

Text Book: Modern Physics
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 Room 108, Phone 341-4792
 Office Hours 4:00-5:00 Monday, 10:00-12:00 Tuesday

Grading

Homework 40%
 Midterms (2) 20% each February 27, April 10
 Final 20% Wednesday, May 15, 12:30 pm

Homework is due Wednesday at the start of class

One homework score will be dropped at end of the course

Use of files from previous semesters is not allowed, and will be severely penalized!

Fundamental Concepts and Applications

Special Relativity

A new idea of time and space

The twin paradox

Quantized Light (Photons)

Black body radiation

Photo-electric effect

Compton scattering

Matter Waves

Probability

Uncertainty

Quantized energy

Atomic spectra

Failure of classical physics

Energy levels

Photo-emission and absorption

Quantum Mechanics

Operators

Schrodinger's Equation

Eigen States

Superposition

Time evolution

Hydrogen Atom

Full quantum treatment

Electron spin

Multi-electron atoms

Pauli exclusion principle

Shell structure

Magnetic fields

Statistical Mechanics

Classical many body physics

Quantum statistics

Heat capacity

Molecules

Bonds

Rotation

Vibration

Raman scattering

Solids

Crystal structure

Band structure

Conduction

Semi-conductors

Nuclear Physics

Structure

Bonding

Binding energies

Decay

Fusion

Elementary Particles

Fundamental forces

Quarks, Leptons

Antiparticles

Quantum fields