Welcome!
Welcome…this course will introduce you to the techniques and statistical procedures underlying meta-analysis. We will also discuss the controversies surrounding the use of quantitative procedures for integrating research findings in medicine, public health, education, and the behavioral sciences. We will also discuss some basic statistical concepts (e.g., sampling distributions, statistical power, fixed versus random effects models) that make statistics ‘come alive’. Each seminar participant will initiate a mini meta-analysis, which involves identifying a research question, systematically locating and retrieving relevant studies, coding relevant variables within each study, extracting effect size data, conducting statistical analyses, and drafting a final paper.

The intent of the course is to provide you with “hands-on-experience” conducting, reading, and evaluating quantitative reviews. The mini-meta-analysis will serve as the basis for much of your hands-on learning. It is important that you initiate this project relatively quickly (i.e., by the beginning of the 3rd week of classes). I will schedule either weekly or bi-weekly meetings with each seminar participant, beginning the first week of the semester. These meetings should help keep you on track and resolve questions regarding the retrieval of studies, coding, and data analysis aspects of your mini-meta-analysis. Optimally, your mini meta-analysis will evolve into a full-fledged review paper that can be presented at a scientific conference or submitted for publication. Several former students continued working on their mini-meta-analytic reviews, or initiated new ones, after completing the seminar and then published their work in leading journals, including Psychological Bulletin, Journal of Memory and Language, and Physiology and Behavior. So please use this class and your mini-meta-analysis as a tool for making a genuine contribution to a body of literature that excites you. Graduate students have successfully pursued this goal in past years.

Class participation is essential in this type of course and I expect you to be actively involved in seminar discussions based on weekly reading assignments and homework computations. Please be sure to bring a calculator to class.
Course grades will be determined on the basis of two exams (each contributing 25% to your grade) one term paper (20% of your grade), homework assignments (25% of your grade), and class participation (5% of your grade). The paper (mini-meta-analysis) is due on Monday November 21st 2022 (no extensions). The tentative dates for the exams exam are listed on the following sheets.

**Required Texts:**


**Optional Text:**

**Optional Resource Text** (if you use “R”):

**REQUIRED ARTICLES:**
In addition to the required texts, I will distribute articles for class reference and discussion. The latter materials will be available in pdf format and include:


OPTIONAL ARTICLES:


Kisamore, J.L., & Brannick, M.T. (2008). An illustration of the consequences of meta-
analysis model choice. Organizational Research Methods, 11, 35-53.


[con’t on next page]
SEMINAR SCHEDULE (Tentative)

Week 1 (Aug. 22 & 24)

Introduction to Meta-Analysis

Begin Reading:
- Hunt: How science takes stock (Chapters 1, 2, 3, & 4)
- Borenstein et al: Introduction to Meta-analysis (Preface, Chapters 1 & 2)
- Lipsey & Wilson: Practical Meta-Analysis (Chapter 1)

Week 2 (Aug. 29 & 31)

Statistical Power
Meta-Analysis: Problem Formulation, Literature Search & Retrieval
Publication Bias

Seminar Discussion: How Science Takes Stock
Brief Seminar Discussion: Lipsey & Wilson (Chap. 1);
Borenstein et al. (Preface, Chap. 1, &2)

Begin Reading:
- Borenstein et al. (2021). Chap. 45 “When does it make sense to perform a meta-analysis?”
- Lipsey & Wilson, 2001 (Chap. 2) “Problem specification & study retrieval”
- Rothstein & Hopewell, 2009 “Grey literature”
- Siddaway et al. (2019). “How to do a systematic review”

Week 3 (Sept. 7)

Coding Studies
Effect Sizes (initial introduction): $d$, Hedges $g$, $r$, and $OR$
Binomial Effect Size Display

Brief Seminar Discussion: Lipsey & Wilson (Chap. 2); Siddaway et al; Rothstein et al.
Seminar Discussion: Preliminary review of proposed seminar projects

Begin Reading:
- Rosenthal & Rubin, 1982
- Rosenthal, 2005
Week 4 (Sept. 12 & 14)

Weighting & Combining Effect Sizes: Hedges g (standardized mean difference)

Begin Reading:
Chabris, 1999 (The Mozart Effect); Steele et al. (1999) [Note: both are Letters to the Editor]
Borenstein et al., 2021 (pp. 17-22, 25-28)
Hedges & Becker, 1986 (pp. 14-42)

Information Literacy I: Begin Scheduling Individual Meetings with
Ms. Angela Lucero, Department head, UTEP Library

Week 5 (Sept. 19 & 21)

Combining effect sizes: Hedges g (con’t)
Extracting effect sizes

Fixed Effect vs. Random Effects Models and Analyses

Seminar Discussion: The Mozart Effect

Begin Reading:
Borenstein et al., 2021. Chaps. 10 – 13 (pp. 57-79)
child sexual abuse meta-analysis.”
Lipsey & Wilson, 2001. Tables B10, B11, B12 (use as a resource)

Information Literacy I: Continue Scheduling Individual Meetings with
Ms. Angela Lucero, Department head, UTEP Library
Week 6 (Sept. 26 & 28)

Fixed Effect vs. Random Effects Models and Analyses (con’t)

Seminar Discussion: “When worlds collide…”

EXAM #1 ********************

Begin Reading:
   Borenstein et al., 2021 Chaps 15-17 (97 - 125); Chap. 19 (139-153)
   Hedges, 1987. “How hard is hard science, how soft is soft science?”

Week 7 (Oct. 3 & 5)

Fixed Effect vs. Random Effects Models & Analyses (Con’t)
Heterogeneity: Cochran’s Q, I^2, Precision Intervals vs. 95% Confidence Intervals
Subgroup Analysis; focused contrasts

Seminar Discussion: “How hard is hard science, how soft is soft science?”

Week 8 (Oct. 10 &12)

Weighting & Combining Effect Sizes: Correlations

Begin Reading:
   Borenstein et al., 2021 (Chap. 6, 39-41)
Week 9 (Oct. 17 & 19)

Weighting & Combining Effect Sizes: Odds ratios

Seminar Discussion: Status Update (Problems & Progress): Seminar Participants’ Mini-Meta-Analyses

Begin Reading:
Borenstein et al., 2021. Chap. 5 (pp. 33-38); Chap. 42 (369-376).
Haddock et al. (1998). Using odds ratios as effect sizes for meta-analysis of dichotomous data: a primer on methods and issues.
Chen et al., 2010. How big is a big odds ratio?

Week 10 (Oct. 24 & 26)

Weighting & Combining Effect Sizes: Odds Ratios (con’t)

*** EXAM # 2 ***

Begin Reading:
Cohn & Becker, 2003 “How meta-analysis increases statistical power”
Page et al., 2021 “The PRISMA 2020 statement: an updated guideline for reporting Systematic reviews”

Week 11 (Oct. 31 & Nov. 2)

Writing Meta-Analytic Reviews
Simpson’s paradox

Seminar Discussion: “How meta-analysis increases statistical power/”
Seminar Writing Exercise: Improving Prior Seminar Papers

Begin Reading:
Borenstein et al., 2021 (Chap. 38 (343-348)
Week 12 (Nov. 7 & 9)

Meta-Analysis: Pre-Post Designs

Begin Reading:
- Borenstein et al., 2021 (pp. 413 - 423)

Week 13 (Nov. 14 & 16)


Seminar Discussion: Meta-Analysis: Controversies & Debates

Week 14 (Nov. 21 & 23)  (Mini Meta-Analyses Due Nov. 21st…. No Extensions!!!!)

Loose Ends 
Common misstates in meta-analysis

Seminar Discussion: Presentation of Seminar Participants’ Mini-Meta-Analyses

Week 15 (Nov. 28 & 30)

Seminar Discussion: Presentation of Seminar Participants’ Mini-Meta-Analyses