

Hearing and Speech Department
AUD 851 - AUDITORY EVOKED POTENTIALS
Spring Semester, 2012
(3 credit hours)

Time: 9:00 am - 11:50 am, Monday

Place: Seminar Room, H.C. Miller Bldg.

Instructor: John A. Ferraro, Ph.D., Room 3020, H.C. Miller Bldg.,
(913) 588-5937; e-mail: jferraro@kumc.edu

Office Hours: Dr. Ferraro will be available by appointment at mutually convenient times.
Appointments should be scheduled through Cindy Turner (913-588-5937;
cturner@kumc.edu).

Course Description:

Theoretical bases, techniques and clinical applications for auditory evoked potentials including Electrocochleography, Auditory Brainstem Response, Middle and Late Latency and Cognitive responses. Prerequisites: AUD 810, AUD 822, AUD 829 or permission of instructor.

ASHA Standards:

Students enrolled in this class will acquire knowledge and skills associated with the following ASHA standards for certification in Audiology:

- B4. Anatomy and physiology, pathophysiology and embryology and development of the auditory and vestibular systems.
- B8. Normal aspects of auditory physiology and behavior over the life span.
- B11. Instrumentation and bioelectric hazards.
- B13. Physical characteristics and measurement of acoustic stimuli.
- B14. Physical characteristics and measurement of electric and other nonacoustic stimuli.
- B16. Medical/surgical procedures for treatment of disorders affecting auditory and vestibular systems.
- C1., D1. Interact effectively with patients, families, other appropriate individuals and professionals.
- C3. Identify individuals at risk for hearing impairment.
- D2. Evaluate information from appropriate sources to facilitate assessment planning.
- D3. Obtain a case history.
- D6. Administer clinically appropriate and culturally sensitive assessment measures.
- D8. Perform electrodiagnostic test procedures.
- D11. Document evaluation procedures and results.
- D12. Interpret results of the evaluation to establish type and severity of disorder.
- D13. Generate recommendations and referrals resulting from the evaluation process.
- D15. Maintain records in a manner consistent with legal and professional standards.
- D16. Communicate results and recommendations orally and in writing to the patient and other appropriate individuals.
- D17. Use instrumentation according to manufacturers' specifications and recommendations.
- D18. Determine whether instrumentation is in calibration according to accepted standards.

Course Objectives/Learning Outcomes:

To provide the student with an understanding of the theories, techniques and clinical applications of auditory evoked potentials. Students will acquire the preparatory skills to recommend, perform and interpret the auditory evoked potential test battery.

Course Format: Lecture + Laboratory

Lectures will occur on Monday mornings followed by laboratory instruction and assignment. The laboratory will be open on a 24 hr./day, 7 day/week basis for completion of assignments. A key to the laboratory can be checked out from Cindy for evening and weekend use. The key must be returned the following week-day morning.

An electronic calendar for scheduling lab times is available. Go to calendar.yahoo.com use ID: jferraro1221, and password: aepclass

Grading Policy:

Written examinations will be given after selected sequences of study on the dates indicated on the attached schedule of lecture topics. Laboratory projects also will be assigned. Final grade will be determined by the total points on all examinations and the successful completion of all laboratory projects.

Course Readings

Readings will be selected from several sources, including (but not limited to):

Jacobson, J.T. (ed.) (1994). Principles and Applications of Auditory Evoked Potentials. Boston: Allyn and Bacon.

Hall, James W. (1992). Handbook of Auditory Evoked Responses. Boston: Allyn and Bacon.

Katz, Jack (Ed.) (2002). Handbook of Clinical Audiology, 5th Edition. Baltimore: Williams & Wilkins.

Roeser, R., Valente, M., and Hosford-Dunn, H. (Eds.) (2000). Audiology Diagnosis. New York: Thieme.

Jacobson, G., Shepard, N. (2008). Balance Function Assessment and Management. San Diego: Plural Publishing.

Selected chapters/articles from the above books have been compiled into a booklet, which will be distributed to students along with the laboratory handbook (described below).

Ferraro, J.A. (1997). Laboratory Exercises in Auditory Evoked Potentials. San Diego: Singular Press, Inc.

Both the booklet of readings and Laboratory Exercises will be distributed to students on the first day of classes. The charge for this material is \$65/student, which includes the costs of printing and also of disposable supplies (electrodes, conductive gels, etc.) consumed for laboratory assignments. Please make your check payable to the “Hearing and Speech Department” and give it to Cindy Turner as soon as possible. You will not receive a grade for this course if payment is not made.

Readings from journals and other textbooks also will be assigned throughout the semester.

Topic Outline and Textbook Reading Assignment

I. Review of Auditory Electrophysiology; Central Auditory Pathways.
(Review AUD 829 notes).

II. Overview of Auditory Evoked Potentials (AEPs) (readings from instructor packet)

III. Principles and Technical Aspects of Auditory Evoked Potential Recording (readings from instructor packet)

- A. Historical Perspectives
- B. Nomenclature and Classification
- C. Technical-Related Variables
- D. Subject-Related Variables
- E. Examiner-Related Variables

IV. Description, Recording Parameters and Clinical Applications of Auditory Evoked Potentials

A. Short-latency AEPs (Chaps to be assigned from Jacobson, Hall, Katz, Roesser)

- 1. Auditory Brainstem Response
- 2. Auditory Steady State Response
- 3. Electrocochleography

B. Middle-latency AEPs

- 1. Middle Latency Response
- 2. Auditory Steady State Responses

C. Long-latency AEPs

- 1. Exogenous AEPs.
- 2. Endogenous AEPs

D. The Auditory Steady State Response

E. Vestibular Evoked Myogenic Potential

F. Clinical Applications and Testing Strategies

G. Case Reports and Report Writing

H. Professional Issues Related to Performing Auditory Evoked Potential Testing

Tentative Lecture/Exam Schedule

<u>Date</u>	<u>Subject</u>
Jan 23	Overview of AEPs; review of peripheral auditory anatomy/physiology; Central Auditory Pathways.
Jan 30	Central Auditory Pathways (contd); technical aspects of evoked potential recording; laboratory instruction on operating the AEP unit.
Feb. 6	Technical aspects of evoked potential recording (contd.).
13	Intro. to the Auditory Brainstem Response (ABR)
20	EXAM 1 (over material covered through Feb. 6)
27	ABR
March 5	ABR/ECochG
12	ECochG
19	Spring Break, No Class
26	Auditory Middle - (MLR), and Long- (LLR) Latency Responses
April 2	EXAM 2 (over ABR and ECochG)
9	LLR (contd.); Auditory Steady State Responses
16	Vestibular Evoked Myogenic Potentials
23	AEP testing strategies; multi-modality AEPs, reporting the results of an AEP exam;
30	Complex Case Studies Involving AEPs; Professional issues related to performing AEP testing (e.g., competency standards, fee for services, etc.); review for final
May 7	FINAL EXAM

Learning assistance, academic performance enhancement, and psychological services at KUMC are free, confidential, and available at Student Counseling & Educational Support Services by calling 913-588-6580 or visiting G116 Student Center.

Any student in this course who needs an accommodation because of a disability in order to complete the course requirements should contact the instructor or the Equal Opportunity / Disability Specialist (913-588-7813, TDD 913-588-7963) as soon as possible.