

Physics 111-01: General Physics Part 1 Spring 2016 Syllabus

Instructor: Jessica Fielder
Email: jfielder@sfsu.edu (You MUST include "Phys 111" in subject line)
Office: Science 356
Website: <http://www.physics.sfsu.edu/~jfielder/Phys111S16.html>
Class Meets: MWF, 11:10AM – 12PM in Science 101
Office Hours: Tuesdays 11AM-3PM, Wednesdays and Fridays 2-3PM, Thursdays by appointment

Course Summary:

This is the first in a two-course series covering the major topics in classical physics. We will be covering motion, mechanics, rotation, energy, fluids, sound waves, oscillations, and thermal physics and using algebra and trigonometry to solve problems. **The course requires concurrent enrollment in the lab, Physics 112.**

Required Materials:

1. Physics 4th Edition, by James Walker
2. You will also need to purchase access to Modified MasteringPhysics, the online homework system we will be using this semester. To login, you will need a reliable internet connection:
 - a. Go to www.pearsonmylabandmastering.com
 - b. Under Register, click the "Student" button. If you purchased an access card bundled with your textbook, enter the code in the card. If you bought a used book or a book that did not come with an access card, you can also purchase access directly from the registration page.
 - c. To join the course, you will need to enter your SFSU Student ID number and the **course ID: fielder29894**

A note about the textbook: You may purchase the textbook in whichever format you find most convenient (online, bound, loose-leaf, etc.). Typically, the cheapest option is to buy the e-text bundled with the Mastering Physics access code. Physics 111 uses only Volume 1 of the textbook (Chapters 1-18), but you may wish to purchase both Volumes 1 and 2 if you plan on taking Physics 121 in the future.

Important Dates (Please note exams!)

Feb 9: Last day to drop without a W or swap classes
Feb 23: Last day to add by exception
Feb 26: FIRST MIDTERM
Mar 20: Last day to select CR/NC grading option
Apr 1: SECOND MIDTERM
Mar 21-25: Spring Break
Mar 31: Cesar Chavez Day
Apr 26: Last day to withdraw* with a W
Apr 29: THIRD MIDTERM
May 16: Last class meeting
May 18: FINAL EXAM 10:45AM - 1:15PM

*Physics & Astronomy Dept. Withdrawal policy: <http://www.physics.sfsu.edu/policy/withdrawal.pdf>

Course objectives:

1. Study Newton's laws of motion and learn how to apply them to simple mechanical systems.
2. Learn the physical concept of energy and how it relates to different physical systems.
3. Study the phenomena involved in gravitation, wave motion and oscillations.
4. Study the concepts and phenomena in the fields of heat, thermodynamics and thermal physics.
5. Learn how to translate realistic physical problems into the equations that describe them; solve these equations for the variables describing the problem; and interpret the results to describe the resulting behavior of the realistic physical system.
6. Learn to carry out numerical evaluation of algebraic results rapidly and accurately, using appropriate units for physical quantities.
7. Describe simple physical systems by graphing system variables, and interpret graphs of system variables.
8. Relate the equations of physics to intuitive concepts.

Student Learning Outcomes for Lower Division Physical Science (B1):

1. Explain the steps in the scientific method of inquiry, which involves gathering observable, empirical and measurable evidence subject to specific principles of reasoning, and recognizing that reproducible observation of a result is necessary for a theory to be accepted as valid by the scientific community;
2. Analyze specific examples of how the scientific method has been used in the past to collect data through observation and experimentation, and to formulate, test and reformulate hypotheses about the physical universe; evaluate scientific information from a variety of sources and use that information to articulate well-reasoned responses to scientific concerns;
3. Evaluate scientific information from a variety of sources and use that information to articulate well-reasoned responses to scientific concerns;
4. Recognize the utility of alternative scientific hypotheses in the development of scientific theories, research and applications and understand how scientific evidence is used to develop hypotheses and theories;
5. Describe ethical dilemmas arising out of contemporary scientific research and applications, which may include those related to social justice, and may have implications for local and/or global communities;
6. Use scientific theories to explain phenomena observed in laboratory or field settings; and
7. Discuss the relevance of major scientific theories and research to their lives.

Course Structure

Your grade will be determined based on your performance on in-class activities, homework assignments, and exams as described below in the grade policy.

Participation: We will have daily in-class activities including voting questions, small-group discussions, and short written responses to questions. These are designed to help you learn collaboratively and gauge your own level of understanding of the material. You **MUST** bring your voting card to **EVERY CLASS** and be present in class in order to complete these activities. Written responses will be collected spontaneously once a week for participation credit, which is 10% of your overall grade. **Participation is collected roughly 15 times over the semester, but you only need 10 participation activities in order to earn full credit for this portion of your grade.**

Homework: We will have homework assignments (roughly 2 per week) throughout the semester, and homework will contribute 20% of your overall grade. Homework will contain thought questions designed to help you synthesize information from the readings and lectures, ranking tasks, and worked problems. Every homework assignment has a firm due date, and homework handed in late will automatically be marked down 10% per day. Homework more than 10 days late will receive no credit. All problem sets must be done using the Mastering Physics system (see registration details above). In addition to the problem sets, there will be assigned reading from the textbook. It is recommended that you read the assigned sections at least once before lecture, as this will help the information presented in class make more sense.

Exams: There will be three in-class midterms during the semester, each covering about a quarter of the material. **The lowest of these three midterm scores will be dropped, and the remaining two exams will each be worth 20% of your overall grade.** There will also be one cumulative final exam during finals week worth 30% and covering material from the entire semester (note that the final exam cannot be dropped, only one of the midterms). All exams will be closed book and closed notes, and will be a combination of multiple-choice conceptual questions and short-answer problems. Equation lists will be provided for you on the exams. You will need a #2 pencil and an 882-E Scantron form for each exam, and you are allowed a calculator. Exam dates are listed above in the "Important Dates" section, please take note and arrive on time. The final exam date is set by the University and is inflexible, but you may schedule to take a lecture exam earlier, with sufficient advance warning (at least two weeks). **There will be no make-up exams without prior arrangement. If you unexpectedly miss a midterm exam for reasons beyond your control, it will count as your one dropped exam.**

Grade Policy

Grades are based on a combination of homework assignments, in-class participation, and exams with the weights shown below. Plus and minus grades are in the top or bottom 2% of the grade bracket (for example, a D+ ranges from 57.9% to 59.9% and a B- ranges from 75% to 76.9%). This letter grade scale is subject to change, but please keep in mind that I will not be fitting the grade distribution to a curve. You should not count on being able to raise your grade significantly through extra credit or with a high score on the final exam alone.

Homework:	20%	A = 90-100%	CR = 60-100%
Participation:	10%	B = 75-89.9%	NC < 59.9%
Midterms (best 2):	40%	C = 60-74.9%	
Final Exam:	30%	D = 45-59.9%	
		F < 44.9%	

Contacting Me

If you have questions about anything related to this class (or even physics in general), please don't hesitate to ask me. The best way to do this is in person, during office hours. Office hours are your chance to get one-on-one help from me, so use them as often as you can! If your question is short, I might have time to answer it outside office hours, or right before or after class, but I may ask you to come back if I am busy. If you would like to meet in person and are not free during the regular office hours, let me know so we can make an appointment. You can also contact me via email (see the first page for my email address). When emailing me, please include the words "Phys 111" somewhere in the subject line so my spam filter doesn't eat your message. I will try my best to reply to email before the next class, but this is not always possible.

Contacting Mastering Physics

If you have technical issues with the online homework system, see the Mastering Physics support page. They maintain FAQ pages, how-to videos, a searchable help database, and can provide assistance via phone, email, and online chat.

Academic Integrity

SFSU maintains a firm policy on plagiarism and cheating, which can be found in the SFSU Bulletin. The Physics and Astronomy department also maintains a set of guidelines stating specific practices that are prohibited and the procedures for handling cases of academic cheating or plagiarism. This policy can be viewed online at:

<http://www.physics.sfsu.edu/policy/plagiarism.pdf>

Disability Policy

Students with disabilities who need reasonable accommodations are encouraged to contact the instructor. The Disability Programs and Resource Center (DPRC) is available to facilitate the reasonable accommodations process. The DPRC is located in the Student Service Building and can be reached by telephone (voice/TTY 415-338-2472) or by email (dprc@sfsu.edu).

Disclosure of Sexual Violence

SF State fosters a campus free of sexual violence including sexual harassment, domestic violence, dating violence, stalking, and/or any form of sex or gender discrimination. If you disclose a personal experience as an SF State student, the course instructor is required to notify the Dean of Students. To disclose any such violence confidentially, contact: The SAFE Place - (415) 338-2208; http://www.sfsu.edu/~safe_plc/ or Counseling and Psychological Services Center - (415) 338-2208; <http://psyservs.sfsu.edu/>

Schedule (Subject to change)

Date	Topic	Reading
1/27-1/29	Intro, Units, Sig figs	Chapter 1-2
2/1-2/5	Position, Velocity, Acceleration	Chapter 3
2/8-2/12	Vectors and free fall	Chapter 5
2/15-2/19	Newton's Laws	Chapter 6
2/22-2/26	Applying Newton's Laws, EXAM 1	Chapter 7-8
2/29-3/4	Work and Kinetic Energy	Chapter 8-9
3/7-3/11	Conservation of Energy	Chapter 10
3/14-3/18	Momentum and Collisions	Chapter 11
3/28-4/1	Rotation, EXAM 2	Chapter 13
4/4-4/8	Torque and Equilibrium	Chapter 14
4/11-4/15	Oscillations and Waves	Chapter 15
4/18-4/22	Sound and Pressure	Chapter 16
4/25-4/29	Fluids, & EXAM 3	Chapter 17
5/2-5/6	Temperature and Heat	Chapter 18
5/9-5/16	Thermodynamics	Review
5/18	FINAL EXAM 10:45AM-1:15PM	

Physics 111 Student Contract

I understand that by enrolling in Ms. Fielder's Physics 111 section I agree to the following:

1. **Show up.** I promise to attend every lecture (except in case of a dire emergency) and realize that my chances of obtaining a good grade are significantly lower if I miss lectures.

2. **Respect other students and the learning environment.** I understand that questions are welcome at any time throughout the course, and time will be provided for discussion of the subject materials among students. However, off-topic discussions between students are disruptive, and students who repeatedly engage in off-topic discussions will be asked to leave the lecture hall.

3. **Keep it distraction-free.** I understand that phones, media players, laptop computers, and other electronic devices must not be used during the lecture, unless being used to take notes or if required to support a disability. Students who use such devices without permission will be asked to put them away. Simple pocket calculators are exempt from this requirement, and may be used at all times.

4. **Homework is online only.** I understand that an internet connection is required to do the homework assignments. It is my responsibility to make sure that I have sufficient internet access to complete the homework assignments. If I plan to use SF State's public computer rooms, I understand that waiting times to use the public computers can be very long during peak hours, and that this cannot be used as an excuse for late homework.

5. **Have a good Internet browser.** If I plan to use my personal computer to do the homework assignments, I understand that a relatively up-to-date, flash-enabled browser is required.

6. **Personal computers need care.** I understand that viruses, malware, dropped internet connections, and certain browser add-ons (such as Adblock or Flashblock) may interfere with my access to the online component of this course. These and similar errors are not the responsibility of Ms. Fielder and may be resolved by contacting the SFSU computer help desk, or the Mastering Physics support team. Unless the errors affect everyone in the course, they do not constitute a valid excuse for late homework or other missed assignments.

7. **Email needs to be checked.** I have a functioning email address and will check my email at least weekly for course updates from Ms. Fielder. When writing to Ms. Fielder, I will put "Phys 111" in the subject of my email, and include my full name in the email. I realize that certain email providers can block emails with attachments, or have overly aggressive spam filters (such as whitelists). It is my responsibility to configure these unreasonable spam prevention features so that I do not miss critical emails from Ms. Fielder or other SFSU faculty and staff.

Name (Please print legibly): _____

Student Signature: _____

Date: _____