Physics 140-02 - General Physics II

Meeting Place:	Merion 112
Meeting Time:	M,W,F 8 am
Instructor:	Dr. Pfeil
Office Hours:	M,W,F: 2-3 pm
	Th: 11 am-1 pm
Office Location:	Schmucker Science South 229
e-mail:	SPFEIL@wcupa.edu*

* Please include "PHY140" and lecture time in the subject line.

Course Description

Physics 140 is the second semester of a year long introductory physics sequence. In PHY130 we discussed the properties of motion arising from mass. In Physics 140 we will primarily be interested in forces arising from electric charge, and related concepts. Physics 140 covers electricity, magnetism, circuits, optics, quantum mechanics, and nuclear physics. A passing grade in PHY130 is the prerequisite for this course.

We will be using concepts from PHY130 on a 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 see me in my office hours.

Specific Learning Outcomes

Our goals are:

- An ability to communicate effectively in a technical setting.
- An ability to use reductionist problem solving techniques.
- An ability to employ quantitative concepts and mathematical methods.
- An ability to think critically and analytically.

General Education Goals

- An ability to communicate effectively.
- An ability to employ quantitative concepts and mathematical methods.
- An ability to think critically.

Required Course Materials

- *Physics* by Cutnell and Johnson, the 9th edition†
- Physics 140 lab handouts (provided on D2L)
- Wiley-Plus access code for *Physics* by Cutnell and Johnson, the 9th edition†
- Laboratory notebook (see lab syllabus for details).

† An online copy of the textbook is available with the Wiley-Plus code.

Contact Policy

Please include PHY140 and our meeting time in the subject line of any e-mail. I try to respond to e-mail within 24hrs. Although I will try to answer all questions directed to me by e-mail, most problems related to course content are best discussed in office hours.

Assessment

Labs	20%
Homework	20%
Regular Exams	40%
Final Exam	20%

Laboratory Please see lab syllabus for details..

Homework Homework will be assigned online via Wiley-Plus on a biweekly basis. Typically, assignments will be due Tuesday and Thursday night at 11:00 pm. It is my intention to post homework at least a week in advance. I reserve the right to modify homework frequency and due dates to reflect unforeseen circumstances. **Late homework will receive a 60% reduction in point value.**

Exams We will have three regular in-class exams during the course of the year, and one cumulative final. I will drop your lowest in-class exam score. This means every student has one in-class exam that they can for whatever reason, sickness, family emergency, etc., not be counted.

No makeup exams (almost). My policy of dropping an exam score is meant to alleviate the need for makeup exams. No makeup exams will be given, with the exception of those related to University Sponsored Events (see below). Appropriate documentation must be provided in advanced.

I assign grades using the following scale:

93-100%	A
90-92%	A-
87-89%	B+
83-85%	B
80-82%	B-
77-79%	C+
73-76%	C
70-72%	C-
67-69%	D+
64-66%	D
60-62%	D-
0-59%	F

I do not "curve" grades. I reserve the right to adjust assessment weighting to account for unforeseen circumstances.

Attendance

I highly recommend attending lecture and coming to office hours. This is your chance to ask questions, and see examples. I am here to guide you through the material. Attendance will benefit your understanding and therefore grade. However, I do not count lecture attendance towards homework, or exam scores. **Please see lab syllabus for lab attendance policy.**

Disability Statement

If you have a disability which will require special accommodation, please meet with me as soon as possible to discuss your needs. Also, contact the Office of Students with Disabilities at (610) 436-2564. Both the WCU and I desire to comply with the ADA of 1990.

Electronic Devices Policy

In order to create a conductive learning environment, please arrange for all electronic devices to be set in their silent mode and put away. If you need to use a device to accommodate a disability, please see above.

D2L

This course has a D2L web page. Laboratory assignments, announcements, and supplementary materials will be posted here. Please check D2L periodically.

Academic Integrity & Conduct

I have a zero tolerance policy for breaches of academic integrity. Breaches of academic integrity will be investigated and sanctions imposed to the full extent available under University policy. For questions regarding the university Academic Dishonesty, the No-Grade Policy, Sexual Harassment, or the Student Code of Conduct, students are encouraged to refer to their major departments 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.

University Sanctioned Events

If you will be participating in a University sanctioned event during one of our scheduled exams **you must notify me in advance.** You must provide some form of documentation. We can then arrange for you to take the exam in a manner consistent with exam integrity. For details please see the discussion of University Sanctioned Events in the general catalog.

Physics Tutoring

In addition to my own office hours, the Learning Assistance & Resource Center (LARC), (610) 436-2535, offers physics tutoring.

Intellectual Property Statement

The instructor utilizes copyrighted materials under the "Freedom and Innovation Revitalizing United States Entrepreneurship Act of 2007" (Fair Use Act). Apart from such copyright protected materials, all other intellectual property associated with this course is owned and copyrighted by the instructor, including, but not limited to, lectures, course discussions, course notes and supplementary materials posted or provided or provided to students authored by the instructor, assessment instruments such as exams, and presentation slides. No recording, copying, storage in a retrieval system, or dissemination in any form by any means of the intellectual property of the instructor, in whole or in part, is permitted without 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 the 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 in any way for the content of those sites. The instructor makes no warranty or responsibility for the copyright status of such material. However, should problems with copyright status be brought to the attention of the instructor, reference to offending materials will be removed.

Public Safety

The Emergency Communications Committee recommends that the number of WCU's Department of public safety be available on every course syllabi.

WCU Department of Public Safety: (610) 436-3311

Date (Day)	Material	Ch.	Lab
08/27 (M)	Intro., Electric Charge		
08/29 (W)	Electric Charge	18	Introduction
08/31 (F)	Coulomb's Law	18	
09/03 (M)	Off - Labor Day		
09/05 (W)	Gauss' Law	18	**No Lab**
09/07 (F)	Electrical Potential, & Ohm's Law	19	
09/10 (M)	Capacitors	19	
09/12 (W)	Circuits I	20	Electric Charge
09/14 (F)	Electric Power	20	
09/17 (M)	Circuits II	20	
09/19 (W)	Catch Up, Review & Connections		Equipotential
09/21 (F)	**Exam I:Ch. 18 & 19**		
09/24 (M)	Kirchhoff's Rules	20	
09/26 (W)	RC Circuits	20, 21	Ohm's Law
09/28 (F)	Magnetic Fields	21	
10/01 (M)	Magnetic Force on a Current	21	
10/03 (W)	Ampere's Law	21,22	Lights in Circuits
10/05 (F)	Electromagnetic Induction	22	
10/8-10/9	Off - Fall Break		
10/10 (W)	Lenz's Law	22	**No Lab**
10/12 (F)	Transformers	22,23	
10/15 (M)	AC Circuits	23	
10/17 (W)	Catch-Up, Review, & Connections	21	RC Circuits
10/19 (F)	**Exam II: 20,21,&22**		
10/22 (M)	EM Waves I	24	
10/24 (W)	EM Waves II	24	Earth's Magnetic Field
10/26 (F)	Light Reflection	25	
10/29 (M)	Spherical Mirrors	25	
10/31 (W)	Refraction	26	Induction
11/02 (F)	Lenses	26	
11/05 (M)	The Thin Lens Equation	26	
11/07 (W)	The Eye	26	Basic Optics
11/09 (F)	Optical Instruments	26	
11/12 (M)	Young's Experiment	27	
11/14 (W)	Diffraction	27	Optical Instruments
11/16 (F)	Catch-Up, Review,& Connections		
11/19 (M)	**Exam III:23-26**		
11/21-11/23	Off - Thanksgiving		**No Lab**
11/26 (M)	Diffraction Gratings	27	
11/28 (W)	Wave-Particle Duality	29	The Diffraction Grating
11/30 (F)	Heisenberg Uncertainty Principle	29	
12/03 (M)	The Nuclear Atom	30	
12/05 (W)	The Periodic Table	30	**Lab Report Due**
12/07 (F)	The Laser	30	
12/10 (M)	Catch-Up & Review & Connections		
See Final Schedule	**Final-cumulative**		

† =If time permits.