

# PSYC08: ADVANCED DATA ANALYSIS IN PSYCHOLOGY UNIVERSITY OF TORONTO SCARBOROUGH

## SUMMER 2020 SYLLABUS – ONLINE

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**Instructor:** Olivia Podolak Lewandowska, PhD

**Email:** [olivia.podolak@mail.utoronto.ca](mailto:olivia.podolak@mail.utoronto.ca)

**Office Hours:** Thursdays from 12 – 1 p.m.

**Lectures:** Live on Wednesdays from 2 – 5 p.m. on Bb Collaborate (Lectures will be recorded).

Teaching Assistants	Email	Tutorial Time
Lawrence Guo	<a href="mailto:linn.guo@mail.utoronto.ca">linn.guo@mail.utoronto.ca</a>	Mondays 11 – 12 p.m.
Daniel Krzyzanowski	<a href="mailto:daniel.krzyzanowski@mail.utoronto.ca">daniel.krzyzanowski@mail.utoronto.ca</a>	Mondays 3 – 4 p.m.
Greg Depow	<a href="mailto:greg.depow@mail.utoronto.ca">greg.depow@mail.utoronto.ca</a>	Mondays 5 – 6 p.m.
Marco Sama	<a href="mailto:marco.sama@mail.utoronto.ca">marco.sama@mail.utoronto.ca</a>	Mondays 10 – 11 p.m.
Dilakshan Srikanthan	<a href="mailto:dilakshan.srikanthan@mail.utoronto.ca">dilakshan.srikanthan@mail.utoronto.ca</a>	Tuesdays 10 – 11 a.m.
Anna Vasilevskaya	<a href="mailto:hanna.vasileuskaya@mail.utoronto.ca">hanna.vasileuskaya@mail.utoronto.ca</a>	Tuesdays 11 – 12 p.m.
Simar Moussaoui	<a href="mailto:simar.moussaoui@mail.utoronto.ca">simar.moussaoui@mail.utoronto.ca</a>	Tuesday 3 – 4 p.m.
Vignash Tharmaratnam	<a href="mailto:vignash.tharmaratnam@mail.utoronto.ca">vignash.tharmaratnam@mail.utoronto.ca</a>	Tuesdays 5 – 6 p.m.

*Note: Lectures and tutorials will begin 10 minutes after the hour on Bb Collaborate.*

Please use your university email for all contact with the instructor and TAs. Please include the course code in your email subject, as both PSYB07 and PSYC08 are being taught this semester.

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## Course Description, Prerequisites & Objectives

**From the UTSC Course Calendar:** This course is a continuation of PSYB07H3. The primary focus of this course is on the understanding of Analysis-of-Variance and its application to various research designs. Examples will include *a priori* and *post hoc* tests. Finally, there will be an introduction to multiple regression, including discussions of design issues and interpretation problems.

**Prerequisite:** [PSYB07H3 or STAB23H3 or STAB22H3] and [an additional 0.5 credit at the B-level in Psychology]

**Exclusion:** STAC52H3, PSY202H

**Breadth Requirements:** Quantitative Reasoning

**Enrolment Limits:** Restricted to students in the Specialist/Specialist Co-op and Major programs in Psychology, Mental Health Studies, Neuroscience and Paramedicine. Students in the Minor in Psychology will be admitted if space permits.

*Note: It is the student's responsibility to check whether they have completed the prerequisites for this course. If you have an issue with your prerequisites or if you have any further questions, please contact the instructor and/or the Department of Psychology. A brief refresher of PSYB07 will be provided; however, there is not enough time to re-teach the PSYB07 content in its entirety. Resources will be provided to students who may require a more comprehensive review of the prerequisite material.*

## Course Objectives

Statistics are utilized in most (if not all) fields of research, and beyond. This widespread application of statistics makes it imperative for you to possess the knowledge to be successful in your professional career, and generally a good consumer of statistical information. Additionally, in this class, you will learn how to conduct various statistical analyses, apply them to various research designs, and report them according to the guidelines set by the American Psychological Association.

## Required Course Textbook

Bors, D. (2018). *Data analysis for the social sciences: Integrating theory and practice*. London, UK: SAGE Publications Ltd.

*Note: Hardcopies of the textbook can be acquired at the University Bookstore. Electronic copies can be acquired on Amazon Kindle and Google Play.*

It is expected that students read the textbook to enhance their learning and understanding of the course content, as it delves into important theories, concepts and calculations in greater detail than can be fit into lecture. Moreover, the textbook contains an abundance of practice questions, challenge questions, recommended readings, as well as complementary interactive demonstrations online that help illustrate various topics covered in this course.

Interactive Demos & Practice Questions: <https://study.sagepub.com/bors>

## Course Webpage

Quercus will contain important course-related announcements, lecture slides (to be posted prior to each lecture), tutorial slides, lecture recordings, practice questions, and course marks. **You must check Quercus regularly for course updates.**

## Lectures

Lectures will be live-streamed on Wednesdays from 2 – 5 p.m. via Bb Collaborate, and recorded for students who cannot make it to the live-stream. It is **strongly encouraged** that you attend the live-stream of the lecture because it will be more engaging and interactive than watching a recorded lecture only. There is also a (albeit very small) chance that the recording might not work due to issues with technology. Most importantly, attending a regularly-scheduled lecture can provide structure to your studies and can help reduce procrastination, which can be catastrophic for a cumulative course like statistics.

## Tutorials

While attending tutorials is not mandatory for this course, it is **strongly encouraged** that students attend tutorials regularly in order to further their understanding of the material being taught in lecture. Tutorials will only be recorded at the discretion of the TA, so it is not guaranteed that there will be tutorial recordings available for later use. To help encourage attendance, students do not need permission from TAs or the instructor if they need to switch tutorials due to scheduling conflicts, or because they find that a particular TA's teaching style suits their learning better. In fact, students are encouraged to attend more than one tutorial for additional practice, since the TAs may differ slightly in the content they cover.

That being said, **tutorials are not substitutes for lecture.** There is simply not enough time to review all the concepts taught in lecture in an hour. Furthermore, there might be slight discrepancies between the material taught in lecture and in tutorial. Generally speaking, content presented in tutorial but not in lecture will not be tested; however, if you are unsure, please do not hesitate to contact the instructor for clarification.

## Facilitated Study Groups

**NOTE: The instructor does not control the scheduling of FSG sessions – all sessions are scheduled at the availability and discretion of the Centre for Teaching and Learning and its staff.**

FSG sessions were developed by the Centre for Teaching and Learning as an important resource in helping students master the concepts in statistics, including those covered in PSYC08. However, FSG facilitators are **not** specifically hired by the Department of Psychology to help plan or support PSYC08, and are thus not accountable to instructor and/or TAs when creating FSG content. It is **solely your responsibility** (not the responsibility of the FSG facilitators) to know what content you are supposed to study for in this course. FSG facilitators should not be your primary point of contact if you have questions or concerns about PSYC08.

## Course Assessments

### 1. ONLINE QUIZZES [10%]

The nature of statistics is inherently cumulative – that is, theories, concepts and calculations learned at the beginning of the semester are utilized up to the end of this course (and beyond!). As a result, it is **imperative** that you watch the lectures regularly and ensure that you do not fall behind in your work. To help keep you on track and motivated to study throughout the semester, there will be short quizzes every lecture (maximum one hour) that will test your understanding of the material presented in lecture every week. The quizzes will be due one hour before the following week's lecture (i.e., 1 p.m. on Wednesdays). **The top 7 out of 10 quizzes will be counted towards your final grade.**

Understandably, you may be worried that the quizzes will bring down your overall grade because you will not have an opportunity to study the content extensively before taking the quiz. To remedy this, the 10% weight of the quizzes will be added to your final exam (40% + 10% = 50%) if you score higher on your final exam than on the quizzes.

**THERE ARE NO MAKE-UPS FOR ONLINE QUIZZES, EVEN WITH DOCUMENTATION.  
THERE WILL BE NO ACCOMMODATIONS MADE FOR STUDENTS WITH COURSE/WORK CONFLICTS.  
THESE QUIZZES ARE TO BE COMPLETED INDIVIDUALLY.**

### 2. ASSIGNMENTS [20%]

The assignments in this course will: (1) challenge your knowledge of the course content, (2) help refine your skills in scientific writing, specifically pertaining to the results of various statistical analyses, and (3) ultimately prepare you for the final examination. Additional information regarding the assignments will be given closer to the due date.

*Note: It is a student's responsibility to retain copies of their assignments (including hand-written calculations or assignments) in case an assignment goes missing. Students who do not have a copy of their assignment to send upon the request of the instructor or a teaching assistant will be given a zero. Students will not be given an opportunity to re-do or re-submit an assignment if their submission is illegible, or in a corrupt file.*

## 4. MIDTERM EXAM [30%] & FINAL EXAM [40%]

Midterm and final examinations will consist of two parts: a theory portion and a calculation portion. Additional information will be provided closer to the date of the exams.

1) **Theory:** This portion will consist of an oral exam, in which students will be asked to answer questions about the theoretical concepts and how they relate to the statistical analyses taught in the class. The oral exam will be administered in a one-on-one meeting with a randomly assigned TA. Students will also have an option to re-do this portion of the exam, if they feel they did not perform as well as they could have.

2) **Calculation:** For this portion of the exam, you will be sent a PDF with a few calculation questions. You will be required to handwrite your work, and then submit a PDF or a good quality photo to Quercus within a designated time frame.

As mentioned previously, the content of this course is inherently cumulative; therefore, the final exam is technically cumulative as well. The date of the final is not announced by the University until the middle of the term. You should **not** make travel plans until you learn the date of your final exams. You **cannot** take the final at a different date/time unless you have a **verifiable** medical/personal reason that is deemed acceptable by the department. See the section on "Missed Term Work Due to Medical Illness or Emergency" below for more information.

### Grading Summary

1. ONLINE QUIZZES: 10%
2. ASSIGNMENTS: 20%
4. MIDTERM EXAMINATION: 30%
5. FINAL EXAMINATION: 40%

### Extensions & Late Penalties

Short extensions may be granted for good reasons, such as illness, conflict of due dates with assignments for other courses, or personal issues; however, extensions will be granted at the instructor's discretion and are **not guaranteed**. Extension requests must be made **before the due date**.

If an extension has been granted before the assignment is due, there will be no penalty for lateness. If no extension has been granted, **a penalty of 10% per day will apply to late submissions:**

- 10% deduction: 5 minutes to 24 hours late
- 20% deduction: 24 hours & 5 minutes to 48 hours late
- 30% deduction: 48 hours & 5 minutes to 72 hours late
- 40% deduction: 72 hours & 5 minutes to 96 hours late
- 50% deduction: 96 hours & 5 minutes to 120 hours late

**COURSE WORK WILL NOT BE ACCEPTED IF MORE THAN 5 CALENDAR DAYS HAVE PASSED.**

## Course Policies

**Classroom Conduct and Participation:** Our classroom is a place where you should always feel safe and respected. It is also a place that is conducive to learning and intellectual curiosity. Any behaviors compromising this environment will not be tolerated and the student(s) and/or individual(s) will be asked to leave. I work to create an interactive dynamic during my lectures that engages you to think and contribute. I challenge you to use this time to not only become familiar with the content we are discussing, but to also develop your critical thinking skills along with me. It is expected that you sign-in to lectures and tutorials prepared with a pencil, eraser and calculator so that you are able to participate fully and actively.

**Lecture slides:** For your convenience, lecture slides will usually be posted by the evening before a lecture. They will be posted in PDF format in two versions only (3 slides and 4 slides per page).

### LECTURE SLIDES ARE NOT A SUITABLE REPLACEMENT FOR ATTENDING LECTURE.

Lecture slides are not exhaustive and we will regularly cover important material that extends beyond them during lecture. You are responsible for this material with respect to testing. Instructional materials are only for the purpose of learning in this course and must not be distributed or used for any other reason whatsoever. If the instructor has discovered that a student has put any of the course materials into the public domain, has sold the materials, or has given the materials to a person or company that is using them to earn money, the University will support the instructor in asserting and pursuing their rights and copyrights in such matters. Likewise, lecture recordings are to be used exclusively by enrolled students for their personal learning only and are not to be shared in any way.

**E-mail policy:** In most cases, e-mails will be answered within 48 hours of receipt (not including weekends). The email subject should include **our course name** and nature of the inquiry. Emails that you send should contain no more than 1-3 questions and you should try to explain your current understanding of the concept in the email (which will be affirmed or corrected).

If you are not used to writing emails in an academic context, I encourage you to review this online resource so that you adopt proper email etiquette now and in the future:

<https://www.insidehighered.com/views/2015/04/16/advice-students-so-they-dont-sound-silly-emails-essay>

**Office hours:** Office hours are a valuable resource for you to learn more about the class and/or important things related to (but outside of) the class. You should consider visiting the instructor's online office hours if you: (1) would like to discuss course content, (2) have an issue with course performance or progress, or (3) would like to discuss the field of psychology/neuroscience and how to get more involved.

All office hours will be conducted over Bb Collaborate, which does not currently support private meetings. Therefore, if you have a sensitive matter that you would like to discuss privately, please email the instructor.

**Syllabus changes:** There may be minor changes made to the syllabus during the term. You will be notified of these changes immediately and no changes will be instituted that dramatically affect your ability to properly prepare for an assessment or examination (e.g., posting an assignment the week of the midterm).

## Useful Links

### **Statistical help and resources**

Textbook: Interactive Demonstrations <http://statsapp-demos.utsc.utoronto.ca/>  
Facilitated Study Groups <https://www.utsc.utoronto.ca/ctl/twc/facilitated-study-groups-fsg>  
Khan Academy <https://www.khanacademy.org/math/statistics-probability>  
APA Formatting <https://owl.english.purdue.edu/owl/resource/560/01/>

### **Skill building, future planning**

Academic Advising, Career Centre <http://www.utsc.utoronto.ca/aacc/>  
Writing Services <http://www.utsc.utoronto.ca/twc/>  
Presentation Skills <http://www.utsc.utoronto.ca/ctl/presentation-skills>  
Co-op Program <http://www.utsc.utoronto.ca/askcoop/>

### **Your well-being**

Health and Wellness <http://www.utsc.utoronto.ca/hwc/>  
Test anxiety [https://www.anxietybc.com/sites/default/files/Test\\_Anxiety\\_Booklet.pdf](https://www.anxietybc.com/sites/default/files/Test_Anxiety_Booklet.pdf)

### **The Department of Psychology**

UTSC Experiential Learning <http://www.utsc.utoronto.ca/psych/experiential-learning>  
Psychology lab opportunities <http://tinyurl.com/jjq25t7>  
The Psychology & Neuroscience  
Departmental Association <http://www.thepnda.org/>

**Course Topics Outline \*\*\*** (Subject to Revision, depending on when the midterm is scheduled) **\*\*\***

WEEK	TOPIC
1 – May 13*	Syllabus & Review of Concepts from B07 ( <i>Textbook Chapters: 1-6</i> ) <i>No tutorials during first week of class.</i>
2 – May 20	T-Tests vs. Analyses of Variance (ANOVAs) ( <i>Textbook Chapter: 8</i> ) <i>No tutorials on Monday, May 18. Please attend a tutorial on Tuesday, May 19 instead.</i>
3 – May 27	One-Way ANOVA ( <i>Textbook Chapter: 8</i> )
4 – June 3	Randomized Block Design – ANCOVA ( <i>Textbook Chapters: 8 &amp; 9</i> )
5 – June 10	Randomized Block Design – Repeated Measures ANOVA ( <i>Textbook Chapter: 9</i> )
6 – June 17	Non-Parametric Tests – Kruskal-Wallis & Friedman’s Tests ( <i>Textbook Chapters 6, 8 &amp; 9</i> )
7 – June 24*	<b>READING WEEK – NO LECTURES OR TUTORIALS</b>
8 – July 1*	<b>CANADA DAY – NO LECTURES OR TUTORIALS</b>
9 – July 8	Multiple Comparisons – <i>A Priori</i> Tests ( <i>Textbook Chapter: 10</i> )
10 – July 15	Multiple Comparisons – <i>Post Hoc</i> Tests ( <i>Textbook Chapter: 10</i> )
11 – July 22	Factorial ANOVA & Simple Effects ( <i>Textbook Chapter: 11</i> )
12 – July 29	Mixed-Design ANOVA & Simple Effects ( <i>Textbook Chapter: 11</i> )
13 – Aug 5	Open Lecture (Spill-over Content and/or Review) <i>No tutorials on Monday, Aug 3. Please attend a tutorial on Tuesday, Aug 4 instead.</i>

\* = weeks with no in-lecture quizzes

## Missed Term Work Due to Medical Illness or Emergency

All students citing a documented reason for missed term work must submit their request for accommodations **within three (3) business days** of the deadline for the missed work.

**Submit via email to:** Keely Hicks, Departmental Assistant, [keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)

Students must submit **BOTH** of the following:

- (1.) A completed **Request for Missed Term Work Accommodations form** (<http://uoft.me/PSY-MTW>), and
- (2.) **Appropriate documentation** to verify your illness or emergency, as described below.

### Appropriate documentation:

For missed **ASSIGNMENTS** or **TERM TESTS** due to **FLU-LIKE SYMPTOMS or SELF-ISOLATION REQUIREMENTS:**

- Email the Request for Missed Term Work Accommodations form ([uoft.me/PSY-MTW](http://uoft.me/PSY-MTW)) to Keely ([keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)), and
- **Declare** your absence on **ACORN** (Profile & Settings > Absence Declaration)

For missed **ASSIGNMENTS** due to **OTHER ILLNESS:**

- Email the Request for Missed Term Work Accommodations form ([uoft.me/PSY-MTW](http://uoft.me/PSY-MTW)) to Keely ([keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)), along with the Self-Declaration of Student Illness Form ([uoft.me/PSY-self-declare-form](http://uoft.me/PSY-self-declare-form)).

For missed **TERM TESTS** due to **OTHER ILLNESS:**

- Email the Request for Missed Term Work Accommodations form ([uoft.me/PSY-MTW](http://uoft.me/PSY-MTW)) to Keely ([keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)), along with a scan/photo of the **original** copy of the official UTSC Verification of Illness Form ([uoft.me/UTSC-Verification-Of-Illness-Form](http://uoft.me/UTSC-Verification-Of-Illness-Form)) or an **original** copy of the record of visitation to a hospital ER.
- Forms are to be completed in full, clearly indicating the start date, anticipated end date, and severity of illness. The physician's registration # and business stamp are required.
- *Note: If an end date of "ongoing" is specified, the medical note will be assumed to cover a period of **two weeks**. If no end date / an "unknown" end date is specified, the note will be assumed to cover a period of **three business days** (starting from illness start date.)*

For missed **TERM TESTS** due to **ACCESSABILITY REASONS:**

- Meet with your **AccessAbility consultant** and have them email Keely ([keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)) detailing accommodations required.

For missed **ASSIGNMENTS** due to **ACCESSABILITY REASONS:**

- If your desired accommodation is **within the scope** of your Accommodation Letter (ex. your letter includes "extensions of up to 7 days" and you need 1-7 more days), email the Request for Missed Term Work Accommodations form ([uoft.me/PSY-MTW](http://uoft.me/PSY-MTW)) to Keely ([keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)), and attach a **copy of your letter**. Specify how many days extension you are requesting in your email.
- If your desired accommodation is **outside the scope** of your Accommodation Letter (ex. your letter includes "extensions of up to 7 days" but you need more time than that) you will need to meet with your **AccessAbility consultant** and have them email Keely ([keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)) detailing the accommodations required.

For missed **ASSIGNMENTS** or **TERM TESTS** in **OTHER CIRCUMSTANCES:**

Email the Request for Missed Term Work Accommodations form (<http://uoft.me/PSY-MTW>) form to Keely ([keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)), along with:



- For the **death of a family member/friend**, provide a copy of the death certificate.
- For U of T varsity-level or professional **athletic commitments**, an email from your coach or varsity administrator should be sent directly to Keely ([keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)) **well in advance** of the missed work, detailing the dates and nature of the commitment.
- For **religious accommodations**, please email Keely ([keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)) **well in advance** of the missed work.
- For circumstances **outside of these guidelines**, please email Keely ([keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)) **on or before the date of the test / assignment deadline** to describe your circumstances and determine appropriate documentation.

Documents covering the following situations are NOT acceptable: medical prescriptions, personal travel, weddings, personal/work commitments.

As stated above, your documents must be submitted **within three (3) business days** of the deadline for the missed work.

**After submitting your documentation:**

Within approximately one to five business days, you will receive a response from your instructor detailing the accommodations to be made (if any).

**You are responsible for checking your official U of T email and Quercus course announcements daily, as accommodations may be time-critical.**

You should continue to work on your assignments to the best of your ability, as extension accommodations may be as short as one business day, depending on the nature of the illness/emergency.

If an accommodation has been granted but you are unable to meet the conditions of the accommodation (ex. you need a longer extension, or you missed a make-up test), you will need to repeat the missed term work procedure and submit additional forms to request further accommodation. Note that in the case of a missed make-up test, an opportunity to write a second make-up test may not be provided.

Completion of this form does NOT guarantee that accommodations will be made. The course instructor reserves the right to decide what accommodations (if any) will be made. Failure to adhere to any aspect of this policy may result in a denial of your request for accommodation.

**Missed Accommodations**

If an accommodation is granted but a continued illness/emergency prevents you from meeting the requirements of your accommodation, you must repeat the missed term work procedure to request additional accommodations.

(E.g.) If you miss a make-up midterm, you would need to submit another Request for Missed Term Work Accommodations form. If your original medical note / documentation included the date of the make-up midterm, then only the Request form is required. If the date of the make-up midterm fell outside of the dates indicated on your original medical note/other documentation, then a new medical note/other appropriate documentation must also be submitted.

**Importance of Three Business Day window:**

If you are unable to submit your documents within the three business day window, **you must email Keely** ([keely.hicks@utoronto.ca](mailto:keely.hicks@utoronto.ca)) **within the three business day window** to explain the nature of the delay, and when you will be able to provide your documents. Exceptions to the documentation deadline will only be made under exceptional circumstances.

**NOTE: Assignments due at end of term**

Instructors cannot accept term work any later than five business days after the last day of class. Beyond this date, you would need to file a petition with the Registrar's Office (<https://www.utoronto.ca/registrar/term-work>).

### **NOTE: Final Exams**

This policy applies only to missed assignments and term tests. Missed final exams are handled by the Registrar's Office (<http://www.utsc.utoronto.ca/registrar/missing-examination>).

## **AccessAbility Services**

Students with diverse learning styles and needs are welcome in this course. In particular, if you have a disability or health consideration that may require accommodations, please feel free to approach the instructor and/or the AccessAbility Services Office (in SW-302) as soon as possible. Your instructor will work with you and AccessAbility Services to ensure you can achieve your learning goals in this course. Enquiries are confidential. The UTSC AccessAbility Services staff members are available by appointment to assess specific needs, provide referrals and arrange appropriate accommodations.

### **AccessAbility Services contact information**

Phone: (416) 287-7560 Email: [ability@utsc.utoronto.ca](mailto:ability@utsc.utoronto.ca)

## **Academic Integrity**

Academic integrity is essential to the pursuit of learning and scholarship in a university, and to ensuring that a degree from the University of Toronto is a strong signal of each student's individual academic achievement. As a result, the University treats cases of cheating and plagiarism very seriously. Behaviours that constitute academic dishonesty and the processes for addressing academic offences are outlined in The University of Toronto's Code of Behaviour on Academic Matters: <http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>

Potential offences include, but are not limited to:

- *On tests and exams:*
  - (a) Using or possessing unauthorized aids;
  - (b) Looking at someone else's answers during an exam or test;
  - (c) Misrepresenting your identity.
  
- *In academic work:*
  - (a) Falsifying institutional documents or grades;
  - (b) Falsifying or altering any documentation required by the University, including (but not limited to) doctor's notes.

All suspected cases of academic dishonesty will be investigated following procedures outlined in the Code of Behaviour on Academic Matters.

## PSYC08 (Summer 2020) Online Final Examination Information

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### **PLEASE READ THIS ENTIRE DOCUMENT THOROUGHLY AND CAREFULLY.**

**Procedures that are different from the midterm exam are indicated in red.**

**Written Exam Date: Tuesday, August 25<sup>th</sup> 2020 from 8 – 11 p.m.**

**Oral Exam Dates: Wednesday, August 26<sup>th</sup> 2020 & Thursday, August 27<sup>th</sup> 2020**

**The final exam will be split into two parts: Theory (Oral) & Calculations (Written)**

**1) Oral Theory Exam [15%]: The theory portion will be administered online by a TA via Zoom.**

*Note: If you have AccessAbility accommodations, the AccessAbility office will notify us. **Please use Quercus to sign up for a slot.***

**I. Sign-Up Procedures:** Thirty-minute appointments will be posted on Quercus' Calendar and you will be required to sign up for one of these appointments on a first come first served basis. Students who sign up for more than one appointment will have all of their appointments cancelled without notice and will be required to sign up again. Once you have signed up for an appointment, you may cancel your appointment if necessary; however, you will only be able to reschedule based on whatever appointments are available at the time of your re-scheduling.

**The appointments will be posted on Tuesday, August 4<sup>th</sup> 2020 at 12 p.m.**

**The deadline to sign-up for appointments will be Tuesday, August 11<sup>th</sup> 2020.** Students who have not signed up for an appointment by this day will be randomly assigned a free time slot. There will be no changes to the schedule after this date. Please schedule your appointment wisely.

**The Zoom links and passwords for the oral exams will be posted once the sign-up window closes on August 11<sup>th</sup>. They will be published to Quercus in a document.**

**II. Exam Format:** Please log into this link at least 5 minutes prior to your exam. Once you log in, you will be put into a "waiting room" and will be let into the meeting by the TA conducting your exam when it is time to begin.

Once your exam has started, the TA will first check to see whether you have any unauthorized materials with you (i.e., cell phones, second laptop, etc.), since the oral exam is closed-book. The TA will also ask you to show your student ID. Once these administrative matters have been completed, you will be randomly assigned four questions, which will be projected on to your screen. You will be given 5 minutes to collect your thoughts (timed by the TA), after which you will answer three of the four questions. You will be given 15 minutes (3 questions x 5 minutes)

to answer all of the questions, but you do not need to use all the time allocated if not necessary. Please note that your camera MUST be turned on for the duration of this exam. Whether you want the TA's camera to be on or not will be up to you. The entire session will also be recorded to make sure that there is reliability between TAs and/or to resolve any serious disputes in the grading. All recordings will be destroyed one year after the exams have been completed (as per University policy).

**III. Exam Re-Dos:** Due to time constraints, there will be no re-do oral exams for the final exam.

**IV. Testable materials on the oral exam:** A list of study questions/prompts on which you will be tested will be posted to Quercus. You will not be tested on any theory content beyond this list; however, the questions asked in the oral exam may not be "word-for-word" identical. Questions will be chosen completely at random from student to student.

**Students will not be given additional time if they are late to their oral exam. Students who are more than 10 minutes late to the exam will not be allowed to take the oral exam and will have to submit a petition to the Registrar's office.**

**Any students caught colluding during the oral exam, providing information to students who had not yet taken the exam or engaging in other forms of academic dishonesty will be given an automatic 0% on this exam and subsequently investigated following procedures outlined in the Code of Behaviour on Academic Matters.**

**2) Written Calculations Exam [25%]: At 8:00 p.m. on August 25<sup>th</sup> 2020, you have access to your written exam on Quercus. A PDF of the final written exam will NOT be emailed to you.**

*Note: If you cannot access your exam on Quercus please email me **immediately** at: [olivia.podolak@mail.utoronto.ca](mailto:olivia.podolak@mail.utoronto.ca)*

You are expected to hand-write your answers to the calculation questions. Do not type any of your answers, as they will not be graded (unless you have accommodations that require you to type your answers). You will be given until 11:00 p.m. to submit your answers (i.e., 2.5 hours to write, and 30 minutes to submit your work). Your handwritten work should be scanned and submitted in the form of a PDF directly to Quercus under "**Assignments**". Please do not email us your work as they may get lost. Photo submissions are also allowed, as long as they are of good quality. Photos with poor resolution or awkward angles may not be graded. Once uploaded, please double check to ensure that all of your pages have been included with your submission.

*Note: There are mobile apps that turn photos into PDFs. Please figure out the manner in which you will be submitting your handwritten prior to the exam. Do not figure it out on the day of the exam! **Also, just a small tip: don't write in huge letters as it will take you forever to upload this! You will not be given more time to upload your exam if you choose to write in huge letters over 20 pages.***

Late submissions will NOT be accepted for either portion under ANY circumstance, as you have been given additional time to submit your work. **You will not be allowed to add missing/forgotten/corrupt pages after the due date.** Students who do not submit their work on time will be required to submit a petition to the Registrar's office. Please schedule your time wisely.

Any students caught colluding during the exam or engaging in other forms of academic dishonesty will be given an automatic 0% on this exam and subsequently investigated following procedures outlined in the Code of Behaviour on Academic Matters.

**Materials needed for the exam:** All course materials will be taken down from Quercus at 7 p.m. Please ensure that you have all of the necessary formula sheets and tables to complete the final exam at your disposal, as you will not be able to download them during the exam. Also, please have your student card or some other form of ID ready, as you will be required to include a photo of it when you scan your handwritten work. **Students who do not include a student ID with their submission risk getting 0% on their exam.**

**Testable materials on the exam:** The final examination will consist of short calculation questions and one longer data question at the end.

- The short calculation tests will ask you to conduct any of the tests learned in C08 (but not B07/B22). However, these questions will typically not require you to state/test assumptions, draw graphs, calculate effect size or conduct power analyses (unless otherwise stated in the question). **You will not be awarded bonus marks for doing unnecessary steps or calculations.** All statistical tests should always have hypotheses stated. If it is unclear during the exam what is expected in a question, please email me ([olivia.podolak@mail.utoronto.ca](mailto:olivia.podolak@mail.utoronto.ca)) during the exam or post a question on BB Collaborate.
- For the long data question, you will be given an experimental scenario and a corresponding dataset which you will have to analyze. For this question, students will be expected to state hypotheses, calculate descriptive statistics, state/test assumptions, conduct the test, calculate effect size, conduct a power analysis, and write your conclusions.

**Calculations and statistical tests covered on the final exam:** Kruskal-Wallis test, Friedman's test, *a priori* tests (linear contrasts, Bonferroni corrected tests, Fisher's LSD), *post hoc* tests (Fisher's LSD, Newman-Keuls test, Tukey's HSD, Tukey's WSD, Dunnett's t), Factorial ANOVA (plus simple effects analyses), Mixed-Design ANOVA (plus simple effects).

*Note: This list does not include an exhaustive list of the theoretical/conceptual content you are responsible for. This list only includes the types of new calculations you may be asked to conduct on the final exam. **The final exam is inherently cumulative because the study of statistics is cumulative.***

**Office Hours:** The office hours are on a drop-in basis. You do not need to make an appointment, nor do you need to attend your TA's office hour in particular. All office hours will occur over Bb Collaborate. Times listed are in Eastern Time.

Date	Time	Session Type	Deadlines
Sat, Aug 1	-	<i>Weekend – No Activities</i>	
Sun, Aug 2	-	<i>Weekend – No Activities</i>	
Mon, Aug 3	-	<i>Weekend – No Tutorials</i>	
Tue, Aug 4	All Day	Tutorials	Oral Sign-Ups Go Live (12 pm)
Wed, Aug 5	10 am – 12 pm 2 – 5 pm	MSLC Office Hours – Lawrence Lecture – Review Session	Quiz #9 Due (1 pm)
Thu, Aug 6	12 – 2 pm 5 – 6 pm	Office Hours – Dilakshan FSG Session	
Fri, Aug 7	12 – 2 pm 2 – 4 pm	Office Hours – Simar FSG Session	
Sat, Aug 8	-	<i>Weekend – No Activities</i>	
Sun, Aug 9	-	<i>Weekend – No Activities</i>	
Mon, Aug 10	12 – 1 pm 5 – 7 pm	Office Hours – Olivia Office Hours – Greg	
Tue, Aug 11	11 am – 1 pm	Office Hours – Anna	Oral Sign-Ups Due
Wed, Aug 12	1 – 3 pm	Office Hours – Lawrence	Peer Review Assignment Due
Thu, Aug 13	10 am – 12 pm 5 – 6 pm	MSLC Office Hours – Lawrence FSG Session	
Fri, Aug 14	2 – 4 pm	FSG Session	3-Way ANOVA Assignment Due
Sat, Aug 15	-	<i>Weekend – No Activities (FSG?)</i>	
Sun, Aug 16	-	<i>Weekend – No Activities</i>	
Mon, Aug 17	12 – 1 pm 3 – 4 pm	Office Hours – Olivia Office Hours – Daniel	
Tue, Aug 18	10 – 11 am	Office Hours – Daniel	
Wed, Aug 19	2 – 5 pm	Lecture – Review Session	
Thu, Aug 20	10 am – 12 pm 12 – 1 pm	MSLC Office Hours – Lawrence Office Hours - Olivia	
Fri, Aug 21	3 – 5 pm	Office Hours – Vignash	Bonus Assignment Due
Sat, Aug 22	-	<i>Weekend – No Activities</i>	
Sun, Aug 23	-	<i>Weekend – No Activities</i>	
Mon, Aug 24	2 – 4 pm	Office Hours – Marco	
Tue, Aug 25	12 – 2 pm	Office Hours - Olivia	WRITTEN EXAM (8 – 11 pm)
Wed, Aug 26	ORAL EXAMS (All Day)		
Thu, Aug 27	ORAL EXAMS (All Day)		