Course Syllabus, PHYS2325.006.23S

Course Information

Course Number, Section	PHYS 2325 section 006
Course Title	*Mechanics*
Term	Spring 2023
Meeting Days & Times	Tuesday, Thursday 11:30AM-12:45PM
Location	SCI 1.210

Professor Contact Information

Professor's name	Xiaojia Zhang
Office phone number	972-883-2873
Email	xjzhang@utdallas.edu
Office location	WSTC 2.706
Online office hours	Wednesdays, 12:00-01:00 PM (MS Teams)
In-person office hours	WSTC 2.706 (appointment by email)
Other information	*TA Pool Office Hours (name, email, time, location)*

1. Melodee Seifi, mos170000@utdallas.edu, Monday 9 AM-10 AM, SCI 2.179
2. Vivek Kakani, vivek.kakani@utdallas.edu, Monday 10 AM-11 AM, SCI B.119
3. Kehui Zhao, kehui.zhao@utdallas.edu, Monday 11 AM-12 PM, SCI B.179
4. Junaid Saif Khan, junaid.khan@utdallas.edu, Monday 12 PM-2 PM, SCI 2.192
5. Yunan Xie, yunan.xie@utdallas.edu, Tuesday 1 PM-2 PM, SCI 3.257
6. Mohammad Mahmud, mmm161430@utdallas.edu, Tuesday 3 PM-4 PM, SCI 3.253
7. Melodee Seifi, mos170000@utdallas.edu, Wednesday 9 AM-10 AM, SCI 2.179
8. Adam Aker, adam.r.a1@utdallas.edu, Friday 10 AM-11 AM, SCI 3.129
9. Rittik Patra, rittik.patra@utdallas.edu, Friday 1 PM-3 PM, SCI 2.112

Homework assistance and tutoring will be provided by a pool of TAs, as specified above. You can attend any TA's office hours, whether they are the official TA for our section or not.

For other matters related to our class, contact TA **Kehui Zhao** (kehui.zhao@utdallas.edu).

Additional Supplemental Instruction (SI) sections

SI : Vaidehi Mahesh Patil vmp200004@utdallas.edu
M 4:00-5:15p MC 3.610
W 1:00-2:15p MC 1.502
SI: Mark Baskharoun, mxb200043@utdallas.edu
Monday 2:30-3:45p, MC 3.610
Wednesday 2:30-3:45p MC 1.502

https://studentsuccess.utdallas.edu/supplemental-instruction/

These SI sections are led by students who have taken PHYS 2325 before and now offer additional instruction. This should not be considered homework help, but rather independent, pre-prepared problem sessions to offer additional insight and practice with the topics. Students are recommended to attend and gain valuable practice, but these sections are completely optional, and students can come to as many or as few as they like.

Course Pre-requisites, Co-requisites, and/or Other Restrictions
Prerequisite: MATH 2413 or MATH 2417
Corequisites: (MATH 2414 or MATH 2419) and (PHYS 2121 or PHYS 2125)

Course Description
3 credit hours. Calculus based. Basic physics including a study of space and time, kinematics, forces, energy and momentum, conservation laws, rotational motion, torques, harmonic oscillation, and waves. Two lectures per week.

Student Learning Objectives/Outcomes
1. Uncertainties, significant figures and scientific notations; addition and subtraction of vectors; scalar and vector product of vectors.
2. Concepts of time, position, velocity and acceleration in 1D; mathematical relations relating them.
3. Velocity and acceleration in 2D and 3D; circular motion and relative velocity.
4. Concept of force; three Newton's Laws relating force with motion.
5. Application of Newton's Laws in particle equilibrium and dynamics.
6. Concepts of work and energy, and work-energy theorem.
8. Concepts of momentum; momentum conservation in collision problems.
9. Velocity, acceleration, and energy in rotational motion.
10. Relating force with motion in rotational motion and with equilibrium.
11. Newton's law of gravitation; relating gravitational force with motion.
12. Simple harmonic motion.
13. Mathematical description of waves, including velocity, period, frequency, phase, energy and superposition.

Required Textbooks and Materials

Textbook
1. Modified Mastering Physics for University Physics with Modern Physics, 15th Edition
Author(s): Young, Hugh | Freedman, Roger
Textbook ISBN-13: 9780135159705

The 11th-14th editions will work just fine. Other texts at the same level are also OK, but must be calculus-based.

The Modified Mastering Physics access code for the 15th edition is needed and can be purchased directly on the site. You will need to register at www.masteringphysics.com so that you can access the online homework web site for this class. MasteringPhysics course ID for this class is zhang77206.

2. (eText) Mastering Physics Student Kit, which can be accessed at www.pearsonmylabandmastering.com. It can be purchased directly on the site for ~$75 with 18-week etext access, or with 2-year etext access for $125.

https://mlm.pearson.com/enrollment/zhang77206

Course ID: zhang77206

If signing up online, choose "Modified Mastering Physics for University Physics with Modern Physics 15th Edition"

Other Materials

Calculator with trigonometry capabilities ($10-$20) for exams. No phones.

Textbooks and some other bookstore materials can be ordered online or purchased at the UT Dallas Bookstore.

Assignments & Academic Calendar

Tentative Schedule (subject to changes with prior announcement on eLearning)

Date	Lectures	Reading Assignment	Homework	
			Released	Due
1/17, 1/19	Syllabus, Introduction	Chp 1	HW1, 1/19	1/29
1/24, 1/26	1D Kinematics	Chp 2	HW2, 1/26	2/5
1/31, 2/2	2D Kinematics	Chp 2, 3	HW3, 2/2	2/12
2/7, 2/9	Newton's Laws of Motion	Chp 3, 4	HW4, 2/9	2/19
2/14, 2/16	Newton's Laws of Motion Exam #1 (2/16) on Chp 1-3	Chp 4	No HW.	
2/21, 2/23	Application of Newton's Laws	Chp 5	HW5, 2/23	3/5
2/28, 3/2	Gravitation	Chp13	HW6, 3/2	3/12
3/7, 3/9	Work and Energy	Chp 6, 7	HW7, 3/9	3/19
3/14, 3/16	Spring Break. No class.		No HW.	
3/21, 3/23	Work and Energy Exam #2 (3/23) on Chp 4,5,13	Chp 6, 7	No HW.	
3/28, 3/30	Momentum, and Collisions.	Chp 8	HW8, 3/30	4/9
4/4, 4/6	Fluid	Chp 12	HW9, 4/6	4/16
4/11, 4/13	Rotational Motion	Chp 9	No HW.	

	Exam #3 (4/13) on Chp 6-8, 12			
4/18, 4/20	Rotational Dynamics. Equilibrium	Chp 10, 11	HW10, 4/20	4/30
4/25, 4/27	Periodic Motion Waves and Sound	Chp 14-16	HW11, 4/27	5/7
5/2, 5/4	Waves and Sound Exam #4 (5/4) on Chp 9-11, 14-16	Chp 15, 16	No HW.	End
5/8-5/12	No more exams.			

Lecture slides will be posted on eLearning following each lecture.

Grading Policy

Total grades are based on a combination of the items below.

Homework	22 points
4 Exams	78 points (26 points for each exam, with the final score being the sum of the top three grades of the four exams)
Quizzes/Attendance	3 points (extra credits)
Pretest/posttest	2 points (extra credits)
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TOTAL	105 points (with 5 extra credit points)

Grading Scale
A+ (> 97), A (93 - 96.9), A- (90 – 92.9), B+ (87 – 89.9), B (83 – 86.9), B- (80 - 82.9)
C+ (77 - 79.9), C (73 - 76.9), C- (70 - 72.9), D+ (67 – 69.9), D (63 – 66.9), D- (60-62.9), **F (< 60)**

Here is an example to illustrate how your letter grade will be determined.
If your grades break down as follows,
20 out of 22 points from the homework;
3 points by attending all the in-class quizzes;
The four exam scores are 18, 20, 25, and 26, you will get 71 (out of 78 points);
2 points from pretest/posttest;
Then your total score will be 20+3+71+2 = 96 and your letter grade will be A (because 96 lies in between 93 and 96.9, the range for letter grade A).

The final grade will be further curved before converting to the letter grade, to better represent the class performance among all sections.

Course & Instructor Policies

1. Explanation on Homework *(22 points equally distributed among 11 assignments)*

Homework will be given via the Modified Mastering Physics portal **www.masteringphysics.com**

- Go to the website, login as a student and follow the instructions.
- My course ID for this class is **zhang77206**.
- The course title is: Mechanics PHYS 2325.006 Spring 2023
- **Make sure the name you enrolled on the website matches your name of record.**
- No handwritten homework will be accepted.
- HW assignments are generally released on **Thursday at 11:59PM CT** and are **due at 10:59PM CT on the Sunday of the following week**. Therefore, you have about 10 days to finish each HW.
- Late submission penalty. Credit will be reduced by 1% for every hour (rounded to the closest hour) that the homework is late.
- I strongly recommend you to print out your homework problems and do the work on your printouts. It is a convenient way to keep everything together. Successful students have done this in the past.
- You will be allowed to **20 (!) attempts** per question.
- You are welcome to work together on homework but everyone must do your own problems. You will notice everyone has different numbers.

2. Explanation on In-Class Quizzes/Attendance (3 points)

There will be about 4-5 random in-class quizzes as extra credit. A total of 3 credit points will be given. The way how points are given will be up to the instructor.

This quiz will be in open-book. Students can discuss or work in groups. Each in-class quiz will last less than 10 minutes. Performance on these in-class quizzes does **NOT** affect the credit one earns. Students will earn the credit for each quiz by simply completing it in class.

Attendance is not mandatory but students missing class without documented reason automatically waive their right to any extra credit work and/or quizzes that might be offered during class.

3. Explanation on 4 Exams (78 points)

* The 4 exams will be given, each with 26 points (including the final exam), during the lecture time in the classroom. They will be in closed book. You can see preliminary exam dates from the calendar above. The exam dates are subject to change. If anything changes, announcements will be made in class and on eLearning.

* Exams will involve multiple choice and fill-in-blank problems. Partial credit for the fill-in-blank problems is allowed when relevant work is shown.

* Formulas sheet will be provided a couple days before exams. You must know the concepts and vocabulary for the exams. Exams will be mainly based on in-class examples and homework.

* Each exam will have 26 points. Your grade of the 4 exams will be the sum of the top 3 grades amongst 4. The maximum possible score for the 4 exams is 78. For example, if your grades for the 4 exams are 10, 20, 25, and 26, then you will get 20+25+26=71 (out of 78 points).

If you miss one of the four exams, your grade will be the sum of the three exams taken.
If you miss two of them, your grade will be the grade of the two exams taken. If you miss three of them, your grade will be the grade of the one exam taken.

None of the 4 exams will cover the material before the previous exam. For example, Exam #2 will covers the lectures after exam #1 and before exam #2. The exams are mainly based on lectures and homework.

Makeup exams will only be given under exceptional circumstances with well documented reasons beyond the students' control. Requests should be made to the instructor at least one week before each scheduled exam. Students that need this arrangement are expected to justify the reason of your absence. Makeup exams may have different problem sets from the original exams.

* <u>During exams.</u>
- Please, be kind to your classmates (and the instructor) and avoid interruptions by **turning off** your cell phones, laptops, and other **electronics** during lectures (those with documented medical needs are exempt from this requirement). Also, you are asked to arrive and leave on time.
- **Valid picture ID** (Comet card or drivers license) must be on your desk during exams. These will be checked.
- Calculators will be necessary for all exams. Graphing calculators and programmable calculators will not be allowed in the exams. Calculators should not have text function. A little scientific calculator that has trig functions can be obtained very inexpensively ($10-$20) and should be all that is used during exams.

* <u>After exams.</u>
Any question about an exam grade must be addressed <u>within two weeks</u> after the grade is posted. After that all grades are final.

4. Explanation on Pretest/Posttest (2 credit points)

You have the opportunity to do two quizzes as part of your introductory physics course. The quizzes consist of multiple choice questions and are useful to the department in gathering information about the effectiveness of our courses. There are two extra credit points associated with the two tests. **You will receive a credit point by simply taking each quiz**—your grade will NOT depend on your performance. **There is no penalty for not taking these two quizzes.**

Test window for the two quizzes (The exact name for the exam section on eLearning sites might be slightly different depending on the display settings that are selected by eLearning):

Exam Section Instructor	Exam Section	Exam Name	Exam Start Date	Exam End Date	Exam Start/End Time	Exam Type	Exam Duration (Min)
Paul Mac Alevey	PHYS 2325.706	Pretest	1/17/2023	1/27/2023	During Center's Hours	Online	60
		Posttest	4/11/2023	4/21/2023			

The quizzes will be taken at the testing center on the first floor of the Synergy Park North 2 building (SPN2). Students register for the quizzes at https://ets.utdallas.edu/testing-center. If you really need to do the test at the OSA test center, please send your accommodation letter to Dr. Alevey (paulmac@utdallas.edu) and he can help you with this request. The test is delivered through eLearning, but on an eLearning site (with Dr. Paul Mac Alevey as the instructor) separate from the one used for lectures of this class. The quizzes are not available to be done without an in-person proctor.

The test center requires students to reserve the test time online at least **48 hours before the intended exam time**. For example, if you are taking an exam on Monday, May 23rd @ 1:00 P.M., you should have completed your registration before/by Saturday, May 21st @ 12:59 P.M. This means that you cannot register two days before the end of the above test windows. It is strongly recommendly to reserve a time for the posttest while reserving a time for the pretest (to avoid the possibility of forgetting to arrange the posttest near the end of the semester and losing the opportunity of obtaining the extra credit).

Please refer to the testing center guidelines on how to schedule, reschedule, cancel your test and how to take it during your scheduled time: https://ets.utdallas.edu/testing-center/students/

Tests are unavailable when the test center is not open (open hours are listed in the test center page: https://ets.utdallas.edu/testing-center) or when the test center is fully reserved. These tests help inform the department what you had known before taking the class and how much you have progressed after taking the class. So please avoid guessing at answers. Your grade on these two quizzes will NOT depend on your performance, you will earn the credit by simply taking the quizzes.

Each quiz will finish 1 hour after you click ‘Begin Assessment’. You must complete the quiz in a single interval of 1 hour or less.

Class Materials

The instructor may provide class materials that will be made available to all students registered for this class as they are intended to supplement the classroom experience. These materials may be downloaded during the course, however, these materials are for registered students' use only. Classroom materials may not be reproduced or shared with those not in class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Attendance

The University’s attendance policy requirement is that individual faculty set their course attendance requirements. Regular and punctual class attendance is expected. Students who fail to attend class regularly are inviting scholastic difficulty. In some courses, instructors may have special attendance requirements; these should be made known to students during the first week of classes.

Class Participation

Regular class participation is expected. Students who fail to participate in class regularly are inviting scholastic difficulty. A portion of the grade for this course is directly tied to your participation in this class. It also includes engaging in group or other activities during class that solicit your feedback on homework assignments, readings, or materials covered in the lectures (and/or labs). Class participation is documented by faculty. Successful participation is defined as consistently adhering to University requirements, as presented in this syllabus. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Class Recordings

Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Unless the Office of Student AccessAbility has approved the student to record the instruction, students are expressly prohibited from recording any part of this course. Recordings may not be published, reproduced, or shared with those not in the class, or uploaded to other online environments except to implement an approved Office of Student AccessAbility accommodation. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

Comet Creed

This creed was voted on by the UT Dallas student body in 2014. It is a standard that Comets choose to live by and encourage others to do the same:

"As a Comet, I pledge honesty, integrity, and service in all that I do."

Academic Support Resources

The information contained in the following link lists the University's academic support resources for all students.

Please see http://go.utdallas.edu/academic-support-resources.

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus. Please review the catalog sections regarding the credit/no credit or pass/fail grading option and withdrawal from class.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.