

Last name of instructor (Semester Year)

**California State University, Sacramento**  
**INDUSTRIAL AUDIOLOGY AND HEARING CONSERVATION**  
CSAD642 - 3 units  
Fall 2020 (AUD-2)

**COURSE FACULTY**

**Course Instructor:**  
**Folsom Hall office #:**  
**Office Phone:**  
**Office Hours:**  
**E-mail address:**

**REQUIRED CLASS MEETINGS TIMES**

**Days and times:**  
**Building: Folsom      Room #:**

**REQUIRED TEXTS**

Le Prell, C.G., Henderson, D., Fay, R.R., & Popper, A.N. (2012). *Noise-induced hearing loss: Scientific advances*. Springer.

Rawool, V.W. (2011). *Hearing conservation in occupational, recreational, educational, and home settings*. Thieme.

**OPTIONAL TEXTS**

**COURSE WEBSITE**

<https://sacct.csus.edu>

SacCT will be used as the learning management site for dissemination of course readings, handouts, slides, assignments, announcements, and tests/quizzes. The course faculty will have materials posted to SacCT at least 48 hours before class.

**Instructor Communication and Response Time**

Faculty strive to have open communication with students both within and outside of the classroom. Students are encouraged to contact faculty to discuss questions about the course. Responses to telephone or e-mail messages will usually be transmitted within 48 hours during regular working hours. If you do not have a response within this time period, please check your contact methods and resend the message. Faculty will generally respond to student questions received during evenings and weekends once they are back in the office during regular business hours.

**\*Please be aware that all content for this course is the property of the course faculty who have created it and can only be used for this course. Those wishing to use the materials outside of this course must receive written permission from the author/creator.**

**GENERAL COURSE INFORMATION**

**PRE-REQUISITES**

Admission to Doctor of Audiology program; CSAD611, CSAD612, CSAD613, CSAD614, CSAD621, CSAD622, CSAD622L, CSAD623, CSAD624, CSAD631, CSAD632

## COURSE DESCRIPTION

### Overview

This course provides content in the areas of hearing conservation, industrial audiology, and noise control. Students will learn the procedures for measuring noise, implementing hearing conservation programs, and making recommendations for the management and prevention of noise-induced hearing loss. Through the course, students will also develop a hearing conservation program that includes use of hearing protection. Students will also be introduced to the effects of pharmaceutical and chemical agents on the auditory system, legal aspects of noise-induced hearing loss, and the regulations pertaining to national standards and worker's compensation.

### Approved Course Description (from CSUS Course Catalog)

Study of the effects of noise on the auditory system and measurement of noise levels. Theories and resources for the implementation of hearing conservation programs for recreational/leisure noise exposure, industrial settings, and schools.

### WHY IS THIS COURSE IMPORTANT?

This course is important because it introduces concepts necessary for understanding the effects of noise on the auditory system, speech understanding, and communication. Students will also learn about ways to measure noise, select appropriate hearing protective devices, implement hearing conservation, and recommend strategies for noise control in future clinical practice.

### UNIVERSITY LEARNING GOALS

	1 Disciplinary knowledge	2 Communication	3 Critical thinking/analysis	4 Information literacy	5 Professionalism	6 Intercultural/global perspectives	7 Research
Addressed by this course	X	X	X	X	X		X

### GRADUATE LEARNER OUTCOMES

Mastery of each student-learning outcome listed below is indicated by a grade of B or better on each component of the corresponding measures listed in the table. Students are required to track their progress towards meeting each learning outcome and must make an appointment with the instructor for any grade equal to or less than a B. The instructor will suggest strategies to help you establish competence and knowledge in these areas.

Students should track their progress towards meeting each learning outcome by listing their grades on the table below over the course of the semester.

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

1. State the historical milestones in the efforts for hearing conservation
2. Describe the impact of noise on the peripheral and central auditory systems and speech understanding
3. Describe mechanism of noise-induced damages to the auditory system
4. Evaluate environments for noise measurement
5. Measure noise levels
6. Calculate noise dosages based on environments and level measurements
7. State national regulations for the monitoring of noise levels

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8. State criteria for evaluating hearing sensitivity for employees in vocational/occupational settings
9. Describe characteristics, risks, and management of various types of noise exposure
10. Explain the synergistic effects of noise exposure and various pharmaceuticals and industrial solvents
11. Develop a hearing conservation program that includes measures of its effectiveness
12. Differentiate between types of hearing protection
13. Outline key components of hearing conservation programs, including those used for occupational settings and in the schools
14. Evaluate a case study for auditory fitness for duty

Graduate Learner Outcome	Component Indicating Competence	Grade(s) Received
1-3,6-10,12-14	Exam (100%)	
4-6	Noise measurement activity (100%)	
9,11,13,14	Hearing conservation project and presentation (100%)	

## COURSE/CLASS POLICIES

### Course Format

Lecture

### Class Preparation:

All required readings are for the date listed in the course schedule, not the following class period. Students are responsible for all assigned readings, whether discussed in class or not.

### Class Participation:

Students are expected to actively participate in class discussions and are required to have read the assigned material prior to class meetings.

### Class Attendance:

Classroom attendance is necessary for this course. No more than three unexcused absences are allowed. Students are expected to arrive on time as class begins at X:XX am/pm.

### Class Assignments

Course grades are based on a noise measurement activity, hearing conservation project and presentation, and three exams.

### Noise Measurement Activity

Students will work in pairs to measure noise levels using a sound level meter and smartphone application at various locations on campus.

### Hearing Conservation Project and Presentation

Students will be assigned a case with varying backgrounds, needs, and outcomes for people at risk for noise-induced hearing loss. Plans will be presented to the class at the end of the semester.

### Exams

- Exam absences: No make-up examinations will be given unless there is a documented emergency for which you have written proof. Any approved make-up exams will be

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scheduled at the end of the semester (during finals week) and may be administered in a different format from the original exam.

- **Exam procedures:**

Test arrival/start

Test duration and completion

**Commitment to Integrity**

As a student in this course (and at this university) you are expected to maintain high degrees of professionalism, commitment to active learning and participation in this class and also integrity in your behavior in and out of the classroom.

**Sac State's Academic Honesty Policy & Procedures**

"The principles of truth and honesty are recognized as fundamental to a community of scholars and teachers. California State University, Sacramento expects that both faculty and students will honor these principles, and in so doing, will protect the integrity of academic work and student grades." Read more about Sac State's Academic Honesty Policy & Procedures at the following website: <http://www.csus.edu/umannual/AcademicHonestyPolicyandProcedures.htm>

*Definitions:* At Sac State, "cheating is the act of obtaining or attempting to obtain credit for academic work through the use of any dishonest, deceptive, or fraudulent means."

"Plagiarism is a form of cheating. At Sac State, "plagiarism is the use of distinctive ideas or works belonging to another person without providing adequate acknowledgement of that person's contribution." *Source:* Sacramento State University Library

*Note:* Any form of academic dishonesty, including cheating and plagiarism, shall be reported to the office of student affairs.

**Understand When You May Drop This Course**

It is the student's responsibility to understand when he/she need to consider disenrolling from a course. Refer to the Sac State Course Schedule for dates and deadlines for registration. After this period, a serious and compelling reason is required to drop from the course. Serious and compelling reasons include: (a) documented and significant change in work hours, leaving student unable to attend class, or (b) documented and severe physical/mental illness/injury to the student or student's family. Under emergency/special circumstances, students may petition for an incomplete grade. An incomplete will only be assigned if there is a compelling extenuating circumstance. All incomplete course assignments must be completed in accordance with the department's policy.

**Accommodations**

Inform your instructor of any accommodations needed. If you have a documented disability and verification from the Office of Services to Students with Disabilities (SSWD), and wish to discuss academic accommodations, please contact your instructor as soon as possible. It is the student's responsibility to provide documentation of disability to SSWD and meet with a SSWD counselor to request special accommodation before classes start. SSWD is located in Lassen Hall 1008 and can be contacted by phone at [\(916\) 278-6955](tel:9162786955) (Voice) or [\(916\) 278-7239](tel:9162787239) (TDD only) or via email at [sswd@csus.edu](mailto:sswd@csus.edu)

**Course Requirement Grading**

<b><u>Activity</u></b>	<b><u>Points Available</u></b>
Noise measurement activity	100

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Hearing conservation project	150
Hearing conservation project presentation	150
Exam 1	200
Exam 2	200
Exam 3	200
<b><u>TOTAL COURSE POINTS AVAILABLE</u></b>	1000

### **Overall Percentage Needed**

Note: A grade of "B" or higher is required to count toward the minimum number of units needed to advance to candidacy.

<b>Grade</b>	<b>Percentage</b>
A	93-100%
A-	90-92%
B+	87-89%
B	83-86%
B-	80-82%
C+	77-79%
C	73-76%
C-	70-72%
D+	67-69%
D	63-66%
D-	60-62%
F	< 60%

### **COURSE SCHEDULE OF LECTURE TOPICS AND EXAMS**

<b>Date</b>	<b>Topic and Activity or Quiz and Exam</b>	<b>Readings/ Assignment</b>
8/26	Overview of course	
8/28	History of hearing conservation	Le Prell, Henderson, Fay, and Popper- pp. 13-25  Thurston, F.E. (2013). The worker's ear: A history of noise-induced hearing loss. <i>American Journal of Industrial Medicine</i> , 56(3), 367-377.
9/2	Occupational health and safety	Verbeek, J.H., Kateman, E., Morata, T.C., Dreschler, W.A., & Mischke, C. (2014). Interventions to prevent occupational noise-induced hearing loss: A Cochrane systematic review. <i>International Journal of Audiology</i> , 53(2), S84-S96.

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9/4	Noise-induced hearing loss Peripheral and central auditory system damage	Le Prell, Henderson, Fay, and Popper- pp. 57-86, 87-135, 179-203  Kujawa, S., & Liberman, M.C. (2009). Adding insult to injury: Cochlear nerve degeneration after “temporary” noise-induced hearing loss. <i>Journal of Neuroscience</i> , 29(45), 14077-14085.
9/9	Noise exposure and age-related hearing loss Tinnitus	Le Prell, Henderson, Fay, and Popper- pp. 151-175, 205-221  Rosenhall, U. (2003). The influence of ageing on noise-induced hearing loss. <i>Noise and Health</i> , 5(20), 47-53.
9/11	Decibels and measuring noise Sound level meters	Rawool- Ch. 2  Fava, G., Oliveira, G., Baglione, M., Pimpinella, M., & Spitzer, J.B. (2016). The use of sound level meter apps in the clinical setting. <i>American Journal of Speech-Language Pathology</i> , 25(1), 14-28.
9/16	Instrumentation OSHA and NIOSH regulations	Johnson, P.T. (n.d.). Noise exposure: Explanation of OSHA and NIOSH safe-exposure limits and the importance of noise dosimetry. <i>Etymotic Research</i> .
9/18	Review for Exam 1	
9/23	<b>Exam 1</b>	
9/25	Hearing loss prevention programs	Rawool- Ch. 8
9/30	Efficacy of hearing loss prevention programs	Rawool- Ch. 8
10/2	Noise control	Rawool- Ch. 3
10/7	Occupational noise sources	Donoghue, A.M., Frisch, N., Dixon-Ernst, C., Chesson, B.J., & Cullen, M.R. (2016). Hearing conservation in the primary aluminum industry. <i>Occupational Medicine</i> , 66(3), 208-214.
10/9	Recreational noise	Rawool- Ch. 11  Ivory, R., Kane, R., & Diaz,

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		R.C. (2014). Noise-induced hearing loss: A recreational noise perspective. <i>Current Opinions in Otolaryngology-Head and Neck Surgery</i> , 22(5), 394-398.
10/14	Music-induced hearing loss	Rawool- Ch. 9  Jin, S.H., Nelson, P.B., Schlaluch, R.S., & Carney, E. (2013). Hearing conservation program for marching band members: A risk for noise-induced hearing loss? <i>American Journal of Audiology</i> , 22(1), 26-39.  Halevi-Katz, D.N., Yaakobi, E., & Putter-Katz, H. (2015). Exposure to music and noise-induced hearing loss (NIHL) among professional pop/rock/jazz musicians. <i>Noise and Health</i> , 17(76), 158-164.
10/16	Military, blast-related ear injuries	Le Prell, Henderson, Fay, and Popper- pp. 27-38  Yong, J.S., & Wang, D. (2015). Impact of noise on hearing in the military. <i>Military Medical Research</i> , 2, 6.
10/21	Noise exposure and increased susceptibility Solvents and chemical agents, genetics	Le Prell, Henderson, Fay, and Popper- pp. 223-254
10/23	Review for Exam 2	
10/28	<b>Exam 2</b>	
10/30	Auditory fitness for duty	Tufts, J.B., Vasil, K.A., & Briggs, S. (2009). Auditory fitness for duty: A review. <i>Journal of the American Academy of Audiology</i> , 20(9), 539-557.
11/4	Medico-legal diagnosis and estimation of NIHL	Rawool- Ch. 4-5
11/6	Hearing standards Evaluating hearing	Rawool- Ch. 4-5 Le Prell, Henderson, Fay, and Popper- pp. 137-150
11/11	Hearing protection	Rawool- Ch. 6
11/13	Therapeutic agents	Le Prell, Henderson, Fay, and Popper- pp. 285-338
11/18	Intervention aimed at children and teens	Rawool- Ch. 13

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		<p>Griest, S.E., Folmer, R.L., &amp; Martin, W.H. (2007). Effectiveness of "Dangerous Decibels," a school-based hearing loss prevention program. <i>American Journal of Audiology</i>, 16(2), S165-S181.</p> <p>Dell, S.M., &amp; Holmes, A.E. (2012). The effect of a hearing conservation program on adolescents' attitudes toward noise. <i>Noise and Health</i>, 14(56), 39-44.</p>
11/20	Hearing conservation programs	<p>Rawool- Ch. 7</p> <p>Morata, T.C., &amp; Meinke, D. (2016). Uncovering effective strategies for hearing loss prevention. <i>Acoustics Australia</i>, 44(1), 67-75.</p>
11/27	Preventing NIHL	Rawool- Ch. 12
12/2	Hearing conservation project presentations	
12/4	Review for final exam	
12/12	<b>Final exam</b>	

Please note that dates, topics, and assignments are subject to change. In the event of a change, you will be given ample notification of the change.