

Ultrasonics**Physics 503 Section 2**

MW 3:00-4:15 pm, NCPA 1128

Instructor: Dr. Joel Mobley
Room 1034 NCPA
Phone: 915-6937
jmobley@olemiss.edu

Office Hours: Tuesday 12:45-2:00, Lewis Hall Room 203 (Optics Lab)
Wednesday 10:30-12:30, NCPA Room 1034
By appointment at **1034 NCPA**
I will not be available in the hour before class (>2pm MW)
I will also not be available from 9am-1pm TuTh

Prerequisite Exam: Wednesday, February 4th
Midterm Exams: Monday, February 29th
Monday, April 18th
Final Exam: Thursday, May 12th, 4:00 pm

Learning Objectives:

After completing this class the student should understand the basic physics of ultrasound, and the techniques related to ultrasonics research. The student should gain the knowledge necessary to conduct research in ultrasound. Learning objectives include

- Physical principles of the mechanics of waves in condensed matter
- Propagation and diffraction of ultrasonics fields
- Transduction
- Broadband and narrowband techniques
- Signal processing

A more specific list of learning objectives will be provided.

Active Learning Environment

The class will be taught using the active learning method which relies on active student-professor interaction during lectures. This will require students pairing up in the classroom and participating in class dialogs. Because of this, students will be expected to attend all lectures and should notify me if they are unable to attend.

Student Presentation

Each student is required to give a 15 minute presentation in order to successfully complete the course. The subject of the presentation must be approved by the instructor. The schedule and related deadlines will be discussed in class. Attendance will be taken on article discussion days and student presentation days.

Laboratory Work:

Some homework assignments will include MATLAB programming and laboratory exercises.

Textbook, Lecture Notes and Supplementary Materials:

There is no textbook for the course. A list of resources, including research papers and books on reserve in the libraries, will be provided. Supplementary materials used during the course will be posted on Blackboard. Some of the lecture notes will be provided.

Grading

25 % each	2 Midterm Exams (Feb. 29 th ; April 18 th)
25 %	Final Exam (May 12 th , 4pm)
15 % total	Homework (This includes a <u>prerequisite exam</u> which will count as two homework assignments)
10 %	Presentation (required to pass the course)

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