**Syllabus: Physics 2325 - 501 – Fall 2005**
**MECHANICS AND HEAT**

**Lectures:** Monday and Wednesday, 5:30 p.m. – 6:45 p.m., FN 2.102

**Instructor:** Professor M. Ishak-Boushaki,
Office: FO2.716B
Email: mishak@utdallas.edu
url: http://www.utdallas.edu/~mishak
Office hours: Monday and Wednesday 10:30a.m. – 12:30p.m.
or by appointment made using email above.
Location: FO2.716B.

**Teaching assistant:** Steven Zandstra
Email: spz041000@utdallas.edu
Office Hours: Monday 3:30 – 5:30
Tuesday 3:00 – 5:00
Thursday 4:45-6:45

**Supplemental instruction:** Courtney Mathews

**Textbook:** University Physics, 11th edition, by Young & Freedman
(It is very important to read before class the sections that will be covered)

**Online resources and homework:** http://www.masteringphysics.com
(Course ID: MPISHAKBOUSHAKI0002). Use this site for homework, practice exercises, and problems.

**Course overview:** Mechanics and Heat Calculus based. Basic physics including a study of space and time, kinematics, forces, energy and momentum, conservation laws, rotational motion, torques, and harmonic oscillation. Prerequisite: MATH 2417 (1st semester Calculus).

**Grading:** Online homework (20%), Quizzes (20%), exams (2 X 20%), and the final exam (20%).

**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 MPISHAKBOUSHAKI0002. 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.

**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.

**Online web page for the course:** a web page for the course will be maintained at http://www.utdallas.edu/~mishak/courses/phys2325. Announcements and updates will be posted there on a regular basis.

**Tentative Class Schedule**

| Date | | Contents | Reading chapters |
|---|---|---|---|
| 08/22 | 1 | Introduction, Units, Physical Quantities | 1 |
| 08/24 | 2 | Vectors | 1 |
| 08/29 | 3 | 1D Motion, Velocity, Acceleration | 2 |
| 08/31 | 4 | 2D Motion and 3D motion | 3 |
| 09/07 | 5 | Forces and Newton's Laws | 4 |
| 09/12 | 6 | Forces and Newton's Laws | 4 |
| 09/14 | 7 | Application of Newton's Laws | 5 |
| 09/19 | 8 | Exam I: (chapters 1-5) | |
| 09/21 | 9 | Work and kinetic energy | 6 |
| 09/26 | 10 | Potential energy and energy conservation | 7 |
| 09/28 | 11 | Momentum, Impulse, and Collisions | 8 |
| 10/03 | 12 | Momentum, Impulse, and Collisions | 8 |
| 10/05 | 13 | Rotation and moment of inertia | 9 |
| 10/12 | 14 | Dynamics of rotational motion (Torque, Rolling, angular momentum) | 10 |
| 10/17 | 15 | Static equilibrium and Elasticity | 11 |
| 10/19 | 16 | Gravitation | 12 |
| 10/24 | 17 | Exam 2 (6-11) | |
| 10/26 | 18 | Simple Harmonic Motion | 13 |
| 10/31 | 19 | Fluid mechanics | 14 |
| 11/02 | 20 | Waves | 15 |
| 11/07 | 21 | Waves, Sound | 15,16 |
| 11/09 | 22 | Sound and hearing | 16 |
| 11/14 | 23 | Temperature and heat | 17 |
| 11/16 | 24 | First law of thermodynamics | 18,19 |
| 11/21 | 25 | Second law of thermodynamics, Engines & Refrigerators | 20 |
| 11/23 | 26 | Review | |
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| 11/30 | | Final Exam | |
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