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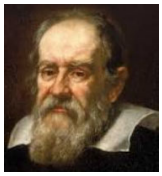


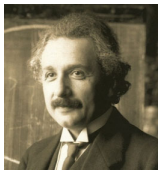

Course Syllabus – PHYS2325 Mechanics

Course Information

PHYS-2325-001-20F, Mechanics, Fall 2020, Online Course.
Recorded lectures will be posted on eLearning and a live-online discussion will take place on every Thursday at 11:30 to 12:45 to summarize the content covered during the week as well as a questions & answers session.

Due to the COVID19 situation, this course if offered online. We will use eLearning to post recorded lectures and all course material. We will use MS Teams and/or Blackboard Collaborate and possibly other available platforms that are accessible to students for live discussion, recitations and office hours. Mandatory online recitation are on Friday 11:30am-12:30pm and 2:30-3:30pm.

Professor Contact Information

Dr. Mustapha Ishak-Boushaki, Professor of Physics and Astrophysics
Office: SCI 3.257K in the Department of Physics
Email: mishak@utdallas.edu. Url and research web page: http://www.utdallas.edu/~mishak/
Office hours: Thursdays from 12:45 PM to 2:00 PM plus by appointment. All via MS Teams

Teaching Assistant Contact Information: All office hours via MS Teams
Anish Agashe: Anish.Agashe@utdallas.edu (primary TA for this section)
Chinthak Muralli: cxm170013@utdallas.edu (primary TA for this section)
Mazhar Iqbal: Mazhar.Iqbal@UTDallas.edu

TA Office hours	Monday	Tuesday	Wednesday	Thursday	Friday
10:00AM-11:00AM	Chinthak	Anish	Mazhar	----	Chinthak
4:00PM- 5:00PM	Mazhar	Anish	Mazhar	Anish	Chinthak

IMPORTANT: *All students are strongly encouraged and expected to attend regularly online office hours set by the professor and TAs in order to ask questions about homework assignments, examples given in class/book and lectures.* ***All office hours will be help online on eLearning Collaborate.***

Additional learning resources for students:

Supplemental Instruction (SI) is offered for this course. SI sessions are collaborative group study sessions, scheduled two times per week. Sessions are facilitated by SI Leader Jacob Villarreal (jiv170130@utdallas.edu). Attendance is voluntary. For information about the days, times, and locations for SI sessions, refer to http://www.utdallas.edu/studentsuccess/help-with-courses/supplemental-instruction/. *Additional Peer Tutoring (PT)* is also available through the student success center. See https://www.utdallas.edu/studentsuccess/help-with-courses/peertutoring/ for info. Typically led by some math and/or physics students.

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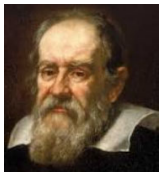


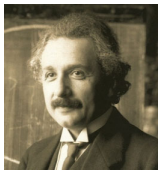

Course Description

PHYS 2325 Mechanics (3 semester hours) Calculus based. Basic physics including a study of motion in 3 dimensions, kinematics, forces, energy, momentum, conservation laws, rotational motion kinematics and dynamics, torques, harmonic oscillations and waves. Course pre-requisite: MATH2413 or MATH2417; course co-requisite: (MATH2414 or MATH2419) and (PHYS2121 or PHYS2125)

Student Learning Objectives and Outcomes:

The students are expected to know and to be able to do by the end of this course the following:

- Addition, scalar multiplication, and vector multiplication of vectorial physical quantities such as forces.
- Understand the components of linear motion (displacement, velocity, acceleration) especially motion under conditions of constant acceleration
- Understand the different forces and work force problems
- Understand Newton‘s laws of motion and how to apply them to physical problems
- Understand the different types of energy
- Use the conservation of energy to solve problems
- Understand impulse, momentum and collisions, and how to use them to solve problems
- Understand center of mass and rigid bodies motion
- Understand rotational kinematics and dynamics and the relationship between linear and rotational motion
- Be able to solve problems using rotational and linear variables
- Understand and work with equilibrium situations including the different types of equilibrium.
- Understand simple harmonic motion and its applications
- Understand wave physics, properties, and some applications

Other broad learning outcomes:

- Students completing this course are expected to be able to convey knowledge of the principles of physics and be able to use these principles to solve problems in real life
- Students are also expected to develop the habit and approach of thinking before calculating in order to solve problems.

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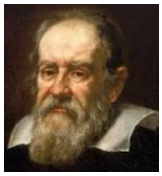


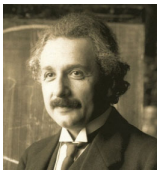

Class Schedule

	Contents	Chapter Y&F	Demos and/or videos in class
	Introduction, Units, Physical Quantities	1	physics is everywhere slides
	Vectors	1	Arrows demo
	1D Motion, Displacement, Velocity, Acceleration	2	free fall video
	1D Motion, non-constant acceleration	2	ball and feather race
	2D Motion and 3D motion	3	Lasso, 2-ball dropout
	2D Motion and 3D motion	3	projectile with angle readout
	Forces and Newton‘s Laws	4	Magic pucks
	Forces and Newton‘s Laws	4	incline board
	Application of Newton‘s Laws	5	static and kinetic friction
	Application of Newton‘s Laws	5	terminal velocity skydiving video
	Exam 1: Thursday September 24th (Chap 1-5)	**tentative**	
	Work and kinetic energy	6	rewinding a toy-car video
	Work and kinetic energy	6	or demonstration
	Potential energy and energy conservation	7	multiple curve marble track
	Potential energy and energy conservation	7	giant pendulum
	Momentum, Impulse, and Collisions	8	air track & gliders with and
	Momentum, Impulse, and Collisions	8	without magnets; collision applets
	Exam 2: Thursday October 22nd (Chap 6-8)	**tentative**	
	Rotation motion kinematics and moment of inertia	9	air turntable; bicycle wheel;
	Rotation motion kinematics and moment of inertia	9	round objects race on incline
	Dynamics of rotational motion, torque, angular Momentum	10	Rotating stool & weights
	Dynamics of rotational motion, torque, angular Momentum	10	Rotating stool & bicycle wheel
	Simple Harmonic Motion and Periodic motion	14	Giant pendulum; springs
	Simple Harmonic Motion and Periodic motion	14	air table and spring oscillators
	Waves	15	Tacoma bridge video
	Waves	15	standing waves on strings
	Exam 3: Tuesday November 24th (Chap 9, 10, 14, and parts of Chap 15)	**tentative**	

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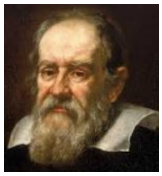


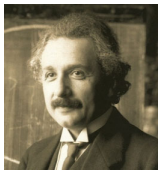

Required Textbooks and Materials: *University Physics*, by Young & Freedman (any edition from 12th, 13th, 14th, or 15th will work). Lecture slides and hand-written notes of problems solved in class will be made available on eLearning. You will need to purchase an access key for mastering physics homework and practice website at www.pearsonmylab.com. This is associated with the course textbook. The key can be purchased directly on the site, or as a bundle with the textbook or eText. Explore your most economical option and Keep in mind that you may need volume 2 or the whole book later for PHYS 2326.

Assessments, Assignments & Academic Calendar

Mandatory recitation sessions: Each student must attend one of the two mandatory recitation sessions they registered for. Students will practice and solve problems in a mentored environment followed by solutions presented by the instructors.

Readings: **It is very important to read the lecture slides, the notes, and watch the recordings posted on eLeaning before the weekly discussion session on Thursday.** Look the schedule given above in order to find the corresponding chapters in the textbook to supplement with readings in the book and additional examples in the book (University Physics, Any edition, by Young & Freedman).

Homework: Assignments are given weekly for each chapter on the website http://www.masteringphysics.com. Student login information to this site is provided with the purchase of the key. Follow the instructions for students on the website (www.pearsonmylab.com) and use the course ID **ishak-boushaki46596**. **Important:** use your first name and last name *exactly* as they appear on the UTD class roster when you create your account on mastering physics website. All homework assignments will be graded online and no handwritten homework will be accepted. Homework must be done by the student and only the student. Any academic dishonesty on homework, quizzes, or exams will be reported to the and prosecuted

Exams: 3 non-cumulative exams will be given online and using the proctoring system honorlock during the classroom discussion time (see course schedule above for tentative dates that will be discussed in class). More information will be provided about honorlock system in class.

Grading Policy:

Online homework (30%). Late hw drops 20% per day. 3 exams (20% each for a total of 60%). A small project "Physics in Movies (description is posted to eLearning)" (8%). Attendance (2%).

Grade scale: This is for guidance and the cutting points between grades may slightly change as needed: A+: 97-100; A: 93-96; A−: 90-92; B+: 87-89; B: 83-86; B−: 80-82; C+: 77-79; C: 73-76; C−: 70-72; D+: 67-69; D: 63-66; D−: 60-62; F: below 60.

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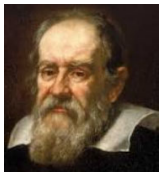
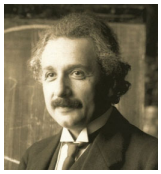


Course & Instructor Policies

Exams: Students must have with them a valid picture ID to the exam. Scientific calculators that have trig functions will be allowed in the exam but graphing calculators and programmable calculators will not be allowed. Makeup exams will be offered only in the case of very good and documented medical reasons (or very exceptional and documented personal reasons.) All exams will be closed book and a formula sheet will be provided with the exam. Any student involved in cheating will be reported to the Dean and prosecuted. Exams will be online and proctored using Honorlock system that requires a webcam.

Cell phones: Please do not have cell phones ring during class.

Webcams: Students are required to have a webcam for the discussion session, the recitation session and the three exams.

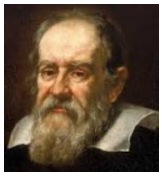
Recordings and student code of conduct. Lectures and sessions in this online course will be recorded. Any recordings will be available on eLeaning to all students registered for this class as they are intended to supplement the classroom sessions. Students are expected to follow appropriate University policies and maintain the security of passwords used to access recorded lectures. Recordings may not be published, reproduced, or shared, or uploaded to other online environments. This very important. Also, if the instructor or a UTD school/department/office plans any other uses for the recordings, consent of the students identifiable in the recordings is required prior to such use unless an exception is allowed by law. Failure to comply with these University requirements is a violation of the Student Code of Conduct.

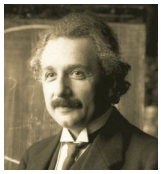
Academic Integrity

The faculty expects from its students a high level of responsibility and academic honesty. Because the value of an academic degree depends upon the absolute integrity of the work done by the student for that degree, it is imperative that a student demonstrate a high standard of individual honor in his or her scholastic work.

Scholastic dishonesty includes, but is not limited to, statements, acts or omissions related to applications for enrollment or the award of a degree, and/or the submission as one‘s own work or material that is not one‘s own. As a general rule, scholastic dishonesty involves one of the following acts: cheating, plagiarism, collusion and/or falsifying academic records. Students suspected of academic dishonesty are subject to disciplinary proceedings.

Plagiarism, especially from the web, from portions of papers for other classes, and from any other source is unacceptable and will be dealt with under the university‘s policy on plagiarism (see general catalog for details). This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.



Email Use

The University of Texas at Dallas recognizes the value and efficiency of communication between faculty/staff and students through electronic mail. At the same time, email raises some issues concerning security and the identity of each individual in an email exchange. The university encourages all official student email correspondence be sent only to a student‘s U.T. Dallas email address and that faculty and staff consider email from students official only if it originates from a UTD student account. This allows the university to maintain a high degree of confidence in the identity of all individual corresponding and the security of the transmitted information. UTD furnishes each student with a free email account that is to be used in all communication with university personnel. The Department of Information Resources at U.T. Dallas provides a method for students to have their U.T. Dallas mail forwarded to other accounts.

Withdrawal from Class

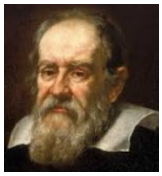
The administration of this institution has set deadlines for withdrawal of any college-level courses. These dates and times are published in that semester's course catalog. Administration procedures must be followed. It is the student's responsibility to handle withdrawal requirements from any class. In other words, I cannot drop or withdraw any student. You must do the proper paperwork to ensure that you will not receive a final grade of "F" in a course if you choose not to attend the class once you are enrolled.

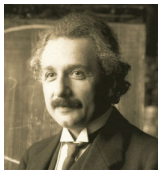
Student Grievance Procedures

Procedures for student grievances are found in Title V, Rules on Student Services and Activities, of the university‘s Handbook of Operating Procedures.

In attempting to resolve any student grievance regarding grades, evaluations, or other fulfillments of academic responsibility, it is the obligation of the student first to make a serious effort to resolve the matter with the instructor, supervisor, administrator, or committee with whom the grievance originates (hereafter called ―the respondent‖). Individual faculty members retain primary responsibility for assigning grades and evaluations. If the matter cannot be resolved at that level, the grievance must be submitted in writing to the respondent with a copy of the respondent‘s School Dean. If the matter is not resolved by the written response provided by the respondent, the student may submit a written appeal to the School Dean. If the grievance is not resolved by the School Dean‘s decision, the student may make a written appeal to the Dean of Graduate or Undergraduate Education, and the deal will appoint and convene an Academic Appeals Panel. The decision of the Academic Appeals Panel is final. The results of the academic appeals process will be distributed to all involved parties.

Copies of these rules and regulations are available to students in the Office of the Dean of Students, where staff members are available to assist students in interpreting the rules and regulations.



Incomplete Grade Policy

As per university policy, incomplete grades will be granted only for work unavoidably missed at the semester‘s end and only if 70% of the course work has been completed. An incomplete grade must be resolved within eight (8) weeks from the first day of the subsequent long semester. If the required work to complete the course and to remove the incomplete grade is not submitted by the specified deadline, the incomplete grade is changed automatically to a grade of F.

Disability Services

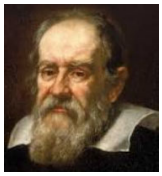
The goal of Disability Services is to provide students with disabilities educational opportunities equal to those of their non-disabled peers. Disability Services is located in room 1.610 in the Student Union. Office hours are Monday and Thursday, 8:30 a.m. to 6:30 p.m.; Tuesday and Wednesday, 8:30 a.m. to 7:30 p.m.; and Friday, 8:30 a.m. to 5:30 p.m. The contact information for the Office of Disability Services is: The University of Texas at Dallas, SU 22 PO Box 830688, Richardson, Texas 75083-0688 (972) 883-2098 (voice or TTY)

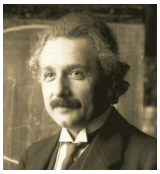
Essentially, the law requires that colleges and universities make those reasonable adjustments necessary to eliminate discrimination on the basis of disability. For example, it may be necessary to remove classroom prohibitions against tape recorders or animals (in the case of dog guides) for students who are blind.

Occasionally an assignment requirement may be substituted (for example, a research paper versus an oral presentation for a student who is hearing impaired). Classes enrolled students with mobility impairments may have to be rescheduled in accessible facilities. The college or university may need to provide special services such as registration, note-taking, or mobility assistance. It is the student‘s responsibility to notify his or her professors of the need for such an accommodation. Disability Services provides students with letters to present to faculty members to verify that the student has a disability and needs accommodations. Individuals requiring special accommodation should contact the professor after class or during office hours.

Religious Holy Days

The University of Texas at Dallas will excuse a student from class or other required activities for the travel to and observance of a religious holy day for a religion whose places of worship are exempt from property tax under Section 11.20, Tax Code, Texas Code Annotated. The student is encouraged to notify the instructor or activity sponsor as soon as possible regarding the absence, preferably in advance of the assignment. The student, so excused, will be allowed to take the exam or complete the assignment within a reasonable time after the absence: a period equal to the length



of the absence, up to a maximum of one week. A student who notifies the instructor and completes any missed exam or assignment may not be penalized for the absence. A student who fails to complete the exam or assignment within the prescribed period may receive a failing grade for that exam or assignment. If a student or an instructor disagrees about the nature of the absence [i.e., for the purpose of observing a religious holy day] or if there is similar disagreement about whether the student has been given a reasonable time to complete any missed assignments or examinations, either the student or the instructor may request a ruling from the chief executive officer of the institution, or his or her designee. The chief executive officer or designee must take into account the legislative intent of TEC 51.911(b), and the student and instructor will abide by the decision of the chief executive officer or designee.

These descriptions and timelines are subject to change at the discretion of the Professor.