

# Welcome to Physics 123 – Waves and modern physics

**This course is designed to be the third semester of a three-course sequence for students planning to major in physics, engineering, or some other physical science.**

- **Relativity**
- **Waves, waves and more waves**
- **EM waves**
- **EM to optics**
- **Geometrical optics**
- **Physical optics**
- **Origin of quantum mechanics**
- **Quantum mechanics (barriers, tunneling, time dependence)**
- **H atom**
- **Multi-electron atoms**
- **Molecules**
- **Solid state physics**
- **Spectroscopy**
- **Nuclear Physics**
- **A bit of ... Particle physics, cosmology, multiple universe concepts, fluids, statistical physics**

**Assume a knowledge of  
basic calculus and  
physics at the level of  
P121 and P122**

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**  
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We will use BlackBoard and

[http://web.pas.rochester.edu/~manly/class/P123\\_2013/](http://web.pas.rochester.edu/~manly/class/P123_2013/)

## Evaluation:

Scheme	Exam 1	Exam 2	Final exam	Lab	Prob sets
1	23%	23%	30%	15%	9%
2	0%	35%	41%	15%	9%
3	35%	0%	41%	15%	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

# 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 P123:

- ❖ 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.

**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 Jan. 28

Office hours (Manly: Mon 2:05-3:30 ,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)