3:185 Hearing Loss & Audiology  
Fall, 2009

3:30 - 4:50 Tuesday & Thursday  
Rm 308 WJSHC

Instructor: Shawn S. Goodman, Ph.D., CCC-A  
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Office Hrs: MWF 4-5 pm or by appointment

TA:

Department: Communication Sciences & Disorders  
119 SHC  
335-8718 (Paul Abbas, Chair)  
College of Liberal Arts and Sciences

Course Objectives

Students will learn basic principles of testing and diagnosing hearing loss, become familiar with instrumentation commonly used in Audiology, and perform and interpret the tests in a basic audiometric battery. This course is primarily geared toward upper level undergraduate students majoring in Speech and Hearing Science.

For students who choose to pursue a master’s degree in speech-language pathology, this course will partially fulfill the requirements for six semester hours of course work in audiology necessary for ASHA certification.

For students who choose to pursue an AuD degree in audiology, this course will be the first in a series of courses and is designed to teach the essentials of audiology. After completing this course, you should be ready to begin your first practicum experience in audiology.

For students who have not yet made the choice between speech-language pathology and audiology, this course will give you an insight into the nature of work done by a clinical audiologist.
**Texts**

**Required Text:** There is no required text for this class.


**Course Format**

Tuesdays and Thursdays will be a lecture-style format. There will be several required labs spread over the course of the semester. During these labs, students will practice administering and interpreting hearing tests. Students will sign up for a lab time during the first week of school. Labs will not be held every week, but on weeks that labs are scheduled, students will be expected to attend during their chosen lab time.

Announcements regarding labs will be made in class and posted on ICON. The available lab times are shown below:

**TA: Sterling Sheffield**

- **Tuesday:**
  - 10:00 a.m. – 11:00 a.m.
  - 11:00 a.m. – 12:00 p.m.
  - 2:15 p.m. – 3:15 p.m.

- **Thursday:**
  - 10:00 a.m. – 11:00 a.m.
  - 11:00 a.m. – 12:00 p.m.
  - 4:50 p.m. – 5:50 p.m.

- **Friday:**
  - 2:00 p.m. – 3:00 p.m.

**TA: Ian Mertes**

- **Tuesday:**
  - 4:50 p.m. – 5:50 p.m.
- **Wednesday:**
  - 9:00 a.m. – 10:00 a.m.
  - 10:00 a.m. – 11:00 a.m.
  - 11:00 a.m. – 12:00 p.m.
- **Thursday:**
  - 2:15 p.m. – 3:15 p.m.
- **Friday:**
  - 10:30 a.m. – 11:30 a.m.
  - 1:00 p.m. – 2:00 p.m.

Because the labs are “hands-on”, requiring specialized equipment and TA supervision, lab sizes will be limited to approximately 6 students. Sign-up sheets will be passed around the first day of class, and you will be asked to indicate your top three choices for lab times. Based on this input, I will assign you a lab time.
**Homework Expectations**

The general policy of the University of Iowa and the Department of Communication Sciences and Disorders is that for each semester hour of credit that a course carries, students should expect to spend approximately two hours per week outside of class preparing for class sessions. This is a three credit hour course, and course assignments have been designed to require six hours per week in out-of-class preparation.

Homework is due on its assigned due date. **Late assignments will NOT be accepted.**

**Grades**

The plus/minus system of grading as described by the College of Liberal Arts and Sciences will be used. Grades will be given based on performance on homework, labs, two midterms, and a comprehensive final exam. Grades will be kept current and posted on ICON. Student performance in these areas will count towards the final grade as follows:

- 15%  Homework
- 10%  Labs
- 20%  Midterm Exam 1
- 20%  Midterm Exam 2.
- 35%  Comprehensive Final Exam.

**Attendance Policy**

Students are expected to attend each scheduled class and laboratory. If absent from lectures, the student is responsible for obtaining materials and information provided during the class period and for arranging to make up any examinations that may have been missed. If absent from labs, the student is responsible for making arrangements with the TA to make up the work that was missed. Makeup exams and labs may not be the same as the original. **NOTE: makeup exams and labs will only be given for documented, excused absences.** (See University policy below.)

*The University policy requires that students be permitted to make up examinations missed because of illness, mandatory religious obligations, certain University activities, or unavoidable circumstances. However, it is the student’s responsibility to contact the instructor as soon as the student is aware that the exam will be missed.*

([http://www.clas.uiowa.edu/students/academic_handbook/viii.shtml](http://www.clas.uiowa.edu/students/academic_handbook/viii.shtml)). University policy also requires excused absences to be documented. Excused absence forms are available at the Registrar web site: [http://www.registrar.uiowa.edu/forms/absence.pdf](http://www.registrar.uiowa.edu/forms/absence.pdf)
Tentative Outline

PART I  ELEMENTS OF AUDIOLOGY

Week 1  Ch 1. The Profession of Audiology
Aug 25  The evolution of audiology, licensing & certification, prevalence & impact of hearing loss, audiology specialties, employment settings, professional societies
Aug 27  Ch 2. The Human Ear and Simple Tests of Hearing
Anatomy & physiology of the ear, pathways of sound, types of hearing loss, hearing tests, tuning-fork tests

HOMEWORK #1  Audiology Scope of Practice & Ethics

Week 2  Ch 3. Sound and Its Measurement
Sept 1  Sound, waves, vibrations, frequency, resonance, velocity, wavelength,
Sept 3  phase, complex sounds, intensity, decibels, psychoacoustics, impedance, sound measurement, calibration.

HOMEWORK #2  Decibels, Audiometric Calibration, Acoustics

Week 3  Case History & Otoscopy
Sept 8  Case history, using an otoscope, images of pinna
Sept 10  images of ear canal and ear drum, cerumen management

LAB #1  Case History and Otoscopy

PART II  HEARING ASSESSMENT

Week 4  Ch 4. Pure-Tone Audiometry
Sept 15  Audiometers, test environment, patient’s role, clinician’s role, air-
Sept 17  conduction, bone-conduction, audiogram interpretation, masking

Week 5  Ch 4. Pure-Tone Audiometry—Continued
Sept 22  Pure-tone audiometry training software

HOMEWORK #3  Audiometer Training Software
Sept 24  Ch 5. Speech Audiometry
speech-threshold testing, masking for SRT, bone-conduction testing, most
comfortable loudness level, uncomfortable loudness level, speech

Week 6  
Sept 29  MIDTERM 1
Oct  1  Discussion of Midterm 1

LAB #2 Pure-Tone Audiometry and Speech Audiometry

Week 7  Ch 6. Beyond Basic Audiometrics
Oct 6  Acoustic immittance, tympanometry
Oct 8  Acoustic reflexes, acoustic reflex decay

LAB #3 Tympanometry, Acoustic Reflex, & Reflex Decay

Week 8  Ch 6. Continued
Oct 13  Otoacoustic emissions
Oct 15  Auditory evoked potentials

Week 9  Ch 7. Hearing Tests for Children
Oct 20  Auditory responses, objective testing, behavioral testing, infants < 3
months, 3 months – 2 years, 2 – 5 years, language disorders, auditory
processing disorders, psychological disorders, developmental disabilities,
hearing loss in the schools, nonorganic hearing loss in children

PART III  HEARING DISORDERS

Week 9  Ch 8. The Outer Ear
Oct 20  Anatomy & physiology, development, hearing loss, disorders and
treatment
Oct 22

Week 10  Ch 9. The Middle Ear
Oct 27  Anatomy & physiology, development, hearing loss, disorders and
treatment
Oct 29

Week 11  Ch 10. The Inner Ear
Nov 3  MIDTERM 2
Nov 5  Anatomy & physiology, development, hearing loss, disorders and causes

Week 12  Ch 11. The Auditory Nerve and Central Auditory Pathways
Nov 10  Cochlear to cortex, development, auditory pathways, hearing loss,  
Nov 12  disorders of nerve, disorders of nuclei, disorders of higher pathways, tests  

**Week 13**  **Ch 12. Nonorganic Hearing Loss**  
Nov 17  Terminology, patient characteristics, implications, performance on routine hearing tests, tests for nonorganic loss, management of patients with  

Nov 21 - Nov 30  THANKSGIVING RECESS  

**PART IV  MANAGEMENT OF HEARING LOSS**  

**Week 14**  **Ch 13. Amplification / Sensory Systems**  
Dec 1  Hearing aid development, HA circuits, electroacoustics, binaural amplification, types of HAs, HA selection for adults and children, HA acceptance and orientation, dispensing HAs, assistive devices  

**Week 15**  **Ch 14. Audiolologic Treatment**  
Dec 8  Case histories, referral to other specialties, counseling, management of adult hearing impairment, management of childhood hearing impairment, the Deaf community, management of auditory processing disorders, tinnitus, hyperacusis, vestibular rehab, multicultural considerations, evidence-based practice, outcome measures  

**Week 16**  **Final Exam Week**  
Dec 14 – Dec 18  FINAL EXAM WEEK  
Dec 15 (Tuesday) Final Exam, 12:00 P.M.  

The College of Liberal Arts and Sciences Policy and Procedures

Administrative Home
The College of Liberal Arts and Sciences is the administrative home of this course and governs matters such as the add/drop deadlines, the second-grade-only option, and other related issues. Different colleges may have different policies. Questions may be addressed to 120 Schaeffer Hall or see the Academic Handbook. www.clas.uiowa.edu/students/academic_handbook/index.shtml

Student Attendance
As specified in the University’s Operation Manual, students are be permitted to make up examinations missed because of illness, mandatory religious obligations, certain University activities, or unavoidable circumstances. Students who miss quizzes or assignment deadlines for other reasons will not be allowed to make them up.

Academic Fraud
Plagiarism and any other activities that result in a student presenting work that is not his or her own are academic fraud. Academic fraud is reported to the departmental DEO and then to the Associate Dean for Academic Programs and Services. See Academic Fraud at www.clas.uiowa.edu/students/academic_handbook/ix.shtml for the complete policy.

Making a Suggestion or a Complaint
Students with a suggestion or complaint should first visit the instructor, then the course supervisor and the departmental DEO (Paul Abbas, 119 SHC, 319-335-8733, paul-abbas@uiowa.edu). Complaints must be made within six months of the incident. www.clas.uiowa.edu/students/academic_handbook/ix.shtml#5

Accommodations for Disabilities
It is my responsibility as the instructor of this course to make reasonable accommodations for any student with physical, mental, or learning disabilities. I would like to hear from anyone who has a disability which may require seating modifications, testing accommodations, or accommodations of other class requirements, so that appropriate arrangements may be made. Please contact me during my office hours. A student seeking academic accommodations registers with Student Disability Services and meets with a SDS counselor who reviews documentation and determines eligibility for services. A student approved for accommodations should meet privately with the course instructor to discuss particular arrangements. Please visit Student Disability Services at www.uiowa.edu/~sds/

Understanding Sexual Harassment
Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. Visit the sexual harassment awareness site at www.sexualharassment.uiowa.edu/ for definitions, assistance, and the full University policy.

Reacting Safely to Severe Weather
In severe weather, the class members should seek shelter in the innermost part of the building, if possible at the lowest level, staying clear of windows and free-standing expanses. The class will continue if possible when the event is over. (Operations Manual 16.14. i.)

Resources for students
Writing Center. 110 English-Philosophy Building, 335-0188, www.uiowa.edu/~writingc
Speaking Center. 12 English-Philosophy Building, 335-0205, www.uiowa.edu/~rhetoric/centers/speaking
Mathematics Tutorial Laboratory. 314 MacLean Hall, 335-0810, www.uiowa.edu/mathlab
Tutor Referral Service. Campus Information Center, Iowa Memorial Union, 335-3055, www.imu.uiowa.edu/cic/tutor_referral_service