

**Physics 301: Introduction to Physics Careers and Research**

Wednesday 4:00-4:50

Lewis Hall, Room 109

Instructor: Dr. Joel Mobley

[jmobley@olemiss.edu](mailto:jmobley@olemiss.edu) (E-mail is the best way to communicate with me.)

Office: NCPA, Room 1034 – ph:915-6937

**NCPA** is the Jamie Whitten National Center for Physical Acoustics

It is near the roundabout at Chucky Mullins and Hill Dr. *See the map at the end of the syllabus.*

When I am in Lewis Hall, I will either be in **Lewis 211** or **Lewis 203**. Check Lewis 211 first.

Office Hours Mon 1:00 pm–3:00 pm: **Lewis 211 or 203**

Wed 1:00 pm–3:00 pm: **Lewis 211 or 203**

Other times by appointment

I am glad to meet in-person or by Zoom so do not hesitate to make an appointment outside regular office hours. **On Fridays I will be at NCPA all day.** *Always contact me by email before you come to NCPA during or outside of office hours. I have research labs at NCPA, and I am often in other parts of the building.*

**Materials:** Documents and other media will be provided by the instructor

**Learning Objectives:**

After completing this course, the student should understand the following:

- *the breadth of research pursued in the UM Department of Physics and Astronomy*
- *how undergraduate students can effectively prepare for research*
- *what career opportunities are available to holders of a degree in physics*
- *how students can prepare for advanced courses in physics and astronomy*

**Content:** This course provides a survey of departmental research, the basic physical principles of these areas, and opportunities for undergraduate participation in the department. There will also be discussions of career paths for those with undergraduate degrees in physics, as well as how to prepare for graduate or professional school.

**Final:** A recorded presentation will be required in lieu of a written final. The presentation will be due at the scheduled time of the final exam, 4 pm on Friday December 12<sup>th</sup>. See below for more information.

**Capstone Presentation**

Each student is required to record a *15 minute presentation in order to successfully complete the course*. The presentation will be recorded and will be peer evaluated prior to the end of classes. The final version will be due as stated above. The students will be assigned the subject of the presentation.

**Evaluation of student performance****Grading**

|      |                       |
|------|-----------------------|
| 40 % | Class Participation   |
| 40 % | Surveys               |
| 20 % | Capstone Presentation |

**Grading Scale, Minimum Score**

**A:** 92 **A-:** 87

**B+:** 83 **B:** 79 **B-:** 74

**C+:** 70 **C:** 66 **C-:** 60

**D:** 50 **F:** <50

**Class Schedule**

|              |                                    |                                                           |
|--------------|------------------------------------|-----------------------------------------------------------|
| August 27    | Introduction                       |                                                           |
| September 3  | How Physics is Done                |                                                           |
| September 10 | Blazar Group                       | Prof. Nick MacDonald                                      |
| September 17 | Preparation for Graduate School    | Prof. Jennifer Meyer                                      |
| September 24 | Neutrino Group                     | Prof. Gavin Davies                                        |
| October 1    | High Energy Theory                 | Prof. James Bonifacio                                     |
| October 8    | <i>Alumni Discussion</i>           | <i>Claudia Chambliss</i><br><i>Samyukta Krishnamurthy</i> |
| October 15   | <i>Alumni Discussion</i>           | <i>Mason Smith</i><br><i>Anna Stevens</i>                 |
| October 22   | Acoustofluidics<br>Ocean Acoustics | Prof. Likun Zhang                                         |
| October 29   | Gravitational Physics              | Prof. Leo Stein                                           |
| November 5   | <i>Alumni Discussion</i>           | <i>Davis Rogers</i>                                       |
| November 12  | <i>Alumni Discussion</i>           | <i>Trey Lyons</i>                                         |
| November 19  | Ultrasonics                        | Profs Cecille Labuda & Joel Mobley                        |
| December 3   | High Energy Physics                | Prof. Jake Bennett                                        |
| December 12  | <b>Capstone Project Deadline</b>   |                                                           |

**Attendance, Class Participation, Homework and Expectations**

- Attendance is expected. If you are unable to attend in-person for any legitimate reason, I will make every effort to accommodate you. Two or more unexcused absences may result in failure (F grade) for the course.
- 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 think through issues, and a respectful attitude toward your fellow students is expected.

**Academic Integrity**

Every student of the University of Mississippi, by virtue of choosing to be part of the university community agrees to abide by the University of Mississippi Creed and the UM Academic Integrity Policy which covers academic integrity. Cheating on any assignment is forbidden and, in this course, will result in a zero grade on the given assignment. If a second case of cheating occurs, this will result in an F for the entire course. Please consult the M-Book, Academic Integrity document for details on university policy and the academic creed.

**Class Materials Policy**

All materials distributed electronically and in hard copy in this class are protected under intellectual copyright. Any attempt to upload these documents onto the Internet (or to distribute them by some other means) or to profit from the distribution (by Internet or other means) of these documents constitutes theft and is in violation of intellectual property law and the UM Academic Conduct Code, unless expressly permitted for by the instructor. Accessing such materials for your own use is also in violation of the UM Academic Conduct Code. Additionally, the distribution of your own class notes via the Internet or other means, or access of such materials, encourages absence from class and is highly discouraged except for occasional loaning of notes to students concurrently enrolled in the class.

**Use of Electronic Devices and Audio/Video Recoding Policy**

Students may use computers and tablets in class for taking notes, or as otherwise directed by the instructor. Phone are not to be used for communication purposes. Audio and/or video recording of class lectures is not allowed unless explicit permission is given by the instructor. Permission will only be given if the student has a Student Disability Services request. In such cases, recordings may only be used by the student to whom permission is given and all recordings must be deleted at the end of the semester. Recordings may not be distributed online or elsewhere. Videos provided by the instructor may not be downloaded, copied or shared online. Links to materials provided by the instructor may not be shared.

**University of Mississippi Access and Inclusion**

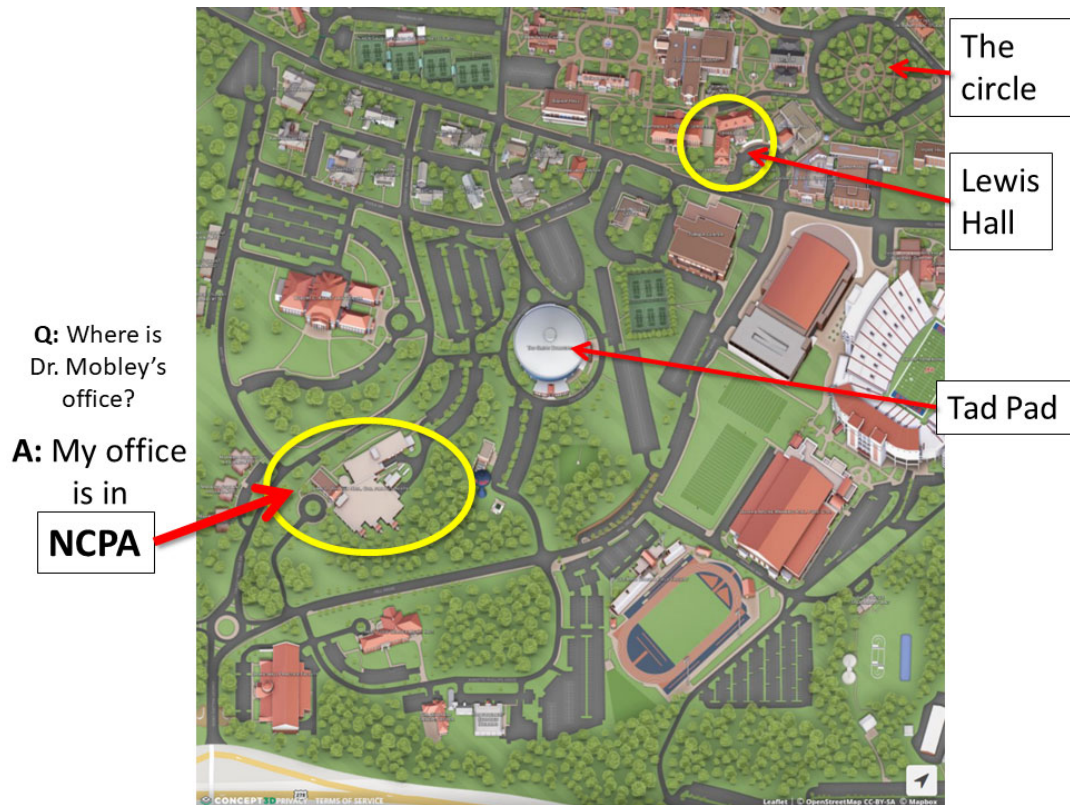
The University of Mississippi is committed to the creation of inclusive learning environments for all students. If there are aspects of the instruction or design of this course that result in barriers to your full inclusion and participation or to accurate

assessment of your achievement, please contact the course instructor as soon as possible. Barriers may include, but are not necessarily limited to, timed exams and in-class assignments, difficulty with the acquisition of lecture content, inaccessible web content or the use of non-captioned or non-transcribed video and audio files. Students must also contact Student Disability Services at 662-915-7128 so that office can 1) provide you with an Instructor Notification form, 2) facilitate the removal of barriers and 3) ensure you have equal access to the same opportunities for success that are available to all students.

**UM Creed**

The University of Mississippi is a community of learning dedicated to nurturing excellence in intellectual inquiry and personal character in an open and diverse environment. As a voluntary member of this community:

- I believe in respect for the dignity of each person
- I believe in fairness and civility
- I believe in personal and professional integrity
- I believe in academic honesty
- I believe in academic freedom
- I believe in good stewardship of our resources
- I pledge to uphold these values and encourage others to follow my example



**Q:** Where inside of NCPA is Dr. Mobley's office?

**A:** Room 1034

#### **DIRECTIONS**

##### **From Back Door:**

You will enter into a large atrium.

1. Walk toward the front of the building.
2. Turn left before you reach the lobby.
3. Follow the long corridor to the 2<sup>nd</sup> hallway on the right. Take that 2<sup>nd</sup> hallway to the end.
4. My office is on the left at the end of the hallway.

**Front Door**

##### **From Front Door:**

1. Walk through the lobby into the large atrium.
2. Turn right and follow the long corridor to the 2<sup>nd</sup> hallway on the right. Take that 2<sup>nd</sup> hallway to the end.
3. My office is on the left at the end of the hallway.

