Physics 8: Course Outline
Spring Quarter, 2006
Website: physics.ucsd.edu/~tmurphy/phys8/

Week 1: (Apr. 4)
• Course introduction, structure, goals.
• Newton’s laws of motion, force, acceleration, energy, power

Week 2: (Apr. 11)
• The flow of energy, human energy and exercise
• Springs, oscillations, resonance, molecular model

Week 3: (Apr. 18)
• Electric forces, electric fields, current
• Bulbs: blackbody radiation, resistors, voltage, power

Week 4: (Apr. 25)
• Bulbs Gone Wild: complex circuits and Ohm’s law
• AC electricity: transformers, diodes, rectification

Week 5: (May 2)
• Sound: waves, speakers, ears
• Midterm Exam: May 4; 2:00 PM WLH 2005

Week 6: (May 9)
• Sound waveforms, sampling, digital representation: CDs, DVDs
• Transistors, logic functions, binary arithmetic, computers

Week 7: (May 16)
• Electromagnetic Radiation: antennas, polarization, AM vs. FM
• Cell phones, GPS, microwaves, heating food, Faraday cages

Week 8: (May 23)
• TV: electron beams, painting the picture, encoding, remote controls
• Optics: reflection, refraction, lenses, cameras, the eye

Week 9: (May 30)
• Light and the perception of color, color combination
• Natural optical phenomena: weird stuff you see

Week 10: (June 6)
• Up for grabs 1
• Up for grabs 2

Final Exam: Wednesday, June 14, 3:00–6:00 PM; WLH 2005

Grading Scheme
• 25% on weekly homework; due Thursdays
• 10% based on bi-weekly submission of questions/observations (via WebCT). Half credit if turned in late, no later than a week late; due Fridays on even-numbered weeks
• up to 15% based on classroom participation via transmitter (taken out of midterm/final allotments, reducing weight of worst exam)
• 30% based on midterm (15% if full classroom credit is used toward midterm)
• 35% based on final (20% if full classroom credit is used toward final). Final is weighted heavily toward topics of second half

Grades will be curved to fairly represent student capabilities
Required Textbook:


Transmitter Required:

For class participation credit, purchase a transmitter from the bookstore. See class web page http://physics.ucsd.edu/~tmurphy/phys8/phys8.html for more details.

Class Meeting Times:

Lecture: Warren Lecture Hall (WLH) 2005, TTh 2:00–3:20 PM

Discussion: Center Hall 214, W 4:00–4:50 PM (focus on concepts, mock quizzes, some HW)

Problem: CSB 002, W 7:00–7:50 PM (focus on homework, exam study)

Professor Contact and Office Hours:

Professor: Tom Murphy

e-mail: tmurphy@physics.ucsd.edu

Phone: 858.534.1844

Office: SERF Building, Room 336 (building number 930)

Hours: Thursday 11:00 AM–noon, or by appointment

Teaching Assistant Contact and Office Hours:

TA: Matt LeBourgeois

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Office: Mayer Hall, Room 2101

Hours: Wednesday 2:00–3:00 PM