

## EE 5388 Lasers

Spring Semester 2008

Monday/Wednesday 1:00–2:20 pm, NH Room 108

**Instructor:** Michael Vasilyev, Asst. Prof.   **Office:** NanoFAB, Room 220  
**Office Hours:** MW, 2:30 pm–3:50 pm   **Phone:** (817) 272-1224  
**Instructor Website:** <http://www-ee.uta.edu/Vasilyev>   **Mailbox:** Nanofab (2<sup>nd</sup> floor)  
**E-mail:** [vasilyev@uta.edu](mailto:vasilyev@uta.edu)   or Box 19072

**Required Textbook:** J. T. Verdeyen, “Laser Electronics,” 3rd edition, Prentice Hall, 2000.  
(this book is on reserve in Science and Engineering Library).

**Reference Texts:**

- 1) “Lasers,”  
A. E. Siegman, University Science Books, 1986.
- 2) “Fundamentals of Photonics,”  
B. E. A. Saleh and M. C. Teich, John Wiley and Sons, 1991.
- 3) “Optical Electronics in Modern Communications,”  
A. Yariv, 5<sup>th</sup> ed., Oxford University Press, 1996.
- 4) “Quantum Electronics,”  
A. Yariv, 3<sup>rd</sup> ed., John Wiley and Sons, 1989.
- 5) “Introduction to Fourier Optics,”  
J. W. Goodman, 2<sup>nd</sup> ed., McGraw Hill, 1996.

(These books are on reserve in Science and Engineering Library.)

**Course Learning Goals/Objectives:** Learn the principles and applications of lasers.

**Course Description:** Propagation of optical rays and waves, Gaussian laser beams, laser resonators; active nanoparticle in a microcavity, atomic systems, lasing and population inversion, laser amplifiers, practical continuous-wave and pulsed lasers, mode locking, Q-switching, and applications of lasers.

### Tentative topic schedule:

Fields and Waves  
Optical Resonators  
Single Emitter in a Microcavity  
Fundamentals of Lasers  
Q-switching and Mode-Locking  
Optical Propagation and Diffraction  
Gaussian Beams  
Thin-Lens Imaging  
Optical Signal Processing

### Course Evaluation and Final Grade:

Quiz	10%
Term paper	50%
Final exam	40%

## **Attendance Policy: Mandatory**

**Drop Policy:** As per University guidelines. See the Registrar's Bulletin or the University Calendar in the front part of the UTA catalog for drop dates.

## **Student Evaluation of Teaching**

Students will be asked to complete instructor/course evaluation forms at the end of the semester.

## **Americans with Disabilities Act:**

The University of Texas at Arlington is on record as being committed to both the spirit and letter of federal equal opportunity legislation; reference Public Law 93112—The Rehabilitation Act of 1973 as amended. With the passage of new federal legislation entitled Americans with Disabilities Act – (ADA), pursuant to section 504 of The Rehabilitation Act, there is renewed focus on providing this population with the same opportunities enjoyed by all citizens.

As a faculty member, I am required by law to provide “**reasonable accommodation**” to students with disabilities, so as not to discriminate on the basis of that disability. Student responsibility primarily rests with **informing faculty at the beginning of the semester and in providing authorized documentation through designated administrative channels.**

**If you require an accommodation based on disability, I would like to meet with you in the privacy of my office, during the first week of the semester, to make sure you are properly accommodated.**

## **Academic Dishonesty**

It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University.

“Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.” (Regents' Rules and Regulations, Part One, Chapter VI, Section 3, Subsection 3.2, Subdivision 3.22).

## **ANY CHEATING WILL RESULT IN SEVERE PENALTIES.**

The University of Texas at Arlington supports a variety of student success programs to help you connect with the University and achieve academic success. They include learning assistance, developmental education, advising and mentoring, admission and transition, and federally funded programs. Students requiring assistance academically, personally, or socially should contact the Office of Student Success Programs at 817-272-6107 for more information and appropriate referrals.