

LESSON PLAN (2/14)

Course Code: ERGO 6005 Course Name: Research in Ergonomics		Topic/Title of Lesson: Introduction to Research Methodology & Critiquing		
Week: 2 Total Time for Lesson: 3 hours		Date: TBD Section: TBD		
Purpose of Lesson: To break down what components make an article, what to look for in quality research, introduce ergonomic examples based on various research design (systematic review, RCT, cohort study, case study)				
Lesson Learning Objectives:		Relevant Course Learning Outcomes:		
1) Explore hierarchy of research/evidence in greater detail		CLO #1 Recognize sources of research as they rank within the hierarchy of evidence (randomized controlled trials, observational, case studies, etc.)		
2) Understand how to identify and appraise quality in research		CLO #2 Analyse the functional components of a peer-reviewed scientific article (objective, methodology, limitations, and conclusions), critique quality, provide suggestions to improve, and provide a take-home summary		
3) Validity/Reliability knowledge assessed via quiz and follow-up practical application opportunity introduced		CLO #3 Measure and document the validity and reliability of an ergonomic tool		
TIME	CONTENT	TEACHING & LEARNING ACTIVITIES	LESSON RESOURCES/MATERIALS	CHECKING FOR UNDERSTANDING
00:00 – 00:10	Refresher on Quiz content	Take up <i>Quiz #1 (5%)</i>	Prepared quiz marking key	Determine everyone's comfort level with material. Identify any concepts needed to be readdressed or clarified
00:10 – 00:20	Knowledge Check	Discuss individual and collective experiences in research		Roundtable discussion about individual's background with research articles. At what level have you applied them, collected data, written manuscripts, etc.
00:20 – 00:40	What makes an article	Breakdown the construct of a journal article	Whiteboard and markers	Divide into five groups (abstract, introduction, methods, results, conclusion). Give them 10 minutes

				to brainstorm key points of what is necessary and present to class
00:40 – 00:55	What makes an article good or bad?	Appraise and form an opinion (both positive and negative) of a selected article – homework assignment from previous class. Students begin to form opinions and offer justification		Roundtable discussion – have them summarize (from a high-level) two sources of information, one that they would trust to support a workplace decision, and one that they would not. Justify why they chose this.
00:55 – 01:05	Break	N/A	N/A	N/A
01:05 – 01:35	Introducing the hierarchy of research design methods – which is more/most powerful to convey a hypothesis	Review article to define the hierarchy and clear examples of each	Prepared slides based on summary/examples drawn from: Example source(s): <ul style="list-style-type: none"> • Concato et al. (2000) • Brighton et al. (2003) • Young & Solomon (2009) 	Lightning round, generate as many research idea “themes” for each level of hierarchy addressed/defined
01:35 – 02:10	Analyze 1 st ergonomics article	Critically analyze a journal article Top-bottom approach, starting broad and narrowing in on the specifics	Example source(s): <ul style="list-style-type: none"> • Waters et al (2006a) And accompanying slide with summary points	Class discussion – prepare a summary in 10 words or less, identify strengths and weaknesses, how could it be improved upon, would you trust this article as source material for a workplace decision?
02:10 – 02:20	Break	N/A	N/A	N/A
02:20 – 02:45	Analyze 2 nd ergonomics article	Critically analyze a journal article	Example source(s): <ul style="list-style-type: none"> • Waters et al. (2006b) 	Same as above. How did this article stack up to the first in terms of layout, quality?

			And accompanying slide with summary points	
02:45 – 02:50	Housekeeping & Conclusion	<p>Introduce Group Report #1 (15%). In groups (3 or 4) choose from a list of ergonomic tools. Prepare a report documenting</p> <ol style="list-style-type: none"> a) Its background, origin, and purpose b) Its inter-rater & intra-rater reliability (applied) <p>Upcoming homework:</p> <ol style="list-style-type: none"> 1) Read the 3 prescribed papers and for each fill out worksheet to be submitted (research type, theme, critique, summary of results, limitations, example of workplace ergo scenario it could be applied) 	<p>Have students assist to “build” the course website by finding and generating documents/links to essential ergonomic tools (e.g., Snook Tables, NIOSH, RULA, QEC, etc). Each group to be assigned one of said tools for Group Report #1 (15%).</p> <p>Example source(s):</p> <ul style="list-style-type: none"> • Dul & Neumann (2009) • Rose (1991) • Virzi et al. (1993) 	
<p>Evaluation: Quiz #1 (5%) to evaluate topics (some new, some refresher) from week 1, and introduction to the Group Report #1 (15%) due week 4</p>				
<p>Reflection:</p>				