

The University of Western Ontario School  
of Health Studies

**Research Methods in Health Sciences:**

**HS2801A**

Sep-Dec, 2024

**Instructor:** Dr. Afshin Vafaei

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**Office Hours:**

**Location:**

**GTAs:**

**Lecture Times:**

**Tutorial Times:** 60 minutes weekly, organized according to the section assigned by Registrar, see the timetable

**Course Website:** <https://westernu.brightspace.com/d2l/home/13071>

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**Prerequisite Checking**

Minimum of 60% [mandatory] in each of Health Sciences 1001A/B and Health Sciences 1002A/B.

**Course Description**

An introduction to the design of health sciences research, providing students with knowledge relevant to the planning and evaluation of research in both laboratory and applied settings.

**Learning Objectives**

By the end of the course, the students should be able to:

1. Understand and define basic terms, concepts, and methods used in health research;
2. Propose appropriate research methods (e.g. study design, data collection, sampling) for specific research questions;
3. Identify key ethical issues (e.g. consent) as they apply to conducting health research;
4. Understand and identify basic methodological issues related to reliability and validity impacting research processes; and
5. Develop transferrable skills in health research methods, including, but not limited to: citations, constructing surveys and interviews, and other measurements.

**Textbook, Tools**

1. **REQUIRED TEXTBOOK:** Jacobsen, Kathryn H. (2021). *Introduction to Health Research Methods: A Practical Guide (3<sup>rd</sup> edition)*. Burlington, MA: Jones & Bartlett.

Bookstore link: [https://bookstore.uwo.ca/textbook-search?campus=UWO&term=B2024&courses%5B0%5D=001\\_UW/HTH2801A](https://bookstore.uwo.ca/textbook-search?campus=UWO&term=B2024&courses%5B0%5D=001_UW/HTH2801A)

2. A scientific calculator
3. Additional mandatory course readings on OWL Brightspace

**Class Schedule (subject to change)**

| <b>DATE</b>                                                                                             | <b>TOPICS</b>                                                                                                                | <b>READINGS</b>                              | <b>TUTORIAL</b> |
|---------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|-----------------|
| <b>Construction of a research project</b>                                                               |                                                                                                                              |                                              |                 |
| <b>Sep 6</b>                                                                                            | Course Outline Review & Expectations<br>The Health Research Process, Selecting a Topic/Research Question, Theory in Research | Chapters 1, 2, 4                             | None            |
| <b>Sep 13</b>                                                                                           | Data collection, Sampling, Questionnaire Design                                                                              | Chapters 19, 20, 21                          |                 |
| <b>Methods of conducting health research</b>                                                            |                                                                                                                              |                                              |                 |
| <b>Sep 20</b>                                                                                           | Measurement, Reliability, Validity<br><b>Quiz 1</b>                                                                          | Chapter 21.9<br>EXTRA, On OWL<br>Brightspace |                 |
| <b>Sep 27</b>                                                                                           | Random Sampling Error, Bias                                                                                                  | EXTRA, On OWL<br>Brightspace                 |                 |
| <b>Oct 4</b>                                                                                            | The role of the 3 <sup>rd</sup> factor: Confounding, Interaction (Effect Modification)<br><b>Quiz 2</b>                      | EXTRA, On OWL<br>Brightspace                 |                 |
| <b>Oct 11</b>                                                                                           | <b>MIDTERM TEST</b>                                                                                                          |                                              |                 |
| <b>FALL TERM READING WEEK (Oct 14-18, 2024)</b>                                                         |                                                                                                                              |                                              |                 |
| <b>Oct 25</b>                                                                                           | Research Study Designs (1): Overview, Case Series, Ecological and Cross-sectional Studies                                    | Chapters 7, 8,9                              |                 |
| <b>Nov 1</b>                                                                                            | Research Study Designs (2): Case-Control, Cohort Studies                                                                     | Chapters 10, 11                              |                 |
| <b>Nov 8</b>                                                                                            | Research Study Designs (3): Experimental Studies                                                                             | Chapter 12                                   |                 |
| <b>Nov 15</b>                                                                                           | Research Study Designs (4): Qualitative Studies<br><b>Quiz 3</b>                                                             | Chapters 13, 23                              |                 |
| <b>Nov 22</b>                                                                                           | Descriptive statistics, Introduction to Comparative Statistics                                                               | Chapters 29, 30                              |                 |
| <b>Communicating research ideas and results</b>                                                         |                                                                                                                              |                                              |                 |
| <b>Nov 29</b>                                                                                           | Collaboration, Community Partnerships, Knowledge Translation<br>Wrap up                                                      | Chapters 5, 6, 34, 39, 40                    |                 |
| Chapters refer to the required textbook (Jacobson 2021)<br><b>All extra readings are also mandatory</b> |                                                                                                                              |                                              |                 |

## Evaluation and Assignments

| <b>Assessment</b>                | <b>Weight of Final Mark</b> | <b>Due Date</b>             |
|----------------------------------|-----------------------------|-----------------------------|
| Three (3) in-class short quizzes | 15%<br>(5% each)            | Sep 20, Oct 4, Nov 15, 2024 |
| Midterm                          | 25%                         | Oct 11, 2024                |
| Final Exam (cumulative)          | 40%                         | During the exam period      |
| Tutorial Activities              | 20%                         | Ongoing                     |

### Participation/Tutorial Activities: 20% of the overall grade

Students are encouraged to contribute to creating a dynamic learning environment in this course. There will be opportunities for constructive discussions and brief but structured in-class activities. Depending on the nature of the activity, students are expected to complete the activity in-class or submit their work to OWL. There will be about **9-10 tutorials** throughout the term - students must attend (exclusively in-person) **at least 8 tutorials** to get a full mark.

| Section | Day | Time | Room | GTA |
|---------|-----|------|------|-----|
| 002     |     |      |      |     |
| 003     |     |      |      |     |
| 004     |     |      |      |     |
| 005     |     |      |      |     |
| 006     |     |      |      |     |
| 007     |     |      |      |     |
| 008     |     |      |      |     |
| 009     |     |      |      |     |

### In-class Quizzes: 15% of the overall grade

Three short and open-book in-class quizzes containing straightforward questions will evaluate students' basic understanding of topics. The goal is to review the content and to clarify any ambiguity before they jammed for the midterm and final exam.

### Midterm and Final Exams: 25% and 40% of the overall grade

Midterm exam will be held on Oct 11, 2024. The goal is assessment of understanding topics covered in weeks 1 to 7. The **cumulative final exam** will evaluate students' deep understanding of **ALL** course materials and will be scheduled by the Office of the Registrar during the formal exam period (Dec 9-22, 2024). **All materials** covered in the classes are **testable**.

### Missed work

Attendance at all classes is **mandatory**, and it is not possible to provide equal opportunity for all students to make-up the missed classes. If you are absent from a graded class activity, you will receive a zero on the activity.

## **Missed Exams**

If you are too ill to write a quiz or exam or there are other 'extenuating circumstances beyond your control' you **must** document this either with a medical certificate (if available) and then request academic consideration. If you are ill for an extended period of time, it is your responsibility to contact the instructor immediately on your return to campus.

Only **one** make-up time will be scheduled for missed midterm in the week of **Oct 21-25, 2024**.

**TENTATIVE final examination common make-up** dates in January 2025 will be provided when the Final Exam schedule is released.

## **Course/University Policies**

1. The website for Registrar Services is <http://www.registrar.uwo.ca>.

In accordance with [policy](#), the centrally administered e-mail account provided to students will be considered the individual's official university e-mail address. It is the responsibility of the account holder to ensure that e-mail received from the University at his/her official university address is attended to in a timely manner.

### **2. 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, in the [Academic Calendar \(westerncalendar.uwo.ca\)](#).

### **Plagiarism**

Student work is expected to be original. Plagiarism is a serious academic offence and could lead to a zero on the assignment in question, a zero in this course, or your expulsion from the university. You are plagiarizing if you insert a phrase, sentence or paragraph taken directly from another author without acknowledging that the work belongs to him/her. Similarly, you are plagiarizing if you paraphrase or summarize another author's ideas without acknowledging that the ideas belong to someone else. All 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 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 Western University and Turnitin.com ([www.turnitin.com](http://www.turnitin.com)).

### **Re-submission of Previously Graded Material**

Without the explicit written permission of the instructor, you may not submit any academic work for which credit has been obtained previously, or for which credit is being sought, in another course or program of study in the University or elsewhere.

### **Use of Statistical Pattern Recognition on Multiple Choice Exams**

Computer-marked multiple-choice tests and/or exams may be subject to submission for similarity review by software that will check for unusual coincidences in answer patterns that may indicate cheating.

### **3. Use of Electronic Devices**

**During Exams:** Unless you have medical accommodations that require you to do so, or explicit permission from the instructor of the course, you may not use any electronic devices during ANY tests, quizzes, midterms, examinations, or other in-class evaluations.

**During Lectures and Tutorials:** Although you are welcome to use a computer during lecture and tutorial periods, you are expected to use the computer for scholastic purposes only, and refrain from engaging in any activities that may distract other students from learning. From time to time, your professor may ask the class to turn off all computers, to facilitate learning or discussion of the material presented in a particular class.

**Unless explicitly noted otherwise, you may not make audio or video recordings of lectures – nor may you edit, re-use, distribute, or re-broadcast any of the material posted to the course website.**

**Personal Response Systems** (“clickers”) may be used in some classes. For those classes in which we use this technology, it is your responsibility to ensure that the device is activated and functional. You must speak with the course instructor immediately, if you have any concerns about whether or not your clicker is malfunctioning.

You must use only your own clicker. For all components of this course in which clicker records are used to compute a portion of the grade:

- The use of somebody else’s clicker in class constitutes a scholastic offence;
- The possession of a clicker belonging to another student will be interpreted as an attempt to commit a scholastic offense

#### **4. Academic Considerations and Absences from Lectures and Assessments**

##### ***Religious Accommodation***

When a course requirement conflicts with a religious holiday that requires an absence from the University or prohibits certain activities, students should request (in writing) any necessary academic considerations at least two weeks prior to the holiday to the academic counsellors in their Home Department. Additional information is provided in the [Western Multicultural Calendar](#).

##### ***Academic Accommodation***

Please contact the course instructor if you require lecture or printed material in an alternate format or if any other arrangements can make this course more accessible to you. Students with ongoing accommodation needs within this course are also encouraged to contact [Accessible Education](#), which provides recommendations for accommodation based on medical documentation or psychological and cognitive testing. The policy on Academic Accommodation for Students with Disabilities can be found [here](#).

##### ***Academic Consideration***

The University recognizes that a student’s ability to meet their academic responsibilities may, on occasion, be impaired by extenuating circumstances that are medical or compassionate in nature. These extenuating circumstances may be acute (short term), or it may be chronic (long term), or chronic with acute episodes. In all cases, students are advised to consult with the academic counsellors in their home units, at their earliest opportunity. Academic counsellors may refer students to [Accessible Education](#) for ongoing academic accommodations.

Most forms of academic consideration require documentation, and this documentation is to be submitted to academic counsellors within five (5) business days of their return to academic responsibilities. Any such documents will be retained in the student’s file, and will be held in confidence in accordance with the University’s [Official Student Record Information Privacy Policy](#). Once the petition and supporting documents have been received and assessed, appropriate academic considerations shall be determined by academic counseling, in consultation with the student’s instructor(s). Academic considerations may include extension of deadlines, waiver of attendance requirements for classes/labs/tutorials, arranging Special Exams or Incompletes, re-weighting course requirements, or granting late withdrawals without academic penalty. Academic considerations shall be granted only where the documentation indicates that the onset, duration and severity of the illness are such that the student could not reasonably be expected to complete their academic responsibilities. (Note – it will not be sufficient to provide documentation indicating simply that the student “was seen for a medical reason” or “was ill.”).

Whenever possible, students who require academic considerations should provide notification and documentation in advance of due dates, examinations, etc. Under no circumstances are students expected to submit rationales for (or documentation of) any absences, to course instructors. Students are, however,

required to follow-up with course instructors, in a timely fashion, to identify the ways in which the academic consideration will be implemented.

### Examination Conflicts

A student completing tests or examinations with flexible submission times (e.g., where one or more evaluation is a take-home assessment) cannot request alternative arrangements unless a conflict cannot be avoided by rescheduling writing the exam to a different time within the window specified by the instructor. This applies to direct conflicts as well as “heavy load” conflicts (e.g., three exams within a 23-hour period). The student should discuss any concerns about a potential conflict and/or request academic considerations with their academic counselling unit prior to the deadline to drop a course without academic penalty

In the case of online tests and examinations, use of a “Conflict Room,” wherein student can write two proctored exams concurrently, will be interpreted as arrangements for continuous proctoring.

### 5. Contingency Plan for an In-Person Class Pivoting to 100% Online Learning

In the event of a situation that requires this course to pivot to online content delivery, all remaining course content will be delivered entirely online, either synchronously (i.e., at the times indicated in the timetable) or asynchronously (e.g., posted on OWL for students to view at their convenience). The grading scheme will **not** change. Any remaining assessments will also be conducted online as determined by the course instructor.

Note that disruptive behaviour of any type during online classes, including inappropriate use of the chat function, is unacceptable. Students found guilty of Zoom-bombing a class or of other serious online offenses may be subject to disciplinary measures under the Code of Student Conduct.

### 6. Online Proctoring

Tests and examinations in this course may be conducted using a remote proctoring service. By taking this course, you are consenting to the use of this software and acknowledge that you will be required to provide **personal information** (including some biometric data) and the session will be **recorded**. Completion of this course will require you to have a reliable internet connection and a device that meets the technical requirements for this service. More information about this remote proctoring service, including technical requirements, is available on Western’s Remote Proctoring website at: <https://remoteproctoring.uwo.ca>.

### 7. Grades

Where possible assignment objectives and rubrics will be posted on OWL.

Generally, students can expect some form of feedback on their performance in a course before the drop date.

|    |          |                                                                                              |
|----|----------|----------------------------------------------------------------------------------------------|
| A+ | 90-100   | <i>One could scarcely expect better from a student at this level</i>                         |
| A  | 80-89    | <i>Superior work that is clearly above average</i>                                           |
| B  | 70-79    | <i>Good work, meeting all requirements and eminently satisfactory</i><br><i>satisfactory</i> |
| C  | 60-69    | <i>Competent work, meeting requirements</i>                                                  |
| D  | 50-59    | <i>Fair work, minimally acceptable.</i>                                                      |
| F  | below 50 | <i>Fail</i>                                                                                  |

**Rounding of Grades** (for example, bumping a 79 to 80%):

This is a practice some students request. The final grade documented is the grade that you have achieved. There is no rounding to the next grade level, or ‘giving away’ of marks. Please don’t ask me to do this for you; the response will be “please review the course outline where this is presented”.

### Appealing a Grade Within this Course

You have the right to appeal any grade within this course. The grounds for a grade appeal may be one or more of: medical or compassionate circumstances, extenuating circumstances beyond the student’s control,

bias, inaccuracy, or unfairness. All grounds advanced in a request for relief must be supported by a clear and detailed explanation of the reasons for the request together with all supporting documentation.

Appeals generally proceed in this order:

1. Course instructor (informal consultation)
2. Department Chair (submission of written request)
3. The Dean of the Faculty (submission of written request)

In the case of perceived procedural unfairness, steps 2 and 3 are carried out within the Department and Faculty offering the course. In the case of extenuating medical or compassionate circumstances that impact on a grade, steps 2 and 3 are carried out within a student's Home Department and Faculty.

A request for relief against a mark or grade must be initiated with the instructor as soon as possible after the mark is issued. In the event that the instructor is not available to the student, or fails to act, or if the matter is not resolved satisfactorily with the instructor, a written request for relief must be submitted to the Chair of the Department within three weeks of the date that the mark was issued. In the case of a final grade in a course, the written request for relief must be submitted to the Chair of the department by January 31<sup>st</sup> (for first-term half courses) or June 30<sup>th</sup> (for second-term half courses or full-year courses)

## **8. Support Services**

### **Health and Wellness:**

Information regarding health and wellness-related services available to students may be found at <http://www.health.uwo.ca/>.

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

There are various support services around campus and these include, but are not limited to:

*Student Development Centre* -- <http://www.sdc.uwo.ca/ssd/>

*Ombudsperson Office* -- <http://www.uwo.ca/ombuds/>

## **9. Student Code of Conduct**

The purpose of the Code of Student Conduct is to define the general standard of conduct expected of students registered at Western University, provide examples of behaviour that constitutes a breach of this standard of conduct, provide examples of sanctions that may be imposed and set out the disciplinary procedures that the University will follow. For more information, visit <https://www.uwo.ca/univsec/pdf/board/code.pdf>