The University of Southern Mississippi
College of Health, Department of Speech and Hearing Sciences

SHS 621 - Hearing Aids I

COURSE SYLLABUS – Spring 2015

Instructor:
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Office Address: SHS 238
Office Phone Number: 601-266-5218
Fax Number: 601-266-5224
E-mail: edward.goshorn@usm.edu
Office Hours: MTWRF 1:00 - 3:00 PM

Course Information
Prerequisites: SHS 221 or equivalent or permission from the instructor
Credit Hours: 3 credit hours

Course Description: This course presents information regarding the electroacoustic characteristics of hearing aids and assistive listening technology and their applications to the needs of individuals with impaired hearing.

Course Overview: The purpose of this course is to provide AuD students with the necessary knowledge and skills to select, fit, evaluate, and verify amplification for adults and children. The course will give appropriate background information, as well as describe in detail the steps for hearing aid fitting and assessment of benefit. Clinical procedures for hearing aid fitting will be demonstrated and the student will be required to show proficiency with these clinical procedures. This course is required for graduate students in the Doctor of Audiology program, although this course may be appropriate for related disciplines.

Course Outcomes:
Upon successful completion of this course, an enrolled student will be able to:
1. Describe the stages of hearing aid fitting. [KASA-1 IV-E1, 2, 3, 5, 7, 8, 9, 10, 12,13]
2. Determine hearing aid candidacy and propose an appropriate treatment plan. [KASA-1 IV-E2]
3. Describe the acoustical properties of earmolds/earshells. [KASA-1 IV-E8]
4. Recommend an appropriate earmold or earshell based on client’s hearing loss and special needs. [KASA-1 IV-E8]
5. Make an acceptable ear mold impression. [KASA-1 IV-E8]
6. Describe and perform appropriate hearing aid validation techniques including Test-box and real ear measures. [KASA-1 IV-E7]
7. Describe the hearing aid selection process and demonstrate the ability to select amplification with an appropriate prescriptive method. [KASA-1 IV-E8]
8. Describe and administer appropriate outcome measures. [KASA-1 IV-E11]
9. Describe the special hearing aid fitting considerations for fitting children with amplification. [KASA-1 IV-E5]
10. Describe special use hearing aids and identify the appropriate population for these devices. [KASA-1 IV-E8]
**Instructional Strategies:**
The course will consist of:

- a. reading assignments,
- b. classroom review of reading assignments,
- c. classroom lectures,
- d. demonstrations,
- e. hands-on classroom exercises,
- f. student’s presentations of assigned material and examinations.

One text chapter will be reviewed per week in class by the instructor. The instructor will review a “special topic” at selected class meetings throughout the semester. Students will be expected to be involved in discussion of the assigned material and to ask questions on material that needs expansion. Each student will present relevant information on an assigned appendix in the text at one class meeting per week. The appendices to be reviewed are attached. Presentations will be graded on a pass/fail [90/59] basis and the average “presentation” grade will be averaged with the exam grades to derive the final grade.

Course Communication: Course communication outside of the classroom will be primarily though e-mail, although students are encouraged to have face to face discussions of classroom issues during office hours or by appointment.

**Required Text and Readings:**

Handouts: distributed by the instructor as needed.
Lab Projects: assigned by the instructor as needed.
Journal Articles: assigned by the instructor.

**Class Procedures and Requirements:**
Course Outline

Unit I

- Chapter 1 – The Audiologist and Hearing Aid Provision
- Chapter 2 – Understanding the Hearing Aid Candidate
- Chapter 8 – Ear Impressions, Earmolds, and Associated Plumbing
- Chapter 3 – Speech Acoustics
- EXAM 1

Unit II

- Chapter 4 – Pre-Fitting Tests Using Frequency-Specific Measures
- Chapter 5 – Speech Recognition Measures
- Chapter 6 – Self-Assessment Scales for Pre-Fitting Testing
- Chapter 7 – Hearing Aid Style and Fitting Applications
- EXAM 2

FINAL EXAM - COMPREHENSIVE
Demonstrations and Special topics:
A. Demonstrations:
   Demonstration #1 – Making Earmold Impression
   Demonstration #2 – Connecting hearing aids to NOAH
   Demonstration #3 – Test box measures
   Demonstration #4 – Real Ear measures
   Demonstration #5 – Hearing aid orientation
   Demonstration #6 – Trouble shooting and listening check
   Demonstration #7 – Assistive Listening Devices
B. Special Topics:
   Special Topic #1 – Amplification: Linear and Non-Linear (Compression)
   Special Topic #2 – Digitization
   Special Topic #3 – ANSI Standards Related to Amplification
   Special Topic #4 – Test Box Measures
   Special Topic #5 – Real Ear Aided Response Measures
   Special Topic #6 – Prescriptions & Other History

Other Course Requirements:
SKILLS – Each student will show proficiency in the clinical skills listed on the attached “Audiology Clinical Skills Proficiency and Competency Checklist”. Clinical skills will be taught by the instructor and/or a Departmental Clinical Supervisor throughout the semester. Student’s demonstration of competency will be graded on a pass/fail basis. An overall pass on the checklist earns a grade of 90 to be averaged with other grades and a fail earns a grade of 59.

Special Projects
a. Early in the semester, the class and the instructor will review and discuss the “top ten things to consider in a hearing aid evaluation”. This review is done to establish a framework for learning during the rest of the semester.
b. Each student will present in class a summary report of an assigned appendix from the course text. Each student will present one appendix per week. The content and format of the presentation is left to the discretion of the student and will vary with the content of the specific appendix, but the presentation should demonstrate that the student fully understands the content of the material and its application to assisting individuals with impaired hearing. Each presentation will consist of no less than a 1-page summary nor more than a 3-page summary of an appendix.
c. Late in the semester, all students and the instructor will participate in a discussion of the attached case study to consider for amplification. In this discussion, each step of the hearing aid fitting process will be addressed and described in terms of the treatment plan for the client. The purpose of this project is for the student to assimilate and integrate the knowledge and skills made available to the student in this class to a “real life” situation.
**Class Attendance Policy:** Students are expected to attend class on time and on a regular basis. You are expected to be active, professional participants in the teaching and learning process. The instructor retains the right to assign negative values for class participation that will be applied to the student’s final average. Any such assigned negative values and the behavior causing them will be communicated to the student immediately. No more than two unexcused absences will be permitted. Further unexcused absences will result in a 10% decrease in the final average grade for each unexcused absence. Please contact the instructor if you plan to be absent. Unexcused tardiness will result in a negative class participation daily grade ranging from -1 to -10 to be applied to the student’s final average. Students may obtain excused absence or tardiness by contacting the instructor prior to the class meeting or immediately following.

**GRADING:**

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<th>Item</th>
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<td>Demonstrations</td>
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TOTAL POINTS = #exams X 100 plus pass/fail average

FINAL AVERAGE = (# POINTS EARNED / TOTAL POINTS AVAILABLE) +/- points Earned for class participation.

**Final Average Grading Scale:**

- 90-100: A
- 80-89: B
- 70-79: C
- 60-69: D
- 0-59: F

Late Assignments or Projects: Unexcused late assignments or projects will result in a 5% per day subtraction from the student’s final average. Please contact the instructor before turning in late assignments or projects.

**Academic Honesty:**

1. Academic misconduct will be dealt with in the most severe actions permitted by the graduate school.
2. The use of materials such as previous-year course examinations or the use of student presentations or papers from previous courses without the instructor’s approval and appropriate reference/citation is considered an act of academic misconduct.
3. From the USM Undergraduate Bulletin: “When cheating is discovered, the faculty member may give the student an F on the work involved or in the course. If further disciplinary action is deemed appropriate, the student should be reported to the Dean of Students. In addition to being a violation of academic honesty, cheating violates the Code of Student Conduct and may be grounds for probation, suspension, and/or expulsion. Students on disciplinary suspension may not enroll in any courses offered by The University of Southern Mississippi.”
ADA Policy:
If a student has a disability that qualifies under the American with Disabilities Act (ADA) and requires accommodations, he/she should contact the Office for Disability Accommodations (ODA) for information on appropriate policies and procedures. Disabilities covered by ADA may include learning, psychiatric, physical disabilities, or chronic health disorders. Students can contact ODA if they are not certain whether a medical condition/disability qualifies.

Address:
The University of Southern Mississippi
Office for Disability Accommodations
118 College Drive #8586
Hattiesburg, MS 39406-0001
Voice Telephone: (601) 266-5024 FAX: (601) 266-6035
Individuals with hearing impairment: Mississippi Relay Service: 1-800-582-2233 (TTY)
E-mail Suzy Hebert at Suzanne.Hebert@usm.edu
Audiology Clinical Skills Proficiency and Competency Checklist

STUDENT: _______________________________________________________

COURSE: SHS 621 FALL: _______ (year)

<table>
<thead>
<tr>
<th>Date</th>
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<tr>
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<td>Make Earmold Impression</td>
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<td>Rehabilitation Outcome Measures</td>
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Top ten things to consider in a hearing aid fitting protocol

1. Is amplification needed or requested or recommended?

2. Ear or ears to be amplified
   a. testing one ear at a time vs two at a time
   b. fitting one ear: which ear to fit?
   c. fitting two ears: binaural prescriptions?

3. Form of amplification: HA vs ALD (or both); cost vs features; linear vs non-linear, et al

4. Cosmetic factors, personal needs, special medical/educational concerns
   a. Anatomical variations

5. Prescription: What should a HA prescription prescribe?
   a. What does verification of a Rx tell you?
   b. How is a Rx method chosen?

6. Benefit of amplification and verification of benefit
   a. Subjective
   b. Objective
   c. Who’s opinion has more value? Patient or Dispenser?

7. Cost/Price:
   a. how does the patient perceive cost?
   b. how do you determine the “price” of a hearing aid?
   c. Should you bundle prices?

8. Other auditory needs
   a. is an ALD needed

9. Special considerations: (physical, psychological, emotional)

10. Communication of results to referral sources/Payers
    a. how do they know you have earned the payment?
    b. what information should be given?
Use the information below to develop a formal report for this patient. Attach this form to the front of your project for grading purposes. Address each component in the outline in your report.

I. Patient: 60 y.o. male. Work: full time bar tender – communication in noisy workplace is important. Gradual onset bilateral hearing loss associated with noise exposure. Audiological diagnosis: moderate-severe bilateral sensorineural hearing loss of cochlear origin.

Audiogram: BC thresholds = AC thresholds bilaterally.

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<td>68 (50-84)</td>
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II. Patient’s complaints:
   a. Can’t understand customers while at work.
   b. Can’t understand speech in noisy situations.
   c. Misses a lot of dialog on TV programs. Turns TV up very loud.
   d. Can’t understand spouse (or others) at restaurants.
   e. Can’t understand most of speech from children.
   f. Mild tinnitus in both ears; not a serious problem but is noticeable.
   g. Difficulty understanding speech on telephone.

III. Patient’s preferences for hearing aids:
   a. Not too expensive but willing to pay for performance.
   b. Prefers small appearance, but is open to recommendations. Moderately concerned about appearance and its effects on clients perception of her capabilities. Not opposed to hearing aid in each ear if performance justifies it.

IV. Counseling/Prescription
   a. Describe points you will cover during counseling.
   b. Describe the prescription method you will use and justify it.
   c. Provide a figure(s) of the hearing loss, prescribed gain, and their relationship to speech at the conversational level. This should include real ear responses.
   d. Identify and justify need for special components (directional mic etc.)
   e. Determine need for any ALDs and justify each.

V. Outcome
   a. Develop a COSI from the information given above.
   b. Describe all objective and subjective measures you would use to verify benefit of this fitting. Its OK to use AI as reference points.

VI. Follow-up
   a. Describe follow-up schedules and their rationale.

1 95% CI in parenthesis (Thornton & Raffin, 1978)