Course Syllabus

Course Information

PHYS-2325-0U1, Mechanics, Summer 2008, TR 10:00-12:15 a.m., room FN 2.102

Professor Contact Information

Professor Mustapha Ishak-Boushaki,
Office: FN2.314A
Email: mishak@utdallas.edu
url1: http://www.utdallas.edu/nsm/physics/faculty/ishak-boushaki.html
url2: http://www.utdallas.edu/~mishak
Office hours: Tuesday and Thursday (during the one hour following class). Come to see me at the end of the class and then we will walk to my office (or by appointment). Adjustments to the office hours will be made after the first class.

Teaching assistant and SI: TA (Jacob Moldenhauer) and SI (`Casper Woroszylo`) information will be given during second week of class.
IMPORTANT: *All the students are encouraged and expected to go to the office hours set by the TA in order to ask questions about the homework assignments the examples given in the book and the lectures. Also, students are encouraged and expected to attend regularly the SI sessions. The TA and SI will make a written list of presence/attendance for each session and the lists will be collected by the professor*

Course Pre-requisites, Co-requisites, and/or Other Restrictions

Pre-requisite: MATH2417 Co-requisite: PHYS2125

Course Description

PHYS 2325 Mechanics (3 semester hours) Calculus based. Basic physics including a study of space and time, kinematics, forces, energy and momentum, conservation laws, rotational motion, torques, and harmonic oscillation.

Class Schedule

		Contents	Reading Chapters
		Introduction, Units, Physical Quantities	**1**
		Vectors	**1**
		1D Motion, Velocity, Acceleration	**2**
		1D Motion, non-constant acceleration	**2**
		2D Motion and 3D motion	**3**

		2D Motion and 3D motion	**3**
		Forces and Newton's Laws	**4**
		Forces and Newton's Laws	**4**
		Application of Newton's Laws	**5**
		Application of Newton's Laws	**5**
		Exam 1: (chapters 1-5)	
		Exam solution; Work and kinetic energy (introduction)	
		Work and kinetic energy	**6**
		Work and kinetic energy	**6**
		Potential energy and energy conservation	**7**
		Potential energy and energy conservation;	**7**
		Momentum, Impulse, and Collisions	**8**
		Momentum, Impulse, and Collisions	**8**
		Rotation and moment of inertia	**9**
		Rotation and moment of inertia	**9**
		Dynamics of rotational motion (Torque, Rolling, angular momentum)	**10**
		Dynamics of rotational motion (Torque, Rolling, angular momentum)	**10**
		Exam 2	
		Simple Harmonic Motion and Periodic motion	**13**
		Simple Harmonic Motion and Periodic motion	**13**
		Waves, Sound	**15,16**
		Waves, Sound	**15,16**
		Exam 3	

Student Learning Objectives/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 work 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

Assessment:

The objectives above would have been assessed the semester as follows:

- ❖ All objectives have corresponding questions on the three exams
- ❖ Students are given questions as homework assignments and in-class quizzes that align with these objectives. All objectives are assessed through answers to these questions.

Required Textbooks and Materials: University Physics, 12th edition, by Young & Freedman (It is very important to read before class the chapters that will be covered)

Online resources and homework: http://www.masteringphysics.com (Course ID: MPISHAKBOUSHAKI0009. Use this site for homework, practice exercises, and problems.

Assignments & Academic Calendar

Readings: It is very important to read, before class, the chapters that will be covered. Look for the schedule given above in order to find the corresponding chapters in the textbook, University Physics, 12th edition, by Young & Freedman

Homework: Assignments are given for each chapter on the website http://www.masteringphysics.com and will be announced in class weekly. Student login information to this site is provided with the purchase of the textbook. If you have a used book, the login information kit can be purchase from the publisher (Addison-Wesley). Follow the instructions for students on the website and use the course ID `MPISHAKBOUSHAKI0009`. For your student ID use the first 3 letters of your first name + the first 3 letters of your last name. All homework assignments will be graded and no handwritten homework will be accepted. Homework must be done by the student and only the student. Any academic dishonesty in doing your homework will be reported to the dean and prosecuted.

Grading Policy
(including percentages for assignments, grade scale, etc.)

Online homework (20%), Quizzes (20%), 3 exams (20% each). First exam date: mid-June. Second exam date: mid-July. Third Exam: fixed and posted on the university final exam schedule (11:00am Tuesday, August 12 BUT YOU NEED TO DOUBLE CHECK IT AS WE GET CLOSER). Will be confirmed by professor later during the course.

Course & Instructor Policies
(make-up exams, extra credit, late work, special assignments, class attendance, classroom citizenship, etc.)

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

Getting up and leaving during class: If you have a legitimate reason to leave during class, sit by the door to minimize the class disruption

Laptops: If you really need a laptop to take notes for the class than you must sit in the last row so you don't disturb other students. Using Laptops for other purposes during class is not allowed.
Exams: Students must bring 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.

Student Conduct & Discipline

The University of Texas System and The University of Texas at Dallas have rules and regulations for the orderly and efficient conduct of their business. It is the responsibility of each student and each student organization to be knowledgeable about the rules and regulations which govern student conduct and activities. General information on student conduct and discipline is contained in the UTD publication, *A to Z Guide*, which is provided to all registered students each academic year.

The University of Texas at Dallas administers student discipline within the procedures of recognized and established due process. Procedures are defined and described in the *Rules and Regulations, Board of Regents, The University of Texas System, Part 1, Chapter VI, Section 3*, and in Title V, Rules on Student Services and Activities of the university's *Handbook of Operating Procedures*. 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 (SU 1.602, 972/883-6391).

A student at the university neither loses the rights nor escapes the responsibilities of citizenship. He or she is expected to obey federal, state, and local laws as well as the Regents' Rules, university regulations, and administrative rules. Students are subject to discipline for violating the standards of conduct whether such conduct takes place on or off campus, or whether civil or criminal penalties are also imposed for such 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.