YORK UNIVERSITY

FACULTY OF HEALTH

SCHOOL OF KINESIOLOGY AND HEALTH SCIENCE

HH/KINE 4562 3.0
Meta-Analysis and Systematic Reviews:
Methodology and Interpretation

Fall 2022

Description

The goal is to provide advanced undergraduate students with an opportunity to learn basic requirements of and techniques for completing a systematic review and meta-analysis. An undergraduate course in statistics and basic mathematical knowledge and computer skills are prerequisites. *Independent work and active participation are expected in this seminar-based course.*

Prerequisites	KINE 2050 3.0 (Analysis of Data in Kinesiology)
	KINE 2049 3.0 (Research Methods in Kinesiology)
Course Instructor	Michael Rotondi, PhD
	mrotondi@yorku.ca
Office Hours	By appointment

First in-person class is Monday, September 19, 2022

Course Hours	Mondays	11:30 AM - 2:30 PM
		HNES 037

Lecture Notes will be posted on eClass each week.

In-Person Learning: This course is designed and delivered in an in-person seminar format. All students are expected to attend in person each week. **I encourage you to attend each week.**

Lecture Capture: Depending on classroom technology, course lectures **may** be recorded and uploaded to eClass (formerly known as Moodle) to facilitate review and support students who miss a scheduled class. I recognize that some students may miss

a lecture due to illness, or other factors. I will thus try to record lectures using Techsmith Relay or another platform each week. However, note that there are sometimes technical glitches and **the availability of recordings is not guaranteed**. Note that 1) the recordings should be used for educational purposes only and as a means for enhancing accessibility; and 2) students do not have permission to duplicate, copy and/or distribute the recordings outside of the class (these acts can violate not only copyright laws but also **FIPPA** https://www.ontario.ca/laws/statute/90f31 and intellectual property rights).

Readings

The course notes are based on the *Cochrane Handbook for Systematic Reviews of Interventions*, (Higgins and Green, ed., Wiley, 2011). **You are welcome to purchase a hard copy, but it is freely available at: https://training.cochrane.org/handbook/current**

Computing Software: **We will be using R -** It is freely available for download from: **https://www.r-project.org/**

Course Learning Objectives

After completion of KINE 4562 3.0 [Meta-analysis and Systematic Reviews], students will understand the fundamental role and importance of meta-analyses and systematic reviews. Students will be able to:

a) understand the role of systematic reviews in the hierarchy of evidence.
b) critically appraise research articles for validity.
c) search relevant databases using appropriate search strategies.
d) apply appropriate statistical techniques to combine study results in a meta-analytic framework.
e) understand and interpret these statistical results.
f) present results of a meta-analysis both orally and in writing

Course Evaluation

Participation:	15 %	(Ongoing)
Statement of Research Question:	5 %	September 26th
Literature Searching Activity:	5 %	October 17th
R Quiz:	5 %	October 17th to October 21st
Midterm Test:	20 %	October 31st
Class Presentation:	20 %	November 28th
Final Report:	30 %	December 5th

Final course grades may be adjusted to conform to Program or Faculty grades distribution profiles.

Course Correspondence: All questions related to course content (e.g. What's a meta-analysis?) **MUST** be posted to the Q&A forum on eClass. Email should only be used for individual, personal queries. This ensures that all students have the same information at the same time and students can help each other learn.

Groups: For this course you will select your own course partner on the first day of class. **You will be working with this person on your Statement of Research Question, Literature Searching Activity, Presentation and Final Report**. Both partners will submit one single assignment and will receive the same grade. **All unpartnered students will be randomly assigned a course partner after the first week.**

Participation: This is a small seminar-based course and I expect active participation in all aspects of the course. Factors such as: Course/Tutorial Attendance, Preparation for Class, Discussion Participation, Forum Posts, Online quizzes, Independent Learning, Sustained Effort and Improvement, etc. may all contribute to your overall participation score

Midterm Exam: Exam will be in-class and **Closed Book**. However, YOU WILL BE ALLOWED TO BRING A SINGLE CRIB SHEET (TWO-SIDED) FOR THIS TEST. Independent completion of all coursework and active participation in the course should be sufficient preparation for the midterm exam.

Make-Up Policy

I have adopted a flexible makeup policy for this upper year course. For any student who misses a deliverable, that is midterm test or assignment, the weight will automatically be moved to the final project. No supporting documentation is required but I strongly encourage you to complete all term work as specified to avoid having excessive weight on your final project. If a student is unable to present for their class presentation, their partner will be allowed to present on their own. **You are responsible for coordinating with your partner to ensure a strong presentation in your absence.**

Plagiarism: To promote academic integrity in this course, I reserve the right to submit any assignments, tests or projects to Turnitin for a review of textual similarity and the detection of possible plagiarism.

- Please note that students have seven days after the posting of test or assignment results to contact the course director about marking concerns.

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Although numerical marks are assigned to each piece of
work in this course there should be no assumption that a
total number of marks translates directly to a
lettergrade. Lettergrades will be determined by the
descriptions in the York University Undergraduate
Calendar.
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COVID-19: All students are expected to follow York University/Toronto Public Health/Ontario COVID-19 safety protocols while on campus, including but not limited to social distancing, masking and vaccine requirements. Please be aware that these may change throughout the term and the most current information is available at: https://www.yorku.ca/bettertogether/

<u>Drop Date:</u> The last day to drop this Fall term course without receiving a grade is: **<u>November 11, 2022</u>**.

<u>IMPORTANT COURSE INFORMATION FOR STUDENTS</u>

All students are expected to familiarize themselves with the policies and regulations, available on the Senate webpage: https://secretariat-policies.info.yorku.ca/

- York's Academic Honesty Policy and Procedures/Academic Integrity Website
- Ethics Review Process for research involving human participants
- Course requirement accommodation for students with disabilities, including physical, medical, systemic, learning and psychiatric disabilities
- Student Conduct Standards
- Religious Observance Accommodation

Tentative Schedule:
Note that dates and topics may change as needed.

Date	Topic	Notes
September 12	• **No In-Person Class** • **Asynchronous Online Activity**	**Dr. Rotondi is at an international conference**
September 19	• Introduction	
September 26	• Inclusion Criteria and Appraising Study Validity	Statement of Problem Due
October 3	• Database Search Strategies: • Medline/OVID	
October 10	• **Thanksgiving/Reading Week**	
October 17	• Introductory Statistics	Literature Searching Assignment Due/ Introduction to R Quiz
October 24	• Statistical Analysis I: Fixed and Random Effects Models	Analysis Demo
October 31	• **Midterm Test**	
November 7	• Statistical Analysis II: Other Study Designs - Cluster Randomized Trials and Prospective Studies	
November 14	• Statistical Analysis III: Meta-regression and Individual-Level Models • Systematic Review Report Writing and Presentation Information	Analysis Demo
November 21	• **Work Period:** • **Presentations and Report**	
November 28	• **Class Presentations**	
December 5	• **No Class**	**Final Report Due**