

Physics 131
General Physics I
Syllabus
Fall, 2001

MWF 8:00 AM – 8:50 AM

Instructor: Brian Borovsky _3021

Office: Science Center 1037 *Home:* 236-1503 *Email:* borovsky

Text: *Fundamentals of Physics*, Sixth Edition, Halliday, Resnick, and Walker

Office Hours: Mon. 1-2 PM, Wed. 2-3 PM, Thur. 9-10 AM

Course Web Site: <http://www.grinnell.edu/courses/phy/f01/phy131-01/>

Welcome to General Physics! I hope this course takes you on an enjoyable and intriguing journey through the inner workings of nature. My office hours are listed above, but I do have an open door policy. If my door is open, please come on in. My door will be closed only when I really need to get something done. Then it is best to come back some other time. Otherwise, I invite you to stop by if you are having trouble with the course material, or are pondering something that came up in class, or would like to talk. I encourage informal visits just to say Hello and chat. I'd like to get to know you better.

The Text: The textbook is a reference book for this course. It contains a more detailed development of the material we cover during the lectures. Try to find a way to use the text that best suits your style. You might read sections before they are covered in class, or perhaps after. I will clearly identify the sections for which you will be accountable on exams. There are other introductory texts in the library that you may consult for alternative presentations of the material.

Homework: Homework will be assigned on a weekly basis. This gives you plenty of flexibility in finding time to work on the problems and to get help if needed. With this flexibility comes the risk that you won't be able to finish the assignment or do very well on it if you wait until the last minute. Please realize this and plan well. Assignments are due at the beginning of the designated class period.

You are strongly encouraged to work together on assignments. This will allow you to share ideas and approaches and to learn by conversation and teaching each other. The

work you turn in should be in your own writing and reflect your understanding of the material.

Grading of the homework will not simply reflect whether your answer is right or wrong, but will also depend on the demonstration of your reasoning. You should incorporate descriptive words or phrases and accurate diagrams along with your equations and mathematical operations. As needed, problem solving techniques will be discussed in class or on handouts.

Extensions: You can have one 48-hour extension on an assignment during the semester, no questions asked. You must notify me 24 hours in advance of the due date. Otherwise, no late homework will be accepted.

Exams: There will be three in-class exams and a comprehensive final.

Labs: The laboratories are meant to give you hands-on experience with the concepts encountered in the course. This is the time to satisfy your urge to tinker with things. The labs will also give you the opportunity to encounter the fascinating relationship between mathematics and the physical world.

To Bring: You will need to bring the lab manual, a quad-ruled notebook, and a calculator to the labs. The notebook will be a continuous record of your time in the lab. You may choose to use one side of the page for scratch work and notes, and the other side for more formal statements, data tables, graphs, and conclusions. The point is to be able to return to the notebook at a later date and fully understand what you were doing.

Accommodations for persons with disabilities:

The college will make reasonable accommodations for persons with documented disabilities. Students should notify their instructors and the Associate Dean of Academic Advising, Joyce Stern, located in the lower level of the forum (_3702) of any special needs. Instructors should be notified within the first few days of classes.

Grading:

<u>Distribution</u>		<u>Scale</u>	
Homework:	20%	85 – 100%	A
Labs:	15%	75 – 85%	B
Exams: (3_15%)	45%	65 – 75%	C
Final:	20%	55 – 65%	D

In this course...

you are encouraged to

- Participate in the lectures
- Call the professor “Brian”
- Shape the course through suggestions and feedback (direct, pointed, and anonymous, if needed!)
- Work together
- Verbalize and describe what you are learning with each other
- Think critically about the material and be reflective about your experience
- Not let the professor get away with anything (“Brian, you seem to be getting vague here. Are you glossing over something?”)
- Ask questions or make comments at any time during a class
- Work on problems and identify difficulties before seeking help
- Forget what you thought you knew about physics, what it is, who does it, and why
- Go beyond the minimum required
- Think broadly and relate this course to other aspects of your life

Physics 131, Fall 2001, Schedule

Date	Topic	Reading	Lab
Aug. 31	Introduction		
Sept. 3 5 7	Motion in a straight line	2.1 – 2.3 2.4 – 2.5 2.6 – 2.8	Data and Calculations
10 12 14	Motion in a plane	3.1 – 3.7 4.1 – 4.4 4.5 – 4.9	Introduction to Motion
17 19 21	Forces and motion	5.1 – 5.5 5.6 – 5.8	Velocity and Acceleration
24 26 28	Forces and motion cont. EXAM 1 Circular motion	6.1 – 6.3 6.4	Projectile Motion
Oct. 1 3 5	Work and Energy	7.1 – 7.3 7.4 – 7.6	Forces and Motion
8 10 12	Conservation of Energy	8.1 – 8.3 8.4 – 8.5 8.6 – 8.7	Centripetal Force
15 17 19	Systems of particles and center of mass	9.1 – 9.3 9.4 – 9.6	2D Collisions on an Air Table, Part 1
22 24 26	Fall Break Fall Break Fall Break		
29 31 Nov. 2	Collisions EXAM 2	10.1 – 10.3 10.4 – 10.6	2D Collisions on an Air Table, Part 2
5 7 9	Rotational Motion	11.1 – 11.4 11.5 – 11.8 11.9 – 12.2	Moment of Inertia
12 14 16	Angular Momentum	12.3 – 12.6 12.7 – 12.10 13.1 – 13.4	Vibrations & Simple Pendulum
19 21 23	Gravity and Oscillations Thanksgiving	14.1,14.2, 14.7 16.1 – 16.4,16.8	
26 28 30	Waves	17.1 – 17.6 17.8,17.9,17.11 18.1 – 18.6	Waves on Strings
Dec. 3 5 7	Fluids EXAM 3	15.1 – 15.6 15.7 – 15.10	Absolute Zero

10	Thermodynamics	19.XX & 21.XX	
12			
14			