Physics 319
Introduction to Optics
MWF 1:00-1:50 pm (plus laboratory time to be determined)
109 Lewis Hall

Prof. Joel Mobley
My office is at the NCPA, Room 1034 – ph:915-6937
jmobley@olemiss.edu (E-mail is the best way to communicate with me.)
Office Hours: Tu 1:00-2:30 in the Optics Lab
Other times by appointment at NCPA: MWF 2:00-4:30.

Final Exam is Wednesday December 5th at 12 pm. The final is comprehensive.

Grading

Homework	15 %	
Laboratory	25 %	**NOTE**: you must earn at least 60% of these points to pass.
Midterm Exams (2)	20 %	
Final Exam	20 %	

Grading Scale

A: 100.0 – 92.0	**B+**: 87.4 – 82.5	**C+**: 74.9 – 70.0	**D**: 62.4 – 50.0
A-: 91.9 – 87.5	**B**: 82.4 – 78.5	**C**: 69.9 – 66.0	
	B-: 78.4 – 75.0	**C-**: 65.9 – 62.5	**F:**<50.0

Textbook – Optics, 4th Ed., by Eugene Hecht (ISBN: 0-8053-8566-5)

Course Description – Intermediate description of electromagnetic wave propagation; topics in geometrical and physical optics including interference diffraction, polarization, and laser physics; lab exercises in physical and geometrical optics.

Learning Objectives
At the completion of this course, the student should be able to describe optical phenomena in terms of the ray, wave and particle models and make appropriate use of these to solve problems. They should also be able to quantitatively link diffraction, interference, reflection and transmission phenomena to the physical properties of light, and the interaction of light with matter and materials.

Rules

- Quizzes may be given depending on attendance. Points will be folded into Midterm Exams scores.

- Do not use communication devices during class (e.g., no texting, etc…)

Topics Covered

- Electromagnetic waves
- Classical and quantum properties of light
- Light and matter
    - Propagation in materials, at boundaries
- Ray optics
    - Image formation
    - Lens systems
- Physical optics
    - Diffraction
    - Interference
    - Coherence
- Modern Optics
    - Quantum Physics
    - Lasers
- Selected topics (fiber optic waveguides, etc…)

Laboratory

The laboratory part of the course requires two hours a week. Each student will choose one of two lab sessions to attend. These will be scheduled during the first week of class. These are typically scheduled on Monday, Wednesday and/or Thursday afternoons to end by at least 6 pm. Tuesday is also a possibility but these sessions must end by 4 pm.

Laboratories will meet each week after the first week of class.

Important Dates

August 31st	Last day to drop without penalty
September 3rd	Labor Day Holiday
October 1st	Last day to drop
November 19th-23rd	Thanksgiving Holiday
November 30th	Last Day of Class
December 5th	Final Exam