

**Physics 121**  
**General Physics I**  
**Fall, 2013**

<b>Prerequisites:</b>	Students in this class are expected to be fluent in calculus, algebra and trigonometry. Students must have taken Calculus I(MA205) and have taken, or be currently enrolled in Calculus II(MA206).
<b>Instructor:</b>	Charles Benesh
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<b>y e-mail:</b>	cbenesh@wesleyancollege.edu
<b>Web:</b>	<a href="http://pierce.wesleyancollege.edu/faculty/cbenesh">http://pierce.wesleyancollege.edu/faculty/cbenesh</a>
<b>Office Hours:</b>	M 1:30-2:30 Tu&Th 8:15-9:30 W 9-10 F 4:30-5:30
<b>Grading:</b>	55% - 4 Exams 25% - Weekly Homework and Quizzes 20% - Weekly Laboratory
<b>Text:</b>	<i>University Physics</i> by Young and Freedman, 12th edition with the MasteringPhysics online homework system <i>www.masteringphysics.com</i> Tools For Scientific Thinking Lab Manual (available at a Physics Lab near you)

- **Exams:** Periodic exams will be given during the laboratory period, per the attached schedule. Students who cannot take an exam at the scheduled time will have five points subtracted from their score.(Note that the Final consists of TWO separate exams.)

The exams will consist of questions similar/related to the homework problems. Roughly half of the exam will consist of multiple choice/short answer problems, with the other half composed of “story” problems similar

to those on the homework. Exams are closed book, but each student is allowed a single sheet(8 1/2 by 11) of formulas.

There will be three exams and a final given, with the final consisting of a regular hour exam plus a conceptual exam on topics covered during the semester. For each student, the lowest of the 5 test scores will be replaced by the average of the other four. Zeroes may not be dropped.

- **Lecture Attendance:** Regular attendance in class is both expected and recommended. Generally, quizzes are only given when attendance falls below 70%. Therefore, the day you don't show up is more likely to have a quiz.....

Students are expected to have a scientific calculator and to bring it with them to class and to lab. Students who don't have their calculator with them may be asked to leave class.

- **Quizzes:** I reserve the right to give unannounced in class quizzes which will count towards the homework portion of your grade. No makeup quizzes will be given.
- **Homework:** There will be a homework assignment every week. Homework will be due at the beginning of class on the assignment's due date. The homework will consist of two types, online problems which may be accessed at the MasteringPhysics website(worth 1 point each) and problems from the book which must be turned in handwritten form(2 points each).

Written homework assignments must have your name, the due date of the assignment, and a list of the the problems assigned written at the top of the front of the first page. Solutions to the problems must appear in the order they are assigned. If any of this information is missing, a point will be subtracted from your score on that assignment.

A correct solution to a homework problem will consist of *all* of the following:

- 1. A picture that summarizes and represents the problem, including relevant physical information. Depending on the nature of the problem, this may include “physics pictures” such as free body diagrams, motion diagrams, or circuit diagrams.
- 2. A sentence or two describing why you chose to use those equations in this particular problem. (i.e. what were the keywords in

the description of the problem that told you those equations were applicable? What physical principles are you trying to apply?)

- 3. Correct use of the equations describing the physical situation to extract the correct answer.

- **Laboratory:** Attendance in the laboratory is required. If you cannot attend a lab meeting, makeup laboratories will be available at the instructor's discretion. Arrangement for makeup labs should be made immediately (in advance if possible), as lab equipment must be arranged in advance of the proposed makeup date, and may not be available later. *It is extremely unlikely that I will agree to allow a student to makeup more than one lab during the course of the semester.*

After each Lab, a report will be turned in for grading. Lab reports are due at the beginning of the next laboratory period after the lab is completed.

- **Late Homework and Labwork:** Homework and Lab Reports that are turned in late will be penalized one point per day they are late, including weekends and holidays.

## Class Schedule - General Physics I

Aug 21	Class Intro., Units, Problem Solving
23	Position & Velocity
	Lab 0 - Math Assessment
	<b>READ:</b> Chapter 1&2
Aug 26	Motion Graphs
28	Acceleration
30	Kinematics of Constant Acceleration
	LAB 1 - TST Investigations 1-3
	<b>READ:</b> Chapter 2
Sep 2	Labor Day - No Class
4	Free Fall
6	Two Dimensional Motion - Vectors
	LAB 2 - TST Investigations 4-6
	<b>READ:</b> Chapter 2&3
Sep 9	Relative Motion
11	More Vectors
13	Projectile Motion
	LAB 3 - Projectile Motion
	<b>READ:</b> Chapter 3
Sep 16	Newton's Laws
18	Applications of Newton's Second Law
20	More Applications; Friction
	Exam I During Lab Period
	<b>READ:</b> Chapter 4& 5
Sep 23	Newton's Third Law
25	Work
27	More Work
	LAB 4 - Vector Forces in Equilibrium
	<b>READ:</b> Ch 5& 6

Sep	30	Conservative and Non-Conservative Forces
Oct	2	Potential Energy
Oct	4	Kinetic Energy
		LAB 5 - Force and Motion 1-3 (TST)
		<b>READ:</b> Chapters 7
Oct	7	Energy Conservation
	9	Momentum and Impulse
	11	Collisions in One Dimension
		LAB 6 - Work and Energy Conservation
		<b>READ:</b> Chapters 7& 8
Oct	14	NO CLASS
	16	Collisions in More Than One Dimension
	19	Polar Coordinates
		Exam II During Lab Period
		<b>READ:</b> Chapter 8,3&5
Oct	21	Angular Kinematics
	23	to be announced
	25	to be announced
		NO LAB
		<b>READ:</b> Chapter 8(skip center of mass section)
Oct	28	Uniform Circular Motion
	30	Newton's Law of Gravitation
Nov	1	Kepler's Third Law, Angular Acceleration
		LAB 7 - Collisions in One Dimension
		<b>READ:</b> Chapters 9 & 12
Nov	4	Angular Dynamics
	6	Torque
	8	Rigid Body Motion
		Lab 8 - Circular Motion
		<b>READ:</b> Chapters 9& 10

Nov	11	Center of Mass and Motion Torque Revisited
	13	Work and Power in Rotational Motion
	15	Angular Momentum
		LAB 9 - Moons of Jupiter
		<b>READ:</b> Chapter 8(center of mass) and 10
Nov	18	Combined Rotational and Center of Mass Motion
	20	Simple Harmonic Motion
	22	Energy in Simple Harmonic Motion
		Exam III During Lab
Nov	26	Penduli
	28	No Class Thanksgiving Break
	30	NO Class Thanksgiving Break
		NO Lab Lab 10 - Torque
		<b>READ:</b> Chapter 13
Dec	2	Damped Oscillations
	4	Forced Oscillations
	6	to be determined
Dec	9	to be determined
	11	to be determined
		<b>READ:</b> Chapter 13
Dec	18	Final Exam 11 AM