

# Welcome to Physics 142!



Figure from [http://en.wikipedia.org/wiki/Image:Rinjani\\_1994.jpg](http://en.wikipedia.org/wiki/Image:Rinjani_1994.jpg).

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This course is an introduction to electromagnetism. The importance of electromagnetism cannot be overstated. Electromagnetism lies at the heart of our understanding of both biology and technology. Electromagnetic theory allows us to answer the following questions about common observations: Why do balloons stick to the wall after you rub them over your hair? What causes the heart to beat? Why do magnets stick to the refrigerator? How do cameras, microscopes, and telescopes work? Why is the sky blue?

I welcome and encourage questions at all times: in class, in my office, through email, and over the phone. (Over the weekend, I am not accessible by email. If you'd like to reach me over the weekend, you may call me at home: 404-636-8983.)

Unless the class prefers otherwise, office hours will be **Monday 11-12** and **Wednesday 2-3**. I'll be in either **N308** or across the hall in **N307** or **N309**. You are always very welcome to make appointments or drop by at other times.

Grades will be computed as follows:

Three tests: 45% (9% for your lowest test grade, 18% for each of the other two)

Final exam: 25%

Lab: 20% (and you must pass lab to pass the course)

Homework: 10%

Letter grades will be determined as follows: A = 93.0-100, A- = 90.0-92.9, B+ = 87.0-89.9, B = 83.0-86.9, B- = 80.0-82.9, etc.

The Honor Code applies at all times.

No equation sheets will be provided on the tests or final exam. You may bring one handwritten, double-sided, 4 x 6 index card to the first test, two such cards to the second test, three to the third, and four to the final exam.

Homework will be due at the beginning of class almost every class meeting. Homework is assigned and submitted through [www.webassign.com](http://www.webassign.com). Please visit the website and add yourself to the class with this Class Key: **emory 6195 8242**. On homework, collaboration with peers is encouraged. However, mindlessly copying someone else's homework won't help you prepare for tests.

Upon request, you will be granted one-week extensions on two homework assignments. Email extension requests to me. Please try to save your extensions for when you really need them.

We will use clickers in the class. Your clicker participation will not directly impact your grade. I expect, however, that actively participating in the class will improve your performance on tests.

Physics is challenging but fun! Remember, I'm here to help you learn as effortlessly as possible, so please never hesitate to contact me!

Date	Chapter	Sections	Topic (tentative)
January 19	15	1-3	Electric force
January 24	15	4-6	Electric field
January 26	16	1	Electric potential energy
January 31	16	2-4	Electric potential
February 2	16	5-9	Capacitors
February 7	17	1-6, 8	Current
February 9			TEST 1 (Chapters 15-17)
February 14	18	1-4	Circuits
February 16	19	1, 2, 5	Magnetic field
February 21	19	3, 4	Magnetic force
February 23	19	6-8	Creating magnetic fields
February 28	20	3, 4	Motional emf
March 1	20	1, 2, 5	Faraday's Law
March 6	20	6, 7	Self-inductance
March 8			TEST 2 (Chapters 18-20)
March 20	22	1-7	Ray model
March 22	23	1-3	Mirrors
March 27	23	4	Refraction
March 29	23	6	Lenses
April 3	24	1, 2, 5-7	Interference
April 5	24	3, 4	Thin-film interference
April 10	25	2-5	Optical instruments
April 12			TEST 3 (Chapters 22-25)
April 17	26	1-6	Relativity
April 19	28	3	Bohr atom
April 24	27, 28	27.3, 27.4, 28.6	X-rays
April 26	29	1-4	Radioactivity
May 1			Review
May 8			FINAL EXAM (8:30-11)