PHYSICS OF SOUND AND MUSIC - PHYS 1406, Fall 2010

Instructor: Dr. Walter L. Borst, Professor of Physics
Office hours: MWF 9:45-11:15 a.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 Building, Room 302:
PHYS 1406-501 M 4:00-5:50 p.m.
PHYS 1406-502 W 4:00-5:50 p.m.
PHYS 1406-503 Tue 2:00-3:50 p.m.
PHYS 1406-504 Tue 4:00-5:50 p.m.

Textbook (required)

Course Guide (required)

Laboratory Manual (required)

The Course Guide and Laboratory Manual are available at The Copy Outlet, 2402 Broadway Street, Lubbock, telephone 744-7772.

Course Topics
Basic principles of acoustics, sound, and music
Harmonics and waves
Analysis and synthesis of sound
Voice and hearing
Musical instruments
Sound and noise in the environment
Architectural acoustics
Elementary music theory: scales and intervals
Music and instrument presentations by students and music faculty
Sound recording and reproduction
Many class demonstrations throughout the course

Course Materials
“Course Guide”, “Laboratory Manual”, textbook, your notes, laboratory reports, in-class demonstrations and experiments.
Grades
3 Examinations 45% total; homework=quizzes 20%; laboratory 15%; final examination 20%. 5% bonus added to course total for up to 5 music performances attended (see below).
Grade Scale: 100-A-86-B-72-C-58-D-44-F-0

Course Laboratories
The laboratories are an integral part of this course. Participation in all laboratories, including laboratory reports, is required. You need a laboratory score of 75% or higher to pass the course.

Homework and Quizzes
Homework is assigned regularly. You will be asked questions from the homework on the quizzes. Your quiz grades are your homework grades. Homework solutions are posted following the quizzes. For due dates of the homework and quiz dates, please see separate calendar.

Examinations
The examinations are closed books. They cover topics from class, the course guide, your lecture notes, in-class demonstrations, homework, and textbook (to the extent covered in class). You may bring your own formula sheet to the examinations, but not to the quizzes, containing formulas without words. Also bring with you a simple calculator and ruler. No make-up examinations generally are given. In case of a serious emergency, please contact Dr. Borst as soon as possible to find out how the missing grade will be determined.

Attendance at Music Performances
Attendance at performances by faculty and students of the Texas Tech School of Music is strongly encouraged. Please consult the calendar from the School of Music for dates. Most of the performances are free. A bonus of 1% to the course total will be added for each performance attended, with a maximum of 5% added. Please hand in a 1-page report about each performance attended, stapled to the printed program. Performances of the Lubbock Symphony also count. Tickets are available at a reduced price. Your reports should contain the highlights of the performances and comments about connections with anything from class. In order to be counted, the reports are due within one week of the performance attended.

Class Attendance: REQUIRED
Please sign your name on the attendance sheet at the beginning of each class. When you have to be absent because of a serious emergency, please excuse yourself by e-mail to walter.borst@ttu.edu. For each unexcused absence, 1% will be subtracted from the grade.

Recommendation: Work 5 hours each week on this course outside of class and see if this leads to the desired grade (it should).

Calendar
See the separate calendar for examination, homework (quiz), and laboratory dates.

Examination Security
The examinations are composed specifically for each semester. They include a copyright notice reserving all rights of reproduction and distribution.
Course objectives and expected learning outcomes:
Become familiar with some scientific principles and be able to apply them to sound, acoustics, music, and everyday life.

Disability
Any student who, because of a disability, may require special arrangements in order to meet the course requirements should contact the instructor as soon as possible to make any necessary arrangements. Students should present appropriate verification from Student Disability Services during the instructor’s office hours. Please note instructors are not allowed to provide classroom accommodations to a student until appropriate verification from Student Disability Services has been provided. For additional information, you may contact the Student Disability Services office in 335 West Hall or 806-742-2405.

Academic honesty is assumed, please see the Student Handbook for details.

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