West Chester University

Department of Physics

Physics 130 – General Physics I

Meeting Time: MWF 12:00 - 1:00 pm (Section 03)
MWF 2:00 - 3:00 pm (Section 04)

Meeting Place: Merion Science Center 109 (Section 03)
Merion Science Center 112 (Section 04)

Instructor: Paul A. Belony, Jr.
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Office Hours: **M,W,F**: 10-11AM Other hours by appointment

Course Description

Physics 130 is the first of two courses that serve as an introduction to the principles of physics. The areas of content are kinematics (motion), dynamics (how mass responds to an applied force), statics (forces in equilibrium), collisions, work and energy, thermodynamics, fluids, and waves. High school algebra and trigonometry are prerequisites for this course.

Required Course Materials

- ✓ *College Physics: A Strategic Approach*. **2nd Edition.**[1] Knight, Jones, and Field
- ✓ *College Physics: A Strategic Approach, Student Workbook*. **2nd Edition.**[1,2] Knight and Andrews
- ✓ *Ranking Tasks in Physics*.[2] O'Kuma et al.
- ✓ *The Physics 130 Lab Manual.* Fall 2011 Edition. Sudol et al.
- ✓ a scientific calculator

[1] Volume 1 is required for PHY130. Volume 2 is required for PHY140. Different packaging of the volumes is available. The first edition will not do. You must purchase a second edition copy.
[2] You must have a "clean" (unused) copy of this book.

Lab

This course has a laboratory component. Your lab grade will be factored into your final grade for this course. You will not receive a separate lab grade on your transcript. Consult the lab syllabus for your particular lab section for more information.
Satisfactory completion of all of the labs is required to pass the course.

Website

This course has a D2L website associated with it. Most handouts such as the assignments, schedule of lectures, and solutions to homework problems will be posted on the website on a regular basis. Please check D2L everyday for updates.

Course Goals*

1. Exercise and develop language skills (reading, writing, and discourse).
2. Exercise and develop reasoning skills.
3. Exercise and develop metacognitive skills.
4. Develop and improve those mental models needed to solve qualitative and quantitative problems in the content areas of the course: kinematics, dynamics, statics, collisions, work and energy, thermodynamics, fluids, and waves.

*The course goals include but are not limited to the following University goals for a general education science course:

1. Ability to communicate effectively.
2. Ability to employ quantitative concepts and mathematical models.
3. Ability to think critically and analytically.

Assessment

Your "grade" in this course will be based on your performance in the following categories of assessment with the following weights.

Lab	10%
Regular Exams	70%
Final Exam	20%

Regular exams are those exams that occur in lecture during the course of the semester. **At the end of the semester, I will drop your lowest regular exam score and average the remaining exam scores.** The final exam is cumulative, and it counts.

Makeup will not be given for the exams, and you cannot take an exam early or late. **Except for University sanctioned events**, there are no excused absences.

The assignment of the letter grades is according to the following scale.

93 - 100	A
90 - 93	A-
87 - 89	B+
83 - 86	B
80 - 82	B-

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and so on...

I do not norm-reference (or scale) grades.

I also reserve the right to introduce different forms of assessment as needed and to alter the weight of each of the categories of assessment in the event of some unforeseen circumstance.

Free Advice

PHY153 is a fast pace course. In order to keep up with the class, it is essential to integrate the material that is presented each week. Come to class! Keep up with the reading! Start working early on the homework assignments! Take notes!

For your benefits, I would recommend that you read a couple of helpful tips. *The Implications of Cognitive Studies for Teaching Physics* by E.F. Redish, available at http://www.physics.umd.edu/perg/papers/redish/cogsci.html., which provides a discussion on "mental models". It is imperative that you read *How to Succeed in Physics*, now available on D2L.

Physics Tutoring

Physics tutoring is available through three different forums: the Learning Assistance & Resource Center (LARC), the Society for Physics Students, and private tutors.

Disability:

We at West Chester wish to make accommodations for persons with disabilities. Please make your needs known by contacting the Office of Services for Students with Disabilities at extension 3217 as well as myself. Sufficient notice is needed in order to make the accommodations possible. The University and I desire to comply with the ADA of 1990.

Public Safety:

The Emergency Communication Committee has made the recommendation that the emergency phone number for WCU's Department of Public Safety be listed on all course syllabi. That number is **610-436-3311**. This specific recommendation is made to help the campus be prepared in case of an emergency situation.

Academic Integrity Statement

If you commit a violation of academic integrity, you will receive zero credit for the entire course. This is not negotiable. For more information regarding violations of academic integrity, consult pages 51-55 of the 2010-2011 Undergraduate Catalog.

University Sanctioned Events

If you will be participating in a University-sanctioned event that occurs at the same time as an exam (the exam times on the schedule are fixed), it is your responsibility to notify me prior to the exam. You must show me all documentations supporting your participation in this event. We will then make arrangements for you to take the exam. For more information on University Sanctioned Events, consult pages 48-49 of the 2010-2011 Undergraduate Catalog.

	Date	Topic	Chapter	Lab
M	Aug. 29	Introduction		
W	Aug. 31	Distance and Displacement	1	*No Lab*
F	Sep. 02	Speed and Velocity	1,2	
M	Sep. 05	*No class - Labor Day*		
W	Sep. 07	Acceleration	1,2	1-D Kinematics
F	Sep. 09	Free-Fall	1,2	
M	Sep. 12	Vectors Part I	1,3	
W	Sep. 14	Vectors Part II	1,3	Data Analysis
F	Sep. 16	Inclined Plane Problems	3	
M	Sep. 19	Projectile Motion Part I (concepts)	3	
W	Sep. 21	Projectile Motion Part II (problems)	3	2-D Kinematics
F	Sep. 23	Kinematics Review	3	
M	Sep. 26	**Exam #1**	1-3	
W	Sep. 28	Newton's First and Second Laws, Library of Forces	4	The Acceleration due to Gravity
F	Sep. 30	Newton's Third Law, Free-Body Diagrams	4	

M	Oct. 03	1-D Fnet=0 and Fnet=ma	5	
W	Oct. 05	Friction Part I (concepts)	5	Force Table
F	Oct. 07	Friction Part II (problems)	5	
M	Oct. 10	*No Class - Fall Break*		
W	Oct. 12	Interacting Objects (Fnet=0)	5	Inclined Plane
F	Oct. 14	Circular Motion	3,6	
M	Oct. 17	Centripetal Force	3,6	
W	Oct. 19	Torque	6,7	Torque
F	Oct. 21	Static Equilbrium	8	
M	Oct. 24	**Exam #2**	4-7	
W	Oct. 26	Conservation of Momentum	9	Biomechanics-Equilibrium
F	Oct. 28	Work	10	
M	Oct. 31	KE, GPE, EPE	10	
W	Nov. 02	Simple Energy Transfers and Transformations	10	Conservation of Momentum
F	Nov. 04	Complex Energy Transfers and Transformations	10	
M	Nov. 07	Efficiency, Temperature, Thermal Energy, Heat	11	
W	Nov. 09	The Laws of Thermodynamics	11	
F	Nov. 11	The Ideal Gas Law	12	
M	Nov. 14	**Exam #3**	8-12	
W	Nov. 16	Pressure, Pascal's Principle	13	Archimedes' Principle
F	Nov. 18	Archimedes' Principle	13	
M	Nov. 21	Continuity, Bernoulli's Equation	13	
W	Nov. 23	*No class - Thanksgiving Break*		*No Lab*
F	Nov. 25	*No class - Thanksgiving Break*		
M	Nov. 28	Simple Harmonic Motion	14	
W	Nov. 30	Simple Harmonic Motion	14	SHM
F	Dec. 02	Traveling Waves	15	
M	Dec. 05	Traveling Waves	15	
W	Dec. 07	**Exam #4**	13-15	Standing Waves
F	Dec. 09	Standing Waves	16	
M	Dec. 12	Standing Waves	16	
W	Dec. (TBA)	Section 03 Final Exam TBA	1-16	
W	Dec. (TBA)	Section 04 Final Exam TBA	1-16	