

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 2023

**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 11, 2023**

**Course Hours**

Mondays  
11:30 AM - 2:30 PM  
Stong College 222 (SC222)

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:** Although the course is in-person, I will try my best to record lectures using Techsmith Relay or another platform to facilitate review and support students who miss a scheduled class. 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 18 <sup>th</sup>
Literature Searching Activity:	5 %	October 2 <sup>nd</sup>
Online R Quiz:	5 %	Available October 2 <sup>nd</sup> to October 6 <sup>th</sup>
Midterm Test:	20 %	October 23 <sup>rd</sup>
Class Presentation:	20 %	November 20 <sup>th</sup>
Final Report:	30 %	December 4 <sup>th</sup>

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 are 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 the 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.

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 letter grade. Letter grades will be determined by the descriptions in the York University Undergraduate Calendar.

**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/>

**Drop Date:** The last day to drop this Fall term course without receiving a grade is: **November 8, 2023.**

### **IMPORTANT COURSE INFORMATION FOR STUDENTS**

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 11	<ul style="list-style-type: none"><li>• Introduction</li></ul>	
September 18	<ul style="list-style-type: none"><li>• Inclusion Criteria and Appraising Study Validity</li></ul>	Statement of Problem Due
September 25	<ul style="list-style-type: none"><li>• Database Search Strategies: Medline/OVID</li></ul>	
October 2	<ul style="list-style-type: none"><li>• Introductory Statistics</li></ul>	Literature Searching Assignment Due/ Introduction to R Quiz
October 9	<ul style="list-style-type: none"><li>• <b>Thanksgiving/Reading Week</b></li></ul>	
October 16	<ul style="list-style-type: none"><li>• Statistical Analysis I: Fixed and Random Effects Models</li></ul>	Analysis Demo
October 23	<ul style="list-style-type: none"><li>• <b>Midterm Test</b> <b>11:30 AM to 1:00 PM</b></li></ul>	
October 30	<ul style="list-style-type: none"><li>• Statistical Analysis II: Other Study Designs - Cluster Randomized Trials and Prospective Studies</li></ul>	
November 6	<ul style="list-style-type: none"><li>• Statistical Analysis III: Meta-regression and Individual-Level Models</li><li>• Systematic Review Report Writing and Presentation Information</li></ul>	Analysis Demo

November 13	<ul style="list-style-type: none"><li>• <b>Work Period</b></li><li>• <b>Presentations and Report</b></li></ul>	
November 20	<ul style="list-style-type: none"><li>• <b>Class Presentations</b></li></ul>	
November 27	<ul style="list-style-type: none"><li>• <b>Work Period – Report</b></li><li>• <b>Michael is Away at a Meeting</b></li></ul>	
December 4	<ul style="list-style-type: none"><li>• <b>Wrap-Up and Social Time</b></li></ul>	<b>Final Report Due</b>

## IMPORTANT COURSE INFORMATION FOR STUDENTS

York University seeks to provide for equal rights and opportunities without discrimination for all students. The overall aim is a climate of understanding and mutual respect for the dignity and worth of each community member so that each person feels a part of York University and is able to fully participate in university life.

The following information describes some of your important rights and responsibilities as students, along with the supports, accommodations and services made available to you by York.

**Academic Honesty and Integrity.** York students are required to maintain the highest standards of academic honesty and they are subject to the Senate Policy on Academic Honesty ([secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/](https://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/)). The Policy affirms the responsibility of faculty members to foster acceptable standards of academic conduct and of the student to abide by such standards. Comprehensive information about academic honesty, along with information about how to find resources at York to help improve your research and writing skills and cope with University life, can be found at: [www.yorku.ca/academicintegrity/](http://www.yorku.ca/academicintegrity/)

**Conduct in Academic Situations.** Students and instructors are expected to maintain a professional relationship characterized by courtesy and mutual respect. It is the responsibility of the instructor to maintain an appropriate academic atmosphere in the classroom and other academic settings, and the responsibility of the student to cooperate in that endeavour. Further, the instructor is the best person to decide, in the first instance, whether such an atmosphere is present in the class in keeping with the Senate Policy and Procedures on Disruptive and/or Harassing Behaviour in Academic Situations ([secretariat-policies.info.yorku.ca/policies/disruptive-and-or-harassing-behaviour-in-academic-situations-senate-policy/](https://secretariat-policies.info.yorku.ca/policies/disruptive-and-or-harassing-behaviour-in-academic-situations-senate-policy/)).

**Ethics Review Process.** York students are subject to the York University Policy for the Ethics Review Process for Research Involving Human Participants ([secretariat-policies.info.yorku.ca/policies/ethics-review-process-for-research-involving-human-participants-policy/](https://secretariat-policies.info.yorku.ca/policies/ethics-review-process-for-research-involving-human-participants-policy/)). Ethics approval must be obtained prior to the starting any research activities involving human participants, including research conducted by students in a graduate or undergraduate course, for an undergraduate thesis or project, or for a Major Research Paper, Thesis or Dissertation. If you are in doubt as to whether this requirement applies to you, contact your Course Director immediately. More information can be found at: [www.yorku.ca/research/human-participants/](http://www.yorku.ca/research/human-participants/)

**Religious Accommodation.** York University is committed to respecting the religious beliefs and practices of all members of the community, and making accommodations for observances of special significance to adherents. Should any of the dates specified in your course syllabus pose such a conflict for you, contact the Course Director within 14 days of the date for which accommodation is sought. Other procedures are outlined in the York University policy, guidelines and procedures on Academic Accommodation for Students' Religious Observances ([secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-religious-observances-policy-guidelines-and-procedures/](https://secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-religious-observances-policy-guidelines-and-procedures/)). Please note that to arrange an alternative date or time for an examination scheduled in the formal examination periods (December and April/May), students must complete an Religious Accommodation Agreement, which can be found at: [registrar.yorku.ca/pdf/exam-accommodation.pdf](https://registrar.yorku.ca/pdf/exam-accommodation.pdf)

**Accessibility Services.** Student Accessibility Services ([accessibility.students.yorku.ca/](https://accessibility.students.yorku.ca/)) provides academic accommodations and supports for students with temporary and permanent disability including physical, sensory, medial, learning, and mental health disabilities. Students who had an Individualized Education Plan (IEP) in high school are eligible for support. Please note that registering with disabilities services and discussing your needs with your professors is necessary to avoid any impediment to receiving the necessary academic accommodations to meet your needs.

**Academic Skills Support.** York University Libraries ([www.library.yorku.ca](http://www.library.yorku.ca)) and the Learning Commons ([learningcommons.yorku.ca/](https://learningcommons.yorku.ca/)) provide students with academic support for their course assignments and research requirements. The Libraries offer an array of supports, services, workshops, resources and people available to help ensure continued success during a student's academic career.

Centre for Human Rights, Equity, and Inclusion. The Centre for Human Rights, Equity and Inclusion ([rights.info.yorku.ca/](https://rights.info.yorku.ca/)) facilitates confidential processes to discuss allegations of discrimination and harassment by York Community members. There are also robust training opportunities and workshops available to the community year round.

**Counselling, Health and Well Being.** Student Counselling, Health & Well Being ([counselling.students.yorku.ca](https://counselling.students.yorku.ca/)) supports students in realizing and developing their personal potential in order to maximally benefit from their university experience and manage the challenges of university life. Services include: peer-led workshops, certificate training programs, support groups, same-day and appointment-based counselling, short-term therapy, and more.

**Sexual Violence Response and Support.** The Centre for Sexual Violence Response, Support and Education ([thecentre.yorku.ca](https://thecentre.yorku.ca/)) facilitates support, services and accommodations for those who have experienced sexual violence. The support offered is based on the needs and wishes of the person disclosing/reporting.

**Student Community Relations.** The Office of Student Community Relations ([oscr.students.yorku.ca/](https://oscr.students.yorku.ca/)) supports students impacted by critical incidents, facing personal crises or multiple complex issues, such as, but not limited to, critical illness or injury of a student, student death, attempted suicide and sexual assault. OSCR provides advice, referrals, alternate dispute resolution methods and judicial processes (local adjudication, tribunals).