50:750:305- Laser and Laser Physics

Instructor	J.J. Naddeo	**E-mail**	jnaddeo@gmail.com
Phone	856-225-6294	**Office Hours**	By appointment
Office	Lab(s): BSB 405-406, 416-417, 420	**Final Exam**	TBD

Class meeting time: **Thursday 6:00pm-8:40pm**

Location: **BSB 118**

Text: Laser Physics 2nd Edition by Peter W. Milonni

Description: We will attempt to cover Chapters 1-7 in the assigned text. Also we will incorporate a laser safety training course into the curriculum that will allow first time users an opportunity to use the laser systems in the LMIL.

Details:

1) Office hours are just a formality – I will try to help you any time I can. Call or come by.
2) Homework will be spread out throughout the semester and will most likely be in the form of a "lab" or "project"

Grading:

Final Project- 50% Report on certain laser system used to solve a given problem (i.e. nanoparticle synthesis, nonlinear optics problem, etc.)

Class Participation– 25%. A good portion of this class will be hands on training on various lasers systems, therefore students are expected to attend class and participate.

HW/Projects/Labs- 25%

Grading Scale

"A" – 85 and above
"B+" – 80-84
"B" – 75-79
"C+" – 70-74
"C" – 65-69
"D" – 60-64
"F"- anything less than 59

Online Resources:

1) http://sakai.rutgers.edu
2) http://phet.colorado.edu/index.php
    a. We will complete a project from this site so make sure this runs on your at home computer or that you have access to a computer on campus that runs java.

Specific Student Learning Outcomes (SLOs) Objectives for Modern Physics are:

a. Operate pico- nano- and femto- second laser systems
b. Set up optics to guide a laser beam to intended target
c. Understand fundamentals of laser components

Instructor's Statement:

Do not engage in any form of academic dishonesty in my class. If you do not know what academic dishonesty is, please consult this statement: http://www.camden.rutgers.edu/RUCAM/info/Academic-Integrity-Policy.html.

I will report any violations of this policy to the campus Judicial Officer.

Please note that it is necessary to explain all steps that you take on exams – make an effort to *clearly* show your work. Answers without justification will not be accepted! You may be asked to explain your reasoning.

Do not bring cellphones to class or disrupt class in any way. If you do so, you will be asked to leave and will not be welcome back for the rest of the class period. The use of computers will be at my discretion – in general they will not be necessary/welcome.

Attendance is strongly suggested at all class meetings in accordance with the policies and guidelines set forth in the student manual. Your class participation grade obviously is very strongly dependent on your attendance.

List of Topics and Tentative Class Schedule:

Week 1 (9/3): OFF

Week 2 (9/10): Ch. 1 and Syllabus brainstorming

Week 3 (9/17): OFF

Week 4 (9/28): Overview of why a laser works (key concepts)

Week 5 (9/24): Pope

Week 6 (10/1): Operation of laser pt. 1 (turning on to firing and measuring energy for nano and picosecond lasers)

Week 7 (10/8): Laser Safety Training

Week 8 (10/15): Operation of laser pt. 2 (experiments with o-scope)

Week 9 (10/22): Operation of laser pt. 3 (imaging)

Week 10 (10/29): Operation of laser pt. 4 (synthesizing nanoparticles and characterization using various instruments)

Week 11 (11/5): Lectures on parts within laser

Week 12 (11/12): Lectures on parts within laser

Week 13 (11/19): Lectures on parts within laser

Week 14 (12/3): Lectures on parts within laser

Week 15 (12/10): Lectures on parts within laser/final projects due