

Course Overview

For science and engineering majors. Covers vector kinematics, Newtonian mechanics, gravitation, rotational motion, oscillations. This section uses an active-learning flipped classroom that implements teaching strategies developed from physics education research. Students can expect to prepare before class and participate in group work during every class.

Pre- or co-requisite: MATH 1337.

Instructor Biography

Prof. Dalley has been teaching physics courses at SMU from non-science majors to graduate students since 2006. He has 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.

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: Tu/Th 9:30 a.m. – 10:50 a.m.

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

Office Hours: Tu/Th 1-2 & 4-5 pm.

Text: **Fundamentals of Physics 11th Edition** WileyPlus with e-book, by David Halliday, Robert Resnick, Jearl Walker ISBN9781119306955. (There is no need to get a printed textbook.) You will also need a free PollEverywhere account to participate in classwork. Login at PollEV.com, join session **dalleyphysics**

Website: <http://www.physics.smu.edu/sdalley/1303S20/1303home.htm>

Date	Topic	Chapter
Jan 21	Measurement	1.1 - 1.3
Jan 23	Motion in One Dimension - Velocity	2.1 - 2.2
Jan 28	Motion in One Dimension - Acceleration	2.3 - 2.5
Jan 30	Motion in One Dimension– Free Fall	2.6- 2.7
Feb 4	Vectors	3.1 - 3.2
Feb 6	Motion in Two Dimensions	4.1 - 4.4
Feb 11	Relative Motion	4.6 - 4.7
Feb 13	Force and Motion- Newton's Laws	5.1 - 5.2
Feb 18	Force and Motion - Examples	5.3
Feb 20	Force and Motion - Resistance	6.1 - 6.2
Feb 25	<i>Test One</i>	<i>Chaps 1 - 5</i>
Feb 27	Force and Circular Motion	4.5 & 6.3
Mar 3	Kinetic Energy & Work- Constant Force	3.3, 7.1 - 7.3
Mar 5	Kinetic Energy & Work – Variable Force	7.4-7.6
Mar 10	Potential and Conserved Energy	8.1 - 8.3
Mar 12	Non-Conservative Forces	8.4-8.5
<i>Spring Break</i>		
Mar 24	Center of Mass & Linear Momentum	9.1 - 9.3
Mar 26	Linear Momentum & Collisions	9.4 - 9.8
Mar 31	Oscillations – Simple Harmonic Motion	15.1- 15.2
Apr 2	Test Two	Chap 6-9
Apr 7	Oscillations – Damping & Driving	15.4 & 15.6 – 15.7
Apr 9	Gravitation - Force	13.1 - 13.3
Apr 14	Gravitation – Energy and Orbits	13.4-6
Apr 16	Rotational Motion	10.1 -10.3
Apr 21	Torque and Rotational Inertia	10.4- 10.7
Apr 23	Rolling	(3.3), 11.1-2, 11.4
Apr 28	Angular Momentum	11.5-11.8
Apr 30	Equilibrium	12.1-12.2
May 7	<i>FINAL EXAM 8-11 am</i>	<i>All topics</i>

GENERAL COURSE POLICIES

- You will need any simple scientific calculator. Laptops/phones may not a substitute for this in an exam.
- You will need to register for WileyPlus to complete outside-class assignments.
- You will need a PollEverywhere account and a wireless or texting device to participate in classwork. Login at PolLEV.com and join session **dalleyphysics**
- Communication via any method (phones, tablets, laptops, speech, gestures, writing, sharing, etc.) is not allowed within, from, or to the classroom during any in-class exam. If you need to take or make an emergency call, please leave the room.
- This course operates a policy of zero tolerance toward **Academic Dishonesty** in any form in any graded assessment. It will usually result in an F grade for the course and a filing with the Dean of Student Life (Honor Code Violation).

GRADING POLICY

Pre-class readings with Survey questions **10%** of course grade.

Lowest 2 survey scores are dropped for any reason. Late submissions cannot be credited.

Participation in class student-response Concept polling **10%** of course grade.

Polls are scored on participation only.

1/5 of polled questions may go unanswered before it starts to affect your grade.

Post-class Practice Problem sets **25%** of course grade.

Lowest 2 problem set scores are dropped for any reason. Late submissions are credited at 50%.

In-class Quizzes **10%** of course grade.

Partial credit given for clear working. Lowest 2 quiz scores are dropped for any reason.

2 multiple-choice in-class tests (1 hr 15 min each) Problems and Concepts, **20%** of grade

Final Exam (3 hrs) multiple choice Problems and Concepts **25%** of grade

In determining the overall course %:

If the score on the final exam is better than the overall course % score, the average of these two will be used for the overall course score.

If the score on each test and on the final exam is always below 50%, the course grade will be F regardless of performance in other assessments.

Grade Boundaries are fixed at :

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

What you have scored is what determines your grade; 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.

ASSESSMENT

PRE-CLASS READINGS & SURVEYS

The classroom is flipped so you are required to spend time *before* class reading in WileyPlus the textbook sections indicated on the syllabus and complete the multiple choice survey assignment by 9:15 am on the due date for credit – no exceptions!

Recommended Time Burden outside of class = 1 hour per class

IN-CLASS CONCEPT POLLING

During class you will often be asked to discuss Conceptual questions with other students and provide responses on a wireless or texting device via PollEverywhere. Login at PollEV.com and join session **dalleyphysics**. There is participation credit and you are expected to respond to most questions.

POST-CLASS PRACTICE PROBLEMS

Sets of 3 practice problems are assigned in WileyPlus and due by 9:15 am on the day of the next class. Late submissions will receive 50% credit.

Recommended Time Burden outside of class = 1 – 2 hours per problem set

QUIZZES

At the start of most classes there will be a straightforward short quiz based on the material from the previous class and practice problems. The final answer is given and your work will be graded on clear and correct working shown. You may use only the standard formula sheet provided and your own calculator. All data are provided in the questions. Submit your work on a single sheet of letter-sized paper in black or blue ink.

EXAMS

There are two in-class multi-choice tests (1 hr 15 min each) and a final exam (3 hrs). They consist of problem-solving parts and conceptual parts (questions are closely related to those done in class). There is no credit for working. 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/SASP/DASS> to begin the process. Once approved and registered, students will submit a DASS Accommodation Letter to faculty through the electronic portal *DASS Link* and then communicate directly with each instructor to 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. ([See 2018-2019 University Undergraduate Catalogue](#))

Attendance: Pursuant to SMU policy governing student wellbeing, attendance will be monitored and, if you are absent from class frequently or for more than one week, I will enquire by email whether everything is OK. If I do not receive a response within 1 week 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 week and your grades are below passing level, I will administratively drop you from the class.