Seminar in Meta-Analysis
Psychology 4343
&
Psychology 6303

Fall 2018

Instructor: Lawrence D. Cohn, Ph.D.
Office hours: Tuesdays, Wednesdays, & Thursdays: 3:00 p.m. – 4:00 p.m.
or by appointment
(E-mail: Lcohn@utep.edu)

Time: Tuesdays & Thursdays 1:30 – 2:50 p.m.

Place: Room C304, Classroom Building

This course will introduce you to the techniques and statistical procedures underlying meta-analysis. We will read and discuss some of the classic (and exciting) meta-analytic reviews that have been written during the past two decades; we will also discuss the controversies surrounding the use of quantitative procedures for integrating research findings in medicine, public health, and the behavioral sciences. In so doing, we will meet an underlying goal of the class: a review of basic statistical concepts (e.g., sampling distributions, statistical power, fixed versus random effects models) that make statistics ‘come alive’. Finally, each student will initiate a (small) meta-analysis, which involves identifying a research question, locating and retrieving relevant studies, coding the relevant variables within each study, extracting the desired data, conducting statistical analyses, and drafting a final paper.

Locating and retrieving relevant studies is a critical step (indeed, perhaps the most critical step) in the execution of a meta-analytic review. This semester we will collaborate with two UTEP reference librarians (Ms. Angela Lucero & Mr. Jacob Galindo) who will provide training in the use of databases and search procedures for identifying the population of studies to include in your meta-analytic review.

The intent of the course is to provide you with “hands-on-experience” in 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 bi-weekly meetings with each seminar participant, beginning the second week of the semester. These meetings should help keep you on track and address questions regarding the retrieval, coding and data analysis aspects of your project. Optimally, your mini meta-analysis will evolve into a full fledged review that can be presented at a scientific conference or submitted for publication. Several former students continued working on their meta-analytic reviews, or initiated new ones, after completing the seminar and published their work in leading journals, including Psychological Bulletin, Journal of
Memory and Language, and Physiology and Behavior. So please try to use this class and your mini-meta-analysis as a tool for making a genuine contribution to a body of literature that excites you. Undergraduate students and 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. Please be sure to bring a calculator to class.

Course grades will be determined on the basis of two exams (each contributing 25% of your grade) one term paper (25% of your grade), and homework assignments (25% of your grade). The paper (mini-meta-analysis) is due on Monday November 26th 2018. The tentative dates for the exams exam are listed on the following sheets.

Required Texts:


Additional Resources (Available at the UTEP Library):


Required Articles (asterisks denote additional readings for graduate students):
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:


SEMINAR SCHEDULE

<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
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<tbody>
<tr>
<td>August 28</td>
<td>Introduction to Meta-Analysis</td>
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<tr>
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<td>Reading: Hunt, M., How science takes stock (Chapters 1, 2, 3, &amp; 4)</td>
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<td>August 30</td>
<td>History of Meta-Analysis</td>
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<td>Sept. 4</td>
<td>Statistical Power</td>
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<td>Class Discussion: How science takes stock</td>
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<td>September 6</td>
<td>Meta-Analysis: Problem Formulation</td>
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<td>Literature Retrieval &amp; Publication Bias</td>
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<td>Reading: Reed &amp; Baxter, 2009</td>
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<td>Rothstein &amp; Hopewell, 2009</td>
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<tr>
<td></td>
<td>Murlow, C., 1995/1997</td>
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<tr>
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<td>Glass, G., 1976</td>
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<tr>
<td></td>
<td>Lipsey &amp; Wilson, 2001, Chapters 1, 2, &amp; 4</td>
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<td></td>
<td>Cohen, J., 1992***</td>
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<td>Cote &amp; Jennions, 2013</td>
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<td>September 11</td>
<td>Coding Studies</td>
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<td>Preliminary review of proposed class projects</td>
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<td>Effect Sizes ($d$, $r$, &amp; Hedges unbiased $g$)</td>
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<td></td>
<td>Binomial Effect Size Display</td>
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<tr>
<td>September 13</td>
<td>Information Literacy I: Strategies &amp; Techniques for Identifying</td>
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### Relevant Literature for Your Meta-Analytic Review

**Presentation by Ms. Angela Lucero & Mr. Jacob Galindo, UTEP Reference Librarians. Meet at UTEP Library**

**Reading:** White, 2009  
Vom Brocke, 2015  
Moher et al., 2009

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<thead>
<tr>
<th>Date</th>
<th>Topic</th>
<th>Readings</th>
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| **September 18** | Combining and Weighting Effect Sizes  
Class Discussion: The Mozart Effect  
*[Information Literacy IV: Begin Scheduling Individual Meetings with Ms. Angela Lucero & Mr. Jacob Galindo, UTEP Reference Librarians]* | Hedges & Becker, 1986  
Rosenthal & Rubin, 1982  
Rosenthal, 2005  
Lipsey & Wilson, 2001, Chapter 8 |
| **September 20** | Testing for Homogeneity (Hedges Analogue to ANOVA)                      |                                               |
| **September 25** | Comparing Studies: Focused Tests (Contrasts)  
Class Discussion: When worlds collide  
*[Information Literacy IV: Continue Scheduling Individual Meetings with Ms. Angela Lucero & Mr. Jacob Galindo, UTEP Reference Librarians]* | Lipsey & Wilson, 2001, Chapter 7  
Hedges & Becker, 1986  
Lilienfeld, S.O. |
| **September 27** | How Meta-Analysis Increases Statistical Power  
Simpson’s Paradox  
Reading: Cohn & Becker, 2003  
Smith & Glass, 1977 |                                               |
| **Oct. 2**     | Class Discussion: The benefits of psychotherapy                        |                                               |
| **Oct. 4**     | Exam # 1                                                               |                                               |
October 9  Effect Sizes: Rates and Proportions  
Class Projects: Status Reports  
*Information Literacy IV: Continue Scheduling Individual Meetings with Ms. Sol Lopez, UTEP Librarian*

October 11  Class Discussion: How hard is hard science and how soft is soft science?  
Reading: Ingelfinger et al., 1994; Hedges, 1987

October 16  Fixed and Random Effects Models

October 18  Fixed and Random Effects Models (con't)

October 23  Converting Effect Sizes and Combining Probabilities

October 25  Class Discussion: Interpreting findings and how to know when numbers deceive you  

October 30  Meta-Analysis: Controversies  
Class Discussion  
Reading: Cohen, J., 1990 ***  
LeLorier, J. et al, 1997; Bailar, 1997;  
Fienstein, A.J., 1995; Liberati, A., 1995***  

Nov. 1  Meta-Analysis: Controversies (Con't)

November 6  Writing Meta-Analytic Reviews  
Readings: Rosenthal, 1995; Stroup et al, 2000

November 8  Writing Seminar I: Tricks of the Trade
November 13  Exam # 2

November 15  Pre- and posttest designs and designs with multiple outcomes

November 20  A comparison of statistical approaches to meta-analysis:
             1) Hedges & Olkin  2) Hunter & Schmidt  3) DerSimonian-Laird

November 22  No Class:  Thanksgiving

November 27  Information Literacy V: Lessons Learned
             Presentation by Ms. Angela Lucero & Mr. Jacob Galindo
             “Problems, Pitfalls, & Solutions Identified by Seminar Students
             Undertaking Their Literature Searches”

November 29  Presentation of seminar projects
             (Mini Meta-Analyses Due.  No Extensions!!!!!)

December 4  Presentation of seminar projects (con’t)

December 6  Writing Seminar II:  Review of seminar papers