

Heat, Electricity and Optics

PHYS 251 Syllabus

Instructor: Gang Wang
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Office hours: Tuesday 11 am - 12 pm, Thursday 11 am – 12 pm, Tuesday 1 pm – 2 pm pm. You are also welcome to email if you have any questions.

Course requirements:

Textbook: Fundamentals of Physics, (required)
By D. Halliday, R. Resnick, J. Walker (John Wiley & Sons, Inc)
Lectures: Tuesday, Wednesday, Thursday and Friday 12:00 pm – 12:50 pm, KT 132
Labs: Friday 10:00 am – 11:50 am or Tuesday 1:30 pm – 3:20 pm, KT 133

Grading:

In class quizzes10%
Homework assignments25%
Labs20%
Midterm Exams (8%, 8% and 9%)25%
Final Exam (**Tue. 12/15, 1 pm - 3 pm**)20%

General Policies:

- Final grade assignment:
A⁺ = 97%-100% (4.0GP) A = 93-96.99% (4.0 GP) A⁻ =90%-92.99% (3.7 GP)
B⁺ = 87%-89.99% (3.3GP) B= 83-86.99% (3.0 GP) B⁻ =80%-82.99% (2.7 GP)
C⁺ = 77%-79.99% (2.3GP) C= 73-76.99% (2.0 GP) C⁻ =70%-72.99% (1.7 GP)
D⁺ = 67%-69.99% (1.3GP) D= 63-66.99% (1.0 GP) D⁻ =60%-62.99% (0.7 GP)
F = 0-59.99% (0 GP)
- Homework assignments are due by 4:30 on the indicated dates. Late submission may be accepted with punishment. Half of the full score of that assignment will be taken off **PER DAY** past due.
- All in class quizzes are “pop-up” quizzes. Absolutely **NO** make-up quizzes.

Lab Policies:

Each lab is graded based on a full credit of 20 points, which includes 5 points for pre-lab, 5 points for the lab performance, and 10 points for the final task.

Academic Goals:

Students who successfully complete this course will have working knowledge to thermal phenomena, basic understanding of electricity and magnetism, basic skills to solve DC circuits and an understanding of the fundamental of optics. The applications of

physics laws to the above mentioned areas will be introduced to the class at a very basic level.

Disabilities Statement:

If you have a disability and need assistance, special arrangements can be made to accommodate most needs. Contact the Director of Services for Students with Disabilities (Walb Union, Room 113, telephone number 481-6658) as soon as possible to work out the details. Once the Director has provided you with a letter attesting to your needs for modification, bring the letter to me. For more information, please visit the web site for SSD at <http://www.ipfw.edu/ssd/>

Physics 251 Tentative Schedules

Fall 2009

Week	Days	Activities
8/25	T	Introduction
	W	Ch18: Temperature and heat
	Th	Ch 18: Temperature and heat
	F	Ch 18: Transfer of heat
9/1	T	Ch 19: Ideal Gas
	W	Ch19: Ideal Gas
	Th	Ch19: Ideal Gas
	F	Ch 18: First Law of Thermodynamics
9/8	T	Ch19: Ideal Gas
	W	Ch 20: Entropy
	Th	Ch 20: Second Law of Thermodynamics
	F	Ch 20: Engines
9/15	T	Spillover: Thermodynamics and energy
	W	Discussion /Review (or test)
	Th	Midterm Exam I (or discussion)
	F	Ch 21: Charges and Coulomb's law
9/22	T	Ch 22: Electric field
	W	Ch 22: Electric field in special cases
	Th	Ch 22: Electric field in special cases
	F	Ch 22: Electric field in special cases
9/29	T	Ch 23: Gauss' law
	W	Ch 23: Gauss' law
	Th	Ch 24: Electric potential
	F	Ch 24: Electric potential
10/6	T	Ch 24: Electric potential and energy
	W	Ch 26&27: Current and Circuit
	Th	Ch 25: Capacitance

	F	Ch 25&27: Capacitance in circuits
10/13	T	Fall Break, no class
	W	Spillover: AC circuits
	Th	Discussion/Review (or test)
	F	Midterm Exam II (or discussion)
10/20	T	Ch 28: magnetic fields
	W	Ch 28: Forces on moving charges
	Th	Ch 29: magnetic fields due to currents
	F	Ch 29: Ampere's law
10/27	T	Ch 30: Induction and inductance
	W	Ch 30: Faraday's law
	Th	Ch 30: Lenz's law
	F	Ch 31: more on AC circuits
11/3	T	Ch 31: more on AC circuits
	W	Ch 32: Maxwell's Equations
	Th	Ch 32: Maxwell's Equations
	F	Dissussion/Review(or test)
11/10	T	Midterm Exam III (or discussion)
	W	Ch 34: Ray Optics
	Th	Ch 34: Reflection and Mirror imaging
	F	Ch 34: Spherical mirrors
11/17	T	Ch 34: Spherical mirrors
	W	Ch 34: Refraction and Snell's Law
	Th	Ch 34: Lenses
	F	Ch 34: Image formation 1
11/24	T	Ch 34: Image formation 2
	W	Thanksgiving Recess, no class
	Th	Thanksgiving Recess, no class
	F	Thanksgiving Recess, no class
12/1	T	Ch 35: Interference
	W	Ch 36: Diffraction
	Th	Ch 35&36: Wave nature of light
	F	Ch 33: Electromagnetic waves
12/8	T	Ch 33: Electromagnetic waves
	W	Ch 35&36: physical optics
	Th	Spillovers in optics
	F	To be announced/Review
12/15	T	Final Exam on Tuesday, December 15, 1-3 pm.