PHYS121
Summer I 2014

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Title: Fundamentals of Physics I
Lecture: Monday through Friday 9:30 – 10:50 AM, PHY 1410

Section 0101 **TA: Aaron Ostrander (0104 Toll, x5-8577, the.aaron.ostrander@gmail.com)**
Discussion: Monday & Wednesday 11:00 – 11:50 AM, MTH 0306
Lab: Tuesday & Thursday 12:00 – 2:00 PM, PHY 3306

Section 0102 **TA: Deborah Hemingway (3101 Toll, x5-6191, dheming@umd.edu)**
Discussion: Tuesday & Thursday 1:00 – 1:50 PM, PHY 1204
Lab: Tuesday & Thursday 2:00 – 4:00 PM, PHY 3306

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*. In PHYS 121, you begin your own exploration of the natural world using some of the concepts, tools, and methods commonly employed by physical scientists. PHYS 121 deals with motion of particles and rigid bodies with in small and large systems.

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

To help facilitate the competing needs to give timely input and spend more of class time discussing new material rather than just going over homework, your assignments will be online. 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 three examinations, each lasting a full period. Dates are in the schedule below.
2. You will have a 10-minute quiz each week in discussion. Your TA will choose a problem based on the homework assignments from MasteringPhysics .
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	20 points each
Online Homework Assignments	5 points each
Lab Reports	20 points each
Hourlies	100 points each
Final Exam	200 points

Extra Help

Feel free to call my office phone anytime. The best way to communicate is via email.
Your TA will post office hours as well

Week	Date			Subject (Ch)	HW	Lab
1	M	June	2	Intro & Math Review	MP00	
	Tu		3	Representing Motion (01)	MP01	2 -- The Pendulum
	W		4	1-D Motion (02)	MP02	
	Th		5	Vectors (03)	MP03	4 -- Equilibrium of Forces
	F		6	2-D Motion (03)	MP04	
2	M		9	Forces (04)	MP05	
	Tu		10	Newton's Laws (04)	MP06	3 -- Constant Acceleration
	W		11	Using Newton's Laws (05)	MP07	
	Th		12	**EXAM 1 (1-3)**		5 -- Energy Conservation
	F		13	Circular Motion (06)	MP08	
3	M		16	Gravitation (06)	MP09	
	Tu		17	Angular Motion (07)	MP10	Make up first 4 experiments
	W		18	Equilibrium (08)	MP11	
	Th		19	Impulse & Momentum (09)	MP12	7 -- Centripetal Force
	F		20	**EXAM 2 (4-7)**		
4	M		23	Momentum Conservation (09)	MP13	
	Tu		24	Work (10)	MP14	8 -- Equilibrium
	W		25	Energy (10)	MP15	
	Th		26	Heat and Thermal Energy (11)	MP16	6 -- Linear Momentum Conservation
	F		27	Thermodynamic Laws (11)	MP17	
5	M		30	Thermal Properties (12)	MP18	
	Tu	July	1	Thermal Properties (12)	MP19	9 -- Mechanical Equivalent of Heat
	W		2	**EXAM 3 (8-11)**		
	Th		3	Hydrostatics (13)	MP20	10 -- Simple Harmonic Motion
	F		4			
6	M		7	Hydrodynamics (13)	MP21	
	Tu		8	Fluids (13)	MP22	Make up last 5 experiments
	W		9	Review		
	Th		10			
	F		11	**FINAL EXAM**		

Physics 121 Labs, Summer I, 2014

Day Instructor: David Buehrle

dbuehrle@umd.edu, x5-5949, Rm 1120

TA - Tue & Thu 12:00: Aaron Ostrander, the.aaron.ostander@gmail.com
TA - Tue & Thu 2:00: Deborah Hemingway, dheming@umd.edu

Evening Instructor: Prabin Adhikari

prabal747@yahoo.com

TA - Tue & Thu 7:00: Vijay Kaul, Vijay@umd.edu

Wk	Dates	Expt	Experiment
1	Tue Jun 3	2	The Pendulum: Simple Error Analysis
1	Thu Jun 5	4	Equilibrium of Forces
2	Tue Jun 10	3	Motion with Constant Acceleration (6 air tracks)
2	Thu Jun 12	5	Conservation of Energy (6 air tracks)
3	Tue Jun 17	2,4,3,5	* Make-up, first 4 experiments *
3	Th Jun 19	7	Centripetal Force & Acceleration
4	Tue Jun 24	8	Equilibrium of Rigid Bodies
4	Thu Jun 26	6	Conservation of Linear Momentum (Air Table)
5	Tue Jul 1	9	Mechanical Equivalent of Heat
5	Th Jul 3	10	Simple Harmonic Motion & Hooke's Law
6	Tue Jul 8	7,8,6,9,10	* Make-up, last 5 experiments only *
6	Thu Jul 10	- -	No Lab
6	Fri Jul 5	- -	End Summer Session I

Dear Student:
In this course you will be using MasteringPhysics™, an online tutorial and homework program that accompanies your textbook.

What You Need:

- ✓ **Your UMD email address**
- ✓ **A student access code** (Comes in the Student Access Kit that may have been packaged with your new textbook or is available separately in your school's bookstore. Otherwise, you can purchase access online at www.masteringphysics.com.)
- ✓ **The ZIP code for your school:** 20742
- ✓ **A Course ID:** MPBUEHRLE19006

Register

- Go to www.masteringphysics.com and click **New Students** under Register.
- To register using the Student Access Code inside the MasteringPhysics Student Access Kit, select **Yes, I have an access code**. Click **Continue**.

  –OR– ***Purchase access online*:** Select **No, I need to purchase access online now**. Select your textbook and whether you want to include access to the eBook (if available), and click **Continue**. Follow the on-screen instructions to purchase access using a credit card. The purchase path includes registration, but the process may differ slightly from the steps printed here.
- **License Agreement and Privacy Policy:** Click **I Accept** to indicate that you have read and agree to the license agreement and privacy policy.
- Select the appropriate option under "Do you have a Pearson Education account?" and supply the requested information. Upon completion, the **Confirmation & Summary** page confirms your registration. This information will also be emailed to you for your records. You can either click **Log In Now** or return to www.masteringphysics.com later.

Log In

- Go to www.masteringphysics.com.
- Enter your Login Name and Password and click **Log In**.

Enroll in Your Instructor's Course and/or Access the Self-Study Area

Upon first login, you'll be prompted to do one or more of the following:

- Enter your instructor's MasteringPhysics Course ID.
- Select your text, if available, and **Go to Study Area** for access to self-study material.
- Enter a Student ID. Your instructor *may* request that you enter a special Student ID for this course. If so, be sure to enter this information EXACTLY as instructed.

Click **Save** and **OK**.

Congratulations! You have completed registration and have enrolled in your instructor's MasteringPhysics course. To access your course from now on, simply go to www.masteringphysics.com, enter your Login Name and Password, and click **Log In**. If your instructor has created assignments, you can access them by clicking on the **Assignments** button. Otherwise, click on **Study Area** to access self-study material.

Support

Access Customer Support at www.masteringphysics.com/support, where you will find:

- System Requirements
- Answers to Frequently Asked Questions
- Additional contact information for Customer Support, including Live Chat