

# PHYS 1303-002 Course Syllabus

## 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:** MWF 10:00 a.m. – 10:50 a.m.

**Instructor:** Dr. S. Dalley, [sdalley@smu.edu](mailto:sdalley@smu.edu)

**Office Hours:** In-person F 11 a.m. - Noon, or Zoom by appointment

## **Requirements:**

Before the first class on Aug 23, please take care of the essential items below:

- Obtain the e-book **Fundamentals of Physics 11th Edition** with **WileyPlus**, by David Halliday, Robert Resnick, Jearl Walker. This 4-min introductory [video](#) to WileyPlus tells you how to access and use it. There is no need to get a printed textbook or any other "add-ons", unless you want to.
- You will need to register an account at [PollEverywhere.com](https://www.poll Everywhere.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 required in this course for students. This masking policy is subject to change during the semester, and any changes will be posted clearly in Canvas announcements.*

## **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 Assignments, WileyPlus, and PollEverywhere. Scores from the latter two will periodically be imported into Canvas Grades so you can see how well you are doing overall. Your course grade will be calculated according to the following weighting.

- Pre-class readings with Survey questions in WileyPlus: **10%** of course grade. Lowest 2 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 2 problem set scores are dropped, including absence for any reason. Late submissions are credited at 50%.
- Participation in 6 test prep exercises: **5%** of course grade. In-class group assignments with credit for meaningful participation.
- **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.
- **6 corrected tests: 5%** of course grade. Corrected answers and clear working of numerical problems that you got wrong in the test will be added to the original test score for this credit. If no corrections are submitted, the original test score (including zero) will count for the corrected test credit.
- 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..

### Requirement/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!

*Recommended Time Burden outside of class = 1 hour per 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 class. 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 – 2 hours 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. Credit is for participation.

### TESTS

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

### CORRECTED TESTS

You will have the opportunity to submit corrections to your graded tests in your own time, typically within one week of receiving the test back. Corrections should be submitted in Canvas as a file upload.

### 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 Test Prep, 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**

<b>Class Date</b>	<b>Topic</b>	<b>Textbook Chapters</b>
M Aug 23	<b>Introduction to Physics</b>	
W Aug 25	<b>Measurement</b>	<b>1.1 - 1.3</b>
F Aug 27	<b>Motion in One Dimension - Velocity</b>	<b>2.1 - 2.2</b>
M Aug 30	<b>Motion in One Dimension - Acceleration</b>	<b>2.3 - 2.5</b>
W Sep 1	<b>Motion in One Dimension</b> – Free Fall	<b>2.6- 2.7</b>
F Sep 3	Test 1 Prep	<b>Chaps 1-2</b>
M Sep 6	<i>No Class - Labor Day</i>	
W Sep 8	Test 1	<b>Chaps 1-2</b>
F Sep 10	<b>Vectors</b>	<b>3.1 - 3.3</b>
M Sep 13	<b>Motion in Two Dimensions</b>	<b>4.1 - 4.4</b>
W Sep 15	<b>Relative Motion</b>	<b>4.6 - 4.7</b>
F Sep 17	Test 2 Prep	<b>Chap 3-4</b>
M Sep 20	Test 2	<b>Chap 3-4</b>
W Sep 22	<b>Force and Motion-</b> Newton's Laws	<b>5.1 - 5.2</b>
F Sep 24	<b>Force and Motion</b> – Examples	<b>5.3</b>
M Sep 27	<b>Force and Motion - Resistance</b>	<b>6.1 - 6.2</b>

W Sep 29	<b>Force and Circular Motion</b>	<b>4.5 &amp; 6.3</b>
F Oct 1	Test 3 Prep	<b>Chap 5-6</b>
M Oct 4	Test 3	<b>Chap 5-6</b>
W Oct 6	<b>Kinetic Energy &amp; Work- Constant Force</b>	<b>7.1 - 7.3</b>
F Oct 8	<b>Kinetic Energy &amp; Work – Variable Force</b>	<b>7.4-7.6</b>
M Oct 11	<i>No class - fall break</i>	
W Oct 13	<b>Potential and Conserved Energy</b>	<b>8.1 - 8.3</b>
F Oct 15	<b>Non-Conservative Forces</b>	<b>8.4-8.5</b>
M Oct 18	Test 4 Prep	<b>Chap 7-8</b>
W Oct 20	Test 4	<b>Chap 7-8</b>
F Oct 22	<b>Center of Mass &amp; Linear Momentum</b>	<b>9.1 - 9.3</b>
M Oct 25	<b>Impulse and Linear Momentum Conservation (1D)</b>	<b>9.4 - 9.5</b>
W Oct 27	<b>Energy in Collisions and Linear Momentum Conservation (2D)</b>	<b>9.6-9.8</b>
F Oct 29	<b>Oscillations – Simple Harmonic Motion</b>	<b>15.1- 15.2</b>
M Nov 1	<b>Oscillations – Pendula, Damping, Driving</b>	<b>15.4 &amp; 15.6 – 15.7</b>
W Nov 3	Test 5 Prep	<b>Chap 9, 15</b>
F Nov 5	Test 5 <i>(DROP DATE)</i>	<b>Chap 9, 15</b>
M Nov 8	<b>Gravitation - Force</b>	<b>13.1 - 13.3</b>
W Nov 10	<b>Gravitation – Energy</b>	<b>13.4-5</b>
F Nov 12	<b>Gravitation – Orbits</b>	<b>13.6-7</b>

M Nov 15	<b>Rotational Motion</b>	<b>10.1 -10.3</b>
W Nov 17	<b>Torque and Rotational Inertia</b>	<b>10.4- 10.7</b>
F Nov 19	<b>Rotation and Translation</b>	<b>10.4- 10.7 (3.3)</b>
M Nov 22	<b>Rolling</b>	<b>11.1-2, 11.4</b>
W - F	<i>No classes - Thanksgiving</i>	
Nov 24-26		
M Nov 29	Test 6 prep	<b>Chap 10 &amp; 13</b>
W Dec 1	Test 6	<b>Chap 10 &amp; 13</b>
F Dec 3	<b>Angular Momentum</b>	<b>11.5-11.8</b>
M Dec 6	<b>Equilibrium</b>	<b>12.1-12.2</b>
W Dec 15	<i>Final Exam 8 - 11 am</i>	<i>All of the above</i>

*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.*

## **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> 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](mailto: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](http://www.smu.edu/sexualmisconduct).

Pregnant and Parenting Students Under Title IX, students who are pregnant or parenting may request academic adjustments by contacting Elsie Johnson ([elsiej@smu.edu](mailto: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 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.](#)

COVID-19 and Other Medical-Related Absences 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](#). 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.

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 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 [2020-2021 SMU Undergraduate Catalog](#) under “Enrollment and Academic Records/Excused Absences.”)

#### Final Exams

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.

### Student Support

#### Student Academic Success Programs

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

#### 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](http://smu.edu/deanofstudentsccc). 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](#) or contact the Office of the Dean of Students at 214-768-4564.