# PHY 445 - Optics

**Syllabus** **Dr. R.L. Herman** **Fall 2011**

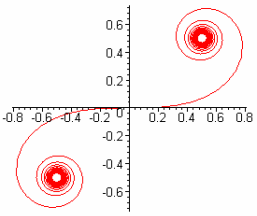

**Instructor: Dr. R. Herman**
**Office Hours: MWF 9-10 AM, TR 9:30-11 AM**
**Office: DeLoach Hall 203**
**Phone: 962-3722 (Home: 763-4372)**
**Email: hermanr@uncw.edu**
**http:/people.uncw.edu/hermanr**


## Course Content:

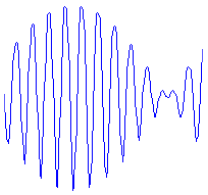
**Required Text:** *Physics of Light and Optics*, Justin Peatross and Michael Ware, 2011. *Schaum's Outline of Optics*, Hecht, 1975.

**Prerequisites:** PHY 202 and MAT 261.

In this course you will learn about physical and geometrical optics using the electromagnetic theory of light. Within these broad topics we will cover reflection and refraction, dispersion, ray optics and imaging, polarization effects, diffraction, Huygen's principles, Fourier optics, and the propagation of light in matter. If there is time, we will touch upon the quantum nature of light, holography, and nonlinear optics and lasers.




## Advice for Success



In order to learn the material in this course and earn a good grade, you need to put in some effort. Do not put off assignments or reading. If you do not understand something, ask the instructor. Come to office hours, use the email, ask knowledgeable students, or go to the library/internet and find supplementary material. It is recommended that you also read and work problems in an introductory text like Halliday, Resnick and Walker. This will help you to keep in touch with the physics and not get lost in the details of the mathematics. Additional material will be placed at the course website:

**http://people.uncw.edu/hermanr/phy445.**

The instructor can only cover the basics in class. You are not expected to know the material by only listening to the lectures. You need to work problems and think about what you are doing.

## Course Requirements:

**Homework:** Homework assignments will be collected on a regular basis and you will be told when the work is due. As doing homework is very important for learning the material in this course, it will count as 30% of your grade.

**Papers/Projects:** There are many interesting areas that might best be explored by individuals, or groups, outside the classroom. Such topics may arise in the course of the semester. You will be required to do at least two in-depth papers/projects in this class. This will count 10% of your grade.

**Exams and Grades**: There will be two exams and a final for this course. The exams will cover the material up to the date of the exam. The tentative dates for the exams are below.

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|---|---|---|
| Exam I | Chap 1-5 | Oct 6 |
| Exam II | Chap 6-9 | Nov 22 |
| Final | Chap 1-12 | Dec 15, 8:00 AM |

Your final grade will be based on the following:

| | |
|---|---|
| Homework | 30% |
| Projects | 10% |
| Exams | 40% |
| Final | 20% |

| | |
|---|---|
| 89.5-100 | A |
| 79.5-89.5 | B |
| 69.5-79.5 | C |
| 59.5-69.5 | D |

**This syllabus is subject to change!**

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**Academic Honor Code:** All members of UNCW's community are expected to follow the academic Honor Code. Please read the UNCW Honor Code carefully (as covered in the UNCW Student Handbook). Academic dishonesty in any form will not be tolerated in this class. Please be especially familiar with UNC-W's position on plagiarism as outlined in the UNCW Student Handbook. Plagiarism is a form of academic dishonesty in which you take someone else's ideas and represent them as your own.

**Student Disabilities:** UNCW Disability Services supplies information about disability law, documentation procedures and accommodations that can be found at http://www.uncw.edu/stuaff/disability/. To obtain accommodations the student should first contact Disability Services and present their documentation to the coordinator for review and verification.

**Campus Respect Compact**. UNCW has recently instituted a Respect Compact to affirm our commitment to a civil community, characterized by mutual respect. That Compact will soon be affixed to the wall of each classroom and can be accessed at:
http://www.uncw.edu/stuaff/pdc/documents/SeahawkRespectCompact.pdf