SPED931

Introduction to Educational Audiology

S1 External 2017

Institute of Early Childhood

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General Information

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Credit points
4

Prerequisites
Admission to MDisabilityStud

Corequisites

Co-badged status

Unit description
This unit aims to provide teachers of the deaf with a broad overview of auditory development and audiological practice. Students will be introduced to the anatomy and physiology of hearing as a basis for understanding the mechanisms underlying auditory perception. The causes and implications of various types of hearing loss will be examined. Procedures and testing techniques will also be explored. Topics covered in this area will include screening, behavioural assessment, objective assessment, and evoked potential testing techniques. Students will develop an understanding of clinical reports and audiograms. Hearing aids, implantable devices, and other assistive listening devices are reviewed and students will learn skills in troubleshooting and monitoring such devices.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

Discuss foundational audiology terminology and constructs with parents of children with hearing loss

Explain the delivery of audiology services for children and students with hearing loss

Identify and describe audiological screening and assessment procedures

Provide a description of the components and features of hearing aids, cochlear implants and FM systems, and how to carry out rudimentary troubleshooting

Discuss the underlying theory of environmental acoustics and modifications, and to apply this to schoolbased settings

Assessment Tasks

Name	Weighting	Hurdle	Due
Online quiz	30%	No	Week 5
Clinical observation & report	30%	No	Week 8
Case Study	40%	No	Week 12

Online quiz

Due: **Week 5**
Weighting: **30%**

The quiz link will appear on iLearn at 12.01am, Monday 27 March 2017. Students must have completed, saved and submitted the quiz via iLearn by 11.59pm, Sunday 2 April 2017.

30 items, some MC, T/F, fill in blank, short answer

On successful completion you will be able to:

- Discuss foundational audiology terminology and constructs with parents of children with hearing loss
- Identify and describe audiological screening and assessment procedures

Clinical observation & report

Due: **Week 8**
Weighting: **30%**

Video observation of clinical practice and a written report of observation.

1500 words total (±10%)

A marking rubric will be supplied prior to assignment submission.

Submit your assignment to Turnitin via the iLearn submission point before 5pm, Friday of Week 8.

On successful completion you will be able to:

- Discuss foundational audiology terminology and constructs with parents of children with hearing loss
- Explain the delivery of audiology services for children and students with hearing loss
- Identify and describe audiological screening and assessment procedures

Case Study

Due: **Week 12**
Weighting: **40%**

Students will be provided with a scenario.

2000 words (±10%).

A marking rubric will be supplied prior to assignment submission.

Submit your assignment to via iLearn before 5pm, Friday of Week 12.

On successful completion you will be able to:

- Discuss foundational audiology terminology and constructs with parents of children with hearing loss
- Explain the delivery of audiology services for children and students with hearing loss
- Identify and describe audiological screening and assessment procedures
- Provide a description of the components and features of hearing aids, cochlear implants and FM systems, and how to carry out rudimentary troubleshooting
- Discuss the underlying theory of environmental acoustics and modifications, and to apply this to schoolbased settings

Delivery and Resources

There will be one compulsory on-campus session to be held at RIDBC North Rocks on Friday 5th May, 9am-4pm. All other content will be delivered online via iLearn on a weekly basis.

Recommended Readings

Access Economics, (2006). Listen Hear! The Economic Impact and Cost of Hearing Loss in Australia, VicDeaf. **pp. 28-30, 39.**

American Academy of Audiology (2013, June). *Clinical Practice Guidelines: Paediatric Amplification*.

Anderson, K. (2011, September). Predicting speech audibility from the audiogram to advocate for listening and learning needs. *Hearing Review,* **20-23.**

AS/NZS 2107:2000. Australian/New Zealand Standard™. Acoustics—Recommended design sound levels and reverberation times for building interiors.

Australian Hearing (2014). Demographic details of young Australians with a hearing impairment, who have been fitted with a hearing aid or cochlear implant at 31 December 2013.

Australian Hearing (2010). Report on Demographics of Persons under the age of 21 years with Hearing Aids, 2010.

Baldwin, Margaret & Watkin, Peter (2013). Predicting the degree of hearing loss using click auditory brainstem response in babies referred from newborn hearing screening. *Ear and Hearing,* **34(3): 361-9.**

Caldwell, A., & Nittrouer, S. (2013). Speech Perception in Noise by Children With Cochlear Implants. *Journal of Speech Language and Hearing Research,* ***56*(1): 13-30**.

Chang H, Dillon H, Carter L, Van Dun B and Young S-T (2012). The relationship between Cortical Auditory Evoked Potential (CAEP) detection and estimated audibility in infants with sensorineural hearing loss. *International Journal of Audiology,* **51(9): 663-670**.

Ching, T. Y. C., Dillon, H., Marnane, V., Hou, S., Day, J., Seeto, M., & Yeh, A. (2013). Outcomes of Early- and Late-Identified Children at 3 Years of Age: Findings From a Prospective Population-Based Study. *Ear & Hearing,* ***34*(5): 535-552**.

Coenraad, S., Goedegebure, A., van Goudoever, J. B., & Hoeve, L. J. (2010). Risk factors for sensorineural hearing loss in NICU infants compared to normal hearing NICU controls. *International Journal of Pediatric Otorhinolaryngology,* ***74*(9): 999-1002.**

Colgan S, Gold L, Wirth K, Ching T, Poulakis Z, Rickards F and Wake M (2012). The cost-effectiveness of universal newborn screening for bilateral permanent congenital hearing impairment: systematic review. *Academic Pediatrics,* **12(3):171-180**.

Dickinson, P. & Asiasiga, L. (2011). Helping children hear: teachers' experience of using soundfield amplification systems. *New Zealand Journal of Teachers' Work,* **8(2): 189-207.**

Dillon, H. (2012). *Hearing aids*. **(Chapter 1)**. New York, US: Thieme Medical Publishers.

Dockrell, J. E., & Shield, B. (2012). The impact of sound-field systems on learning and attention in elementary school classrooms. *Journal of Speech Language and Hearing Research,* ***55*(4): 1163-76**.

Elkayam, J. (2010). Management of amplification technology in school. *Seminars in Hearing,* ***31(3): 252-263.***

Franz, D., Caleffe-Schenck, N. (2004). A tool for assessing functional use of audition in children: results in children with MED-EL COMBI 40+ cochlear implant System. *Volta Review*, **104(3): 175-196**.

Gravel, Judith S. (2001). Potential Pitfalls in the audiological assessment of infants and young children. In R. Seewald and J. Gravel (eds.), *A Sound Foundation Through Early Amplification*

2001: Proceedings of a Second International Conference. **pp. 85-101**.

Guardino, C., & Antia, S. D. (2012). Modifying the Classroom Environment to Increase Engagement and Decrease Disruption with Students Who Are Deaf or Hard of Hearing. *Journal of Deaf Studies and Deaf Education, **17*(4): 518-533**.

Greenland, E. E., & Shield, B. M. (2011). A survey of acoustic conditions in semi-open plan classrooms in the United Kingdom. *J Acoustical Society of America, **130*(3): 1399-1410**.

Hannley, M. (1986). *Basic Principles of Auditory Assessment.* (**p. 1-6**). London: Taylor & Francis.

Hawkins, D.B. (2004). Limitations and uses of the aided audiogram. *Seminars in Hearing*, **25(1): 51-62**.

Howard, C. S., Munro, K. J., & Plack, C. J. (2010). Listening effort at signal-to-noise ratios that are typical of the school classroom. *International Journal of Audiology, **49*(12): 928-932**.

Hudspeth, A.J. (2000). Hearing. In: E.R. Kandel, J.H. Schwartz, & T.M. Jessell. *Principles of Neural Science.* **(pp. 590-613)**. New York: McGraw Hill.

Johnson, C. D. (2010). Making a Case for Classroom Listening Assessment. *Seminars in Hearing, **31*(03): 177,187**.

Johnson, C. D. & Seaton, J. B. (2011). *Educational audiology handbook* (2nd edition). **(Chapter 7)**. Clifton Park, NY: Delmar, Cengage Learning.

King, A. (2010). The national protocol for paediatric amplification in Australia. *International Journal of Audiology, **49: S64-S69**.*

Klatte, M., Lachmann, T., & Meis, M. (2010). Effects of noise and reverberation on speech perception and listening comprehension of children and adults in a classroom-like setting. *Noise & Health, **12*(49): 270-282**.

Leigh, G., Schmulian-Taljaard, D., & Poulakis, Z. (2010). Newborn hearing screening in Driscoll, C. J. & McPherson, B. *Newborn screening perspectives: The complete perspective.* **(Chapter 6).** San Diego, CA Plural Publishing.

Martin, Frederick N. & Clark, John G. (2012). *Introduction to Audiology.* 11th Ed. NJ: Pearson Education, Inc.

Matthijs, L., Loots, G., Mouvet, K., Van Herreweghe, M., Hardonk, S., Van Hove, G., Leigh, G. (2012). First Information Parents Receive After UNHS Detection of Their Baby's Hearing Loss. *Journal of Deaf Studies and Deaf Education, **17*(4): 387-401.**

Mendel L.L. (2008). Current considerations in pediatric speech audiometry. *International Journal of Audiology*, **47: 546-553**.

Nelson, L. H., Poole, B., & Munoz, K. (2013). Preschool teachers' perception and use of hearing assistive technology in educational settings. *Language Speech Hearing Services in Schools, **44*(3): 239-251**.

Neuman, A. C., Wroblewski, M., Hajicek, J., & Rubinstein, A. (2012). Measuring speech recognition in children with cochlear implants in a virtual classroom. *J Speech Language and*

Hearing Research, ***55*****(2): 532-540**.

Northern, J. & Downs, M. (2014). *Hearing in Children* (6th ed). Abingdon, Oxfordshire: Plural Publishing.

Power, D. & Hyde, M. (2002). The Characteristics and Extent of Participation of Deaf and Hard-of-Hearing Students in Regular Classes in Australian Schools. *Journal of Deaf Studies and Deaf Education*, **Fall(7): 302 - 311**.

Preston, Paul (1995). Mother Father Deaf: the heritage of difference. *Social Science Medical Journal*, **(40)11: 1461-67**.

Smith, J. T., & Wolfe, J. (2013). Tot 10: The Ten Commandments of Pediatric Hearing Healthcare. *Hearing Journal,* ***66*****(8): 14-16**.

Stevens, J., Boul, A., Lear, S., Parker, G., Ashall-Kelly, K., & Gratton, D. (2013). Predictive value of hearing assessment by the auditory brainstem response following universal newborn hearing screening. *International Journal of Audiology,* ***52*****(7): 500-506**.

Vermeulen, A., De Raeve, L., Langereis, M., & Snik, A. (2012). Changing Realities in the Classroom for Hearing-Impaired Children with Cochlear Implant. *Deafness & Education International,* ***14*****(1): 36-47.**

Yoshinaga-Itano, C. (2003). From Screening to Early Identification and Intervention: Discovering Predictors to Successful Outcomes for Children With Significant Hearing Loss. *Journal of Deaf Studies and Deaf Education,* ***8*****(1): 11-30.**

Unit Schedule

Section 1: Fundamentals of hearing and hearing loss –

Topic 1: Auditory form and function: Anatomy and physiology of the hearing mechanism and the development of audition.

Topic 2: The nature of sound.

Topic 3: Defining and classifying hearing and hearing loss.

Topic 4: Incidence and prevalence of hearing loss in children.

Section 2: Clinical and diagnostic aspects of hearing and hearing loss –

Topic 5: Common pathologies of the auditory system.

Topic 6: The principles of audiological assessment for infants and children.

Topic 7: Approaches to assessment.

Topic 8: Universal newborn hearing screening.

Section 3: (Re)habilitative and educational aspects of hearing loss –

Topic 9: Personal hearing instruments and Hearing Assistive Technology (HAT).

Topic 10: The role of Australian Hearing.

Topic 11: Classroom management and the acoustic environment.

Topic 12: Facilitating and monitoring auditory access for children with special hearing needs.

Topic 13: Review and discussion

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy_2016.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise
- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

- Discuss foundational audiology terminology and constructs with parents of children with hearing loss
- Identify and describe audiological screening and assessment procedures
- Provide a description of the components and features of hearing aids, cochlear implants and FM systems, and how to carry out rudimentary troubleshooting
- Discuss the underlying theory of environmental acoustics and modifications, and to apply this to schoolbased settings

Assessment tasks

- Clinical observation & report
- Case Study

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

- Discuss foundational audiology terminology and constructs with parents of children with hearing loss
- Explain the delivery of audiology services for children and students with hearing loss
- Identify and describe audiological screening and assessment procedures
- Provide a description of the components and features of hearing aids, cochlear implants and FM systems, and how to carry out rudimentary troubleshooting
- Discuss the underlying theory of environmental acoustics and modifications, and to apply this to schoolbased settings

Assessment tasks

- Online quiz
- Clinical observation & report
- Case Study

PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

Learning outcomes

- Discuss foundational audiology terminology and constructs with parents of children with hearing loss
- Explain the delivery of audiology services for children and students with hearing loss
- Identify and describe audiological screening and assessment procedures
- Provide a description of the components and features of hearing aids, cochlear implants and FM systems, and how to carry out rudimentary troubleshooting
- Discuss the underlying theory of environmental acoustics and modifications, and to apply this to schoolbased settings

Assessment tasks

- Clinical observation & report
- Case Study

PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

This graduate capability is supported by:

Learning outcomes

- Identify and describe audiological screening and assessment procedures
- Provide a description of the components and features of hearing aids, cochlear implants and FM systems, and how to carry out rudimentary troubleshooting
- Discuss the underlying theory of environmental acoustics and modifications, and to apply this to schoolbased settings

Assessment tasks

- Online quiz
- Case Study

PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcomes

- Discuss foundational audiology terminology and constructs with parents of children with hearing loss
- Explain the delivery of audiology services for children and students with hearing loss
- Identify and describe audiological screening and assessment procedures
- Provide a description of the components and features of hearing aids, cochlear implants and FM systems, and how to carry out rudimentary troubleshooting
- Discuss the underlying theory of environmental acoustics and modifications, and to apply this to schoolbased settings

Assessment tasks

- Clinical observation & report
- Case Study

PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

This graduate capability is supported by:

Learning outcomes

- Provide a description of the components and features of hearing aids, cochlear implants and FM systems, and how to carry out rudimentary troubleshooting
- Discuss the underlying theory of environmental acoustics and modifications, and to apply this to schoolbased settings

Assessment task

- Case Study