Topics in NeuroAudiology: Central Auditory (Processing) Disorders (SLHS-580)
(Mon. & Wed. 9:30 – 10:45am) Speech & Hearing Sciences Building, Rm 203

Description of Course
This course provides comprehensive coverage of the auditory neuroscience and clinical science needed to diagnose central auditory processing disorders in children and adults.

Instructor and Contact Information
Instructor: Frank E. Musiek, SLHS Rm 526, (520) 621-3726, fmusiek@email.arizona.edu
Office Hours - TBA
Assistant: Barrett St. George – graduate research assistant, NeuroAudiology Lab - SLHS Rm 525, stgeorge@email.arizona.edu

Course Format and Teaching Methods
This course is taught primarily as a lecture. There will be some in-class discussion and real-time quizzes using clickers (supplied by the instructor) to facilitate understanding of course content. Lecture slides and additional readings will be accessible via D2L.

Course Objectives and Expected Learning Outcomes
1. Students will be able to outline key behavioral and electrophysiologic tests of central auditory function.
2. Students will be able to discuss key interpretive principles in CAPD.
3. Students will be able to discuss main interventions for CAPD.
4. Students will be able to list various types of CAPD.

Absence and Class Participation Policy
The UA’s policy concerning Class Attendance, Participation, and Administrative Drops is available at http://catalog.arizona.edu/2015-16/policies/classatten.htm

The UA policy regarding absences for any sincerely held religious belief, observance or practice will be accommodated where reasonable: http://policy.arizona.edu/human-resources/religious-accommodation-policy.

Absences preapproved by the UA Dean of Students (or dean’s designee) will be honored. See http://uhap.web.arizona.edu/policy/appointed-personnel/7.04.02

Participating in the course and attending lectures and other course events are vital to the learning process. As such, attendance is required at all lectures and discussion section meetings. Students who miss class due to illness or emergency are required to bring documentation from their health-care provider or other relevant, professional third parties. Failure to submit third-party documentation will result in unexcused absences.

Textbook
1) Handbook of Central Auditory Processing Disorders, Vol I, Musiek, F. and Chermak, G. (Required)
2) Handbook of Central Auditory Processing Disorders, Vol II, Chermak, G. and Musiek, F. (Recommended but NOT required)

The required textbook is available to purchase through the UofA bookstore: http://shop.uabookstore.arizona.edu/main/CourseMaterials.aspx

Assignments and Examinations
Approximately each week there will be a quiz worth 10 pts each = 100 pts total. Each student is required to lead one teaching session worth 20 pts*. Each student will also be required to administer 4 central auditory tests & receive a central auditory test battery from another student (these can be behavioral or electrophysiologic central tests), worth a total of 20 pts. There will be an orientation provided for this. There will be a final Exam on 5/10/18 from 10:30-12:30am worth 120 pts. All students will be required to attend the annual LADS conference and audiology journal club meetings (dates TBA), which will be considered part of class participation. The total points in the course is 260 pts.

**Grading Scale and Policies**

A final grade of 90 - 100% (234 points or more) is an “A”. A final grade of 80 - 89% (208-233 points) is a “B”, and so forth. There will be no rounding or curving of grades.

The student's final grade will be calculated simply by dividing the total earned points by the total possible points that can be obtained in the course. Under most circumstances, late work will not be accepted, unless previously approved by instructor.

Extra credit is possible – needs to be approved by instructor.

Requests for incomplete (I) or withdrawal (W) must be made in accordance with University policies, which are available at [http://catalog.arizona.edu/2015-16/policies/grade.htm#I](http://catalog.arizona.edu/2015-16/policies/grade.htm#I) and [http://catalog.arizona.edu/2015-16/policies/grade.htm#W](http://catalog.arizona.edu/2015-16/policies/grade.htm#W), respectively.

**Scheduled Topics/Activities**

**Jan 10, 2018**


**Jan 17, 2018**

*Holiday 15th*

**Jan 22 & 24, 2018**

Continue from 1/17 & Characteristics of APD continued; Introduction to dichotic listening

**Jan 29 & 31, 2018**

Dichotic listening: acoustics, phonetics, separation & integration processes, tests (digits, SSW, Comp. Sent., CVS, words), neurology of, test efficiency, case studies. **READINGS:** *HCAPD*, chapter 9 {or ch. 14, 2014}

**Feb 5 & 7, 2018**

Temporal processing: types of, association with neurologic function, tests (frequency & duration patterns, GIN, click fusion, test efficiency, gen. comments. **READINGS:** *HCAPD*, chapter 10 {or ch. 14, 2014}

**Feb 14, 2018**

*ARO 9th – 13th*

Monaural low redundancy speech tests: the processes (closure), (LPFS, compressed speech, speech in speech babble/noise, test efficiency). Auditory discrimination (freq, intensity, duration). **READINGS:** *HCAPD*, chapter 8 {or ch. 13, 2014}

**Feb 19 & 21, 2018**

Binaural interactions: MLDs, lateralization, localization. **READINGS:** *HCAPD*, chapter 11 {or ch. 16, 2014}

**Feb 26 & 28, 2018**

Introduction to middle and late EPs. **READINGS:** Chermak and Musiek, chapter 6, Musiek and Lee, *Auditory Middle and Late Potentials in Musiek & Rintelmann: Contemporary Perspectives in Hearing Assessment*, 1999

**March 5 - 9, 2018**

*Spring Break*
March 12 & 14, 2018  MLRs: electrode montage, stimuli, non-pathologic effects (maturation, sleep, filters, rate), electrode and ear effects, reading & interpreting waveforms, test efficiency, case studies, gen comments. **READINGS: Musiek et al. (1999)**

March 19 & 21, 2018  Late potential (N1, P2, P300). electrode montage, stimuli, non-pathologic effects (maturation, sleep, filters, rate), electrode and ear effects, reading & interpreting waveforms, test efficiency, case studies, gen, comments. **READINGS: Jirsa (1990, 1992)**

March 26 & 28, 2018  Test battery considerations, consequences, and calculations, corpus callosum, effects of peripheral hearing loss, test battery efficiency. **READINGS: HCAPD, chapter 7 (or ch. 11, 2014).**

April 2 & 4, 2018  Test battery considerations cont. -- Cognition & CAPD, **READINGS: Weiher et al. 2015, JAAA. Brenneman et al. 2017 JAAA, Schochat slides (2017)**

April 9 & 11, 2018  Intervention. For CAPD: (dichotic) corpus callosum and DIIID (con't), Introduction, philosophy, Auditory plasticity, Peripheral vs. Central system rehabilitation. Selected AT procedures. **READINGS: HCAPD, Vol. II, chapter 4, 6, 7 (or 7, 11, 12, 2014)**

April 16, 2018  Acoustic control and modifications (signal to noise concepts, preferential seating, acoustic damping, reverberation, ALDs). **READINGS: IBID**

April 25, 2018  Other approaches (auditory closure=Vocab. approach; Temporal =cadence, speech rate/change, Simon game, discrimination=vowels, & DL training, efficacy. **READINGS: IBID**

April 30 & May 2, 2018  Catch-up, review, TBA

**STUDENT TEACHING SESSION TOPICS:** The purpose of this exercise is to have the student "teach" a mini topic in 10 - 15 minutes --- do not exceed 15 minutes. Different than a class report, the focus is on relating key issues about the topic in a learnable manner. One can select from the topic below or think of one. The topic must be approved by the instructor. This presentation needs to have an accompanying paper handed in at the time of the presentation. The paper should be 6 – 8 double spaced pages not including refs or tables & figures. All papers should have at least 1 figure.

1. Acoustical effects on dichotic listening
2. Early background on LTP
3. Webster & Webster: their contributions to auditory plasticity
4. Short tone frequency discrimination (Cranford)
5. fMRI or PET and dichotic listening?
6. What is Earobics?
7. Tran-synaptic degeneration or effects of unilateral deafness on the central auditory system
8. Central deafness
9. Heffner & Heffner: their impact on Central Auditory Processing
10. Agenesis of the corpus callosum
11. Topics from Neuroaudiology.com
12. Selected topics from Dr. Tim Griffiths website
13. The APDQ (Brian O’Hara)
14. Interview with Gail Chermak
15. Interesting case studies in central disorders
16. George Gates, Aging, Alzheimers, and CAPD
17. AAA Guidelines for Diagnosis and Intervention for (C)APD
18. Auditory discrimination and SLI in children
19. Music, musical training and CAPD
20. Auditory neglect
21. The ABR BIC in brainstem disorders (stroke, MS,) (see Pratt and others)
22. The Acoustic change complex evoked potential
23. Jerger’s contributions to CAPD & neuroaudiology (selected)
24. A review of Galaburda’s studies

Classroom Behavior Policy
To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Students are asked to refrain from disruptive conversations with people sitting around them during lecture. Students observed engaging in disruptive activity will be asked to cease this behavior. Those who continue to disrupt the class will be asked to leave lecture or discussion and may be reported to the Dean of Students.

Threatening Behavior Policy
The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students.

Accessibility and Accommodations
Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcome to contact the Disability Resource Center (520-621-3268) to establish reasonable accommodations. For additional information on the Disability Resource Center and reasonable accommodations, please visit http://drc.arizona.edu.

If you have reasonable accommodations, please plan to meet with me by appointment or during office hours to discuss accommodations and how my course requirements and activities may impact your ability to fully participate.

Please be aware that the accessible table and chairs in this room should remain available for students who find that standard classroom seating is not usable.

Code of Academic Integrity
Students are encouraged to share intellectual views and discuss freely the principles and applications of course materials. However, graded work/exercises must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See http://deanofstudents.arizona.edu/academic-integrity/students/academic-integrity.

The University Libraries have some excellent tips for avoiding plagiarism, available at http://www.library.arizona.edu/help/tutorials/plagiarism/index.html.

Selling class notes and/or other course materials to other students or to a third party for resale is not permitted without the instructor’s express written consent. Violations to this and other course rules are subject to the Code of Academic Integrity and may result in course sanctions. Additionally, students who use D2L or UA e-mail to sell or buy these copyrighted materials are subject to Code of Conduct Violations for misuse of student e-mail addresses. This conduct may also constitute copyright infringement.

UA Nondiscrimination and Anti-harassment Policy
The University is committed to creating and maintaining an environment free of discrimination; see http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy.

Additional Resources for Students
UA Academic policies and procedures are available at http://catalog.arizona.edu/2015-16/policies/aaindex.html

Student Assistance and Advocacy information is available at http://deanofstudents.arizona.edu/student-assistance/students/student-assistance
Subject to Change Statement

Information contained in the course syllabus, other than the grade and absence policy, may be subject to change with advance notice, as deemed appropriate by the instructor.