

Course Overview

For science and engineering majors. Covers vector kinematics, Newtonian mechanics, gravitation, rotational motion, oscillations. This is an active-learning course in which students participate in class through small group discussion and with cooperative problem-solving.

Prerequisite: MATH 1337.

Instructor Biography

Prof. Dalley has been teaching physics courses at SMU from non-science majors to graduate students since 2006. In 2013, Prof. Dalley received both an Outstanding Professor Rotunda Award and the Provost's Teaching Recognition Award. At SMU he also directs science outreach programs and professional development courses for high-school physics teachers.

Benefits of taking this course

- Quickly acquire UC tags and satisfy your major's requirements
- Retake to improve your grade
- Gain transferable skills in problem solving
- Take advantage of Jan term's small class sizes

UC "tags" and Student Learning Outcomes

Together with PHYS 1105 lab course, satisfies a Level I Pure & Applied Science Pillar, or a Science and Engineering Breadth requirement (UC16), and a Quantitative Reasoning Proficiency & Experience.

Learning Outcomes

- 1) demonstrate basic facility with the methods of scientific inquiry and problem-solving
- 2) explain how the concepts and findings of physics shape our world
- 3) develop quantitative models as related to the course subject matter
- 4) apply symbolic systems of representation
- 5) formulate structured and logical arguments

Class Meeting: 9:00 a.m. – 11:50 a.m., 1:00 – 3:50 p.m.
Daily Routine: 9:00 - 9:50 Quiz; 10-10:50, 11-11:50 Concept classes; Noon – 1pm lunch break; 1-1:50, 2 - 2:50 Concept Classes; 3 – 3:50 Co-op problem solving

Instructor: S. Dalley, Room 207 Fondren Science, sdalley@smu.edu

Office Hours: 8:00 – 8:45 am each day

Text: **Fundamentals of Physics Extended** – Access - 10th Edition (Wiley), by David Halliday, Robert Resnick, Jearl Walker ISBN 9781118441497

Website: http://www.physics.smu.edu/sdalley/1303_J19/1303home.htm

Date	Topic	
Before Mon 1/7	Complete Concept Surveys for Chap 1 and 2 in WileyPlus	
Mo 1/7	Measurement	1.1 - 1.3
	Straight Line Motion I	2.1 - 2.3
	Straight Line Motion II	2.4
	Straight Line Motion III	2.5- 2.6
Tu 1/8	Vectors	3.1-3.2
	Motion in Two Dimensions I	4.1 - 4.3
	Motion in Two Dimensions II	4.4
	Motion in Two Dimensions III	4.6 - 4.7
We 1/9	Force and Motion I	5.1-2
	Force and Motion II	5.3
	Force and Motion III	6.1-2
	Force and Motion IV	4.5, 6.3
Th 1/10	Kinetic Energy & Work I	3.3 (dot), 7.1 - 7.3
	Kinetic Energy & Work II	7.4-7.6
	Potential and Conserved Energy I	8.1 - 8.3
	Potential and Conserved Energy II	8.4-8.5
Fr 1/11	Center of Mass of systems	9.1 - 9.2
	Linear Momentum I	9.3 - 9.4
	Linear Momentum II	9.5 - 9.7
	Linear Momentum III	9.8
Mo 1/14	Rotational Motion I	10.1 -10.3
	Rotational Motion II	10.4- 10.7
	Rolling & Angular Momentum I	(3.3), 11.1, 11.2, 11.4
	Rolling & Angular Momentum II	11.5-11.8
Tu 1/15	Equilibrium	12.1-12.2
	Gravitation I	13.1 - 13.4
	Gravitation II	13.5
	Gravitation III	13.6 - 13.7
We 1/16	Oscillations I	15.1- 15.2
	Oscillations II	15.3-15.4
	FINAL EXAM 3 hours All Topics	

ASSESSMENT

- Pre-class Concept Surveys (online multiple choice) **15%** of grade.
Lowest Survey score is dropped for any reason. Late surveys cannot be credited.
- Post-class Practice Problem sets (online numerical response) **20%** of grade.
Lowest Problem set score is dropped for any reason. Late submissions are credited at 50%.
- In-class Quizzes (show working), **35%** of grade
- Participation in class group work **5%** of grade.
At discretion of instructor. This is NOT just an attendance grade.
- Final Exam (multiple choice): Problems **15%** of grade; Conceptual Questions **10%** of grade

Grade Boundaries

Fixed at

A > 90% > A - > 85% > B + > 80% > B > 75% > B - > 70% > C+ > 65% > C > 60% > D > 50% > F.

There is no curving of grades – what you have scored on Surveys, Quizzes, and the Final is what determines your grade according to the above boundaries. Not rounding up, effort, attendance, grades in other courses, scores of other students, scholarship requirements, my opinion, your opinion, your desired career path, the orbit of Venus, etc.

PRE-CLASS CONCEPT SURVEYS

You are required to spend time *before* class preparing for discussion of the topics as indicated on the syllabus. Consult relevant sections of the textbook and other learning aids to answer conceptual multiple-choice Surveys that are assigned in WileyPlus. Surveys must be submitted by 8:45 am on the due date for credit – no exceptions!

Recommended Time Burden = 1-2 hours per day

CLASS GROUP WORK

Because group work in class is central to the teaching strategy for this course, credit is given for your participation (not just attendance). In every class you will be assigned to a small group and asked to discuss and work on questions and problems together.

POST-CLASS PRACTICE PROBLEMS

Practice for quantitative problem solving is assigned in WileyPlus after each class and due by the next class. (These problems will be begun in class in co-operative problem-solving groups). Late submissions will receive 50% credit.

Recommended Time Burden = 2-3 hours per day

QUIZZES

Each day there is a 50 min problem-solving quiz on the previous day's material. Most of the credit in the quizzes is for clear working. You may use only the standard formula sheet provided and your own calculator. All data are provided in the questions.

EXAMS

The final exams are multiple choice; no credit is given for working. There is a 2-hour problem-solving exam. There is a one-hour conceptual question exam (questions are closely related to those done in class). You may use only the standard formula sheet provided and your own calculator. All data are provided in the questions.

ACCOMODATIONS

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.

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)

Attendance: Pursuant to SMU policy governing student wellbeing, attendance will be monitored and, if you are absent from class for more than one day, I will enquire by email whether everything is OK. If I do not receive a response within 1 day or receive a response which I am concerned about, I will forward those concerns to the Dean of Student life. If I do not receive a response within 1 day and your grades are below passing level, I will administratively drop you from the class.