AUD 7351 Clinical Electrophysiology Course Syllabus

Course Information

Course Number/Section	AUD 7353.001
Course Title	Clinical Electrophysiology
Term	Spring Semester 2018
Class Times/Dates	Wednesday 8:00 – 10:45 a.m.
Class location:	Callier Dallas, B108

Professor Contact Information

Instructor:	Jeffrey S. Martin, Ph.D.
Email Address:	Jeffrey.Martin@utdallas.edu
Office Room:	Callier Dallas, J221
Office Phone:	(214) 905-3174
Office Hours:	Wednesday 12:00 – 1:00 p.m. or by appointment

Course Pre-requisites, Co-requisites, and/or Other Restrictions

1) Graduate standing
2) Knowledge of basic audiological evaluation (behavioral) procedures is advised

Course Description

This course focuses on the electrophysiological evaluation of the auditory system and its applications to clinical practice and research in audiology. This course provides in-depth instruction on the underlying neurophysiology, principles of measurement, instrumentation, and interpretation of auditory evoked potentials in normal and clinical populations. Instruction gained from class lecture and readings will be complemented by hands on laboratory exercises. Assigned readings come from the text listed below. Additional readings will be made available to students. Students are encouraged to be active participants in class discussions. Students are also encouraged to keep an organized notebook encompassing lecture notes and class handouts according to separate topic areas covered in the course for preparation for the exams.

This course has been designed to ensure that students demonstrate required Knowledge and Skills (Standard IV) as outlined in the Standards and Implementation Guidelines for the Certificate of Clinical Competence in Audiology. The specific standards addressed in this class are:

- **IV-B (Foundations of Practice)**
- **IV-C (Prevention and Identification)**
- **IV-D (Evaluation)**
- **IV-E (Treatment)**

Note: Individual description of ASHA standards can be obtained at web address:
http://www.asha.org/about/membership-certification/certification/aud_standards_new.htm

Student Learning Objectives

Students will:

- Be able to identify patient characteristics (e.g., age, medical history, cognitive status, physical and sensory abilities) and how these relate to the appropriate selection and administration of AEP procedures and subsequent interpretation of results. (**IV-B:** B2, B3; **IV-D:** D2, D6, D7; **IV-E:** E12).

- Obtain instruction concerning the underlying anatomy and physiology associated with the various types of AEP measurements. (**IV-B:** B4, B8)
- Obtain instruction concerning the handling and care of AEP instrumentation (and clinical service delivery) and manipulation of the physical characteristics of the evoking acoustic and electric stimuli used in AEP generation. (**IV-B:** B11, B12, B13, B14; **IV-D:** D17).
- Be able to identify individuals at risk for hearing impairment and other auditory disorders through appropriate AEP screening and diagnostic procedures. (**IV-C:** C1, C3, C4)
- Be able to express AEP assessment findings effectively to patients, family members, and other professionals via effective report writing and counseling (**IV-D:** D1, D11, D12, D13, D14, D16; **IV-E:** E1, E4, E6, E14).
- Obtain instruction and training to perform routinely administered AEP procedures (e.g., ECochG, ABR, MLR). (**IV-D:** D8)

Recommended Textbooks and Materials

eHandbook of Auditory Evoked Responses: Principles, Procedures, and Protocols. Author: James W. Hall, III

This instructor assumes that all students have read the assigned readings before coming to class. Additional readings on certain topic areas may be required. These readings will be made available to you throughout the course.

Assignments & Academic Calendar

****These descriptions and timelines are subject to change at the discretion of the instructor**

Date	Topics Covered	Reading Assignments
January 10	Distribution of Syllabus, Overview of AERs, Origin of AERs, Principles of AER Acquisition & Analysis	Hall: Chapters 1
January 17	Principles of AER Acquisition & Analysis (continued)	Hall: Chapter 1
January 24	Electrocochleography (ECochG) Background and Acquisition Parameters Analysis and Interpretation Clinical Applications	Hall: Chapter 2 & 3
January 31	**Exam 1 (Covers material on 1/10,1/17, and 1/24)**	
February 7	Auditory Brainstem Response (ABR) – Stimulus/Acquisition Parameters	Hall: Chapter 4 & 5
February 14	Auditory Brainstem Response (ABR) – Analysis	Hall: Chapter 6 & 7
February 21	Frequency-Specific Measurement (ABR)	Hall: Chapter 8
February 28	**Exam 2 (Covers material on 2/7, 2/14, and 2/21)**	
March 7	Auditory Steady State Responses (ASSR)	Hall: Chapter 9
March 14	**SPRING BREAK**	
March 21	**Auditory Middle Latency Response (AMLR)** 1. Background and Acquisition Parameters 2. Analysis and Interpretation 3. Clinical Applications	Hall: Chapter 10

March 28	**Auditory Late Responses (ALR) and ERPs** 1. Background and Acquisition Parameters 2. Analysis and Interpretation 3. Clinical Applications	Hall: Chapter 11 & 12
April 4	**Exam 3 (Covers material on 3/7, 3/21, and 3/28)**	
Aril 11	**Electrically evoked and Myogenic responses (EABR, VEMP, ENoG)** 1. Background 2. Analysis and Interpretation 3. Clinical Applications	Hall: Chapter 15 (supplied)
April 18	**AAA Conference – Selected Topic in AER Measures**	
April 25	**Class Presentations**	
May 2	**Final Exam**	

Grading Policy

Acquired knowledge and proficiency of the material presented in this course will be assessed via two standard examinations held in the semester, a final comprehensive examination. Description and grade assignments are as follows:

1. **Standard Examinations (3)** – These exams will consist predominately of short answer questions. One or more essay style questions or case studies may also be incorporated into the exams. Each exam contributes to ***25% of the final grade*** in the course **(75% total)**.

2. **Student Presentations** – Each student will be required to give a 15 minute (max) presentation on a published research paper involving clinical electrophysiology. Papers must be selected by March 21 and reviewed with the Instructor for approval. Topic areas include but not limited to: acquisition parameters, AEP measurement in a clinical disorder, or future AER applications under investigation. Case studies that focus on AEP measurement are also acceptable. This assignment contributes to ***10% of the final grade*** in the course. Grading criteria for the presentation will be graded on a 10 point scale as follows:

   10=exceptional
   8=good quality
   6=adequate (average)
   4=limited
   2=needs major improvement.

   The presentation will be graded on the following:

   I. **Content**
   1. Rationale and Purpose of the study was given.
   2. Sufficient background information was presented. Terms were clearly defined.
   3. Sufficient information provided concerning methodology was given.
   4. Results were related to purpose of study (research question).
   5. Implications of Results were presented. Shortcoming or thoughts about the research was presented?

II. **Presentation**
1. Title slide: title of research, authors, and source.
2. Clear (readable) and understandable.
3. Organized (flow).
4. Stays within time limits.
5. Interactive with other presentations.

3. **Comprehensive Final Examination** – Approximately 20% questions (points) on this exam will come from material presented in lecture after the Exam III. The remaining questions (points) will comprehensive in nature. This exam contributes to ***15% of the final grade*** in the course.

Grading: Requirements for each letter grade are indicated below:

90% or better	**= A**
80 – 89%	**= B**
70 – 79%	**= C**
60 – 69%	**= D**
Below 60%	**= F**

Course Grade Policies

Per the AuD program handbook, C grades (including C+ or poorer) do not demonstrate adequate competency in the topic area and remediation or repetition of the course will be required; remediation/repetition plans require programmatic approval. *Remediation of content does not result in a grade change for the course; the only way to have a course grade changed on your transcript is to repeat the course. You may be required to repeat coursework if your GPA does not meet University standards.*

Per University policy: "If, at the end of a semester, a student's cumulative grade point average is below 3.0, the student will be placed on academic probation. The student must earn sufficient grade points during the next two semesters of registration to raise the cumulative grade point average to at least 3.0 exclusive of incomplete (X) grades. Failure to achieve this 3.0 cumulative grade point average will result in immediate dismissal from the University. A student must have a GPA of at least 3.0 to be eligible to graduate with a master's or doctoral degree."

https://catalog.utdallas.edu/2015/graduate/policies/registration-and-enrollment#academic-good-standing

For greater detail on the meaning of letter grades and university policies related to them, see the Registrar's Grade Policy regulations at: https://catalog.utdallas.edu/2015/graduate/policies/grades#grades-and-grade-point-average.

For greater detail on the meaning of letter grades and university policies related to them, see the Registrar's Grade Policy regulations at: http://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

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ASHA STANDARDS ADDRESSED IN THIS CLASS: How knowledge is conveyed and how knowledge and skill acquisition will be demonstrated.

B2. Patient characteristics (e.g., age, demographics, cultural and linguistic diversity, medical history and status, cognitive status, and physical and sensory abilities) and how they relate to clinical services. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

B4. Anatomy and physiology, pathophysiology and embryology, and development of the auditory and vestibular systems. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

B8. Normal aspects of auditory physiology and behavior over the life span. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

B11. Instrumentation and bioelectrical hazards. *Knowledge will be conveyed via class lectures, readings, and laboratory exercises. Acquisition will be demonstrated via class exams and laboratory assignments.*

B13. Physical characteristics and measurement of acoustic stimuli. *Knowledge will be conveyed via class lectures, readings, and laboratory exercises. Acquisition will be demonstrated via class exams and laboratory assignments.*

B14. Physical characteristics and measurement of electric and other nonacoustic stimuli. *Knowledge will be conveyed via class lectures, readings, and laboratory exercises. Acquisition will be demonstrated via class exams and laboratory assignments.*

C1. Interact effectively with patients, families, other appropriate individuals, and professionals. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

C3. Identify individuals at risk for hearing impairment. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

C4. Screen individuals for hearing impairment and disability/handicap using clinically appropriate and culturally sensitive screening measures. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

D1. Interact effectively with patients, families, other appropriate individuals and professionals. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

D2. Evaluate information from appropriate sources to facilitate assessment planning. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

D3. Obtain a case history. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

D6. Administer clinically appropriate and culturally sensitive assessment measures. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

D7. Perform audiologic assessment using physiologic, psychophysical and self-assessment measures. *Knowledge will be conveyed via class lectures, readings, and laboratory exercises. Acquisition will be demonstrated via class exams and laboratory assignments.*

D8. Perform electrodiagnostic test procedures. *Knowledge will be conveyed via class lectures, readings, and laboratory exercises. Acquisition will be demonstrated via class exams and laboratory assignments.*

D11. Document evaluation procedures and results. *Knowledge will be conveyed via class lectures, readings, and laboratory exercises. Acquisition will be demonstrated via class exams and laboratory assignments.*

D12. Interpret results of the evaluation to establish type and severity of disorder. *Knowledge will be conveyed via class lectures, readings, and laboratory exercises. Acquisition will be demonstrated via class exams and laboratory assignments.*

D13. Generate recommendations and referrals resulting from the evaluation process. *Knowledge will be conveyed via class lectures, readings, and laboratory exercises. Acquisition will be demonstrated via class exams and laboratory assignments.*
D14. Provide counseling to facilitate understanding of the auditory or balance disorder. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

D16. Communicate results and recommendations orally and in writing to the patient and other appropriate individual(s). *Knowledge will be conveyed via class lectures, readings, and laboratory exercises. Acquisition will be demonstrated via class exams and laboratory assignments.*

D17. Use instrumentation according to manufacturer's specifications and recommendations. *Knowledge will be conveyed via class lectures, readings, and laboratory exercises. Acquisition will be demonstrated via class exams and laboratory assignments.*

E1. Interact effectively with patients, families, other appropriate individuals, and professionals. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

E4. Counsel patients, families, and other appropriate individuals. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

E6. Collaborate with other service providers in case coordination. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

E11. Monitor and summarize treatment progress and outcomes. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

E12. Assess efficacy of interventions for auditory and balance disorders. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

E13. Establish treatment admission and discharge criteria. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

E14. Serve as an advocate for patients, families, and other appropriate individuals. *Knowledge will be conveyed via class lectures and readings. Acquisition will be demonstrated via class exams.*

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.

Please go to http://go.utdallas.edu/syllabus-policies for these policies.

Course & Instructor Policies

- While class attendance will not be monitored, it should be noted that regular attendance is required to do well in the course. Material covered on exams will be stressed in lectures.
- Students are expected to arrive for the exams on time. Students arriving late for the exam and after any student that has turned in their exam and exited the test room will not be permitted to take the exam.
- MAKE-UP EXAMS are only given in extreme cases with appropriate written documentation and at least 12 hours notification. In case of emergency or illness, it is the student's responsibility to notify the instructor before the scheduled exam. If the student is given a chance to take a make-up exam, it will be in a different format and must be completed within a week of the original test date.

*****Only exams missed due to University or Program-related business or documented illness will be accepted for consideration*****

- In the event that the student misses a lecture, it is the student's responsibility to get the material/notes/handouts from a classmate. It is not necessary to inform the instructor of an absence.
- If accommodations are required by the student for class activities (lectures, exams, assignments), the student should contact the instructor by email or in person by the end of the first week of class. See Disability Services (below) for more details.

- Browsing the internet or checking email during class time (lecture) without approval of the instructor will not be tolerated. Such situations will be documented and forwarded to the Program Head.

Professional Dispositions

Professional dispositions refer to the values, commitments, and professional ethics that influence behaviors toward instructors, peers, and those in the community. Dispositions are guided by beliefs and attitudes related to values such as caring, fairness, honesty, responsibility, and social justice. Students will demonstrate professional dispositions by exhibiting the following professional behaviors:

1. Arriving at class at the designated class start time.
2. Turning off/muting all cell phones and pagers prior to entering the classroom.
3. Preparing for class by reading the assigned materials.
4. Participating in class discussions in a constructive manner.
5. Interacting in a professional manner (verbally and nonverbally) with the instructor and other students.
6. Taking responsibility for his/her professional learning.