Physical Theory
MWF 10:00-10:50 pm, 109 Lewis Hall

Dr. 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 1:00-2:00 in Lewis 203 (Optics Lab)
Other times by appointment at NCPA

Final Exam is Friday December 8th at 8 am. The final is comprehensive.

Grading

Class participation	5 %
Homework	20 %
Midterm Exams (2)	25 % (September 22nd, November 15th)
Final Exam	25 % (December 8th)

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 (Recommended Only) – *Physics for Scientists and Engineers*, 9th Ed., by Serway and Jewett (ISBN: 978-1133947271)

Course Description – This course is intended for physics majors that took algebra-based introductory physics (Phys 213-214 at UM) instead of a calculus-based course (Phys 211-212 at UM). Since physics concepts are often best expressed in the language of calculus, the goal of this course is for you to learn to apply calculus to the solution of physical problems and the derivation of fundamental concepts. We will cover subjects that were passed over or incompletely developed in algebra-based courses. An overview of the topics covered and skills to be acquired is given below. As in most physics classes, critical thinking, analytical reasoning, and problem solving will be emphasized. These abilities are crucial in physics and can be broadly applied outside the discipline.

Learning Objectives
At the completion of this course, the student should be able to solve problems in physics using advanced mathematical approaches including calculus and vector-based reasoning. They should also be able to discuss the conceptual foundations of classical physics and the mathematical framework that is the basis of prediction and understanding physical phenomena.

Rules

- Quizzes may be given depending on attendance. Points will be folded into Midterm Exams scores.
- Class participation is required. You are expected to give thoughtful responses even if you don't know the answer. The intent is to help you actively think through questions. A respectful attitude toward your fellow students is expected.
- Instructors are required to enter attendance verifications for each of their courses by the end of the second week of regular Fall/Spring semester. If you will be absent during the initial two weeks, inform me beforehand (email is ok)
- Refrain from distracting behavior (texting, web surfing, checking email, etc…). Be considerate of your fellow students.

Topics Covered

- Calculus and vector analysis
- Kinematics and energy
- Rotational motion
- Gravitation
    - Gravitational potential
    - Shell theorems
- Electricity and Magnetism
    - Electric fields
    - Gauss's law
    - Electric potential
    - Faraday's and Ampere's laws
    - Maxwell's equations
- Topics in modern physics

Important Dates

September 4th	*Labor Day Holiday*	October 2nd	*Last Day to Drop*
November 20th-24th	*Thanksgiving Holiday*	December 1st	*Last Day of Class*
December 9th	*Final Exam*		