META-ANALYSIS Psychology 610, Winter 2016 MW 1:00-2:20pm 257 Straub





OVERVIEW

This course provides a conceptual and practical introduction to basic methods for conducting a systematic research synthesis using meta-analysis. Meta-analysis is a set of techniques for analyzing and integrating findings across studies. We will touch on all parts of the research synthesis process, including: problem formulation, literature searches, effect size coding, fixed and random effects models, heterogeneity, sub group analyses and meta-regression, publication bias, and reporting of meta-analytic results. Class time will be a mix of lecture, discussion, hands-on analyses, and student presentations.

By the end of the course, students will be able to: Conduct a systematic literature search to identify studies eligible for a meta-analysis; extract and code information from eligible studies based on clearly defined criteria; appropriately analyze data using meta-analytic software; prepare a written report describing and interpreting meta-analytic findings; and critically assess published meta-analytic literature.

TEXTBOOK

Borenstein, M., Hedges, L.V., Higgins, J.P.T., & Rothstein, H.R. (2009). *Introduction to meta-analysis*. Chichester, UK: Wiley. eBook: http://site.ebrary.com.libproxy.uoregon.edu/lib/uoregon/detail.action?docID=10297978

OTHER RELEVANT TEXTS

Card, N.A. (2012). Applied meta-analysis for social science research. New York: Guilford Press.

Chen, D-G. & Peace, K.E. (2013). Applied meta-analysis with R. Boca Raton, FL: CRC Press.

- Cumming, G. (2012). Understanding the new statistics: Effect sizes, confidence intervals, and metaanalysis. New York: Routledge. eBook: http://orbis.eblib.com/patron/FullRecord.aspx?p=957018
- Cooper, H. (2010). Research synthesis & meta-analysis: A step-by-step approach. New York: Sage.
- Cooper, H., Hedges, L.V. & Valentine, J.C. (Eds.) (2009). The handbook of research synthesis and meta-analysis (2nd Ed). New York: Russell Sage Foundation. eBook: <u>https://muse.jhu.edu/books/9781610441384</u>
- Higgins, J.P.T. & Green, S. Cochrane handbook for systematic reviews of interventions. Version 5.1.0. http://handbook.cochrane.org/

REQUIREMENTS

Class Participation (30%). Class meetings will typically involve some combination of lecture and discussion. Your contributions to the discussion are key to establishing a lively intellectual climate for the course.

Meta-Analysis Critique (30%). A 30 minute PowerPoint presentation presenting, critiquing, and leading discussion of a published meta-analysis in an area of interest. The critique should include a summary of the central questions addressed in the meta-analysis, how the data were collected and analyzed, the main findings and conclusions, and a discussion of strengths and weaknesses. Please send me the article you plan to review for approval by **Wednesday, February 1**.

Meta-Analysis Project (40%). Conduct, present, and write-up your own original meta-analysis on a topic of interest. The meta-analysis might be the first on the topic or it might be an updating, refinement, or extension of a prior meta-analysis. Most projects will contain no more than 10-20 studies to keep them manageable within the time-frame of the course. You will need to find original sources, code relevant study characteristics, analyze the data with appropriate meta-analytic techniques, and write a paper in APA format. Papers should be 10-15 pages double-spaced, excluding tables and figures. Meta-analysis projects will be presented to the class in the last 2 weeks of term for feedback. Please feel free to seek me out to discuss your project ideas in advance. Meta-analytic papers are due **Thursday, March 17 by 5 p.m.**

TENTATIVE SCHEDULE OF TOPICS

Week1 (Jan 6):

Overview History Steps in a Meta-Analysis

Week 2 (Jan 11-13):

Problem Formulation Literature Search Effect Sizes and Effect Size Coding

Week 3 (Jan 20):

Basic Meta-Analysis Fixed Effect Model

Week 4 (Jan 25-27):

Random Effects Model Heterogeneity

Week 5 (Feb 1-3):

Moderators Sub Group Analyses Meta-Regression

Week 6 (Feb 8-10):

Publication Bias Meta-Analysis Critiques

Week 7 (Feb 15-17):

Special Topics Meta-Analysis Critiques

Week 8 (Feb 22-24):

Special Topics Meta-Analysis Critiques

Week 9 (Feb 29-Mar 2): Special Topics

Meta-Analysis Projects

Week 10 (Mar 7-9):

Conclusions Meta-Analysis Projects