

PHYS 1303: Introductory Mechanics
Syllabus
Professor Stephen Sekula
SPRING 2018

Contents

University Curriculum Student Learning Outcomes	1
Goals of this Course	2
Course Information	3
Course Topics	3
Attendance	4
Homework	4
Exams	5
Quizzes	5
Grading	5
University Honor Code	6
Disability Accommodations	6
University Policy on Religious Observance	6
Excused Absences for University Extracurricular Activities	6
Important Dates	6

University Curriculum Student Learning Outcomes

Pure and Applied Sciences Level 1 [PAS1] Student Learning Outcomes:

1. Students will be able to demonstrate basic facility with the methods and approaches of scientific inquiry and problem solving.
2. Students will be able to explain how the concepts and findings of science or technology in general, or of particular sciences or technologies, shape our world.

Quantitative Reasoning [QR] Student Learning Outcomes:

1. Students will be able to develop quantitative models as related to the course subject matter.
2. Students will be able to assess the strengths and limitations of quantitative models and methods.
3. Students will be able to apply symbolic systems of representation.
4. Students will be able to test hypotheses and make recommendations or predictions based on results.
5. Students will be able to communicate and represent quantitative information or results numerically, symbolically, aurally, visually, verbally, or in writing.

Goals of this Course

As described in the SMU Undergraduate Course Catalog:

For science and engineering majors. Covers vector kinematics, Newtonian mechanics, gravitation, rotational motion, special relativity, and structure of matter.

The specific learning goals of this course are as follows. Upon successful completion of this course, students will be able to:

1. Describe matter in reference to space and time and its kinds of motion in space, explain the relationship between force and motion in space, describe the laws of nature that are known to explain motion, describe the relationship between energy and motion, as well as the kinds of energy available to matter, and to describe the force due to gravity;
2. Setup and solve quantitative problems in the areas described above, and thus be able to apply their understanding of space, time, motion, force, energy, and gravitation to areas other than physics, including the sub-fields of STEM (Science, Technology, Engineering, and Mathematics) and everyday life;
3. Demonstrate, through performance on homework, quizzes, in-class exercises and discussion, and exams, a clear understanding of the principles and application of the above concepts.

Course Information

When/Where?	The course is held in Fondren Science 123 on Tuesday and Thursday from 9:30am-10:50am
Instructor	Professor Stephen Sekula Office: Fondren Science 39 Phone: (214)-768-7832 E-mail: sekula@physics.smu.edu Facebook: stephensekula Twitter: drsekula Diaspora*: stephensekula@social.cooleysekula.net GNU Social: steve@chirp.cooleysekula.net Pump.io: steve@hub.polari.us
Office Hours	Where: My Office, FOSC 39 When: <ul style="list-style-type: none">• TBD <p><i>Note: additional help sessions will be arranged with a Teaching Assistant</i> Cancellations of office hours, when unavoidable, will be announced by e-mail. If demand for office hour support is high, I may be forced to move it to another location that accomodates more people. If you cannot make office hours, which are open without appointment, you need to schedule a separate time to meet with the instructor or a teaching assistant. It is your responsibility to do this. <i>Please try to be courteous and request a meeting in writing at least a day before your proposed meeting time to allow for scheduling.</i></p>
Prerequisite(s)	MATH 1337 (can be taken concurrently with the course)
Textbook(s)	REQUIRED: Halliday, Resnick, Walker. "Fundamentals of Physics Volume I with WileyPlus and Orion" <i>See course website for information about obtaining the course learning system.</i>

Course Topics

In PHYS 1303 (Introductory Mechanics), you will learn the foundational concepts in physics, the study of space, time, energy, and matter. We begin with the description of matter and measurement of its properties, especially relationships in space and time. We will proceed to discuss motion and various familiar kinds of motion, and learn to describe that motion in the language of space and time. We will then explore force and the nature and relationship of force to motion, and specific kinds of forces including gravitation. We will learn to describe changes in states of motion in terms of the concept of energy, and learn about various kinds of energy and how they relate to one another. The semester will culminate in the topic of rotational motion of extended material bodies, a subject that combines all previous concepts. Finally, we may close with some “special topics” that are direct spinoffs of the topics in the course. The nature of these “special topics” will be decided over the course of the semester in consultation with the students in the class. Throughout the course, applications of the study and use of space, time, motion, force, and enegy will be discussed.

Attendance

Your attendance in the class will be checked through the assignment of homework, your participation in quizzes, and through participation in classroom discussions and activities. Poor attendance will be reflected in your performance in the three areas. This course respects the University policies on excused absences; please see the relevant section below.

Homework

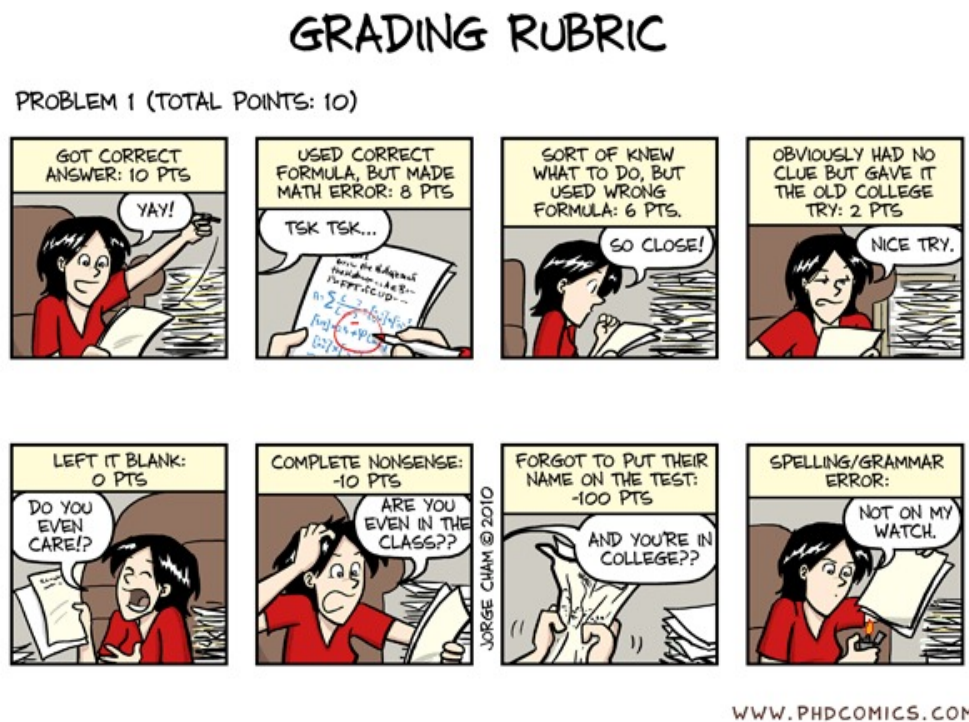


Figure 1: You'll be tempted to wait to the last minute to start your homework. You'll even be tempted to wait to the last minute to write up what you've done. Then it comes to us, unstapled and half-crumpled with no name and the spelling and grammar of a TwitterBot. You have been warned. Images are copyright Jorge Cham, and available at <http://www.phdcomics.com/comics/archive.php?comicid=1319>

Homework problems will be assigned in class. Homework will typically be assigned on a Thursday and due the following Thursday, with the exception of the first day of class (a Tuesday), when homework will be assigned and due two days later. Reduced credit will be given for late assignments, and no credit for missed assignments. A formal homework policy will be separately provided by the instructor.

Exams

There will be a series of in-class exams throughout the semester (**Thursday, February 22, 2018; Thursday, March 22, 2018; and Thursday, April 19, 2018**) which will cover topics in the course incrementally. **The final exam will be held on Friday, May 10, 2018, from 8:00 a.m. - 11:00 a.m. in FOSC 123.**

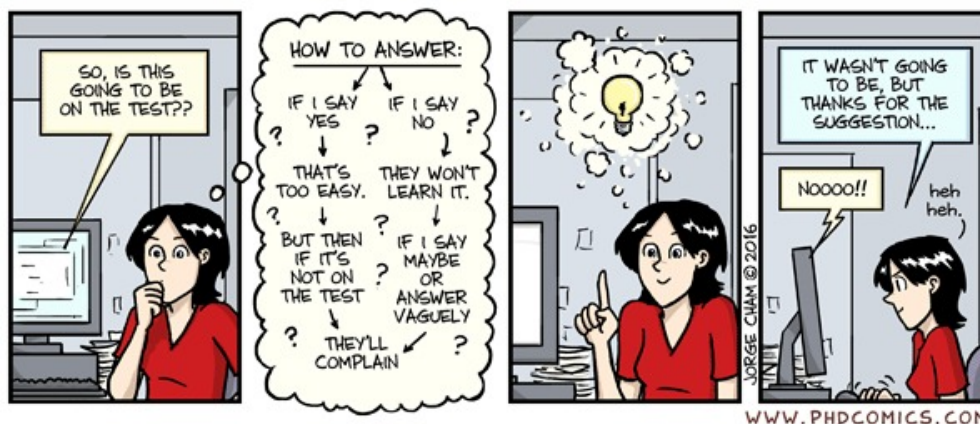


Figure 2: Before you ask your instructor, “Will this be on the test?”, think very, very, very carefully. Images are copyright Jorge Cham, and is available at <http://www.phdcomics.com/comics/archive.php?comid=1875>.

Quizzes

There will be reading quizzes near the beginning of every class, unless otherwise specified. There will be quiz-like activities on the first day of class that serve a similar purpose to formal reading quizzes. The reading quiz will incrementally cover reading and lecture video material assigned during the previous class, and may draw on experience with earlier topics. Your two lowest quiz grades will automatically be dropped. The assigned reading and lecture videos will be your primary means of studying for the quiz. You are allowed to bring 1 sheet of notes taken while reading and viewing the pre-assigned material; it is in your best interest to treat reading and video assignments as you would lecture-based class-time: take notes, review them, ask questions of the instructor before class, and come prepared to answer questions about the material.

If you have an excused absence, either due to an event covered by University policies or by enrollment (e.g. you were not enrolled in the first week of class), the quiz grade for that day will be dropped *automatically* and will not count toward the “two lowest quiz grades dropped” policy. Excused absences NEVER count against you.

Grading

Your course grade is composed of the following pieces: quizzes to assess out-of-class learning (10%), homework (15%), in-class exams (15% each, for a total of 45%) to assess individual mastery of material, and a final exam (30%).

University Honor Code

The student honor code¹ can be found in the 2017-2018 student handbook². All students will be expected to adhere to it. Any student found conducting a violation of the honor code - academic sabotage, cheating, fabrication, facilitating academic dishonesty, or plagiarizing - will *at the very least* earn a zero for that work. In addition, a complaint will be filed through the Vice President for Student Affairs Office. If you are uncertain of the definition of academic misconduct (especially plagiarism) as it regards independent works of mathematical and physical computation, documentation, and demonstration, it is your responsibility to speak with the instructor. Ignorance of the definition of plagiarism, or any other academic violations, is not considered a viable excuse to avoid penalties for these acts.

Disability Accommodations

Students needing academic accommodations for a disability must first register with Disability Accommodations & Success Strategies (DASS). Students can call 214-768-1470 or visit <http://www.smu.edu/Provost/ALEC/DASS> to begin the process. Once registered, students should then schedule an appointment with the professor as early in the semester as possible, present a DASS Accommodation Letter, and make appropriate arrangements. Please note that accommodations are not retroactive and require advance notice to implement.

University Policy on Religious Observance

Religiously observant students wishing to be absent on holidays that require missing class should notify their professors in writing at the beginning of the semester, and should discuss with them, in advance, acceptable ways of making up any work missed because of the absence. (See University Policy No. 1.9.)

Excused Absences for University Extracurricular Activities

Students participating in an officially sanctioned, scheduled University extracurricular activity should be given the opportunity to make up class assignments or other graded assignments missed as a result of their participation. It is the responsibility of the student to make arrangements with the instructor prior to any missed scheduled examination or other missed assignment for making up the work. (University Undergraduate Catalogue)

Important Dates

University Calendar³:

- **January 22, Monday: First day of classes.**
- **January 26, Friday:** Last day to enroll, add a course, or drop a course without tuition billing while remaining enrolled for the term. Last day to file for graduation in May.

¹ <http://www.smu.edu/StudentAffairs/StudentLife/StudentHandbook/HonorCode>

² <http://www.smu.edu/StudentAffairs/StudentLife/StudentHandbook>

³ <http://www.smu.edu/EnrollmentServices/Registrar/AcademicCalendarsCourseCatalogs/AcademicCalendars/Calendar17->

- February 2, Friday: Last day to drop a course without academic record (tuition charges apply). Last day to withdraw from the university without academic record (withdrawal refund schedule applies). See Bursar's website for more information.
- February 6, Tuesday: Last day to declare pass/fail, no credit or first- year repeated course grading options. Also, last day to request an excused absence for the observance of a religious holiday.
- March 6, Tuesday: Last day for continuing undergraduate students to change their majors before April enrollment.
- **March 12 -18, Monday-Sunday: Spring break**
- April 11, Wednesday: Last day to drop a course (grade of W).
- April 13, Friday: Last Day for May graduation candidates to change grades of Incomplete, and to obtain a final grade for a grade of X or a missing grade from a previous term.
- May 2–7, Wednesday–Monday: No final examinations or unscheduled tests and papers.
- May 3, Thursday: Last day for oral/written examinations for graduate students who are May degree candidates.
- May 7, Monday: Last day of classes (follows a Friday schedule).
- May 8, Tuesday: Reading Day.
- **May 9–15, Wednesday–Tuesday: Examinations (No examinations scheduled for Sunday).**