

2015

# Physics 112 Heat, electricity, & Optics Fall 2015

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# PHYSICS 112

## Heat, Electricity, & Optics

Fall, 2015 Sections 1-4 8-8:50am, M126



**Instructor:** Dave Leake  
 Office: Planetarium (phone: 351-2567)  
 Student Hours: Mon, 9-10am (M159) or by appointment.  
 Phone mail: 373-3782 ext. 2567  
 Electronic mail: [dleake@parkland.edu](mailto:dleake@parkland.edu) (Cobra emails should forward to this)  
 Cobra.parkland.edu (see the portal) for powerpoints, homework, lab hints

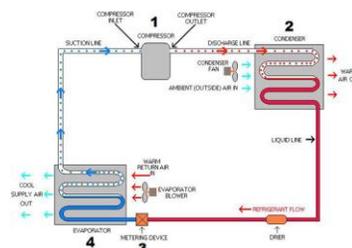
**Text:** *The Physics of Everyday Phenomena (8th edition)* by W. Thomas Griffith

**Homework:** There will be one problem set each week. These problems will be assigned on Wednesdays and will be due by 5pm the following Wednesday. Turn in assignments either in class or deliver to my office. Your lowest grade will be dropped at the end of the semester. Each problem set will be worth 100 points. Late homework will be accepted for up to one week after it is due at a cost of 5 points per day. No homework will be accepted after the written solutions have been posted online. This covers all excuses!

**Laboratory:** There will be one laboratory experiment or activity each week, explained on Monday. Experiments will be performed *either* on Tuesday *or* Thursday - you should have enrolled in a lab section when you enrolled in the class. A lab monitor will be in charge during lab but you will be on your own, so prepare accordingly. Lab hints appear on the course's Cobra site. Labs are held usually in room M126. You will be admitted ONLY at the start of your lab time, so please be prompt. Note the time you started lab and the time you turned in your lab on the lab sheet. Turn in your lab write-up to the lab monitor on duty *before* you leave the lab! Internet and take-home activities will be due the following Monday, in-class. Each lab will be based on 100% and your lowest grade will be dropped. Write-ups should be legible and coherent and include a data section, a sample calculation, and conclusions. *You must show your calculations for full credit!* This is a lab course, meaning you **must** have 60% of the total lab points to pass the course! Collaboration (NOT plagiarism) is encouraged.

**Exams:** There will be three hour exams and a final exam, each worth 100 points. Each hour exam will concentrate on the material covered since the previously exam; the final is just hour exam #4 and won't be cumulative. These tests are closed-book, though you may use a calculator in addition to the formula sheet that I will provide you. Emphasis will be on concepts & problem solving processes and *not* memorization of formulae!

<b>Grading:</b>	Homework	20%	A: 90% - 100%
	Labs	20%	B: 80% - 89%
	Exams (3)	45%	C: 70% - 79%
	Final	<u>15%</u>	D: 60% - 69%
		100%	



## TENTATIVE FALL SYLLABUS

<u>Week#</u>	<u>Chapter/Topic</u>	<u>Lab/Activity</u>
Aug. 24	Ch. 1 - Units, Notation	Pre-test activity (on Cobra)
Aug. 31	Ch. 12 – Electrostatic stuff	Math Review (take home)
Sept 7	Ch. 13 – Electric circuits & Ohm’s Law	Static Electricity (in lab)
Sept 14	Ch. 14 – Magnetism	Resistivity in wires
Sept 21	Exam #1; Chap. 14 - Transformers	Series/Parallel Circuits
Sept 28	Ch. 14 – AC/DC, motors & generators	Magnetic Fields
Oct. 5	Ch. 15 – E & M waves	Transformers
Oct 12	Ch. 16 – Light	Magnetic Therapy (online)
Oct. 19	Exam #2, Emission & absorption	Light, Spectra, & Illumination
Oct. 26	Ch. 17 – Optical systems	Basic Optics
Nov. 2	Ch. 18 – The atom, X-rays, & radioactivity	Radioactivity
Nov. 9	Ch. 19 – Nuclear energy	TBA
Nov. 16	Exam #3; Ch. 10 - Heat & Temperature	Specific Heat
Nov. 23	Ch. 10 – Phase transitions	No lab (Thanksgiving weekend)
Nov. 30	Ch. 11 – Thermodynamics & heat engines	Latent Heat
Dec. 7	Review	No lab

There are hints for each of these labs as well as homework assignments on the Cobra web site. The hour exams will be held on in-class Wednesdays and are tentatively scheduled for Sept. 23, Oct. 21, & Nov. 18 [last day to drop is November 26]  
Final Exam (hour exam #4): 8am-10am, Monday, December 14, M126.

A full syllabus (including college policies) appears on the Cobra web site. *Class attendance is imperative! You’re expected to be here each class day!*

If you believe you have a disability for which you may need an academic accommodation (e.g. an alternate testing environment, use of assistive technology or other classroom assistance), please contact: Cathy Robinson, Room U260, 217-353-2338, [crobinson@parkland.edu](mailto:crobinson@parkland.edu)