PHY 131.01 – Classical Physics for Scientists and Engineers I

SPRING 2025

General Course Information and Policies

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Course Description

Please consult the course description as per the undergraduate bulletin including the math and physics pre-requisites. This is a fast paced course, with some challenging material at times. A dedicated effort and self-motivation is required throughout.

Learning Objectives

The aim is to develop a quantitative understanding of fundamental concepts in Newtonian mechanics, thermodynamics, fluids and waves. Through problem solving, the student should develop the appropriate skills to apply the conceptual concepts to a variety of physical phenomena in these subjects. Through problem solving, the student should be able to analyze problems using physical understanding, and develop solutions in mathematical terms. The solution usually requires the use of elementary algebra, trigonometry and single-variable calculus.

Instructor: *Ismail Zahed*

- Email: ismail.zahed@stonybrook.edu. Reserved for personal issues. Subject line should contain PHY131. Allow 1-2 days for reply.

  All questions regarding the course work and homeworks should be addressed during office hours. **Recitation-related questions should be addressed directly to your recitation instructor.**

- Office hours: Mon, Wed 10:00 am– 11:00 am, C141

Lectures

MWF 8:25 – 9:20 am, Frey Hall 100. The lectures will be live-streamed online, although attendance is recommended. If during the live streaming, you experience issues call 631-632-9800 and press option for Academic Technologies.

Course Administration

The course will be administered through Brightspace, with special announcements posted in the *Announcements* section, and shared via class email.

Summary slides of course material will be posted regularly in the *Course Documents* module. Video captures of the lectures will be available in the *Video Streaming & Recordings* module.

Required Materials

1. A subscription (Student Access Code) to Pearson | Mastering Physics to complete online homework assignments. To purchase a subscription and/or register for our Mastering Physics course go to the course home folder in Brightspace, select the Mastering Physics module, then the Pearson link, and follow the instructions there. (You can also purchase the subscription directly from the Pearson website, but **you must register for the course via Brightspace**. If, in particular, you are being asked for a course ID, that is usually a sign that you have not done that.) Before proceeding with this please read the important information collected under the heading *Mastering Physics FAQ & Troubleshooting* at the end of this document. Regular homework assignment will begin on the first day of the course, and **it is imperative that you set this up in a timely manner.**
2. A scientific calculator. This should have: addition, subtraction, multiplication, division, inverse power, trigonometric, inverse trigonometric and logarithmic functions.

Textbook

Douglas C. Giancoli, *Physics for Scientists and Engineers*, 5th ed., ISBN-13: 9780137488179

A digital copy of this book ("e-text") is offered as an integral part of the Pearson subscription, so you do need to acquire it separately. It covers overall chapters 1 (Introduction, Measurement, Estimating) through 20 (Second Law of Thermodynamics).

Help Resources

- The office hours of the course instructor are listed above, and those of the recitation instructors are listed below.
- Free tutoring services offered by the university:
  - *The Physics Help Room* — Physics Building, room A-100, Mon – Fri 9:00 am – 6:00 pm. Graduate and undergraduate teaching assistants, teaching staff and faculty hold office hours at this location and are open for questions from everyone who drops by.
  - *The Academic Success and Tutoring Center (ASTC)* — one-on-one and small-group tutoring, by appointment.
- An excellent and freely-available collection of problem-solving videos can be found on Professor Thomas Hemmick's YouTube channel here. They are organized in playlists by topic — look for the playlists titled Solving Physics I: Chapters 01 through 16.
- Another very useful collection of solved problems — this time in book form — with brief reviews, lots of diagrams and detailed explanations can be found in

  Eugene Hecht, *Schaum's Outlines of College Physics* (not required, but greatly recommended).
- Your Mastering Physics subscription comes with a bonus access to Pearson+ Channels, a collection of learning videos and practice problems. You can find these by selecting *Pearson eText > Explore Channels*.
- Finally, for a few ideas on how to develop successful academic strategies read these tips suggested by educational experts from our university.

Recitations

Weekly recitations will be given by the SBU physics faculty listed below. While the lectures cover concepts and some problem solving, the recitation through a smaller attendance format emphasizes problem solving. I urge you to attend both and be interactive whether in class or in recitation. The recitation is the place that fills in for some needed details. The sudents coming prepared with specific questions and stated difficulties, will benefit the most.

Each recitation instructors will evaluate your progress with occasional quizzes, or by other means which they will state at the beginning of the semester. At the end of the semester you will receive a cumulative recitation score counting towards your final grade. To account for possible differences in grading rigor between different recitation instructors, your recitation score may be normalized.

Recitations will not be held during the first week of classes. The recitation instructors with their assigned recitation sections and office hours are:

	Office Hours	
Prof. Vladimir Goldman: R1,R2,R3	TU 1:00-2:00PM	TR 1:00-2:00PM
Prof. Douglas Swesty: R4,R5,R6	TU 11:00AM-12:00PM	TR 11:00AM-12:00PM
Prof. Jac Verbaarschot: R7	WE 12:00-2:00PM	

Homework

Homework will be assigned weekly online through Mastering Physics. Before you begin working on your first assignment click on the Grading Policy link on the upper right corner of the page and read carefully how your score is calculated. As a rule, homework will be assigned on the Monday before the relevant material is covered in the lecture, and will have a due date on the next Monday at 11:00 pm. A single deadline deferral will be granted upon request, if deemed acceptable. Beyond that, a strict no-deferral policy will be applied, regardless of whether you have justifiable reasons for missing the time limit or not. (Exceptions will be made for *very serious* reasons, such as medical emergencies or mental hardship.) However, note that homework deadlines will be soft, with a small penalty of 0.5% per hour overdue; this amounts to a penalty of 12% per day overdue, which, to be clear, **affects only the credit earned after the due date**. It is always good practice to start working on your assignments early enough to allow yourself time not only to finish, but also to handle possible unexpected delays.

Exams

There will be two midterm and one final exam. Their dates and times are listed in the *Course Schedule* below and the university exam bulletin; exam locations will be announced in advance. The first midterm exam will cover the material discussed in the lecture from the beginning of the semester until the time of the exam. The second midterm exam will cover the material discussed from the first midterm exam until the time of the exam. The final exam will be comprehensive (i.e. from the whole material). Note that the exam scores will not be "curved".

All students will be expected to take the exams on the dates scheduled, so please plan accordingly. Only exceptionally serious and adequately documented reasons for missing an exam will be considered.

Grading

Your *course score* will be calculated at the end of the semester based on these percentage weights:

Midterm exam 1	20%
Midterm exam 2	20%
Final exam	30%
Online homework	15%
Recitation grade	15%

The following table will then be used to convert the *course score* into a *letter grade*:

Grade	A	A−	B+	B	B−	C+	C	C−	D	F
% ≥	85	82	77	74	69	61	54	49	41	< 41

Course Policy on PHY131

- **Exam schedule conflicts**: If you register for this course it is your responsibility to make sure that there are no schedule conflicts for the midterm and final exams with other courses or activities that you may undertake. A schedule conflict will *not* constitute a valid reason for a make-up exam to be given.
- **Extra credit**: There will be no extra credit, or any other possibility to round up a letter grade at the end of the course. It is up to you to monitor your progress during the semester and take timely action to improve your score while such an action can still be taken.

Course Schedule

Week	Giancoli sections	
01/27 – 01/31	1.1 – 7, 2.1 – 3	
02/03 – 02/07	2.4 – 7	
02/10 – 02/14	3.1 – 9	Withdraw without a W by 02/07 at 4:00 pm
02/17 – 02/21	4.1 – 8	
02/24 – 02/28	5.1 – 5	**Midterm 1**: 02/24 8:15 – 9:35 pm
03/03 – 03/07	6.1 – 5, 7.1 – 4	
03/10 – 03/14	8.1 – 9	Move up/drop down by 03/14 at 4:00 pm
03/17 – 03/21	9.1 – 9	Spring Break 03/17 – 03/21
03/24 – 03/28	10.1 – 9	GPNC or W by 04/04 at 4:00 pm
03/31 – 04/04	11.1 – 6	**Midterm 2**: 04/03 8:15 – 9:35 pm
04/07 – 04/11	(skip 12) 13.1 – 10	
04/14 – 04/18	14.1 – 5, 15.1 – 4, 6 – 9	
04/21 – 04/25	(skip 16) 17.1 – 4	
04/28 – 05/02	17.5 – 9, 18.1	
05/05 – 05/09	19.1 – 9, 20.1 – 4	
05/12 – 05/16		Last day of classes: 05/09
		Final exam: 05/15 2:15 – 5:00 pm

Standard University Policy

A. 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.

B. Academic Integrity Statement: 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.

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.

D. Religious Holidays: This course will operate in compliance with the University's policy regarding religious holidays, set forth here. In particular, you should notify the instructor in advance, but definitely before the final date of the 'add/drop' period, of your intention to be out for religious observance.

E. Student Support: Students must communicate and work directly with their faculty members in the event of an illness or other circumstance that leads to a short-term absence. If a student is struggling with an extended absence due to a hospitalization, family illness or death, they can refer to the Student Support Team.

Mastering Physics FAQ & Troubleshooting

- *What is the course ID?*

  If you follow carefully the registration instructions given above you will *not* need a course ID.

- *I already have a subscription from a previous course, should I purchase a new one?*

  If your subscription is still active and not due to expire before the semester end date it should do, and you should definitely not purchase a new one.

- *I am not sure yet whether I want to stay in this course, can I avoid committing to a subscription until I make up my mind?*

  In this case you may want to consider signing up for temporary access. This will need to be upgraded to full access after the grace period expires (by following the instructions here).

- *What subscription plan should I choose?*

  The minimum requirement is that the subscription should last for at least the duration of the semester. However, when making the choice, you may also want to take into account your future plans for the introductory physics sequence, and perhaps other personal factors.

- When signing up, spell your name exactly as it appears in SOLAR, including letter capitalizations.

- If you experience problems or receive error messages while signing up or signing in, try
  - restarting your device
  - logging-in from a different device (this is the method most likely to succeed in unwieldy situations)
  - enabling pop-up windows
  - switching to another browser: Mozilla Firefox, Google Chrome, Microsoft Edge, Safari ...
  - changing the trust settings of your browser
  - clearing the website data.

  Also, on rare occasions, the Pearson servers may suffer outages or undergo scheduled maintenance. You can check their real-time status on this webpage.

  Should all these measures fail, contact Pearson's Customer Support here.