

BASIC RESEARCH METHODS

Psychology 291

Fall 2022

LECTURE: Tuesday, Thursday 8:30 am – 9:50 am

RCH 101

University of Waterloo
Department of Psychology

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Required Textbook: Morling, B. (2020). *Research Methods in Psychology, 4e*. New York, NY: W.W. Norton & Company, Inc. [ISBN: 978-0-393-53626-3] (Third Edition is OK!)

- Hard cover and loose-leaf versions of the textbook are at the campus bookstore. They include the e-book version.
- The e-book version of the textbook (by itself) is available at <https://www.vitalsource.com>. Its content is identical to hard cover and loose-leaf versions.

LEARN: Lecture material (including slides and readings) and textbook material (e.g., practice quizzes) will be posted on LEARN (<https://learn.uwaterloo.ca>). There will also be regular announcements on the homepage and a Discussion Board (accessed through the “Connect” page on LEARN). The frequent use of LEARN is essential for success in this course.

Communication: There are two ways to contact the instructor and graduate teaching fellows: (1) by email, (2) through the LEARN Discussion board. Please schedule appointments by email (see email addresses above). The LEARN Discussion Board can be used to ask questions regarding course content—if you have multiple questions, though, we recommend that you schedule an appointment.

Course Description and Grading:

Welcome to Psych 291! This course will cover the fundamentals of research design. For example, what factors do psychologists consider when designing a study? Learning about the research process will be beneficial for everyone in this class. Many of you will conduct research—perhaps as a research assistant, in a course (e.g., directed studies or a thesis), or in your future career. But even if you never actually conduct research, you will still read/hear about research throughout your life (e.g., through the media). Is it therefore important to learn how to *critically examine research*. A main objective of this course will be developing that skill.

Course Requirements and Weighting of Grades:

TCPS2 CORE ethics Tutorial	3 %
Midterm #1	25 %
Midterm #2	25 %
Article Review Assignment	15 %
Final Exam	32 %

[Bonus for research experience up to 4%; see details below]

Midterm Exams (each worth 25% of final grade): Midterms will be a combination of multiple choice and short answer questions and will cover material presented during lectures and in the textbook in the period preceding that midterm (i.e., midterms are **not** cumulative).

Midterm #1 will also cover material from the TCPS 2 CORE ethics tutorial. Note that students requesting an accommodation for the date or time of a midterm must follow official UW policies (see Accommodation for Course Requirements section below). Both midterm exams will take place in RCH 101. (update, this may be carried out online if necessary at the time of testing).

Final Exam (32% of final grade): The final exam will be a combination of multiple choice and short answer questions and will cover material presented during lectures and in the textbook in the period preceding the final exam (i.e., the final exam is **not** cumulative). The final exam will take place during the University scheduled final exam period. Students requesting an accommodation for the date or time of a final exam must follow official UW policies (see Accommodation for Course Requirements section below).

TCPS 2 CORE Tutorial (3% of final grade): Students must complete the online TCPS2 CORE tutorial course by September 29, 2022. This online tutorial can be accessed and completed at the following link: <https://tcps2core.ca>. This course consists of a series of learning modules that provide basic instruction in the principles of ethical conduct of research with human participants. Interactive media features and online quizzes allow students to explore and test their understanding of research ethics concepts. Upon successfully completing the tutorial, you will receive a certificate of completion, which you will need to **upload to the Dropbox location on the course's LEARN website by end of day (11:59 pm) on Tuesday, September 29, 2022.** NOTE: You will have to create an account at <https://tcps2core.ca> before you can begin the tutorial. You will need to allocate several hours (probably in separate sittings) to complete the course. You should therefore start the course as soon as possible. Late assignments will be *penalized 10% of the assignment points* for each 24-hour period the assignment is late.

Article Review Assignment (15% of final grade): Students will choose from a list of 8 popular press articles in which the results of an empirical research study are reported. Each popular press article is accompanied by the original empirical article. Students are required to write a 3-page analysis of the adequacy of the popular press account. This analysis will focus on the clarity and accuracy of the presentation of the study design, results, and interpretation. Further details about the content and requirements of the assignment will be provided in an assignment guide, which will be distributed within the first two weeks of class. Assignments should be uploaded in MS Word or .pdf format to the Dropbox location on the course's LEARN website by 11:59 pm on Tuesday, November 15, 2022. Late assignments will be penalized 10% of the assignment points for each 24-hour period the assignment is late.

Course Outline:

WEEK	LECTURE TOPIC(S)	TEXT READING
<u>Week 1</u>		
Sept 8	Introduction: Consuming Research	
<u>Week 2</u>		
Sept 13	How Psychological Science Advances	pp. 5-22
Sept 15	Basic, Applied, and Translational Research Research vs. Personal Experience and Intuition	pp. 25-53
<u>Week 3</u>		
Sept 20	Frequency, Association, and Causal Claims	pp. 57-68
Sept 22	Research Claims and their Validity	pp. 68-83

DATE	LECTURE TOPIC(S)	TEXT READING
<u>Week 4</u>		
Sept 27	**TCPS2 CORE Tutorial DUE by 11:59 pm ** Fake News, Pseudoscience, and Questionable Claims Critically Examining Research	
Sept 29	Research Ethics: History and TCPS2 Guidelines	pp. 89-112
<u>Week 5</u>		
Oct 4	*** MIDTERM #1 [Ch 1, 2, 3, 4] ***	
Oct 6	Measures, Reliability and Validity	pp. 117-149
<u>Week 6</u>		
Oct 11	Reading Week	
Oct 13	Reading Week	
<u>Week 7</u>		
Oct 18	Describing Behaviour with Surveys and Observations	pp. 153-175
Oct 20	Sampling and Generalizability	pp. 179-198
<u>Week 8</u>		
Oct 25	Bivariate Correlational Research I	pp. 203-220

Oct 27	Research in Industry Bivariate Correlational Research II	pp. 221-233
DATE	LECTURE TOPIC(S)	TEXT READING
<u>Week 9</u>		
Nov 1	*** MIDTERM #2 [Ch 5, 6, 7, 8] ***	
Nov 3	Multivariate Correlational Research	pp. 237-256
<u>Week 10</u>		
Nov 8	Multivariate Correlational Research Experiments: Variables, Causality, and Confounds	pp. 256-269
Nov 10	The “Replication Crisis” The “Reformation” of Psychological Research	pp. 273-286
<u>Week 11</u>		
Nov 15	*** Article Review due by 11:59 pm *** Experiments: Independent Group and Within-Group Designs	pp. 287-307
Nov 17	Experiments: Threats to Internal Validity	pp. 311-329
<u>Week 12</u>		
Nov 22	Null Effects Factorial Designs: Two Independent Variables	pp. 330-346 pp. 351-360
Nov 24	Factorial Designs: Main Effects and Interactions	pp. 361-383
<u>Week 13</u>		
Nov 29	Quasi-Experimental Designs	pp. 389-406

***** FINAL EXAM [Ch 9, 10, 11, 12, 13] ***** DATE & TIME TBA

Continuity of Education Plan: The University has advised that we have contingency plans in place, in case we have to move to on-line programming at some point in the semester. In our case, it is pretty simple, and we will plan for the following:

A short-term (one week) cancellation of in-person classes

- lectures to be provided over the LEARN platform

A longer-term cancellation:

- lectures to be provided over the LEARN platform

Cancellation of in-person (midterm or final) examinations.

- A suitable alternative will be determined, likely a test provided over the LEARN platform

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility. See the [UWaterloo Academic Integrity webpage](#) and the [Arts Academic Integrity webpage](#) for more information.

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about “rules” for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 – Student Discipline. For information on categories of offenses and types of penalties, students should refer to [Policy 71 - Student Discipline](#). For typical penalties check [Guidelines for the Assessment of Penalties](#).

Concerns About a Course Policy or Decision

Informal Stage. We in the Psychology Department take great pride in the high quality of our program and our instructors. Though infrequent, we know that students occasionally find themselves in situations of conflict with their instructors over course policies or grade assessments. If such a conflict arises, the Associate Chair for Undergraduate Affairs (Richard Eibach) is available for consultation and to mediate a resolution between the student and instructor: Email: reibach@uwaterloo.ca; Ph 519-888-4567 ext. 38790

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read [Policy 70 - Student Petitions and Grievances](#), Section 4. When in doubt, please be certain to contact Richard Eibach, the Associate Chair for Undergraduate Affairs who will provide further assistance; reibach@uwaterloo.ca.

Appeals: A decision made or penalty imposed under Policy 70 - Student Petitions and Grievances (other than a petition) or Policy 71 - Student Discipline may be appealed if there is a ground. A student who believes he/she has a ground for an appeal should refer to [Policy 72 - Student Appeals](#).

Accommodation for Students with Disabilities

Note for students with disabilities: The [AccessAbility Services](#) office, located on the first floor of the Needles Hall extension (1401), collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the AS office at the beginning of each academic term.

Accommodation for course requirements

- Students requesting accommodation for course requirements (assignments, midterm tests, final exams, etc.) due to illness should do the following:
 - Consult the University's [examination regulations](#) for information about procedures and policies for requesting accommodations
 - seek medical treatment as soon as possible
 - obtain documentation of the illness with a completed uWaterloo [Verification of Illness Form](#)
 - submit that form to the instructor within 48 hours. Students in Centre for Extended Learning (CEL) courses must submit their confirmation of the illness to CEL.
 - (if possible) inform the instructor by the due date for the course requirement that you will be unable to meet the deadline and that documentation will be forthcoming.
- In the case of a missed final exam, the instructor and student will negotiate an extension for the final exam, which will typically be written as soon as possible, but no later than the next offering of the course.
- In the case of a missed assignment deadline, midterm test, or quiz, the instructor will either:
 - waive the course component and re-weight remaining term work as he/she deems fit according to circumstances and the goals of the course, or
 - provide an extension.
- In the case of bereavement, the instructor will provide similar accommodations to those for illness. Appropriate documentation to support the request will be required.
- Students who are experiencing extenuating circumstances should also inform their academic advisors regarding their personal difficulties.
- Elective arrangements such as travel plans are not acceptable grounds for granting accommodations to course requirements per the [uWaterloo Examination Regulations and Related Matters](#).

Mental Health Support

All of us need a support system. The faculty and staff in Arts encourage students to seek out mental health supports if they are needed.

On Campus

- Counselling Services: counselling.services@uwaterloo.ca / 519-888-4567 ext 32655
- [MATES](#): one-to-one peer support program offered by Federation of Students (FEDS) and Counselling Services
- Health Services Emergency service: located across the creek from Student Life Centre

Off campus, 24/7

- [Good2Talk](#): Free confidential help line for post-secondary students. Phone: 1-866-9255454
- Grand River Hospital: Emergency care for mental health crisis. Phone: 519-749-433 ext. 6880
- [Here 24/7](#): Mental Health and Crisis Service Team. Phone: 1-844-437-3247
- [OK2BME](#): set of support services for lesbian, gay, bisexual, transgender or questioning teens in Waterloo. Phone: 519-884-0000 extension 213

Full details can be found online at the Faculty of ARTS [website](#)

Download [UWaterloo and regional mental health resources \(PDF\)](#)

Download the [WatSafe app](#) to your phone to quickly access mental health support information

Territorial Acknowledgement

We acknowledge that we are living and working on the traditional territory of the Attawandaron (also known as Neutral), Anishinaabe and Haudenosaunee peoples. The University of Waterloo is situated on the Haldimand Tract, the land promised to the Six Nations that includes 10 kilometres on each side of the Grand River.

Official version of the course outline

If there is a discrepancy between the hard copy outline (i.e., if students were provided with a hard copy at the first class) and the outline posted on LEARN, the outline on LEARN will be deemed the official version. Outlines on LEARN may change as instructors develop a course, but they become final as of the first class meeting for the term.

Sona Participation and Research Experience Marks Information and Guidelines

Experiential learning is considered an integral part of the undergraduate program in Psychology. Research participation is one example of this, article review is another. A number of undergraduate courses have been expanded to include opportunities for Psychology students to earn grades while gaining research experience.

Since experiential learning is highly valued in the Department of Psychology, students may earn a **"bonus" grade of up to 4%** in this course through research experience. Course work will make up 100% of the final mark and a "bonus" of up to 4% may be earned and will be added to the final grade if/as needed to bring your final grade up to 100%.

The two options for earning research experience grades; participation in research through online remotely operated and In Lab studies, as well as article review; are described below. Students may complete any combination of these options to earn research experience grades. For Fall 2022, credits will be permitted to be earned with half from online, and the other half (2.0) from In-lab or Remote Access studies

Option 1: Participation in Psychology Research

Research participation is coordinated by the Research Experiences Group (REG). Psychology students may volunteer as research participants in remotely operated, In Lab and/or online (web-based) studies conducted by students and faculty in the Department of Psychology. Participation enables students to learn first-hand about psychology research and related concepts. Many students report that participation in research is both an educational and interesting experience. Please be assured that all Psychology studies have been reviewed and received ethics clearance through a University of Waterloo Research Ethics Committee.

How to earn extra marks for your Psychology course(s) this term by participating in studies ...

- You will earn "credits" which will be converted to "marks" (1 credit = 1%)
- You can schedule your remotely operated (replacing in-lab) and ONLINE studies using the "Sona" website.

Educational focus of participation in research

To maximize the educational benefits of participating in research, students will receive feedback information following their participation in each study detailing the following elements:

- Purpose or objectives of the study
- Dependent and independent variables
- Expected results
- References for at least two related research articles
- Provisions to ensure confidentiality of data
- Contact information of the researcher should the student have further questions about the study
- Contact information for the Director of the Office of Research Ethics should the student wish to learn more about the general ethical issues surrounding research with

human participants, or specific questions or concerns about the study in which s/he participated.

Participation in remotely operated (counts as the same as in-lab) studies has increment values of 0.5 participation credits (grade percentage points) for each 30-minutes of participation. Participation in ONLINE studies is worth .25 credits for each 15-minutes of participation. Researchers will record student's participation and at the end of the term the REG Coordinator will provide the course instructor with a credit report of the total credits earned by each student.

How to participate?

Study scheduling, participation and grade assignment is managed using the SONA online system. All students enrolled in this course have been set up with a SONA account. You must get started early in the term.

For instructions on how to log in to your SONA account and for a list of important dates and deadlines please, as soon as possible, go to:

[Participating/SONA information: How to log in to Sona and sign up for studies](#)

**** Please do not ask the Course Instructor or REG Coordinator for information unless you have first thoroughly read the information provided on this website.****

More information about the REG program in general is available at: [Sona Information on the REG Participants website](#) or you can check the [Sona FAQ on the REG website homepage](#) for additional information.

Option 2: Article Review as an alternative to participation in research

Students are not required to participate in research, and not all students wish to do so. As an alternative, students may opt to gain research experience by writing short reviews (1½ to 2 pages) of research articles relevant to the course. The course instructor will specify a suitable source of articles for this course (i.e., scientific journals, newspapers, magazines, other printed media). *You must contact your TA to get approval for the article you have chosen before writing the review.* Each review article counts as one percentage point. To receive credit, you must follow specific guidelines. The article review must:

- **Be submitted before the [last day of lectures](#). Late submissions will NOT be accepted under ANY circumstances.**
- Be typed
- Fully identify the title, author(s), source and date of the article. A copy of the article must be attached.
- Identify the psychological concepts in the article and indicate the pages in the textbook that are applicable. Critically evaluate the application or treatment of those concepts in the article. If inappropriate or incorrect, identify the error and its implications for the validity of the article. You may find, for example, misleading headings, faulty research procedures, alternative explanations that are ignored, failures to distinguish factual findings from opinions, faulty statements of cause-effect relations, errors in reasoning, etc. Provide examples whenever possible.
- Clearly evaluate the application or treatment of those concepts in the article.
 - Keep a copy of your review in the unlikely event we misplace the original. Data.