META-ANALYSIS
Psychology 607, Spring 2018
W: 2-3:50
252 Straub

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OVERVIEW

This seminar 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, power, 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 (metafor in R); 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. [Library Ebook]

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 meta-analysis*. New York: Routledge. [Library Ebook]

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: https://muse.jhu.edu/books/9781610441384

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 seminar.

Meta-Analysis Critique (30%). A 15-20 minute PowerPoint group presentation (teams of 2 or 3) 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, April 25**.

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 something like 5-15 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 10-12 pages double-spaced, excluding tables and figures. Meta-analysis projects will be presented to the class in the last 3 weeks of term for feedback. Please feel free to seek me out to discuss your project ideas in advance. Meta-analytic papers are due **Wednesday, June 13 by 5 p.m.**

TENTATIVE SCHEDULE OF TOPICS

Week1 (April 4):
Overview
History
Steps in a Meta-Analysis

Week 2 (April 11):
Problem Formulation
Literature Search
Effect Sizes and Effect Size Coding

Week 3 (April 18):
Basic Meta-Analysis
Fixed Effect Model

Week 4 (April 25):
Random Effects Model
Heterogeneity

Week 5 (May 2):
Moderators
Sub Group Analyses
Meta-Regression

Week 6 (May 9):
Publication Bias
Meta-Analysis Critiques

Week 7 (May 16):
Special Topics
Meta-Analysis Critiques

Week 8 (May 23):
Special Topics
Meta-Analysis Projects

Week 9 (May 30):
Special Topics
Meta-Analysis Projects

Week 10 (June 6):
Conclusions
Meta-Analysis Projects