PHYSICS OF SOUND AND MUSIC - PHYS 1406, Fall 2009

Instructor: Walter L. Borst, Professor of Physics
Office hours: MWF 9:45-11:15 p.m., SC 11, Tel. 742-3864, e-mail: Walter.Borst@ttu.edu

Lecture: Tuesday, Thursday 11:00-12:20 a.m., Science Room 10

Laboratory Sections, Science Room 302:
PHYS 1406-501 Monday 4:00-5:50 p.m.
PHYS 1406-502 Tuesday 2:00-3:30 p.m.
PHYS 1406-503 Wednesday 4:00-5:50 p.m.
PHYS 1406-504 Tuesday 4:00-5:50 p.m.

Textbook:
Recommended supplemental books for more detailed studies:
Donald E. Hall, Musical Acoustics, 3rd ed., may be available “inexpensively” online

Laboratory Manual:
Fall 2009 edition. Please purchase the manual at The Copy Outlet, 2402 Broadway Street,
Lubbock

Course Topics
Basic physics for acoustics and sound
Waves and harmonic motion
Analysis and synthesis of waves
Human hearing and voice
Sound intensities, decibel scale
Environmental sound and noise
Room acoustics
Elementary music theory, musical temperament
Musical instruments
In-class performances by students and music faculty
Sound recording and reproduction
Class demonstrations

Course Materials: Your lecture notes, class demonstrations, textbook, laboratory reports

Grades
3 Examinations, 15% each; homework=quizzes 15%; laboratory 20%; final examination 20%.

Grade Scale: 100-A-86-B-72-C-58-D-44-F-0
**Laboratory**
The laboratory is an important part of the course. We try to make it interesting. Attendance and doing the laboratory work is required. Attendance counts for 30% of the laboratory grade. A minimum laboratory score of 70% is required for passing the entire course.

**Homework and Quizzes.**
Homework will be assigned regularly – see the calendar for an approximate schedule. The homework will not be graded because of the large class size and manpower considerations. Do the homework carefully, know it for the quizzes! The homework due dates generally coincide with the quiz grades. Always be prepared for class. The quiz grades are the homework grades.

**Examinations**
The examinations are closed books. They cover concepts and applications from class, lecture notes (take good notes!), class demonstrations, laboratory, homework, and the textbook to the extent covered in class. You may bring a formula sheet with up to 20 formulas to the examinations, not the quizzes – formulas only, no words. Also bring a simple calculator and ruler. No make-up examinations will be given. In case of a serious emergency, please contact the instructor to find out how the missing grade will be determined.

**Attendance is required.**
Sign in at the beginning of class. So please be there a few minutes early. The class is large and the room is small. Please excuse yourself whenever you have to be absent. Otherwise, 1% off the course total for each unexcused absence.

**Important:** Spend at least 5 hours each week on this course outside of class.

**Examination, Laboratory, and other Dates:**  See Calendar

**Examination Security**
The examinations are made specifically for this semester. They include a copyright notice reserving all rights of reproduction and distribution.

**Disability**
Any student with a disabling condition, who may require special arrangements in order to meet course requirements, should contact the instructor as soon as possible so that necessary accommodations can be made. Proper documentation about the disability must be presented from the Dean of Student’s office.

**Academic honesty** is assumed and violations will be pursued according to the Student Handbook.

**Course objectives and expected learning outcomes:**
Learn some physical principles and be able to apply them to sound, acoustics, music, everyday life.

**Methods for assessing the learning outcomes:**
1. Examinations and grades.
2. Class discussions.
3. Feedback from students about the usefulness of the course.