PHYS CS 36 **Spring 2011**

Quantum Physics

College of Creative Studies
University of California, Santa Barbara

This is the sixth of 6 courses in the CCS Physics sequence and is required for all CCS Physics majors. Topics to be covered include:

- Blackbody Radiation, Photoelectric effect, photons
- Compton Effect
- Rutherford Scattering
- Bohr Atom, atomic spectral lines
- De Broglie Waves, wave packets
- Uncertainty principle
- Quantization of energy, momentum, and angular momentum
- Wave mechanics, phase velocity and group velocity
- Schrödinger Equation, time-independent and time-dependent solutions
- Potential wells and barriers, tunneling
- Eigenvalues and eigenfunctions
- Quantum harmonic oscillator
- Hydrogen atom

Prerequisites: PHYS CS 35 or consent of instructor

Lecture:

Time: Tues/Thurs 12:30 - 1:50 p.m.
Place: PHELPS 3505
Instructor: Dr. Ilan Ben-Yaacov, ESB Room 3221D, ext 5295, ilan@engineering.ucsb.edu
Office Hours: Wednesday 11:00am-1:00pm in ESB 3221D

Problem Sessions:

Time / Place: Thurs 10:00 - 11:50 a.m., PHELPS 3505
Thurs 2:00 - 3:50 p.m., PHELPS 3505
Instructor: Doug Folsom, doug.folsom@gmail.com
Office Hours: Tues 2-3pm and Wed 12-1pm in CCS Faculty Office (behind CCS building)

Teaching Assistant: James Garrison, garrison@physics.ucsb.edu
TA office hours: Tuesday 6:00-8:00pm, CCS Room 145

Grader: Alex Troesch, atroesch@umail.ucsb.edu
Grader office hours: Wednesday 6:00-8:00pm, CCS Room 145

Required Texts: *Modern Physics*, 2nd edition, by Ohanian, 1995, ISBN 0-13-124439-6

Class Web Page: http://my.ece.ucsb.edu/PHYSCS36