address is ossd@wcupa.edu. See the following website for more information: https://www.wcupa.edu/universityCollege/ossd/default.aspx.

Withdrawal Notice: A syllabus constitutes a contract between student and instructor. Your continued enrollment after the **January 28th drop deadline** indicates that you accept all instructional practices, requirements, and policies. If you find the standards to which you will be held accountable too rigorous, if you are unable to *reliably* access the internet to log on to D2L and/or Modified Mastering Physics, or if an ongoing scheduling conflict prevents you from attending class regularly and punctually, you must officially withdraw (grade "W") through the Registrar's Office by the **March 24th course withdrawal deadline**. You are responsible for checking your grades before this withdrawal deadline so you aren't surprised by your standing as the end of the course approaches. You can come to my office hours to get a rough estimate of your grade as it stands at the moment.

Emergency Preparedness: All students are encouraged to sign up for the University's free WCU ALERT service, which delivers official WCU emergency text messages directly to your cell phone. For more information and to sign up, visit http://www.wcupa.edu/wcualert. To report an emergency, call the Department of Public Safety at 610-436-3311.

CLASS SCHEDULE

This is the tentative schedule; I will try to follow it as closely as possible. Please note that we may at times get ahead of or behind this schedule. I will post any changes to this schedule to D2L, and announce in class that an updated schedule has been posted.
IT IS YOUR RESPONSIBILITY to make sure that you have an up-to-date class schedule. It is also ***your responsibility*** to read the assigned selections from the text before you arrive in class. I will not always cover in class everything that is contained in the readings.

Week	Laboratory	Class Meeting	Topic	Readings Due	HW Out / Due
1	Introduction	N/A	N/A	N/A	
		January 21	Introduction, the Charge Model	19.1—19.2	HW #1 posts on 01/22
		January 22	The Charge Model	19.2	
		January 24	Coulomb's Law	19.3	
2	Electric Charges	January 27	Coulomb's Law Example and Problem Solving	19.3	HW #1 DUE on 01/29
		January 28	The Electric Field	19.4	HW #2 posts on 01/30
		January 29	Electric Field Lines	19.4—19.5	
		January 31	Conductors, Electric Flux, Gauss's Law	19.6—19.7	
3	**NO LAB**	February 3	Problem Solving		HW#2 DUE on 02/05
		February 4	Electric Potential	20.1	HW#3 posts on 02/06
		February 5	Electric Potential and Electric Potential Energy	20.1—20.2	
		February 7	Conservation of Energy, Problem Solving	20.2	

Week	Homework	Class Meeting	Topic	Readings Due	
4	Equipotential Lines	February 10	Equipotential Surfaces and the Electric Field	20.4	HW#3 DUE on 02/12
		February 11	Electric Potential of an Arrangement of Charges	20.3	HW#4 posts on 02/13
		February 12	Capacitors and Dielectrics, Electrical Energy Storage	20.5—20.6	
		February 14	Problem Solving		
5	Resistors & Ohm's Law	February 17	Electric Current and Complete Circuits	21.1	HW#4 DUE on 02/19
		February 18	Resistance and Ohm's Law, Energy and Power	21.2—21.3	
		February 19	Test Questions		
		February 21	**EXAM #1**	**Chapters 19 and 20**	
6	Resistors in Series	February 24	Resistors in Series and Parallel	21.4	HW#5 posts on 02/25
		February 25	Kirchhoff's Laws, Capacitors in Series and Parallel	21.5—21.6	
		February 26	Capacitors in Series and Parallel, RC Circuits	21.6—21.7	
		February 28	Problem Solving		
7	Resistors in Parallel	March 2	The Magnetic Field and Magnetic Force	22.1—22.2	HW#5 DUE on 03/02
		March 3	The Magnetic Force	22.2—22.3	HW#6 posts on 03/03
		March 4	Magnetic Force and Currents	22.4	
		March 6	Problem Solving		

Week	Homework	Class Meeting	Topic	Readings Due	
8	**NO LAB**	March 9	*Spring Break!* ☺	*None! Have some fun!*	
		March 10			
		March 11			
		March 13			
9	RC Circuits	March 16	Magnetic Torque, Ampere's Law	22.5—22.6	HW#6 DUE on 03/15
		March 17	Ampere's Law	22.6	HW#7 posts on 03/16
		March 18	Solenoids, Magnetism in Matter	22.7—22.8	
		March 20	Test Questions	21.1—22.8	HW#7 DUE on 03/22
10	**NO LAB**	**March 23**	**EXAM #2**	**Chapters 21 and 22**	HW#8 posts on 03/25
		March 24	Induced EMF, Magnetic Flux	23.1—23.2	
		March 25	Faraday's Law and Lenz's Law	23.3—23.4	
		March 27	Problem Solving		
11	EM Induction	March 30	Energy Storage in a Magnetic Field	23.7, 23.9	HW#8 DUE on 03/30
		March 31	The Production and Propagation of Electromagnetic Waves	25.1—25.2	HW#9 posts on 03/31
		April 1	The Doppler Effect, the Electromagnetic Spectrum	25.2—25.3	
		April 3	Problem Solving		

Week	Laboratory	Class Meeting	Topic	Readings Due	
12	**NO LAB**	April 6	The Energy Carried by Electromagnetic Waves	25.3	HW#9 DUE On 04/06
		April 7	The Intensity of Light	25.4	HW#10 posts on 04/06
		April 8	Polarization	25.5	
		April 10	Test Questions	23.1—25.5	
13	Snell's Law	**April 13**	**EXAM #3**	**CHAPTERS 23 and 25**	HW#10 DUE on 04/12
		April 14	The Reflection of Light, Plane Mirrors	26.1—26.2	HW#11 posts on 04/15
		April 15	Spherical Mirrors	26.3	
		April 17	Ray Tracing and the Mirror Equation	26.4	
14	Thin Lenses	April 20	The Refraction of Light	26.5	HW#11 DUE on 04/20
		April 21	Lenses	26.6	HW#12 posts on 04/21
		April 22	Ray Tracing and the Thin Lens Equation	26.7	
		April 24	Dispersion, the Human Eye	26.8, 27.1	HW#12 DUE on 04/26
15	**NO LAB**	April 27	Lenses in Combination, Vision Correction	27.2	HW#13 posts on 04/26
		April 28	Vision Correction, Superposition	27.2, 28.1	
		April 29	Test Questions	26.1—27.2	HW#13 DUE on 04/30
		May 1	**EXAM #4**	**CHAPTERS 26 and 27**	HW#14 posts on 05/02
16		May 4	Superposition, Double Slit Interference	28.1—28.2	HW#14 DUE on 05/04
		May 8	***FINAL EXAM***	***1:00 PM—3:00 PM***	***MSC 112***