

[University of Pittsburgh](#) · [Department of Physics & Astronomy](#)

Conceptual Physics, Physics 0091

Spring Term 2018

Official website of the course: <http://courseweb.pitt.edu>
(login using your Pitt username and password)

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Instructor and TAs:

- *Instructor:* Prof. W. Vincent Liu
- *Office:* 223 Allen Hall
- *E-mail:* BEST WAY TO CONTACT ME liu.phyclass@gmail.com
 - **Important Notice on Email:** Emails sent to any *other accounts* may be *delayed or lost* due to spam filtering; send at your own risk.
- *Phone:* (412) 624-9023
- *Office hours:* See CourseWeb
- *Teaching Assistant/Grader:*
 - Amro Abdelrahim (AAB107@pitt.edu).
 - Office hours: See CourseWeb

Textbook and Materials

Text: Paul G. Hewitt, *Conceptual Physics*, 12th Edition, available in the University bookstores.

Course Description and Objectives

This course presents the conceptual basics of introductory classical physics for non-majors. The major goal of this physics course is to enable you to develop logical reasoning skills, to explain or predict diverse phenomena in everyday experience, and to become good problem solvers and independent thinkers at conceptual level. As such, this course covers the same general topics as PHYS 0110. The emphasis of this course, however, is on a clear understanding of the underlying principles of physics, with a reduced emphasis on mathematics than would be used in PHYS 0110. This course is intended for non-science majors and for students from the School of Health and Rehabilitation Sciences. The mathematical level of this course will not be adequate for those students who plan to apply to Medical School. It could be used for those students as a preparatory course prior to tackling the more mathematically rigorous PHYS 0110 or PHYS 0174. In that case credit would not be given for both this course and either PHYS 0110 or 0174. Topics covered include: kinematics; Newton's laws of motion; conservation of mechanical energy, linear momentum, and angular momentum; rotational kinematics and dynamics; simple harmonic motion; behavior of fluids; heat and heat transfer; mechanical waves and sound.

By the end of this course, the successful student will be able to:

- Demonstrate conceptual understanding of the concepts, principles and laws of physics covered in this course.
- Describe a physical situation, as necessary, using multiple representations such as written conceptual statements, mathematical equations, diagrams, and graphs, and be able to translate from one representation to another.

- Perform a conceptual analysis of a problem and identify physical principles required for its solution.
- Translate physical principles to formulate necessary mathematical statements required to solve a problem.

In terms of the text, we will cover most of Chapters 1-10, 12-17, and 19-21. It is highly recommended that you read the relevant chapter ahead of time. The lecture material will follow the text fairly closely, and many of the assignments will be drawn from the text. You are encouraged to purchase the text or have regular access to it. There will be a copy (or copies) on reserve in the Benedum Engineering Library.

Physics 0091 has two components. The first is the lecture. The second is a smaller recitation section that meets one hour per week, taught by our TA. In recitation you will take a short quiz and discuss physics and the homework.

Prerequisites: Mathematics

Satisfactory passage of the Mathematical Proficiency Placement test given to incoming freshman, or completion of recommended remedial courses. Mathematics is the language of physics. While this course will not require knowledge of calculus or any advanced math, it will require skills in [elementary algebra](#), [trigonometry](#) and simple [geometry](#). Appendices of the text will help you brush up on some techniques and definitions.

Class Participation (Peer Instruction)

I encourage you to participate fully in class discussions. Physics ideas build on previous material, so it is important to understand what is being taught each step of the way. I strongly encourage you to ask questions to clarify any doubts. There is no such thing as a dumb question. Chances are, if you are having trouble understanding a concept, others are also likely struggling with the same concept. Please stop me when this happens, so I can try again.

SRS Clickers. The Department of Physics and Astronomy has purchased a Student Interactive Response System (SRS). The system consists of hand-held remote controls (clickers) for every student, which is read by receivers in the room. The system will allow me to ask questions during the lecture and let you respond anonymously. At the beginning of the semester, you will be assigned a number that corresponds to a particular pad. The pads will be stored in one or two carts at the front of the room, so that you may pick up your pad as you enter the hall, and return it when you leave. Don't forget to return the pad, since other classes will also be using the system! The questions you answer during class will count for extra credit at the end of the semester (see [Grading Policy](#)). Most of the credit (80%) will be given for supplying an answer, even if incorrect. The rest of the credit (20%) will be for having the correct answer.

Class Etiquette

I assume that those who attend lecture will respect me as well as their classmates, and refrain from distracting activities during the lecture. These include: (1) talking (except during Class Participation, when talking is encouraged), (2) use of cellular phones (ringers should be turned off), (3) other distracting activities, such as newspaper rustling, etc.

Asking a question during class is encouraged, and is not considered a distraction.

Study Resources

A [Resource Room](#) will be available throughout the semester for help in understanding physics concepts and completing homework assignments. The room is available from 9am to 5pm, Monday through Friday, in room 312 Thaw Hall. Please check the [Resource Room schedule](#). In addition, tutoring is available through the Academic Support Center (WPU 311). The [Conceptual Physics website](#) is another place to look for extra study resources.

Homework

Homework is an important part of the course. This course will employ the Sapling online homework system.

To register for Physics 0091 with Sapling:

- Go to <http://www.saplinglearning.com/login> to log in or create an account.
- Under Enroll in a new course, you should see Courses at [University of Pittsburgh]. Click to expand this list and see courses arranged by subject.
- Click on the subject "Physics" to see the terms that courses are available (note that Semester 1 refers to the first course in a sequence and not necessarily the first term of the academic year).
- Look for the course "PHYS 0091 - Spring18 - LIU".
- For "Student ID" entry, enter your Pitt **PeopleSoft 7-digit ID number**.

Payment: Upon negotiation, Sapling has kindly agreed to offer this course to us with "no cost to Phys 0091 students." For detailed help on registration and other Sapling aspects, go to:

[Sapling Learning Help for Students](#)

Homework assignments will be completed on Sapling and no paper copies will be accepted. Each problem may be generated uniquely for each student in the course. Therefore, the problems assigned to you will be similar, but not necessarily identical, to problems assigned to other students.

Students are advised not to post any physics questions nor any requests for late homework or deadline change on Sapling website. Please bring your physics questions to office hours. The "Forum" on Sapling will not be answered!

Solutions to the homework problems will be posted online at the University's CourseWeb after the due dates. Please allow up to a week for the TAs to write them up.

Exam

There will be two mid-term exams (in class) and a 1 hour 50 min cumulative final examination. The exams are set on:

- Midterm Exam 1: Friday, Feb 9, Room: lecture room
- Midterm Exam 2: Friday, March 30, Room: lecture room
- Final: Monday, Apr 23, 4:00-5:50pm, Room: TBA

The final examination is scheduled by the University; the exam time is taken from the official University "[Course/Class Schedule - Final Exams](#)." The final exam location will be determined sometime during the semester. All midterm exams will be held during the regular class meeting time in the regular lecture room unless otherwise announced. An absent exam receives zero points. There will be no make-up midterm examinations under any circumstance (sorry, no exceptions).

For each exam, you will be allowed to prepare in advance and use during the exam one summary sheet of handwritten or typed formulas and diagrams on both sides [double sided, single page of the standard letter paper size]. The very act of creating such a summary sheet should help you to organize concepts in your mind.

Recitation and Quizzes

The recitation sections are mandatory. It is important for you to attend the recitation that was originally assigned to you. Your TA will discuss problem solving strategies and will also give **in-class quizzes** most weeks. The times/rooms are given on the University's course schedule, copied below for your quick reference.

Time	Location	TA/Lecturer
Thu 12:00-12:50 pm	11 Thaw	Amro Abdelrahim
Fri 10:00-10:50 am	11 Thaw	Amro Abdelrahim

Grading Policy

The course grade will be based on: *homework (20%), two midterm exams (20% each), the final exam (30%), and the recitation quiz (10%)*, where the lowest quiz is dropped. Extra credit is available. The in-class SRS (*clicker*) questions will count for a total of 2.5% as extra credit added into the final grade.

Late and Absent Assignments: We do NOT accept late homework assignments, NOR provide *makeup* exams, quizzes, or SRS in-class questions/participations, unless there is a special, strong, justifiable reason (such as athletes going out for games on behalf of the University, being in emergency room during the recitation time with hospital evidence, or a case as strong).

Course schedule (tentative)

The schedule (subject to change) lists the material covered, exam dates, and assignments. You are responsible for reading the chapter in the text BEFORE coming to class.

Week of	Due	Monday	Friday

Jan 8	HW1	Ch 1	Ch 1,2
Jan 15	HW2	No class - MLK Day	Ch 2
Jan 22	HW3	Ch 3	Ch 4
Jan 29	HW4	Ch 5	Ch 6
Feb 5	-	Ch 6,7	Midterm Exam 1
Feb 12	HW5	Ch 7	Ch 8
Feb 19	HW6	Ch 8	Ch 9
Feb 26	HW7	Ch 10	Ch 12
Mar 5	-	Spring break	Spring break
Mar 12	HW8	Ch 13	Ch 13,14
Mar 19	HW9	Ch 14,15	Ch 15
Mar 26	-	Ch 16	Midterm Exam 2
Apr 2	HW10	Ch 17	Ch 19
Apr 9	HW11	Ch 19	Ch 20
Apr 16	HW12	Ch 20	Ch 21, overall review
Apr 23	final exam		

Homework (HW) will be **due at 6:00 pm on Fridays** unless otherwise noted. *Chapter (Ch.) numbers are from the textbook.*

Academic Integrity

“Students in this course will be expected to comply with University of Pittsburgh's Policy on Academic Integrity. Any student suspected of violating this obligation for any reason during the semester will be required to participate in the procedural process, initiated at the instructor level, as outlined in the University Guidelines on Academic Integrity. This may include, but is not limited to, the confiscation of the examination of any individual suspected of violating University Policy. Furthermore, no student may bring any unauthorized materials to an exam.”

Disabilities

"If you have a disability that requires special testing accommodations or other classroom modifications, you need to notify both the instructor and the Disability Resources and Services no later than the 2nd week of the term. You may be asked to provide documentation of your disability to determine the appropriateness of accommodations. To notify Disability Resources and Services, call 648-7890 (Voice or TTD) to schedule an appointment. The Office is located in 216 William Pitt Union."

If you have any questions, please contact me at: liu.phyclass@gmail.com.