



Course Syllabus
Hearing Aids I

HESP 700
 Fall 2019

Learning Outcomes

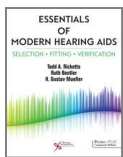
This course is the first of two graduate courses in the use of amplification devices for the treatment of hearing impairment. The courses are augmented by concurrent clinical education in rehabilitative audiology. At the end of the sequence, students will be prepared to independently perform the assessment, selection, fitting, verification, validation, adjustment, modification, counselling, and troubleshooting activities required for amplification-based rehabilitation. The focus of the present course is an introduction to the practical and theoretical bases of modern hearing aid technology in clinical use.

After successful completion of this course you will be able to:

- Assess hearing aid candidacy based on objective and subjective measures.
- Fit and validate hearing aids using current software and device platforms.
- Understand the mathematical and psychoacoustical bases of amplification.
- Measure and evaluate the acoustics of amplification in idealized (coupler) and real-world (on-ear) settings.
- *See Knowledge and Skills below for a complete list of learning outcomes.*

Resources

Course website: elms.umd.edu



Essentials of Modern Hearing Aids **Required**
Selection, Fitting, and Verification
 Ricketts, T. A., Bentler, R., & Mueller, H. G.
 First edition (2019).
 ISBN: [978-1-59756-853-1](https://www.amazon.com/dp/9781597568531)



Hearing Aids **Recommended**
 Dillon, H.
 Second edition (2012).
 ISBN: [978-1-60406-810-8](https://www.amazon.com/dp/9781604068108)

Campus Policies

It is our shared responsibility to know and abide by the University of Maryland’s policies that relate to all courses, which include topics like:

- Academic integrity
- Student and instructor conduct
- Accessibility and accommodations
- Attendance and excused absences
- Grades and appeals
- Copyright and intellectual property

Please visit www.ugst.umd.edu/courserelatedpolicies.html for the Office of Undergraduate Studies’ full list of campus-wide policies and follow up with me if you have questions about how they apply to graduate students. These policies are superseded by this document, your CAUD program handbook, and any relevant policies of the Department of the Hearing and Speech, the College of Behavioral and Social Sciences, and the Graduate School.

**Eric C. Hoover,
 Ph.D.**

ehoover@umd.edu

Class Meets

Tuesdays
 5:00pm - 7:30pm
 LeFrak Hall 1222

Office Hours

LeFrak Hall 0119E
 Wednesdays
 3:00pm – 5:00pm
and by appointment

**Course
 Communication**

Subscribe to course announcements via ELMS. Students may contact the instructor via ELMS or email to discuss questions, absences, or accommodations. Consider the following helpful guidance on writing professional emails (ter.ps/email).

Activities, Learning Assessments, & Expectations for Students

The format of the course is a combination of lecture and laboratory instruction. PowerPoint slides will be available on ELMS prior to each meeting. The course content is a combination of material from the required text and additional sources available through the University of Maryland library or the course website. Laboratory instruction will take place both in the scheduled meeting room and in the audiology clinic in LeFrak Hall. Laboratory instruction will occur during the scheduled meeting time.

Prior to each class meeting, students are strongly encouraged to read the material listed on the course calendar for that meeting and additional readings posted on ELMS. Students are also strongly encouraged to review the material from the previous week prior to each meeting. A quiz and discussion of the material from the previous week will occur prior to each lecture. The purpose of the quiz is to reinforce learning and to provide a mechanism for communicating expectations and competency prior to the exams. Up to 12 quizzes will be administered during the semester but only the top 10 scores will be counted toward the final grade.

Student grades will be based on a combination of **laboratory assignments, product presentation, evidence-based practice report and presentation, quizzes, two clinical skills assessments, and three exams**. See the table below for a breakdown of relative weighting and details of the grading policy. In addition to graded assignments and exams, students are expected to achieve mastery of the software and devices used in the course. Mastery should be achieved by locating and reading the manuals for each system, practicing the use of each system and all its available features, and disassembling and reassembling all components and connections. It is up to you to practice the skills needed to complete the laboratory assignments with the different systems available in the clinic to the point of mastery. Mastery in this context will be achieved when, asked by the clinical faculty or an audiologist at an outside placement to perform any of the tasks associated with hearing aid fitting, you are able to do so immediately without referring to notes or manuals, without any trial-and-error hunting for cables, buttons, menus, etc., and in the most efficient and effective of available methods. Achievement of mastery in the specific areas of hearing aid fitting and verification will be evaluated in the clinical skills assessments.

Laboratory Assignments

A total of six laboratory assignments will be assigned following an in-class demonstration of the techniques required to complete the assignment. Students are encouraged to work together and to seek the assistance of clinical faculty and AuD students in their second year, if available. Each student must turn in an independent laboratory report for grading. The details of the laboratory assignments and reports will be provided when each laboratory is assigned (see calendar). Laboratory reports submitted by the assigned deadline (see calendar) will be scored and returned to the student with feedback in a timely manner. **Students may revise and resubmit the report for full credit.** Reports submitted after the deadline will be scored but revisions will not be accepted. In other words, the penalty for late assignments is that you forfeit the ability to receive and respond to feedback. The final deadline to receive credit for completing the laboratory assignments is listed in the calendar.

Product Presentation

Students will research details about a product currently available in the Audiology Clinic and present the information to their classmates. Students will select from available products on the first day of class to ensure that a variety of products at different levels of technology are selected from a range of manufacturers. Students are required to communicate with their classmates with devices in a similar level of technology and from the same manufacturer so that they convey accurate information about the use, benefits, and limitations of their product in relation to others. Details about the assignment will be provided in class.

Evidence-Based Practice Report & Presentation

A written report and in-class presentation will be completed by each student on the state of the scientific evidence for a specific topic in the scope of device-based hearing rehabilitation. Students will select a topic from a provided

list of available topics; additional topics may be accepted upon request. Each student is expected to complete their own report and presentation. Detailed instructions and grading criteria for both the report and presentation will be provided in class. **Students must submit the EBP report by the deadline to receive credit. Timely feedback will be provided and must be incorporated in the presentation. Reports may be revised for full credit.**

Clinical Skills Assessments

Two clinical skills assessments will be completed during the semester. Each student will be required to select an appointment time during the week of the assessment from a list of available times. During the assessment, each student will be evaluated on their ability to complete basic specific hearing aid fitting and verification tasks provided in advance. An observer will evaluate the completion of the tasks and assign a grade based on student performance. Students are expected to perform the tasks flawlessly and without hesitation. Details will be provided in class.

Exams

Three exams will be administered throughout the course on the dates listed on the calendar. Each exam will focus on the material covered since the previous exam, but they will be considered “comprehensive” and may contain content from the entirety of the course. The exams will include material from the assigned readings, lectures, in-class activities, laboratory assignments, and presentations. Each exam will last approximately one hour and contribute equally to the exam portion of the grade. After each exam there will be a lecture following a short break.

Course-Specific Policies

Please refrain from using smartphones and related communication technology during class. If you have critical communication to attend to, please excuse yourself and return when you are ready. Students are expected to maintain a high level of respect for the instructor and fellow classmates in the use of digital technology. Please refrain from all non-essential activities during class including visiting websites for news, social media, shopping, or searching for information that is not directly related to the current course discussion. Attendance is expected for the entirety of each course meeting. No accommodations will be made for unexcused absences or class time missed. Please inform me of an excused absence in a timely manner so that we can make a reasonable plan to accommodate your absence.

Grades

Grades are not given, but earned. Your grade is determined by performance on the learning assessments in the course and is assigned individually (not curved). If earning a particular grade is important to you, please speak with the instructor early and often for helpful suggestions for achieving your goal. All assessment scores will be posted on the course ELMS page. If you would like to review any grades (including the exams), or have questions about how something was scored, please schedule a time to meet. Late work will not be accepted for course credit except where specified above. Formal grade disputes must be submitted in writing within one week of receiving the grade.

Learning Assessments	#	Points Each	Category Total	Category Weight
Laboratory Assignments	4	20	80	20%
Presentations	2	20	40	10%
Report	1	40	40	10%
Quizzes	10/12	4	40	10%
Clinical Skills Evaluations	2	10	20	5%
Exams	3	60	180	45%
Total Points:			420	

Final letter grades are assigned based on the percentage of total assessment points earned.

Final Grade Cutoffs									
+	97.0%	+	87.0%	+	77.0%	+	67.0%		
A	94.0%	B	84.0%	C	74.0%	D	64.0%	F	<60.0%
-	90.0%	-	80.0%	-	70.0%	-	60.0%		

Course Schedule

CLASS MEETING	READING	TOPICS	DUE
Tuesday 8/27	Ch 3	Course overview Candidacy Product Presentation Assigned	
Tuesday 9/3	Ch 5	Frequency-specific measures Lab 1 Assigned: First fit	
Tuesday 9/10	Ch 8a, 10a	Styles & components	Lab Report 1
Tuesday 9/17	-	Product Presentations	
Tuesday 9/24	Ch 7	Exam I Questionnaires	
Tuesday 10/1	Ch 13	Test box measures Lab 2 Assigned: ANSI	Skills Eval 1 by Appt
Tuesday 10/8	Ch 10	Compression I: Theory EBP Report & Presentation Assigned	Lab Report 2
Tuesday 10/15	TBA	Compression II: Practice Lab 3 Assigned: Coupler fitting	
Tuesday 10/22	Ch 1	Evidence-based practice	Lab Report 3
Tuesday 10/29	Ch 14	Exam II Fitting I: Theory	
Tuesday 11/5	TBA	Fitting II: Practice	Skills Eval 2 by Appt
Tuesday 11/12	Ch 16	Real ear I: Theory	EBP Report
Tuesday 11/19	Ch 17a	Real ear II: Practice Lab 4 Assigned: Fit-to-target	
Tuesday 11/26	Ch 9	Earmold acoustics	Lab Report 4
Tuesday 12/3	-	EBP Presentations	
Tuesday 12/10	-	Reading day (<i>no class meeting</i>)	
Final Exam	TBD	-	Exam III
Sunday 12/15	-		Final deadline for revisions

Note: This is a tentative schedule, and subject to change as necessary – monitor the course ELMS page for current deadlines. Details about chapter sections assigned to ‘a’ and ‘b’ and additional readings will be provided. Additional recommended readings will be posted to the course ELMS page. In the unlikely event of a prolonged university

closing, or an extended absence from the university, adjustments to the course schedule, deadlines, and assignments will be made based on the duration of the closing and the specific dates missed.

Knowledge and Skills for Audiology (KASA)

Standard II-A: Foundations of Practice

- A5. Calibration and use of instrumentation according to manufacturers' specifications and accepted standards
- A6. Standard safety precautions and cleaning/disinfection of equipment in accordance with facility-specific policies and manufacturers' instructions to control for infectious/contagious diseases
- A7. Applications and limitations of specific audiologic assessments and interventions in the context of overall client/patient management
- A8. Implications of cultural and linguistic differences, as well as individual preferences and needs, on clinical practice and on families, caregivers, and other interested parties
- A12. Effective interaction and communication with clients/patients, families, professionals, and other individuals through written, spoken, and nonverbal communication
- A13. Principles of research and the application of evidence-based practice (i.e., scientific evidence, clinical expertise, and client/patient perspectives) for accurate and effective clinical decision making
- A14. Assessment of diagnostic efficiency and treatment efficacy through the use of quantitative data (e.g., number of tests, standardized test results) and qualitative data (e.g., standardized outcome measures, client/patient-reported measures)
- 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

Standard II-B: Prevention and Screening

N/A

Standard II-C: Audiologic Evaluation

N/A

Standard II-D: Counseling

- D1. Identifying the counseling needs of individuals with hearing impairment based on their narratives and results of client/patient and/or caregiver responses to questionnaires and validation measures
- D2. Providing individual, family, and group counseling as needed based on client/patient and clinical population needs
- D4. Enhancing clients'/patients' acceptance of and adjustment to hearing aids, hearing assistive technologies, and osseointegrated and other implantable devices
- D5. Addressing the specific interpersonal, psychosocial, educational, and vocational implications of hearing impairment for the client/patient, family members, and/or caregivers to enhance their well-being and quality of life
- D7. Promoting clients'/patients' self-efficacy beliefs and promoting self-management of communication and related adjustment problems
- D8. Enhancing adherence to treatment plans and optimizing treatment outcomes

Standard II-E: Audiologic Rehabilitation Across the Life Span

- 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
- E6. Engaging clients/patients (including, as appropriate, school-aged children/adolescents) and family members in shared decision making regarding treatment goals and options
- E7. Developing and implementing individualized intervention plans based on clients'/patients' preferences, abilities, communication needs and problems, and related adjustment difficulties
- 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

Standard II-F: Pediatric Audiologic (Re)habilitation

F2. Counseling parents to resolve their concerns and facilitate their decision making regarding early intervention, amplification, education, and related intervention options for children with hearing impairment

F5. Selecting age/developmentally appropriate amplification devices and HATS to minimize auditory deprivation and maximize auditory stimulation

F6. Instructing parents and/or child(ren) regarding the daily use, care, and maintenance of amplification devices and HATS