

PHYS122
Spring 2012

David Buehrle
301.767.2313
dbuehrle@umd.edu

Title: Fundamentals of Physics II

Lecture: Tuesday 7:00 PM – 8:50 PM Thursday 7:00 PM – 7:50 PM, Rm 1410

Phys122	0501	0.50	lab+discussion	D. Buehrle	W 1700-1950	PHY3301,PHY3312	Severson, Matthew	4110 John S. Toll Physics Building - x5 6019	mseverso@umd.edu
Phys122	0502	0.50	lab+discussion	D. Buehrle	Tu 1600-1850	PHY3301,PHY3312	Steinsultz, Nathaniel	3101 John S. Toll Physics Building - x5 6191	nsteins@umd.edu
Phys122	0503	0.17	discussion	D. Buehrle	M 1700-1750	PHY3301	Raines, Zachary	0220 John S. Toll Physics Building - x5 5969	raineszm@umd.edu
Phys122	0503	0.33	lab	D. Buehrle	M 1900-2050	PHY3312	Raines, Zachary	0220 John S. Toll Physics Building - x5 5969	raineszm@umd.edu
Phys122	0504	0.50	lab+discussion	D. Buehrle	W 1900-2150	PHY3301,PHY3312	Steinsultz, Nathaniel	3101 John S. Toll Physics Building - x5 6191	nsteins@umd.edu
Phys122	SES1	0.17	discussion	D. Buehrle	Tu 2100-2150	PHY1402	Raines, Zachary	0220 John S. Toll Physics Building - x5 5969	raineszm@umd.edu
Phys122	SES1	0.33	lab	D. Buehrle	Th 2000-2150	PHY3312	Raines, Zachary	0220 John S. Toll Physics Building - x5 5969	raineszm@umd.edu

Textbook: Knight, Jones, Field: *College Physics, 2e*

Physics is a science which attempts to unify elements of the natural world by means of observation, mathematics, and the use of precise language. Using methods developed by physicists, we can describe many events that occur in our everyday lives. The principles of physics provided a basis for most of the technologies that are an essential part of modern life. In this sense, physics is *practical*. Many laws developed by physicists, such as the law of conservation of energy, are of tremendous practical importance. These same laws also help physicists understand the very tiny constituents of matter as well as the motions of giant clusters of galaxies. Thus the study of physics helps us understand some fundamental relationships between the matter in our surroundings and the evolution of the universe. In this sense physics is *profound*. You began your own exploration of the natural world using some of the concepts, tools, and methods commonly employed by physical scientists when you took Physics 121.

Phys 121 dealt with motion of particles and rigid bodies with in small and large systems. We will now focus attention on mechanical oscillations, waves, and electromagnetism. These phenomena are of particular importance when we think of two important senses, hearing and seeing.

Math Background

The use of algebra and trigonometry are essential in this class. In addition, you need to recall the essentials of vector algebra and interpreting graphs. Your first assignment will be to help assess your competency with the math.

Homework

Weekly homework problems are listed below. Be sure to note that there are problems from the textbook as well as online exercises. The online exercises are accessed through MasteringPhysics. I have observed in the past that there is a strong correlation between the steady effort needed to successfully complete homework and performance on examinations. Although we will not collect and grade homework, there will be several quizzes using homework problems directly. The hourly examinations will have similar problems as well. Solutions to all homework assignments will be available on ELMS.

Assessments

1. There will be two examinations, each lasting a full period. Dates are in the schedule below.
2. You will have ten 10-minute quizzes during discussion (Q on schedule)
3. A final exam will take place at the end of the course
4. Ten laboratory experiments are scheduled. All must be done. You must complete and submit a report for every experiment
5. Your grade will be based on the following:

Quizzes	10%
Online Homework Assignments	15%
Lab Reports	25%
Hourlies	25%
Final Exam	25%

Extra Help

Feel free to call my office phone anytime. The best way to communicate is via email.

Your TA will post his office hours

The Slawsky Clinic offers free tutoring for those who may need additional help improving their problem solving skills

Week	Date	Subject	Assignment
1	Th Jan	26 Review 121	Online Assignment 1
2	T	31	
	M/W/Th	Tutorial 1 / Lab 0	
	Th Feb	2 14 Oscillations	14 – 3, 7, 17, 20, 26, 47, 51
3	T Feb	7 14/15 Mechanical Waves	15 – 2, 13, 24, 27, 34
	M/W/Th	Tutorial 2 / Lab 1	Online Assignment 2
	Th	9 15 Sound	15 – 41, 43, 50, 55, 77
4	T Feb	14 16 Wave Interference	16 – 7, 10, 15, 16, 23
	M/W/Th	Tutorial 3 / Lab 2	Online Assignment 3
	Th	16 16 Standing Waves	16 – 28, 34, 45, 56
5	T Feb	21 17 Light	17 – 2, 4, 8, 12
	M/W/Th	Tutorial 4 / Lab 3	Online Assignment 4
	Th	23 17 Light	17 – 15, 21, 26, 29, 31
6	T Feb	28 18 Ray Optics	18 – 1, 8, 10, 16
	M/W/Th	Tutorial 5 / Lab 4	
	Th Mar	1 18 Ray Optics	18 – 21, 26, 41, 43
7	T Mar	6 EXAM I	
	M/W/Th	Tutorial 6 / Lab 5	
	Th	8 20 Electric Charge	20 – 3, 15, 23
8	T Mar	13 20 E-Field	20 – 28, 30, 35, 36
	M/W/Th	Tutorial 7 / Lab 6	Online Assignment 5
	Th	15 20 E-Field	20 – 40, 64, 65
9	T Mar	20 SPRING BREAK	
	M/W/Th		
	Th	22	
10	T Mar	27 21 Potential	21 – 10, 17, 24, 29
	M/W/Th	Tutorial 8	Online Assignment 6
	Th	29 21 Potential	21 – 37, 45, 58
12	T Apr	3 22 Current	22 – 10, 13, 21, 32
	M/W/Th	Tutorial 9 / Lab 7	Online Assignment 7
	Th	5 22 Resistance	22 – 37, 45, 58
13	T Apr	10 23 Circuits	23 – 12, 17, 24, 36
	M/W/Th	Tutorial 10 / Lab 8	Online Assignment 8
	Th	12 23 Circuits	23 – 43, 55, 75
14	T Apr	17 EXAM II	
	M/W/Th	Tutorial 11 / Lab 9	
	Th	19 24 B-Field	24 – 4, 15, 26, 28
15	T Apr	24 24 B-Field	24 – 31, 39, 47, 52
	M/W/Th	Tutorial 12 / Lab 10	Online Assignment 9
	Th	26 EM Induction	25 – 15, 29, 58
16	T May	1 EM Induction	Online Assignment 10
	M/W/Th	Tutorial 13	
	Th	3 Special Relativity	
17	T May	8 Quantum Mechanics	
	Th May	10	
	T May	15 FINAL EXAM	