

PEDIATRIC AUDIOLOGY

ASLP 434

EVALUATION OF THE PEDIATRIC PATIENT

David L. McPherson, Ph.D.

422-6458 (office)

375-9166 (home)

LAST UPDATE: **January 7, 2002**

NO PART OF THIS SYLLABUS MAY BE DUPLICATED OR REPRODUCED EXCEPT AS NEEDED BY THE INDIVIDUAL STUDENT CURRENTLY ENROLLED IN ASLP 438.

SOME OF THE ENCLOSED MATERIALS HAVE COPYRIGHTS HELD BY OTHER ENTITIES AND FURTHER DUPLICATION IS NOT AUTHORIZED AND MAY BE IN VIOLATION OF LOCAL, STATE, AND FEDERAL LAWS.

TABLE OF CONTENTS

COURSE DESCRIPTION	1
COURSE OBJECTIVES	1
TEXTBOOKS	1
CONTACTING THE INSTRUCTOR	1
Web Site Information	2
PREREQUISITES	2
HONOR CODE	2
COURSE MEETING TIMES	2
PREVENTING SEXUAL HARASSMENT	2
STUDENTS WITH DISABILITIES	2
ARCHIVING OF STUDENT WORK	3
DEVOTIONALS	3
COURSE SCHEDULE AND OUTLINE - ASLP 434	4
COURSE REQUIREMENTS	6
Assignments	6
Grading Standard	6
Examinations	6
Quizzes	6
Course Participation	6
Extra Credit	7
WRITING ASSIGNMENTS	7
The Function of Writing in Audiology and Speech-Language Pathology	7
Term Paper	7
<i>Term Paper Topic</i>	7
Technical Requirements	7
Grading Criteria	8
SAMPLE APA STYLE PAPER	8
Cochlear Implants for Deaf Children	9
ABSTRACT	10
Introduction	11
The Cochlear Implant	11
<i>Eligibility for Cochlear Implants</i>	12
References	13
TERM PAPER COVER SHEET	14
SAMPLE ESSAY EXAM QUESTION	15

PEDIATRIC AUDIOLOGY

Audiology and Speech Language Pathology 434 (2.0 credits)

Monday, Wednesday & Friday – 8:00am - 8:50am - 177 TLRB

David L. McPherson, Ph.D. - 129 TLRB

mailto:david_mcperson@byu.edu

422-6458 (office) - 375-9166 (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*. Botson: Allyn and Bacon, 1996. [ISBN 0-13-124702-6] [Required text. It is highly recommended that this text be purchased and kept for future reference]
2. Northern, J. and Downs, M. *Hearing in Children* (Fourth edition). Baltimore: Williams & Wilkins, 1991. [Secondary text, not required but recommended.]
3. Gelfand, S.A. (2001). *Essentials of Audiology*. New York: Thieme. [ISBN 1-58890-017-7]. [Secondary text, not required but recommended.]

CONTACTING THE INSTRUCTOR

My office hours are primarily by appointment, however, if I am not involved in some activity you are welcome to see me at any time. If you call my office telephone and leave a message be

sure to leave a time and phone number that you will be available for me to return your telephone call. I will make two attempts at returning your telephone call. If you contact me using e-mail be sure to put 'ASLP 438' in the subject heading. I prioritize my e-mail by subject heading, with no heading getting the lowest priority. My home telephone is for 'emergencies' and is not to be used to schedule appointments or leave messages. I do not mind being contacted at home for specific questions.

Web Site Information

Registered students in this course are to use BlackBoard[®] for this course. Login to Route Y



then select Blackboard in the lower section.

PREREQUISITES

ASLP 334, ASLP 438 and Physics 167 are prerequisites for this course. Students that have not completed these prerequisites are required to discontinue this course until such time the prerequisite courses have been completed.

HONOR CODE

The student is expected to be familiar with the Honor Code. The Honor Code is enforced in this class and students will be required to conform to its principles and practices. Cheating and plagiarism may result in a class failure, at the discretion of the instructor.

“Brigham Young University exists to provide a university education in an atmosphere consistent with the ideals and principles of The Church of Jesus Christ of Latter-day Saints. This atmosphere is preserved through commitment to conduct that reflects those ideals and principles” (Undergraduate Catalog, Brigham Young University).

COURSE MEETING TIMES

This is a 2 credit hour course scheduled to meet Mondays and Wednesdays. You are expected to attend every class. No, it is not all right to miss class. I do not give midterm or final examinations other than the posted times. Please make your lifestyle arrangements according to the University calendar.

PREVENTING SEXUAL HARASSMENT

Title IX of the Education Amendments of 1972 prohibits sex discrimination against any participant in an educational program or activity receiving federal funds. The act is intended to eliminate sex discrimination in education. Title IX covers discrimination in programs, admissions, activities, and student-to-student sexual harassment. BYU's policy against sexual harassment extends not only to employees of the university but to students as well. If you encounter unlawful sexual harassment or gender based discrimination, please talk to your professor; contact the Equal Employment Office at 422-5895 or 367-5689 (24-hours); or contact the Honor Code Office at 422-2847.

STUDENTS WITH DISABILITIES

Brigham Young University is committed to providing a working and learning atmosphere that reasonably accommodates qualified persons with disabilities. If you have any disability, which

may impair your ability to complete this course successfully, please contact the Services for Students with Disabilities Office (422-2767). Reasonable academic accommodations are reviewed for all students who have qualified documented disabilities. Services are coordinated with the student and instructor by the SSD Office. If you need assistance or if you feel you have been unlawfully discriminated against on the basis of disability, you may seek resolution through established grievance policy and procedures. You should contact the Equal Employment Office at 422-5895. D-382 ASB.

Students in this class must be registered with the Services for Students with Disabilities Office before accommodations will be made. It is in this manner that I may best, and fairly, make necessary accommodations. Accommodations will be made for all course activities, as needed, following registration, and no consideration will be given for course activities completed prior to the instructor being officially notified by the Services for Students with Disabilities Office. Please see me if you should have any questions.

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.

DEVOTIONALS

Brigham Young University provides devotionals and forums throughout the year on most Tuesdays from 11:00 am to 11:50 am. On days that these enriching experiences are provided, the instructor is not available nor should any of the facilities be used as part of this course during that time period.

COURSE SCHEDULE AND OUTLINE - ASLP 434

Class no.		Date	Topic	Assignment	Notes
1	DM	01/07/02	Introduction.	Syllabus.	-Term Paper Topic: Educational Assessment of the Hearing Impaired Child (0 to 12 years of age).
2	DM	01/09/02	The Effects of Hearing Loss on Children.	Chapter 1.	-Supplement with sensory development and speech perception etc.
3	DM	01/14/02		Chapter 1 cont'd.	
4	DM	01/16/02	Genetic Hearing Loss in Children.	Chapter 2.	
5	DM	01/23/02	Effects of Conductive Hearing Loss in Children.	Chapter 3.	-Distribute Kunze paper etc.
6	DM	1/24/02 Tues.	Discussion of Kunze paper.		-Discuss Kunze paper and other findings on OME in children.
8	DM	01/28/02	Effects of Sensorineural Hearing Loss in Children.	Chapter 4.	
9	TBA	01/30/02	Hearing Screening in Infants and Children.	Chapter 5.	
10	DM	02/04/02		Chapter 5 cont'd	
11	DM	02/06/02	Audiologic Evaluation of Infants and Children.	Chapters 5 cont'd & 6.	
12	DM	02/11/02		Chapter 6.	
13	DM	02/13/02	History and Physical Examination for Hearing Loss in Infants and Children.	Demo 1: Physical examination and Hx.	
14	DM	02/25/02		Midterm Examination	
15	DM	02/27/02	Physiological Measures of Inner Ear Function in Infants and Children	Chapter 7.	-Otoacoustic Emissions. -ABR
16	DM	03/05/02		Chapter 7 cont'd	-ABR -Vestibular disorders.

Class no.		Date	Topic	Assignment	Notes
17	DM	03/06/02	Behavioral Observation Hearing Screening in Infants and Children.	Demo 3: Behavioral Infant Hearing Screening.	
18	DM	03/11/02		Demo 4: Physiological Hearing Screening.	
19	DM	03/13/02	CAPD in the Pediatric Population.	Chapter 8.	-Discuss CAPD in the educational process and its misuse.
20	DM	03/18/02	Types of CAPD testing.	Chapter 8.	-Speech and non-speech testing. -Modeling of CAPD testing.
21	DM	03/20/02		Demo 5: CAPD Testing.	-SCAN.
22	DM	03/25/02	Social Needs of the Hearing Impaired Child.	Chapters 9 & 10.	
23	DM	03/27/02	Amplification for the Hearing Impaired Infant and Children	Chapter 11.	-Term paper due by 12:00pm
24	DM	04/01/02		Chapter 11 cont'd.	
25	DM	04/03/02		Chapter 12.	
26	DM	04/08/02	Cochlear Implants in Children.	Chapter 13.	
27	DM	04/10/02	Assistive Listening Devices.	Chapters 13 cont'd & 14.	
28	DM	04/15/02	Early Intervention.	Chapter 15.	
29	DM	04/17/02	Educational Management of the Hearing Impaired Child.	Chapters 16 & 17.	
		04/24/02	FINAL EXAMINATION		

COURSE REQUIREMENTS

Assignments

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. Unless otherwise noted all assignments are due by the beginning of the class period on the due date. Penalties are assigned for late assignments which amount to 20% of the total earned for that assignment.

Reading assignments are to be completed prior to the beginning of the class period.

Grading Standard

Each assignment will be weighted according to the following percentages:

<i>Assignment</i>	<i>Weighting</i>
Term Paper	34%
Midterm Examination	22%
Final Examination	22%
Quiz 1	11%
Quiz 2	11%
TOTAL	100%

The grade equivalent is based on the following percentages:

A	96-100 %	C+	78-80 %
A-	92-95 %	C	75-77 %
B+	88-91 %	C-	70-74 %
B	84-87 %	D	65-69 %
B-	81-83 %	E	64% & below

Examinations

There will be two examinations, a midterm (30%) and a final (30%). They will be essay or short answer type. 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 as scheduled. A sample question is included in the course syllabus ([click here for link](#))

Quizzes

There will be two quizzes and each quiz will be weighted to 11% of your final grade, for a total of 22% of your final grade. These will be similar to the explanations given above for the midterm and final examination. Quizzes are given at the discretion of the instructor and are unannounced.

Course Participation

The student is expected to be prepared. This includes having read the material prior to class. Students that are not prepared may be penalized one percentage point for each class period. Absence from class, except for medical purposes, is considered unprepared.

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. Extra credit is not given for purposes of grade deficiencies.

WRITING ASSIGNMENTS

The Function of Writing in Audiology and Speech-Language Pathology

The discipline of Audiology and Speech-Language Pathology includes both an academic area and a clinical area. Writing within both of these areas has two main objectives: first, to provide information that will advance the basic science knowledge within the profession; and second to communicate clinical findings regarding the practice of Audiology and Speech-Language Pathology. Both types of writing require a knowledge base of the topic, professional and scientific writing skills, clarity of thought, and the ability to integrate information.

Writing in Audiology and Speech-Language Pathology is primarily directed to professionals. For the academic area, it is in the form and style dictated by the scientific journals within the area of Audiology and Speech-Language Pathology. For the clinical area, it is in the form dictated by the health care profession, educators, and school administrators. Consequently, writing in Audiology and Speech-Language Pathology is a life long skill that will reflect the professional knowledge and competency of the individual.

Term Paper

Each student will be required to submit a twenty to thirty page term paper. The term paper is weighted to 34% of your total class grade. Each student will write on the same topic. Three percentage points will be deducted for each day the term paper is late. Students are encouraged, but not required, to work with me on completing this assignment.

The term paper will be typed according to the American Psychological Association's (APA) style manual. This manual is available at the bookstore, the library, and at www.apa.org. Also, the class presentation on the term paper may be found on my web site as well for class members only on the BlackBoard site at <http://ry.byu.edu> and login using your Route Y username and password. Then select BlackBoard in the lower section.

Term Paper Topic

<i>Communication Assessment of the Hearing Impaired: 0 to 12 Years of Age</i>
--

Technical Requirements

- Margins will be 1.5" on the bound edge (left side), and 1.0" on the top, bottom, and non-bound edge (right side).
- The paper will be typed using a 12 point Times or Times Roman font. The print must be clear, sharp, and of good contrast.
- Figures should be scanned, not taped, and placed at the end of the paragraph where it is referenced in the text, but before the following paragraph. Do not wrap text.

- Tables follow the same convention as figures. Tables should be prepared using the word processor's table function, and not with tabs etc. Be sure to check the APA manual for style. The exception to the APA manual requirement is that tables may be single spaced instead of double spaced.
- Term papers done in other classes may not be used to complete this assignment.
- References must primarily be from scholarly journals with a few specific references from books. Internet, encyclopedias, lay publications, and the National Inquirer may not be used.
- The grading sheet at the end of this syllabus must be the first page of your term paper.
- Term papers are NOT to have hard covers and must be securely fastened with staples or other permanent fasteners. Do not use "sliding" fasteners.

Failure to follow these technical requirements will result in points being deducted from the term paper.

Grading Criteria

The following table shows a summary of the grading criteria that will be used to grade your paper. Both the Peer Review Sheet and the Term Paper Cover Sheet briefly state the criteria for each area of grading.

Students that make use of the Writing Center will receive an extra 5 points on the final assignment if notification is received by the instructor prior to ten days from the due date of the term paper. The [Writing Center](#) may be used at any stage of the writing process.

Grading Criteria	Points
Depth of Content	20
Clarity of Writing	20
Quality of Content	20
References	20
Style (APA and Technical)	20
Writing Center (optional)	(5)
TOTAL	100

SAMPLE APA STYLE PAPER

A sample term paper is included on the next few pages. This should assist the student in visualizing the format requirements as well as what an "A" paper represents. The sample paper is in the form and style the student submitted it to the instructor. The student received a grade of "A" on the paper.

(cover page)

Cochlear Implants for Deaf Children

Student Name

Brigham Young University

August 19, 1999

(separate page)-----

ABSTRACT

COCHLEAR IMPLANTS IN DEAF CHILDREN

Student Name

Brigham Young University

Cochlear implants have developed to the point where they are now routinely used in children. Eligibility for cochlear implants include bilateral deafness and an evaluation that shows the child will not benefit from hearing aids. The main advantages of a cochlear implant over traditional hearing aid amplification is in increased ability for the recognition of speech. Rehabilitation has a significant impact on cochlear implant use and...

(new page)-----

Introduction

In recent years, technological advances have made it possible for persons with profound hearing impairments to benefit from certain types of amplification. Of these advances, the most notable has been the cochlear implant for the profoundly hearing impaired. Otolaryngologists (ear, nose, and throat doctors) and audiologists have explored the advantages and disadvantages of such devices and agree that the cochlear implants are mostly beneficial. However, some controversy over the effects of the implant have made parents of deaf children wary of the devices. The concerns of parents warrant investigation of the positive and negative effects of cochlear implants.

The Cochlear Implant

A cochlear implant is a device that is worn both externally and internally deep inside the skull. Figure 1 shows a schematic diagram of the Nucleus cochlear implant. The implant works briefly like this: First, sound enters the system through the microphone, which rests behind the individual's ear, much like a hearing aid. The sound is then sent from the microphone through a thin cord to the speech processor. The processor selects sounds most useful for speech/sound recognition. The codes are sent back through the same cord to the transmitter coil, which sends the codes across the skin to the internal processor via the internal coil. The internal processor converts the codes into electrical signals and sends them along the electrical array implanted in the cochlea. For the Nucleus cochlear implant, twenty-two electrodes are arranged along a narrow piece of flexible tubing. Each electrode is connected, by a wire, to the internal processor. The coded electrical signal is delivered to specific electrodes, each of which is programmed separately and can deliver signals at varying intensities and pitches. The electrodes stimulate different hearing nerve fibers, which send the messages to the brain for interpretation (Cochlear, 1990). Most cochlear implants work in similar fashion, but the Nucleus cochlear implant uses the most complex technology to date (Horn, Nozza, & Dolitsky, 1991) and will be the main focus in this research.

Eligibility for Cochlear Implants

Because cochlear implants are so successful, several professionals believe that the only criterion for receiving one is possession of profound deafness. However, this is not true (Tyler, 1993). Cochlear implants are only available to a select few individuals who have the necessary background and traits required for the procedure. The first thing to consider when choosing a candidate is the degree of hearing loss the individual suffers from.

Degree of Hearing Loss. "The child must exhibit a severe to profound hearing loss. In addition, the child must not benefit significantly from hearing aids or other conventional amplification devices" (Horn, Nozza, & Dolitsky, 1991, p. 83). The degree of hearing loss is measured in decibels (dB HL) on various frequencies. To be severely hearing impaired, at least an average hearing loss of +70 dB HL would be exhibited. Profound deafness begins at the average of +90 dB HL. Normal hearing is anywhere between -10 and +25 dB HL (Bess & Humes, 1990). Some severely deafened children and adults can still hear with conventional hearing aids. Those people would not be considered for implantation since the hearing gained from the implant may be less than what they already hear from a hearing aid.

Physical Structures. The second consideration for the success of the cochlear implant depends upon the existing physical structures within the potential recipients ear. There are numerous causes of deafness that can usually be broken down into.....

(separate page)-----

References

- Bess, F.H., & Humes, L.E. (1990). *Audiology: The Fundamentals*. Baltimore, Maryland: Williams & Wilkins.
- Booth, C.L., Read, T.E., Archbold, S., Dyar, D., Morgan, C., & Gray, R.F. (1989). Case study of a post-lingually deafened child with a UCH/RNID single channel cochlear implant. *The Journal of Laryngology and Otology*, 18, 50-54.
- Boothroyd, A. (1984). Auditory perception of speech contrasts by subjects with sensorineural hearing loss. *Journal of Speech and Hearing Research*, 27, 134-144.
- Cochlear. (Aug, 1990). *Issues and Answers*. Englewood, Co: Cochlear Corporation.
- Cohen, N.L., Hoffman, R.A., & Stroschein, M. (1988). Medical or surgical complications related to the Nucleus multichannel cochlear implant. *Annals of Otology, Rhinology Laryngology*, 97, 8-13.
- Cohen, N.L., Waltzman, S.B., Fisher, S.G., & Tyler, R. (1993). A prospective randomized study of cochlear implants. *New England Journal of Medicine*, 328,(4), 233-237.
- Cooper, H.R., Carpenter, L., Aleksy, W., Booth, C.L., Read, T.E., Graham, J.M., & Fraser, J.G. (1989). UCH/RNID single channel extracochlear implant: results in thirty profoundly deafened adults. The Journal of Laryngology and Otology, 18, 22-38.
- Dawson, P., Blamey, P.J., Rowland, L.C., Dettman, S.J., Clarke, G.M., Busby, P.A., Brown, A.M., Dowell, R.C., & Rickard, F.W. (1992). Cochlear implants in children, adolescents, and prelinguistically deafened adults: Speech perception. *Journal of Speech and Hearing Research*, 35, 401-417.

(end of paper)-----

Student Name: _____

TERM PAPER COVER SHEET

(This is to be attached to the front page of your term paper)

Area	Expectation	Instructors Comment	Points
Depth of content	The topic is treated in depth and focused.		/20
Clarity of writing	Correct terminology and concepts are used that are common to professional writing in audiology. Professional language is used.		/20
Quality of content	Content is accurate, current, and represents scholarly work. Research is clearly separated from anecdotal types of statements.		/20
References	Show a good review of the topic in scholarly papers and journals.		/20
Style	APA style and the technical requirements have been followed.		/20
Writing Center		This is optional and adds to the total number of possible points.	/5
		Total Points	/100

SAMPLE ESSAY EXAM QUESTION

Blue books, using double spacing, may be required for some or 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.

STUDY QUESTIONS
Pediatric Audiology – ASLP 434

This list of study questions is under development. The instructor is under no obligation to provide study questions, but does so as a supplement to the course, as time and availability permits.

These primary study questions were taken from:

Martin, F. and Clark, J. Hearing Care for Children. Boston: Allyn and Bacon, 1995.

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 Comple, 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 chldr/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 geneteic counseling?

Chapter 3

41. At about what age does the tympanic membrane complete its development?
42. What major factor would effect accurrate hearing assesment within the first 24 houres 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