Welcome to Physics 142

This is an introduction to electromagnetism for honors students. It is design for students intending to be physics/astrophysics majors. Other students with a strong background in basic mechanics and who feel comfortable with basic calculus are welcome.

- electrostatics
- electric potential
- magnetostatics
- electric and magnetic fields in matter
- current
- capacitors
- energy in electric and magnetic fields
- AC and DC circuits
- induction
- Maxwell's equations
- electromagnetic waves

- Relativity
- Geometric optics

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

Professor Steven Manly

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http://www.pas.rochester.edu/~manly/class/P142_2007/

Name

University (@mail …) email address

Year: Fr/So/Jr/Sr?

Projected major

What do you want to be doing for a career ten years from now?

What do you think is the most beautiful and influential creation of the human mind to date?

Maxwell's equations in integral form

$$\oint_s \vec{E} \bullet d\vec{a} = \frac{Q_{encl}}{\varepsilon_o}$$

$$\int_s \vec{B} \bullet d\vec{a} = 0$$

$$\int_c \vec{E} \bullet d\vec{l} = -\frac{d\int_s B \bullet d\vec{a}}{dt}$$

$$\int_c \vec{B} \bullet d\vec{l} = \mu_o I_{encl} + \mu_o \varepsilon_o \frac{d\int_s \vec{E} \bullet d\vec{a}}{dt}$$

Components of the course:

Lecture

Concepts, depth, association with the rest of life, other disciplines, systematic technique, gotchas, class issues, hints, some problem solving

Components of the course:

Lecture

Lab

Run independently. Part of your P142 grade. Must do all 5 labs to get a grade in P142.

Components of the course:

Lecture

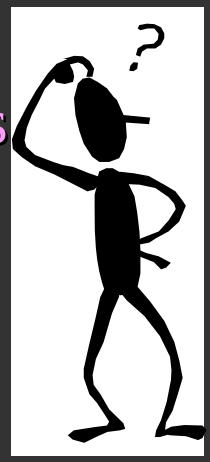
Text

More depth and associations, different approach, problems, not a substitute for lecture or doing problem sets

Lab

Components of the course:

Problem sets



Lecture

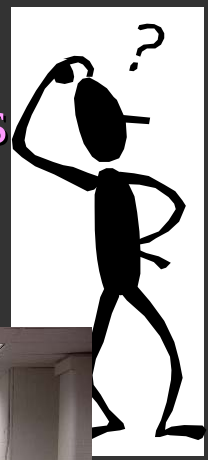
Text

Lab

Absolutely critical that you struggle with them and follow thru on particular personal questions/issues, taken up and partially graded (for effort), solutions (perhaps cryptic) released, you must follow thru

Components of the course:

Problem sets



Lecture

Text

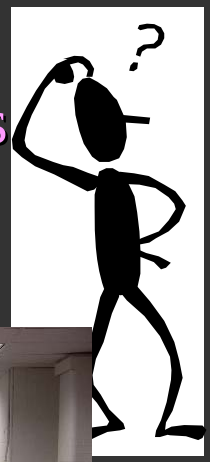
Workshop

Lab

My way to help you help yourself!

Components of the course:

Problem sets

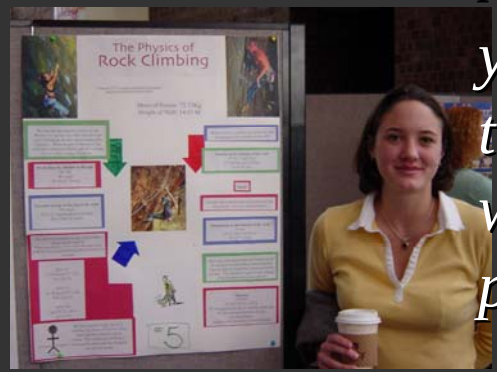


Lecture

Text

Workshop

Lab

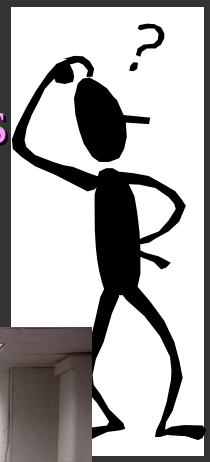


Presentation

A chance to teach it yourself and explore some things not in the text, you will evaluate the presentations

Components of the course:

Problem sets

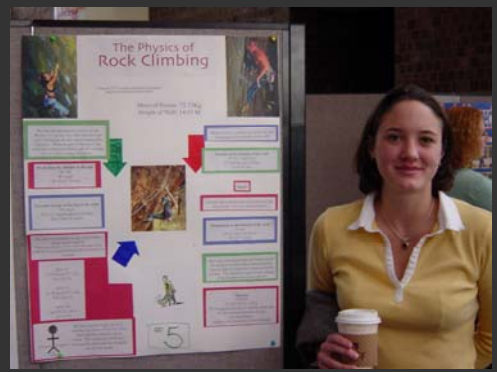


Lecture

Text

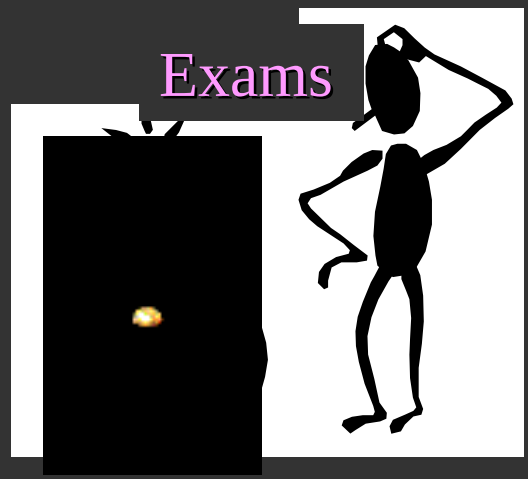
Workshop

Lab



Presentation

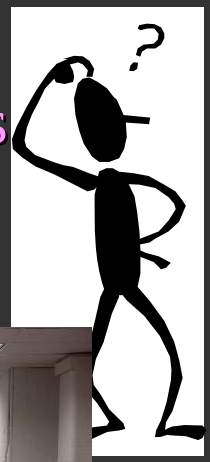
Exams



Components of the course:

Online applets

Problem sets



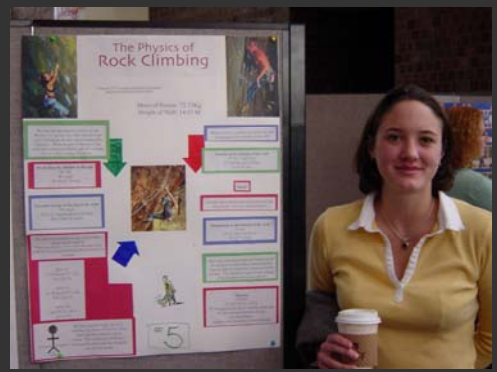
Lecture

Text

Workshop

PRS

Lab



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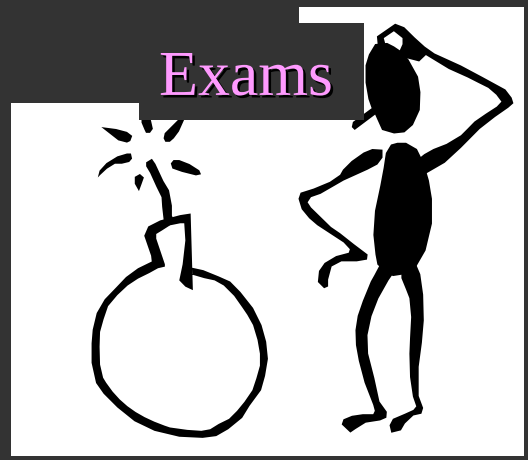

Presentation

Evaluation:

Presentation

Scheme	Exam 1	Exam 2	Final exam	Lab	Prob sets	Project
1	20%	20%	21%	15%	9%	15%
2	0%	30%	31%	15%	9%	15%
3	30%	0%	31%	15%	9%	15%

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

I place grade boundaries on numerical curve

More stuff:

E-mail list

Workshops begin next week. Schedule set tentatively. Have to check that my TA's can make the times.

Office hours: B&L 203E, Mon 3:30-4:30 and Tuesday 1:30-3:00, TA office hours not yet set

Problem sets and solutions: PS #1 is on the web (or will be soon) and is due Sept. 13!

Lab schedule already set …

physlabs@pas.rochester.edu