

ELEC 569 / PHYS 569 Web Central

NOTE: PowerPoint and PDF files can be downloaded from Rice domains only.

General Information

This class deals with the field of ultrafast optical phenomena. There is no required text; the following topics will be covered:

- Electromagnetic propagation in the presence of gain
- Laser oscillation and cavities
- Ray optics
- Pulse propagation
- Non-linear optical phenomena
- Kerr-lens mode locking
- Short pulse measurement
- Ultrafast techniques

Class Room: **Brockman 103**

Class Time: TuTh 2:30 - 3:45

Office hours: Tuesdays, 1:00-2:30

- **Prerequisites:** It is assumed that you have had some exposure to E&M, at the level of an advanced undergraduate course. Knowledge of quantum mechanics is helpful but not required. Undergraduates who are interested in taking this class should contact Dr. Mittleman to discuss these issues.
- **Assignments:** Problem sets are occasional. One of the important aspects of this class are the student presentations, which occur towards the end of the semester. This will be discussed during the first day of lecture.
- **Attendance:** Lecture attendance is **REQUIRED**. If there is one way to guarantee that you do NOT get an A in this class, it is to fail to attend lecture.

Announcements

- First day of class: **Tuesday, January 14.**

Lectures will be posted here in the form of PDF files. This is intended to save you the trouble of copying everything down during lectures. Take advantage of this.

- [Lecture 1](#)
- [Lecture 2](#)
- [Lecture 3](#)
- [Lecture 4](#)
- [Lecture 5](#)
- [Lecture 6](#)
- [Lecture 7](#)
- [Lecture 8](#)
- [Lecture 9](#)
- [Lecture 10](#)
- [Lecture 11](#)
- [Lecture 12](#)
- [Lecture 13](#)
- [Lecture 14](#)
- [Lecture 15](#)

Other documents

- Required reading for all experimental optics people: [How to clean your optics](#)

Interesting Links

- [Optical Society of America \(OSA\)](#) - contains links to web pages for the OSA Annual Meeting, the Optical Fiber Conference, and CLEO/QELS. Also links to all of the OSA journals including JOSA and Optics Letters. Student memberships available, and check out the new Rice student chapter.
- [IEEE Photonics Society](#) - co-sponsors of the CLEO/QELS meeting and OFC. Student memberships available.
- [American Physical Society Division of Laser Science \(APS - DLS\)](#) - student memberships available.

- [The FROG home page](#)

Students

- Your name will appear here, some time in January
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Contact [Dr. Mittleman](#).

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