COURSE NUMBER: SOWO 919.01
COURSE TITLE: Systematic Reviews & Introduction to Meta-Analysis
SEMESTER & YEAR: SPRING, 2017
INSTRUCTOR: Matthew O. Howard, Ph.D.
Office 438, Tate-Turner-Kuralt Building
919-932-8732 or 314-330-3479 (cell)
mohoward@email.unc.edu
OFFICE HOURS: Friday, 12:00-2:00 p.m. or by arrangement
CLASS HOURS: Thursday, 9:00-12:00 p.m., Room 226

COURSE DESCRIPTION: Students will learn cutting-edge methods of research synthesis, read widely in their intended area of expertise, and prepare a systematic review for submission to a peer-reviewed professional journal.

COURSE OBJECTIVES:
After this course:
1. Students will be able to identify suitable issues for research synthesis efforts and to define variables and associations of interest therein.
2. Students will be able to identify, access, and systematically search key sources of scientific knowledge and to assess the adequacy of their literature searching efforts.
3. Students will be able to identify and systematically extract and code relevant data from pertinent studies, including information about independent and dependent variables, study design, implementation, and statistical results.
4. Students will be able to describe, anticipate, and cope successfully with information management issues in the conduct of systematic reviews and meta-analyses.
5. Students will be able to evaluate study quality (and to make corollary decisions as to which studies should be included in and excluded from a research synthesis).
6. Students will understand effect size metrics and will be able to analyze and integrate study outcomes, including methods of combining results across studies and for testing differences between studies, and the effects of methods of outcome integration on research synthesis outcomes.
7. Students will be able to determine when NOT to do a systematic review or meta-analysis.
8. Students will be able to interpret the results of a research synthesis vis-à-vis its conclusions, limitations, and generalizability.
9. Students will be able to prepare a research synthesis in accordance with current best practices (i.e., Meta-Analysis Reporting Standards [MARS], Primary Reporting Items for Systematic Reviews and Meta-Analysis [PRISMA]), consensus statement on quality of
reporting in meta-analyses [QUORUM], and meta-analysis of observational studies in
epidemiology [MOOSE].
10. Students will be able to compare the quality of two or more research synthesis products
using the Assessment of Multiple Systematic Reviews (AMSTAR) methodology.
11. Students will be able to identify threats to the validity of conclusions derived from
systematic reviews and meta-analyses.
12. Students will develop application-level skills in one or more bibliographic “reference
manager-type” software programs (e.g., EndNote, RefWorks, etc.) and will be able to
describe current systematic review/meta-analysis proprietary and shareware software
programs.
13. Students will submit for publication a systematic review that reflects best practices about
the preparation and reporting of research syntheses.
14. Students will become subject matter experts in the area of their systematic review.

**Expanded Description:** Over the past half-century, the scientific literature has grown
exponentially. PubMed, only one among more than 1200 searchable computerized bibliographic
data bases, currently includes more than twenty-three million scientific records and adds 500,000
new records annually. Scientific studies have also grown increasingly rigorous. The first
randomized controlled trial (RCT) was published in 1948; more than 150,000 RCTs are currently
included in the Cochrane Library. The rapid growth of rigorous scientific research has also
occasioned the development of new methods of research synthesis made possible by the Internet
and advances in indexing and abstracting methods. Cooper (2010, p.4) noted that the research
synthesist seeks “to summarize past research by drawing overall conclusions from many separate
investigations that address related or identical hypotheses…and to present the state of knowledge
concerning the relation(s) of interest and to highlight important issues that research has left
unsolved.” Students in this course will acquire state-of-the-art skills in research synthesis
including the ability to identify a suitable research area or issue for the preparation of a
systematic review, advanced skills in literature identification and searching, practical skills in
coding and collecting data from identified studies, the capacity to analyze and integrate study
outcomes, the ability to interpret the evidence collected and to present their findings in
accordance with best practice directives. As students read and discuss each of the seven steps in
the research synthesis process, they will also be preparing their own systematic review for
submission to a peer-reviewed journal. Students will be expected to be thoroughly conversant
with key concepts conveyed in course readings. It is expected that the research syntheses
prepared by students will be of professional quality.

**Required Texts/Readings:**

reviews and evidence-based practice*. Oxford University Press.

This text is only 89 pages long and updates and expands on the Littell et al. book discussed
below. We will read this book the first week of class and each student will briefly present the
contents of one assigned chapter the second week of class. Please bring a brief (one page) description of your chapter for distribution to other students in class.


Littell et al.’s text includes helpful reviews of research synthesis software and presents an informative outline for reporting systematic reviews and meta-analyses. It also presents a model for the conduct of research syntheses. We will read this book during the second week of class and each student will briefly present the contents of one assigned chapter the following week of class. Please bring a brief (one page) description of your chapter for distribution to students in class.


This text reviews developments and methods in the emerging area of qualitative research syntheses. We will read this book the third and fourth weeks of class and students will each present the contents of one assigned chapter in the book on week four of class. Please bring a brief (one page) description of your chapter for distribution to students in class.


This is an excellent book, very practical in nature, to help improve your scientific writing. We will read the book during the fifth and sixth weeks of class and students will each present the contents of an assigned chapter of the book. Please bring a brief (one page) description of your chapter for distribution to students in class.

5. Each student will select and read two scientific articles in their intended area of research expertise each week. Each article will be briefly abstracted as to methods and findings and students will present these articles to the class each week (note: Please keep these presentations to between 5 and 10 minutes).

6. The instructor will distribute important readings pertaining to systematic reviews and meta-analysis over the course of the semester. Many of these assignments will be drawn from the optional readings listed below.

**OPTIONAL TEXTS/READINGS:**

This is a classic and well-received introduction to meta-analysis that is heralded for its clarity of presentation. Although more than a decade has passed since its publication, it is still a preferred introductory meta-analysis text by many experts in the research synthesis area.


This text consists of 11 chapters written by 12 authors located at the Evidence for Policy and Practice Information and Coordinating Center in London. The chapters examine issues like those addressed by Littell et al., although chapters relating to information management and stakeholder participation in research syntheses are novel and well addressed in this text.


This text is solely devoted to effect sizes and their relationship to issues of statistical power and meta-analysis.


An excellent and very detailed introduction to meta-analysis that is too lengthy for use in this class, but perhaps the single best introduction to meta-analysis for scientists who plan to use these methods extensively.


This is an excellent textbook with 29 chapters that examine a diversity of issues relevant to formulating a problem for research synthesis including searching and coding the literature, statistically describing study outcomes, statistically combining effect sizes, special statistical issues and problems, data interpretation, tying research syntheses to substantive issues, and reporting the results of research syntheses.


This is a long book consisting of 22 chapters addressing issues relevant to preparing and presenting Cochrane Collaboration systematic reviews.

**TEACHING METHODS**
I use a variety of teaching styles to convey course content including lectures, discussion, and small group work. The development of a supportive learning environment, reflecting the values of the social work profession, is essential to success of this class. A supportive learning environment is fostered by listening to the ideas and views of others, being able to understand and appreciate a point of view that is different from your own, articulating clearly your own point of view, and linking experiences to readings and assignments. I will appreciate your contributions to making this a safe and respectful class for learning and growth. Although it is a cliché, I strongly believe there are no dumb questions and that if we all work together and support each other that every student can end this course with dramatically enhanced professional research synthesis skills. I teach this course in a criterion-referenced fashion, which means I am trying to help each of you become professional-level scholars in the substantive area of your systematic review and in research synthesis methods generally and am not focused on how you compare to each other in this respect. My expectation is that all class members, including the instructor, work together collaboratively so that when the course is finished students are experts in research synthesis methods and in their individual substantive areas of interest and have commenced their publication careers with the submission of a professional quality systematic review.

CLASS ASSIGNMENTS

Basic Plan: One goal of this class is to develop expertise in the conduct and evaluation of systematic reviews by reading and discussing four books in the first seven weeks of class. If you do the assigned work during the first seven weeks, you will get at least a P for the class for doing this. A second goal is to make significant progress toward establishing expertise in your chosen area of research interest. To do this, you will read 24 self-selected articles over the course of the semester, prepare brief abstracts (~ 1 page) of each article’s methods and findings and briefly present each of them in class. You will receive one point for each article for a total of 24 points. If you do this (in addition to the readings during the first seven weeks of class), you will earn an H for the course. A final goal is to prepare a draft systematic review; if you do this, you will likely be able to publish the review and count it as one of your dissertation papers. We will focus on reading the 4 books during the first half of the semester and on the draft systematic review during the second half of the semester. We will read the 24 articles over the course of the entire semester.

To reiterate: course requirements include: (1) reading the four assigned textbooks and discussing them in class; (2) preparing a one-page handout describing the contents of your assigned chapter for each book for distribution to students in class; (3) reading and briefly (5 to 10 minutes) presenting in class 2 articles in your area of interest each week and preparing 1 page abstracts of each article for a total of 24 such articles; and (4) preparing a draft systematic review for publication.

Grading System
Required Assignments

1. Reading/Discussing 4 Assigned Books  60 pts
2. Present Assigned Book Chapter Content/Notes  20 pts
3. Read/Present/Abstract 24 Articles in Your Area  24 pts
4. Draft Systematic Review  16 pts

In accordance with the Graduate School, letter grades are assigned to the following numeric ranges:

100+ = H+
94-100 points = H
80-93 points = P
70-79 = L
69 and below = F

CLASS PARTICIPATION

I will conduct this class in seminar fashion. I expect students to do all assigned readings as scheduled and will feel free to call on students at any time regarding issues discussed in the readings. I hope we have many productive discussions regarding each of your projects. I expect students to attend all classes and to discuss with me any potential absence proactively (that is, before you miss class). It is vital you adhere to the course schedule or you will not finish your systematic review on time. I do not plan to give any incomplete grades in this class, so make sure you are willing to work very hard, attend regularly, and commit to writing a systematic review over the course of the next 15 weeks. If you perform at a high level in this class, you will gain immeasurably from the experience; that is, you will become an expert in your field, in the conduct of research syntheses, and likely will find yourself the author of a published systematic review.

POLICY ON INCOMPLETES AND LATE ASSIGNMENTS

If students encounter unavoidable obstacles to meeting class assignments, the student should discuss the circumstances with the instructor to determine if an initial grade of incomplete (INC) would be appropriate. I prefer not to give an incomplete grade and will give incompletes only in compliance with University policy. At the end of the course, when you are turning in your systematic review for my evaluation, please include a signed pledge stating that, "I have not given or received unauthorized aid in preparing this written work." In keeping with the UNC Honor Code, if reason exists to believe that academic dishonesty has occurred, a referral will be made to the Office of the Student Attorney General for investigation and further action as required.
ACCESSIBILITY AND RESOURCES SERVICES

The University of North Carolina-Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability or pregnancy complications resulting in difficulties with accessing learning opportunities. All accommodations are coordinated through the Accessibility Resources and Service Office. In the first instance, please visit their website http://accessibility.unc.edu, or call 919-962-8300 or Email; accessibility@unc.edu. A student is welcome to initiate the registration process at any time; however, the process can take time. ARS is particularly busy in the run-up to Finals and during Finals. Students submitting Self-ID forms at that time are unlikely to have accommodations set until the following semester. Please contact ARS as early in the semester as possible.

WRITING SUPPORT

Clear, cogent writing is an essential skill for social work professionals. Writing support is available to all students through the School’s Writing Support Team; they can help you to strengthen your writing skills by sharing strategies for organizing information, presenting a cohesive argument, ensuring clear communication, and mastering APA style. Writing Support offers a learning opportunity for students but does not merely copy edit student papers. Writing support is available in-person, by e-mail, or by phone. E-mail a requested appointment day and time to SOSwritingsupport@gmail.com. In addition, see the Writing Resources and References page on the School’s website (under the Current Students tab: https://ssw.unc.edu/students/writing).

USE OF LAPTOPS OR OTHER ELECTRONIC DEVICES

Please turn off all cell phones or other devices that would disrupt the learning environment of the classroom.

Course Calendar

Class 1: January 12th: Syllabus Review, Instructor and Student Introductions, Overview of Systematic Reviews and Meta-Analyses (Definitions, Why Needed, Differences between Systematic and Narrative Reviews, 7-Step Systematic Review Development Process), Assignments

Class 2: January 19th: Formulating the Problem/Defining the Research Question/Developing a Protocol/Discussion of Book 1, Student Presentations of their Assigned Book 1 Chapter and 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews, Assignments

Class 3: January 26th: Searching the Literature/Information Management in Systematic Reviews/Using Reference Databases/Finding the Grey Literature/Using Bibliographic Reference
Software/Discussion of Book 2/Student Presentations of their Assigned Book Chapter and 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews

Class 4: February 2nd: Gathering Information from Studies/Data Extraction Methods/Student Presentations of 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews

Class 5: February 9th: Evaluating Study Quality/Discussion of Book 3/Student Presentations of their Assigned Book Chapter and 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews

Class 6: February 16th: Introduction to Meta-Analysis/Student Presentations of 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews

Class 7: February 23rd: Discussion of Book 4/Student Presentations of 2 Articles in their Areas of Interest/Writing the Systematic Review: Introduction/Critique of Published Systematic Reviews

Class 8: March 2nd: Writing the Systematic Review: Methods/Student Presentations of 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews

Class 9: March 9th: Writing the Systematic Review: Results/Student Presentations of 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews

Class 10: March 23rd: Writing the Systematic Review: Discussion and References/Student Presentations of 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews

Class 11: March 30th: Writing the Systematic Review: Abstract/Student Presentations of 2 Articles in their Areas of Interest/Prepare for Writing Systematic Review Introduction/Critique of Published Systematic Reviews

Class 12: April 6th: Critique of Systematic Review Introduction/Presentation of 2 Articles in Area of Interest/Critique of Published Systematic Reviews

Class 13: April 13th: Critique of Systematic Review Methods Section/Presentation of Last 2 Articles in Area of Interest/Critique of Published Systematic Reviews

Class 14: April 20th: Critique of Systematic Review Results Section/Critique of Published Systematic Reviews

Class 15: April 27th: Critique of Systematic Review Discussion, Abstract, and References Sections/Critique of Published Systematic Reviews

Readings and Course Outline
**Class 1: January 12th:** Syllabus Review, Instructor and Student Introductions, Overview of Systematic Reviews and Meta-Analyses (Definitions, Why Needed, Differences between Systematic and Narrative Reviews, 7-Step Systematic Review Development Process), Critique of Published Systematic Reviews

**Required Readings/Assignments for Next Week:**

1. Read all of Bronson & Davis. Each student is responsible for presenting one chapter of Bronson & Davis the following week and preparing a one-page handout of chapter notes for classmates; the professor will assign chapters. Also, read 2 articles of your own choosing in your intended area of expertise and prepare brief one-page descriptions of each article’s methods and findings for presentation the next week.


**Class 2: January 19th:** Formulating the Problem/Defining the Research Question/Developing a Protocol/Discuss Bronson & Davis/Student Presentations of Assigned Bronson & Davis Chapters/Student Presentations of their 2 Self-Selected Articles/Critique of Published Systematic Reviews

**Required Readings/Assignments for Next Week:**

1. Read Littell et al. by next week and present one assigned Littell et al. chapter in next week’s class and prepare handouts of chapter notes for classmates

2. Read 2 articles in your intended area of expertise and prepare 1 page abstracts of their methods and findings and be prepared to present them next week.

**Class 3: January 26th:** Searching the Literature/Information Management in Systematic Reviews/Using Reference Databases/Finding the Grey Literature/Using Bibliographic Reference Software/Discuss Littell et al. book/Student presentations of their assigned Littell et al. chapters and distribution of chapter notes/Student presentations of their two self-selected articles/Critique of Published Systematic Reviews

**Required Readings/Assignments for Next Week:**
1. Read one-half of the Saini & Shlonsky book and prepare to present one assigned chapter from the book the following week. Bring notes of chapter for classmates.
2. Read 2 self-selected articles in area of expertise and abstract them and be ready to present their methods and findings next week.

**Class 4: February 2nd:** Gathering Information from Studies/Data Extraction Methods/Student Presentations of 2 Self-Selected Articles in their Areas of Expertise/Critique of Published Systematic Reviews

*Required Readings/Assignments for Next Week:*

1. Read the second half of the Saini & Shlonsky book and prepare to present one assigned chapter of the book next class.
2. Read 2 self-selected articles in area of expertise and abstract them and be ready to present their methods and findings next week.

**Class 5: February 9th:** Discuss Sani & Shlonsky/Present Chapter Notes from Sani & Shlonsky/Present Abstracts of 2 Self-Selected Articles/Critique Published Systematic Reviews/Evaluating Study Quality

*Required Readings/Assignments for Next Week:*

1. Read one-half of Day & Sakaduski and prepare to present one assigned chapter next class.

2. Read two self-selected articles in your area of intended expertise, abstract them, and be prepared to present them at the next meeting.

**Class 6: February 16th:** Introduction to Meta-Analysis/Discussion of Day & Sakaduski Chapters/Present Abstracts of 2 Self-Selected Articles/Critique of Published Systematic Reviews

*Required Readings/Assignments for Next Week:*

1. Finish Day & Sakaduski and prepare to present one assigned chapter next class.

2. Read two self-selected articles in your area of intended expertise, abstract them, and be prepared to present them at the next meeting.

**Class 7: February 23rd:** Writing the Systematic Review: Introduction/Finish Discussion and Chapter Presentation for Day & Sakaduski Book/Present Abstracts of Two Self-Selected Articles/Critique Published Systematic Reviews
Required Readings/Assignments for Next Week:

1. Read two self-selected articles in your area of intended expertise, abstract them, and be prepared to present them at the next meeting.

Class 8: March 2nd: Writing the Systematic Review: Methods/Student Presentations of 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews

Required Readings/Assignments for Next Week:

1. Read two self-selected articles in your area of intended expertise, abstract them, and be prepared to present them at the next meeting.

Class 9: March 9th: Writing the Systematic Review: Results/Student Presentations of 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews

Required Readings/Assignments for Next Week:

1. Read two self-selected articles in your area of intended expertise, abstract them, and be prepared to present them at the next meeting.

Class 10: March 23rd: Writing the Systematic Review: Discussion and References/Student Presentations of 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews

Required Readings/Assignments for Next Week:

1. Read two self-selected articles in your area of intended expertise, abstract them, and be prepared to present them at the next meeting.

Class 11: March 30th: Writing the Systematic Review: Abstract/Prepare for Writing Systematic Review Introduction/Student Presentations of 2 Articles in their Areas of Interest/Critique of Published Systematic Reviews

Required Readings/Assignments for Next Week:

1. Read two self-selected articles in your area of intended expertise, abstract them, and be prepared to present them at the next meeting.
2. Write Systematic Review Introduction

**Class 12: April 6th:** Workshop Critique of Systematic Review Introduction/Presentation of Abstracts of 2 Articles in Areas of Expertise/Critique of Published Systematic Reviews/Prepare for Writing Systematic Review Methods Section

*Required Readings/Assignments for Next Week:*

1. Read two self-selected articles in your area of intended expertise, abstract them, and be prepared to present them at the next meeting.

2. Write Systematic Review Methods Section

**Class 13: April 13th:** Workshop Critique of Systematic Review Methods Section/Presentation of Last 2 Self-Selected Articles in Area of Expertise/Critique of Published Systematic Reviews/Prepare to Write Systematic Review Results Section

*Required Readings/Assignments for Next Week:*

1. Read two self-selected articles in your area of intended expertise, abstract them, and be prepared to present them at the next meeting.

2. Write Systematic Review Results Section

**Class 14: April 20th:** Workshop Critique of Systematic Review Results Section/Critique of Published Systematic Reviews/Prepare to Write Systematic Review Discussion, Abstract, and References Sections

*Required Readings/Assignments for Next Week:*

1. Write Systematic Review Discussion, Abstract, and References Sections

**Class 15: April 27th:** Critique of Systematic Review Discussion, Abstract, and References Sections/Critique of Published Systematic Reviews