

**San José State University**  
**College of Education/Communicative Disorders and Sciences**  
**Department**  
**EDAU 115, Introduction to Hearing Science , Sections 2, Fall, 2019**

**Course and Contact Information**

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Office Hours: TBD, please make an appointment  
Class Days/Time: Wednesday, 9:00-11:45am

**Course Description**

The purpose of this course is to provide the student with knowledge of anatomy, physiology, and psychoacoustics of normal auditory systems. The course is also intended to familiarize the students with the profession of audiology.

**Course Goals**

Mission of the College of Education, SJSU:

The mission...is to prepare educators who have the knowledge, skills, dispositions and ethics that ensure equity and excellence for all students in a culturally diverse, technologically complex, global community.

Mission of the Department of Communicative Disorders and Sciences, SJSU:

The mission of CD&S is to provide a high quality program for speech-language pathologists to meet the communicative needs of our increasingly diverse multilingual/multicultural population. The program follows an academic and clinical curriculum, based on a sound theoretical framework and research findings that promote competent practitioners who participate in lifelong learning experiences. The program is enhanced through faculty, academic, and clinical expertise, trans-disciplinary and family collaboration and technological advancements in a

ASHA STANDARDS:

**Standard IV-B**

The applicant must have demonstrated knowledge of basic human communication and swallowing processes, including the appropriate biological, neurological, acoustic, psychological, developmental, and

linguistic and cultural bases. The applicant must have demonstrated the ability to integrate information pertaining to normal and abnormal human development across the life span.

## **CALIFORNIA COMMISSION ON TEACHER CREDENTIALING STANDARDS SPEECH-LANGUAGE PATHOLOGY SERVICES CREDENTIAL**

### **Standard 19 Speech, Language and Hearing Mechanism**

Knowledge of the underlying mechanisms of speech, language, and hearing is a prerequisite for providing effective speech-language-hearing services and is consistent with current practices within the profession.

Standard 19.1 Each candidate demonstrates knowledge of the anatomy, physiology, and neurology of the speech, language, and hearing mechanism.

Standard 19.3 Each candidate demonstrates comprehension of the acoustics or physics of sound, physiological and acoustic phonetics, perceptual processes, and psychoacoustics involved in speech and hearing. ssessment and intervention.

### **Course Learning Outcomes (CLO)**

The knowledge base for this course includes the science of acoustics, including physical principles of sound waves and sound transmission; mathematics, including exponential notation, decibel notation and decibel manipulation; anatomy and physiology of the auditory mechanism, including basilar membrane mechanics, hair cell and neuron physiology, and central auditory system organization; and psychoacoustics, including theories of pitch perception, loudness, masking, critical bands, fatigue and adaptation, and binaural phenomena.

### **3. Student Learning Objectives:**

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

- A. Knowledge of acoustics of sound and stimulus parameters in hearing science.
- B. Knowledge of anatomy and physiology of the outer ear, middle ear, inner ear, auditory nerve, and ascending auditory pathways.
- C. Knowledge of the psychological correlates of auditory stimuli, including absolute and differential threshold, masking and critical bands, beats, loudness, pitch, adaptation and fatigue, and binaural hearing.
- D. Knowledge of the profession of Audiology and clinical applications of hearing science.

## **Required Texts/Readings**

### **Textbook**

Norman Lass and Charles Woodford, Hearing Science Fundamentals. Mosby Elsevier. 2007.

ISBN-13: 978-0-323-04342-7

Available on Amazon

Supplemental websites for alternative approaches to the material will be announced in class.

### **Other technology requirements / equipment / material**

*Computer that is compatible with the Respondus software including lockdown browser and video monitoring. Will be discussed in class.*

## **Course Requirements and Assignments**

The course is primarily a lecture course, although there will be periodic laboratory demonstrations. The students are responsible for reading all assignments, and should be prepared to participate in class discussions as they arise.

Two examinations will be given during the semester, at about the middle and end of the semester. These examinations will consist of multiple choice, fillins, and short answers. The examinations will cover primarily lecture material; the readings are intended to be supplemental in nature. No makeup examinations are allowed

In addition, short quizzes will be given on six dates throughout the semester, or approximately every other week. The purpose of the quizzes is threefold: 1) to encourage students to keep up with the material at regular intervals; 2) to assist in studying for the exams, and 3) to be used in determining the final course grade.

Each quiz will be worth 10 points toward the final course grade, and one quiz may be dropped from consideration at the end of the year. Quizzes may not be made up since you are allowed to drop one quiz.

Success in this course is based on the expectation that students will spend, for each unit of credit, a minimum of 45 hours over the length of the course (normally three hours per unit per week) for instruction, preparation/studying, or course related activities, including but not limited to internships, labs, and clinical practica. Other course structures will have equivalent workload expectations as described in the syllabus.

### **Final Examination or Evaluation**

FINAL EXAM: WEDNESDAY, DECEMBER 11, 2018 (12:15PM-2:30PM)

## **Grading Information (Required)**

Grades will be determined in the following manner:

Exam One: 50 points.

Exam Two (NOT cumulative): 50 points.

Quizzes: 50 points.

Total Points: 150

90% 100% A

80% 89% B

70% 79% C

60% 69% D

less than 60% F

Late work will not be accepted.

Extra credit options will be discussed in class.

Six quizzes will be given in class throughout the semester. Each quiz will be worth 10 points. Your highest 5 quiz scores will be used toward your final grade. NO MAKEUP QUIZZES ALLOWED.

## **Classroom Protocol**

Attendance and participation in classroom discussions is expected. Arrival times, classroom behavior, safety and cell phone use will be discussed in class.

## **University Policies**

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' [Syllabus Information web page](http://www.sjsu.edu/gup/syllabusinfo/) at <http://www.sjsu.edu/gup/syllabusinfo/>

Grievance Procedures: Information regarding grievance procedures is available in the CD&S office (SH 115).

Academic Integrity: "Your own commitment to learning, as evidenced by your enrollment at SJSU, and the University's Academic Integrity Policy requires you to be honest in your academic course work. Faculty are required to report all infractions to the Office of Judicial Affairs. The policy on academic integrity can be found at [http://sa.sjsu.edu/student\\_conduct](http://sa.sjsu.edu/student_conduct)."

Americans with Disabilities Act: "If you need course adaptations or accommodations because of a disability, or if you need special arrangements in case the building must be evacuated, please make an appointment with me as soon as possible, or see me during office hours. Presidential

Directive 97-03 requires that students with disabilities register with DRC to establish a record of their disability.”

## **Course Number / Title, Semester, Course Schedule**

### Tentative Course Lecture and Exam Schedule (Subject to change with fair notice, in class) and readings:

Week One: Course overview; the profession of audiology; acoustics; specifying acoustic stimuli. Chapter 1

Week Two: More acoustics; Decibels.

Week Three: Finish acoustics; Begin anatomy and physiology of external and middle ear. Chapter 2

Week Four: Anatomy and physiology of inner ear.

Week Five: Continued.

Week Six: Continued. Begin auditory nerve responses and central auditory pathways. Chapters 3-4

Week Seven: Exam One (Approximate date)

Week Eight: Psychoacoustical methods. Chapter 5

Week Nine: Absolute threshold and differential threshold.

Week Ten: Beats and nonlinearities.

Week Eleven: Masking. Chapter 6

Week Twelve: Loudness. Chapter 7

Week Thirteen: Pitch.

Week Fourteen: Binaural hearing. Chapter 8

Week Fifteen: Auditory fatigue and Abnormal Auditory System

Exam Two: final exam week.

## Course Schedule

Week	Date	Topics, Readings, Assignments, Deadlines
1		Course overview; the profession of audiology; acoustics; specifying acoustic stimuli. Chapter 1
2		More acoustics; Decibels.
3		Finish acoustics; Begin anatomy and physiology of external and middle ear. Chapter 2
4		Anatomy and physiology of inner ear.
5		Continued.
6		Continued. Begin auditory nerve responses and central auditory pathways. Chapters 3-4
7		Exam One (Approximate date)
8		Psychoacoustical methods. Chapter 5
9		Absolute threshold and differential threshold.
10		Beats and nonlinearities.
11		Masking. Chapter 6
12		Loudness. Chapter 7
13		Pitch.
14		Binaural hearing. Chapter 8
15		Auditory fatigue and Abnormal Auditory System
16		REVIEW
		FINAL EXAM WEDNESDAY, DECEMBER 12, 2018 (7:15AM-9:30AM)