Western University
Department of Psychology

PSYCHOL 9632A SEC 001

Systematic and scoping review methods
Fall 2022
WIRB 1130, WED 1:00-4:00pm

Enrollment Restrictions

Enrollment in this course is restricted to graduate students in the department of psychology, as well as any student that has obtained special permission to enroll in this course from the course instructor as well as the Graduate Chair (or equivalent) from the student's home program.

Instructor and Teaching Assistant Information

Instructor: Dr. M. Blair Evans, Assistant Professor, Industrial/Organizational Unit
Office: 8410 Social Sciences Bldg,
Office Phone: 519-661-2111 x84663
Office Hours: Use 'Sign-up' in OWL to book a meeting with me during a time slot. Time slot ranges are from 9am-11am on Wednesdays, and 9am-11am on Fridays. If your need is urgent, please arrange a separate office hour meeting by e-mailing me. Zoom office hours link for Dr. Evans: https://westernuniversity.zoom.us/j/6176657023
Email: mevan3@uwo.ca

Course Description

This course will prepare students to understand review methods and use systematic and scoping reviews to identify and synthesize available literature involving a given topic. Students will progress through the steps for conducting a review in a workshop-based environment focused on planning and implementing a review of their own; ranging from research question formulation to article screening and coding.

Coursework will align with current best practices (e.g., Cochrane reviews; PRISMA guidelines) and will incorporate training relating to accessing databases and using relevant software. When possible, this course will also integrate support from Western Libraries staff.

Half course (0.5); one term.

Example review types of interest within this course (adapted from Grant & Booth, 2009)	
Mapping review	*Categorize existing literature from which to commission further reviews and/or primary research by identifying gaps in literature*
Meta-analysis	*Technique that statistically combines the results of quantitative studies to provide a more precise estimate of effects*
Mixed-methods	*A combination of review approaches (e.g., combining quantitative with qualitative research or outcome)*
Qualitative synthesis	*Method for integrating or comparing the findings from qualitative studies (e.g., 'themes' across literature)*
Scoping review	*Assessment of potential size and scope of available literature. Aims to identify nature and extent of research evidence and/or the ways in which research in a domain is conducted..*
Systematic review	*Seeks to systematically search for, appraise and synthesize research evidence, often adhering to guidelines. At times, authors conduct a systematic search and then use specific coding protocol to appraise the evidence. Many steps to conducting a systematic review are important for conducting other types of reviews, so the term systematic review often applies to many types.*

Course Format

Face-to-face. The first portion (50%) of class meetings will be devoted to lectures and class discussions and activities specific to weekly topics. The remaining class time (50%) will be lab-based, where students will complete tasks related to their own reviews (e.g., search protocol, article selection, coding), with guidance and input from instructors and peers. Lectures will use PowerPoint and will be available on OWL. Guest speakers will at times join the class to provide students with a better understanding of the course topics.

Course Learning Outcomes/Objectives

The goal of this course is to familiarize students with the phases of conducting a systematic review. Students will learn about and complete the key steps when designing a review relevant to their research program, including preparing an introduction and methods and to progress through key phrases within article selection and coding. The focus of skill development in this course focuses on the capacity to either continue the review completed during the course at a later time (e.g., complete article selection, analysis, and writing) or to develop, conduct, and write up a future systematic review.

Students who complete this course should be able to:

1. Understand the types of literature reviews that are common in different fields, how they are used, and the gaps in knowledge they fill.

2. Identify key phases in a systematic review, from initial concept development to synthesis and writing.
3. Evaluate other researchers' search process, article selection, and coding in the context of manuscript reviews and/or working as a member of a collaborative team.
4. Document their own search in ways that align with best practices that are emphasized by international groups like Cochrane, Prospero, JBI, and PRISMA.
5. Construct clear study aims that are derived from an assessment of the literature and that clearly align with one or more common review types.
6. Develop their own codebooks and data extraction strategies.
7. Effectively utilize analytic approaches that are common components of reviews, such as evaluations of study quality or publication bias. Students will also be exposed meta-analysis, along with several other ways of evaluating the evidence base (e.g., Qualitative evidence synthesis). However, we will not have the time to gain full working knowledge and practice with these specialized analyses.
8. Effectively use available programs and software for reviews. Relevant training will include managing database records, managing sources in reference managers, and leading teams within article selection and coding.
9. Recognize how to integrate team members during the study selection and coding process to promote reliability/validity in searches.

Course Materials

OWL. All students will access OWL for class information and materials. Slides and required readings will be posted under the appropriate section. Grades and all assignments will be managed and shared through OWL.

Readings and texts. The following texts are free online sources for chapter readings that will regularly be assigned within the course:

- Higgins JPT, Thomas J, Chandler J, Cumpston M, Li T, Page MJ, Welch VA (editors). *Cochrane Handbook for Systematic Reviews of Interventions* version 6.3 (updated February 2022). Cochrane, 2022. Available from www.training.cochrane.org/handbook.
- Aromataris E, Munn Z (Editors). JBI Manual for Evidence Synthesis. JBI, 2020. Available from https://synthesismanual.jbi.global. https://doi.org/10.46658/JBIMES-20-01

In addition to the two sources above, additional readings are assigned in the course schedule below and on OWL.

Student resources. Students are required to bring a laptop computer to work on their review during class, with the capability to handle programs required for the class (e.g., reference manager).

Required software. This course will use reference manager software for managing searches and will provide opportunities to learn more specific types of software.

- **Reference manager**: Students are encouraged to select and purchase or register for at least one of the following: Endnote ($), Mendeley (free) and Zotero (free).
- **Covidence**: Students will create their own protocol using the UWO license for Covidence, which we are lucky enough to have access to: https://guides.lib.uwo.ca/systematicreviews/covidence
- **Supplemental tools.** Students will be introduced to supplemental online tools like Rayyan (https://www.rayyan.ai/)

Methods of Evaluation

This course is oriented around the development and application of a systematic review. We will of course not complete the review during the four months of this course, but the goal is to complete review planning, the search process, and initial article selection/coding. Assignments for this course combine to ideally produce a systematic review that aligns with standards for top-tier outlets.

Assignment	Date of Evaluation	Weighting
1. Introduction and research question	October 3, 9am	15%
2. Draft search strategy	Oct 10, 9am	10%
3. Methods: Search process, eligibility, flow chart	Nov 7, 9am	15%
4. Draft extraction/coding materials	Nov 14, 9am	10%
5. Final review paper	December (TBD)	40%
6. Course participation and engagement	-	10%
Total		100%

Evaluation Descriptions

1. **Introduction and rationale:** Submit a 3 page (double-spaced; 600+ words) introduction and rationale for your systematic/scoping review. Include your scientific rationale, your topic and its importance, the gap in the literature/our knowledge, and specific aims. Be sure to identify previous relevant reviews and their strengths/weaknesses. The introduction should include references/citations relating to 10 or more academic sources, and should be aligned with tools discussed in class (e.g., PICO/SPIDER).
2. **Draft search strategy:** Submit a brief narrative description of your search queries (1-2 pages; 250+ words), and use tools described in class to list key terms chosen (e.g., matrix or table). This submission must also contain a complete PubMED search query, developed in this course.

3. **Methods – Search process, study selection, flow chart.** Your paper will now include the introduction (600+ words) and search query (Appendix), revised based on earlier feedback. In addition, the current submission will include methods elements describing the process of searching the literature and selecting eligible sources (500+ words, as well as two or more tables or figures). Content in the methods should align with the PRISMA guidelines (e.g., listing databases used, preregistration, search terms employed, supplemental searching strategies, inclusion criteria, planned selection process, COVIDENCE protocol, number of reviewers, screening process, inter-rater reliability metrics). You should include a draft PRISMA flowchart figure and a table denoting inclusion and exclusion criteria.
4. **Draft extraction/coding materials and supplemental search documents.** You must provide a copy of the materials that you will use to extract information from the sources. Coding materials should be in whichever format will be used by coders (e.g., word, excel, PDF) and will encompass strategies to collect descriptive information about papers, a tool to appraise quality, and any further data required for your intended analyses. You will also include a coding guide to clarify the expectations for coding each component as well as a reference list citing any coding tools that were used.
5. **Final systematic/scoping review paper:** You will submit a final systematic/scoping review paper. This will include revised materials based on feedback from earlier submissions. In addition, you will prepare: (a) an analysis section describing your planned analyses, (b) a descriptive results section with an evidence table including least 8 sources that are likely to be included in the review, and (c) a brief discussion focused on methodological strengths and limitations of the review. The total submission is anticipated to be approximately 10 pages of main text, will draw from twenty or more academic sources, and will include relevant tables, figures, and appendices (e.g., search query; flowchart; coding materials; inclusion/exclusion table). You will also include a link to your review preregistration in PROSPERO or OSF.
6. **Course participation and engagement.** Students are required to complete assigned readings prior to class, along with relevant 'homework' that will comprise key aspects of the class for that day. Examples of homework include reviewing peers' documents and providing feedback, or practicing strategies from class with sample papers. Students are also expected to engage actively in discussion.

Course Timeline

Wk Date	**Topic**	**Readings** **Preparation (before class) and/or due dates**
1 Sep 14	**Introduction to course** • Overview of course and syllabus • Overview of types of reviews • Discussing research interests and developing a PICOS statement **Lab:** Identify the most relevant 'parent reviews' within the field relating to intended topic.	Siddaway, A. P., Wood, A. M., & Hedges, L. V. (2019). How to do a systematic review: a best practice guide for conducting and reporting narrative reviews, meta-analyses, and meta-syntheses. Annual review of psychology, 70, 747-770. Gough, D., Thomas, J., & Oliver, S. (2012). Clarifying differences between review designs and methods. Systematic reviews, 1(1), 28. JBI Chapter 11: Scoping reviews
2 Sep 21	**Figuring out what you want to review and refining your question** • Identify types of reviews • Learn how to search for existing systematic reviews (e.g., Cochrane) • Learn about links between research questions and relevant methods **Lab:** Review PICOS statements; Develop logic model; Apply 'problem-gap-hook' to writing reviews.	Cochrane Chapter 2 (Determining the scope of the review) Methley, A. M., Campbell, S., Chew-Graham, C., McNally, R., & Cheraghi-Sohi, S. (2014). PICO, PICOS and SPIDER: a comparison study of specificity and sensitivity in three search tools for qualitative systematic reviews. BMC health services research, 14(1), 1-10. **Prep: (a)** Develop a PICOS statement for your review post a copy into the discussion forum in OWL (Wed AM); **(b)** Search for an existing review that matches your chosen review type and is related to your review topic, and post a .PDF into OWL(Wed AM)
3 Sep 28	**Designing your search strategy** • Best practices in literature searches • Inclusion and exclusion criteria • Understand available databases • Identifying unique approaches applied to key databases (e.g., controlled vocabulary) **Lab:** Select relevant search term groups; initiate development of inclusion and exclusion criteria.	Cochrane Chapter 4 (Searching-for and selecting studies) Aromataris, E., & Riitano, D. (2014). Constructing a search strategy and searching for evidence. American Journal of Nursing, 114(5), 49-56. **Prep: (a)** Identify a systematic review from your field that used a search query where at least one 'group' of terms matched what you intend to use (e.g., if you are reviewing articles on anxiety symptoms, a past systematic review where a group of search terms related to anxiety). Post text from that search query and the article citation into the OWL discussion forum.

4 Oct 5	**Guidelines for reporting and evaluating the quality of completed reviews** • Explore relevant guidelines • Critically consider the quality of other types of reviews **Lab:** Using article from your own field, apply your chosen quality criteria or checklist to the review	Rethlefsen, M. L., Kirtley, S., Waffenschmidt, S., Ayala, A. P., Moher, D., Page, M. J., & Koffel, J. B. (2021). PRISMA-S: an extension to the PRISMA statement for reporting literature searches in systematic reviews. Systematic reviews, 10, 1-19. Page, M. J., McKenzie, J. E., Bossuyt, P. M., Boutron, I., Hoffmann, T. C., Mulrow, C. D., ... & Moher, D. (2021). The PRISMA 2020 statement: an updated guideline for reporting systematic reviews. Systematic reviews, 10(1), 1-11. Tricco, A. C., Lillie, E., Zarin, W., O'Brien, K., Colquhoun, H., Kastner, M., ... & Straus, S. E. (2016). A scoping review on the conduct and reporting of scoping reviews. BMC medical research methodology, 16(1), 1-10. **Submit introduction (Assignment #1) Oct 3 by 9am**
5 Oct 12	**Refining your search strategy and initiating the study selection plan** **Lab.** Refine your search strategy with a search specialist; Create queries for other databases	PRESS checklist: https://www.cadth.ca/press-peer-review-electronic-search-strategies-0 **Submit draft search strategy on OWL for review (Oct 10, 9am)**
6 Oct 19	**Tools to manage your search and review** • Teamwork in reviews • Reference managers, COVIDENCE, and others **Lab.** Completing your final search, exporting results; Initiate registration in PROSPERO/OSF	**Prep. (a)** Download and install preferred citation manager software; **(b)** Create accounts and/or download Rayyan and COVIDENCE
7 Oct 26	**Data extraction and coding** • Using reporting guidelines to identify characteristics to extract • How to create a codebook and coding guide **Lab.** Begin to develop your codebook or coding guide; Independent work on article selection.	Cochrane Chapter 5 (Collecting data) Review example codebooks and coding forms on Canvas **Prep. (a)** Aim to have all records in reference manager or systematic search software before class; **(b)** Remove duplicates and export to RAYYAN or COVIDENCE coding.
8 - Nov 2		**Reading week**

9 Nov 9	**Developing a codebook and assessing quality** • Assessing risk of bias and study quality • Additional coding schemes **Lab.** Further develop your codebook or coding guide; Independent work on article selection.	Cochrane Chapter 25 (ROBINS tool) Igelström, E., Campbell, M., Craig, P., & Katikireddi, S. V. (2021). Cochrane's risk of bias tool for non-randomized studies (ROBINS-I) is frequently misapplied: A methodological systematic review. *Journal of clinical epidemiology*, *140*, 22-32. Sterne, J. A., Savović, J., Page, M. J., Elbers, R. G., Blencowe, N. S., Boutron, I., ... & Higgins, J. P. (2019). RoB 2: a revised tool for assessing risk of bias in randomised trials. BMJ, 366. Protogerou, C., & Hagger, M. S. (2020). A checklist to assess the quality of survey studies in psychology. Methods in Psychology, 3, 100031 **Submit methods (Nov 7, 9am)**
10 Nov 16	**Finalizing your codebook and understanding evidence presented in tables** • Identifying and resolving issues with codebook • What is an evidence table and how does it differ from the narrative summary **Lab.** Pilot testing codebook; Draft evidence tables	Cochrane Handbook, ch 11 **Submit codebook and coding form (Nov 14, 9am)**
11 Nov 23	**Analyzing data in reviews** • How to use qualitative data in reviews • Using citation network analysis • Is meta-analysis appropriate for me? • How to extract quantitative data **Lab.** Continue with article selection and coding.	JBI Chapter 2 (Systematic reviews of qualitative evidence) Buecker, S., Stricker, J., & Schneider, M. (2021). Central questions about meta-analyses in psychological research: An annotated reading list. *Current Psychology*, 1-11. Cochrane Ch. 9
12 Nov 30	**Conducting a meta-analysis** • Fundamentals of meta-analysis • Constructing and interpreting illustrations (e.g., forest plot; funnel plots; p-curves) • Critical perspectives on meta-analysis. **Lab.** Reviewing student homework with data extraction and discuss challenges	Ferguson, C. J., & Brannick, M. T. (2012). Publication bias in psychological science: Prevalence, methods for identifying and controlling, and implications for the use of meta-analyses. Psychological Methods, 17(1), 120–128. Simonsohn, U., Nelson, L. D., & Simmons, J. P. (2014). p-curve and effect size: Correcting for publication bias using only significant results. *Perspectives on Psychological Science*, *9*(6), 666-681. **Prep:** Extract data from papers assigned by the instructor and enter into the data table on OWL by Nov 30
13 Dec 7	**Publishing and building from reviews.** • Considering publication standards • Process of producing clinical/practical guidelines and translating knowledge	National Institute for Health Research: 'Public involvement in systematic reviews' Explore use of the AGREE-II guideline-related framework at: https://www.agreetrust.org/resource-centre/agree-ii-as-a-practice-guideline-development-framework/

Statement on Academic Offences

Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf

All required papers may be subject to submission for textual similarity review to the commercial plagiarism-detection software under license to the University for the detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (http://www.turnitin.com).

Health/Wellness Services

Students who are in emotional/mental distress should refer to Mental Health@Western http://www.uwo.ca/uwocom/mentalhealth/ for a complete list of options about how to obtain help.

Accessible Education Western (AEW)

Western is committed to achieving barrier-free accessibility for all its members, including graduate students. As part of this commitment, Western provides a variety of services devoted to promoting, advocating, and accommodating persons with disabilities in their respective graduate program.

Graduate students with disabilities (for example, chronic illnesses, mental health conditions, mobility impairments) are strongly encouraged to register with Accessible Education Western (AEW), a confidential service designed to support graduate and undergraduate students through their academic program. With the appropriate documentation, the student will work with both AEW and their graduate programs (normally their Graduate Chair and/or Course instructor) to ensure that appropriate academic accommodations to program requirements are arranged. These accommodations include individual counselling, alternative formatted literature, accessible campus transportation, learning strategy instruction, writing exams and assistive technology instruction.