PHYSICS OF SOUND AND MUSIC - PHYS 1406, Spring 2009

Lecture: Tuesday, Thursday 11:00-12:20 a.m., Science Room 10
Laboratory: Science Room 302
PHYS 1406-501 M 4-6 p.m., PHYS 1406-502 W 4-6 p.m., PHYS 1406-503 Tu 2-4 p.m.

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

Textbook:

Laboratory Manual:

Highly recommended in addition to the textbook:
Donald E. Hall, Musical Acoustics, 3rd ed., may be available “inexpensively” online

Course Topics
Physics concepts for acoustics and sound
Waves, sound, music, harmonic motion
Analysis and synthesis of waves
Human ear and voice
Sound recording, reproduction
Sound intensities, db-scale
Room acoustics
Musical temperament, pitch
Musical instruments

Course Materials: Your own 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: A minimum laboratory score of 70% is required for passing the course.

Examinations are closed books. They cover concepts from class, your lecture notes, lecture demonstrations, laboratory, homework, and the textbook to the extent discussed. You may bring a formula sheet with up to 20 formulas to the examinations. 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. Always sign in at the beginning of class and be there a few minutes early. Please excuse yourself for any absence; otherwise -1% off course total per absence.

Homework: Do the homework yourself (of course).

Important: Spend 6 to 8 hours on this course outside of class each week.

Examination, Laboratory, and other Dates: See Calendar
**Examination Security:** The examinations are composed uniquely for this semester and include a copyright notice reserving all rights of reproduction and distribution.

**Disability**
Any student with a disabling condition, who may require some 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:**
Know physical principles of sound, acoustics, and music.
Be able to apply these in other courses and everyday life whenever possible

**Methods for assessing the expected learning outcomes:**
1. Examinations and grades.
2. Class discussions.
3. Feedback from students about the usefulness of the course.
**CALENDAR** Physics 1406, Spring 2009, including laboratory schedule. Further details to be announced. The homework schedule is approximate; see dates in assignment sheets.

Please note the new lab schedule!

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<tr>
<td>No labs</td>
<td>1/6</td>
<td>No labs</td>
<td>1/8 First day of class</td>
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<td>No labs</td>
<td>1/20 <strong>Hwk 1</strong></td>
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<td><strong>Lab 1.</strong></td>
<td>1/27 <strong>Examination 1</strong></td>
<td>1/29 Labs start at the <em>beginning</em> of this week</td>
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<td><strong>Lab 2.</strong></td>
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<td><strong>Lab 3.</strong></td>
<td>2/17 <strong>Hwk 3</strong></td>
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<td><strong>Lab 4.</strong></td>
<td>2/24 <strong>Examination 2</strong></td>
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<td><strong>Lab 5.</strong></td>
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<td>3/17 <strong>Spring vacation</strong></td>
<td>3/19 <strong>Spring vacation</strong></td>
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<td><strong>Lab 7.</strong></td>
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<td>3/31 <strong>Examination 3</strong></td>
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<td><strong>Lab 8.</strong></td>
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<td><strong>Lab 9.</strong></td>
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<td>4/28 Last day of class</td>
<td><strong>Final examination</strong> Monday, May 4, 1:30-4:30 p.m</td>
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