Course Syllabus

Course Information

Course Number/Section	PHYS 2325/501
Course Title	Mechanics
Term	Fall, 2008
Days & Times	MW 5:30-6:45 FN 2.102

Professor Contact Information

Professor	Robert C. Hilborn
Office Phone	883-4726
Email Address	rhilborn@utdallas.edu
Office Location	FN 3.308H
Office Hours	To be announced

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

Pre-requisite: MATH 2417
Co-Requisite: PHYS 2125

Course Description

Physics 2325 is the first semester of the calculus-based introductory physics sequence. This course focuses on the topics of mechanics (the study of motion) and waves. We will emphasize developing both conceptual understanding and problem-solving skills for these topics and understanding how they fit into the broader picture of science. From this course you should learn:

- Many of the basic principles of physics.
- How to apply those principles to scientific problem solving.
- How to understand the physics in many kinds of applications.

Student Learning Objectives/Outcomes

By the end of this course, students should be able to explain and apply the following concepts:

1. Position, displacement, velocity and acceleration for linear motion.
2. The relationship between force and acceleration.
3. Kinetic and potential energy.
4. Conservation of energy.
5. Momentum and impulse.
6. Conservation of momentum.
7. Center of mass.
8. Rotation of rigid objects.
9. Position, displacement, velocity, and acceleration for rotational motion.
10. Torque and angular acceleration.
11. Static equilibrium conditions.
12. Newton's law of gravitation.
13. Periodic and simple harmonic motion.

14. Wave motion.
15. Sound waves.
16. Application of appropriate mathematics to the description and analysis of physics situations (vectors and calculus).

Assessment of student learning objectives:
All of the learning objectives will appear as questions on homework problems, quizzes, and exams. The exams and quizzes will be constructed so that the grades reflect the following levels of performance:

C = able to repeat basic definitions and apply concepts and physical principles to situations identical or very similar to ones covered in the textbook and in class.
B = able to apply concepts and physical principles to situations that are different from those covered in the textbook and in class.
A = able to integrate several concepts and principles to analyze novel, more complex physical situations.

Required Textbooks and Materials

Required Texts
University Physics, 12th Edition, Vol. 1 (with MasteringPhysics), Young and Freedman (Pearson Addison-Wesley, 2008). Available at the University Bookstore.

WebCT and MasteringPhysics (Required)

WebCT
Much class information including the syllabus, links to sample exam questions, *etc.* will be posted on WebCT. You should check the course WebCT site frequently. See On-Line Quizzes below.

MasteringPhysics
There will be a weekly homework assignment usually consisting of 8 to 10 problems on the on-line MasteringPhysics web site. You need to register on-line for MasteringPhysics (www.masteringphysics.com) using the code that came with your text book. If for some reason you do not have that code, you must then purchase access on-line with a credit card. Our course ID is **PHYS2325HILBORN** (no spaces). The problems will usually be posted at least four days before the assignment due date. You can complete part of the assignment and then come back later to finish up. The system will remember your earlier responses. You are encouraged to work with other Physics 2325 students in figuring out how to solve the homework problems. But you should do all of the calculations yourself. (For many problems, different students will have different numerical values for a problem.) Homework will normally be due by 11 pm on **Sundays**. **No late homework will be accepted.** See the comments about homework under Grading Policies.

Please work through the Introduction to MasteringPhysics tutorial (given as Assignment 1 with no assigned credit) to learn the features of the system by **11pm Friday August 29**. The tutorial will be available all semester in case you need to review the basics, but

MasteringPhysics has an extensive help system that should be useful in case you forget some details.

On-Line Quizzes – Every Lecture Day
You are expected to read the relevant sections in the textbook **before** coming to class. (See the course schedule below.) Beginning on **Wednesday, August 27, 2008**, and every lecture day following, you will be assigned a brief on-line quiz on the reading material. These quizzes are taken via the WWW using WebCT and must be completed no later than 3:30 pm on class days. The quizzes will usually be posted at least 24 hours in advance in the course's Assessments folder.

CPS. We will be using electronic Classroom Performance System "clickers" in every lecture. Please purchase a clicker at the University Technology Store. You will need to activate your clicker via the einstruction.com web site (see the back of the clicker box). Information about recording your clicker serial number in WebCT will be provided later. Each student must have his or her own clicker. That will allow us to give you credit for your in-class responses.

Lectures
The course will have two weekly lecture meetings each lasting 75 minutes. The "lecture" will consist of a mix of presentations and demonstrations led by the instructor along with active discussion, using CPS clickers, and problem-solving by the students. Since the lectures will be dealing with material not treated directly in the textbook, attendance at lectures and reading the text **before** class is essential for success in the course. Lecture notes will be posted on WebCT normally 24 hours before the class meeting time in the Course Content – Lecture Notes folder.

Assignments & Academic Calendar

Physics 2325 **Fall Semester, 2008**

Tentative Class Schedule

Lecture	Date	Reading (Young and Freedman)	Topics
1	Aug. 25	Ch. 1	Introduction
2	Aug. 27	Ch. 2	Description of Motion
	Sept. 1	**Labor Day – no class**	
3	Sept. 3	Ch. 2	Linear Motion
4	Sept. 8		Linear Motion
5	Sept. 10	Ch. 3	Motion in 2 and 3 Dimensions
6	Sept. 15		Motion in 2 and 3 Dimensions
7	Sept. 17	Ch. 4	Newton's Laws of Motion
8	Sept. 22		Newton's Laws of Motion
9	Sept. 24	Ch. 5	Applying Newton's Laws
10	Sept. 29		Applying Newton's Laws
11	Oct. 1	**Exam 1**	Chapters 1-5
12	Oct. 6	Ch. 6	Work and Kinetic Energy
13	Oct. 8		Work and Kinetic Energy
14	Oct. 13	Ch. 7	Potential Energy
15	Oct. 15		Conservation of Energy
16	Oct. 20		Conservation of Energy
17	Oct. 22	Ch. 8	Momentum, Impulse
18	Oct. 27		Collisions
19	Oct. 29	Ch. 12	Gravitation
20	Nov. 3	**Exam 2**	Chapters 6-8, 12
21	Nov. 5	Ch. 9	Rotation
22	Nov. 10		Rotation
23	Nov. 12	Ch. 10	Rotational Dynamics
24	Nov. 17		Rotational Dynamics
25	Nov. 19	Ch. 11	Equilibrium
26	Nov. 24	Ch. 13	Periodic Motion
27	Nov. 26		Periodic Motion
	Nov. 27-30	**Thanksgiving Break**	
28	Dec. 1	Ch. 15	Waves
29	Dec. 3	Ch. 15, 16	Waves and Sound
30	Dec. 8		Sound
	Dec. 11-17	**Final Exams**	Chapter 9-11, 13-16

FINAL EXAMINATION: **5-8 pm Wednesday, December 17.**

Grading Policy
We will use the following weightings in determining your grades:

One-hour tests (each 200 points)	400 points
Final Examination	300 points
Pre-class WebCT quizzes	75 points
Lecture Participation (PRS)	75 points
Homework	150 points
Total	1000 points

To receive the full 75 points for the Pre-class quizzes, you must have a score of 85% (or higher). (That allows you to miss a few of the Pre-class quizzes and will accommodate any computer difficulties that may arise.) Similarly, full credit for the MasteringPhysics homework is achieved with a score of 90% (or higher), again to accommodate any computer difficulties.

Grading will **not** be done on a "curve." Course grades will be assigned according to the following point scale:

962-1000	A^+
920-961	A
878-919	A^-
836-877	B^+
794-835	B
752-793	B^-
710-751	C^+
668-709	C
626-667	C^-
584-625	D^+
542-583	D
500-541	D^-
less than 500 points	F

Course Policies
Exams
You must bring a valid picture ID to the exams. Scientific calculators with trig functions are permitted, but graphing calculators or other programmable calculators are not allowed (nor are they needed). All exams will be closed book and closed notes. A formula sheet will be provided with the exam (and will be available in advance of the exam). Please read the statement on Academic Integrity below for important information.

Make-up exams
Make-up exams will be available only for extreme emergencies. A note from a medical doctor or the Dean of Students is required before arrangements for a make-up exam can be made.

Late Work
No late homework is accepted. See the notes under grading policies.

Class Attendance
Not formally required, but we will be using a personal response system and class discussions for which you will earn points.

Classroom Citizenship
Most students find physics to be an exciting, but challenging subject. So, we need to make the most effective use of class time. I ask you to do the following:

- Please turn off all cell phones and pagers during class.
- Please sit in the last few rows of the lecture room if you need to use your laptop computer. (This avoids unnecessary distractions for other students and keeps the noise level down.)
- Please sit in a seat near an exit if you know in advance that you will need to leave class early.

Technical Support

If you experience any problems with your UTD account you may send an email to: assist@utdallas.edu or call the UTD Computer Helpdesk at 972-883-2911.

Field Trip Policies / Off-Campus Instruction and Course Activities

Off-campus, out-of-state, and foreign instruction and activities are subject to state law and University policies and procedures regarding travel and risk-related activities. Information regarding these rules and regulations may be found at the website address http://www.utdallas.edu/BusinessAffairs/Travel_Risk_Activities.htm. Additional information is available from the office of the school dean. Below is a description of any travel and/or risk-related activity associated with this course.

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 printed 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, Series 50000, Board of Regents, The University of Texas System*, 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) and online at
http://www.utdallas.edu/judicialaffairs/UTDJudicialAffairs-HOPV.html

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, any student who commits an act of scholastic dishonesty is subject to discipline. Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts.

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.

Copyright Notice

The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted materials, including music and software. Copying, displaying, reproducing, or distributing copyrighted works may infringe the copyright owner's rights and such infringement is subject to appropriate disciplinary action as well as criminal penalties provided by federal law. Usage of such material is only appropriate when that usage constitutes "fair use" under the Copyright Act. As a UT Dallas student, you are required to follow the institution's copyright policy (Policy Memorandum 84-I.3-46). For more information about the fair use exemption, see http://www.utsystem.edu/ogc/intellectualproperty/copypol2.htm

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)
disabilityservice@utdallas.edu

If you anticipate issues related to the format or requirements of this course, please meet with the Coordinator of Disability Services. The Coordinator is available to discuss ways to ensure your full participation in the course. If you determine that formal, disability-related accommodations are necessary, it is very important that you be registered with Disability Services to notify them of

your eligibility for reasonable accommodations. Disability Services can then plan how best to coordinate your accommodations.

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.