

syllabus

August 10, 2021

1 PHY 141 CLASSICAL PHYSICS I -HONORS

1.1 SYLLABUS

1.2 Course Description

PHY141/142 Honors Classical Physics is the honors section of a fast-paced, two-semester long, survey of classical physics, primarily for students majoring in Physics, Mathematics, or Engineering. Topics for the first semester include classical mechanics, oscillations and (sound) waves, fluids, and thermodynamics. The second semester discusses electricity, DC and AC currents, magnetism and electromagnetic waves, light, optics, and a few topics in modern physics.

The course has three 55-minute lectures per week with quizzes and assigned homework. Homework (online) will be graded and counts towards the final grade.

Co-requisite for PHY141 is PHY133. Co-requisite for PHY142 is PHY134; MAT 132 or 142 or 127 or 171 or AMS 161. Prerequisite for PHY142: a grade of C+ or higher in PHY141 or permission of the department.

Because the course covers all of classical physics in only two semesters, students should expect a **heavy workload**. To succeed this course, students should be well-prepared and should expect to devote about **8-12 hr/week** to homework and laboratory preparation.

1.3 Learning Outcomes

PHY141/142 aims to train the participants in independent and cross-disciplinary fact-based reasoning about basic natural phenomena, in particular phenomena in mechanics, wave propagation, fluid motion, thermodynamics, optics, electromagnetics, and atoms and molecules. Participants should develop a feel for using units, identify the important variables in a given physical situation, and make order of magnitude estimates. Students should develop a physics intuition and be able to solve basic physics questions, not encountered before, based on acquired and internalized knowledge

1.4 Blackboard and Github

Stony Brook's Blackboard (BB) Website is the location where course information and files are available. The course is listed under PHY141 Classical Physics I Honors - Fall 2021.

BB will be used mostly for Homework and grading (Mastering Physics will be directly linked to the course)

The official webpage for the course is in the [GitHub repository](#) Files for lecture notes, Recitation quizzes, Formula sheets, Practice exams, etc. will be posted there.

Lecture notes (in jupyter notebook format) will be posted a few days in advance of the lecture, beginning August 23, without the embedded quiz questions.

After the lecture, the updated lecture notes (including the quiz questions&answers) will be posted. All grades will be accessible on Blackboard.

1.5 Faculty Information

The instructor of the course is Marivi Fernandez-Serra (maria.fernandez-serra at stonybrook.edu). I will be available for office hours in person or zoom. The Office hours schedule will be published on the web page and on BB.

1.6 Lectures and Recitations

The course will be **in person** only. While there might be one or two instances when the lectures might be delivered via zoon (not possible this will not happen, but is an open option if I have to attend an in person conference elsewhere), all the students should assume that the lectures will be in person.

- Lectures: MoWeFr 9:15 AM - 10:10 AM room P128, Physics building
- Recitation: Fr 10:30 AM - 11:25 AM room P128, Physics building

Quizzes in most of the Lectures count towards the course grade and are given to check students' understanding and to encourage discussions and class attendance. Each quiz question is worth 3 points when answered correctly, and 1 point if answered incorrectly. Unanswered quizzes count for zero. Quizzes will be done using google forms. You can (and should) use your smartphone to answer the quizz.

Posted lecture material should be read before class, and each class will have a quiz early in the lecture. You cannot be excused from attendance unless absent for a valid medical reason!

1.7 Required Materials

- Text book: The text book for the course is Modified Mastering Physics for Physics for Scientists and Engineers with Modern Physics 5th Edition Author(s): Giancoli, Douglas Textbook ISBN-13: 9780321992277. The text book is **not required** but it is reccomended.
- Mastering Physics: You need to purchase the access code to the "Mastering Physics" course for the on-line homework, <https://masteringphysics.com>. The online code (with or without the textbook) can be purchased separately and it is valid for 3 semesters.

To register for PHY141F21: 1. Go to <https://www.pearson.com/mastering>. 2. Under Register, select Student. 3. Confirm you have the information needed, then select OK! Register now. 4. Enter your instructor's course ID: fernandez-serra43737, and Continue. 5. Enter your existing Pearson account username and password to Sign In. You have an account if you have ever used a MyLab or Mastering product. » If you don't have an account, select Create and complete the required fields. 6. Select an access option. » Enter the access code that came with your textbook or that you purchased separately from the bookstore. » If available for your course, • Buy access using a credit card or PayPal. • Get temporary access. If you're taking another semester of a course, you skip this step. 7. From the You're Done! page, select Go To My Courses. 8. On the My Courses page, select the course name PHY141F21 to start your work.

1.8 Homework

1.8.1 Web Homework and Web Access

- Included with the text book comes access to www.MasteringPhysics.com. All homework (HW) problems will be assigned using this web-based system, which provides smart feedback and context-sensitive help and optional hints.
- If you do not purchase the textbook, then you must purchase the access codes separately (valid for three semesters). With your Access Code go to: <http://www.masteringphysics.com/> and Register.
- To let us connect your HW grade with Blackboard, you must enter your Stony Brook ID number when requested. When asked for the text book, click on the book for this course (see above). The class/course code is PHY141F21. If you have a valid access (MasteringPhysics access remains valid for 3 semesters), just use your existing password and register for the class. You are encouraged to discuss HW problems with your colleagues. However, you only hurt yourself if you simply copy answers. It is to your own benefit that we assign carefully chosen HW problems so you can exercise your knowledge and gain better understanding: true understanding only comes via solving real-world problems (as I hope you know by now), and HW problems reflect (pieces of) real-world problems.
- Exam problems will be based on Quizzes, Lecture examples, and HW problems, so fully understanding the solutions is key to passing this course. Therefore, it is crucial (even if HW only counts for a small fraction of the course grade), that you do all problems on your own (even after having discussed them at length with colleagues or TAs).
- Beware: in the past, we have seen excellent correlation between success in HW and success in the exams. There are, however, a few outliers - poor course results with almost perfect HW scores - and we strongly suspect (reviewing the other course components in these cases) that these are instances of blindly copied HW solutions.

1.9 Exams and Grading

Three exams are scheduled. The exams will consist of Word Problems similar to problems discussed in class and done in the Homework. Exams are cumulative, but relatively more problems will be from the newer material.

All laboratories MUST be completed to pass PHY141/142. The total grade for the course will be determined by weighting the various course components as indicated below. All grades will be accessible via the Blackboard site for this course.

Exam	Relative Weight
Midterm I	20%
Midterm II	20%
Final	30%
Lecture Quizzes	5%
WebHW	15%
Recitation Quizzes	10%
Special Project (Extra Credit)	5%

Grading will **NOT** be on a curve. Letter grade correspondence to numerical grade: A(80%<Grade<100%), A- (75%<Grade<80%), B+ (70%<Grade<75%), B (65%<Grade<70%), B- (60%<Grade<65%), C+ (55%<Grade<60%), C (45%<Grade<55%), D+ (40%<Grade<45%), D (35%<Grade<40%), F (Grade<35%).

During Exams telephones **MUST** be switched off and put away

; iPhone, PDA, or Pocket PC devices are **NOT** allowed! Only bring: scientific calculator, pencils, scrap paper, and a ruler. The Formulae sheet is provided well before the exam.

1.10 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.

1.11 Electronic Communication

Email to your University email account is an important way of communicating with you for this course. For most students the email address is 'firstname.lastname@stonybrook.edu'. It is your responsibility to read your email received at your University account; if you choose to forward your University email to another account, we are not responsible for any undeliverable messages.

1.12 Religious Observances

See the policy statement regarding religious holidays [here](#). Students are expected to notify the course professors by email of their intention to take time out for religious observance. This should be done as soon as possible but definitely before the end of the 'add/drop' period. At that time they can discuss with the instructor(s) how they will be able to make up the work covered.

1.13 Student Accessibility Support Center Statement

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, 128 ECC Building, (631) 632-6748, or at sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

1.14 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 University Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty are required to follow school-specific procedures as described in http://www.stonybrook.edu/commcms/emergency/critical_incident.shtml

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