



## COLLEGE of SOCIAL AND APPLIED HUMAN SCIENCES

DEPARTMENT OF FAMILY RELATIONS  
AND APPLIED NUTRITION

# FRAN\*6000 Quantitative Research Methods

## COURSE OUTLINE – WINTER 2023

### 1. GRADUATE CALENDAR DESCRIPTION

This course includes critical appraisal of the research literature. Research ethics, subject selection, measurement issues, survey design, experimental and quasi-experimental designs, cross-sectional and longitudinal designs, scale development, questionnaire development and sampling strategies are discussed.

**Credit Weight:** 0.5 credits

**Course Hours:** 3-0 (36 lecture; 0 lab/seminar)

**Pre-Requisite(s):**

**Co-Requisites(s):**

**Restriction(s):**

### 2. COURSE DESCRIPTION

This course is designed to provide you with a conceptual understanding of the issues and methods related to the development and implementation of quantitative research. The course entails critical appraisal of the research literature. To make the course more relevant to you, I have assigned readings from various academic disciplines and your research proposal can address a general research topic of your choice.

### 3. TIMETABLE

**Lecture:** Wednesday, 8:30 - 11:20 am

**Location:** MACS 331

### 4. INSTRUCTIONAL SUPPORT

**Course Instructor:** Brian Lo, PhD, MPH

**Email:** [brian.lo@uoguelph.ca](mailto:brian.lo@uoguelph.ca)

**Telephone:** 519-824-4120 ext. 52419

**Office:** Macdonald Institute (MINS) 215

**Office Hours:** By appointment

## 5. LEARNING RESOURCES

### Required Resource(s):

Gliner, G. A., Morgan, George, A., & Leech, N. L. (2016). *Research Methods in Applied Settings*. New York, NY: Routledge Taylor & Francis Group. Free e-copies are available via University of Guelph Library.

Additional readings uploaded to CourseLink or available from the University of Guelph Library.

### Recommended Resource(s):

It is your responsibility to ensure that you currently have a basic / fundamental knowledge of research methods, which serves as the foundation for this higher-level, graduate research methods course. If necessary, you can refer to an applied research methods textbook to review some content in a previous undergraduate research methods course.

#### Books that emphasize applied research methods:

- Creswell, John W. & Creswell, J. (2022). *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches* (6th Ed). Thousand Oaks, CA: Sage Publications.
- Palys, T. & Atchison C. (2014). *Research Decisions: Quantitative, Qualitative, and Mixed Methods Designs* (5th Ed). Toronto, ON: Nelson Education.

#### Books that emphasize a conceptual understanding of statistics:

- Field, A. (2018). *Discovering statistics using IBM SPSS statistics* (5th ed.). Thousand Oaks, CA: Sage Publications, Inc.
- Meyers, L. S., Gamst, G., & Guarino, A. J. (2017). *Applied multivariate research: Design and interpretation* (3rd ed.). Thousand Oaks, CA: Sage Publications, Inc.

G\*Power is software to calculate statistical power. Available to download free at <http://www.gpower.hhu.de/en.html>

## 6. LEARNING OUTCOMES

At the completion of the course, successful students will be able to:

1. Develop conceptual and operational definitions of constructs commonly used in research.
2. Describe a range of quantitative research designs used in their field of research and identify the advantages and disadvantages associated with these designs.
3. Conduct a literature search to determine relevant research in a given field of study, in support of developing a research project.
4. Identify the role of theory in research design and seek out appropriate theories to guide their research activities.
5. Critique and develop survey questions based on principles of survey design.
6. Apply principles of measurement about establishing the validity and reliability of existing and new

measures.

7. Develop specific research designs to examine various research objectives or hypotheses.
8. Assess ethical issues in empirical research.
9. Critically appraise research described in peer-reviewed journal articles.
10. Develop a well-conceptualized quantitative research proposal.
11. Identify strategies for successfully navigating aspects of academia and professional life (publishing, grant-writing, project management, knowledge mobilization).
12. Further develop sense of identity as a researcher, including personal values held, research design predilections, strengths, and areas for development.
13. Communicate effectively (in both writing and oral presentation) about scientific research.

## 7. TEACHING AND LEARNING ACTIVITIES/CLASS SCHEDULE

Week	Topics	Assigned Readings & Guest Speakers	Notes & Due Dates (Due 23:59pm EST UNLESS otherwise indicated)
<b>1</b> <b>Wed. Jan 11</b>	Overview & Introduction  Theory & Research	Chapter 1 & 4  <a href="https://courses.lumenlearning.com/suny-hccc-research-methods/chapter/chapter-4-theories-in-scientific-research/">https://courses.lumenlearning.com/suny-hccc-research-methods/chapter/chapter-4-theories-in-scientific-research/</a>	
<b>2</b> <b>Wed. Jan 18</b>	Asking Research Questions and Determining Research Approach  Starting a Lit Review and Building a Rationale  Guest Lecture: Doing Literature Searches at UofG (10am)	Chapter 2 & 3  <b>Nancy Birch, MIST, OCT</b> Associate Librarian, Learning and Curriculum Support Team	<b>Reflection 1 due: Jan 18</b>
<b>3</b> <b>Wed. Jan 25</b>	Research Proposal Introduction  Guest Lecture: UofG Research Ethics Boards (10am)	Chapter 14  <b>Katelyn Wadleigh</b> Manager, Research Ethics Office of Research Services, University of Guelph  <a href="https://tcps2core.ca/welcome">https://tcps2core.ca/welcome</a>	<b>REB training due: Jan 25</b>

<b>Week</b>	<b>Topics</b>	<b>Assigned Readings &amp; Guest Speakers</b>	<b>Notes &amp; Due Dates (Due 23:59pm EST UNLESS otherwise indicated)</b>
<b>4 Wed. Feb 1</b>	Student Presentation of Final Project Ideas  Internal & External Validity  Sampling	Chapter 8 & 9	<b>Final Project ideas presentation slides due: Jan 31</b>  <b>Article appraisal approval due: Feb 1</b>  <b>Flipped classroom activity partners and topics will be announced</b>
<b>5 Wed. Feb 8</b>	Measurement Reliability & Validity  Guest Lecture: Statistics on Measurement Reliability & Validity (10am)	Chapter 11, 12 & 15 (data reduction section)  <b>Lindsay Plater, PhD</b> Data Analyst II, McLaughlin Library	
<b>6 Wed. Feb 15</b>	Survey Research  Questionnaire Development  Guest Lecture: Introduction to Qualtrics (10:15am)	Chapter 7 & 13  <a href="https://psr.iq.harvard.edu/files/psr/files/PSRQuestionnaireTipSheet_0.pdf">https://psr.iq.harvard.edu/files/psr/files/PSRQuestionnaireTipSheet_0.pdf</a>  <a href="https://osteopathic-medicine.uiw.edu/docs/getting-started-research/survey-fundamentals.pdf">https://osteopathic-medicine.uiw.edu/docs/getting-started-research/survey-fundamentals.pdf</a>  <b>Quin Shirk-Luckett, MA</b> Analyst 3, GIS Data Resource Centre, Research & Scholarship McLaughlin Library	
<b>7 Wed. Mar 1</b>	Flipped Classroom Activity Part 1: Epidemiological Methods - Cohort, Case Control Studies  Guest Lecture: GIS Analysis (10:15am)	Chapter 5  <a href="https://www.cdc.gov/csels/dsepd/ss1978/lesson1/section7.html">https://www.cdc.gov/csels/dsepd/ss1978/lesson1/section7.html</a>  <b>Quin Shirk-Luckett, MA</b> Analyst 3, GIS, Data Resource Centre, Research & Scholarship, McLaughlin Library	<b>Flipped Classroom Activity Slides due: Feb 28</b>  <b>Final project: Approach outline due: Mar 1</b>

Week	Topics	Assigned Readings & Guest Speakers	Notes & Due Dates (Due 23:59pm EST UNLESS otherwise indicated)
<b>8</b> <b>Wed.</b> <b>Mar 8</b>	<p>Flipped Classroom Activity Part 2: Epidemiological Methods – Randomized controlled trials, Quasi experiments</p> <p>Program Planning &amp; Evaluation</p> <p>Guest Lecture: Text Analysis (10:15am)</p>	<p>Aggarwal R, Ranganathan P. Study designs: Part 4– interventional studies. Perspectives in Clinical Research. 2019;10(3):137.</p> <p>Fernandez ME, Ruiter RA, Markham CM, Kok G. Intervention mapping: theory-and evidence-based health promotion program planning: perspective and examples. Frontiers in Public Health. 2019;14;7:209.</p> <p>Michie, S., Van Stralen, M. M., &amp; West, R. (2011). The behaviour change wheel: a new method for characterising and designing behaviour change interventions. Implementation Science,6(1), 42.</p> <p><a href="https://www.cdc.gov/std/program/pupestd/types%20of%20evaluation.pdf">https://www.cdc.gov/std/program/pupestd/types%20of%20evaluation.pdf</a></p> <p><b>Jennifer Marvin</b> Research &amp; Scholarship Librarian</p>	<p><b>Flipped Classroom Activity Slides due: Mar 7</b></p>
<b>9</b> <b>Wed.</b> <b>Mar 15</b>	<p>Guest Lecture: Systematic Literature Reviews, Meta-Analyses, Scoping review</p>	<p>Munn Z, Peters MD, Stern C, Tufanaru C, McArthur A, Aromataris E. Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. BMC medical research methodology. 2018;18(1):1-7.</p> <p>Review Methodology Decision Tree by Cornell University</p> <p><b>In Young Park, MSW PhD</b> Postdoctoral Fellow, Boston College School of Social Work</p>	

Week	Topics	Assigned Readings & Guest Speakers	Notes & Due Dates (Due 23:59pm EST UNLESS otherwise indicated)
<b>10 Wed. Mar 22</b>	<p>Guest Lecture: Community Engaged Research and Knowledge Translation (9:00am)</p> <p>Guest Lecture: Data Cleaning (10:15am)</p>	<p>Chapter 15</p> <p>Grimshaw JM, Eccles MP, Lavis JN, Hill SJ, Squires JE. Knowledge translation of research findings. Implementation science. 2012;7(1):1-7.</p> <p><a href="https://cihr-irsc.gc.ca/e/29418.html#6">https://cihr-irsc.gc.ca/e/29418.html#6</a></p> <p><b>Caroline Duvieusart-Dery</b> Community Engaged Scholarship Institute (CESI)</p> <p><b>Jennifer Marvin</b> Research &amp; Scholarship Librarian</p>	<b>Critical Appraisal due: Mar 22</b>
<b>11 Wed. Mar 29</b>	<p>Guest Lecture: Data Management (9am)</p> <p>Guest Lecture: Open Access and Scholarly Communication (10:15am)</p>	<p>Chapter 15 &amp; 26</p> <p><b>Lucia Costanzo, MLIS</b> Research &amp; Scholarship Librarian</p> <p><b>Christopher Popovich, MLIS</b> Research &amp; Scholarship Librarian</p>	
<b>12 Wed. Apr 5</b>	Final Project Presentation	<b>Student presenters</b>	<p><b>Final Project presentation slides due: Apr 4</b></p> <p><b>Reflection 2 &amp; Final Project Full Proposal due: April 5</b></p>

**Note:** This is a tentative schedule; however, due to various unknown factors there may be changes. Any changes will be announced during class and an announcement will be posted on the CourseLink site.

## 8. ASSESSMENT DETAILS

Assessment	LOs Addressed	Due Date	% of Final
REB training	8	Jan 25	5
Final Project Proposal: Ideas presentation slides	13	Jan 31	10
Critical appraisal: Article approval	1, 2, 4, 5, 6, 8, 9	Feb 1	Not graded

Assessment	LOs Addressed	Due Date	% of Final
Critical appraisal: Full paper	1, 2, 4, 5, 6, 8, 9	Mar 22	25
Reflection 1	11, 12	Jan 18	5
Reflection 2	11, 12	April 5	5
Flipped Classroom Activity slides	2, 13	Feb 28, Mar 7	10
Final Project Proposal: Approach outline	1, 2, 3, 4, 5, 6, 7, 8	Mar 1	Not graded
Final Project Proposal: Presentation slides	13	April 4	5
Final Project Proposal: Full paper	1, 2, 3, 4, 5, 6, 7, 8 10, 13	April 5	35
<b>Total:</b>			<b>100%</b>

## 9. COURSE STATEMENTS

### Land Acknowledgement:

We acknowledge that the University of Guelph resides on the ancestral lands of the Attawandaron people and the treaty lands and territory of the Mississaugas of the Credit. We recognize the significance of the Dish with One Spoon Covenant to this land and offer our respect to our Anishinaabe, Haudenosaunee and Métis neighbours as we strive to strengthen our relationships with them. Acknowledging them reminds us of our important connection to this land where we learn and work.

### Course Website:

There is a course website at <http://courselink.uoguelph.ca>. All components of this course will be housed on the CourseLink site including this course outline, assignments, and links to further resources. Your assignments will be submitted through the Dropbox function. Marks and feedback will also be released on the site. Please familiarize yourself with this website as soon as possible and visit it regularly throughout the semester.

### Late Assignments:

Late assignments will be accepted up to 5 days following the due date and will receive a penalty of 10% per day EXCEPT under documented grounds for compassionate consideration. Assignments submitted more than one week late without documented grounds will receive a grade of zero. If you are going to hand an assignment in late, you must contact your course instructor to inform them when you will be submitting your assignment.

### Receipt of Grades:

After you receive a grade on CourseLink, please review your feedback. Any inquiry or dispute over the grade must be made within two weeks from the date they are posted. If you fail to protest any grade during this time limit, changes to the grade will not be considered.

### Turnitin Software:

In this course, your instructor will be using Turnitin, integrated with the CourseLink Dropbox tool, to detect possible plagiarism, unauthorized collaboration or copying as part of the ongoing efforts to maintain academic integrity at the University of Guelph.

All submitted assignments will be included as source documents in the Turnitin.com reference database solely for the purpose of detecting plagiarism of such papers. Use of the Turnitin.com service is subject to the Usage Policy posted on the Turnitin.com site.

A major benefit of using Turnitin is that students will be able to educate and empower themselves in preventing academic misconduct. In this course, you may screen your own assignments through Turnitin as many times as you wish before the due date. You will be able to see and print reports that show you exactly where you have properly and improperly referenced the outside sources and materials in your assignment.

## **10.UNIVERSITY STATEMENTS**

### **E-mail communication:**

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students.

### **When you cannot meet a course requirement:**

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor (or designated person, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Graduate Calendar for information on regulations and procedures for [Academic Consideration](#).

### **Drop date:**

Courses that are one semester long must be dropped by the end of the last day of classes; two-semester courses must be dropped by the last day of classes in the second semester. The regulations and procedures for [Dropping Courses](#) are available in the Graduate Calendar.

### **Copies of out-of-class assignments:**

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

### **Accessibility:**

The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.



Use of the SAS Exam Centre requires students to make a booking at least 14 days in advance, and no later than November 1 (fall), March 1 (winter) or July 1 (summer). Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

More information: [www.uoguelph.ca/sas](http://www.uoguelph.ca/sas)

### **Academic misconduct:**

The [Academic Misconduct Policy](#) is outlined in the Graduate Calendar.

The University of Guelph is committed to upholding the highest standards of academic integrity and **it is the responsibility of all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct** and to do as much as possible to prevent academic offences from occurring. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

Instructors **shall not** determine if academic misconduct has occurred. This is up to the Associate Dean Academic's office. Instructors shall not assign a grade of zero even if they believe that the student has committed some form of academic misconduct (e.g., copied material from a website like CourseHero) on an assignment or exam.

Instructors **can** determine if a student has poorly paraphrased and/or improperly cited material and can provide a grade accordingly as long as this is clearly identified as part of the assessment criteria via a rubric or other assessment tools.

For more information about Academic Integrity resources and how to prevent Academic Misconduct see: <https://csahs.uoguelph.ca/faculty-research/hub-teaching-learning-excellence/academic-integrity>

### **Recording of materials:**

Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

### **Resources:**

The [Academic Calendars](#) are the source of information about the University of Guelph's procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

**Disclaimer:**

Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via Courselink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

**Illness:**

Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

**COVID-19 Safety Protocols:**

For information on current safety protocols, follow these links:

- <https://news.uoguelph.ca/return-to-campus/how-u-of-g-is-preparing-for-your-safe-return/>
- <https://news.uoguelph.ca/return-to-campus/spaces/#ClassroomSpaces>

Please note, that these guidelines may be updated as required in response to evolving University, Public Health or government directives.