

COURSE SYLLABUS
CSD 856: Amplification I, 2 s.h.
University of Wisconsin AuD Program
Spring 2024
MW 1:00-1:50
Room 234 in CPS, UWSP

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Office Hours: Wednesday 3:30-4:30, Thursday 1:30-2:30, Friday 11-noon, & by appointment
Zoom and phone "office hours" appointments can also be arranged as needed, either during my regular office hours times or at other times. Please email or call me to schedule Zoom or phone appointments.

Course Description:

Introduction to hearing aids. Components and signal processing features of hearing aids, electroacoustic measurement and verification of hearing aids in couplers and real ears, earmold and earshell acoustics, assessing patient needs and determining hearing aid candidacy, using prescriptive fitting strategies, and hearing aid repair and troubleshooting.

Additional Information:

This course will cover much of the beginning to intermediate knowledge and skills that you will need to begin successfully fitting your patients with hearing aids! Amplification I is the first part of a roughly 2.5-semester course sequence on hearing aids. The goal of this course is to cover the topics that will allow you to begin hands-on work with hearing aids in the clinic as soon as possible. Even across 2.5 semesters, it is not possible to cover all the information you will need to know about hearing aids, and the specific **technology will change by the time you graduate. Thus, this course will cover the important foundation information** upon which you can build the necessary habit of continued learning.

Prerequisites:

- Declared in Audiology Consortial Program with UW-Stevens Point AuD

Required Readings:

- Harvey Dillon, *Hearing Aids*, **2nd edition**
- Additional required readings on Canvas.

Credit Hour Policy Standard:

This class meets for two 50-minute class periods each week, and carries the expectation that students will work on course learning activities (reading, studying, viewing recorded lectures, working on practice questions, reviewing and organizing notes, preparing for class, etc.) for about 2 hours outside of the classroom for every class period. More information about class meeting times and expectations for student work are included in this syllabus.

Course Format and Expectations:

- This class will meet in person in the UWSP and UW-Madison distance rooms as much as possible, unless unforeseen circumstances require remote or virtual classes.
- You are expected to attend class regularly, and absences should be reserved for circumstances such as illness, caring for someone who is ill, personal or family emergency, etc. Class absences should NOT be requested or used for routine or controllable circumstances like vacation, personal time off, or work.

E-mail communication:

You are expected to check your school e-mail account at least once per weekday for any important class announcements. I typically reply to emails within two business days or sooner. I cannot guarantee that I will check email on evenings and weekends, so please plan ahead to avoid last-minute weekend or late-night “emergencies.”

Late assignments cannot be excused because you are waiting for a reply from me. If you’ve emailed me with reasonable advance notice (see later in this paragraph), but I haven’t replied within two business days, there is a chance I did not receive your message. Please check your sent-mail to see if it was actually sent, and try re-sending it or calling me. If you are emailing a question within 1-2 days or less of the deadline, I may not have time to reply/answer before the deadline. (I will do my best to reply, but sometimes it’s not possible). If I do not reply before the deadline, then you should submit your assignment by the deadline, using your best judgment to answer your question.

Student Privacy and Intellectual Property of Recorded Lectures:

Lecture materials and recordings for this class are protected intellectual property at UW-Stevens Point. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation [Regent Policy Document 4-1]. (You may contact me to request permission to record lectures). **Students may not copy or share lecture materials and recordings outside of class**, including posting on internet sites or selling to commercial entities. **Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor’s express written permission.** Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

Student Learning Outcomes: At the end of this course, students will know or be able to:

1. Determine, and explain the rationale for, appropriate stimulus choices for electroacoustic testing of hearing aids.
2. Accurately interpret results of electroacoustic testing to determine if hearing aids meet manufacturer specifications, to determine if features are working properly, and to understand the actual measured effects of programming adjustments.
3. Interpret real-ear measurements (REMs), troubleshoot problems with REM measurement, and verify hearing aid features.
4. Describe methods to appropriately fit, program, adjust, and troubleshoot compression signal processing in hearing aids.

5. Describe the main characteristics of essential HA components and other signal processing features, such as directionality, noise reduction, AI, feedback management, connectivity, and other noise management features.
6. Determine each individual's concerns and needs (hearing aid candidacy), and select appropriate amplification for sample/hypothetical patients.
7. Determine and justify appropriate frequency-gain and output characteristics of hearing aids based on evidence-based hearing aid prescriptive procedures.
8. Select and justify an appropriate earmold/earshell/dome, tubing, and venting configuration for hypothetical patients that allows the necessary gain and minimizes the risk of feedback.

Student Requirements:

Personal situations and/or difficulty meeting course requirements:

If you are concerned that a family or personal situation may affect your ability to meet the class requirements, please discuss this with me (or with the graduate advisor or another faculty member on your home campus with whom you feel comfortable) so that we can be aware of the situation and figure out alternative arrangements if needed. It is far better to be proactive about discussing possible difficulties than to wait until your performance in the class has already suffered. I will not ask you for specific medical or personal information if you do not wish to share it; however, you will typically need to provide some type of documentation to at least one faculty member (either myself or the graduate advisor on your home campus) if a short-term accommodation is needed, or to the Disability Center on your home campus if ongoing or repeated accommodations are needed.

You must complete all of the following in order to pass this course:

Respect & Professionalism

As doctoral students, I expect you to be prepared for class, and to regularly attend and participate in class (including any remote classes) with an attitude of respect, engagement, enjoyment, and professionalism. **I expect you to behave respectfully toward everyone in the class and myself.**

In-Class Quizzes/Assignments

During many class sessions, there will be in-class, small-group and/or individual quizzes or assignments to practice class concepts. You will be required to submit your answers for a grade, and see the Grading section for more information about how these will be graded.

In-Class Exams

There will be two in-class exams during the semester. These will be taken online with a proctor in the room, and no resources (no books, notes, internet sources, etc.) will be permitted for the exams.

Take-Home Exams/Assignments

There will be two take-home exams/assignments, one around midterm and one final exam/assignment. These assignments are posted in Canvas.

Use of AI and Take-Home Exams/Assignments:

The take-home exams in this class assess your ability to demonstrate that you accurately understand and can **accurately apply and explain specific concepts from this class in your own words. I will be grading your assignments on how well you are applying the specific information taught in this class.**

There is no reliable method for me to monitor and enforce whether or not you use AI on your take-home exams; however, be aware that AI tends to produce more general or generic information, it can sometimes be inaccurate, its answers can reinforce or perpetuate existing biases, and it does NOT accurately cite sources. (Many “sources” that it “cites” do not even exist). Because I will be grading you on how accurately, clearly, and specifically you discuss, apply, and explain the specific concepts taught in this class, be aware that **AI alone will most likely not generate acceptable exam answers.**

Because I am not able to reliably monitor the use of AI, you are not prohibited from using it, and you may even find it helpful as an aid; however, be aware that YOU are responsible for the accuracy, relevance, and correct use of sources and citations for the assignments you submit in this class. **If you choose to use AI in any assignments, you will need to closely and critically evaluate and edit the information for accuracy, to minimize bias, to make sure you are specifically applying content taught in this class, and to make sure that other sources are correctly paraphrased and cited.**

Accommodations for Disability or Health Condition:

If you have a short- or long-term disability or health condition that requires accommodations, please contact the Disability Center on your home campus.

Religious Observances:

I will accommodate religious beliefs according to UWS 22.03 if you notify me within the first three weeks of the semester regarding specific dates that you will need to change course requirements.

Academic Misconduct:

I expect all students to follow the course requirements for academic honesty. **If you are tempted by academic dishonesty, I recommend asking yourself why:** Are you having trouble meeting an assignment deadline? Are you struggling to understand some course material? Are you having trouble understanding why an assignment is relevant or important? Are you unsure how to get started? Are you struggling with confidence? These are all understandable problems, and I’m happy to discuss some possible strategies or solutions with you.

The policies that apply to all UW System students and faculty regarding academic misconduct can be found here: <https://conduct.students.wisc.edu/academic-misconduct/>. (Although this is a UW-Madison link, these are UW System-wide policies). You are also responsible for reviewing and understanding all of the information about avoiding plagiarism at this link, especially the information on successful and unsuccessful paraphrases: <https://writing.wisc.edu/handbook/assignments/quoting/sources/>.

Grading:

Also see the assignment descriptions and rubrics for each take-home assignment.

Your final grade is determined by averaging your **percentage** (NOT total number of points) on the following components:

In-class quizzes/assignments	10%
Each in-class exam (2)	22%
Take-home midterm	23%
Take-home final exam/assignment	23%

Grading for In-Class Quizzes/Assignments:

The purpose of in-class quizzes and assignments is for spaced repetition practice of recalling class information, and for practice applying class information. **These are evidence-based methods for improving and maintaining learning. You will get the most out of these assignments if you regularly review class information and make your best attempt to get as many correct answers as possible;** however, these exercises are still highly valuable for learning even when you don't get all the correct answers. These are the reasons for the grading scale below:

- 100% = assignment is complete with at least half of the total answers correct
- 90% = assignment is complete with at least one answer correct, but less than half of total answers correct
- 85% = assignment fully complete with reasonable answers (i.e., honest attempts), but none correct
- 80% = assignment partially complete with some reasonable answers
- 0% = assignment not submitted or only minimally complete
- Your two lowest in-class quiz/assignment grades will be dropped with no penalty. If you are absent from class on a day with an in-class assignment, you have the option to take a grade of 0% and use it as one of your two dropped grades, or you may submit a make-up assignment. The make-up assignment is 2-3 paragraphs summarizing what you believe are the most important 2-3 points you learned during the previous class, along with your own explanation of how you will use that information and why it is important. No more than two make-up assignments due to class absence are allowed per student per semester, except for extremely extenuating circumstances with a documented need for this type of accommodation.

Grading Scale

UW – SP Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	F
Percentage	100-93	92.9-90	89.9-88	87.9-82	81.9-80	79.9-78	77.9-72	71.9-70	69.9-68	67.9-60	<60
UW – Madison Letter Grade	A	AB		B	BC		C	CD		D	F

ASHA Standards/Competencies: The following American Speech-Language-Hearing Association (ASHA) Council for Clinical Certification (CFCC) 2020 standards for the Certificate of Clinical Competence in Audiology (CCC-A) are covered in this course (see table below). For standards that are partially covered, **the portion covered in this class is bolded.**

Method of Assessing Competency: All of these competencies are assessed via all of the assignments. For each competency, a passing grade on the exam(s) / assignment(s) covering the corresponding material will serve as documentation that the student has met competency. **A passing grade is a B or better. If a student fails to meet competency on a task, they will work with the course instructor to either redo the task or complete an additional task in order to demonstrate competency. If a student is not able to successfully complete this task, then an improvement plan will be initiated to remediate the skill in question. See the AuD handbook section on improvement plans.**

ASHA CCC-A/CFCC (2020) standard; The student will demonstrate knowledge of (for items lettered A) and knowledge and skills in (for items lettered B-F):
A4. Principles, methods, and applications of acoustics, psychoacoustics, and speech perception, with a focus on how each is impacted by hearing impairment throughout the life span
A5. Calibration [calibration only covered to a limited extent] and use of instrumentation according to manufacturers' specifications and accepted standards
A16. Principles and practices of client/patient/person/family-centered care, including the role and value of clients'/patients' narratives, clinician empathy, and shared decision making regarding treatment options and goals
A18. The role, scope of practice, and responsibilities of audiologists and other related professionals
D4. Enhancing clients'/patients' acceptance of and adjustment to hearing aids, hearing assistive technologies, and osseointegrated and other implantable devices
E1. Engaging clients/patients in the identification of their specific communication and adjustment difficulties by eliciting client/patient narratives and interpreting their and/or caregiver-reported measures
E3. Responding empathically to clients'/patients' and their families' concerns regarding communication and adjustment difficulties to establish a trusting therapeutic relationship
E8. Selecting and fitting appropriate amplification devices and assistive technologies
E9. Defining appropriate electroacoustic characteristics of amplification fittings based on frequency-gain characteristics, maximum output sound-pressure level, and input-output characteristics
E10. Verifying that amplification devices meet quality control and American National Standards Institute (ANSI) standards
E11. Conducting real-ear measurements to (a) establish audibility, comfort, and tolerance of speech and sounds in the environment and (b) verify compression, directionality, and automatic noise management performance
E13. Conducting individual and/or group hearing aid orientations to ensure that clients/patients can use, manage, and maintain their instruments appropriately
E14. Identifying individuals who are candidates for cochlear implantation and other implantable devices
E17. Identifying the need for—and fitting—electroacoustically appropriate hearing assistive technology systems (HATS) based on clients'/patients' communication, educational, vocational, and social needs when conventional amplification is not indicated or provides limited benefit

Class Schedule

The following is a tentative schedule that is subject to change.

Day	Date	Topic	Required <u>Text</u> Reading (see Canvas for additional required readings)
M	Jan. 22	Intro to the course and to the HA fitting process	Dillon chpt. 1; Dillon chpt. 9; Dillon chpt. 11 pp. 336-344
W	Jan. 24	HA components & features	Dillon chpt. 2

M	Jan. 29	HA components & features	Dillon chpt. 2; chpt. 4 pp. 121-25 ; chpt. 3 pp. 56-68, 73-80, highlighted sections
W	Jan. 31	HA components & features	Dillon chpt. 7, read all through top of p. 204, and then only highlighted sections
M	Feb. 5	HA components & features	Dillon chpt. 4 pp. 118-121; Dillon chpt. 8 pp. 234-239
W	Feb. 7	HA components & features	
M	Feb. 12	Electroacoustic measurement	Dillon chpt. 4 pp. 82-96
W	Feb. 14	Electroacoustic measurement	
M	Feb. 19	Electroacoustic measurement	
W	Feb. 21	Electroacoustic measurement	
M	Feb. 26	In-class exam 1	
W	Feb. 28	Compression	Dillon chpt. 6; chpt. 12 section 12.1.7 (pp. 362-365)
M	March 4	Compression	
W	March 6	Compression	
M	March 11	Compression	
W	March 13	Verification & probe microphone measurements Take-home midterm exam/assignment due	Dillon chpt. 4 pp. 97-118
M	March 18	No class meeting: spring break for Stevens Point Madison students view recorded lectures or other required class activity Verification & probe microphone measurements (duplicates March 25)	
W	March 20	No class meeting: spring break for Stevens Point Madison students view recorded lectures or other required class activity Verification & probe microphone measurements (duplicates March 27)	
M	March 25	No class meeting: spring break for Madison SP students view recorded lectures or other required class activity Verification & probe microphone measurements (duplicates March 18)	
W	March 27	No class meeting: spring break for Madison SP students view recorded lectures or other required class activity Verification & probe microphone measurements (duplicates March 20)	

M	April 1	Finish verification & probe microphone measurements; Fitting strategies / prescriptive procedures	Dillon chpt. 10
W	April 3	Fitting strategies / prescriptive procedures	
M	April 8	In-class midterm #2	
W	April 10	Fitting strategies / prescriptive procedures	
M	April 15	Fitting strategies / prescriptive procedures	
W	April 17	No class meeting due to AAA conference; required recorded lectures or other class activity Earmold & earshell acoustics	Dillon chpt. 5
M	April 22	Earmold & earshell acoustics	
W	April 24	Earmold & earshell acoustics	
M	April 29	Catch up / wrap up	
W	May 1	Catch up / wrap up	
T May 7 by <u>Noon</u>		Take-Home Final Exam/Assignment due by <u>noon</u>	