Seminar in Meta-Analysis
Psychology 4345
&
Psychology 6303

Fall 2016

Instructor: Lawrence D. Cohn, Ph.D.
Office hours: Tuesdays & Thursdays: 4:30 – 6:00 p.m. or by appointment
(E-mail: Lcohn@utep.edu)

Time: Tuesdays & Thursdays 9:00 – 10:20

Place: Room 209, Liberal Arts 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 staff members at the UTEP library (including Ms. Angela Lucero, Mr. Jacob Galindo, and Mr. Harvey Castellano) 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 end of the second 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, the Journal of
Memory and Language, and the Journal of Gynecologic Surgery. So try and use this class and mini-meta-analysis to make 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), homework assignments (25% of your grade). The paper (mini-meta-analysis) is due on Tuesday November 22nd 2014. The tentative dates for the exams 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:


Hsu, L.M. (2004). Biases of success rate differences shown in binomial effect size displays. Psychological Methods, 9, 183-197.***


# SEMINAR SCHEDULE

<table>
<thead>
<tr>
<th>DATE</th>
<th>TOPIC</th>
<th>Reading:</th>
</tr>
</thead>
<tbody>
<tr>
<td>August 23</td>
<td><strong>Introduction to Meta-Analysis</strong></td>
<td>Hunt, M., How science takes stock (Chapters 1, 2, 3, &amp; 4)</td>
</tr>
<tr>
<td>August 25</td>
<td><strong>History of Meta-Analysis</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Information Literacy I: Introduce Task #1</em></td>
<td></td>
</tr>
<tr>
<td>August 30</td>
<td><strong>Statistical Power</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Class Discussion: How science takes stock</td>
<td></td>
</tr>
<tr>
<td>September 1</td>
<td><strong>Meta-Analysis: Problem Formulation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Literature Retrieval &amp; Publication Bias</td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>Information Literacy II: A Comparison of Results of Novice and Expert Searchers (Ms. Sol Lopez &amp; Task # 1)</em></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reading: Reed &amp; Baxter, 2009</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Rothstein &amp; Hopewell, 2009</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Murlow, C., 1995/1997</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Glass, G., 1976</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Lipsey &amp; Wilson, 2001, Chapters 1, 2, &amp; 4</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cohen, J., 1992***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cote &amp; Jennions, 2013</td>
<td></td>
</tr>
<tr>
<td>September 6</td>
<td><strong>Coding Studies</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Preliminary review of proposed class projects</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Effect Sizes (d, r, &amp; Hedges unbiased g)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Binomial Effect Size Display</td>
<td></td>
</tr>
<tr>
<td>September 8</td>
<td><strong>Information Literacy III: Strategies &amp; Techniques for Identifying the Relevant Literature for Your Meta-Analytic Review</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Presentation by Ms. Sol Lopez, UTEP Librarian. Meet at UTEP Library</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Reading: White, 2009</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Vom Brocke, 2015</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Moher et al., 2009</td>
<td></td>
</tr>
<tr>
<td>September 13</td>
<td><strong>Combining and Weighting Effect Sizes</strong></td>
<td></td>
</tr>
</tbody>
</table>
Class Discussion: The Mozart Effect

[Information Literacy IV: Begin Scheduling Individual Meetings with Ms. Sol Lopez, UTEP Librarian]

Reading: Hedges & Becker, 1986
Rosenthal & Rubin, 1982
Rosenthal, 2005
Lipsey & Wilson, 2001, Chapter 8

September 15 Testing for Homogeneity (Hedges Analogue to ANOVA)

September 20 Comparing Studies: Focused Tests (Contrasts)
Class Discussion: When worlds collide
[Information Literacy IV: Continue Scheduling Individual Meetings with Ms. Sol Lopez, UTEP Librarian]

Reading: Lipsey & Wilson, 2001, Chapter 7
Hedges & Becker, 1986
Lilienfeld, S.O.

September 22 How Meta-Analysis Increases Statistical Power
Simpson’s Paradox
Reading: Cohn & Becker, 2003
Smith & Glass, 1977

September 27 Class Discussion: The benefits of psychotherapy
[Information Literacy IV: Continue Scheduling Individual Meetings with Ms. Sol Lopez, UTEP Librarian]

September 29 Exam # 1

October 4 Effect Sizes: Rates and Proportions
Class Projects: Status Reports
[Information Literacy IV: Continue Scheduling Individual Meetings with Ms. Sol Lopez, UTEP Librarian]
October 6  
**Class Discussion:** How hard is hard science and how soft is soft science?

Reading: Ingelfinger et al., 1994; Hedges, 1987

October 11  
**Fixed and Random Effects Models**

*Information Literacy IV: Continue Scheduling Individual Meetings with Ms. Sol Lopez, UTEP Librarian*

October 13  
**Fixed and Random Effects Models (con't)**

October 18  
**Converting Effect Sizes and Combining Probabilities**

October 20  
**Class Discussion:** Interpreting findings and how to know when numbers deceive you


October 25  
**Meta-Analysis: Controversies**

**Class Discussion**

Reading: Cohen, J., 1990 ***

LeLorier, J. et al, 1997; Bailar, 1997;
Fienstein, A.J., 1995; Liberati, A., 1995***


October 27  
**Meta-Analysis: Controversies (Con't)**

October 28  
[COURSE DROP DEADLINE]

November 1  
**Writing Meta-Analytic Reviews**

Readings: Rosenthal, 1995; Stroup et al, 2000

November 3  
**Writing Seminar I: Tricks of the Trade**

November 8  
**Exam # 2**
November 10  Pre- and posttest designs and designs with multiple outcomes

November 15  A comparison of statistical approaches to meta-analysis:
             1) Hedges & Olkin  2) Hunter & Schmidt  3) DerSimonian-Laird

November 17  Information Literacy V: Lessons Learned
             Presentation by Ms. Sol Lopez
             “Problems & Pitfalls Experienced by Seminar Students This Semester
             While Undertaking Their Literature Searches

November 22  Presentation of seminar projects
             (Mini Meta-Analyses Due.  No Extensions!!!!!)

November 24  No Class: Thanksgiving

November 29  Writing Seminar II: Review of seminar papers

December 1  Remaining Issues