PSYC302: Advanced Research Methods (Winter 2022)

CREDITS: 3.0

DELIVERY: **Synchronous lecture via Zoom**. Please note that the lectures will NOT be recorded and that it is prohibited to record any content from the course. *Note that delivery of this course will switch to **in-person** delivery on February 28th unless otherwise directed by the University.*

CLASS TIME: Mondays from 11:30 AM -1:00 PM & Thursdays from 1:00-2:30 PM (EST). See below for lab times.

LOCATION: Class will be held at the above times via Zoom (link available on onQ). *In-person class will be held in **Botterell Hall Room B143***. See below for the lab location.

PRE-REQUISITES: PSYC301/3.0 with a minimum grade of C and registration in a PSYC Major Plan

INSTRUCTOR INFORMATION

Name: Valentina Mihajlovic, MSc (she/her). Feel free to call me Tina.
Office address: Humphrey 318 (in-person meetings currently not available)
Office hours: Mondays from 1:30-2:30 PM EST via Zoom (link available on onQ) or by appointment (please email me for an appointment which will be held via Zoom)
Email: valentina.mihajlovic@queensu.ca
About me: Chances are that we met in PSYC301 last semester, but for those who I have not yet had the pleasure of meeting, allow me to introduce myself. As outlined above, my name is Tina, and I am a PhD Candidate in the Pain Lab. I genuinely enjoy statistics, so much so that I developed and taught PSYC302 labs for the past three years. This year, I am shifting gears and will be teaching you all the conceptual logic behind multivariate techniques and the research process in general. I believe in keeping teaching student-centered, so I will focus on helping you take ownership over your learning. My aim as your PSYC302 instructor this semester is to advance your understanding of statistical methods and foster your research interests and critical thinking skills so that you feel prepared to move forward in your academic careers. Though my current research areas are primarily in clinical psychology, health psychology, and organizational behaviour, I am happy to chat about various research and the grad school experience in general.

TEACHING ASSISTANT INFORMATION

Name	Lab Section	Office Hours	Email
Kat Fretz	Mondays, 2:30-5:30 PM (*Section 002*)	Thursdays, 2:30 PM	kf80@queensu.ca
Chelsea Wood-Ross	Wednesdays, 8:30-11:30 AM (*Section 003*)	Wednesdays, 11:30 AM	cswr@queensu.ca
Maeve Mulroy	Fridays, 8:30-11:30 AM (*Section 005*)	Thursdays, 3:30 PM	mem30@queensu.ca
Megan Wylie	Fridays, 2:30-5:30 PM (*Section 004*)	Wednesdays, 10 AM	msw4@queensu.ca

Until February 28th, all labs will be **online and synchronous**. Note that the Zoom links for all labs are available on onQ; all lab times are EST. *After February 28th, labs will be in-person and held in **Humphrey Hall 219**.*

IMPORTANT UNIVERSITY DATES

January 10th	Winter term classes begin
January 21st	Last date to add Winter term classes
February 21st	Family Day (University closed)
February 22nd-25th	Reading Week (Classes will not be held)
March 4th	Last day to drop Winter term courses without academic penalty
March 15th	Deadline to obtain recommendations for disability-based accommodations and short-term medical conditions from Accessibility Services. Deadline to apply for relief from April exam conflicts and to obtain accommodations for language-based or religious observance through the Exams Office.
April 2nd	Good Friday (University closed)
April 8th	Winter term classes end
April 9th-13th	Winter term pre-examination study period
April 14th-30th	Winter term examination period
May 12th-15th	Winter term centralized deferred exam period

EQUITY, DIVERSITY, AND INCLUSIVITY STATEMENT

Queen's University recognizes that the values of equity and diversity are vital to, and in harmony with, its educational mission and standards of excellence. It acknowledges that direct, indirect and systemic discrimination exists within our institutional structures, policies and practices and in our community. These take many forms and work to differentially advantage and disadvantage persons across social identities such as race, ethnicity, disability, gender identity, sexual orientation, faith and socioeconomic status, among other examples.

LAND ACKNOWLEDGEMENT

Let us acknowledge that Queen's University is situated on the territory of the Haudenosaunee and Anishinaabek. We are grateful to be able to live, learn, work, and play on these lands.

COURSE DESCRIPTION

The primary purpose of this course is to prepare you to do an undergraduate thesis project in PSYC501. To do this, you will need to know how to write a proposal, one of the most important forms of scientific communication. To know how to write a proposal, you will need to know how to connect theory with research questions with hypotheses with study design and measures with statistical tests. Statistically, we will cover the **concepts**, **procedures**, and **interpretations** of several multivariate methods.

PSYC302 will build on your knowledge of univariate methods (e.g., t-tests, correlations) and issues from PSYC301, so we will delve into the issues that arise when you need to analyze two

or more independent and/or dependent variables. After covering the basics of data cleaning and reduction, we will cover each of the three major multivariate methods: factor analysis, MANOVA, and regression. These three are mathematically related to each other, and most other techniques can be understood as variations of these three. Weekly labs will focus on SPSS procedures using these three methods, as well as clarify issues from lecture and the homework assignments.

Although statistics are based on mathematical formulas that represent the relationships among variables, the intent of this course is to focus on statistics as a means of principled argument (Abelson, 1995). We use statistics to make inferences about the true nature of the world, to answer research questions, and to test theories. Hence, the goals of the course are to make sure that you walk away understanding the conceptual underpinnings of each technique, the SPSS procedures necessary to conduct these analyses, and the skills to be able to critically interpret your own results and the claims of the research you encounter throughout your careers. Thus, **this is not a course of memorization but training in how to be an effective researcher**.

COURSE LEARNING OUTCOMES

By the end of the course, you will be able to:

- Comprehend the basics of multivariate statistical methods
- Utilize statistical resources to understand variations and extensions of these methods
- Conceptually link research questions to appropriate methods
- Write a coherent research proposal

COURSE MATERIALS

(Strongly) Recommended Text (you should have this from PSYC301):

Field, A. (2018). *Discovering Statistics Using IBM SPSS Statistics* (5th Edition). Thousand Oaks, CA: Sage Publications.

Required Statistical Software (you should have this downloaded from PSYC301):

SPSS version 27

COURSE TIMELINE

Week	Date	Lecture Topic	Lab Topic	Assessment
1	Jan. 10	Orientation	Orientation	
	Jan. 13	The Basics		
2	Jan. 17	PSYC501 Info Session on Zoom	SPSS & Basics	
	Jan. 20	The Art of the Proposal I		
3	Jan. 24	Data Management	Messy Data	
	Jan. 27	Data Reduction		
4	Jan. 31	Data Reduction cont.	Data Reduction	Proposal 1 due February 4th
	Feb. 3	GLM Intro		
5	Feb. 7	ANCOVA	PCA/FA	Peer Feedback (Proposal 1) due February 11th
	Feb. 10	MANOVA		
6	Feb. 14	MANOVA cont.	GLM & ANCOVA	Homework 1 due February 18th
	Feb. 17	The Art of the Proposal II		
Reading Week	Feb. 21	No Lectures	No Labs	
	Feb. 24			
7	Feb. 28	Repeated Measures	MANOVA	
	Mar. 3	Mixed Models		
8	Mar. 7	Mixed Models cont.	Repeated Measures	Proposal 2 due March 11th
	Mar. 10	Multiple Regression		
9	Mar. 14	Multiple Regression cont.	Multiple Regression	Peer Feedback (Proposal 2) due March 18th
	Mar. 17	The Art of the Proposal III		
10	Mar. 21	Multiple Regression cont.	Moderated Regression	Homework 2 due March 25th
	Mar. 24	Logistic Regression		
11	Mar. 28	Mediation (PROCESS Macro)	Mediation	
	Mar. 31	Mediation (PROCESS Macro)		
12	Apr. 4	Intro to SEM & MLM	Mediation Cont.	Homework 3 due April 8th
	Apr. 7	Wrap-Up & Review		
	Apr. 15			Final Proposal due April 15th

SUGGESTED TIME COMMITMENT

In this course, you should expect to invest on average 10 to 12 hours per week. This will include the time you spend in class and lab, studying course material, practicing course objectives, and participating in course activities and assessments. You are encouraged to adhere to a pre-determined study schedule as you will be more likely to complete the course on time successfully.

ASSESSMENT

Assignment	Due Date (all assignments due by 11:59 PM EST)	Points Toward Final Grade	Percent of Final Grade
Homework 1	February 18th	10	10%
Homework 2	March 25th	10	10%
Homework 3	April 8th	20	20%
Proposal 1	February 4th	10*	10%
Peer Feedback for Proposal 1	February 11th	0*	0%
Proposal 2	March 11th	20*	20%
Peer Feedback for Proposal 2	March 18th	0*	0%
Final Proposal	April 15th	30	30%
		= 100 Points	= 100%

* *You will not be graded on your peer feedback BUT you will get a **ZERO for your OWN proposal if you do not submit your review of a peer's proposal by the deadline***.

All assignments will be submitted to onQ. When submitting your assignments, please label the files as follows:

- For homework assignments → lastname_Homework 1; lastname_Homework 2; lastname_Homework 3
- For proposals → lastname_Proposal 1; lastname_Proposal 2; lastname_FinalProposal

Each assignment will have a three-day grace period. That is, **your assignments are due on the due date posted, but will be accepted, without penalty, up to 72 hours afterwards**. Assignments not submitted by that time will be deemed late; **for each day late, 10% of assigned points for the assignment will be deducted**, unless the instructor is aware of a documented accommodation or extenuating circumstance as soon as possible before the deadline (please see the section entitled "Academic Considerations for Students in Extenuating Circumstances" for more information). Short term academic consideration is therefore built into all assignment due dates and will not be extended past this three-day grace period.

Homework Assignments. There will be three homework assignments for which you will have one week to complete. Questions will test knowledge of basic concepts, your ability to interpret statistical results, and the connection between research questions, study design, measures, and the appropriate statistical tests. As such, homework assignments will be associated with both lecture and lab content.

Proposals. You will be given two graded opportunities to practice proposal writing to prepare you for the final 5-page proposal. We will have a whole lecture on how to write good proposals before each Proposal is due. The rubric for each will be available on onQ.

Proposal 1 will be one single-spaced page using basic (PSYC301) statistics (e.g., t-test, correlation) to test any question related to psychology containing:

(1) A clearly stated aim/objective/research question,
(2) Justification of a clearly stated hypothesis,
(3) Appropriate design and measures, and
(4) Appropriate statistics to test the hypothesis.

You will get points for adhering to each of the above four criteria. Each student will then randomly be assigned one peer's proposal for review. Peers will provide feedback via track changes and comments in Word within one week on each of the four points above. *You will not be graded on your peer feedback BUT you will get a ZERO for your OWN proposal if you do not submit your review of a peer's proposal by the deadline.*

Proposal 2 will be the same process except that the statistics must be multivariate (i.e., the stuff we cover in PSYC302; e.g., ANCOVA, MANOVA). You must choose a completely different research question from Proposal 1. The same grading rubric will be applied, but with more points per section, and the same peer review process is required.

The Final Proposal will be a five-page, double-spaced proposal, which will be graded by the same rubric but with even more points per section. There will be no peer review.

GRADING SCHEME

All components of this course will receive numerical percentage marks. The final grade you receive for the course will be derived by converting your numerical course average to a letter grade according to the Queen's Official Grade Conversion Scale:

Queen's Official Grade Conversion Scale

Grade	Numerical Course Average (Range)
A+	90-100
A	85-89
A-	80-84
B+	77-79
B	73-76
B-	70-72
C+	67-69
C	63-66
C-	60-62
D+	57-59
D	53-56
D-	50-52
F	49 and below

QUESTIONS ABOUT THE COURSE AND CONTACTING THE TEACHING TEAM

Throughout this course, you may come upon some general questions about the course and any assignments. If you think that your question may benefit other students, you are invited to post your question in the Course Questions discussion forum on onQ. Feel free to help answer your peers' questions on this forum. The teaching team will monitor this discussion forum and answer questions. Most questions are answered within 24 hours, excluding evenings, weekends, and holidays. Any other questions that you would prefer to share privately, please contact your lab TA (see relevant email listed at the top of this syllabus) prior to contacting the instructor.

COURSE ANNOUNCEMENTS

Throughout the course, I will routinely post course news in the Announcements section of the course homepage. I encourage you to actively check the course onQ main page for course announcements throughout the semester for reminders and additional course information or learning opportunities. It might be helpful to **turn on your onQ notifications**.

ACADEMIC ACCOMMODATIONS FOR DISABILITIES

Queen's University is committed to achieving full accessibility for people with disabilities. Part of this commitment includes arranging academic accommodations for students with disabilities to ensure they have an equitable opportunity to participate in all their academic activities. The Senate Policy for Accommodations for Students with Disabilities was approved at Senate in November 2016. If you are a student with a disability and think you may need academic accommodations, you are strongly encouraged to contact **the Queen's Student Accessibility Services** (**QSAS**) and register as early as possible. For more information, including important deadlines, please visit the QSAS website. **If you have registered for academic accommodations from QSAS, please upload your accommodations letter to the 'Accommodations Letter' folder under the Assessments → Assignments tab on onQ.**

ACADEMIC CONSIDERATION FOR STUDENTS IN EXTENUATING CIRCUMSTANCES

Academic consideration is a process for the university community to provide a compassionate response to assist students experiencing unforeseen, short-term extenuating circumstances that may impact or impede a student's ability to complete their academics. This may include but is not limited to:

- Short-term physical or mental health issues (e.g., stomach flu, pneumonia, COVID-19 diagnosis, vaccination, etc.)
- Responses to traumatic events (e.g., Death of a loved one, divorce, sexual assault, social injustice, etc.)
- Requirements by law or public health authorities (e.g., court date, isolation due to COVID exposure, etc.)

Queen's University is committed to providing academic consideration to students experiencing extenuating circumstances. For more information, please see the Senate Policy on Academic Consideration for Students in Extenuating Circumstances.

Each Faculty has developed a protocol to provide a consistent and equitable approach in dealing with requests for academic consideration for students facing extenuating circumstances. Arts and Science undergraduate students can find the Faculty of Arts and Science protocol and the portal where a request can be submitted. Students in other Faculties and Schools who are enrolled in this course should refer to the protocol for their home Faculty.

If you need to request academic consideration for this course, you will be required to provide the name and email address of the instructor. Please use the following contact information:

Instructor name: Valentina Mihajlovic
Instructor email address: valentina.mihajlovic@queensu.ca

Students are encouraged to submit requests as soon as the need becomes apparent and to contact their instructor as soon as possible once Consideration has been granted. Any delay in contact may limit the Consideration options available.

For more information on the Academic Consideration process, what is and is not an extenuating circumstance, and to submit an Academic Consideration request, please see this website.

ACADEMIC INTEGRITY

Queen's students, faculty, administrators and staff all have responsibilities for upholding the fundamental values of academic integrity: honesty, trust, fairness, respect, responsibility and courage. These values are central to the building, nurturing, and sustaining of an academic community in which all members of the community will thrive. Adherence to the values expressed through academic integrity forms a foundation for the "freedom of inquiry and exchange of ideas" essential to the intellectual life of the University (see the Senate Report on Principles and Priorities).

Students are responsible for familiarizing themselves with the regulations concerning academic integrity and for ensuring that their assignments and their behaviour conform to the principles of academic integrity. Information on academic integrity is available in the Arts and Science Calendar (see Academic Regulations), on the Arts and Science website, and from the instructor of this course. Departures from academic integrity include plagiarism, use of unauthorized materials, facilitation, forgery and falsification, and are antithetical to the development of an academic community at Queen's. Given the seriousness of these matters, actions which contravene the regulation on academic integrity carry sanctions that can range from a warning or the loss of grades on an assignment to the failure of a course to a requirement to withdraw from the university.

Plagiarism. Because this course requires the submission of original writing assignments, each student is responsible to know and understand what plagiarism is and how to avoid it. Regardless of how and where you retrieve information, the principles of academic integrity apply. Please visit these helpful websites to help you make sure that you are able to write things in your own words:

- https://www.queensu.ca/academicintegrity/students/avoiding-plagiarismcheating

- https://integrity.mit.edu/handbook/academic-writing/avoiding-plagiarism-paraphrasing
- http://writing.wisc.edu/Handbook/QPA_paraphrase.html

COPYRIGHT OF COURSE MATERIALS

Unless otherwise stated, the material on the course website is copyrighted and is for the sole use of students registered in PSYC302. Course materials created by the course instructor, including all slides, presentations, handouts, assignments, and other similar course materials, are the instructor's intellectual property. The material on the website may be downloaded for a registered student's personal use but shall not be distributed or disseminated to anyone other than students registered in this course. It is a departure from academic integrity to distribute, publicly post, sell or otherwise disseminate an instructor's course materials or to provide an instructor's course materials to anyone else for distribution (including note sharing sites), posting, sale or other means of dissemination without the instructor's express consent. A student who engages in such conduct may be subject to penalty for a departure from academic integrity and may also face adverse legal consequences for infringement of intellectual property rights.

TECHNOLOGY REQUIREMENTS

Web Browsers

onQ performs best when using the most recent version of the web browsers, Chrome or Firefox. Safari and Edge are strongly discouraged as these web browsers are known to cause issues with onQ.

Internet Speed

While a wired Internet connection is encouraged, we recognize that most students rely on a wireless connection. A minimum download speed of 10 Mbps and up to 20 Mbps for multimedia is recommended. Click here for an Internet speed test.

Support

For technology support ranging from setting up your device, issues with onQ, installing SPSS, to issues with SPSS, contact the ITS Support Centre.

TURNITIN STATEMENT

This course uses Turnitin, a third-party application that helps maintain standards of excellence in academic integrity. Normally, students will be required to submit their course assignments through onQ to Turnitin. In doing so, students' work will be included as source documents in the Turnitin reference database, where they will be used solely to detect plagiarism.
Turnitin is a suite of tools that provide instructors with information about the authenticity of submitted work and facilitates the process of grading. Turnitin compares submitted files against its extensive database of content and produces a similarity report and a similarity score for each assignment. A similarity score is the percentage of a document that is similar to content held within the database. Turnitin does not determine if an instance of plagiarism has occurred. Instead, it gives instructors the information they need to select the authenticity of work as a part of a larger process.

Please read Turnitin's Privacy Pledge, Privacy Policy, and Terms of Service, which govern users' relationship with Turnitin. Also, please note that Turnitin uses cookies and other tracking technologies; however, in its service contract with Queen's, Turnitin has agreed that neither Turnitin nor its third-party partners will use data collected through cookies or other tracking technologies for marketing or advertising purposes. For further information about how you can exercise control over cookies, see Turnitin's Privacy Policy.

Turnitin may provide other services that are not connected to the purpose for which Queen's University has engaged Turnitin. Your independent use of Turnitin's other services is subject solely to Turnitin's Terms of Service and Privacy Policy, and Queen's University has no liability for any independent interaction you choose to have with Turnitin.

NETIQUETTE STATEMENT

University is a place to share, question, and challenge ideas. Each student brings a different set of lived experiences. You can help to create a safe, respectful place for learners by promoting the following guidelines:

1. Make a personal commitment to learn about, understand, and support your peers.
2. Assume the best of others and expect the best of them.
3. Acknowledge the impact of oppression on other people's lives and make sure your writing is respectful and inclusive.
4. Recognize and value the experiences, abilities, and knowledge each person brings.
5. Pay close attention to what your peers write before you respond. Think through and re-read your writings before you post or send them to others.
6. It's alright to disagree with ideas, but do not make personal attacks.
7. Be open to being challenged or confronted on your ideas and challenge others with the intent of facilitating growth. Do not demean or embarrass others.