

Syllabus for Physics 140, Fall 2011

Instructor: Dr. John D. Shaw

Office: Merion Science Center 120

e-Mail: jshaw2@wcupa.edu

Office Hours: TWR 1:00 – 3:00*
or by appointment

Lectures: MWF 9:00 – 09:55

Merion Science Center 112

Laboratory Sections (in Merion Science Center 124)

SecNum	Day	Start	Finish
51	Mon	01:00 PM	2:55 PM
52	Mon	3:00 PM	4:55 PM
53	Tue	10:30 AM	12:25 PM

Class webpages: Found on West Chester University's D2L site.
You need to be registered to see the course website!

Text & Resources:

Required textbooks: *College Physics: A Strategic Approach, Volumes 1 & 2, Knight, Jones, and Field* Available at bookstore.
College Physics: A Strategic Approach, Student Workbook, 2nd Edition, Volume 2

Lab Manual: Available at bookstore.

Desire2Learn Website:

This course has a Desire2Learn website associated with it, where announcements and course documents will be posted. Report any problems with Desire2Learn by emailing d2l@wcupa.edu or visiting the ACC student helpdesk in 20 Anderson Hall (610-436-3065).

Course Description and Content:

Physics 140 is the second of two courses that serve as an introduction to the fundamental concepts in physics applicable to the world that we can perceive with our senses. Some of the topics presented in this course are oscillation and electrostatics, electronics, magnetism, optics, and nuclear physics. A passing grade in PHY 130 is the prerequisite for this course.

Prerequisite: Successful passing grade in PHYS130, mastery of algebra, geometry and trigonometry skills.

* Subject to change, check the course website (D2L) for current office hours.

Course Objectives:

- Develop an understanding (including concepts and mathematical methods) needed to solve problems in fundamental electrostatics, electronics, magnetism, optics and atomic/nuclear physics.
- Exercise and develop reasoning skills.
- Exercise and develop problem-solving skills.
- Exercise and develop metacognitive skills.

Grading of the Course:

The weight of each portion of the course is as follows:

Exam I:	15%
Exam II:	15%
Exam III:	15%
Final Exam:	20%
Total Quizzes:	20%
Total Labs:	15%

Each lab is graded on a point scale of 0 to 10 or 15 (dependent on the lab), and your total Lab Grade is the average of your individual lab grades after your worst lab has been dropped.

Each problem on the quiz is graded on a scale of 0 to 10, and your total Quiz Grade is the average of your individual quiz grades after the worst grade has been dropped.

At the end of the semester, your total numerical course grade is converted into a letter course grade as follows:

A: 93 and above	C: 73 – 77
A-: 90 – 93	C-: 70 – 72
B+: 87 – 90	D+: 67 – 70
B: 83 – 87	D: 63 – 67
B-: 80 – 83	D-: 60 – 63
C+: 77 – 80	F: Below 60

Course Requirements:**Exams:**

There will be **three midterm exams**: *tentatively* scheduled for September 23, October 24, and November 21. There will be a cumulative **final exam**, two hours long, given during finals week at a date TBD (check D2L later in the semester). Midterm #1 will *most likely* cover chapters 20, 21 and 22. Midterm #2 will most likely cover chapters 23, 24, and most of Chapter 25. Midterm #3 will most likely cover the end of chapter 25 and chapters 17, 18 and 19. The final exam will be cumulative.

Examinations will be **closed book**, i.e. memory aids, class notes, textbooks, etc. are not allowed. Simple scientific calculators may be used in exams. If you have other than a simple scientific calculator, you must obtain approval to use it and clear its memory before any quiz or exam.

Homework:

Reading: The Course Schedule shows what sections of the book are to be covered in each lecture. It is expected that you will have read the relevant sections *before* each lecture.

There will be about ten to fifteen problems posted at least one week before the “due date” and these *will not* be graded. Homework solutions will be posted on *D2L* the night before a quiz. Problems and “due dates” will be posted in D2L, as well.

Quizzes:

Most weeks, on Wednesdays or Fridays, there will be a short (5 to 10 min) quiz given at the end of lecture. The quiz will consist of one or two problems based on worked examples in the textbook, lecture examples or homework problems. The material will be from the chapters of the textbook previously covered in lecture. (E.g. The quiz on September 7 can be on any material covered from chapter 20 of the book.) Altogether there will be 12 such quizzes throughout the semester, your worst quiz grade will be dropped. *The quizzes will count for a total of 15% of the course grade.*

Partial credit will be given for quizzes and exam solutions, provided the correct logical steps of the solution can be identified (neatness helps). No credit will be given if only the final answer is written without the steps leading up to it.

Laboratories:

During the semester, there will be a total of 9 labs. Labs will be done by groups of three students. These groups will stay the same for the whole semester (except for changes made necessary by withdrawals from the course). In each lab, one person writes the report for the group. Reports will be signed by all participating members of the group, with the author clearly identified. Authorship rotates through the group over the semester. Students should read the lab manual before each lab.

For each student, the worst of the 9 lab grades will be dropped and the other 8 averaged to get his or her total Lab Grade. *The total Lab Grade counts for 15% of the total Course Grade.* If a student misses one lab, that will count as the lowest lab grade and be dropped. **Important:** *If a student misses two labs, his or her Course Grade will be lowered by a full letter grade. If a student misses three labs, he or she will fail the course.*

Missed labs can be made up only in the case of an excused absence (see “Course Policies” below) by attending another lab section in the same week. This needs be arranged with your instructor first.

Lab grades **cannot** be transferred from a previous attempt at this course.

COURSE POLICIES:

Attendance in Lecture

All students are expected to attend all lectures unless officially excused. If you are absent, **it is your responsibility to find out from other students what you missed.** Missing lectures **will not excuse you from any material** covered nor excuse homework, quizzes, labs, or exams. In cases of extreme illness or emergency that require prolonged absence, you are responsible for contacting the appropriate Dean whose office will contact your professors and make appropriate recommendations.

Missed Quizzes, Exams or Labs

An exam or quiz missed *due to an excused absence* can be made up. See the course instructor to arrange it. A lab missed *due to an excused absence* can be made up in another lab section the same week *if* you previously arrange it with the lab instructor.

Absences for those religious holy days that are not in the university's Academic Calendar and absences for university athletic competitions are excused absences only if the instructor is notified in the first two weeks of class. Most other kinds of excused absence only require that the instructor be notified in advance. There are some emergency situations where it is impossible to inform the instructor in advance and will be dealt with according to University policy.

Academic Honesty and Other General Policies

You are **required** to read and comply with the University's Policy on Academic Dishonesty. We reserve the right to photocopy exam papers before returning them to you after they are graded. During exams and quizzes you are only allowed to have out writing utensils and simple calculators. You are not to have out any other kinds of devices or any pieces of paper other than those provided. We will supply both the test papers and an adequate supply of writing and scrap paper.

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 Undergraduate Course Catalogue, 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.

Withdrawal Notice

A syllabus constitutes a contract between student and instructor. Your continued enrollment after the September 3 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 use Desire2Learn, or if an ongoing scheduling conflict prevents you from attending regularly and punctually, you should officially withdraw (grade "W") through the Registrar's Office by the October 28 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.

Working Together

You are encouraged to study together and work on homework together. Homework is for the purpose of learning to do problems. If you just copy someone else's homework answers *without having tried to do the problems yourself*, you will learn very little from the homework, and you will be at a disadvantage on the tests, where you will have to rely on your own understanding. My suggestion is that you try the problems yourself before asking someone for help. If you get stuck, please post it on the discussion forum on Desire2Learn (and/or come to my office hours); please do not email me. Other students will very likely share your question, and you can learn this material much faster if you work with your peers. Again, I will read and respond in the Desire2Learn discussions. By getting stuck, and then being shown how to overcome that obstacle, you learn more, and what you learn sinks in much better.

Please make use of my office hours, and don't hesitate to email me about any of the following:

- To schedule a time to meet if you cannot make it to any of my office hours
- Questions/feedback related to class organization, syllabus, and grading
- Notification of upcoming excused absences
- Other course-related matters you do not wish to share with your classmates

If you want to ask me a question directly, please do the following: (1) Formulate a proper question and put it in writing. (2) Search for the answer to that question in the information that is already available to you (all documents will be posted on Desire2Learn in electronic form). (3) If you cannot find the answer to your question in a reasonable amount of time, then determine the best method to contact me (email, or visit). This will result in the most efficient use of your time and mine.

Additional help with physics is available through three different forums: the Learning Assistance & Resource Center, the Department of Physics, and private tutors. More information about tutoring will become available during the second week of the semester.

TENTATIVE SCHEDULE*

Week		Notes	Mon. Lecture	Wed. Lecture	Fri. Lecture	Lab	Text	HW
1	8/29/2011		Class Introduction Electric Charge	Coulomb's Law Electric Fields	Electric Fields	No Lab	Chapter 20	
2	9/5/2011	End of Drop - 9/3	LABOR DAY	Electric Potential QUIZ 1	Electric Potential and Fields Conservation of Energy	No Lab	21.1 - 21.5	HW 1 due 9/4
3	9/12/2011		Capacitors Dielectrics	Electric Current QUIZ 2	Electric Potential, Current and Resistance	1: Electrostatics	21.7 - 22.5	HW 2 due 9/13
4	9/19/2011		Ohm's Law, Resistivity Electric Power	Circuit Analysis I QUIZ 3	EXAM 1 (Chapters 20 - 22)	2: Error Analysis	22.5 - 23.2	HW 3 due 9/20
5	9/26/2011		Circuit Analysis II	Circuit Analysis III QUIZ 4	Capacitors in Circuits Circuit Review	3: Ohm's Law	Chapter 23	HW 4 due 9/27
6	10/3/2011		Magnetic Fields and Electric Charges	Magnetic Fields and Electric Currents; QUIZ 5	Electric Charges/Currents in Magnetic Fields I	4: Kirchhoff's Laws	24.1 - 24.6	HW 5 due 10/4
7	10/10/2011		Fall Break	Electric Charges/Currents in Magnetic Fields II	Induced EMF and Current QUIZ 6	No Lab	24.7 - 25.2	HW 6 due 10/13
8	10/17/2011		Magnetic Flux Faraday's and Lenz's Laws	Alternating Current	Electromagnetic Waves I QUIZ 7	Lab 5 Magnetism	25.3 - 25.8 26.1 - 26.2	HW 7 due 10/20
9	10/24/2011	Last Day to Withdrawal - 10/28	EXAM 2 (23.1 - 25.6, 26.1 - 26.2)	Electromagnetic Waves II	Interference QUIZ 8	No Lab	25.8 - 25.9 17.1 - 17.2	HW 8 due 10/27
10	10/31/2011		Diffraction	Thin Films Light Rays	Reflection QUIZ 9	6: Double Slit Interference	17.3 - 18.3	HW 9 due 11/3
11	11/7/2011		Refraction Snell's Law	Lens Equation Mirrors	Mirrors QUIZ 10	No Lab	18.4 - 18.7	HW 10 due 11/10
12	11/14/2011		Cameras The Eye	Optical Instruments	Dispersion QUIZ 11	7: Refraction	Chapter 19	HW 11 due 11/17
13	11/21/2011		EXAM 3 (25.7-25.8, 17.1 -19.7)	Thanksgiving	Break	No Lab		
14	11/28/2011		Photons Photoelectric Effect	Matter Waves Energy Quantization	Atomic Spectra QUIZ 12	8: Lenses	28.1 - 29.2	HW 12 due 12/1
15	12/5/2011		Bohr Model	The Periodic Table	Nuclear Structure QUIZ 13	9: Diffraction and Spectra	29.3 - 30.1	HW 13 due 12/8
16	12/12/2011		Radio Activity	FINAL EXAM???		No Lab	30.2 - 30.5	

*All activities listed are subject to change. Check D2L daily for updates!