

*Department of Physics
Eastern Illinois University
Charleston, IL 61920*

PHY 1071-001: FALL 2008

PHYSICS OF SOUND AND MUSIC

Class type: Lecture **Meeting Time:** M W F 10:00-10:50 am **Location:** PHYS 2153

Instructor: Dr. Jie Zou

Office: PHYS 1114

Tel: 581-6346

Email: jzou@eiu.edu

Office Hours: M W F (11:00 am–noon; 3:00–4:00 pm)

Web: <http://www.ux1.eiu.edu/~jzou/>

or by appointment

Course Objective and Content

This is an introductory physics course. It focuses on the development of basic ideas in physics of motion and applications to vibrations and sound waves. In this course, you will also be introduced to the concepts in perception of loudness, pitch, and timbre. Other topics of discussion also include fundamental ideas in acoustics of musical instruments, acoustics of rooms, and musical scales. PHY 1072 is a separate course and must be taken concurrently.

Multimedia Lecture Presentation

In this course, I will adopt the traditional classroom lecture presentation method with complementary multimedia presentation tools, such as PowerPoint presentations, video/audio CDs, and animations. PowerPoint (PPT) lecture presentations will be posted (in PPT and PDF formats) on the class website at <http://www.ux1.eiu.edu/~jzou/> so that students can easily review class materials before and after the class.

Why do you want to visit the class website regularly?

- To review lecture notes before and after the class.
- To double check the homework assignment for the week and when it is due.
- To check answers to the Quizzes.

Textbooks

Conceptual Physics, 9th edition, by Paul G. Hewitt.

Musical Acoustics, 2nd edition, by Donald E. Hall.

Course Grading

Homework and Pop Quizzes:	30%
Hour Exams:	40%
Final Exam:	<u>30%</u>
Total:	100%

Grading for this course will in general adopt the following method. However, grades may be curved if necessary.

- A: 90%-100%
- B: 80%-89%
- C: 70%-79%
- D: 60%-69%
- F: below 60%

Homework and Quizzes

- **Homework:** Homework will be assigned weekly, and it will be collected each Monday at the beginning of class except for holidays. Practice is very important in doing well in a physics class. Therefore, ***working on homework problems is VERY ESSENTIAL in getting a good grade in this class. No late homework will be accepted.*** Successful completion of the homework will require listening to the lectures, reading the textbook, reviewing class material, and working on examples. All homework should be completely independent effort. Copying homework is not allowed.
- **Quizzes: Pop quizzes** will be given in class to determine your understanding of class material. Quizzes and homework together account for 30% of the total grade, the same weight as the Final Exam. ***No make-up quizzes will be given.*** Therefore, ***do not miss any classes. Quizzes will be open-book and open-notes multiple-choice questions.***
- **Additional policy regarding homework:**
 1. Homework needs to include ***detailed work***. For example, ***apply appropriate equations when necessary, and include explanations in words***. Otherwise, points will be deducted.
 2. ***No late homework will be accepted.*** Any exception/extension needs approval from the instructor. Homework turned in late or dropped in the instructor's mailbox without approval from the instructor will not be accepted.
 3. If students do not agree with the grading of the homework, quizzes, or exams during the semester, students should discuss the issue with the instructor within one week for any corrections.

Hour Exams

Throughout the class, a total of *four, closed-book and closed-notes Hour Exams* will be given. Each hour exam will include *multiple-choice questions and bonus questions*. Detailed work needs to be shown when answering the bonus questions. *Necessary equations and formulae will be provided by the instructor for each exam.*

A *Practice Test with answers* will be provided before each exam for practice at home.

I will drop the lowest score from the four hour exams and calculate your average grade for the hour exams from the remaining three. So, if you miss one hour exam, you will be excused from that hour exam and your average grade for the hour exams will be based on the remaining three. Thus, *no make-up hour exams will be given.*

Tentative schedule for the Hour Exams:

Hour Exam#1: Monday, 09/15/08

Hour Exam#2: Monday, 10/06/08

Hour Exam#3: Monday, 11/10/08

Hour Exam#4: Monday, 12/08/08

Final Exam

A *closed-book and closed-notes comprehensive Final Exam* will be given at the end of the semester. The final exam will be similar in format to the Hour Exams, but will be longer and cover all the material of the course. *Necessary equations and formulae will be provided by the instructor for the exam. No make-up final exams will be given.*

Schedule and location of the Final Exam:

Day and Time: Monday, December 15, 2008, 10:15 am – 12:15 pm.

Location: PHYS 2153 (the same lecture room)

Class Attendance and Extra Credits

Attending class regularly is one of the most important factors in doing well in this class. Throughout the semester, at the instructor's discretion, extra credits will be given for *class attendance*. Other sources of extra credits may also include *bonus questions on exams, reports for movie/video, etc.*

Studying Tips

How to study this course well? Here are some suggestions:

- Read and think about the material before each class.

- Listen to the lectures with questions and take lecture notes.
- Study the textbook and lecture notes after each class.
- Do homework and work out examples.
- Discuss questions with me during office hours.

Information for Students with Disabilities

If you have a documented disability and wish to receive academic accommodations, please contact the coordinator of the Office of Disability Services at 581-6583 as soon as possible. Appropriate academic support is available for students with a documented disability. Please notify your professor and contact the Office of Disability Services for further information. Contact the Office of Disability Services for answers regarding accommodations, auxiliary learning aids and physical accessibility. Diagnostic information regarding the disability must be submitted so the most appropriate accommodations can be arranged. Refer to the Undergraduate Catalog for more information.

A tentative semester schedule for this course is given on the next page. Changes may be made when necessary.

HAVE A GOOD SEMESTER!

PHY 1071-001, FALL 2008 TENTATIVE SCHEDULE

	Monday	Wednesday	Friday
Week 1 (08/25-08/29)	Introduction Ch. 2 (Hewitt)	Ch. 2 (Hewitt) (Cont.)	Ch. 3 (Hewitt)
Week 2 (09/01-09/05)	Labor Day Observance/No Class	Ch. 3 (Hewitt) (Cont.) HW #1 due	Ch. 4 (Hewitt)
Week 3 (09/08-09/12)	Ch. 4 (Hewitt) (Cont.) HW #2 due	Ch. 5 (Hewitt)	Discuss Practice Test #1
Week 4 (09/15-09/19)	Hour Exam #1 (Ch. 2-Ch. 5, Hewitt) HW #3 due	Ch. 6 (Hewitt)	Ch. 7 (Hewitt) Return Hour Exam #1
Week 5 (09/22-09/26)	Ch. 7 (Hewitt) (Cont.) HW #4 due	Ch. 19 (Hewitt)	Ch. 19 (Hewitt) (Cont.)
Week 6 (09/29-10/03)	Ch. 20 (Hewitt) HW #5 due	Ch. 21(Hewitt)	Discuss Practice Test #2
Week 7 (10/06-10/10)	Hour Exam #2 (Ch. 6- 7, Ch. 19-21, Hewitt) HW #6 due	Ch. 1 (Hall) Return Hour Exam #2	Fall Break/No Class
Week 8 (10/13-10/17)	Ch. 2 (Hall) HW #7 due	Ch. 2 (Hall) (Cont.)	Ch. 3 (Hall)
Week 9 (10/20-10/24)	Ch. 4 (Hall) HW #8 due	Ch. 4 (Hall) (Cont.)	Ch. 4 (Hall) (Cont.); Class Discussion
Week 10 (10/27-10/31)	Homework Discussion HW#9 due	Homework Discussion	Ch. 5 (Hall)
Week 11 (11/03-11/07)	Ch. 5 (Hall) (Cont.) HW#10 due	Ch. 5 (Hall) (Cont.)	Discuss Practice Test #3
Week 12 (11/10-11/14)	Hour Exam#3 (Ch. 1- 5, Hall) HW #11 due	Ch. 7 and 8 (Hall)	Return Hour Exam #3 and Discuss Lab Assignment
Week 13 (11/17-11/21)	Ch. 8 (Hall) (Cont.) HW #12 due	Homework Discussion	Ch. 10 (Hall)
Week 14 (11/24-11/28)	Thanksgiving Break	Thanksgiving Break	Thanksgiving Break
Week 15 (12/01-12/05)	Ch. 10 (Hall) (Cont.) HW#13 due	Homework Discussion	Discuss Practice Test #4
Week 16 (12/08-12/12)	Hour Exam#4 (Ch. 7, 8, and 10, Hall) HW#14 due	Return Hour Exam #4 and Discussion	General Review and Hand out Final Practice Test

