

Course Overview

For science and engineering majors. Covers vector kinematics, Newtonian mechanics, gravitation, rotational motion, oscillations. This section of PHYS 1303 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 most classes.

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 and CC "tags"

Together with PHYS 1105 lab course, satisfies

- Exploring Science (ES) Breadth of Common Curriculum (matriculation from Fall 2020)
- Science and Engineering (SE) Breadth and Quantitative Reasoning (QR) Proficiencies & Experiences requirements of requirement of the University Curriculum

CC Student Learning Outcomes

(ES) Students will demonstrate an ability to engage in scientific inquiry.

Course Student Learning Outcomes

Students will be able to:

1. Apply classical kinematic concepts to describe simple motion of point particles.
2. Select and apply macroscopic concepts of Force, Energy, and Momentum to explain and predict simple motion of point particles.
3. Solve simple problems using outcomes 1 and 2 in the contexts of oscillations, gravitation, and statics and motion of extended rigid bodies.

Class Meeting: 9:00 a.m. – Noon & 1:00 p.m. – 4:00 p.m

Instructor: Dr. S. Dalley, sdalley@smu.edu

Office Hours: 8:00 - 8:45 a.m. daily. In person Fondren Science 207 or Zoom meeting ID 477 628 4599 passcode *dalleyphys*. You will only be able to join Zoom meetings while signed in to your SMU account via SSO.

Requirements:

Before the first class on Jan 3

- Go to the Wiley Resources link in the Canvas course and obtain the electronic resource **Fundamentals of Physics** 11th Edition with **WileyPlus**, by David Halliday, Robert Resnick, Jearl Walker. This 4-min introductory [video \(Links to an external site.\)](#) to WileyPlus tells you how to obtain and use it. There is no need to get a printed textbook or any other "add-ons", unless you want to.

Note: Some preparatory reading and survey assignments are due in WileyPlus before the first class on Jan 3. It is strongly recommended that, in fact, you do all the preparatory reading and surveys for the first week before the course begins.

- You will need to register an account at [PollEverywhere.com \(Links to an external site.\)](#) if you don't already have one. Use ONE account with your SMU email address and REAL NAME. No other accounts will be recognized. In class you will submit poll answers at PolLEV.com by joining session *dalleyphysics*
- You will need any simple scientific calculator that does NOT have wireless communication.

Mask Policy

Masks are not required in this course. However, students are requested to wear masks during test-prep classes, when close-quarters discussion takes place over long periods.

Statement on Communication

For personal messages, please contact me via your smu email. I will respond to your email within a few hours typically. Responses might be slightly delayed on holidays and weekends. I will communicate with the class via Canvas Announcements. It is your responsibility to check Canvas Announcements and your SMU email.

Academic Dishonesty

Students are expected to embrace and uphold the [SMU Honor Code \(Links to an external site.\)](#). Violations of the Honor Code will be acted upon in accordance with the policies and procedures outlined in the [Mustang Student Handbook \(Links to an external site.\)](#). Examples of academic dishonesty are:

- Communication via any method with anyone else during any exam.
- Sharing or copying an assignment intended to be done individually.
- Fabricating lab data or using published information without citation in an essay-style assignment.

- 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

[Grades](#) will be available through Canvas and PollEverywhere. Scores from the latter will periodically be imported into Canvas Grades. Your course grade will be calculated according to the following weighting.

- Pre-class readings with Survey questions in WileyPlus: **10%** of course grade. Lowest 5 survey scores are dropped, including absence for any reason. Late submissions cannot be credited.
- Participation in PollEverywhere concept polling: **5%** 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 in WileyPlus: **10%** of course grade. Lowest 5 problem set scores are dropped, including absence for any reason. Late submissions are credited at 50%.
- Participation in 6 test prep exercises: **10%** of course grade. In-class group assignments with credit for meaningful participation. Lowest test-prep score is dropped, including absence for any reason.
- 6 tests (45 min each) : **40%** of course grade. Credit given for answers and clear working of numerical problems. Lowest-scoring test will be dropped, including absence for any reason.
- Final Exam multiple choice: **25%** of grade. Credit given for answers only, but clear working of numerical problems must be submitted.

Grading Scale

A	A -	B +	B	B -	C +	C	C -	D +	D	D -	F
100-90%	90-85%	85-80%	80-75%	75-70%	70-65%	65-60%	N/A	N/A	60-50%	N/A	below 50%

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..

Description of Assignment Groups

PRE-CLASS READINGS & SURVEYS

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

Note: Some preparatory reading and survey assignments are due in WileyPlus before the first class on Jan 3. It is strongly recommended that, in fact, you do all the preparatory reading and surveys for the first week before the course begins.

Recommended Time Burden = 2 hours per day of class

IN-CLASS CONCEPT POLLING

During class you will often be asked conceptual questions and provide responses via PollEverywhere and sometimes discuss with other students. 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 practice problems are assigned in WileyPlus and typically due by the next day. Late submissions will receive 50% credit. If you master these practice-problems yourself (rather than copying someone else's solutions) you should be well-prepared for the tests and exams.

Recommended Time Burden outside of class = 1 hour per problem set

TEST PREP

In the class before each test you will work in a group of 2 or 3 students on a group assignment to answer problems in preparation for the test. Partial Credit is given for participation.

TESTS

There are six tests (45 min each). Partial credit is given for clear working.

FINAL EXAM

The final exam is multi-choice and will contain both calculation problems (similar to WileyPlus practice) and conceptual questions (similar to PollEverywhere). There is no direct credit for working but it's needed to receive credit for a multi-choice answer to a numerical problem.

IMPORTANT: Rules for in-class Tests and Final Exam

You may only use a scientific calculator and standard formula sheet. All data are provided in the questions. You must place your phone face down on the table and not touch it again; handling your phone for any reason will result in an automatic zero score. Additional penalties for demonstrated Academic Dishonesty are described above in this syllabus.

Course Outline/Calendar

Note: Some preparatory reading and survey assignments are due in WileyPlus before the first class on Jan 3. It is strongly recommended that, in fact, you do all the preparatory reading and surveys for the first week before the course begins.

Disclaimer: The instructor reserves the right to make changes to the schedule of the class. Any alterations will be announced in class, in Canvas or via email by the instructor. Students who do not check Canvas or their email assume full responsibility for missing alterations to the course.

Course Outline/Calendar

Class Date	Topic	Textbook Chapters
M Jan 3	Introduction to Physics	
	Measurement	1.1 - 1.3
	Motion in One Dimension - Velocity	2.1 - 2.2
	Motion in One Dimension - Acceleration	2.3 - 2.5
	Motion in One Dimension– Free Fall	2.6- 2.7
	Test 1 Prep	Chaps 1-2
Tu Jan 4	Test 1	Chaps 1-2
	Vectors	3.1 - 3.3
	Motion in Two Dimensions	4.1 - 4.4
	Relative Motion	4.6 - 4.7
	Test 2 Prep	Chap 3-4
W Jan 5	Test 2	Chap 3-4

	Force and Motion- Newton's Laws	5.1 - 5.2
	Force and Motion – Examples	5.3
	Force and Motion - Resistance	6.1 - 6.2
	Force and Circular Motion	4.5 & 6.3
	Test 3 Prep	Chap 5-6
Th Jan 6	Test 3	Chap 5-6
	Kinetic Energy & Work- Constant Force	7.1 - 7.3
	Kinetic Energy & Work – Variable Force	7.4-7.6
	Potential and Conserved Energy	8.1 - 8.3
	Non-Conservative Forces	8.4-8.5
	Test 4 Prep	Chap 7-8
F Jan 7	Test 4	Chap 7-8
	Center of Mass & Linear Momentum	9.1 - 9.3
	Impulse and Linear Momentum Conservation (1D)	9.4 - 9.5
	Energy in Collisions and Linear Momentum Conservation (2D)	9.6-9.8

	Oscillations – Simple Harmonic Motion	15.1- 15.2
	Oscillations – Pendula, Damping, Driving	15.4 & 15.6 – 15.7
T Jan 11	Test 5 Prep	Chap 9, 15
	Test 5	Chap 9, 15
	Gravitation - Force	13.1 - 13.3
	Gravitation – Energy	13.4-5
	Gravitation – Orbits	13.6-7
	Rotational Motion	10.1 -10.3
W Jan 12	Test 6 prep	Chap 10.1-3 & 13
	Test 6	Chap 10.1-3 & 13
	Torque and Rotational Inertia	10.4- 10.7
	Rotation and Translation	10.4- 10.7 (3.3)
	Rolling	11.1-2, 11.4
	Angular Momentum	11.5-11.8
Th Jan 13	Equilibrium	12.1-12.2
	<i>Review for Final Exam</i>	<i>All of the above</i>

*Final Exam**All of the above*

Institutional Policies & Procedures

Title IX and Disability Accommodations

Disability Accommodations

Students who need 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> ([Links to an external site.](#)) to begin the process. Once they are registered and approved, students then submit a DASS Accommodation Letter through the electronic portal, *DASS Link*, and then communicate directly with each of their instructors to make appropriate arrangements. Please note that accommodations are not retroactive, but rather require advance notice in order to implement.

Sexual Harassment

All forms of sexual harassment, including sexual assault, dating violence, domestic violence and stalking, are violations of SMU's Title IX Sexual Harassment Policy and may also violate Texas law. Students who wish to file a complaint or to receive more information about the grievance process may contact Samantha Thomas, SMU's Title IX Coordinator, at accessequity@smu.edu or 214-768-3601. Please note that faculty are mandatory reporters. If students notify faculty of sexual harassment, faculty must report it to the Title IX Coordinator. For more information about sexual harassment, including resources available to assist students, please visit www.smu.edu/sexualmisconduct ([Links to an external site.](#)).

Pregnant and Parenting Students

Under Title IX, students who are pregnant or parenting may request academic adjustments by contacting Elsie Johnson (elsiej@smu.edu) in the Office of the Dean of Students, or by calling 214-768-4564. Students seeking assistance must schedule an appointment with their professors as early as possible, present a letter from the Office of the Dean of Students, and make appropriate arrangements. Please note that academic adjustments are not retroactive and, when feasible, require advance notice to implement.

SMU Requirements

Religious Observance	<p>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. Click here for a list of holidays. (Links to an external site.)</p>
COVID-19 and Other Medical-Related Absences	<p>Students who test positive for COVID-19 and need to isolate, or who are notified of potential exposure, must follow SMU's Contact Tracing Protocol (Links to an external site.). (Links to an external site.) To ensure academic continuity and avoid any course penalties, students should follow the same procedures described by their instructors as they would for any other medical-related absence in order to be provided with appropriate modifications to assignments, deadlines, and exams.</p> <p>All the instructional material for this course - whiteboard notes, assignments, in-class questions - is available in Canvas, WileyPlus, and PollEverywhere, while the syllabus has already built into it automatic score drops that can be used to cover about a one day of absence.</p> <p>Absences longer than one day will be treated on a case by case basis; you would need to meet with me to discuss whether and how the prolonged absence can be made up.</p>
Excused Absences for University Extracurricular Activities	<p>Students participating in an officially sanctioned, scheduled university extracurricular activity should be given the opportunity to make up class assignments or other graded assignments that were missed as a result of their participation. It is the responsibility of the student to make arrangements for make-up work with the instructor prior to any missed scheduled examinations or other missed assignments. (See 2020 (Links to an external site.)- (Links to an external site.)2021 SMU Undergraduate Catalog (Links to an external site.)under "Enrollment and Academic Records/Excused Absences.")</p>
Final Exams	<p>Final course examinations shall be given in all courses where appropriate, and some form of final assessment is essential. Final exams and assessments must be administered as specified in the official examination schedule. Exams cannot be administered or due during the last week of classes or during the Reading Period. Syllabi must state clearly the form of the final exam or assessment, and the due date and time must match the official SMU exam schedule. Final exams are not required to be provided online.</p>

Student Support

Student Academic Students needing assistance with writing assignments for SMU courses may schedule an appointment with the Writing Center through Canvas. Students who

Success Programs would like support for subject-specific tutoring or success strategies should contact SASP, Loyd All Sports Center, Suite 202; 214-768-3648; <https://www.smu.edu/sasp> (Links to an external site.). (Links to an external site.)

Caring
Community
Connections
Program

CCC is a resource for anyone in the SMU community to refer students of concern to the Office of the Dean of Students. The online referral form can be found at smu.edu/deanofstudentsccc (Links to an external site.). (Links to an external site.) After a referral form is submitted, students will be contacted to discuss the concern, strategize options, and be connected to appropriate resources. Anyone who is unclear about what steps to take if they have concerns about students should either consult the [CCC Reference Guide](#) (Links to an external site.) or contact the Office of the Dean of Students at 214-768-4564.

Tech Requirements & Help

Please be sure that your device or devices meet the **technical requirements** for Canvas. [Technical requirements](#) and [browser requirements](#) for Canvas are located in the [Canvas Student Guide](#). If you need Technical Support with Canvas, click the Help link on the left side [Global Navigation](#). From there you can Search Canvas Guides, Chat with Support, or Submit a Request for assistance. You can also contact the SMU [IT Help Desk](#) for assistance with Canvas.

TECHNICAL SUPPORT

If you run into any technical problems, there are a number of resources available to you. You can contact the [SMU IT Help Desk](#) for assistance with Canvas. Otherwise, here are additional useful resources:

- [Canvas](#) (Links to an external site.)
 - Click [Help](#) (Links to an external site.) on the [Global Navigation](#) (Links to an external site.) to search the Guides, [Chat](#) (Links to an external site.) or contact Instructure Support via email or phone (Links to an external site.)

PRIVACY POLICIES

- [Canvas by Instructure](#)
(Links to an external site.)
(Links to an external site.)
- [SMU OIT Policies and Legislation](#)
(Links to an external site.)

ACCESSIBILITY

- Canvas
 - [Accessibility within Canvas](#)
 - [Voluntary Product Accessibility Template](#)

Student Services

The following services and resources are available to SMU students:

- [Altshuler Learning Enhancement Center](#)
 - ALEC offers study-skill workshops and can help you with learning strategies and test preparation. Their phone number is (214) 768-3648.
- [Altshuler Writing Center](#)
 - The Altshuler Writing Center is open to all undergraduate students who need technical advice on their assigned papers. The writing center is open most afternoons and a few evenings. To work with someone at the writing center you must make an appointment in advance. To contact please call (214) 768-3648.
- [DASS](#)
 - Students needing academic accommodations for a disability must first contact [Disability Accommodations & Success Strategies](#) (DASS) at (214) 768-1470 to verify the disability and to establish eligibility for accommodations. They should then schedule an appointment with the professor to make appropriate arrangements. (See an attachment describes the DASS [procedures](#) (Links to an external site.) and relocated office.) If you have a disability accommodation you must contact DASS and have a letter of accommodation delivered to the instructor no later than the third day of class. You can email a scanned copy of your letter.
- [my.SMU](#)
 - Online portal for SMU students that allows you to view personal information, emergency contact information, register for AARO (if applicable), view class schedule, enroll in classes, add/drop/swap classes, view grades and view financial aid packages.
- [SMU Bookstore](#)
 - Information on textbooks, events, buyback, promotions and more.
- [SMU Bursar](#)
 - Information on student finances, bill pay and more.
- [SMU Counseling Services](#)
 - College can be a stressful time. There are many transitions and major life events occurring while you are a college student. If you or a friend is going through a difficult time and needs someone to talk to please seek out the resources provided by the counseling center, located in the Health Center and their phone number is (214) 768-2211. For 24 hour help contact (214) 768-2860.

- [SMU Dedman Recreation Center](#)
 - Regular exercise is one of the best things you can do for your mental and physical well-being.
- [SMU Libraries](#)
 - SMU Libraries has reference librarians happy to help with your research needs. Contact a librarian at <http://askalibrarian.smu.edu/> or call (214) 768-2326.
- [SMU OIT](#)
 - OIT provides computing, information processing, and communications resources to satisfy the needs of faculty, students, and staff, and offers comprehensive support services to help them use technology effectively and creatively.
- [SMU Student Affairs](#)
 - SMU Student Affairs is a network of [departments, programs and services](#) focused on supporting students' out-of-classroom experiences and co-curricular learning.