

Phys 211: Physics for Science & Engineering I (First Summer 2023)

Dept. of Physics and Astronomy, University of Mississippi

Instructor: Sashwat Tanay (stanay@olemiss.edu)

Office: Lewis 204 (appointment by email)

Classes: M, Tu, W, Th, F @ 8:00 - 10:00 in Lewis 101

Tutoring (optional): M, Tu, W, Th, F @ 10:30 - 12:00 in Lewis 109

Course webpage: https://sashwattanay.github.io/site/2023/04/11/phys_211

Teaching assistant: Utsab Acharya (uacharya@go.olemiss.edu)

Course: The course carries 3 credits. This is the first part of a two-semester calculus-based treatment of introductory physics. Topics include Newtonian mechanics, energy, rotational motion, fluids, oscillations and waves.

Prerequisites/corequisites: Phys 221, and Math 262 OR (Math 261 and Phys 201)

Book: We will use University Physics, whose digital version is available free of cost. You can also purchase the print version. If you look forward to studying physics beyond this course, then University Physics (caution: it has the same name as the first one) by Young and Freedman is highly recommended.

Other resources: We will use some interactive digital learning resources like Phet simulations. Additionally, some Mathematica/Wolfram code (in the form of .m files) will be available on the course website, which can be run for free on Wolfram Cloud. Here is a YouTube tutorial on how to run the Wolfram codes in these .m files on Wolfram Cloud.

Class structure and policies: During the class, students will be asked a few multiple choice questions. Their responses will be recorded anonymously and will not be graded. The purpose of these questions is only to gauge the understanding of the subject material by the students. Use of cellphones and laptops is not permitted during the class. Tablets can be used for the purpose of taking notes.

Homeworks: Homeworks (HWs) will be due at the start of every lecture. They and their solutions will be posted on the webpage. Their solutions (to be submitted) are to be written *in ink*. Late HWs will not be accepted, unless a valid excuse is provided with proper documentation or evidence. Only one of the problems will be graded for correctness of the solution, while all others will be graded for completion. This one problem will be revealed to the students at the time of return of the graded material.

After every lecture, the instructor will then coach the students on how to do these HWs during tutoring hours. Although HWs carry a small fraction of the overall grade, it is strongly recommended that the students attend these tutoring hours and actively do these HWs, for doing so should help them perform well in the exams. If nobody shows up for tutoring by 10:35 am, the session will be canceled.

Attendance: University policies (olemiss.edu/info/gotoclass) dictate that the instructors verify attendance up to the last day to add the course, which is June 1, as mentioned in the academic calendar.

If you have symptoms of COVID-19 or flu, please do not attend the class and let the instructor know immediately so that measures could be taken to let you participate in the course remotely, if possible. Any request for make-up exams must be accompanied by a supporting document (from a medical doctor, supervisor) that explains the absence of the student.

Academic integrity: While students are encouraged to work with others while figuring out the the solutions to HW problems, the expressions of these solutions must be their own. In simple words, borrow the ideas, but not their expressions. A single instance of plagiarism may lead to a penalty, whereas multiple such instances will result in an F grade for the entire course.

Exams: Exams will be given outside of regular class hours at a time when all the students are available to take it (TBD). Students are allowed to have a calculator, writing material and 1 US letter-sized (or A4) handwritten sheets (to discourage unnecessary memorization). Just like HWs, exams are to be written *in ink*.

Grading scheme and points weightage:

A [90, 100]%
 A- [85, 90)%
 B+ [80, 85)%
 B [75, 80)%
 B- [70, 75)%

C+ [65, 70)%
 C [60, 65)%
 C- [55, 60)%
 D [50, 55)%
 F < 50%

Homework 15%
 Exam 1 20%
 Exam 2 20%
 Exam 3 20%
 Final Exam 25%

Course schedule:

Date	Topics	Book sections	Comments
May 30	Intro & vector math		Attendance verification
May 31	Vector math		Attendance verification
June 1	1D Kinematics		Attendance verification
June 2	1D Kinematics, 2D Kinematics		
June 5	2D Kinematics		
June 6	Newton's laws		Exam 1 (up to kinematics)
June 7	Newton's laws		Exam 1 grade posted
June 8	Newton's laws		Last day to drop the course
June 9	Work and energy		
June 12	Work and energy		
June 13	Work and energy		
June 14	Collisions		Exam 2 (up to work & energy)
June 15	Collisions		
June 16	Rotations		
June 19	Rotations		
June 20	Rotations		
June 21	Gravitation		Exam 3 (up to rotations)
June 22	Simple harmonic motion		
June 23	Fluids		
June 26	Final exam (comprehensive)		Grades will be submitted by June 28, 6:00 pm.