Topics in NeuroAudiology: Central Auditory (Processing) Disorders  
Dr. Frank Musiek

Class meeting times: Mondays 4:30-7:00pm  
Class requirements: *student teaching sessions (25 points),  
(see last page for topics)  
Each week each student will turn in a 1 page (single spaced) review of any assigned readings and last class lecture. Please emphasize key concepts & facts. On occasion one student will be selected to present their review - discuss.  
End of the year project (paper) – 2 teams – discuss (25 – 50 pts)  
Class must pass all clicker quizzes?  
Mini Labs : Administer a 4 central auditory tests & take a central auditory test battery (turn in score sheets). These can be behavioral or electrophysiologic central tests.  
Attend LADS  
*Handbook of Central Auditory Processing Disorders, Vol II, Chermak, G. and Musiek, F.  
(1st or 2nd edition)  
**see agenda

Counseling and Mental Health Services: (520) 621-3334 www.health.arizona.edu/caps.htm  
Career Services: (520) 621-2588 www.career.arizona.edu/  
Alcohol and Drug Services: www.health.arizona.edu/hpps_aod.htm  
Dean of Students Office: (520) 621-7057 deanofstudents.arizona.edu/

Academic Honesty: The Student Conduct Code states that "A fundamental tenet of all educational institutions is academic honesty; academic work depends upon respect for and acknowledgement of the research and ideas of others. Misrepresenting someone else's work as one's own is a serious offense in any academic setting and it will not be condoned." It further states that, "A student who knowingly assists another student in committing an act of academic misconduct shall be equally accountable for the violation." See http://www.dosa.uconn.edu/Code2.html for more information on the University's student code.

Plagiarism is the most extreme form of Academic Dishonesty and will result in failing this course and possible removal from the university. Plagiarism: (from the Latin plagiarius, an abductor, and plagiare, to steal): Plagiarism is defined as presenting another person's work or ideas as one's own.

[ASHA Learner Outcomes: The objectives of this course meet the following ASHA Standards for Student Learning in Audiology: Standard IV-B:11, Standard IV; 18 and Standard IV-E; 18,19]

**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.

AGENDA

<table>
<thead>
<tr>
<th>Date</th>
<th>Agenda Points</th>
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<tbody>
<tr>
<td><strong>January 25, 2015</strong></td>
<td>Philosophy, Overview, neurobiology, radiology, definitions of CAPD, history, CAPD vs. APD, neurologic and benign manifestations, general principles (behavioral &amp; electrophysiologic), key processes, redundancy. <strong>READINGS:</strong> Handbook of Central Auditory Processing Disorder (HCAPD), chapter 1, 3 <strong>or ch. 1 &amp; 5, 2014</strong></td>
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<td><strong>Feb. 1, 2015</strong></td>
<td>Etiology, Clinic populations for APD, Questionnaires and history forms, characteristics of APD. <strong>READINGS:</strong> Bamiou, Musiek, Luxon (2001)</td>
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<td><strong>Feb. 8, 2015</strong></td>
<td>Characteristics of APD continued; Introduction to dichotic listening</td>
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<td><strong>Feb. 15, 2015</strong></td>
<td>Dichotic listening: acoustics, phonetics, separation &amp; integration processes, tests (digits, SSW, Comp. Sent., CVs, words), neurology of, test efficiency, case studies. <strong>READINGS:</strong> HCAPD, chapter 9 <strong>or ch. 14, 2014</strong></td>
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<td><strong>February 22, 2015</strong></td>
<td>Temporal processing: types of, association with neurologic function, tests (frequency &amp; duration patterns, GIN, click fusion, test efficiency, gen. comments. <strong>READINGS:</strong> HCAPD, chapter 10 <strong>or ch. 15</strong></td>
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<td><strong>March 29, 2015</strong></td>
<td>Monaural low redundancy speech tests: the processes (closure), tests (LPFS, compressed speech, speech in speech babble/noise, test efficiency. Auditory discrimination (freq, intensity, duration). <strong>READINGS:</strong> HCAPD, chapter 8 <strong>or ch. 13, 2014</strong></td>
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<td><strong>March 7, 2015</strong></td>
<td>Binaural interactions: MLDs, lateralization, localization. <strong>READINGS:</strong> HCAPD, chapter 11 <strong>or ch. 16, 2014</strong></td>
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<td><strong>March 14, 2015</strong></td>
<td><strong>SPRING BREAK</strong></td>
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<td><strong>March 21, 2015</strong></td>
<td>Introduction to middle and late EPs. <strong>READINGS:</strong> Chermak and Musiek, chapter 6, Musiek and Lee, Auditory Middle and Late Potentials in Musiek &amp; Rintelmann: Contemporary Perspectives in Hearing Assessment, 1999</td>
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March 28, 2015  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)**

April 4, 2015  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)**

April 11, 2015  Test battery considerations, consequences, and calculations, corpus callosum, effects of peripheral hearing loss, test battery efficiency.  

*AAA 13th – 16th*  
**READINGS: HCAPD, chapter 7 {or ch. 11, 2014}**

April 18, 2015  Intervention. For CAPD: (dichotic) corpus callosum and DIID (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 25, 2015  Acoustic control and modifications (signal to noise concepts, preferential seating, acoustic damping, reverberation, ALDs).  
**READINGS: IBID**

May 2, 2015  Other approaches (auditory closure=Vocab. approach; Temporal =cadence, speech rate/change, Simon game, discrimination=vowels, & DL training, efficacy.  
**READINGS: IBID**

**Teaching report 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)