Principles of Physics III: Waves, Thermodynamics, Optics **V2**
Fall 2009 MWF 10:00 – 10:50 AM and Th 10:50 – 12:05

Syllabus

Professor: Beth Ellen Clark Joseph
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Office Hours: MWF 11:00 AM to NOON, Th 3:30 to 5:00 PM

Text: "University Physics", 12th Edition, by Young and Freedman

Basis of Grading:

Exams: 60%

We will have 3 exams, and each will be worth 20% of your grade. The final exam (exam 3) will be the same format and percentage of your grade as any of the other exams. All exams are comprehensive. There will be NO MAKE-UP exams.

Participation (Attendance, Reading Quizzes, Labs, and Group Work): 25%

Approximately once a day we will have a 5-minute quiz on the reading material assigned in the reading column of the attached schedule. There will be no make-ups on quizzes. In Recitation, we will work on labs and, occasionally, assigned group work problems. These will be collected and graded.

Homework Problem Sets: 15%

I will assign a homework problem set every week. Homework will be due Fridays at the beginning of class. Exception: homework will be due Wednesday Oct 14 due to fall break (Thurs-Fri Oct 15-16). Late homework will not be accepted. As a pressure-release valve, I will allow every student 2 three-day extensions (until Monday at the start of class).

Policies:

- Anyone caught cheating will be taken to the College Judiciary Council, and a grade of F will be assigned.
- There will be no make-ups.
- No work can be handed in after the final exam.

Schedule:

Week	Date	Reading Chapter(s)	Topic	Problem Set Due / Exam Schedule
1	Aug 26		Mechanical Waves	
	27	15.1-15.6	Wave Energy and Interference	
	28	15.7-15.8	Standing Waves	Q15.1,7 / E15.6, 9, 31, 48
2	31	16.1-16.3	Sound	
	Sep 2	16.4-16.7	Sound Interference and Beats	
	3		Lab: Standing Waves	
	4	16.8	Doppler Effect	Q16.4 / E16.11, 20, 21, 34
3	7	Labor Day - No class	-	
	9	17.1-17.4	Temperature	
	10	17.5-17.7	Expansion, Phases, Transfer	
	11		CRP: R Values	Q17.8, 28 / E17.16
4	14			
	16	17.7	Heat Transfer	
	17		CRP: Phase Changes	
	18	18.1-18.2	Equations of State	E17.42, 53 / P17.79, 84
5	21	18.3	Kinetic-Molecular Model	
	23	18.4	Heat Capacities	
	24		Exam 1:	Chaps 15, 16, 17 – 10:50am
	25	18.5	Phases of Matter	Q18.1 / E18.14, 33
6	28	19.1-19.3	Thermodynamic Work	
	30	19.4-19.5	1st Law of Thermodynamics	
	Oct 1		Lab: Specific Heat	
	2	19.7-19.8	Heat Capacities	Q18.14 / E18.52, E19.4, 19
7	5	20.1-20.1	Thermodynamic Processes	
	7	20.3-20.4	Engines and Refrigerators	
	8		CRP: Heat Pumps	
	9	20.5-20.6	2nd Law of Thermodynamics	E19.34, 43, E20.9, 10
8	12	20.7	Entropy	
	14	20.8	Microscopic Entropy	Q20.5, 23, E20.28
	15	Fall Break – No class	-	
	16	Fall Break – No Class	-	
9	19	29.7	Maxwell's Equations	
	21	32.1-32.2	Electromagnetic Waves	
	22		Exam 2:	Chaps 18, 19, 20 – 10:50am
	23	32.3-32.4	Energy in EM Waves	
10	26	32.5	Standing EM Waves	
	28	33.1	Wave Fronts and Rays	
	29		CRP: EM Waves	
	30	33.2	Reflection and Refraction	
11	Nov 2	33.3-33.4	Total Internal Reflection	
	4	33.5	Polarization	
	5		Homework Help	
	6	33.6-33.7	Huygen's Principle	
12	9	34.1	Mirror Reflection	
	11	34.2	Spherical Mirrors	
	12		Lab: Brewster's Angle	
	13	34.3	Refraction at Spherical Surfaces	
13	16	34.4	Thin Lenses	
	18	34.4	More Lenses	

	19		Exam Review	Chaps 32, 33, 34.2 - 7-9pm
	20	34.5-34.7	Cameras, Telescopes	
	23	Thanksgiving – No class	-	
	25	Thanksgiving – No class	-	
	27	Thanksgiving – No class	-	
14	30	35.1-35.2	Young's Double Slit Experiment	
	Dec 2	35.4	Thin Film Interference	
	3		CRP: Telescopes	
	4	35.5	The Interferometer	
15	7	36.1-36.2	Single Slit Diffraction	
	9	36.4-36.5	Multiple Slit Diffraction	
	10		Final Exam Review 15-36	
	11	36.6	X-ray Diffraction	
16	17	Final Exam	Chaps 15.1 – 36.6	FINAL EXAM 1:30 – 4:00pm