

## **PSYC\*2360, Course Outline: Fall 2018**

### **General Information**

**Course Title:** Psychological Methods and Statistics

#### **Course Description:**

This course builds on students' understanding of basic psychological research methods and statistics, with an emphasis on designing, interpreting, and communicating research. Topics covered throughout the term may include: research ethics, the scientific method, qualitative and quantitative measures, reliability and validity, complex research designs using multiple predictor or independent variables, and the reading and writing of journal articles.

By the end of this course, successful students will be able to:

- Identify, apply, and evaluate different research methods
- Critically evaluate scientific research
- Conduct a literature search and identify and summarize the relevant literature
- Develop research hypotheses and design a study to test their research hypotheses
- Write a research proposal (i.e., introduction, method, results)

**Credit Weight:** 0.50

**Academic Department (or campus):** Department of Psychology

**Semester Offering:** F18

**Assigned Seminar:** See Web Advisor.

#### **Class Schedule and Location:**

Mondays and Wednesdays: 8:30 – 9:20

Thornbrough Building (THRN), Room 1200

### **Instructor Information**

Instructor Name: Harvey H. C. Marmurek, PhD

Instructor Email: hmarmure@uoguelph.ca

Office location and office hours: MacKinnon Extension, Room 4019

Mondays and Wednesdays, 10:00 am – 11:00 am.

## **Graduate Teaching Assistant Information**

**GTA Coordinator** Ms. Veesta Mavandadi      vmavanda@uoguelph.ca  
*Please email Veesta (and cc' your TA) for all seminar-related questions,  
(i.e., scheduling conflicts, assignment questions, grade disputes, etc.)*

### **Teaching Assistants:**

Seminar 1: M 12:30 - 1:20    MACN 201    Baylee Rubinoff ([brubinof@uoguelph.ca](mailto:brubinof@uoguelph.ca))  
Seminar 2: M 12:30 - 1:20    ANNU 306    Robert "Tom" Beggs ([beggsr@uoguelph.ca](mailto:beggsr@uoguelph.ca))  
Seminar 3: M 1:30 - 2:20    MACN 201    Baylee Rubinoff ([brubinof@uoguelph.ca](mailto:brubinof@uoguelph.ca))  
Seminar 4: M 1:30 - 2:20    ANNU 306    Therese Kenny ([kenney@uoguelph.ca](mailto:kenney@uoguelph.ca))  
Seminar 5: W 9:30 - 10:20    ROZH 107    Sarah Boyle ([sboyle02@uoguelph.ca](mailto:sboyle02@uoguelph.ca))  
Seminar 6: W 9:30 - 10:20    ROZH 109    Therese Kenny ([kenney@uoguelph.ca](mailto:kenney@uoguelph.ca))  
Seminar 7: W 4:30 - 5:20    ROZH 108    Jessica Garant ([garant@uoguelph.ca](mailto:garant@uoguelph.ca))  
Seminar 8: W 4:30 - 5:20    ANNU 306    Katherine McAuley ([mcauleyk@uoguelph.ca](mailto:mcauleyk@uoguelph.ca))  
Seminar 9: F 10:30 - 11:20    MCKN 307    Brett Melanson ([bmelanso@uoguelph.ca](mailto:bmelanso@uoguelph.ca))  
Seminar 10: F 10:30 - 11:20    CRSC 403    Thomas Horman ([thorman@uoguelph.ca](mailto:thorman@uoguelph.ca))

## **Course Content**

### **Specific Learning Outcomes:**

#### A. Critical and Creative Thinking

##### 1. Depth and Breadth of Knowledge

- Describe core concepts in the scientific method, research methods and statistics, and indicate how these ideas work together in the scientific method
- Understand and apply key concepts in research methods and statistics as it relates to the scientific method

##### 2. Inquiry and Analysis

- Formulate questions about psychology. Know how to find relevant evidence.
- Evaluate hypotheses based on data
- Recognize the importance of supporting statements with evidence

##### 3. Problem Solving

- Identify issues and create a plan to address the problem using knowledge of research methods and statistics

#### B. Literacy

##### 1. Methodological literacy: The ability to understand, evaluate, and apply appropriate methodologies for rigorous psychological science

- Recognize and describe basic research methodologies (e.g., random assignment, random sampling)

##### 2. Quantitative literacy

- Understand the use of numerical data
- Demonstrate the ability to interpret data

##### 3. Visual literacy:

- Create and interpret graphs and tables
- C. Communication
1. Reading Comprehension (e.g., reading original research articles)
    - Understand sophisticated theoretical and empirical writing in psychology
  2. Listening skills (a component of Oral communication).
    - Determine the key points in an auditory presentation
    - Summarize information in a clear and concise way
  3. Written Communication
    - Present ideas in a logical order, using concrete examples including graphs and tables
    - Write using the appropriate vocabulary, presenting statistical results in (American Psychological Association) format (see Purdue Owl)
- D. Personal and ethical behaviour
1. Ethical issues in research
    - Understand ethical principles in conducting research
  2. Personal organization/ time management
    - Recognize the importance of planning for completion of tasks
    - Deal with intense time pressures, prioritize and complete tasks to schedule
    - Demonstrate personal accountability and responsibility

On successful completion of this course, you will be able to accomplish the following:

- A. Identify and describe key concepts relating to the scientific method, research design, and inferential and descriptive statistics. Apply these concepts when solving problems (Learning outcomes: A1-3; B1-3; C1-2; D2)
- B. Describe the stages involved in scientific reasoning and specify the role and importance of quantification in the scientific method. (Learning outcomes: A1-3; B1-3; C1-3; D2)
- C. Analyze a research question, identifying the relevant measured and manipulated variables. Indicate whether the study is a true experiment, a quasi-experiment, or correlational design and describe the relative strengths and weaknesses of each type of design. Propose a study based on research related to the question. (Learning outcomes: A1-3; B1-2; C1; C3; D1-2)
- D. Identify the independent and dependent variables in a research study. Provide operational definitions of variables. (Learning outcomes: A1-3; B1-2)
- E. Interpret information presented in graphical format (graphs) with an emphasis on statistical interactions. (Learning outcomes: B3)
- F. Explain what hypothesis testing is, indicating its purposes, the processes involved, and the places where error can enter into the process. Indicate the role of probability in hypothesis testing and inferential statistics. (Learning outcomes: A1-3; B1-2; C1-3)

## Lecture Content and Deadlines:

The table below lists the content of the lectures, the associated readings from the text, and graded assignments (Quiz and Research in Action due dates).

Date	Readings: Discovering the Scientist Within (Lewandowski, Ciarocco & Strohmets)	Graded Assignments Due dates are for Quizzes and Research in Action (RIA)
No Seminars Sept. 10, 12	Chapter 1: Psychology as a science	Quiz 1, RIA 1 Due: Sept. 16 @ 11:59 pm
Seminars Begin Class Sept. 17	Chapter 2: The research process Sept 19: Library presentation on literature search	Quiz 2, RIA 2, Due: Sept. 23
Sept. 24, 26	Chapter 3: Ethics	Quiz 3; RIA 3 Due: Sept. 30
Oct. 1, 3	Chapter 4: Research designs	Quiz 4; RIA 4 Due: Oct. 7 Seminar Reflection 3
No Seminars No class Oct. 8 Class Oct. 10	Chapter 5: Qualitative research	Quiz 5; RIA 5 Due Oct. 14
Oct. 15, 17	Chapters 6 and 7: Observational research and survey design	Quiz 6; Quiz 7 RIA 6; RIA 7 Due: Oct. 21
Oct. 22, 24	Chapter 8: Two-group design	Midterm 1: October 24 Quiz 8; RIA 8 Due: Oct. 28
Oct. 29, 31	Chapter 9: Multi-group design	Quiz 9; RIA 9 Due: Nov. 4
Nov. 5, 7	Chapter 10: Within-subjects design	Quiz 10; RIA 10 Due: Nov. 11

Date	Readings: Discovering the Scientist Within (Lewandowski, Ciarocco & Strohmets)	Graded Assignments Due dates are for Quizzes and Research in Action (RIA)
Nov. 12, 14	Chapter 11: Factorial design	Quiz 11; RIA 11 Due Nov. 18
Nov. 19, 21	Chapter 12: Mixed design	Quiz 12; RIA 12 Due Nov. 25
Nov. 26, 28, 30	Chapter 13: Program evaluation	Quiz 13; RIA 13 Due Dec. 2

### Seminars:

The table below lists the content of the seminars and the associated assignments. *Seminar reflections are completed in-class at the end of every seminar and handed into the TA.*

Week of:	Seminar Goal <i>*changes will be posted on Courselink</i>	Deadlines
September 10	<b>No Seminars</b>	
September 17	Research Planning - Topic & Question - Searching for and reading articles	
September 24	Introduction	
October 1	Methods	
October 8	<b>No Seminars</b>	Plan for research proposal: Due Fri. Oct. 12 <sup>th</sup> , 11:59 pm
October 15	Sample Paper Review Rubric Review	
October 22	Academic Writing	TA feedback for research plan returned to you: Sat. Oct. 27 <sup>th</sup>
October 29	Class discussion/ group work regarding TA feedback about submitted plan	
November 5	Results	
November 12	Results Continued Rubric Review	
November 19	APA 6 and In-class Help Session	Research Proposal: Due Sun. Nov. 25 <sup>th</sup> , 11:59 pm

November 26	No Seminars	
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**Final Exam:** Tuesday December 4<sup>th</sup>, 8:30 -10:30 am

**Course Assignments and Tests:**

Course Outline Guidelines: Checklist

Assignment or Test	Due Date	Contribution to Final Mark (%)	Learning Outcomes Assessed
Weekly online quizzes	Weekly assignments due by 11:59 pm on Sunday of the corresponding week.	15% (10@1.5%) Based on the 10 best scores	A1-3; B1-3; C1-3; D1-2
Research in Action	Weekly assignments due by 11:59 pm on Sunday of the corresponding week.	10% (10@1%) Based on 10 RIA assignments	A1-3; B1-3; C1-3; D1-2
Seminar Reflections	Due in-class at the end of each seminar meeting	8% Drop lowest of 9 seminar reflections	A1-3; B1-3; C1-3; D1-2
Midterm examination	Wednesday Oct. 24 (during class) Chapters 1-7	20%	A1-3; B1-2; C1-C3; D2
Plan for research proposal	Submitted on Dropbox: Friday October 12 <sup>th</sup> by 11:59 pm	7%	A1-3; B1-3; C1-2; D2
Research proposal	Submitted on Dropbox: Sunday November 25 <sup>th</sup> , 11:59 pm	15%	A1-3; B1-3; C1;C; D1-2
Final Exam	Tuesday December 4 <sup>th</sup> , 8:30 - 10:30 am - Mainly chapters 8 – 13 with some review of earlier chapters	25%	A1-3; B1-3; C1-3; D1-2

**Course Resources**

**Required Text:**

Lewandowski, G. W., Ciarocco, N. J., & Strohmets, D. B. (2016). *Discovering the Scientist Within: Research Methods in Psychology*. Worth Publishers, New York.

Other Resources:

1. CourseLink Website. Lecture slides and seminar slides will be provided on the CourseLink website. Seminar slides will be posted after the conclusion of each week.
2. Launchpad software (included with text) is used to provide the Research in Action assignments and quizzes.
  - The access code for Launchpad appears on the inside cover of the textbook.
  - Instructions on how to access Launchpad are provided on CourseLink.

### **Course Requirements**

1. Weekly Quizzes and Research in Action activities.

You should plan to spend at least 5 hours in addition to class and seminar time doing your readings and assessments. The deadline to receive grades on the online assignments is 11:59 pm on the Sunday at the end of the assigned week. You may attempt each quiz an unlimited number of times. However, your grade will be the **higher score of the first two attempts**. The 10 best quiz scores will each count toward 1.5% of your final grade so that the weekly quiz assignment counts toward 15% of the final grade.

The Research in Action assignments **require mastery**. You will receive 1% for each completed activity to a maximum of 10%.

2. Seminars

You will attend and participate in approximately 9 seminars. Seminars are essential in learning how to develop a research plan and write a proposal. During the seminars, you will work on the following collaborative learning activities:

- Learn how to conduct a library search for journal articles
- Find out the structure of psychology journal articles
- Create research questions and hypotheses
- Participate in self-reflection exercise about your learning in research methods
- Learn how to write an introduction, methods, and results section for a research paper

### Seminar Reflections

At the end of each weekly seminar, students will submit a completed seminar reflection to their course TA. These reflections will help students identify their topics of interest, explore research ideas, and clarify course concepts. Seminar reflections will be marked on the basis of completion and demonstration of exploration of course concepts (0, 1, or 2). Students will be asked to complete 9 reflections and will have the opportunity to drop their lowest grade.

## Plan for Research Proposal

Working individually students will develop a plan for their research proposal that outlines your current plan for your research proposal, including: 1) Your general topic of interest, 2) Your research question or questions, 3) The identified variables of interest, 4) Operational definitions for the identified variables of interest, 5) General description of proposed methodology, and 6) a list of five related peer reviewed journal articles. APA Referencing is not *yet* required. Maximum two pages double spaced (not including list of references).

### 3. Research Proposal

Working individually, students will prepare a research paper which outlines the justification and methodology for a research project. While the project is not to be conducted, a results section is to be written as if the project was completed. APA guidelines for scientific writing will be followed and a detailed rubric will be provided.

### 4. Midterm

The midterm exam (Oct. 24) will comprise 40 multiple-choice questions similar to those on the weekly quizzes. The midterm will cover material from chapters 1 to 7.

### 5. Final Exam

The final exam will comprise 60 multiple-choice questions similar to those on the weekly quizzes. There will be 10 questions on material from chapters 1 to 7, and 50 questions on material from chapters 8 to 13.

## Course Policies

**Attendance:** Regular attendance at lectures is strongly recommended. Although lectures will closely follow the presentation in the textbook, many students find the material challenging. My goal is to communicate key concepts in a clear and uncomplicated fashion.

**Effective time management is critical.** To succeed in this course, it is essential that you keep up with the readings, weekly quizzes research in action activities, and seminar assignments. You should take a disciplined approach and attend lectures and seminars. You are encouraged to ask the professor and course coordinator questions when you are struggling.

### **Late or missed deadlines:**

**For the plan for research proposal,** it is at the discretion of your TA as to whether they will accept late assignments. Please do not email the course instructor. **If an extension is granted,** the assignment should be submitted to the CourseLink Dropbox, on the extended due date. After the extension period has expired, 5% of the value of the report will be deducted for each additional day of delay. After 3 calendar days, the grade received will be 0%.

**For the research proposal**, late submissions will be penalized at a rate of 5% per day and will not be accepted after 1 week past the deadline. If there is a valid reason to require an extension (see above), a penalty may be avoided. In such a case, you must email requests for consideration to the course coordinator (vmavanda@uoguelph.ca), and you must cc' your TA in any such email.

**For the midterm**, in the event that a student misses the midterm exam due to documented medical, psychological or compassionate reasons, then the final exam will be count toward 45% of the final grade. If a student fails to provide appropriate grounds for academic consideration, the grade on the missed midterm will be 0.

**For the final exam**, Students who do not write the final examination should follow the University's procedures for requesting academic consideration (see below).  
Undergraduate Grading Procedures

### **Page Limits:**

Marks will be docked for exceeding the page limit on your research proposal and research plan. 5% deduction if longer than ½ page or more over the page limit

### **Course Policy on Group Work:**

Each student is expected to complete all assignments on their own. If there is evidence that students are collaborating while completing online assessments, then those cases will be dealt with as per the regulations on Academic Misconduct. However, students are encouraged to form study groups in preparation for the graded assessments.

### **Course Policy regarding use of electronic devices and recording of lectures:**

*Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.*

## **University Policies**

### **Academic Consideration**

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for

Academic Consideration:

[Academic Consideration, Appeals and Petitions](#)

[Grounds for Academic Consideration](#)

## **Academic Misconduct**

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.

The Academic Misconduct Policy is detailed in the Undergraduate Calendar:

[Academic Misconduct Policy](#)

## **Accessibility**

The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact [Student Accessibility Services](#) as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 54335 or email [accessibility@uoguelph.ca](mailto:accessibility@uoguelph.ca) or the [Student Accessibility Services Website](#)

## **Course Evaluation Information**

Please refer to the [Course and Instructor Evaluation Website](#) .

## **Drop date**

The last date to drop one-semester courses, without academic penalty, is Friday November 2, 2018.

For regulations and procedures for Dropping Courses, see the [Schedule of Dates in the Academic Calendar](#).

[Current Undergraduate Calendar](#)