



Course Syllabus

Advanced Clinical Audiology

HESP 706
Spring 2017

Instructor: Samira Anderson, Au.D., Ph.D.
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Meeting Time: Wednesdays, 3:30 – 6:00 PM
Meeting Location: Lefrak Hall, Room 0135
Prerequisites: HESP 606

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Office: 0119B
Office Hours: by
appointment

Learner Outcomes*

This course covers advanced clinical and experimental methods for evaluation of the peripheral and central auditory systems, including procedural considerations and interpretation of test results. After completing this course, you will be able to:

1. Demonstrate the ability to administer, interpret, and report the results of advanced audiological evaluations that incorporate advanced immittance measures, otoacoustic emissions testing, auditory processing evaluations, tinnitus evaluations, and tests of non-organic hearing loss.
2. Demonstrate knowledge of the underlying physiological mechanisms contributing to auditory disorders and the ability to communicate this information to patients and other professionals in everyday language.
3. Critically evaluate new research that aims to improve diagnosis and management of auditory disorders.

*See p. 8 for the Audiology Knowledge and Skills addressed by specific learning outcomes

REQUIRED READINGS

Required Texts:

Dhar, S. and Hall, J.W. (2012). *Otoacoustic Emissions: Principles, Procedures, and Protocols*. San Diego: Plural Publishing.

Katz, J. (2015). *Handbook of Clinical Audiology, 7th Edition*. Philadelphia: Lippincott Williams & Wilcott.

Recommended Texts:

Musiek, F. and Chermak, G. (2013) *Handbook of Central Auditory Processing Disorder, Volume I: Auditory Neuroscience and Diagnosis, 2nd. Edition*. San Diego: Plural Publishing.

Musiek, F. and Chermak, G. (2013) *Handbook of Central Auditory Processing Disorder, Volume II: Comprehensive Intervention, 2nd. Edition*. San Diego: Plural Publishing.

Hunter, L. and Shahnaz, N. (2013) *Acoustic Immittance Measures: Basic and Advanced Practice*. San Diego: Plural Publishing.

Course Schedule

Module 1 – Auditory Processing Disorders	
January 24	Introduction; Class expectations; APD: Normal development, neural mechanisms of dysfunction
In-class activities	Class introductions Lecture
Outside activities	Quiz 1 Readings: <ol style="list-style-type: none"> 1. Katz, Text, Chapters 27-28 2. *Sanes, D., & Constantine-Paton, M. (1985) 3. *Kopp-Scheinflug, C., and Tempel, B. L. (2015) 4. Kraus and Anderson (2017)
January 31	APD screening
In-class activities	Kahoot! Article review #1 Lecture
Outside activities	Readings: <ol style="list-style-type: none"> 1. *Ahmmed, A. U., and Ahmmed, A. A. (2016) 2. *Del Zoppo, C., Sanchez, L., and Lind, C. (2015)
February 7	APD evaluation and differential diagnosis
In-class activities	Kahoot! Article review #2 APD debate Lab 1 review Lecture
Outside activities	Quiz 2 Lab 1 Readings: <ol style="list-style-type: none"> 1. Katz, Text, Chapters 29 2. Moore, D. R., and Ferguson, M. A. (2014) 3. McFarland, D. J., and Cacace, A. T. (2014) 4. *Moore, D. R., Ferguson, M. A., Edmondson-Jones, A. M., Ratib, S., and Riley, A. (2010) 5. *Saunders, G.H., Frederick, M.T., Arnold, M., Silverman, S., Chisolm, T.H., and Myers, P. (2015)
February 14	APD management
In-class activities	Kahoot! APD counseling presentation Lecture
Outside activities	Quiz 3 Readings: <ol style="list-style-type: none"> 1. Katz, Text, Chapters 30 1. *Gyldenkaerne, P., Dillon, H., Sharma, M., and Purdy, S. C. (2014) 2. *Sharma, M., Purdy, S. C., and Kelly, A. S. (2009)
February 21	Guest Lecturer – Dr. Larry Medwetsky – Sensory Processing Disorder
In-class activities	Review for midterm Lecture

Outside activities	Readings: <ol style="list-style-type: none"> 1. Katz, Text, Chapters 30 2. *Loo, J. H., Rosen, S., & Bamiou, D. E. (2016) 3. *Hornickel, J., Zecker, S. G., Bradlow, A. R., & Kraus, N. (2012)
February 28	Midterm
Module 2 – Tinnitus; Non-organic Hearing Loss	
March 7	Tinnitus: Neural mechanisms
In-class activities	Review midterm Lecture Article #3
Outside activities	Readings: <ol style="list-style-type: none"> 1. Henry, J. A., Roberts, L. E., Caspary, D. M., Theodoroff, S. M., & Salvi, R. J. (2014) 2. *Gu, J.W., Herrmann, B.S., Levine, R.A., and Melcher, J.R. (2012) 3. *Engineer, N. D., Riley, J. R., Seale, J. D., Vrana, W. A., Shetake, J. A., Sudanagunta, S. P. et al. (2011) 4. *Leaver, A.M., Renier, L., Chevillet, M.A., Morgan, S., Kim, H.J., and Rauschecker, J.P. (2011)
March 14	Tinnitus: Assessment; Non-organic hearing loss
In-class activities	Kahoot! Tinnitus counseling presentation Lab 2 Review Lecture
Outside activities	Quiz 4 Lab 2 Readings: <ol style="list-style-type: none"> 1. *Cianfrone, G., Mazzei, F., Salviati, M., Turchetta, R., Orlando, M. P., Testugini, V., Carchiolo, L., Cianfrone, F., and Altissimi, G. (2015) 2. *Meikle, M. B., Henry, J. A., Griest, S. E., Stewart, B. J., Abrams, H. B., McArdle, R. et al. (2012) 3. Henry, J.A., Roberts, L.E., Ellingson, R.M., and Thielman, E.J. (2013) 4. *Ioannis, P., Georgios, K., Alexandra, K., Dimitrios, D., & Michael, T. (2009)
March 21	SPRING BREAK!!
Module 3 – Otoacoustic emissions	
March 28	Otoacoustic Emissions: Overview, anatomy and physiology
In-class activities	Kahoot! Article Review #4 Lecture
Outside activities	Readings: <ol style="list-style-type: none"> 1. Dhar and Hall, Text, Chapters 1 and 2 2. Kemp, D. T. (2002). Otoacoustic emissions, their origin in cochlear function, and use. <i>British Medical Bulletin</i>, 63, 223-241. 3. *Abdala, C., & Keefe, D. H. (2006)
April 4	Otoacoustic Emissions: Classification, instrumentation, calibration
In-class activities	Kahoot! Lecture Lab 3 demo
Outside activities	Quiz 5 Lab 3 Readings: <ol style="list-style-type: none"> 1. Dhar and Hall, Text, Chapters 3 and 4 2. Shera, C. A., & John J. Guinan, J. (1999)

	3. *Reuven, M.L., Neely, S.T., Kopun, J.G., Rasetshwane, D.M., Allen, J.B., Tan, H., and Gorga, M.P. (2012)
April 11	Otoacoustic Emissions: Clinical measurement, protocols, and analyses
In-class activities	Kahoot! Article review #5 Lecture
Outside activities	Quiz 6 Readings: 1. Dhar and Hall, Text, Chapter 5 and 6 2. *Fitzgerald, T. S., & Prieve, B. A. (2005) 3. *Garner, C. A., Neely, S. T., & Gorga, M. P. (2008)
April 18	Otoacoustic Emissions: Clinical applications, Efferent measurement, Future directions
In-class activities	Kahoot! Article review #6 Lecture
Outside activities	Quiz 7 Readings: 1. Dhar and Hall, Text, Chapters 7-10 2. *Botelho, C. T., Carvalho, S. A., and Silva, I. N. (2014) 3. *Abdala, C., Dhar, S., Ahmadi, M., & Luo, P. (2014) 4. *De Boer, J., Thornton, A.R.D., and Krumbholz, K. (2012)
Module 4 – Advanced Immittance Measures	
April 25	Multifrequency tympanometry; Wideband reflectance
In-class activities	Kahoot! Article review #7 Lab 4 demo Lecture
Outside activities	Lab 4 Readings: 1. Katz, Text, Chapter 9, pp 149-161 2. *Sugasawa, K., Iwasaki, S., Fujimoto, C., Kinoshita, M., Inoue, A., Egami, N., Ushio, M., Chihara, Y., and Yamasoba, T. (2013)
May 2	Wideband reflectance: Clinical applications
In-class activities	Kahoot! Objective measures counseling Lecture
Outside activities	Quiz 8 Readings: 1. *Feeney, M. P., Keefe, D. H., Hunter, L. L., Fitzpatrick, D. F., Garinis, A. C., Putterman, D. B., and McMillan, G. P. (2016) 2. *Hunter, L. L., Keefe, D. H., Feeney, M. P., Fitzpatrick, D. F., and Lin, L. (2015) 3. *Prieve, B.A., Feeney, M.P., Stenfelt, S., and Shahnaz, N. (2013)
May 9	Case studies and review
May 16	Final

Learning Assessments

- 1. Review Questions:** Students will post one question per week on class lecture material that reflects an important “take-home” message *or* will post one question on material that was unclear to students.
- 2. Practical Lab Exercises and Reports:** Students will complete practical lab assignments using appropriate assessment tools and will submit a report for each lab. See the course ELMS site for more specific information on these assignments, including due dates.
- 3. Counseling presentations:** Students will work in pairs to prepare a demonstration of a clinician-patient discussion regarding a specific case history that involves APD, tinnitus, and OAEs/Wideband reflectance. The demonstration will be presented in powerpoint form, using slides that could be presented in a flip-chart format. A grading rubric will be posted on ELMS.
- 4. Online Reading Quizzes:** Students are expected to be familiar with the assigned readings prior to coming to class. Each student will be required to complete 8 quizzes on the course ELMS site that cover lecture content and readings from the textbook and articles. These quizzes are “open-book” in that students have access to the text while taking the quiz. The students will have one week to complete the quiz. The quizzes are timed – but you will have 4 hours to complete it. Once you’ve started the quiz, you must finish it – you can’t go back to it later.
- 5. Article reviews:** Student will choose one article from the syllabus and will prepare and present powerpoint slides that summarize the article’s introduction, method, results (review each figure), and discussion. In addition, students will critique the article, suggest ways to improve the research, and propose a new research question. The presentation should not exceed 15 minutes. A grading rubric will be posted on ELMS.
- 6. Exams:** One midterm and final examination will be given. Exam questions will come from class lectures, quizzes, review questions, and assigned readings.

Guidelines for Practical Lab Exercises & Reports

The lab exercises are designed to help you put into practice the concepts and procedures we cover in class. Handouts outlining instructions for the test procedures and reports can be obtained on the ELMS site.

Lab Reports

You must follow all guidelines for written work listed in this syllabus. The typed portion of the lab report should be limited to one page or less. Electronic copies of all relevant printouts, graphs, tables or other raw data must be submitted online by the due date. Although you may consult your textbooks and other resources, including your classmates, as you work on each lab, please make sure your write-up is your own.

Submission of Reports

Lab reports are by midnight on the dates indicated below. Three points will automatically be deducted from your lab grade for every day the report is late. The labs will cover the following topics:

Lab #1: Auditory Processing Evaluation	due February 21
Lab #2: Nonorganic Hearing Loss	due April 4
Lab #3: Otoacoustic Emissions Testing	due April 18
Lab #4: Advanced Immittance Measures	due May 9

Questions/Difficulties

Please contact me as soon as possible if you have difficulties with or questions about a particular lab assignment, so that they can be resolved in plenty of time for you to complete the lab by the due date, and so that you have a better understanding the relevant concepts prior to exams.

Learning Assessments	#	Points Each	Category Total	Category Weight
Labs	4	25	100	17%
Counseling presentations	1	25	25	4%
Quizzes	8	20	160	26%
Article review	1	25	25	4%
Midterm	1	100	100	17%
Final	1	150	150	25%
Total Points:			560	

Final Grade Cutoffs									
+	98.00%	+	88.00%	+	78.00%	+	68.00%		
A	94.00%	B	84.00%	C	74.00%	D	64.00%	F	<60.0%
-	90.00%	-	80.00%	-	70.00%	-	60.00%		

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 <http://apps.gradschool.umd.edu/Catalog/policy.php?the-academic-record> for the Graduate School's full list of campus-wide policies and follow up with me if you have questions.

Make-up Exams/Assignments

If you are aware ahead of time that you will be absent on the day of an exam, you may schedule a make-up exam provided that (1) you have an approved University Acceptance (e.g., religious observance) and (2) I am notified in writing within the first two weeks of the semester. Assignments are expected to be submitted by the dates indicated on the syllabus or in advance of the due date if you anticipates being absent from class on the due date. You should inform me that you will be absent ahead of time to make arrangements to submit the assignment.

When the reason for an absence on the day of an exam or assignment is not foreseeable, you must inform me as soon as possible. Please make every effort to contact me by phone or by email prior to class if you will be absent due to illness or other emergency. Campus Senate policy requires students who are absent due to illness/injury to furnish documentary support to the instructor. You must provide written documentation verifying your illness/injury on the day that you return to class. You will not be allowed to turn in missed assignments or make up exams if you have not provided this documentation. In addition, if it is found that you have falsified the documentation provided, you will be referred to the University's Student Conduct Office.

Make-up exams will be scheduled at a time that is mutually agreeable to both the instructor and the student. Assignments are due immediately by electronic submission if possible or upon the student's return to school. All missed exams and assignments not turned in will result in a grade of zero for that exam/assignment.

Problems/Questions

Please do not hesitate to make an appointment to speak with me if you are having difficulty with the material or with an assignment, if you have questions about how something was graded, or if you have other problems or issues related to the course you wish to discuss. Email is an excellent way to reach me outside of course meetings.

Get Some Help!

You are expected to take personal responsibility for you own learning. This includes acknowledging when your performance does not match your goals and doing something about it. Everyone can benefit from some expert guidance on time management, note taking, and exam preparation, so I encourage you to consider visiting <http://ter.ps/learn> and schedule an appointment with an academic coach. Sharpen your communication skills (and improve your grade) by visiting <http://ter.ps/writing> and schedule an appointment with the campus Writing Center. Finally, if you just need someone to talk to, visit <http://www.counseling.umd.edu>.



Everything is free because you have already paid for it, and **everyone needs help**... all you have to do is ask for it.

Audiology Knowledge and Skills addressed by specific learning outcomes:

3.1.2A PROFESSIONAL PRACTICE COMPETENCIES

- Clinical Reasoning (Outcomes 1 to 3)
- Evidence-Based Practice (Outcomes 1 to 3)
- Collaborative Practice (Outcomes 1 and 2)

3.1.2A FOUNDATIONS OF AUDIOLOGY PRACTICE

- Embryology, anatomy, and physiology of the auditory, vestibular, and related body systems (Outcomes 1 and 2)
- Effects and role of genetics in auditory function, diagnosis, and management of hearing loss (Outcomes 1 and 2)
- Effects of pathophysiology on the auditory, vestibular, and related body systems (Outcomes 1 and 2)
- Medical and surgical interventions that may be used to treat the results of pathophysiology in these systems (Outcomes 1 and 2)
- Principles of psychoacoustics as related to auditory perception in individuals with normal hearing and those with hearing loss (Outcome 1 and 2)

3.1.3A IDENTIFICATION AND PREVENTION OF HEARING LOSS, TINNITUS, AND VESTIBULAR DISORDERS

- The prevention of the onset of loss of auditory system function, loss of vestibular system function, development of tinnitus, and development of communication disorders (Outcomes 1 and 2)
- The use of protocols to minimize the impact of the loss of hearing, tinnitus, loss of vestibular system function, and development of communication disorders (Outcomes 1 and 2)
- Applying the principles of evidence-based practice (Outcome 3)

3.1.4A ASSESSMENT OF THE STRUCTURE AND FUNCTION OF THE AUDITORY AND VESTIBULAR SYSTEMS

- Evaluate information from appropriate sources to facilitate assessment planning (Outcomes 1 and 2)
- Obtain a case history (Outcomes 1 and 2)
- Perform and otoscopic examination (Outcome 1)
- Perform audiologic assessment using behavioral, physiological (e.g., immittance, wideband reflectance, evoked potentials), psychophysical, and self-assessment tools (Outcomes 1 and 2)
- Perform audiologic assessment using techniques that are representative of the challenges listeners may face in everyday communication situations (Outcomes 1 and 2)
- Perform assessment to characterize tinnitus (Outcomes 1 and 2)
- Document evaluation procedures and results (Outcomes 1 and 2)
- Generate recommendations and referrals resulting from the evaluation processes (Outcomes 1 and 2)

- Provide counseling in a culturally sensitive manner to facilitate understanding of the hearing loss, tinnitus, or balance disorder of the individual being served (Outcomes 1 and 2)
- Maintain records in a manner consistent with legal and professional standards (Outcomes 1 and 2)
- Communicate results and recommendations orally and in writing to the individual being served and other appropriate individual(s) (Outcomes 1 and 2)
- Apply the principles of evidence-based practice (Outcomes 1 to 3)
- Select and use outcomes measures that are valid and reliable indicators of success in assessment protocols that are used (Outcomes 1 to 3)

3.1.5A ASSESSMENT OF THE IMPACT OF CHANGES IN THE STRUCTURE AND FUNCTION OF THE AUDITORY AND VESTIBULAR SYSTEMS

- Administer clinically appropriate and culturally sensitive self-assessment measures of communication function for individuals across the lifespan and the continuum of care (Outcomes 1 and 2)
- Select and use outcomes measures that are valid and reliable indicators of success in determining the impact of changes in structure and function of the auditory and vestibular systems (Outcomes 1 and 2)

3.1.6A INTERVENTION TO MINIMIZE THE EFFECTS OF CHANGES IN THE AUDITORY AND VESTIBULAR SYSTEMS ON AN INDIVIDUAL'S ABILITY TO PARTICIPATE IN HIS OR HER ENVIRONMENT

- Perform assessment for tinnitus intervention (Outcomes 1 and 2)
- Apply the principles of evidence-based practice (Outcome 3)