Lasers and Modern Optics - Physics 562

Instructor: Tom Weinacht (A102) 2-8163
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Textbook: Laser Physics by P. W. Milonni J. H. Eberly
Supplemental textbook: Modern Optics by Grant R. Fowles
Meeting time: Tues and Thurs 11:00-12:20

This course is intended to be an introduction to lasers and modern optics for advanced undergraduates and graduate students. There will be some demonstrations and lab visits.

Topics:

I Classical description of dispersion and Absorption – Lorentz Model
II Two state atoms with classical fields, Density Matrix description
III Emission and Absorption, Rate Equations
IV Laser Oscillation: Gain and Threshold
V Gaussian Beams and Laser Resonators
VI Optical Coherence
VII Specific Systems

Grading:

25% Homework

20% Term Paper/Project

20% Midterm Exam

35% Final Exam

Problem sets will be handed out on Tuesdays every week and are due at the beginning of class the following Tuesday.

If you have a physical, psychiatric/emotional, medical or learning disability that may impact on your ability to carry out assigned course work, I would urge that you contact the staff in the Disabled Student Services office (DSS), Room 123 ECC (Educational Communication Center), 632-6748/TDD. DSS will review your concerns and determine, with you, what accommodations are necessary and appropriate. All information and documentation of disability is confidential.