

Adrian College | Department of Physics
Physics 209
General Physics Laboratory I
Fall 2016
R 9am-12pm in Peelle 214

Instructor

Scott A. Hill



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Office Location: Peelle 208

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Tuesdays and Thursdays 1-2pm
or by appointment

Catalog Description

Principles of classical physics are explored and verified through experiments. Emphasis is on measurement techniques and methods of data analysis. Topics are drawn from mechanics, wave motion, sound and thermodynamics. One 3-hour laboratory per week.

Corequisite

PHYS 205: General Physics I

Required Materials

Scientific calculator, pencil, a folder for assignments, and a graph paper notebook.

Course Structure

The class will be divided into two sections:

The first hour will be devoted to **computer programming assignments** using VPython. Students will work in pairs or individually for this portion.

- The programming assignment will be available at the beginning of class.
- The instructor may begin with an introduction. There may be tutorial videos which the whole class will watch together with discussion, or students might be asked to watch them independently.
- Students will work through the assignment while the instructor walks around and assists.
- If requested, one student from each pair will email their completed programs as plaintext to shill@adrian.edu with the Subject line "209 Assignment" followed by the number of the assignment and the name of the student's partner (if any).

The next two hours will be devoted to **experiment**. Students will work in groups of 3 or 2 for this portion.

- At the end of the first hour or when everyone is done programming (whichever comes first), the instructor will pause to explain how to set up the experiment, and the underlying physics.
- Lab groups will then get out the equipment and work through the experiment, recording the results in their notebook.
- The instructor will be available to answer questions and check on your progress.
- At the end of class, each student will submit their own lab report including data, sample calculations, graphs (perhaps printed from the computer), and answers to questions posed in the assignment. Although students will work together to collect data and generate graphs, they will prepare their own individual lab reports, writing out answers in their own words, etc.
- With the instructor's permission, the group will submit their lab reports, put their equipment away, and leave.

Grading

Each programming assignment and each lab will be worth 10 points each; your grade for the course will be the average of these grades. You may miss one lab without penalty; if you need to miss additional labs due to an activity, illness, etc, please contact the instructor to make arrangements about making up the work.

Programming and Lab Schedule

Week	Programming	Lab
1	Introduction to Computer Modeling	Motion on an Incline
2	Models of Motion I	Determining g on an Incline
3	Models of Motion II	Impulse and Momentum
4	Calc. and Visual. Gravitational Force	Projectile Motion
5	Space Voyage I	Newton's 2nd Law
6	Space Voyage II	Static and Kinetic Friction
7	Spring-Mass System I	Simple Harmonic Motion
8	tbd	tbd
9	Space Voyage III	tbd
10	Spring-Mass System II	Air Resistance
11	EXAM 2 from 205	
12	Rutherford Scattering	Energy Storage and Transfer
13	tbd	Angular Momentum Conservation
14	<i>Thanksgiving</i>	
15	tbd	Statistical Interpretation of Entropy

Academic Accommodations

If you have a disability, which may affect your performance in class, let me know as soon as possible. Students with disabilities must self-advocate. You will need to provide recent, appropriate documentation, which verifies the need for reasonable academic accommodation. A copy of all documents is retained by Danielle Ward in the Office of Academic Services (Jones Hall). Email Danielle at dward@adrian.edu or ask for her in Academic Services. (Statement used with permission)