

# CSDS 361

## INTRODUCTION TO AUDIOLOGY & HEARING SCIENCE

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<b>Office Hours: Online (anticipate response within 8 hours, weekdays; 24 hours, weekends)</b>	

**Prerequisite(s):** CSDS 313 (Anatomy & Physiology)

This course is being taught with the understanding that all students have taken and satisfactorily completed CSDS 313 or an equivalent course in human anatomy. Although exceptions may be made, it should be understood that any student without a strong background in the anatomy and physiology of the ear might need to accelerate their learning in this area to keep up with the course information and assignments.

**Course Description**

This is an online course that requires students to have available state-of-the-art computer systems and Internet access. The course has been constructed with independent learning activities to help students integrate course content information. Contact with the course instructor is maintained through e-mail correspondence, although telephone and mail contact is also available.

Covered in this class is a detailed discussion of the anatomy and physiology of the human auditory system; the various types and degrees of hearing loss; basic hearing evaluation procedures (pure tone audiometry, acoustic impedance tests); and a general discussion of the physics of sound as related to the discipline of audiology. Prerequisite: CSDS 313 or consent of instructor; 3 credits.

**Required Text**

Martin, F. N. & Clark, J. G. (9<sup>th</sup> or Latest edition). *Introduction to Audiology*. Needham Heights, MA: Allyn & Bacon.

**Supplemental text materials:**

Will be provided as links in *Blackboard*

**Course Objectives**

The following conceptual framework competencies guide the planning and delivery of instruction in this course. Specific course objectives reflect this framework as they focus on the needs of the students for developing skills as professionals who will be knowledgeable, caring and ethical decision-makers.

**ASHA KASA Standards (applicable to this course)**

**Standard III-B:** Demonstrate knowledge of **basic human communication** and swallowing processes, including their **biological, neurological, acoustic, psychological**, developmental, and linguistic and **cultural bases**

**Standard III-C:** Demonstrate knowledge of the nature of speech, language, **hearing**, and **communication disorders** and differences and swallowing disorders, including their **etiologies**, characteristics, **anatomical/physiological, acoustic, psychological**, developmental, and linguistic and **cultural correlates**.

**Standard III-D:** The applicant must possess knowledge of the principles and methods of prevention, assessment, and intervention for people with communication and swallowing disorders, including consideration of **anatomical/physiological, psychological**, developmental, and linguistic and **cultural correlates** of the disorders.

Upon successful completion of this course, students should be able to:

1. Understand the history and direction of Audiology as a profession. (CFC 4)
2. Describe the basic physical and psychological attributes of sound. (CFC 4, KASA III-B)
3. Identify the anatomy and function of peripheral and central auditory pathways. (CFC 4, KASA III-B)
4. Identify different types of hearing loss. (CFC 4, KASA III-C)
5. Discuss principles related to different audiometric test procedures (CFC 3, 4, KASA III-C, D)
6. Perform basic audiometric test (screening) procedures and interpret results (CFC 3, 4, KASA III-D)
7. Discuss common causes of hearing impairment in children and adults (CFC 4, KASA III-C)

### **Course Requirements**

1. **Class Participation.** Full participation in all class assignments is mandatory. Failure to comply with this may result in a reduced grade or failing the course.
2. **Formative and Summative evaluations.** Formative evaluations will be conducted throughout the semester. Formative evaluations are opened-book quizzes given frequently throughout the semester essentially to monitor student performance. The results of these quizzes are not cumulative and do not effect students' grades. This means that they are not used in calculating midterm and final grades in the class. Instead, the results of formative quizzes are used to provide students with direct or tangible feedback about their progress in the class. For example, if a student does poorly on the first formative quiz, but improves substantially on the second or third quiz, his or her midterm grade is not jeopardized by the poor initial performance. During the days following the completion of a formative quiz, students will be provided with the correct answers to the quiz questions and a general discussion of the kinds of errors found on the quiz. Students are encouraged to adjust their learning style or method to accommodate, if necessary, improved performance on subsequent quizzes. Students are expected to actively participate in all formative quizzes.

The midterm and final examinations are summative. They are comprehensive, closed-book exams covering the same content areas as the formative quizzes. Students who establish a high performance profile for the formative quizzes will likely do as well on the summative evaluations. **The summative evaluation is a proctored examination.** (For more information about formative and summative assessments, and the proctoring procedures, see below).

3. **Pure Tone Audiometric Virtual Lab.** Each student will complete a series of pure tone audiometric test on simulated listeners. Students will be given instructions at the start of the class on how to activate the simulation programs.
4. **Digital presentation.** A brief digital slide presentation (Powerpoint preferred) must be developed and delivered (via Internet) before the end of the semester. The presentation is to cover either an auditory pathology or syndrome associated with hearing loss, or a related topic of interest to the student. Topics other than auditory diseases must be approved in advance by the course instructor. Students must include a minimum of three

*journal* references in their presentation using the American Psychological Association's (APA) citation format.

### **More about Formative and Summative Evaluations (rationale)**

A student's performance in any class can be measured in several different ways. Objective tests and quizzes, i.e., multiple choice (guess), true-false, fill-in, etc., are routinely used because they are relatively easy to develop, and they provide the most expedient and efficient means of grading students' performances. Regrettably, too many students have learned to study just for the test and not for the purpose of learning or internalizing the material. Somewhere in this process, learning that is supposed to be accomplished, gets marginalized in favor of learning just enough to get a "good" grade on the test. By the end of the semester a student may have accumulated a reasonably good grade point average but may know little to nothing about the material covered. To avoid this dilemma both formative and summative assessments will be used in this class.

A formative assessment is a quiz or test that is given for the sole purpose of giving feedback to the student on what he or she knows or does not know about the subject matter. The test results from formative evaluations are not usually calculated into the student's midterm or final grades. Consequently, students are not rewarded for just taking the test, rather for learning the information leading up to the test. Following the test, detailed answers are provided to students for them to gauge their answers. In this way, students get direct feedback on how well they have mastered the material; without the fear that their performance (to date) will affect their overall grade at the end of the course. Theoretically, a student who does well on a formative evaluation will be reinforced to continue doing what he or she has been doing to prepare for tests. For a student who does not do as well, initially, he or she is not penalized, but is given an opportunity to readjust their learning pattern(s) to achieve a more positive outcome on subsequent formative evaluations.

A summative assessment is a test that usually is given at the end of the term to determine a student's cumulative knowledge in a particular subject area. Typically, the summative assessment is a compilation of all or most of the salient questions asked on the formative assessments. These are questions and materials with which the student should be familiar, at least, by the end of the term.

For this class, all quizzes will be formative in nature. Students will receive a quiz at the end of each instructional unit. Students are to self-correct their quizzes from the answers provided by the instructor in the days that follow the quiz. Students are to then report their performance to the instructor via e-mail.

The midterm and final examinations will be comprehensive summative assessments. Students can expect to see on these examinations most of the same questions asked on their formative quizzes. The only new information on the summative examination will be that information introduced since the last formative quiz. NOTE: the final summative evaluations will be closed-book and proctored.

### **Proctoring Procedures**

Each student is responsible for securing a proctor to manage the delivery and supervision of their midterm and final examinations. Proctors are not to be paid or compensated in any way. Their services must be strictly voluntary.

Students can select as their proctor another course instructor, their academic advisor, or an administrator in their academic program or department. If a student is not matriculating at a college or university, he or she can secure the services, preferably, of a local librarian, notary

public, or an educational official at a local elementary, high school or trade school. Students who are working and taking classes, can have a job supervisor or manager to serve as a proctor.

The role of the proctor is simple. He or she agrees to deliver and supervise the course's midterm and final examinations. The examinations will be sent directly (at midterm and again during finals) to the proctor by the course instructor. The proctor must have facilities to be able to observe the student completing the examination, as well as the means for returning the examination on behalf of the student. Proctors cannot be one of the following:

- A relative or personal friend of the student
- A classmate
- An employee of the student
- Etc.

Furthermore, each student is to forward to the instructor, by the 4<sup>th</sup> week in the semester, the name, e-mail address, mailing address and telephone number of the person selected to be their proctor. Individuals who qualify to serve as a proctor will be sent a letter of notification indicating that they have been identified by the named student to serve as their proctor for the issuance of midterm and final examinations. Each proctor will be asked to verify their qualifications and to send the name and address of their immediate employment supervisor. This person will also be notified, giving recognition of the proctor's voluntary participation in this educational activity. This second tier of notification obviously serves to maintain the integrity for the proctoring process. Again, proctors are not to be compensated for their services.

### **Grading**

The final letter grade in the class will be determined through a consideration of the student's performance on the following instructional activities:

Formative quizzes	0%
Summative midterm	25%
Final Examination	25%
Virtual audiometric Lab Activities	25%
Digital presentation	25%

The percentage distribution scale to be used is as follows (points earned on preceding activities will be totaled and averaged against a 100% distribution scale):

93- 100% = A  
90- 92% = A-  
87 -89% = B+  
83 - 86% = B  
80- 82% = B-  
77 -79% = C+  
73- 76% -C  
70- 72% -C-  
67 -69% -D+  
63- 66% = D  
60- 62% = D-  
Below 60% = F

### **Honor Code and Class Attendance (participation)**

Students are expected to abide by the Longwood University Honor Code, and all assignments and examinations must be pledged. The instructor will investigate any suspicion of an Honor Code infraction, and University procedures for Honor Code violations will be followed.

Attendance (online participation) will be monitored throughout the semester and will be taken into consideration when grades are assigned.

### Disability Statement

The instructor is willing to provide reasonable accommodations for any student with a documented disability. The student should present to the instructor, during the first week of class, documentation from Longwood's Learning Center indicating the nature of the disability and suggested, appropriate accommodations.

### Class Schedule (Fall and Spring)

(This is a tentative schedule that may be changed if necessary.)

Week	Topics	Learning/Laboratory Activities	Reading Assignment
1	Introduction; Audiology as a Profession;	Read chapter prepare for quiz	Ch. 1
	<b>FORMATIVE QUIZ 1</b>	Complete and send answers by e-mail, not digital dropbox	
2	The Human Ear and Simple Tests of Hearing	Read chapter prepare for quiz Begin audiometric hearing screening series	Ch. 2
	<b>FORMATIVE QUIZ 2</b>	Complete and send answers by e-mail, not digital dropbox	
3	Properties of Sound	Read chapter prepare for quiz	Ch. 3
	<b>FORMATIVE QUIZ 3</b>	Complete and send answers by e-mail, not digital dropbox	
4	Anatomy/Physiology & Disorders of the Outer Ear; Otoscopy	Read chapter prepare for quiz	Ch. 9
	<b>FORMATIVE QUIZ 4</b>	Complete and send answers by e-mail, not digital dropbox	
5&6	Anatomy/Physiology & Disorders of the Middle Ear; Otoscopy	Read chapter prepare for quiz	Ch. 10
	<b>FORMATIVE QUIZ 5</b>	Complete and send answers by e-mail, not digital dropbox	
7	Anatomy/Physiology & Disorders of the Inner Ear;	Read chapter prepare for quiz	Ch. 11 Ch,
	<b>MIDTERM SUMMATIVE EXAMINATION</b>	Proctored Examination (results to be submitted by email by proctor)	
8	Central Auditory Processing	Read chapter prepare for quiz	Ch. 12

	<b>FORMATIVE QUIZ 6</b>	Complete and send answers by e-mail, not digital dropbox	
9	Introduction to Audiometric Procedures	Read chapter prepare for quiz; <b>Begin 1<sup>st</sup> Audiometric Series</b>	Ch. 4, 5, 6 & 7
	<b>FORMATIVE QUIZ 7</b>	Complete and send answers by e-mail attachment, <b>not digital dropbox</b>	
13	Audiogram interpretation		Supplemental materials
14	Cultural Diversity issues in Audiology		Supplemental materials
15	Submission of digital presentation	Submit online in digital dropbox	
16	<b>Course summary</b>		
Finals Period	<b>FINAL SUMMATIVE EXAM</b>	Proctored Examination (results to be submitted by email by proctor)	

### Class Schedule (Summer)

(This is a tentative schedule that may be changed if necessary.)

Week	Topics	Learning/Laboratory Activities	Reading Assignment
1	Introduction; Audiology as a Profession;	Read chapter prepare for quiz	Ch. 1
	The Human Ear and Simple Tests of Hearing	Read chapter prepare for quiz Begin audiometric hearing screening series	Ch. 2
	<b>FORMATIVE QUIZ 1</b>	Complete and send answers by e-mail attachment, <b>not digital dropbox</b>	
	Properties of Sound	Read chapter prepare for quiz	Ch. 3
	Anatomy/Physiology & Disorders of the Outer Ear; Otoscopy	Read chapter prepare for quiz	Ch. 9
	<b>FORMATIVE QUIZ 2</b>	Complete and send answers by e-mail, <b>not digital dropbox</b>	
2	Anatomy/Physiology & Disorders of the Middle Ear; Otoscopy	Read chapter prepare for quiz	Ch. 10
	<b>FORMATIVE QUIZ 3</b>	Complete and send answers by e-mail, <b>not digital dropbox</b>	
	Anatomy/Physiology & Disorders of the Inner Ear;	Read chapter prepare for quiz	Ch. 11 Ch,

	<b>MIDTERM SUMMATIVE EXAMINATION</b>	Proctored Examination (results to be submitted by email from proctor)	
3	Central Auditory Processing	Read chapter prepare for quiz	Ch. 12
	<b>FORMATIVE QUIZ 4</b>	Complete and send answers by e-mail, <b>not digital dropbox</b>	
	Introduction to Audiometric Procedures	Read chapter prepare for quiz; Begin audiometric threshold simulation Series	Ch. 4, 5, 6 & 7
	<b>FORMATIVE QUIZ 5</b>	Complete and send answers by e-mail, <b>not digital dropbox</b>	
	Audiogram interpretation		Supplemental materials
	Cultural Diversity issues in Audiology		Supplemental materials
4	Submission of digital presentation	Submit online in digital dropbox	
	Audiogram interpretation		
	<b>Course summary</b>		
<b>Finals Period</b>	<b>FINAL SUMMATIVE EXAM</b>	Proctored Examination (results to be submitted by email from proctor)	

### Policy on Late Work

All assignments are due to the instructor by the assigned due dates (weeks).

### Additional Audiology Readings

Northern, J.L. (1984). *Hearing Disorders (2<sup>nd</sup> ed)*. Boston, MA: Little, Brown.  
 Bess, F.H. & Humes, L.E. (1995). *Audiology: The Fundamentals*. Baltimore, MD: Williams & Wilkins.

Katz, J. (ed). (1994). *Handbook of Clinical Audiology (4<sup>th</sup> ed)*. Baltimore, MD: Williams & Wilkins.

### Selected Journals

- ASHA
- *American Journal of Audiology*
- *Ear and Hearing*
- *Journal of Speech and Hearing Disorders*
- *Journal of Speech and Hearing Research*
- *Journal of the American Academy of Audiology*
- *Seminars in Hearing*
- *ECHO, E-Journal of Black and Other Ethnic Group Research and Practices in Communication Sciences and Disorders*

## **Audiology Websites for Professionals**

American Academy of Audiology

Home page: <http://www.audiology.org/>

Useful links: [www.audiology.org/professional/resources.php](http://www.audiology.org/professional/resources.php)

The American Speech-Language-Hearing Association

<http://www.asha.org/>

National Black Association for Speech, Language and Hearing

<http://www.nbaslh.org/>