

General Physics I (PHY130) – sections (01, 03, and 05)-Fall 2015

COURSE MEETING TIME AND PLACE:

Course Section	Meeting Time	Location
130-01 <input type="checkbox"/>	MoWeFri 1:00-1:50 pm	Merion 112
130-03 <input type="checkbox"/>	MoWeFri 12-12:50 pm	Merion 112
130-05 <input type="checkbox"/>	MoWeFri 2-2:50 pm	Merion 112

INSTRUCTOR INFORMATION:

Dr. Shawn H. Pfeil

e-mail: spfeil@wcupa.edu (please include section number on subject line)

phone: (610) 430-4084

office: Schmucker Science South 229

OFFICE HOURS:

My scheduled office hours as of the first day of class are listed below. I reserve the right to adjust this schedule to reflect unforeseen circumstances. Please note homework assignments are due Friday evening.

Monday	Wednesday	Friday
9:15-10:15 am	9:15-10:45 am	9:15-10:45 am 3:00- 4:00 pm

Office hours are available by appointment for students with an ongoing conflict with my scheduled hours.

REQUIRED COURSE MATERIALS:

- *Physics* by Cutnell and Johnson, 10th ed. Wiley **including** WileyPlus access code for *Physics* 10th ed.
- *West Chester Department of Physics 130 Fall 2015 Laboratory Manual* by Mathew M Waite and Shawn H. Pfeil
- Laboratory Notebook (BookFactory)

COURSE DESCRIPTION:

Physics 130 (General Physics 1) is the first semester of an introductory, algebra based, physics sequence. Topics covered include kinematics, dynamics, the mechanics of solids and fluids, wave motion, heat and temperature, and kinetic theory. In less technical language, we will cover the mathematical description and modeling of motion (kinematics), how forces give rise to changes in motion (dynamics), and a number of applications on the macroscopic and microscopic scale. *Physics 130 is primarily a service course for students in biological and health science fields, so we will emphasize applications to these fields.*

A laboratory portion of this course will provide hands-on experience with these phenomena and give a glimpse into how scientists discovered the physical laws covered in the lecture.

Prerequisite: A good working knowledge of algebra and trigonometry are pre-requisites for this course. Mathematical language provides the precision required to state physical laws and the tools to manipulate them. We will be using algebra and trigonometry on a daily basis. **If you feel you have any deficiencies in your mathematical preparation please see me.**

WEST CHESTER UNIVERSITY GENERAL EDUCATION LEARNING OUTCOMES:

This course (PHY130) is an approved general education course in the Sciences (see pg. 39 of the undergraduate catalog) and as such meets the following general education goals:

General Education Goal #2: Ability to employ quantitative concepts and mathematical methods. (Secondary Goal of Science General Education Courses)

Students will apply quantitative and mathematical methods to solve problems from introductory mechanics and thermodynamics.

Virtually every topic discussed in the class will have a quantitative aspect that will require algebraic reasoning. These methods will be employed during class examples, midterm exams, and laboratory sessions.

General Education Goal #3: Ability to think critically and analytically. (Primary Goal of Science General Education Courses)

Students will analyze physical situations and identify what aspects are fundamental to physical modeling.

Mechanics and thermodynamics, the primary subject matter of this course, involve the complex interplay of such concepts as force, momentum, and potential energy. Critical and analytical thinking are essential for applying these concepts to efficiently solve homework and exam problems. One of the many examples might be making assumptions and inferences necessary to analyze the collision of a projectile with a hanging block.

ADDITIONAL LEARNING OUTCOMES:

1. Ability to mathematically model physical situations using the concepts of introductory physics.
 - Students will demonstrate the ability to identify the crucial elements of open ended problems (on homework, in class, and on exams) and identify the appropriate physical concepts to solve them.
2. Ability to solve physics problems arising from modeling.
 - Students will demonstrate the ability to identify forces and break them into components.
 - Students will demonstrate the ability to apply the concepts of Work, Energy, and Conservation of Energy.
 - Student will demonstrate the ability to apply the concepts of Momentum and Angular Momentum.
 - Students will demonstrate the ability to apply the concept of torque.
3. Ability to combine multiple concepts to solve “two-step” problems.
 - Students will demonstrate the ability to use two or more concepts or methods in series to solve more complicated problems. For example, students will demonstrate the ability to calculate the force on an object, the work that force does, and using the Work-Energy theorem the change in velocity of the object.

TIME COMMITMENT AND WORK FLOW:The life of a college student is not easy. A full time student can expect to spend about 50 hrs per week on coursework, or about 12.5 hrs per week per course. Here is how I recommend you spend your 12.5 hours for Physics 130. (Please note some students may need more than 12.5 hrs/week to master the material.)

Activity	Time Commitment
Reading Prior to Class	1.5 hrs/week
Class	2.5 hrs/week
Post Lecture Study	1.5 hrs/week
Homework After Lecture	3.75 hrs/week
Reading Prior to Lab	0.25 hrs/ week
In Lab Time	2 hrs/week
Post Lab Write-Up	1 hrs/week
Total Time Spent	12.5 hrs/week

ASSESSMENT:

I will be using the D2L grade-book feature to post course grades. Please check it periodically.

- **Laboratory** (15%): Please see laboratory syllabus for details.
- **Homework** (15%): Every lecture has two homework assignments. One assignment is for credit. The other assignment, which will be clearly labeled “practice” is not for credit. This assignment is for additional practice. All of the assignments from the previous week are due at 11 pm on Friday. During a regular week the assignments associated with the previous Friday, Monday and Wednesday will be due. **All assignments have a clearly labeled due date on WileyPlus. It is your responsibility to check WileyPlus periodically for assignments.**

Solutions to all homework problems are available on WileyPlus immediately after the assignment is due.

Because solutions are available immediately, late homework will not be considered. In addition to the Solutions provided by WileyPlus I will provide supplemental homework solutions to problems of particular interest. These solutions will be posted on D2L.

- **Regular Exams** (45%): Four regular exams will be given during the semester. I will keep your highest three scores.

If you miss a regular exam : If you miss an exam for a **University Sanctioned Event** you must notify me in advance so that we can arrange for you to take the exam in a manner consistent with its integrity. You must also provide some form of documentation (performing arts program, competition schedule etc.) In all other cases a missed exam will be treated as your dropped exam.

If you have an OSD letter pertaining to exams: You are responsible for making the appropriate arrangements **prior** to the exam date and time.

- **Final Exam** (25%): The final is cumulative and will require synthesis of concepts from different parts of the course.

The dates and times of the final exams for this course (as set by the registrar) are listed below. **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 finals schedule as currently posted by the registrar is:***

Course Number	Date of Final	Time of Final
130-01	12/11/2015	1:00 pm
130-03	12/9/2015	1:00 pm
130-05	12/9/2015	3:30 pm

The final exam for all sections is in Merion 112.

I will be using the official WCU scale for grades, see p.48 in the undergraduate catalog. However, I reserve the right to adjust the weights of individual components, or the scale to account for unforeseen circumstances.

In terms of the WCU standard and the courses point system grades are as follows.

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

ELECTRONIC DEVICE POLICY:

The pace of the course is such that your undivided attention will be required for the entire lecture and lab period. Please set all electronics to silent or “vibrate mode” and put them away. Both you and your neighbors will be able to concentrate on the material at hand. ***If you plan on recording any lecture please see the intellectual property statement.***

D2L/WILEYPLUS:

We will be using two online platforms for this course WileyPlus, the publisher’s homework system, and D2L. Homework assignments are to be performed on WileyPlus. To allow for *structured note taking* I will post my lecture slides prior to class. These slides intentionally leave some information, such as example solutions out, and provide space to fill that material in during lecture. **It is your responsibility to check these resources periodically for any updates and announcements. You may want to set D2L to notify you when new content is posted.**

ATTENDANCE POLICY:

Attendance is taken for this course. Attending lecture, while highly correlated with success in this course is not graded.

DISABILITY STATEMENT:

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 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.–4:30 p.m. Their phone number is 610-436-2564,

their fax number is 610-436-2600, their email address is ossd@wcupa.edu, and their website is at www.wcupa.edu/ussss/ossd. **It is your responsibility to contact me to arrange any exam accommodation at least one week prior to the exam.**

ELECTRONIC COMMUNICATIONS STATEMENT:

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.

UNIVERSITY SANCTIONED EVENTS:

If you will be participating in a University sanctioned event during class or an exam **you must notify me in advance.** Please see the discussion of University Sanctioned Events in the general catalog.

PHYSICS TUTORING:

Physics tutoring is available through LARC (610) 436-2535. In the past peer tutoring has also been available from SPS (the Society of Physics Students). If SPS tutoring becomes available this semester I will make an announcement. **These should be considered in addition to my office hours, which are the first place you should stop for additional help.**

INTELLECTUAL PROPERTY STATEMENT:

I, the instructor, utilize copyrighted materials under the "Freedom and Innovation Revitalizing the 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 copyrighted by the instructor, including, but not limited to, lectures, course discussions, course notes, slides, assessment instruments such as exams, and supplementary materials posted or provided to students authored by the instructor. 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 finals of the semester in which this course is held.

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 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.

TITLE IX STATEMENT

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 of Social Equity at <http://www.wcupa.edu/admin/social.equity/>.

ALL OTHER ACADEMIC POLICIES

For any university wide academic policy not explicitly covered in this document, such as No Grade policies. Please consult your major advising handbook, the Undergraduate Catalog, the Ram's Eye View, or the University Website.

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.

COURSE SCHEDULE: (next page): A tentative schedule for the course follows on the next page. Although I will endeavor to stick closely to the schedule as posted below, I reserve the right to modify it as needed over the course of the semester. Please note that if the University is closed (due to snow etc.) for a regularly scheduled lab session we will use one of the weeks marked "No Lab*" to make up the canceled lab sections.

Date	Day	#	Topic	Reading	Lab
Week 1	M	1	Introduction, 1D Kinematics	1.1-1.4	Lab Meeting (1 hr) Lab Extra Credit Exam 1.
	W	2	1D Kinematics: Basic Quantities	2.1-2.3	
	F	3	1D Kinematics: Constant Acceleration	2.4-2.5, 2.7	
Week 2	M	4	Free-Fall	2.5-2.6	Exercise 1 Measurement
	W	5	Vectors Part I	1.5-1.6	
	F	6	Vectors Part II	1.7-1.9	
Week 3	M	NC	Labor Day		Exercise 2 Kinematics
	W	7	Modeling Motion in 2D	3.1-3.2	
	F	8	Projectile Motion	3.3	
Week 4	M	9	Newton's 1st and 2nd Laws	4.1-4.3	Exercise 3 Free-Fall
	W	10	Newton's Third Law	4.4-4.5	
	F	11	Gravity and Weight	4.6-4.7	
Week 5	M	EX1	Exam 1: CH 1- CH 3		Exercise 4 Projectile Motion
	W	12	Normal Force, Apparent Weight	4.8-4.9	
	F	13	Friction and Tension	4.9	
Week 6	M	14	Tension and Applications	4.10-4.12	Exercise 5 Comparison
	W	15	Uniform Circular Motion I	5.1-5.4	
	F	16	Uniform Circular Motion II	5.5-5.6	
Week 7	M	NC	FALL BREAK		No Lab*
	W	17	Work and Kinetic Energy	6.1-6.2	
	F	18	The Work-Energy Theorem and GPE	6.2-6.3	
Week 8	M	19	Energy Conservation and Non-conservative Forces	6.4-6.6	Exercise 6 Mech. Energy
	W	20	Power, Introducing Momentum	6.7,7.1	
	F	21	Impulse and Momentum II	7.2-7.3	
Week 9	M	EX2	EXAM 2: Newton's Laws, Energy CH 4 – CH 6		Exercise 7A Collisions
	W	22	Momentum Conservation and Collisions	7.3,7.5	
	F	23	Rotational Kinematics I	8.1-8.3	
Week 10	M	24	Rotational Kinematics II	8.4-8.6	Exercise 7B Collisions II/Book Check
	W	25	Torque at equilibrium	9.1-9.2	
	F	26	Center of Gravity and Moment of Inertia	9.3-9.4	
Week 11	M	27	Rotational Energy and Momentum	9.5-9.6	Exercise 8 Biomechanics
	W	28	Elasticity and Energy Stored in Stretch	10.1, 10.7, 10.3	
	F	29	Simple Harmonic Motion and Resonance	10.2-10.3, 10.6	
Week 12	M	EX3	EXAM 3 CH 7 - CH 9		Exercise 9 Elasticity
	W	30	Waves and Sound Waves	16.1-16.3, 16.5,16.7	
	F	31	The Doppler Effect	16.9	
Week 13	M	32	Wave Interference	17.1-17.2,17.4	Exercise 10 Archimedes' Principle
	W	33	Standing Waves	17.5-17.6	
	F	34	Fluids, Density, Pressure	11.1-11.4	
Week 14	M	35	Pascal's Principle, Archimedes' Principles	11.5-11.6	No Lab
	W	NC	Thanksgiving Break		
	F	NC	Thanksgiving Break		
Week 15	M	36	Continuity and Bernoulli's Equation	11.7-11.10	Turn In Lab Report Lab Extra Credit Exam 2
	W	37	Temperature and Thermal Expansion	12.1-12.5	
	F	EX4	Exam 4: CH 10-11 & 16-17		
Week 16	M	39	Heat and Kinetic Theory	12.6-12.8,14.1-14.3	No Lab*

