Physics 5614 – Spring 2005
Introduction to Quantum Electronics

Lectures : TTh 2:00-3:15 pm, Room 122 Robeson Hall

Texts : *Quantum Electronics*, A. Yariv, 3rd ed. (will be given as hand-outs)
Nonlinear Optics, R. W. Boyd

Instructor : Prof. R. Heflin, Room 108A Robeson, ext. 1-4504

Office Hours : M 11:00-12:00, W 1:00-2:00, and by appointment.

Homework : There will be five or six homework assignments throughout the semester.

Grades : 80% Homework
20% Research Paper (more details later)

Chap.	**Title**
From Yariv:	
6	Propagation of Optical Beams in Homogeneous and Lenslike Media
7	Optical Resonators
8	Interaction of Radiation and Atomic Systems
9	Laser Oscillation
10	Some Specific Laser Systems
11	Semiconductor Diode Lasers
20	Q-Switching and Mode Locking of Lasers

From Boyd:		Corresponding Yariv Sections
1	The Nonlinear Optical Susceptibility	16.0-3
2	Wave-Equation Desc. of Nonlinear Optical Interactions	16.4-8
3	Quantum-Mechanical Theory of the Nonlinear Optical Susceptibility	
4	The Intensity-Dependent Refractive Index	18.8
6	Processes Resulting from the Intensity-Dependent Refractive Index	
10	The Electro-optic and Photorefractive Effects	14.0-7, 19.0-8
5	Nonlinear Optics in the Two-Level Approximation	15.0-4