

# Welcome to Physics 113

This class is a physics survey course designed for science majors who are not majoring in physics or engineering.

- Vectors
- Linear and multi-dimensional motion
- Work
- Energy
- Gravitation
- Simple harmonic motion
- Conservation of momentum and energy
- Constant acceleration motion
- Rotational motion
- Thermodynamics
- Waves

Some knowledge of calculus is assumed (techniques will be reviewed as needed).

No previous physics instruction is assumed.

*Surgeon General's warning: No matter what you're smoking, this is not your high school course.*

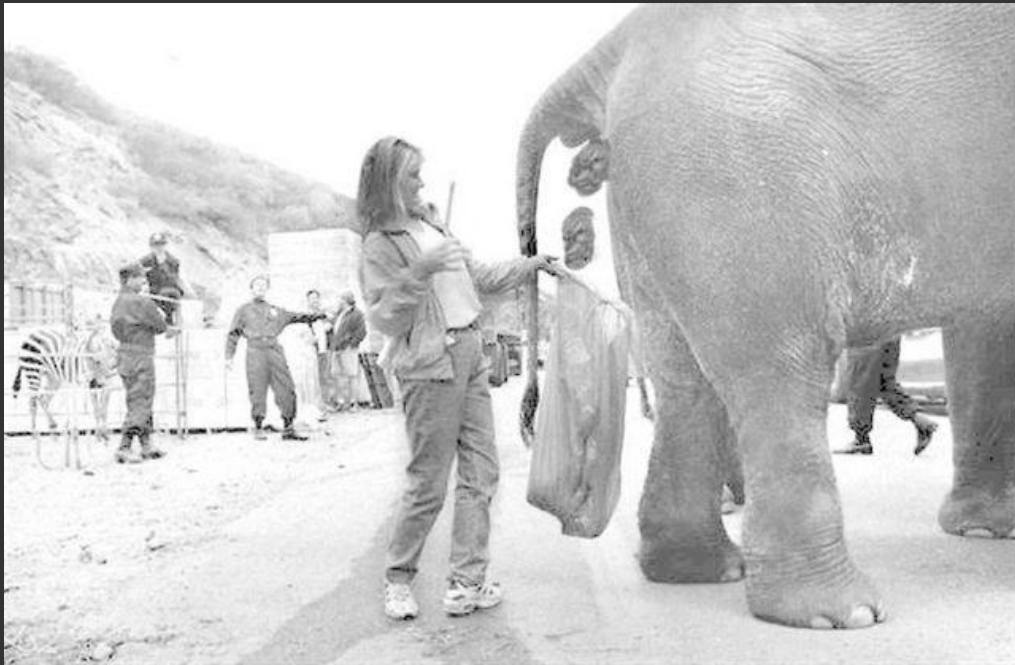
You should have received email  
with the syllabus attached. That  
contains contact info/office  
hours/location/etc.

**Professor Steven Manly**  
**B&L 203E**  
**5-8473**  
**[steven.manly@rochester.edu](mailto:steven.manly@rochester.edu)**

We will use BlackBoard and

[http://web.pas.rochester.edu/~manly/class/P113\\_2012/](http://web.pas.rochester.edu/~manly/class/P113_2012/)

**Smile! Your lot in life could be worse.**



**Why *is* this a requirement for your major?**

fluid flow, arteries, water fountains, commodes

mechanics of breathing, walking, running, flying, standing

Golf

all sports: curve balls, spin in tennis, drag in swimming, etc.

Motors, gears, wheels, ambulances, bikes

buildings, doors, bridges, skeletons

Chemical bond modeling, energy concepts, heat flow

planes, boats

gravity

**The foundation for  
physics 114 material**

**Why do *I* think you are here?**

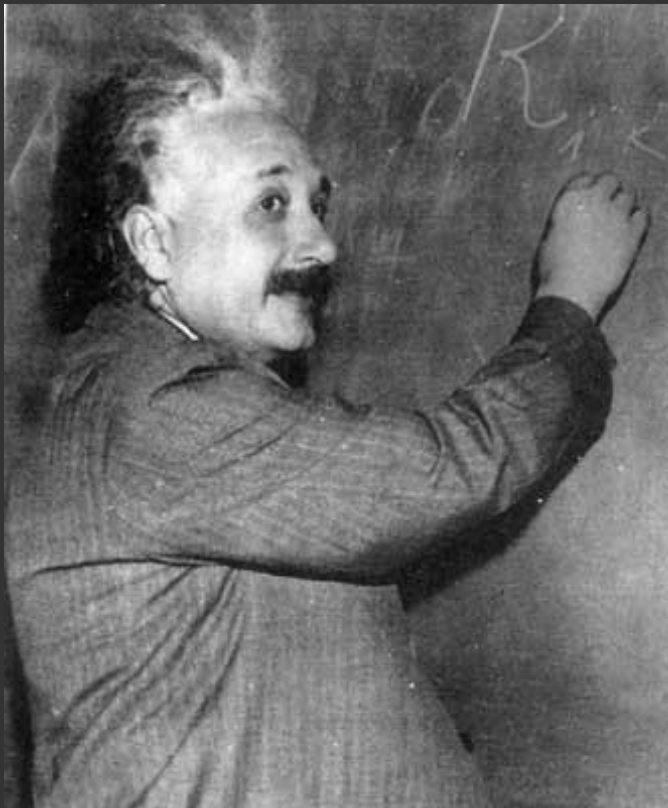
**Awareness and respect for physics in the real (your) world**

**To learn to solve some basic physics problems.**

**To learn to solve problems.**

**Not on the list: To learn to be physicists.**

“It is not so very important for a person to learn facts. For that he does not really need a college. He can learn them from books. The value of an education in a liberal arts college is not the learning of many facts but the training of the mind to think something that cannot be learned from textbooks.”



*- Albert Einstein, 1921, commenting on Thomas Edison's opinion that a college education is useless.*

## Evaluation:

Scheme	Exam 1	Exam 2	Exam 3	Final exam	Lab	Prob sets
1	---	20%	20%	35%	16%	9%
2	20%	---	20%	35%	16%	9%
3	20%	20%	---	35%	16%	9%
4	18%	18%	18%	21%	16%	9%

Exams normalized to even out possible differences in difficulty

Each scheme calculated, best average sets your place on the numerical curve

I place grade boundaries on numerical curve

## One error found (so far) on syllabus ...

15	Oct 18 (R)	Momentum conservation, collisions	9
16	*Oct 23 (Tu)	Center-of-mass coordinates	9
<b>Exam 2</b>	*Oct 25 (R)	12:30-1:45 (Hoyt Auditorium)	
17	Oct 30 (Tu)	CM coordinates, rotational kinematics	9,10
18	Nov 1 (R)	Rotational motion, moment of inertia	10
19	Nov 6 (Tu)	Rotational motion	10
20	Nov 8 (R)	Torque, angular momentum, cross product	11
21	Nov 13 (Tu)	Rotational dynamics	11
22	Nov 15 (R)	Rotational dynamics	11
23	Nov 20 (Tu)	Equilibrium, static fluids	12,13
24	Nov 27 (Tu)	Fluid statics and dynamics	13
25	Nov 29 (R)	Simple harmonic motion	14
<b>Exam 3</b>	Dec 4 (Tu)	0800-0930 location TBA	
26	Dec 4 (Tu)	Waves	15,16
27	Dec 6 (R)	Waves	15,16
28	Dec 11 (Tu)	A bit on space and time in special relativity	
<b>Final Ex.</b>	Dec 18 (Tu)	7:15pm, location TBA	cumulative

*\*I will be out of town on these days. No lecture on Oct. 25 (exam during class time instead). For Sept. 25, 27, and Oct. 23, I plan to post pdf files with detailed slides and an mp3 audio file to stream for the lecture. The class will not be meeting in Hoyt those days unless you are notified by me otherwise.*



# Does workshop work?

1999 P114 split class experiment:

41 students assigned to workshops, 110 assigned to recitations

Random assignments (all but 2 students in class wanted wkshops)

Ignored drops

B- or better →

>5 workshops = 93%

recitation+(<6 workshops) = 63%

## Not split classes but ...

	<b>P113 2002</b>	<b>P121 2003</b>	<b>P114 2004</b>
<b>n</b>	<b>169</b>	<b>186</b>	<b>133</b>
<b>attend &gt;7 wkshps</b>	<b>69%</b>	<b>54%</b>	<b>67%</b>
<b>B- or better &gt;6 wkshp</b>	<b>77%</b>	<b>80%</b>	<b>88%</b>
<b>B- or better &lt;=6 wkshp</b>	<b>40%</b>	<b>47%</b>	<b>40%</b>

## The 10 Commandments of P113:

- ❖ Thou shall come to class.
- ❖ Thou shall read the text.
- ❖ Thou shall do the problem sets (the right way!).
- ❖ Thou shall ask questions.
- ❖ Thou shall attend workshop.
- ❖ Thou shall participate in workshop.
- ❖ Thou shall strive to understand what is behind the problems and what thou dost wrong on them.
- ❖ Thou shall keep up with the class.
- ❖ Thou shall not CRAM for exams.
- ❖ Thou shall talk to ME the moment you sense impending doom.

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**OR ELSE THOU SHALL GET SCREWED!**

For those of you who like to pick and choose the commandments you follow ....

The really, really important ones ...

And the keys to *POST-PHYSICS NIRVANA* are

**Problem sets (the right way)**

**Workshop**

**Don't cram**

**More stuff:**

Make sure you are squared away on BlackBoard

Workshops begin week of Sept. 10

PRS

Office hours (Manly: Tues 2:15-3:30 ,TA's: office hours TBA)

Will figure out what is up with prob set 1 soon and send  
email/post it on web

Lab start time information will be forthcoming

[physlabs@pas.rochester.edu](mailto:physlabs@pas.rochester.edu)