

Spring 2016 Physics 7A Lecture 001: YILDIZ

Instructor: Professor Ahmet Yildiz

- Email: yildiz@berkeley.edu
- Office Hours: Tu 5-6, Fri 12-1, 474 Stanley Hall
- As the instructor for this course, I look forward to helping you learn the physical concepts, course material and solving problems during my office hours, after the lectures, or through emails.

Head GSI: Baiyu Chen

- e-mail: baiyu@berkeley.edu
- Office Hours: by appointment.
- All administrative issues (e.g. switching sections, dropping the class, adding the class, missing labs, missing exams due to serious health issues, Mastering Physics conflicts...) have to be addressed directly to the head GSI.
- All exam related issues should also be forwarded to the Head GSI.
- I WILL NOT be able to help you resolve these issues. If you happen to e-mail me such requests by mistake, I MAY forward it to the head GSI.

GSI Office Hours:

- Please look at your GSI assignment and office hours.
- All GSI office hours are held in the course center (105 Le Conte).
- The course center is designed to facilitate group work. It will be open during business hours whether or not there are office hours being held, so feel free to come to work individually or in groups any time.

Enrollment:

- Early Drop Deadline: End of 2nd week.
- Contact the head GSI for issues related to switching your sections. You may want to pair up with another student to swap sections.

Prerequisites:

- Math 1A (Calculus) is a prerequisite
- Math 1B may be taken concurrently
- The course is suitable as a general introduction to physics for students with a modest background in mathematics. Math proficiency in the following areas is essential: algebra, trigonometry, single-variable differentiation, derivation, integration, and vectors. If you are uncertain about your preparation, consult the head GSI.

Course Structure

- This course offers a learning environment with a diversified set of options that you can tailor to your individual learning style. There are lectures, lecture demos, after class discussions, office hours, GSI discussion/problem solving sections (Workbook problems), labs, homeworks (Mastering Physics, online).
- Course material (syllabus, announcements, lecture slides, old exams...) will be uploaded to the course website in bcourses.berkeley.edu.

Required Course Materials:

- Textbook: Giancoli, *Physics for Scientists & Engineers*, Volume 1 (Custom Edition for UC Berkeley). The book has 80-100 problems at the end of each chapter, usually starting from very simple to difficult set of problems. There are roughly 10-15 exam level problems towards the end of each chapter.
- Workbook/lab manual: Birkett & Elby, *7A Workbook*
- Online homework: Mastering Physics subscription

Lectures:

- Time/Location: MWF 11-12, 1 LeConte
- Physics 7A will cover Newtonian Mechanics, including topics such as Kinematics, Dynamics, Rotations, Gravitation, Fluids, and Waves.
- We have 16 chapters to cover in 15 weeks (including holidays). This is a lot of material and we have to move fast. Please try to keep up with the material and let us know if we move too fast! We will cover first chapters quickly and slow down to the usual pace of the course in Newtonian Mechanics.
- Students, who did not take Physics before, may find it difficult to catch up with the pace of the course. I strongly recommend these students to spend extra time on problem solving and GSI office hours.

Discussion and Lab (DL) Sections:

- Discussion and lab (D/L) sections begin on the first day of instruction. You must attend your D/L sections during the first and second week, or you may be dropped.
- DL sections meet twice a week for two hours EVERY week. When there is no lab scheduled, this time slot will be used as a discussion section.
- In your DL sections you will practice problems and discuss concepts in small groups, with the guidance of a GSI, as well as perform labs.
- You must bring your workbook to your DL section.
- There will be 7 labs throughout the semester (see the syllabus) performed in your DL section. While you perform the labs you will complete the lab worksheet found in the workbook and turn it in at the end of your lab section.
- If you miss a lab for a valid reason (e.g. illness) you must email your GSI to let them know the reason for your absence. To make up a missed lab, you should attend another Lab section during that same week, also emailing that GSI ahead of time to let them know you will be attending their section. If you are not able to make up a lab in the week that it runs, one lab setup will also be available in each lab room the following week for makeups. You may only make up a lab in the following week once per semester. After that following week, you will not be able to make up the lab at all.
- DL sections will be graded.
- You are required to complete ALL labs: any uncompleted labs will result in a reduction of your grade by 1/3 of a letter grade for each lab missed.
- If you miss more than one lab, you will fail this course.
- Discussion sections will be graded based on attendance and active participation.

Homeworks:

- There will be weekly homeworks due Fridays at 11 PM.

- Homework will be a combination of computer-based homework on the Mastering Physics website and traditional turned in homework.
- The written homework will be turned in electronically by scanning or photographing your assignment to Gradescope. Please check your scanned documents or photographs to ensure that the content is legible. If not, the written HW will not be graded.
- For Mastering Physics, you must purchase a registration card either along with your textbook, or on the Mastering Physics website (www.masteringphysics.com) directly.
- You will need to sign up for Mastering Physics with your Cal SID# and use the Course ID: **MPYILDIZ50705**. If your Cal SID # is incorrect you will not receive homework credit.
- No late homework will be accepted.
- Your homework grade will be split 50/50 between Mastering Physics and written homework. One of the written HW problems will be picked randomly and graded each week. You will receive feedback for your written solution.
- We will drop your lowest HW score.

Exams:

- You **MUST** be available to take all exams. Unresolvable conflicts with the exam dates must be discussed with the head GSI immediately.
- All exams are closed book—you will be allowed one letter sized paper (both sides) handwritten notes for each exam.
- Exams will include conceptual questions and workbook questions, as well as quantitative problems. The level of exam questions is higher than practice problems at the beginning of the chapters in Giancoli. They are at the level of end of chapter problems with (*) or the ones in “General Problems”. Workbook problems are better representative of the exam level.
- Questions and answers of the old exams are uploaded to bcourses website.
- **Please write legibly.** Exam problems will be graded based on your solutions. Partial credit will be given even if you do not have the correct answer. No credit will be given for correct answers without a clear reasoning and showing your work.

Strategy for success

What counts in Physics 7A is to understand the underlying concepts. Advance reading, class attendance, and timely completion of assignments are the key to success. If you allocate enough time each week to complete the assignments on time and keep up with the course, you will get the most out of the course both intellectually and grade-wise. Two things that generally do not work are memorization and cramming to catch up just before the examinations (it will be impossible to assimilate all the material in the last few days).

Breakdown of the Grades

Homeworks	10%
Labs and Discussion Sections	10%
Midterm 1	20%
Midterm 2	25%
Final	35%

We will follow the department guidelines for grade distribution: roughly 25% A's, 40% B's and 35% C's. D's and F's will be given on a case-by-case basis to students displaying especially poor performance.

Syllabus

Physics 7A

Spring 2016

Week	Chapters	Lectures	DL Sections	Comments
Week 1 (1/18 - 1/22)	2	Course Overview 1D Kinematics	Intro WS 1 Lab 1	<i>First Day of Class: Tuesday, 1/19</i>
Week 2 (1/25 - 1/29)	3	2D Kinematics	WS 2 Lab 2 HW1: 1/29	Drop Deadline, 1/29 Signature Sheets Due, 1/29
Week 3 (2/1 - 2/5)	4	Force Newton's Laws	WS 3 WS 4 HW2: 2/5	
Week 4 (2/8 - 2/12)	4 5	Friction Circular Motion <i>Here Endeth Material for Midterm 1</i>	WS 5 Lab 3 HW3: 2/12	
Week 5 (2/15 - 2/19)	6 7	Gravitation Work	WS 6 WS 7 HW4: 2/19	Holiday 2/15 Reviews (2/20, 2/21)
Week 6 (2/22 - 2/26)	7 8	Work (Con't) Energy Conservation of Energy	WS 18 WS 8 HW5: 2/26	Midterm I (2/22)
Week 7 (2/29 - 3/4)	8 9	Conservation of Energy (Con't) Linear Momentum	WS 9 WS 10a HW6: 3/4	
Week 8 (3/7 - 3/11)	9	Linear Momentum (Con't) Center of Mass Collisions	WS 10b Lab 4 HW7: 3/11	
Week 9 (3/14 - 3/18)	10	Rotational Kinematics Rotational Dynamics	WS 11 WS 14 HW8: 3/18	
Spring Break (3/21 - 3/25)				
Week 10 (3/28 - 4/1)	11	Angular Momentum <i>Here Endeth Material for Midterm 2</i>	WS 15 Lab 5 HW9: 4/1	Reviews (4/2, 4/3)
Week 11 (4/4 - 4/8)	12 13	Statics Fluids	WS 16 WS 17 WS 20 HW10: 4/8	Midterm II (4/4)
Week 12 (4/11 - 4/15)	14	Oscillations	WS 13 HW11: 4/15	
Week 13 (4/18 - 4/22)	15	Wave Motion	WS 21 Lab 6 HW12: 4/22	
Week 14 (4/25 - 4/29)	16	Wave Motion (Con't) Sound <i>Here Endeth the Course</i>	WS 19 Lab 7 HW13: 4/29	<i>Last day of Class: Friday, 4/29</i>
		RRR WEEK: 5/2 - 5/6 REVIEWS: TBA FINALS: 5/10		

Note: This syllabus is subject to minor changes based on progress. Please pay attention to any announcements online or in lecture.

Section	Time	Instructor
Discussion 10	M 12-2P	Raymond
Discussion 10	M 2-4P	Trevor
Discussion 10	W 8-10A	Roy
Discussion 10	T 8-10A	Helia
Discussion 10	T 10-12P	Marleigh
Discussion 10	T 12-2P	Damaris
Discussion 10	R 2-4P	Kyunam
Discussion 10	R 12-2P	Roy
Discussion 10	W 4-6P	Raymond
Discussion 20	M 10-12P	Helia
Discussion 20	M 10-12P	Adam
Discussion 20	T 4-6P	Adam
Discussion 20	M 4-6P	Weicheng
Discussion 20	R 10-12P	Trevor
Discussion 20	R 2-4P	Nat
Discussion 20	T 10-12P	Damaris
Discussion 20	M 4-6P	Nat
Discussion 21	M 8-10A	Lokman
Discussion 21	R 10-12P	Mike
Discussion 30	R 4-6P	Kevin
Discussion 30	M 2-4P	Giang
Discussion 30	R 8-10A	Marleigh
Discussion 30	T 2-4P	Kevin
Discussion 30	R 8-10A	Mike
Discussion 30	W 12-2P	Matt
Discussion 30	W 2-4P	Matt
Discussion 30	W 4-6P	Giang
Discussion 30	W 12-2P	Chichi
Discussion 31	W 2-4P	Chichi
Discussion 31	T 4-6P	Kyunam