EVIDENCE-BASED PRACTICE IN COMMUNICATION DISORDERS

AUD 7339, FALL, 2015

Syllabus updated 24 August 2015

Course Information

Time: Thursday, 4:00 p.m. - 6:45 p.m.
Location: UT-Dallas main campus, Room CR 1.508
Course Credits: 3

Professor Contact Information

Instructor: Colleen Le Prell, Ph.D.
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Office Hours: By appointment

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

Desire to maintain a current evidence-based clinical practice and a willingness to think critically.

Course Description

This course concerns an expanded version of the framework known as evidence-based practice (EBP), in which credible evidence derived from scientific research, from clinical practice, and from patients themselves is identified and incorporated into clinical decision-making. Students will learn how to ask strong and answerable questions about evidence, how to find potentially valuable evidence, how to appraise evidence critically, and how to design, present and defend a strong and credible study of their own. This course is open to all graduate students; it has been designed to ensure that students in audiology and speech-language pathology demonstrate required knowledge and skills as outlined in the Standards and Implementation Guidelines for the Certificate of Clinical Competence in their respective areas as described below.

Student Learning Objectives/Outcomes

1. Describe the origins, characteristics, strengths and limitations of evidence-based practice (AUD Std IV-B15; SLP Std IV-F)
2. Conduct efficient and effective electronic searches for external scientific evidence (AUD Std IV-B15, E12; SLP Std IV-F)
3. Define and apply the criteria for appraising the validity of evidence (AUD Std IV-B15, E12; SLP Std IV-F)
4. Define and apply the criteria for appraising the importance of evidence (AUD Std IV-B15, E12; SLP Std IV-F)
5. Describe a systematic approach to integrating evidence from external scientific research, from clinical practice, and from patients into clinical decision-making (AUD Std IV-B15, E12; SLP Std IV-D, F)
6. Plan a research study consistent with EBP principles and criteria (AUD Std IV-B15; SLP Std IV-F)

Required Textbooks

1) Wong,L., & Hickson, L. (2012). Evidence-Based Practice in Audiology: Evaluating Interventions for Children and Adults with Hearing Impairment. San Diego: Plural Publishing.

2) Dollaghan, C. A. (2007).The Handbook for Evidence-Based Practice in Communication Disorders. Paul H. Brooks Publishing Co., Baltimore, MD.

Assigned Chapters

1) Wong, L., & Hickson, L. (2012). Evidence-Based Practice in Audiology: Evaluating Interventions for Children and Adults with Hearing Impairment. San Diego: Plural Publishing. Chapters 1, 2, 3, 6, 11, 13
    a. Chapter 1. Wong, L. and Hickson, L. Evidence-based practice in Audiology. pp. 3-21.
    b. Chapter 2. Valente, M., Valente, M., and Czarniak, L. Evaluating the evidence on audiological interventions. pp. 23-39.
    c. Chapter 3. Laplante-Lévesque, A., Hickson, L., and Worrall, L. Matching evidence with client preferences, pp. 41-58.
    d. Chapter 6. Keidser, G. Evidence-based practice and emerging new technologies, pp. 119-137.
    e. Chapter 11. Noble, W. Evidence about the effectiveness of treatments related to tinnitus, pp.267-282.
    f. Chapter 13. Wong, L. and Hickson, L. Evaluation and implementation of EBP in Audiology, pp. 309-322.
2) Dollaghan, C. A. (2007).The Handbook for Evidence-Based Practice in Communication Disorders. Paul H. Brooks Publishing Co., Baltimore, MD. Chapters 1, 2, 3, 4, 5, 6, 7, 8, 9, 10
    a. Chapter 1. Introduction to evidence-based practice
    b. Chapter 2. Asking questions about evidence
    c. Chapter 3. Finding external evidence
    d. Chapter 4. Validity of evidence: an overview
    e. Chapter 5. Importance of Evidence: An Overview
    f. Chapter 6. Appraising treatment evidence
    g. Chapter 7. Appraising diagnostic evidence
    h. Chapter 8. Appraising systematic reviews and meta-analyses
    i. Chapter 9. Appraising patient/practice evidence
    j. Chapter 10. Appraising evidence on patient preferences

Chapters from Other Books, Available on Electronic Course Reserve:
http://utdallas.docutek.com/eres/coursepage.aspx?cid=1886

3) Valente, M. Sarli, C.C., Valente, L. M., Amlani, A.M., Oeding, K., Finnell, J., Walden, T. C., and Huart, S. (2011). The Audiology Capstone: Research, Presentation, and Publication. Thieme, New York, NY. *Chapters 2, 5, 6, 16, 27*
    a. Chapter 2. Importance of research, pp.6-11.
    b. Chapter 5. Finding a research topic, pp. 51-57.
    c. Chapter 6. Finding a mentor and mentoring, pp. 58-60.
    d. Chapter 16. Tracking research, pp.194-196
    e. Chapter 27. Completing the research project: One students' experience, pp. 370-379; review Appendices, pp. 380-391.
4) Miller, J., Le Prell, C. G., Rybak, L., and Armstrong, D. (2015). *Free Radicals in ENT Pathology, Oxidative Stress in Applied Basic Research and Clinical Practice*, New York: Springer. Chapters 9, 12, 16
    a. Chapter 9. Le Prell, C. G. and Lobarinas, E. Strategies for assessing antioxidant efficacy in clinical trials. pp. 163-192.
    b. Chapter 12. Anderson, J. M. and Campbell, K. Assessment of interventions to prevent drug-induced hearing loss. pp. 243-269.
    c. Chapter 16. Yamasoba, T. Interventions to prevent age-related hearing loss. pp. 335-349.

5) C.G. Le Prell, D. Henderson, R.R. Fay, and A.N. Popper. (2012). Noise-Induced Hearing Loss: Scientific Advances, Springer Handbook of Auditory Research. New York: Springer.

   a. Chapter 13. Le Prell, C. G. and Bao, J. (2012). Prevention of noise-induced hearing loss: potential therapeutic agents, pp. 285-338.

Assigned Articles, Available on Electronic Course Reserve:

http://utdallas.docutek.com/eres/coursepage.aspx?cid=1886

Azevedo LF, Canario-Almeida F, Fonsecs JA, Costa-Pereira A, Winck JC, Hespanhol V (2011). How to write a scientific paper – Writing the methods section. *Revista Portuguesa de Pneumologia,* 17(5):232-238.

Bando K, Sato T (2015). Did you write a protocol before starting your project? *General Thoracic Cardiovascular Surgery* 63(2):71-7.

Berthelot JM, Le Goff B, Maugars Y (2011). The Hawthorne effect: Stronger than the placebo effect? *Joint Bone Spine* 78:335–336.

Brignardello-Petersen R, Carrasco-Labra A, Booth HA, Glick M, Guyatt GH, Azarpazhooh A, Agoritsas T (2014). A practical approach to evidence-based dentistry: How to search for evidence to inform clinical decisions. *Journal of the American Dental Association,* 145(12):1262-7.

Coleman CI, Talati R, White CM (2009). A clinician's perspective on rating the strength of evidence in a systematic review. *Pharmacotherapy,* 29:1017-1029.

Dawes P, Powell S, & Munro KJ (2011). The Placebo Effect and the Influence of Participant Expectation on Hearing Aid Trials; *Ear & Hearing,* 32:767-774.

De Ridder D, Vanneste S, Elgoyhen AB, Langguth B, de Nora M (2015). All Treatments in Tinnitus Are Experimental, Controversial, and Futuristic: A Comment on "Experimental, Controversial, and Futuristic Treatments for Chronic Tinnitus" by Folmer et al (2014). *Journal of the American Academy of Audiology,* 26(6):595-7.

Dobie RA (1999). A review of randomized clinical trials in tinnitus. *Laryngoscope,* 109(8):1202-11.

Finn P (2011). Critical Thinking: Knowledge and Skills for Evidence-Based Practice. *Language, Speech, and Hearing Services in Schools,* 42:69-72.

Folmer RL, Theodoroff SM, Martin WH, Shi Y (2014). Experimental, controversial, and futuristic treatments for chronic tinnitus. *Journal of the American Academy of Audiology,* 25(1):106-25

Holman L, Head ML, Lanfear R, Jennions MD (2015). Evidence of Experimental Bias in the Life Sciences: Why We Need Blind Data Recording. *PLoS Biology,* 13(7):e1002190.

Krahn M, Naglie G (2008). The next step in guideline development: Incorporating patient preferences. *Journal of the American Medical Association,* 300(4):436-438.

Meline T & Paradiso T (2003). Evidence-based practice in schools: Evaluating research and reducing barriers. *Language, Speech, and Hearing Services in Schools,* 34:273-283.

Methley AM, Campbell S, Chew-Graham C, McNally R, Cheraghi-Sohi S (2014). PICO, PICOS and SPIDER: a comparison study of specificity and sensitivity in three search tools for qualitative systematic reviews. *BMC Health Services Research,* 14:579.

Moodie ST, Kothari A, Bagatto MP, Seewald R, Miller LT, Scollie SD (2011). Knowledge Translation in Audiology: Promoting the Clinical Application of Best Evidence. *Trends in Amplification,* 15:5–22.

Nail-Chiwetalu BJ and Ratner NB (2006). Information Literacy for Speech-Language Pathologists: A Key to Evidence-Based Practice. *Language, Speech, and Hearing Services in Schools,* 37:157-167.

Ratner NB (2006). Evidence-based practice: An examination of its ramifications for the practice of speech language pathology. *Language, Speech, and Hearing Services in Schools,* 37:257-267.

Ratner NB (2011). Some pragmatic tips for dealing with clinical uncertainty. *Language, Speech, and Hearing Services in Schools,* 42:77-80.

Robey RR, Dalebout SD (1998). A tutorial on conducting meta-analyses of clinical outcome research. *Journal of Speech, Language, and Hearing Research,* 41(6):1227-1241.

Siminoff LA (2013). Incorporating patient and family preferences into evidence-based medicine. *BMC Medical Informatics and Decision Making,*13 Suppl 3:S6.

Assignments & Academic Calendar
Course topics and tentative schedule

Date	Topic	Readings and assignments
08/27	**Introduction to EBP**	Dollaghan Chapter 1, Valente Chapter 2
		Wong and Hickson Chapter 1; Moodie et al. (2011)
	PICO searches	Methley et al. (2014); Brignardello-Petersen et al. (2014)
09/03	**Finding Evidence:**	Dollaghan Chapters 2 and 3, Valente Chapter 16
	Literature searches	Nail-Chiwetalu and Ratner (2006), Ratner (2011)
		Come prepared to present your PICO search results
09/10	**Critical Thinking**	Finn (2011)
	Levels of Evidence	Ratner (2006); Meline and Paradiso (2003)
	Evaluating evidence	Wong and Hickson Chapter 2, Dollaghan Chapters 4, 5, 6
	- **Power and effect size**	(CATE)
09/17	**Systematic reviews/**	Dollaghan Chapter 8 (CASM); Coleman et al. (2009);
	Meta-analyses	Robey & Dalebout (1998)
	What can go wrong?	Placebo effect: Dawes et al 2011; Hawthorne effect: Berthelot et al. (2011); Blinding: Holman et al. (2015)
09/24	**Appraising diagnostic evidence**	Dollaghan Chapter 7
	• **APD**	Wong and Hickson Chapter 12
10/01	**When there is no published evidence…**	Wong & Hickson Chapter 6
	Incorporating Clinical expertise	Dollaghan Chapter 9 (CAPE) Clinical Practice Guidelines – AAA/ASHA Wong & Hickson Chapter 13
10/08	**Incorporating patient preferences**	Wong and Hickson, Chapter 3 Dollaghan Chapter 10 (CAPP) Siminoff (2013); Krahn and Naglie (2008)
10/15	**Designing your Audiology Research Project/Writing a methods section**	Valente et al. Chapters 5 and 6, 27 Bando and Sato (2015); Azevedo et al. (2011) Complete NIH Human Participants Training
10/22	**Texas Academy of Audiology**	**No class**
10/29	**Pharmacotherapy – NIHL, tinnitus**	Le Prell and Bao (2012); Miller et al Chapter 9; Dobie (1999)
11/05	**Pharmacotherapy – DIHL, ARHL**	Miller et al Chapters 12, and 16
11/12	**Student Presentations**	Levels of Evidence Paper Presentations – 20 min per topic (15 min presentation, 5 min discussion)
11/19	**Student Presentations**	Levels of Evidence Paper Presentations – 20 min per topic (15 min presentation, 5 min discussion)
11/26	**Thanksgiving- no class**	
12/3	**Tinnitus**	Wong and Hickson, Chapter 11 Folmer et al., (2014); De Ridder et al. (2015)

Submit 2 factual or discussion-based questions related to the readings prior to class. The instructor will ask these and other questions during class. Class participation points are based on contributing to both questions and answers, and active contributions to discussions.

Course Assignments:

1) PICO Search Assignment, Due 9/3/15

Complete the PubMed tutorial at: http://www.nlm.nih.gov/bsd/disted/pubmedtutorial/

Then, conduct a search on a PICO question of your choice via PubMed clinical query function. In your assignment, describe your specific PICO question, including a definition of all PICO elements (Patient Population, Intervention, Comparison, Outcome). Provide a summary of your search results. Discuss your search process in narrative form. Did you need to narrow your search based on a large number of references not relevant to your question? Did you need to expand your search to different populations based on lack of references identified in your initial search? Assignments should be approximately 300-400 words (approximately 1 page). *If you have identified the topic of your audiology research project, select a PICO question related to the topic of your project.*

2) CATE Assignment, Due 9/17/15

Identify an intervention study of interest to you. Complete the CATE critical appraisal as found in Appendix A of the Dollaghan text. *If you have identified the topic of your audiology research project, select a paper related to the topic of your project.*

3) CASM Assignment, Due 9/24/15

Identify a systematic review or meta-analysis of interest to you. Complete the CASM critical appraisal as found in Appendix C of the Dollaghan text. *If you have identified the topic of your audiology research project, select a paper related to the topic of your project.*

4) Levels of Evidence Assignment, Due 10/15/15. Every student will write about and present on a different topic; all topics must be confirmed with instructor by 9/17/15.

Select a contemporary topic for which emerging evidence has the potential to shape or guide changes in clinical practice. Any topic in an emerging area may be selected—please choose topics that interest you! It *can be* related to your research project topic – *but does not have to be and likely will not be*. Some suggested topics:

- therapies to reduce or prevent acquired hearing loss (noise, drugs, aging)
- therapies to reduce or eliminate tinnitus
- optical stimulation of auditory neurons via implants
- advances in processing strategies for hearing aids (frequency transposition, frequency compression, directional microphones, noise-reduction)
- brainstem implants
- mid-brain implants
- middle ear implants
- cochlear implants in AN/ANSD patients
- telehealth/audiology online
- rehabilitation/auditory training for children with APD

In your paper, review studies in the topic area and **critically analyze** the evidence to date. Use the levels of evidence "pyramid" in your discussion of the strength of the evidence. Discuss data from animal models, as well as human subjects, as appropriate for the given topic. Negative outcomes should be described – acknowledging mixed outcomes across investigations is a critical aspect of this assignment. In a concluding paragraph, speculate on the potential clinical relevance of this research. Specifically discuss any shortcomings in the evidence, and be sure you identify any outstanding issues that must be resolved prior to suggesting changes in standard clinical care practices. Papers should be approximately 5 pages and should include at least 15 references from the primary literature. References do not count toward the 5 page text requirement.

5) **Literature Review Assignment, Due 12/3/15. This paper will serve as the background and introduction to your third year research project.**

In your paper, review and critically analyze studies in the area of your research project. Use the levels of evidence "pyramid" and/or the PICO search structure in your discussion of existing data and as appropriate for your intended project. Specifically discuss the shortcomings in the literature, gaps in knowledge, shortcomings in study designs, unknown applications to other populations, or other factors driving your specific project, and provide an overview of your proposed project.

You will receive feedback on this document, and you will develop and submit an expanded project proposal in the Spring Semester in the Research in Audiology course, after you have learned more about experimental design and analysis.

The current paper should include one summary table, with information drawn from at least 5 studies, approximately 3 pages of text (in addition to the summary table), and at least 15 references from the primary literature. References do not count toward the 3 page text requirement.

Grading Policy

Grades will be determined according to the following elements:

10%	Active participation in all class sessions, including attendance and contributions to discussions
10%	PICO search assignment (due 9/3/15)
10%	CATE article summary (due 9/17/15)
10%	CASM article summary (due 9/24/15)
25%	Levels of Evidence (LOE) Paper (due 10/15/15)
5%	LOE Presentation (11/12 or 11/19, as assigned)
30%	Literature Review paper (due 12/3/15)

Course Policies

Extra Credit - Extra credit will not be offered.
Late Work - Late work will not be accepted.
Class Attendance - Required for all sessions.

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

Speech-language pathology Standard IV-D
For each of the areas specified in Standard VI-C, the applicant must have demonstrated current knowledge of the principles and methods of prevention, assessment, and intervention for people with communication and swallowing disorders, including consideration of anatomical/physiological, psychological, developmental, and linguistic and cultural correlates.

- *Knowledge will be conveyed via class lectures and readings.*
- *Acquisition will be demonstrated via class discussions and assignments.*

Speech-language pathology Standard IV-F
The applicant must have demonstrated knowledge of processes used in research and of the integration of research principles in to evidence-based clinical practice.

- *Knowledge will be conveyed via class lectures and readings.*
- *Acquisition will be demonstrated via class discussions and assignments.*

Audiology Standard IV-B15
The applicant must demonstrate knowledge of principles and practices of research, including experimental design, statistical methods, and application to clinical applications.

- *Knowledge will be conveyed via class lectures and readings.*
- *Acquisition will be demonstrated via class discussions and assignments*

Audiology Standard IV-E12
The applicant must have the knowledge and skills necessary to assess efficacy of interventions for auditory and balance disorders

- *Knowledge will be conveyed via class lectures and readings.*
- *Acquisition will be demonstrated via class discussions and assignments*

Students will demonstrate the following skills:

1. Critically appraise external scientific evidence on diagnosis and screening
   Measured by: assignments
2. Critically appraise external scientific evidence on treatment
   Measured by: assignments
3. Critically appraise evidence from meta-analyses and systematic reviews
   Measured by: assignments
4. Synthesize current best evidence on a clinical question
   Measured by: poster presentation and paper
5. Use principles of evidence-based practice to design a study of a clinical question
   Measured by: poster presentation and paper

UT Dallas Syllabus Policies and Procedures

The information contained in the following link constitutes the University's policies and procedures segment of the course syllabus.
Please go to http://go.utdallas.edu/syllabus-policies for these policies.

The descriptions and timelines contained in this syllabus are subject to change at the discretion of the Professor.