

PHY 131.90 (Studio) Fall 2024 Syllabus

This course of PHY 131 90 Classical Physics I (Studio), Physics for Scientists and Engineers meets Monday, Wednesday and Friday at 2:00pm in Physics 118. The course covers introductory mechanics, fluids, waves and thermodynamics. PHY131 is ideal for students who have done well in an Physics AP course and are looking for a slightly more advanced level of introductory physics. It is taught at a very fast pace and concentrates on material that is not covered during the Physics AP curriculum. The Monday and Wednesday classes will concentrate on introducing topics and problem solving, while most Friday classes will be reserved for Laboratory work. The lectures not will be recorded. This course will cover Chapters 1-20 of the textbook described below.

Two one hour midterm exams will be given during class on September 23^d and November 11th, and a final exam will be given on December 12th from 2:15 pm to 5:00 pm. The registrar's policy is that students are responsible for avoiding exam conflicts, and exceptions will not be granted in this course.

This course is taught “in the round”, and encourages interaction between you, the faculty, and the other students. You will be expected to participate in discussions, and may be asked to make simple presentations “at the board”.

Instructors

- Prof. Clark McGrew <clark.mcgreg@stonybrook.edu>
- Teaching Assistants: Sai Kantamneni <saisumanth.kantamneni@stonybrook.edu>, Rodrigo Carvajal <rodrigo.cadizcarvajal@stonybrook.edu>
- Office hours for the lecture and laboratory instructors will be held online through the ZOOM link in the course Brightspace page, or, by appointment. The lab instructors will also be available in the help-room (see the help-room schedule).

Brightspace

Most of the course administration will be done via Brightspace. There are two Brightspace pages that you will need to watch:

- PHY131.90 to access most of the course materials such as the homework, the course calendar, recorded lectures and lecture notes, and the zoom link for office hours.
- PHY131.L90 to access laboratory specific information run by your lab instructors

Please make sure that you have access to your Stony Brook Brightspace account, that these courses are listed there (no later than the 1st week of classes), and that the email address listed in your Brightspace account is one that you monitor. You have to register for the mastering physics homework, see below.

Brightspace will be used to administer in-class quizzes, so please make sure that you bring a laptop, or tablet that can be used to enter answers. The in class quizzes will be proctored, and taking the quiz from outside of the classroom will be considered cheating.

Course Schedule

The schedule available on Brightspace shows the material that will be covered in each lecture, as well as the reading associated with each lecture. While adjustments are always necessary during the semester due to unforeseen circumstances (e.g. weather), this course is extremely fast paced, so the lecture schedule gives a very good idea of when material will be covered.

Firsts for this Semester:

- First lecture: **8/26/2024**
- First *in-class quiz* for credit: **8/30/2024**
- First *Homework* for class due (submitted online): **9/4/2024**
- First *Pre-Lecture Homework* due (submitted online): **9/4/2024 before class**
- First *Lab Session*: **9/6/2024**

Format of course

Class Lectures will provide an introduction to the material, problem solving practice, and short answer questions to allow you (and the instructor) to ascertain your understanding of the material just after it is presented. You should prepare for the lectures by reading the corresponding section of the e-text, and completing the pre-lecture homework assignment. The lectures will consist of a combination of slides, material presented at the board, and demonstrations. When practical, material will be made posted on Brightspace. Since the lecture for this class also functions as a recitation, expect that about an hour a week will be spent on a quiz² and problem solving practice. During the problem solving practice, you will be expected to work on a joint solution with other students in an assigned group. One group of students will be asked to present the solution (with assistance from Prof. McGrew, and you will not be graded on your ability to present, or the correctness of your solution).

Required laptop/tablet or similar device will be needed during both lectures and laboratory work to access quizzes and other materials. While I hope that it will not be necessary for the class to use, your device should be able to use the lock down browser.

Required Homework problems will be assigned using an online system called *Mastering Physics*. Additional information is given in the Homework section below.

You should plan to use a calculator during the lectures. It should be able to do trig functions, square root, log, exponential notation. You do not need a fancy graphing calculator. You will also need your calculator for the exams. Your calculator is an important tool for the course, and you should be familiar with it. Calculators may not be shared in the exams. You may not use the calculator function of a mobile phone during the exams, but may use it for the in class quizzes.

The registrar has allocated the course time as Lecture (PHY131.90), Recitation (PHY131.R90) and Laboratory (PHY131.L90), but these will not be treated as a distinct parts of the class. The course time will alternate between lecture like, recitation like and laboratory activities.

Laboratory

The laboratory material is mandatory. We will devote nine Friday class sessions to laboratory experiments. All lab grades count; none are dropped. If you have an excused absence for missing your lab, you must arrange to make up the lab with the course TAs.

A lab write up that completes all of the items listed in the manual for each individual lab is due at the end of the lab. More information about the format and grading of the lab reports will be given in class.

All students are required to complete all labs. Any student receiving a score of zero on more than three labs will fail the laboratory. While the grades for the lecture and laboratory will be averaged to find your final grade, failing either part of the course will result in failing the entire course.

Homework and Electronic Textbook (etext)

Homework problems will be assigned using an online system called Mastering Physics (see below). There is a link on the course Brightspace page through which you access and register for Mastering Physics. There will be two sets of online problems assigned for each lecture. The pre-lecture problems count as extra credit. If you have done the reading, they should take less than 10 minutes and must be completed before the lecture starts. The post-lecture problems are expected to take about 60 minutes to solve and to be completed before the start of the following lecture. They will become visible about one week before the lecture and a penalty will be applied if they are not completed within about a week after the lecture. Please check Mastering Physics for details.

Problem solving is an important skill to be learned, and can only be learned by doing. We recognize that solutions to many of the homework problems can be on-line, but *you are strongly encouraged to solve the homework problems on your own*. While you should solve the individual homework problems independently, working with your peers is a powerful way to enhance your understanding and is strongly encouraged.

Mastering Physics and Electronic Textbook: This semester, we will primarily be following “Physics for Scientists and Engineers, 5th Edition” by Giancoli. You must have a Mastering Physics license for the course. This is obtained via the Brightspace link for the course. Detailed instructions can be found in the “Documents” section of the PHY131.90 course. To obtain credit for the homework you must correctly enter your Stony Brook student identification number when registering for the mastering physics course, and your name on the Mastering Physics roster must match your name in the Brightspace roster.

Getting help

To help you with questions related to your homework problems and the laboratory, a help-room will be available (Physics A-131 and online through ZOOM). The zoom link can be found on the PHY131.90 Brightspace, and the schedule will be posted before the 2nd week of classes.

Exams and Quizzes

Two midterm exams and a **final exam** will be given. See the dates at the top of the syllabus. You have to make sure there are no conflicts in your schedule – we will only grant makeup exams for exceptional, University sanctioned, conflicts. The registrar's policy is that students are responsible for avoiding exam conflicts, and exceptions to the University policy will not be granted in this course. To pass the course, you must have a score for at least one of the two midterms and the final exam. If you cannot take a midterm due to exceptional circumstances (documented illness, death in the immediate family, etc), discuss this with the instructor as soon as possible. We will increase the weights of the other parts of the course accordingly, but, absent exceptional circumstances, will not administer make-up exams. If you miss the final, or more than one midterm, with a valid excuse, you will receive an Incomplete in the course and you must contact the instructors to schedule an exam as promptly as possible after the end of the semester. Taking at least two exams is required to pass the course. You will need provide a College Board approved calculator and have a sheet of handwritten notes.

There will be approximately one quiz per chapter that will be given during class. The dates for the quizzes are shown on the course schedule. As noted above, you will need a laptop, tablet or similar device to enter the answers into a Brightspace answer sheet, and the results will be discussed within the class. If you miss a quiz with a valid excuse, it will be exempted from your grade.

Grades

Your final grade will be based on the following.

- 15% Homework
- 15% In-class quizzes
- 15% **Each** for the two midterms
- 20% Labs
- 20% Final Exam

Notes:

- No homework, quiz, exam, or lab scores will be dropped.
- Up to 5% of extra credit is be available based on completing pre-lecture homework assignments
- You must independently pass both the laboratory and the lecture portion of the class. Failing either will fail the course.

The course is graded on an absolute scale:

- 85% : Guaranteed to be an “A”
- 70% : Guaranteed to be a “B” or better
- 55% : Guaranteed to be a “C” or better

Note: Because the grading of the lab and preparation of the exams involve the subjective selection of material, the instructors reserve the right to *reduce* the required grade requirements. The grade requirements will not be raised.

Standard University Policy

A. Student Accessibility Support Services (SASC): If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, Stony Brook Union Suite 107, (631) 632-6748, or at sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. If you have never worked with them, you will find that they are extremely helpful. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and the Student Accessibility Support Center. For procedures and information go to the following website:

<https://ehs.stonybrook.edu/programs/fire-safety/emergency-evacuation/evacuation-guide-disabilities> and search Fire Safety and Evacuation and Disabilities.

B. Academic Integrity: Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html

C. Critical Incident Management: Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Student Conduct and Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Students not following University policies during class will be deemed to be "disruptive" (e.g. if the University chooses to require certain public health policies, the policies must be followed).

D. Student Participation in University-Sponsored Activities: Students may have to miss class as a result of their participation in an event or activity sponsored by the University. This course will operate in compliance with the University policy set forth at: https://www.stonybrook.edu/sb/bulletin/current/policiesandregulations/policies_expectations/participation_univponsored_activities.php. In particular, you should notify us in advance, but definitely before the final date of the 'add/drop' period, of your intention to miss any class, exams, or labs that will arise due to such activities. At that time, we can discuss how you will be able to secure the work covered.

E. Religious Holidays: This course will operate in compliance with the University's policy regarding religious holidays, set forth at: http://www.stonybrook.edu/commcms/provost/faculty/handbook/employment/religious_holidays_policy.php. In particular, you should notify us in advance, but definitely before the final date of the 'add/drop' period, of your intention to be out for religious observance. At that time, we can discuss how you will be able to secure the work covered.

VIII. Some Important Tips for Success:

- Physics depends heavily on mathematics. At this level, you need to be comfortable with algebra, trigonometry, and simple calculus. It is very important for your success that you have met the course prerequisites. Actually, calculus was invented to solve physics problems, and so we hope this course helps you understand some of the math you may have struggled to see the point of.
- Be familiar with your calculator, and use the same one for exams and the lab that you use for homework. You don't want to be spending valuable exam time figuring out how to use your calculator!
- Keep up to date with the material. The class has to move fast to cover everything, and most material builds on earlier topics.
- Read the book along with the lectures, and turn in all of the homework.
- University guidelines state: "Students are expected to be 'on task' for 40-45 clock hours per credit, per semester. 'On task' pertains to all instructional activities (exams, homework, lectures, discussions, etc.)." That works out to ten to twelve hours per week for this four-credit course. Because this class is very fast paced, you can expect that the time spent on the course will be toward the high end of the recommended range.
- Do the homework! Don't just use Chegg, Google, Bing, Course Hero, etc. to look up the answer. It may be a quick way to finish the assignment, but it won't nourish your understanding, and it very much will not help you to retain the concepts. Most of the exam and quiz problems are going to be very similar to the homework questions. If you've only looked at the solutions before the exam, you will have trouble with the exam. If you have solved the problems, you will be prepared.
- Most of the course administration will be done via Brightspace. Please make sure that you have access to your Stony Brook Brightspace account, that this course is listed there, and that the email address listed in your Brightspace account is one that you monitor. The detailed course calendar, and lots of other useful information is available in Brightspace
- We encourage you to visit us in our on-line office hours, email us with questions, and visit the on-line Help Room!