

Physics 413

Introduction to Biophysics

TuTh 11:00 am – 12:15 pm

Lewis Hall, Room 109

Instructor: Dr. Joel Mobley
Room 1034 NCPA (Jamie Whitten National Center for Physical Acoustics)
Phone: 915-6937
jmobley@olemiss.edu (best way to contact me)

Office Hours: Monday 3 – 5 at **1034 NCPA**
Thursday 3 – 5 at **Lewis 203**
Friday 1:30-3:30 at **1034 NCPA**
I am glad to meet by appointment. Email to set up as in-person, over Zoom or by phone

NCPA is the **Jamie Whitten National Center for Physical Acoustics** and is located near the intersection of Chucky Mullins Dr. and Hill Dr. (see map). Email me if you plan to come to NCPA. The building is locked and I will have to let you in.

Textbook: *Biological Physics Student Edition: Energy, Information, Life*, Phillip Nelson
ISBN-13: 978-0578687025

Also available in Kindle Edition

ATTENDANCE

Students will be expected to attend all lectures and should notify me if they are unable to come. Absences will be accommodated on a case-by-case basis (e.g., official activities, illness, ...). More than two unexcused absences may result in a deduction in points equivalent to that of a homework assignment.

Learning Objectives:

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

- how the principles of physics underlie life processes at the cellular level
- how to apply physics knowledge to solve problems in biology and biomedicine

Content: We will examine the role of physics in life processes and physiology. This will include applications of thermodynamics to living systems, mechanics and energetics of molecular motors, cellular metabolism, and the motions of living systems.

Article Discussion: Throughout the semester, we will have class discussion days where a scientific article is reviewed. Students must read the article in advance and come prepared to participate in the discussion. The articles will be available in electronic format prior to the class.

Lecture Notes and Supplementary Materials:

Supplementary materials used during the course will be posted on Blackboard or emailed. Some of the lecture notes will be provided. Availability of these lecture notes will be based on attendance for the relevant class.

Grading

Midterm Exams (2)	25%
Final Exam	25%
Homework/Class Participation	25%

The Final Exam starts at 12:00 pm, Tuesday, May 7th

Grading Scale, Minimum Score

A: 92 **B+:** 83 **C+:** 70 **D:** 50

A-: 87 **B:** 79 **C:** 66

B-: 74 **C-:** 60 **F:** <50

Location of NCPA



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.

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.

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

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 will be 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.

Audio and video recording

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.