PEDiatric Audiology
Educational Psychology 434

Evaluation of the Pediatric Patient

David L. McPherson, Ph.D.
378-6458 (office)
371-2150 (home)
**Course Description:** This course is a two credit course required for undergraduate students majoring in Audiology and is recommended for students majoring in Speech-Language Pathology. This course meets the American Speech-Language-Hearing Association's (ASHA) certification requirements for course work in assessment and pathologies of the auditory system.

This course presents primary skill development in the administration and interpretation of basic tests of auditory disorders in infants and children including pure tone air- and bone conduction threshold testing; speech audiometry; fundamentals of middle ear tympanometry; and school and industrial hearing screening. Developmental anatomy and physiology of the normal and pathological auditory system in infants and children are introduced.

**Course Objectives**

A. To develop a theoretical and practical knowledge of hearing tests and measurements in the field of pediatric communicative disorders.

B. To become proficient in the administration of standard audiological testing in infants and children.

C. To understand the role of the auditory system in auditory and speech-language disorders in infants and children.

D. To gain the fundamentals of gathering case history information and report writing in pediatrics.

**Textbooks**

1. Martin, F. and Clark, J. *Hearing Care for Children.* Boston: Allyn and Bacon, 1995. [Required text. It is highly recommended that this text be purchased and kept for future reference. It will be referred to in other courses and for speech-language majors it is a valuable resource.]


**Special Needs**

Students that are registered with the Services for Students with Disabilities or the Counseling and Development Center may receive special considerations in the timing and execution of assigned class work or examinations, but may not receive special consideration in completing class assignments or grading. That is, competency will be expected at the level this course is taught, but special considerations may be given as to the implementation and timing of the coursework. Any considerations must be discussed with the professor by the end of the fourth class period.

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1Office hours by appointment only.
Archiving of Student Work
All materials not claimed by the end of the fourth week of the term following this class will be destroyed. After that date it will not be possible to contest scores or grades. The instructor reserves the right to fully review all contested material and adjust scores accordingly.

COURSE REQUIREMENTS

Examinations: There will be two examinations weighted to 50% of your total grade. The midterm examination will contribute to 20% of your final grade and the final will contribute to 30% of your final grade. They will be essay type. Each examination question will have been answered by the instructor prior to actual grading and points assigned. Additional points on each question may be awarded for exceptional answers without penalizing other students. Students are encouraged to meet with the instructor following the midterm examination to discuss each question/answer. Examinations are given ONLY on the schedule day and times. Make-up examinations are not given. The student has four class periods to contest scores or grades including the date the examination is first returned to the class. The instructor reserves the right to fully review all contested material and adjust scores accordingly.

Quizzes: There will be two quizzes throughout the term. Each quiz will count for 10% of your grade. Quizzes are given ONLY on the schedule day and times. Make-up quizzes are not given. The instructor reserves the right to fully review all contested material and adjust scores accordingly. The student has four class periods to contest scores or grades including the date the quiz is first returned to the class. The instructor reserves the right to fully review all contested material and adjust scores accordingly.

Laboratory Assignments: There will be five laboratory assignments each weighted to 3% of your grade. These will be practical experiences in audiometric assessment and will be assigned by the instructor. Each laboratory assignment is to be completed on a different subject. The student is responsible for obtaining their own subjects and scheduling equipment. The assignments for Ed Psych 434 are as follows:

<table>
<thead>
<tr>
<th>Lab Assignment no.</th>
<th>Topic</th>
<th>Due</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Hearing screening on three youths (6-8 year old). Pure tones only using ASHA criteria for screening.</td>
<td>Class # 12</td>
</tr>
<tr>
<td>2</td>
<td>Puretone air conduction thresholds on three (3-4 year old). Subjects may NOT be shared by other class members.</td>
<td>Class # 15</td>
</tr>
<tr>
<td>3</td>
<td>Immittance audiometry (tympanometry, acoustic reflex) and pure tone thresholds (air conduction and bone conduction) on three 4-6 year olds. Subjects may NOT be shared by other class members.</td>
<td>Class # 18</td>
</tr>
<tr>
<td>4</td>
<td>Audiological evaluation (pure tone, speech, immittance, case history) on one 4 to 5 year old. Besides a formal report a separate write-up on the techniques used and results must be included.</td>
<td>Class # 21</td>
</tr>
</tbody>
</table>

2 All assignments must be typewritten unless otherwise noted. If computer generated an easily readable font must be used. Originals and copies must be clear with dark print.
Infant evaluation (3-9 months of age). Besides a formal report a separate write-up on the techniques used and results must be included. Immittance audiometry is to be completed.

Abstracts: There will be five abstract assignments. Each abstract will be worth 1 point of your final grade. The abstracts will be from journal articles on a topic of pediatric communicative disorder and hearing loss. It may be that from time-to-time special seminars/speakers will be available on campus and, at the discretion of the instructor, attendance will be required and an abstract, as part of this unit, due. In addition, various audiological procedures or other experiences may be substituted as deemed valuable by the instructor. The reading of journal articles and critical thinking is expected of professionals throughout their entire career.

<table>
<thead>
<tr>
<th>Abstract no.</th>
<th>Due</th>
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<tbody>
<tr>
<td>1</td>
<td>Class 5</td>
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<tr>
<td>2</td>
<td>Class 10</td>
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<tr>
<td>3</td>
<td>Class 15</td>
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<tr>
<td>4</td>
<td>Class 20</td>
</tr>
<tr>
<td>5</td>
<td>Day of final</td>
</tr>
</tbody>
</table>

Term Paper: Each student will be required to submit an eight to ten page term paper which will be weighted to 15% (written = 10%, presentation = 5%) of the final grade. It will be typed according to the American Psychological Association's style manual (available at the bookstore/library). Include references and double space. The topic must be submitted in writing and approved by the instructor. A 3 pt. penalty is assessed for not meeting the deadline (see Class Schedule). Each student is responsible to meet with the instructor to review progress on the term paper. A regularly scheduled appointment may be made by the student prior to the end of the first week of class. Each student will make a 15 minute presentation of their term paper which will contribute to 5% of your total grade. Each student will provide copies of their paper for distribution to other members of the class at the time of the presentation. Since you are entering a profession where timeliness is of the essence in patient care, late papers will not be accepted.

Topics for term papers: The topic for term papers must be approved by the instructor. The following are some suggestions for appropriate topics. Demonstration projects are also acceptable alternatives to a term paper. Students may collaborate, with the instructor’s prior approval. Term papers from other courses, either in the past or courses currently enrolled, will not be acceptable. It must be an original term paper. The exception to this requirement is waived for concurrent writing projects within the English department, with prior instructor approval.

1. Auditory brainstem evoked potentials in infants and young children.
2. Auditory event related potentials (not brainstem) infants and young children.
3. Development of auditory behavior and psychoacoustic responses in infants and young children.
4. Psycho-social aspects of hearing loss in infants and children including demographics.
5. Amplification of the hearing impaired infant (including tactile aids).
6. Central auditory disorders in infants and young children.
7. Aural rehabilitation in Pediatrics (0-12 years of age).
8. Speech processing in children.
9. Educational and legislative programs for the deaf and hearing impaired.
10. Immittance and acoustic reflex testing infants and young children (including neurophysiological development of the acoustic reflex arc).

It is your responsibility to make an appointment with the instructor to discuss the topic and get approval for the term paper topic. The topics must be approved by the end of class number 10, per the class schedule.
11. Neurophysiological development of the sensory system in infants and young children.
12. Behavioral conditioning for the evaluation of the infant and child.
13. Vestibular evaluation in infants and young children.
15. Effects of middle ear dysfunction on communicative disorders in infants and young children.
16. Physiological techniques of hearing assessment in infants and young children (not evoked potentials or otoacoustic emissions).
17. Special problems of the child with both visual and auditory disorders (i.e., blind and deaf).
19. Psychophysical techniques in pediatric audiology.
20. Otoacoustic Emissions as a screening tool in infants and young children.

Class Preparation: Although a class role is not usually obtained on a routine basis, students will be called upon from time-to-time to participate. Those students that are absent or unprepared will be penalized 1 point for each occurrence.

Style: Student name, date, course identification and assignment (including assignment number) must be included on all materials (see appendices for examples and preferred style). Assignments not correctly identified will not be accepted.

Extra Credit: In some instances extra credit may be given, at the discretion of the instructor, for participating in projects, attending seminars or other professional experiences.

Study Questions: The study questions are to be turned in the last day of class. They are to be typewritten and you are to keep a copy. THESE WILL NOT BE RETURNED. A 3pt. penalty will be assigned for failure to complete this assignment.

Late Assignments: All assignments are due by 11:15 am on the day of the class. Late assignments will be accepted up to and including five days from time of assignment and not later than 5:00 pm of the fifth day. A 50% penalty will be assessed on all late assignments.

Grading Standard: Each of the above areas will be weighted for a total of 100 points. The distribution is accordingly:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Points</th>
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<tbody>
<tr>
<td>Final examination</td>
<td>30</td>
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<tr>
<td>Midterm examination</td>
<td>30</td>
</tr>
<tr>
<td>Two quizzes (5 pts each)</td>
<td>10</td>
</tr>
<tr>
<td>Five laboratory assignments (2 pts each)</td>
<td>10</td>
</tr>
<tr>
<td>Five abstracts</td>
<td>5</td>
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<tr>
<td>Presentation of term paper</td>
<td>5</td>
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<tr>
<td>Term paper</td>
<td>10</td>
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<tr>
<td>TOTAL</td>
<td>100</td>
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<table>
<thead>
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<tr>
<td>A</td>
<td>100-99 pts</td>
</tr>
<tr>
<td>A-</td>
<td>90-94 pts</td>
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<tr>
<td>B+</td>
<td>87-89 pts</td>
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<tr>
<td>B</td>
<td>84-86 pts</td>
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<tr>
<td>B-</td>
<td>81-83 pts</td>
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<tr>
<td>C+</td>
<td>78-80 pts</td>
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<tr>
<td>C</td>
<td>75-77 pts</td>
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<tr>
<td>C-</td>
<td>70-74 pts</td>
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<tr>
<td>D</td>
<td>65-69 pts</td>
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<tr>
<td>E</td>
<td>64 &amp; below</td>
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</tbody>
</table>

CHEATING AND/OR PLAGERISM RESULTS IN CLASS FAILURE, at instructor's option.
# COURSE SCHEDULE AND OUTLINE
## Educational Psychology 434

<table>
<thead>
<tr>
<th>Class Number</th>
<th>Date of Class</th>
<th>Lecture topic</th>
<th>Assignments</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Jan 8</td>
<td>Introduction and Review of course</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Jan 10</td>
<td>Effects of Hearing Loss</td>
<td>Martin&amp;Clark Chpt 1</td>
<td></td>
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<tr>
<td>3</td>
<td>Jan 17</td>
<td>Genetic Aspects of Hearing Loss</td>
<td>Martin&amp;Clark Chpt 2</td>
<td>Term paper topic due by this date.</td>
</tr>
<tr>
<td>4</td>
<td>Jan 22</td>
<td>Conductive Hearing Loss in Children</td>
<td>Martin&amp;Clark Chpt 3</td>
<td></td>
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<tr>
<td>5</td>
<td>Jan 25</td>
<td>Sensorineural Hearing Loss in Children</td>
<td>Martin&amp;Clark Chpt 4</td>
<td>Abstract no. 1 due.</td>
</tr>
<tr>
<td>6</td>
<td>Feb 12</td>
<td>Psychophysical Techniques in Assessment of Pediatric Hearing</td>
<td></td>
<td>Quiz I (in class)</td>
</tr>
<tr>
<td>7</td>
<td>Feb 14</td>
<td>Demonstration of Conditioning</td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>Feb 20 (Tues)</td>
<td>Pediatric Hearing Screening I</td>
<td>Martin&amp;Clark Chpt 5</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Feb 21</td>
<td>Pediatric Hearing Screening II</td>
<td>Martin&amp;Clark Chpt 7</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Mar 4</td>
<td>Behavioral Hearing Tests</td>
<td>Martin&amp;Clark Chpt 6</td>
<td>Abstract no. 2 due.</td>
</tr>
<tr>
<td>11</td>
<td>Mar 6</td>
<td></td>
<td></td>
<td>Mid term Examination (in class)</td>
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<tr>
<td>12</td>
<td>Mar 11</td>
<td>Central Auditory Processing Disorders</td>
<td>Martin&amp;Clark Chpt 8</td>
<td>Lab no. 1 due.</td>
</tr>
<tr>
<td>13</td>
<td>Mar 13</td>
<td>Parent and Family Counseling</td>
<td>Martin&amp;Clark Chpt 9</td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Mar 18</td>
<td>Needs Assessment in Hearing Impairment</td>
<td>Martin&amp;Clark Chpt 10</td>
<td></td>
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<tr>
<td>15</td>
<td>Mar 20</td>
<td>Introduction to Amplification</td>
<td></td>
<td>Lab no. 2 due. Abstract no. 3 due.</td>
</tr>
<tr>
<td>16</td>
<td>Mar 25</td>
<td>Pediatric Amplification</td>
<td>Martin&amp;Clark Chpts 11 &amp; 12</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>Mar 27</td>
<td>Cochlear Implants &amp; Assistive Listening Devices</td>
<td>Martin&amp;Clark Chpt 13 &amp; 14</td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Apr 1</td>
<td>Intervention in Pediatric Hearing Loss</td>
<td>Martin&amp;Clark Chpts 15-17</td>
<td>Quiz 2 (in class). Lab no. 3 due.</td>
</tr>
<tr>
<td>19</td>
<td>Apr 3</td>
<td>Term Paper Presentations</td>
<td></td>
<td>Term papers due.</td>
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<tr>
<td>20</td>
<td>Apr 8</td>
<td>Term Paper Presentations</td>
<td></td>
<td>Abstract no. 4 due.</td>
</tr>
<tr>
<td>21</td>
<td>Apr 10</td>
<td>Term Paper Presentations</td>
<td></td>
<td>Lab no. 4 due.</td>
</tr>
<tr>
<td>22</td>
<td>Apr 15</td>
<td>Term Paper Presentations</td>
<td></td>
<td>Study Questions due.</td>
</tr>
<tr>
<td></td>
<td>Apr 20</td>
<td>FINAL EXAMINATION 125 TLRB 11:00 am to 2:00 pm</td>
<td>THE FINAL EXAMINATION WILL NOT BE GIVEN PRIOR TO THIS DATE</td>
<td>Lab no. 5 due. Abstract no. 5 due. No papers accepted after 2:00 pm.</td>
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</tbody>
</table>

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*Reading assignments are to be completed prior to the beginning of the class period.*
SAMPLE LABORATORY ASSIGNMENT

LABORATORY ASSIGNMENT #1

(Student name)
(Course)
(Date)

Laboratory Assignment: Pure tone audiogram

Pure tone audiograms (three) were completed on other students that were reported to have normal hearing. A portable audiometer (Belltone 10C) was used. The testing was done in a quiet room. Both air and bone conduction audiograms were constructed from the results.

Note: The student must attach copies of each audiogram and/or other forms (stapled) to the cover sheet.
SAMPLE CASE HISTORY AND REPORT

AUDIOLOGIC EVALUATION

(Student name)  
(Course)  
(Date)

Patient Name: Clyde Gates  
Date of Birth: 15 June 1956  
Sex: Male  Age: 35 years

Date of Evaluation: December 7, 1991

Complaint

The patient reported that he was unable to hear people when he was in a noisy situation and his wife complained that the television was too loud. Also it was stated that he had a 'hissing' in his ears at times that sounded like 'a steam valve was broken.' He noted that although he can 'hear' people it is difficult to understand what they are saying.

Background

The patient has a negative history for familial hearing loss, acute illnesses resulting in fevers or the use of antibiotics, and states he is in general good health. The patient is employed as a pipe fitter and works in a situation that he described as 'high' noise level. The patient reported no significant history of high blood pressure, cardiac disease and is a non-smoker. The patient uses alcohol on social occasions. The patient enjoys SCUBA diving and reports frequent ear infections. He also reported having difficulty clearing his ears on moderate to deep dives. The patient reported he did not experience any dizziness or gait problems.

Clinical Observation

Speech and language appear normal for age and social conditions. No phonemic regression was noted. The patient understood all of my questions when facing him, but on a couple of occasions had difficulty understanding me if my face was turned in a different direction. It is my impression he relies on speech reading to supplement his auditory cues.

Evaluation

[A description of the tests/evaluation used would be placed in narrative with a summary description of the results. For example]:

Pure tone air and bone conduction threshold under appropriate masking procedures suggest a 50 dB loss in the low-to-mid frequencies sloping to a severe loss in the mid-to-high frequencies (70-90 dB), with an air-bone gap in the 250-2000 Hz range.

Speech reception thresholds were consistent with the pure tone audiogram. Speech discrimination, in quiet, showed 66% on the right and 48% on the left.

Tympanometry showed reduced compliance, bilaterally. The acoustic reflex could not be elicited except in the right ear at 4000 Hz using maximum intensity (110 dB SPL).
Impression

A true estimate of residual hearing abilities in this patient could not be established because of possible middle ear involvement as noted by the abnormal tympanograms, bilaterally. However, it is my guess that there is probably a moderate-to-severe hearing loss present. The history would indicate the presence of tinnitus. Although the actual etiology cannot be established this patient's profile is typical of noise induced permanent hearing loss and/or barotrauma.

Recommendations

1. Medical referral for both possible intervention and hearing aid clearance.
2. Repeat threshold testing following medical intervention.
3. Tinnitus evaluation.
5. Counseling as to ear defenders and the use of such.
7. Communicative strategy counseling with the spouse.

The patient was counseled as to the above recommendations and has agreed to follow-up. I would very much like receiving copies of any reports and will be responsible for the audiological management of this patient.

(Signature)
David L. McPherson, Ph.D.

attachments: Audiogram, tympanograms
cc: Chart files
SAMPLE ESSAY EXAM QUESTION

Blue books, using double spacing, are to be used in all examinations and quizzes except for 'take home' examinations which are to be typewritten, double spaced.

(Student name)
(Course)
(Date)

Exam question: Describe and characterize the measures used in the auditory brainstem evoked potential recording and their relationship to stimulus intensity.

Response: The auditory brainstem evoked potential may be described as a biphasic waveform with quantitative properties of amplitude and latency. In addition a qualitative feature may be described in terms of its morphology.

Amplitude may either be described in voltage, usually microvolts, from the baseline to corresponding peak, or from positive peak to corresponding negative peak. As stimulus intensity increase, the amplitude of the response increases. The converse is also true. The first amplitude changes from baseline, in ideal recording conditions, may be seen as early as 10 dB above behavioral threshold for the stimulus; especially sharply rising (i.e. clicks) stimuli.

Latency is defined as the time, in milliseconds, from the onset of the stimulus to a peak. For consistency, wave V, which may be broad, is defined as the breaking point, or departure point, from the linear descending slope. Latency decreases as stimulus intensity increases. The converse is also true.

It should be noted that there is a point where both amplitude and latency asymptote.

In formulating this question one point is awarded for each correct identification and discussion of the pertinent areas:

1. Description of amplitude
2. Description of latency
3. Description of morphology
4. Use of microvolts
5. Use of milliseconds
6. Relationship of amplitude to intensity
7. Relationship of latency to intensity
8. Statement of how amplitude is measured
9. Statement of how latency is measured
10. Relationship of amplitude and latency to morphological features

It should be noted that areas 1, 2, 4, 5, 6, 7 and 8 were covered providing 7 points for this answer. However additional discussion in some areas were significant enough that extra points were awarded:

1. Acknowledging that the response is biphasic.
2. Amplitude may be measured using one of two references.
3. Amplitude of a wave may first appear at about 10 dB SL.

Consequently, an additional three points are awarded for this question providing a total of 10 points. Such additional points are solely at the discretion of the instructor. Since a grading curve is not used, other students are not penalized.
SAMPLE JOURNAL ABSTRACT

JOURNAL ABSTRACT #1


**Purpose:** The purpose of this paper was to report on the validity and reliability of acoustic impedance measures in children.

**Subjects:** The author used 116 children (8 months to 20 years of age) and compared static admittance and the width of the tympanogram against an otologic exam.

**Equipment:** A Grason-Stadler model 27 Auto tymp was used for the collection of acoustic admittance data, and a standard otoscope was used for inspection of the tympanic membrane.

**Statistics:** Descriptive statistics along with ANOVA (within-subjects design) and a simple sign test was used in this paper.

**Results:** No significant findings were noted for measures of ......

**Pertinent findings:**
1. Standard normative values are in widespread disagreement and may not be relevant to clinical practice with a varied population.
2. Although re-screening is cost effective it may unduly delay medical intervention and/or the patient may be lost to follow-up.
3. The use of visual inspection of the tympanic membrane......

**Comments:** This article contributes little new or unique information. Statistical assumptions were, at best, misused and poorly designed. The discussion was not tightly related to the results, but was more philosophical and did not need the data presented in the article. Of particular interest was......
These primary study questions were taken from:

Chapter 1
1. Discuss the concept of homogenous versus heterogeneous in the classifying of the hearing impaired child.
2. What factors prolong the identification of hearing loss?
3. What is the general effect of site of lesion on auditory perception?
4. Why is it important to identify other handicapping conditions early?
5. What is the most critical factor in the home environment for the hearing impaired child?
6. Compare and contrast hearing loss as a disability versus hearing loss as a culture.
7. What conflicts may arise in a hearing child born to deaf parents?
8. Compare and contrast the terms “deaf” versus “hearing impaired”.
9. According to Clark (1981) what are the various classifications of hearing impairment?
10. Knauf’s (1978) argument about classifying hearing impairment.
11. Compare and contrast the communicative experience between the mother of an infant with normal hearing and a mother with a deaf infant.
12. What type of activity appears to be “pre-language” in the normal hearing child, and what type of adaptation must be done in the deaf infant?
13. What is the general relationship between the severity of the hearing loss, the onset of the hearing and the development of the child?
14. How does hearing loss at birth affect the development of speech perception?
15. How are consonants classified into subphonemic features?
16. What does the feature of manner refer to?
17. What does the feature of voicing refer to?
18. What does the feature of place refer to?
19. What does the effect of hearing loss at birth have on the feature of manner?
20. What does the effect of hearing loss at birth have on the feature of voicing?
21. What does the effect of hearing loss at birth have on the feature of place?
22. What is the effect of hearing loss on the phonemic perception (give at least one example)?
23. Discuss the effects of hearing loss on speech production.
24. What are the effects of hearing loss on both primary and secondary language development?
25. What is meant by ‘form’ and how does hearing impairment effect form?
26. What is meant by ‘content’ and how does hearing impairment effect content?
27. What is meant by ‘function’ and how does hearing impairment effect function?
28. What are the effects of hearing impairment on reading?
Chapter 2
29. What are the two major categories of childhood hearing loss and what encompasses each category?
30. What percentage of hereditary hearing loss may be described as ‘isolated hearing loss’ versus a ‘genetic syndroms hearing loss’?
31. What are the eight classifications of Konigsmark and Gorlin for genetic hearing loss?
32. Discuss the use of the audiogram in identifying the etiology of hearing loss in children.
33. Compare and contrast ‘Chromosomal Inheritance versus Mendelian Inheritance.
34. Discuss Dominant Inheritance, Recessive Inheritance, and X-linked Recessive Inheritance.
35. Discuss Complex, or Multifactorial, Inheritance.
36. What is the goal of genetic counseling?
37. In obtaining a medical history, list five MAJOR pieces of information that must be obtained is it relates to familial and medical history of a child/infant.
38. What history would indicate the necessity of genetic counseling?
39. What physical examination would indicate the necessity of genetic counseling?
40. What social history would indicate the necessity of genetic counseling?

Chapter 3
41. At about what age does the tympanic membrane complete its development?
42. What major factor would effect accurate hearing assessment within the first 24 hours of life?
43. What is the normal relationship of the external ear to the predominate facial features?
44. In congenital disorders of the external ear, what two factors are of greatest significance for hearing loss?
45. Discuss the extracranial and intracranial complications of otitis media.
46. Compare and contrast the use of chronic antibiotic treatment of otitis median versus ventilation tubes.

Chapter 4
47.
SUPPLEMENTAL STUDY QUESTIONS
Pediatric Audiology
Educational Psychology 434

These supplemental study questions were taken from:

Chapter 1
1. What is meant by an auditory-linked acquisition of language?
2. What is the incidence of hearing loss in the newborn period in the United States?
3. What is the incidence of acquired hearing loss in the United States?
4. What is meant by a handicapping hearing loss?
5. What is the minimum criteria for a hearing loss?
6. What are the four general categories of hearing loss and their effect on speech and language?
7. Discuss at least five areas of importance in educational intervention of childhood hearing loss.

Chapter 2
8. Discuss the important areas of the embryological development of the ear (using first, second and third trimesters is sufficient for time periods).

Chapter 3
9. Discuss Atresia or stenosis of the external auditory meatus.
10. What type of aural discharges occur?
11. What types of problems constitute a blockage of the ear canal?
12. What are exostoses and osteomas and how do they differ?
13. What is Bullous Myringitis
14. What effect does a perforation of the tympanic membrane have on hearing?
15. What is otitis media, what are the forms it may take, what is the incidence by age group?
16. Discuss four types of otitis media.
17. Discuss cholesteatoma.
18. What are the two stages of mastoiditis and how do they differ?
19. Discuss the problem of autism.
20. What drugs are known to be ototoxic?
21. What is unique about Meningitis and hearing loss?
22. Discuss the auditory effects and time of occurrence of congenital syphilis. Briefly explain what the disease is.
23. Discuss the auditory effects and time of occurrence of CMV. Briefly explain what the disease is.
24. Discuss the auditory effects and time of occurrence of persistent fetal circulation. Briefly explain what the disease is.
25. Discuss the auditory effects and time of occurrence of Rh incompatibility. Briefly explain what the disease is.
26. Discuss the auditory effects and time of occurrence of diabetes mellitus. Briefly explain what the disease is.

27. What is meant by autosomal dominant, autosomal recessive and sex-linked in dealing with genetic hearing loss?

28. What is hereditary deafness?

29. List the major exogenous causes of prelingual hearing loss (at least 10 of the major causes).

30. What are the four major divisions of the classification of hereditary deafness?

Chapter 4

31. How has the auropalpebral reflex been used in prenatal hearing evaluation?

32. Describe an infant's response to sound and voice during the first three or four weeks of life.

33. What is meant by suprasegmental speech activity?

34. What is meant by the segmental aspect of speech activity?

35. Discuss the importance of auditory behavior as it relates to prelinguistic activity.

36. Discuss the concept of optimal or critical periods of development of the auditory system for speech and language.

37. What is the effect of a central organic auditory disorder on auditory development? How is it recognized?

38. What effect does the environment have on the development of the auditory and speech/language areas?

Chapter 5

39. There are five basic stages of auditory development following birth. These may be divided as 0-4 months, 4-7 months, 7-9 months, 9-13 months, and 13-24 months. What are the descriptive events that should occur at each of these?

40. What is expected from behavioral observational audiometry and what are the expected responses at various ages?

41. What is used as a stimulus in BOA and what are the frequency and calibration considerations?

42. VRA may be used from beginning at about what age?

43. Explain the details of VRA including reinforcement schedules, if necessary.

44. COR may be used from beginning at about what age?

45. Explains the details of COR including reinforcement schedules, if necessary.

46. TROCA may be used from beginning at about what age?

47. Explain the details of TROCA including reinforcement schedules, if necessary.

48. What tester and observer biases must be controlled for and how may these biases effect the results?

49. Discuss, in detail, the procedures for conditioned play audiometry including the appropriate age ranges and expected responses. Include reinforcement schedules, if necessary.

50. How can speech reception thresholds be tested in the young child?

51. How can speech discrimination be ascertained in the young child?

52. What is the WIPI?
53. What is the DIP?
54. What is meant by a central auditory disorder?
55. Briefly, in two or three sentences, explain localization.
56. Briefly, in two or three sentences, explain binaural synthesis.
57. Briefly, in two or three sentences, explain figure ground.
58. Briefly, in two or three sentences, explain binaural separation.
59. Briefly, in two or three sentences, explain auditory memory.
60. Briefly, in two or three sentences, explain auditory blending.
61. Briefly, in two or three sentences, explain auditory discrimination.
62. Briefly, in two or three sentences, explain auditory closure.
63. Briefly, in two or three sentences, explain auditory attention
64. Briefly, in two or three sentences, explain auditory association.
65. Briefly, in two or three sentences, explain auditory cognition.
66. What are the indication and how does one detect non-organic hearing loss in children?
67. What tests in children may be used to detect non-organic hearing loss in children?
68. What is unique to a deaf-blind child?

Chapter 6

69. What is meant by a physiological hearing test?
70. List the various physiological tests and state what they measure and when they are appropriate to use (i.e. population, age etc.).
71. What are the four applications of immittance audimetry and what do they measure?
72. How can the acoustic reflex be used to estimate hearing threshold?
73. What is the auditory brainstem evoked response and how is it measured?
74. How do we estimate hearing threshold using brainstem evoked responses?
75. What is electrocochleography?
76. What is the advantage of using electrocochleography?
77. What is an otoacoustic emission?
78. Where does otoacoustic have its greatest value, in hearing threshold or hearing screening and why?
79. How is diziness evaluated in young children?

Chapter 7

80. What is the purpose of hearing screening?
81. Discuss sensitivity vs specificity in hearing screening.
82. What are the high risk factors for hearing loss at birth?
83. When is the ideal time to screen hearing in the newborn period?
84. In school age children what are the recommend frequencis for pure tone screening and what intensity should they be screening?
85. What are the guidelines for referral when screening is failed?
86. What is the best method for screening for otitis media?
87. What are the guidelines for pass/fail using immittance audiometry screening?

Chapter 8
88. Name and discuss the six major components of a behind the ear hearing aid?
89. What are the various types of hearing aids and under what types of hearing loss would each one be used (i.e. what are the general considerations)?
90. What is meant by 'functional' gain?
91. In fitting a non-verbal child what may be used to establish a proper gain selection?
92. What is meant by 'real ear measurements'?
93. How might ABR be used in hearing aid selection?
94. How might the acoustic reflex be used in hearing aid selection?
95. What is the purpose of amplification use in the classroom and what type is preferred (why)?
96. What is a tactile sensory aid and how is it used (for what population)?
97. What is a cochlear implant and what criteria should be used to determine if one should be used?

Chapter 9
98. What are four primary goals in the education of the hearing impaired (re: childhood hearing loss)?
99. What is an IEP and what role does the audiologist play in the IEP?
100. What are the five categories of early communication and what do they represent?
101. Discuss the educational prognosis for the hearing impaired child as it relates generally to the extent of hearing loss and the nature of the hearing loss.
102. Compare and contrast auditory/oral versus visual/oral methods of communication training in childhood.
103. What is meant by total communication?
104. What is cued speech?
105. What is meant by the verbotonal method?
106. What is the purpose of 'mainstreaming'?
107. What is the role of the parent in this whole process?