CSD 6510: Principles of Audiological Assessment I (3 credits)
Course Syllabus: Fall, 2019

**Time:** Thursdays, 1:30- 4:30 p.m.

**Place:** 417 Wakara Way, Clinic Classroom (Room 1903)

**Instructor:** Sarah Hargus Ferguson, Ph.D., CCC-A

- **Office:** 1219 BEHS
- **Office hours:** Monday 2:00 – 4:00 pm or by appointment
- **E-mail address:** sarah.ferguson@hsc.utah.edu
- **Telephone:** 801-585-6776 (office); 801-503-6972 (cell; use judiciously)

**Graduate teaching assistant:** Paige Ihrig

- **Email address:** paige.ihrig@utah.edu
- **Telephone:** 719-237-9789

Direct email is by far the best way to reach me outside of class. Do not use Canvas to send me questions or comments. Messages sent via Canvas come to my email inbox with uninformative subject lines; comments on announcements do not reach me at all.

Otherwise, I will use Canvas a lot: I will make course announcements, post lecture notes and homework assignments, and administer quizzes. You should configure Canvas to send notifications to you via email or text.

- Note that all University of Utah Health business, including teaching and learning in the College of Health, may use Umail addresses only. Students sending email from a commercial account will receive only one reminder about this; continued violations will cost professionalism points.

**Prerequisites:**

- While this course has no formal prerequisites, I expect most students in this class will be in the first semester of the Doctor of Audiology (Au.D.) program.

**Required materials:**

  - Note that it is essential that you purchase this book; several Au.D. courses will require it.
- Additional required readings, listed below in the course schedule.
  - Complete references for these readings appear at the end of this document. You may access most items via the University of Utah
Library’s general collection; others (marked *) will be available in electronic course reserves (for guidance on using e-reserves, see http://campusguides.lib.utah.edu/course_reserves_guide). Contact me ASAP if you have difficulty locating/accessing anything.

Course description:


Student learning outcomes: By the end of this course, you will be able to...

• ... compute dB differences between sounds and absolute levels in dB.
• ... use correct dB notation when reporting presentation levels, thresholds, etc.
• ... carry out the various components of the audiological evaluation, including case history, otoscopy, the immittance battery, speech and pure-tone threshold measures, and word recognition testing.
• ... explain the rationale underlying the preferred methods for carrying out these components of the audiological evaluation.
• ... interpret the results of the audiological evaluation in terms of degree, configuration, and type of hearing loss as well as middle ear function and speech understanding abilities.
• ... state the audiological results that would be expected for individuals with various common disorders of the auditory system.
• ... describe how cross-hearing occurs and how to recognize the need for masking.
• ... explain how to check the calibration of a pure-tone audiometer.

ASHA Certification Standards:

• In addition to the outcomes listed above, taking this course will give you knowledge and skills associated with the following ASHA standards for Certification in Audiology. More information may be found at http://www.asha.org/Certification/2012-Audiology-Certification-Standards/.

Knowledge of:

• Principles, methods, and applications of psychoacoustics (A12)
• Instrumentation and bioelectrical hazards (A13)
Knowledge and skills in:

- Principles, methods, and applications of acoustics (e.g., basic parameters of sound, principles of acoustics as related to speech sounds, sound/noise measurement and analysis, and calibration of audiometric equipment) (A23)
- The use of instrumentation according to manufacturer's specifications and recommendations (A24)
- Determining whether instrumentation is in calibration according to accepted standards (A25)
- Assessing individuals with suspected disorders of hearing, communication, balance, and related systems (C2)
- Evaluating information from appropriate sources and obtaining a case history to facilitate assessment planning (C3)
- Performing otoscopy for appropriate audiological assessment/management decisions, determining the need for cerumen removal, and providing a basis for medical referral (C4)
- Conducting and interpreting behavioral and/or electrophysiologic methods to assess hearing thresholds and auditory neural function (C5)
- Conducting and interpreting otoacoustic emissions and acoustic immittance (reflexes) (C7)

**Teaching and learning methods:**

- Most class meetings will consist of 2 hours of lecture and 1 hour of hands-on demonstration and practice. I will often intersperse lectures with brief change-up activities to help you to engage the material more actively.

**Grading criteria:**

- Your final grade will reflect performance in the following four areas. I list some additional details below and will make others available later.

1. **Homework assignments** (11 items) 22%
2. **Quizzes** (best 7 of 8) 14%
3. **Exams** (3) 45%
4. **Final project** 15%
5. **Professionalism** 4%

- I will use the following grade scale to assign final course grades:
  A = 92.5-100, A- = 89.5-92.4, B+ = 86.5-89.4, B = 82.5-86.4, etc.
**Practice activities and homework:**

Most class meetings will consist of a 2-hour lecture followed by a 1-hour **hands-on lab session.** For most hands-on sessions, I will divide the class into four groups, and the lab session will have two halves (3:30-4:00 and 4:00 to 4:30). In each half, two groups will take part in the hands-on demonstration: one group with me and one group with the TA. I will assign students to groups each week randomly but fairly and announce them at the end of the lecture.

During the first 2/3 of the semester, a **homework assignment will be due each week.** I have listed these assignments below, along with their due dates and the format I want you to use (i.e., on paper or electronically† via Canvas). **Submission details vary from week to week; read the schedule and the assignment carefully.** The **goals** of these assignments vary, sometimes **highlighting concepts** that **underlie** various aspects of the audiological evaluation, other times **familiarizing** you and providing **practice** with various equipment and test procedures. In addition, I require a **formal activity write-up** for most of the practice activities. I will grade this write-up for completion and accuracy as well as **professional writing.** I will post on Canvas a **sample activity write-up** that explains and illustrates my expectations for these assignments and provides a **grading rubric.**

† Many assignments require you to include **photographs or scans** of images or documents. There are several good scanning apps for your smartphone; the 2nd-year students will have good recommendations. Keep a close watch on your **file size** when pasting images into a Word document; I will provide information in each assignment about what file size would be reasonable.

Several assignments involve performing a given procedure on one or more volunteers. While one volunteer can be a subject for more than one student, each student must perform all assigned procedures for each volunteer. **Sharing results and observations with other students is plagiarism.**

Many assignments will require audiometric equipment. While booth availability is sometimes limited in our busy clinic, a complete test setup is available in the CSD Testing and Training Laboratory located in 1217 BEHS. Our TA will create sign-up sheets (online whenever possible) for various spaces. **Please be considerate** of your classmates and respectful of clinic operations.

**Quizzes:**

There are **8 quizzes,** and I will administer them on Canvas (see schedule for dates). Each quiz will cover **material presented in the previous class** as well as the **assigned reading** for that class. I will post quizzes no later than noon Saturday (and often earlier); you must complete them by **10:30 a.m. Thursday.** Obviously, the quizzes can be open-note and open-book. However, because each quiz will have a **time limit, it will behoove you to have learned the material well** by taking good notes and asking questions in class, carefully
reading the assigned text, and studying your notes. I will go over each quiz in detail at the beginning of class the day the quiz is due.

**I expect you to work independently on quizzes.**

If you have a **computer problem** that prevents you from completing the quiz, **call or email me at the time the problem occurs.** If I consider the problem valid, and the time of your call or message verifies the time of the error, I may let you take the quiz after the deadline.

In calculating final grades, **I drop the lowest quiz score.** If you miss a quiz for **any reason** other than a computer problem, your grade will be zero for that quiz, and I will drop it from your final grade. **I do not give make-up quizzes.** Your quiz score is worth **14%** of your grade.

**Exams:**

The three **section exams** will be **non-cumulative** and given in person. Exams will include multiple-choice, short-answer, and essay questions assessing knowledge and application of all course content. Each exam is worth **15%** of your grade.

Any student receiving a grade **lower than B- on any section exam** must **re-take** the exam and score **no lower than 93% on the retake** to demonstrate mastery of the material and thus fulfill KASA requirements. Exam retakes are **remediation** activities; they do **not change your exam grade.** You should complete retakes as soon as possible, but absolutely no later than one week before the next exam or, for Exam 3, no later than Friday 12/20. If you cannot complete remediation before semester grades are due, you will receive a grade of Incomplete (which I will update when remediation is complete).

**Final project:**

Your final project is **due on Thursday, December 12** and consists of performing a full audiological evaluation on **eight people.** Either the TA or an approved 3rd-year student **must supervise two of these evaluations.** I will provide additional details after Fall Break. Your final project is worth **15%** of your grade.

**Professionalism:**

All students will begin the semester with 100 professionalism points. You may keep these points by arriving to class **on time,** by **listening attentively** to the lecture and to **other students’ questions** (and my answers), by **participating** actively during in-class activities, and by **responding** to class-related emails in a timely fashion. Professionalism is worth **4%** of your grade.
OTHER IMPORTANT INFORMATION:

Attendance. Since this is a graduate course, I expect all students to attend every class meeting. I will excuse absence from class only if you have an illness, if you or an immediate family member has an emergency, or if there is a death in your immediate family AND you notify me by phone, email, or in person prior to (or as soon as possible and certainly no more than 1 week after) missing class. Each unexcused absence will result in a 5-point drop in the final course percentage score.

In any case, you are responsible for learning all material covered in class. If you miss class, it is your responsibility to obtain class notes and handouts from a classmate. I will not provide copies of notes or additional handouts.

- Please note! If class is cancelled due to weather (i.e. the U closes or we expect heavy snow to be falling during times when students are driving home after class) or to my illness or emergency, we will need to reschedule the missed class, usually on the next available Friday afternoon.

Recording of lectures. The materials I prepare, including the content of my lectures, are my intellectual property. You may record my lectures only with my consent. On request, I usually grant permission for students to record lectures, on the condition that (a) you, and only you, use them only as a study aid and (b) I never hear my recorded voice. Unless I explicitly permit you to do so, you may not modify recordings of lectures and review sessions and may not transfer/transmit them to any other person, whether or not they are enrolled in the course.

Department Media Security Policy. All employees and students in the Department of Communication Sciences and Disorders are subject to mandatory compliance requirements for encryption and/or security of mobile devices (e.g. cell phones, laptop computers, tablets, etc.) that are used for University purposes (business, therapy, education). 100% compliance is required by a Federal mandate. The potential ramifications of noncompliance are severe and could be debilitating. For assistance with this encryption, contact the Campus Help Desk at University Information Technologies (IT) at 801-581-4000.

Academic dishonesty. Academic dishonesty is a serious ethical violation, and I will not tolerate it. Anyone caught cheating on any exam or committing plagiarism on any written assignment will receive a zero grade on that exam/assignment.

The Code of Student Rights and Responsibilities. The code, which specifies student rights as well as conduct involving cheating, plagiarism, collusion, fraud, theft, etc., is provided at http://regulations.utah.edu/academics/6-400.php.

The Americans with Disabilities Act. The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in the class, reasonable prior notice needs to be given to the Center for Disability & Access (CDA; http://disability.utah.edu/; 162 Olpin Union Building; 801-581-5020). CDA will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the CDA.
University Safety Statement. The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit https://safeu.utah.edu/.

Addressing Sexual Misconduct. Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a Civil Rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran’s status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

Wellness Statement. Personal concerns such as stress, anxiety, relationship difficulties, depression, cross-cultural differences, etc., can interfere with a student’s ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness, http://wellness.utah.edu/; 801-581-7776.

Veterans Center. If you are a student veteran, I want you to know that the U of Utah has a Veterans Support Center on campus. They are located in Room 418 in the Olpin Union Building. Hours: M-F 8-5pm. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources: http://veteranscenter.utah.edu/. Please also let me know if you need any additional support in this class for any reason.

LGBT Resource Center. If you are a member of the LGBTQ community, I want you to know that my classroom is a safe zone. Additionally, please know that the U of Utah has an LGBT Resource Center on campus. They are located in Room 409 in the Olpin Union Building; their hours are M-F 8-5 pm. You can visit their website to find more information about the support they can offer, a list of events through the center and links to additional resources: http://lgbt.utah.edu/. Please also let me know if there is any additional support you need in this class.
| 8/22/19 | Topics | • Course overview, introductions, and a brief history of audiology  
• The mighty decibel, Part 1  
• Tuning fork tests, types of hearing loss, and audiogram interpretation |
| 8/22/19 | To read | • Katz et al. Ch. 1, pp. 30-31, pp. 37-39, and pp. 52-55  
• Emanuel et al. (2009) pp. 129-136*  
• Sana et al. (2013); May (2014) |
| 8/22/19 | Activity/homework | • dB problem set 1  
⇒ Electronic (PDF) submission by 9:30 on 8/29  
• Tuning fork tests activity  
⇒ Electronic submission by class time on 8/29 |

**QUIZ 1 due at 10:30 a.m. on THURSDAY 8/29/19**

| 8/29/19 | Topics | • The mighty decibel, Part 2  
• Audiometers and audiograms  
• Disorder of the day: Presbycusis |
| 8/29/19 | To read | • Emanuel et al. (2009), pp. 136-147*  
• Katz et al. pp. 31-35  
• Agrawal et al. (2008) |
| 8/29/19 | Activity/homework | • dB problem set 2  
⇒ Electronic (PDF) submission by 9:30 on 9/5  
• dB HL and dB SPL audiograms  
⇒ Due as paper submission in class on 9/5  
• Audiometer sketch (no formal write-up)  
⇒ Due as paper submission in class on 9/5 |

**QUIZ 2 due at 10:30 a.m. on THURSDAY 9/5/18**
<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>To read</th>
<th>Activity/homework</th>
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<tbody>
<tr>
<td>9/5/19</td>
<td>• The case history&lt;br&gt;• Otoscopy&lt;br&gt;• Disorder of the day: External auditory canal and tympanic membrane disorders</td>
<td>• Katz et al. Chapter 7&lt;br&gt;• Ballachanda (2013)</td>
<td>• Otoscopy activity&lt;br&gt;⇒ <strong>Electronic</strong>† submission by class time on <strong>9/12</strong></td>
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<td><strong>QUIZ 3 due at 10:30 a.m. on THURSDAY 9/12/19</strong></td>
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<td>9/12/19</td>
<td>• Tympanometry&lt;br&gt;• Disorder of the day: Noise-induced hearing loss</td>
<td>• Katz et al. pp. 137-144</td>
<td>• Tympanometry activity&lt;br&gt;⇒ <strong>Electronic</strong>† submission by <strong>10:30 Wednesday 9/18</strong></td>
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<td>9/19/19</td>
<td><strong>EXAM 1</strong></td>
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<td>9/26/19</td>
<td>• Acoustic reflexes&lt;br&gt;• Disorder of the day: Ototoxicity</td>
<td>• Katz et al. pp. 165-172</td>
<td>• Acoustic reflexes activity&lt;br&gt;⇒ <strong>Electronic</strong>† submission by class time on <strong>10/3</strong></td>
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<td><strong>QUIZ 4 due at 10:30 a.m. on THURSDAY 10/3/19</strong></td>
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<td>Topics</td>
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<td>10/3/19</td>
<td>• Thresholds 1: Speech</td>
<td>• Katz et al. pp. 34-35, pp. 63-65, and Chapter 33</td>
<td>• Speech thresholds activity</td>
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<td>• Disorder of the day: Pseudohypacusis</td>
<td>• Lin &amp; Staecker (2006)</td>
<td>⇒ <strong>Electronic</strong> submission by class time on 10/17</td>
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<td>10/10/19</td>
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<td><strong>FALL BREAK (no class)</strong></td>
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<td>10/17/19</td>
<td>• Thresholds 2: Pure tones via air and bone conduction</td>
<td>• Katz et al. Chapters 3 and 4</td>
<td>• Pure tone thresholds activity</td>
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<td>• Disorder of the day: Otosclerosis</td>
<td>• Boothroyd and Cawkwell (1970)*</td>
<td>⇒ <strong>Electronic</strong>† submission in class on 10/24</td>
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<td>10/24/19</td>
<td>• Speech acoustics</td>
<td>• Chapters 7 and 8 of Denes &amp; Pinson (1993)*</td>
<td>• Word recognition activity</td>
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<td>• Word recognition testing</td>
<td>• Katz et al. Chapter 5</td>
<td>⇒ <strong>Electronic</strong> submission by 10:30 <strong>Wednesday</strong> 10/30</td>
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<td>• Disorder of the day: Acoustic neuroma</td>
<td>• Mendel &amp; Owen (2011)</td>
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<td>10/31/19</td>
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<td><strong>EXAM 2</strong></td>
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<tr>
<th>Date</th>
<th>Topics</th>
<th>To read</th>
<th>Activity/homework</th>
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<tbody>
<tr>
<td>11/7/19</td>
<td>• Other suprathreshold speech tests</td>
<td>• Killion et al. (2004)</td>
<td>• None this week</td>
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<td>• Masking: Theory and knowing when to mask</td>
<td>• Katz et al. pp. 77-92</td>
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<td>• Disorder of the day: Meniere’s disease</td>
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<td>11/14/19</td>
<td>• Masking – how to mask</td>
<td>• Katz et al. pp. 92-109</td>
<td>• Masking demo (no homework assignment)</td>
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<td>• Disorder of the day: Otitis media</td>
<td>• Dean &amp; Martin (2000)</td>
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<td>11/21/19</td>
<td>• Calibration</td>
<td>• Katz et al. Chapter 2</td>
<td>• Calibration demo (no homework assignment) Half of the class will do this on Friday 11/22</td>
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<td>11/28/19</td>
<td><strong>Thanksgiving Day (no class)</strong></td>
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<td>12/5/19</td>
<td><strong>EXAM 3</strong></td>
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<td><strong>Thursday 12/12/19, 1:30 – 3:00 p.m.</strong></td>
<td>• Review of Exam 3</td>
<td><strong>Final project due (submit in person)</strong></td>
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**Additional required readings** (ordered by assignment date; asterisks indicate items available in the U of U Library E-Reserves):


** Chapter 8 is available in e-reserves; the hard copy of the book is held in course reserves at the Marriott Library.

