

**PSYC 302: Advanced Research Methods  
Queen's University - Winter 2021**

Lectures: on video

Labs: Synchronized Zoom

Instructor: Dr. Tom Hollenstein ([tom.hollenstein@queensu.ca](mailto:tom.hollenstein@queensu.ca))

Head TA: Tina Mihajlovic [valentina.mihajlovic@queensu.ca](mailto:valentina.mihajlovic@queensu.ca)

Assistant TA: Chelsea Wood-Ross: [Chelsea.wood-ross@queensu.ca](mailto:Chelsea.wood-ross@queensu.ca)

Lab Sections (Zoom info on onQ; all times Eastern Time Zone)

Tuesday 2:30-5:30pm Lab section 003: Tina Mihajlovic [valentina.mihajlovic@queensu.ca](mailto:valentina.mihajlovic@queensu.ca)

Thursday 8:30am-11:30am lab section 005: Megan Wylie: [megan.wylie@queensu.ca](mailto:megan.wylie@queensu.ca)

Thursday 11:30am-2:30pm lab section 004: Alison Crawford [abc4@queensu.ca](mailto:abc4@queensu.ca)

Friday 2:30-5:30pm Lab section 002: Katherine Fretz [11kf23@queensu.ca](mailto:11kf23@queensu.ca)

Required Software: SPSS 27

Recommended Texts:

Field, A., (2018). *Discovering Statistics Using IBM SPSS Statistics* (5<sup>th</sup> ed.). California: Sage Publications. YOU ALREADY HAVE THIS FOR PSYC301

Howitt, D., & Cramer, D., (2017). *Introduction to SPSS in Psychology* (7<sup>th</sup> ed.). United Kingdom: Pearson Education.

Abelson, R. P. (1995). *Statistics as Principled Argument*. Hillsdale, NJ: Laurence Earlbaum.

Pinker, S. (2014). *The Sense of Style: The Thinking Person's Guide to Writing in the 21<sup>st</sup> Century*. New York: Penguin

Tabachnick, B. G. & Fidell, L. S. (2012). *Using Multivariate Statistics*. New York: Pearson

\*\*\*\**See also Excel file on onQ with list of free textbooks*

***Course Description.***

The primary purpose of this course is to prepare you to do an undergraduate thesis project in

I assume you already have a good grasp of univariate methods (e.g., t-tests, correlations) and issues so that we may delve into the issues that arise when you need to analyze two or more dependent and/or independent 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 as well as clarify issues from lecture and the homeworks.

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, 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 not a course of memorization but training in how to be an effective researcher.

### ***Course Requirements.***

Registered students are expected to watch every lecture and attend every lab. Recommended course textbooks are for your edification. I have given you many options, with most of them free. The more you avail yourself of any one of them, the better you will do in the course. I suggest you peruse them to see which you prefer. Then, when we are on a particular topic for that week, consult your text for their way of explaining and demonstrating the technique. If you have read and understood this then please send the instructor an email with the subject line PSYC302 and the name of your favourite statistical test in the body of the email.

The other readings are very important resources and ones that I recommend to everyone doing psychology research. Abelson's perspective in *Statistics as Principled Argument* is brilliant and will be something to refer to even after the course is done. Pinker's expertise as a language researcher and writer has culminated in his excellent book about writing, *The Sense of Style*. If you read these two books, I can guarantee that your research acumen and therefore assignments will be better than they would have been otherwise.

**Lectures.** Lectures will be recorded and each week's lectures will be distributed on Mondays. You are required to view all lectures as these will provide the background necessary to succeed in lab, with homeworks, and writing proposals. It will be extremely difficult for you to do well in this course without watching every lecture, making sure you understand the material for that lecture, and working with the material (slides and text) on your own.

**Homework.** There will be 3 homework assignments for which you will have one week to complete. Questions will test k

**Proposals.** You will be given two opportunities to practice proposal writing in order to prepare you for the final assignment, a 5-page proposal. We will have a whole lecture on how to write good proposals before each Proposal is due. Rubric for each is on onQ.

Proposal 1 (10 points) will be one single-spaced page using basic (PSYC301) statistics (e.g., t-test, correlations) to test any question related to psychology containing:

Queen's University has partnered with the third-party application Turnitin to help maintain our standards of excellence in academic integrity. Turnitin is a suite of tools that provide instructors with information about the authenticity of submitted work and facilitates the process of grading. Submitted files are compared against an extensive database of content, and Turnitin 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 determine the authenticity of work as a part of a larger process. There is information on the course onQ site about Turnitin policies. See also privacy statement at: [http://turnitin.com/en\\_us/about-us/privacy](http://turnitin.com/en_us/about-us/privacy)

### **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 (see [www.academicintegrity.org](http://www.academicintegrity.org)). These values are central to the building, nurturing and sustaining of an academic community in which all members of the community will thrive.

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the intellectual property of the instructor. 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, 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.

### **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 wired internet connection is encouraged, we recognize that students may be relying on a wire-less connection. A minimum download speed of 10 Mbps and up to 20 Mbps for multimedia is recommended. To test your internet speed, <https://www.speedtest.net/> For technology support ranging from setting up your device, issues with onQ to installing software, contact ITS Support Centre <https://www.queensu.ca/its/itsc>

### **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 of their academic activities. The Senate Policy for Accommodations for Students with Disabilities was approved at Senate in November 2016 (see <https://www.queensu.ca/secretariat/sites/webpublish.queensu.ca.uslclwww/files/files/policies/senateandtrustees/ACADACCOMMPOLICY2016.pdf> ). 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 at: <http://www.queensu.ca/studentwellness/accessibility-services/>

### **Extenuating Circumstances**

This course is structured using the principles of universal design in order to minimize any needs for specific accommodations. Nonetheless, there may be circumstances for which a student requires accommodation

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 under-graduate students can find the Faculty of Arts and Science protocol and the portal where a request can be submitted at: <http://www.queensu.ca/artsci/accommodations> . Students in other Faculties and Schools who are enrolled in this course should refer to the protocol for their home Faculty.

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**Course Schedule**

<b>week</b>	<b>Date</b>	<b>Topic</b>	<b>Due (always 5pm EST)</b>
1	Jan. 11-15	Orientation	
		The Basics & Overview	
		<i>Lab 1: Orientation</i>	
2	Jan. 18-22	501 info session on Zoom	<i>11am EST Jan 18 (see onQ)</i>
		The Art of the Proposal I	
		<i>Lab 2: SPSS &amp; Basics</i>	
3	Jan. 25-29	Data Management	
		Data Reduction I	
		<i>Lab 3: SPSS &amp; Basics</i>	
4	Feb 1-5	Data Reduction II	Feb 1: Proposal 1
		GLM intro	
		<i>Lab 4: Messy Data</i>	
5	Feb. 8-12	ANCOVA	Feb 8: Peer feedback
		MANOVA	
		<i>Lab 5: Data Reduction</i>	
6	Feb. 15-19	<b>READING WEEK</b>	
7	Feb. 22-26		
		The Art of the Proposal II	
		<i>Lab 6: PCA/Factor Analysis</i>	
8	Mar 1-5	MANOVA	Mar. 1: Homework 1
		Repeated Measures	
		<i>Lab 7: ANCOVA &amp; GLM</i>	
9	Mar. 8-12	Mixed Models	
		Multiple Regression	Mar. 12: Proposal 2
		<i>Lab 8: MANOVA</i>	

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