

## SYLLABUS: COMD 7310 PSYCHOACOUSTICS AND INSTRUMENTATION

**Meets:** 3:30 PM to 5:00 PM M and TH – Lillywhite Conference room

### **Instructor**

Name Jeffery B. Larsen, PhD, CCC-A

Phone: 435-797-2670

Fax: 435-797-0221

Office: Lillywhite 032

E-mail: [Jeffery.larsen@usu.edu](mailto:Jeffery.larsen@usu.edu)

Dept. Web: <http://comd.usu.edu/>

**Office hours:** 2:30 PM to 3:20 PM M and TH or by appointment

**Learning Objectives (IDEA Course Evaluation)** At the end of the semester students will be able to:

1. understand the principles of psychometrics and psychoacoustics. Additionally, students will become familiar with basic electronics principles as well as how those principles have been applied to develop machinery that they use in audiologic clinical practice. **Gain Factual knowledge (terminology, classifications, methods, trends) [IDEA objective]** also **Learn fundamental principles [IDEA objective]**

2. evaluate the need for calibration in audiologic clinic equipment and how it is performed. Additionally, students will learn to apply psychometric principles that are commonly used in audiologic research. **Learn to apply course material (to improve thinking, problem solving, and decisions) [IDEA objective]**

### **Required Text Book/Readings**

Decker, T.& Carrell, T (2004). *Instrumentation: An Introduction for Students in the Speech and Hearing Sciences* (3<sup>rd</sup> ed.). New Jersey: Lawrence Erlbaum Associates, Inc.

Other readings will be provided by the instructor

**Course Fee:** There is no course fee associated with this course.

### **Expectations**

Before the audiologist can interpret audiological test data obtained from abnormal listeners, he/she must first understand the physical and psychological processes of audition. Many of the diagnostic and treatment procedures utilized in audiology are based on acoustic and psychoacoustic principles. It is important that the student understand acoustics and psychoacoustics in order that more advanced study of auditory disorders and abnormalities may be referenced to normal auditory structure and function.

This course is not meant to be an "applied" course, although the principles learned will be applied in concurrent and later classes. Rather, the course is meant to provide a background of information and understanding to be used throughout the remainder of the graduate training program in audiology. As such, it is important for the student to understand that the material must be mastered and committed to long-term memory.

The clinical audiologist uses a variety of electronic instruments on a daily basis. In order to maximize time with clients/subjects/patients, the audiologist must have a basic knowledge of electronics and audio systems. Students in this course will gain a rudimentary pragmatic knowledge of instrumentation typically found in the clinical setting and develop skills to use and make simple diagnostic measurements and repairs, as well as evaluating the need for calibration and some basic calibration techniques.

### **Competencies: American Speech-Language-Hearing Association Knowledge and Skills Assessment (KASA)**

In this course each student will be provided with an opportunity to demonstrate required knowledge and/or skill development. These knowledge and skills will be assessed as delineated in the syllabus (by examination, paper, presentation, project, etc.). ASHA has specified that in order to be competent, you must achieve a level of 80% or better on each KASA item. These KASA competencies apply specifically to students in the doctor of audiology program. If the student does not attain this level in this course, he/she will be provided with ONE additional opportunity (in the current class) to demonstrate this knowledge or skill. If the student does not pass the competency a second time, no action will be taken if another opportunity (course or clinic) remains available in which the skill can be acquired. However, if no such opportunity is available, the student will be asked to complete an exam/demonstration of the knowledge and/or skill as defined by the department. For students failing to attain the set criteria on a required competency assessment, the department head is not able to sign the KASA form required for ASHA certification, even though the student may receive

an acceptable course/clinic grade or exceed the minimum GPA. Learner Objectives: Following successful completion of this course, students will have demonstrated content knowledge and skill competency in the following areas:

**Evaluation/Grading/Assignments**

<b>KASA knowledge/skill</b>	<b>IDEA Objective #</b>	<b>Evaluation Method</b>
A11-A13	1, 2,	Exam 1, 2, and the final exam
A23-A25	1, 2,	Exam 1, 2, and the final exam
F3	1, 2,	Class assignments

- A11. Principles, methods, and applications of psychometrics
- A12. Principles, methods, and applications of psychoacoustics
- A13. Instrumentation and bioelectric hazards
- A23. 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), as applicable to:
  - a. occupational and industrial environments
  - b. community noise
  - c. classroom and other educational environments
  - d. workplace environments
- A24. The use of instrumentation according to manufacturer’s specifications and recommendations
- A25. Determining whether instrumentation is in calibration according to accepted standards
- F3. Critically evaluating and appropriately implementing new techniques and technologies supported by research-based evidence

Exams will count for 100 points each (300 points total) and class assignments will be worth 50 points each (3 for 150 points total). 450 points total for the course.

**Grading Scale**

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