Laser Physics (Physics 371)        Dr. Story        Room 108 Physics

Text Book: Laser Electronics, Joseph Verdeyen

Office Hours    3:00-5:00 Monday, 10:00-12:00 Tuesday

Grading
Homework        40%
(2) Midterms     20% each
Final            20%

(February 26)    (April 9)

I. Electro-Magnetic Fields
   a. Resonance
   b. Wave Equation
   c. Uncertainty Relation
   d. Fourier Transforms
   e. Frequency Detection

II. Resonant Cavities
    Ch. 6 (6.1-6.4, 6.7)
    a. Fabri-Perots
    b. Photon Lifetime
    c. Driven Cavities

III. Atomic Physics
     Ch. 7
     a. Black Body Radiation
     b. Stimulated Emission
     c. Amplification
     d. Line Broadening

IV. Laser Operation
    Ch. 8
    a. Gain
    b. Threshold
    c. Saturation
    d. Numeric Modeling

V. Laser Systems
    Ch. 9, 10, 11
    a. Continuous Wave Lasers
    b. Pulsed Lasers
    c. Inversion Production
    d. Q-Switching
    e. Mode Locking
    f. Semiconductor Lasers

VI. Laser Applications
    a. Spectroscopy
    b. High Intensity Effects
    c. Laser Cooling of Atoms

VII. Quantized Fields (Photons)