

**ECE 275A Lasers and Photonics
Winter 2003**

Code 15865

- Textbook:** *Laser Electronics*, Joseph T. Verdeyen , Prentice Hall, 1995.
- Prerequisites:** Undergraduate coursework in electromagnetic theory, and atomic physics
- Outline:**
- Lecture 1: Introduction
 - Lecture 2: Classical review of electromagnetic waves
 - Lecture 3: Fields in a box
 - Lecture 4: Planck, atomic physics, Einstein A/B coefficients
 - Lecture 5: Two level rate equations
 - Lecture 6: Three level rate equations
 - Lecture 7: Gain saturation, Fiber amplifiers
 - Lecture 8: Laser oscillation
 - Lecture 9: Laser output power
 - Lecture 10: Time dependent oscillation
 - Lecture 11: Example lasers
 - Lecture 12: Band theory of solids
 - Lecture 13: Optical properties of semiconductors
 - Lecture 14: Semiconductor lasers
 - Lecture 15: DBR, DFB semiconductor lasers
- Lecture Hours:** 2-3:20 pm M, W, HH262
- Instructor:** Peter Burke, Prof. of Electrical and Computer Engineering
2232 Engineering Gateway
949-824-9326 pburke@uci.edu
- Instructor Office Hours:** 1 p.m. – 2 p.m., M, W
- Grading Components:**
- | | |
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| Midterm (Mon., Feb. 10) | 25% |
| Paper (due before the final exam) | 25% |
| Final Exam. (Friday, March 21, 1:30pm-2:30pm) | 50% |
- Homework:** Homework assignments will be given throughout the quarter. Solutions will be given the following week to the copy center. Homework assignments are not collected or graded. However, if you do not do the HWs and understand the solutions you will probably not pass the course.

Questions policy:

There is no such thing as a dumb question. However, there is also a time and a place for everything, so...

The appropriate use of **email**, **lecture**, **discussion section**, **office hours** is as follows:

If you have questions about the **content** of the course or the homework problems, the appropriate venue is to ask questions during **lecture**, the **discussion sections**, or **office hours**. Emails regarding content will be ignored, because it is difficult to explain content related material by email. Questions during lecture are encouraged!

If you have questions about the **administration** of the course, the appropriate venue is to ask questions during the **lecture** if it concerns all students, or during **instructor office hours** if it concerns only you. If it concerns all students it is only fair that all students get to hear the answer during the lecture period!

If you have a question about what is going to be covered on the midterm or final, those questions will only be answered during the **lecture**, not by email or in office hours. No emails about the content of the midterm or final will be answered. The reason is that it is only fair for all the students to hear the answer to your question!