Physics 115

College Physics I

Fall, 2013

Prerequisites:	Students are expected to be fluent in Algebra and Trigonometry. Students must have taken and passed MAT140 or equivalent.
Instructor:	Charles Benesh
Phone:	x5265
e-mail:	cbenesh@wesleyancollege.edu
Office Hours:	M 1:30-2:30 Tu&Th 8:15-9:30 W 9-10 F 4:30-5:30
Grading:	55% - 5 Exams 25% - Weekly Homework and Quizzes 20% - Weekly Laboratory
Text:	*College Physics* by Young and Geller, 9th edition with the MasteringPhysics online homework system- *www.masteringphysics.com* Tools For Scientific Thinking Lab Manual.

- **Exams:** Periodic exams will be given during the laboratory period, per the attached schedule. Students who cannot take the exam at the scheduled time will have five points subtracted from their score.

  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 test of 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). *The online assignments must be turned in online.*

  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 - College Physics I

Aug	21	Class Intro., Units, Problem Solving
	23	LAB 0 - Math Assessment
	23	Position & Velocity
		READ: Chapter 1&2
Aug	26	Coordinates
	28	Motion Graphs
	30	Acceleration
		LAB 1 - TST Investigations 1-3
		READ: Chapter 2
Sep	52¿ Labor Day - No Class	
	4	Kinematics of Constant Acceleration - Free Fall
	6	Two Dimensional Motion - Vectors
		LAB 2 - TST Investigations 4-6
		READ: Chapter 2&3
Sep	9	Relative Motion
	11	More Vectors
	13	Projectile Motion
		LAB 3 - Projectile Motion
		READ: Chapter 3
Sep	16	Newton's Laws
	18	Applications of Newton's Second Law
	20	More Applications; Friction
		Exam I During Lab Period
		READ: Chapter 4&5
Sep	23	Newton's Third Law
	25	Work
	27	More Work
		LAB 4 - Vector Forces in Equilibrium
		READ: Ch 5&7

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