THE UNIVERSITY OF BRITISH COLUMBIA

Introduction to Data Analysis
PSYO 271-Sec. 101, Winter Term 2, 2020/21
Monday 9:30 a.m. & Thursday 2:30 p.m.

INSTRUCTOR   Jan Cioe, Ph.D. [UWO], M.A. [UWO], M.Phil. [Cantab], Hon. B.A. [U of T], R.Psych. [You may call me Jan ("*Yawn*") or Dr. Cioe (pronounced as Dr. "C" "O"), Sir]

OFFICE   ASC 285 [but I am really working from home]

CONTACT   250-807-8732 (office—not that useful since I don't check it); 250-763-1225 (home land line); jan.cioe@ubc.ca [email]

OFFICE TIMES   Monday 9:30–10:50 & Thursday 2:30–3:30
These times overlap the scheduled class times, but the course material will be presented in a mixed format with content delivered mostly asynchronously, but there will be synchronous classes to work through calculations using Zoom. When I conduct a synchronous class it will be during those times, so please attend to the schedule in the syllabus for when I will not be available. Those sessions will be recorded and available for review. The Midterm exam will be during the regular class times [see course schedule for date.] If the times I post for my office are not convenient, others may be arranged individually.

Zoom Office via Canvas

I will be setting up other office times that will more accessible for those of you in distant time zones, if requested. Please go to this site to learn how to set your time zone for this class.
https://students.canvas.ubc.ca/how-to-update-your-canvas-time-zone/

TEACHING ASSISTANTS

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TEXT READINGS   Available in Canvas.

REQUIREMENTS FOR ONLINE DELIVERY
In order to engage with this online course, you are required to **have a laptop or desktop computer and a stable internet connection**. While the lectures will be pre-recorded and posted, this course also includes live activities where we will walk through calculations and you will work in breakout groups. Consequently, you will require a microphone to participate; a camera is recommended, but not required. The Midterm examination will be completed online during the **scheduled course time** (i.e., Thursday, February 25th at 2:30 p.m. PST). **Please email me if you do not have any of these requirements.**

LEARNING MANAGEMENT SYSTEM – CANVAS
This class will be using Canvas for the learning management system. Material that I want you to have will be available on Canvas, as will your grades. You can find the student help site that has FAQs, help desk contact, and online video resources at
https://community.canvaslms.com/docs/DOC-4121 and at http://students.canvas.ubc.ca

Where to find help with Canvas
   –   Online at **students.canvas.ubc.ca**
   –   Over the phone at **250-807-9611**

LEARNING OBJECTIVES
The goal of this course is to provide students with an understanding of the basic principles of behavioural data analysis in the context of the research methods and designs of Psychology.

Students should be prepared to spend _**a minimum**_ of 9 hr per week on learning the course content (e.g., reading assigned course materials and completing the associated quizzes; working through the Kaltura PowerPoint lectures and completing the Kaltura quizzes/discussions; completing the calculation examples during the synchronous sessions along with follow-up quizzes; doing the homework assignments; preparing for and completing the unit quizzes and Midterm exam). The Final Exam will require more time given that it is cumulative in nature.

STUDENT OUTCOMES
Higher-order Outcomes
By the end of the course, students are expected to be able to
- Have a complete enough understanding of both descriptive and inferential statistics so that they will be able to perform common statistical procedures and answer questions on the underlying theory.
- Develop and express an understanding of the role of probability and statistics within psychological research, and that includes the ability to discuss their basic concepts and practical applications.
- Differentiate between statistical tests in order to choose the appropriate test and to answer specific research questions.

Lower-order Outcomes
These learning outcomes include the ability to do the following tasks:
- Identify the independent, dependent, extraneous, confounding, and control variables in a study
- Differentiate between descriptive and inferential statistics
- Explain measurement, measurement scales, variables, constants, and measurement error as they relate to statistical analysis
- Apply and interpret appropriate graphing/summarizing procedures associated with various kinds of data
- Calculate measures of central tendency and variability, and discuss the advantages and disadvantages of each of the techniques considered
- Explain and interpret resistant indicators
- Calculate and explain percentile points and percentile ranks
- Articulate the effects of scale changes on the mean and standard deviation/ variance
- Explain the nature of z scores and how to calculate them
- Know the theory behind the formulae for the mean, standard deviation [variance], percentile, and z; this includes being able to apply these formulae from memory
- Explain the nature of the normal distribution and standard normal curve in relation to calculating probability, proportion, area, and percentile [and vice versa]
- Explain the principles underlying the application of probability to hypothesis testing and sampling distributions, including the Central Limit Theorem
- Differentiate between statistical tests in order to perform (a) single-sample, independent-sample, and correlated t tests; (b) correlation coefficients, equations of a regression line, and related statistical concepts; and (c) confidence intervals.

- Explain the nature of decision error and power in hypothesis testing
- Identify the assumptions that underlie the various statistical tests discussed in the course
- Discuss the limitations of hypothesis testing and the alternative approaches
- Explain how the results from an Analysis of Variance can be used to interpret factorial designs

See also "TOPICS covered in PSYO 271 20-21.pdf" for a more detailed listing of topics covered in the course in the Handout module.

FORMAT

This course will be taught primarily using Kaltura voice-over PowerPoint lectures in combination with a mastery learning approach. There will also be live [synchronous] sessions where I will go through various calculations during the scheduled class time, but this will not occur on a weekly basis. The synchronous session will recorded; attendance at the live sessions is expected [but not required]. You will be assessed on that recorded material via a Canvas quiz. The Kaltura lectures will be released sequentially on Thursday at 2:30 p.m. and will be available to you normally one week prior to date for that topic identified in the syllabus. The quiz questions associated with the Kaltura lectures are due one week after the date for the topic identified in the syllabus, unless otherwise specified.

Given the cumulative nature of the course (i.e., later concepts are built on earlier ones), it is very important that the readings and associated Canvas quizzes be done according to the schedule. Given that the assigned homework problems are associated with the specific content of the day, the homework problems are **due one week after the date assigned for that content** [See Homework Schedule in the Homework module]. This does **not** preclude reading or working ahead, but it does mean that the appropriate material **must** be read prior to the corresponding class and that the associated quiz must be completed by that date.

Students, in the past, have experienced considerable difficulty in this course when classes have been missed. The Teaching Assistants [TAs] and I will help you if you have any problems understanding the material. I am, of course, available to answer any questions you might have during my virtual office time. If my posted office times are not convenient, we can arrange for suitable alternative times.

MASTERY LEARNING

This course has been designed using the principles of mastery learning. In essence, this model is based on the belief that just about everyone can learn the material if given sufficient time and assistance. Although I cannot offer you unlimited time, I have adjusted the deadlines to give you some flexibility in how long you can work on a unit. Moreover I have tried to build in a system that can provide you with the assistance you need—**if you are willing to use it**.

Since the concepts of statistics and their associated methods are central to Psychology as a science, I am trying to ensure that all Psychology Majors have the basics down pat. Before you can move on to a new unit of material, I want you to demonstrate that you have a solid

understanding of the current material. "A solid understanding" is operationalized [you may remember that concept from the Methods course] by **getting at least 80% on the unit tests**. With this knowledge you can then go on to learn the next unit's content; moreover, you will be better prepared to take the course exams because you have already acquired the bulk of the information.

Accordingly, the course has been designed to present five [5] units of material which cover the basics. In fact, you have already had some exposure to many of these core concepts in PSYO 270. My task is to refine your understanding of this material so that you can perform fundamental statistical procedures and interpret the results in original research papers. We will not cover all the statistical techniques used by psychologists, but you should have a reasonable comprehension of the foundation of those techniques.

Statistics is particularly suited to mastery learning because it is so cumulative in nature; the material builds in a logical and systematic way such that you will likely have difficulty with later material if you do not adequately understand earlier concepts and procedures. Consequently, I want to encourage you to do all of the unit tests at the mastery level, and I will reward you for doing so. You may take each of the graded units test up to four [4] times. The specific questions on your test will be randomly generated from a large test bank, so it is likely that you will not have the same questions if you retake a unit test. If you do not reach the 80% mastery criterion, you fail that unit. You may still proceed to the next unit, but your grade will be reduced if you do so without successfully completing the prior unit. **I strongly urge you to delay retaking the unit test for 24 hr** so that you can identify the problems you had on the earlier version of the quiz and seek help from the TAs, tutors, or me.

You will not be abandoned. I have built in a variety of ways to help you learn the material. In addition to the recorded Kaltura voice-over PowerPoint lectures, I will also put my cleaned PowerPoint presentations on Canvas so you can review them without advancing through the Kaltura video. There will be assigned homework questions for you to work on; I will provide the answers to all of these questions. I will make available a sample practice quiz for each of the units which reflect what the unit tests will look like; it will not be graded. Similarly, I will provide a sample Midterm exam where I will model what I expect your answers to be. I will endeavor to make sure that I clearly spell out what you need to know and how you can demonstrate it; if I do not, please let me know so that I can correct it. There will be a practice exam to ensure that you are aware of how the open-book, online exam will be conducted.

I will be available for personal assistance during my virtual office times [and at other times, if necessary], as will my Teaching Assistants [TAs]. We will be organizing volunteer tutors [who have already taken this course] to help you with the material. You will be able to set up study groups through Canvas; I can assist if necessary. We are planning on doing "extra" sessions to answer questions, review difficult material, and provide an alternate way to explain the material at a time that will work for most of you.

My goal is to ensure that you are all successful in this course.

SUPPLEMENTAL LEARNING PROGRAM

A Supplemental Learning (SL) component is provided for all students who want to improve their understanding of the material taught in this course. SL sessions are led by a student who has mastered the course material, done well in the class, and who is trained specifically to facilitate group sessions. An SL session provides students a chance to meet, review, and discuss important concepts, develop strategies for solving problems, and prepare for exams. Attendance at SL sessions is free and voluntary. Students may attend as many times as they choose.

There is empirical evidence that this program helps students do better in the class—it can boost your final grade substantially. SL is particularly helpful for students in the mid-range of grades, but it has been shown useful for all. SL is not a replacement for lectures, nor is it a review of the class lectures; rather SL gives **you**, the student, a chance to practice, to ask questions, and to share information with others who attend the class. SL sessions begin the second or third week of class and continue throughout the semester. A session schedule will be announced in class.

For information about the program, session schedule/updates, and possible study guides, visit their website at https://students.ok.ubc.ca/academic-success/learning-hub/supplemental-learning/

EVALUATION

Your final grade in this course is derived from five [5] sources:

Reading quizzes: One set of quizzes will be based on the assigned readings and will typically occur in the session where I cover a new text chapter [see course schedule]. The quizzes on the readings will be graded on a Pass/Fail with 60% set as the minimum to pass (e.g., 3 out 5 multiple choice questions [5 min] or 2 out of 3 [3 min]). I expect about 13 quizzes of this type; these quizzes are worth 10% of your final course grade.

"In-class" quizzes

Multiple choice and True/False questions will be interspersed during the Kaltura PowerPoint lectures and will assess material that was covered recently in the lectures. My intention is to reward you for following along as I progress through the material in class.

I have yet to determine exactly how many questions I will ask, but these quizzes will contribute 10 marks to your course grade.

Unit tests: There are five [5] units which are sequentially organized. I want you to score **a grade of at least 80%** [mastery level] for the unit before you continue on to the next unit's test. If you do not succeed on the unit test, you are advised to seek assistance from the TAs or me; we will also have a rooster of volunteer tutors who may be willing to assist you.

You may take each unit test up to four [4] times in order to demonstrate mastery; if you have not reached the 80% mark after the fourth attempt, however, you have failed that unit. You may proceed to the next unit in sequence and take the next appropriate test, but your grade will be reduced. When you complete all five unit tests at the mastery level you have earned 25 marks [5

$\times$ 5]. You earn 5 points for each one you achieve mastery on. Because the sequence of material is so important, if you have not reached the mastery level on the previous unit before you take the next unit test or you have reached the submission date, you have failed that unit.

You control the timing of the unit tests to a certain extent, but each unit must be completed at mastery within approximately **two [2] weeks** of it being assigned. For example, unit test 1 will be made available at 2:30 p.m. on January 11th and you will have until February 4th at 2:30 p.m. to reach the mastery level on it or else you will forfeit the marks that quiz. Check the dates for each unit quiz in Canvas since they vary from quiz to quiz. All three of the first unit quizzes need to be completed by February 25th at 2:30 [just before the Midterm exam begins] so that you are prepared for that exam.

The unit tests are to be taken on Canvas and usually involve 30 multiple choice questions, but sometimes there are fewer questions if some questions are complex and therefore are worth more points. These unit tests are self-administered with a time limit of 60 min, except for Unit 4 which has a 90-min limit. Moreover, **you should not retake a unit quiz for at least 24 hrs**; this delay will give you time to fix any problems which you have by doing some remedial work and/or seeking help. The delay means you need to plan this out so that your first quiz is no later than 5 days before the cutoff or you may not be able to have all four attempts available to you. The quizzes will contain both calculations as well as theory questions. You are expected to work independently and to take these tests only with authorized aids in order to mirror exam conditions. While you may think that doing whatever is necessary to pass the quizzes is a good idea, this strategy will ultimately work against you as you will not have acquired the necessary knowledge or skills to do well on the rest of the evaluation methods. In essence, **I am relying on your personal integrity to follow the rules. It is important for you to know, however, that if I find out that you have cheated, I will give you zero for the entire quiz component**. This is not a threat, but rather a clear expression of consequences and how strongly I feel about this issue [see also *Academic Integrity* below]. A sample quiz is be available for each unit; there are no marks for the practice quizzes.

Exams: There are two [2] open-book exams [one Midterm and one Cumulative Final]. The first exam will cover Units 1-3. This Midterm exam will be similar to the unit tests in that there will be multiple choice questions drawn from the same test banks as the unit quizzes. However, you will now be required to show the process through which you obtained your calculated answers and generate some of the theory answers rather than simply identifying the correct response in a multiple choice format. There will also be some questions which evaluate a higher level of understanding and so will be more difficult. The Midterm will be 75 min in duration. The Final Exam is 150 min and is cumulative: It covers **all** the material from the start of the course until the end. Given that the Final Exam is cumulative, your marks for these two tests will be weighted 1:2; consequently, the Midterm Exam contributes 13 marks and the Final Exam counts for 27 marks to your course grade. The two exams are to be taken at the time specified based on University policy. If you fail to take the Midterm Exam for a legitimate reason (see Missed Assignment/Exams), the grade from that Midterm exam will be shifted to the Final so that it will now be worth 40 marks toward your course grade.

Homework: I have assigned a series of homework questions for you to do as practice. It is **extremely** important that you do these questions in order to ensure that you have the necessary skills to succeed on the unit tests and exams. You will be handing in your assigned homework after converting it into a pdf document **each Thursday by 2:30 p.m. PST** (see Homework Problem Schedule in Homework module). You will be rewarded for completing the assigned homework and handing it in. If you hand all of the completed homework you will earn 3% of your final course grade, but you will lose 1% for each assignment that is not handed in on time and complete. If you hand in a homework assignment but only complete part of it, then you will only receive part marks (e.g., if you only do half of the questions then you will lose 0.5 from the 3 marks).

In addition, we will also be marking the content of the homework. However, only a selection of these questions will be marked each week. Your homework will be evaluated for the steps you took to get your answer, not just the final answer since you will know what the correct final answer is. Therefore, you need to provide all the necessary details as set out in the model answers. Your mark on the content of the homework questions will contribute 12% toward your final course grade. You are to submit all of the homework assigned for the previous week; that is, the work assigned for Jan. 14th is due on the 21st; the work assigned for 21st is to be handed in the 28th, etc., except around the Midterm—check the Homework Problems schedule handout for details. In summary, the homework is worth 15%: 3% for submitting all of it, and 12% for doing it correctly.

Bonus marks: Bonus marks (up to 2%) are available to students who participate in psychological research through the volunteer subject pool. I would like to encourage you to participate in the subject pool because not only will you assist researchers (including fellow students) and earn some extra marks, you will also be seeing what it is like to be in a study. This can be a valuable experience which will enrich your understanding of behavioural research. Students who wish to access these bonus marks, but not act as research participants, may elect to do the paper summary alternative (see SONA handout on Canvas).

SUMMARY

Text quizzes [10% max]	**Weekly quizzes = 10**
In-class quizzes [10% max]	**Number of questions vary = 10**
Unit tests [25% max]	**5 tests at 80% = 25** **4 tests at 80% = 20** **3 tests at 80% = 15** **2 tests at 80% = 10** **1 test at 80% = 5**
Term exams [40% max]	**Midterm = 13** **Final = 27**
Homework [15% max]	**Marked homework = 12** **Handing in each homework assignment on time = 3** **[lose 1 point for each assignment <u>not</u> submitted on time, and part marks for incomplete assignments]**

RECOMMENDED CALCULATOR

A **basic calculator** with a square root and memory function is necessary for course work. Sophisticated calculators with built-in or programmable statistical functions are **not recommended** because you will need to provide all the mechanical steps used to calculate your answers during examinations. If you come to rely on the sophisticated calculators' ability to generate the final answer, you will not have sufficient practice showing the step-by-step approach necessary to provide all the steps required to earn full marks. It is recommended that you use the basic calculator when completing all unit tests and homework to ensure you are comfortable and familiar with the calculator you will be using during your exams.
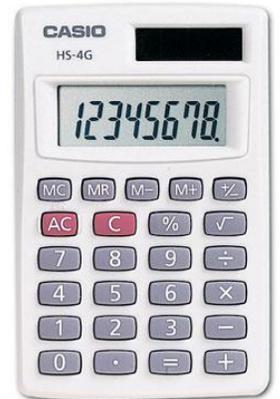
PREREQUISITES:

One of PSYO 111, PSYC 111 and one of PSYO 121, PSYC 121. Registration in the Psychology Majors program [B.A. or B.Sc.].

Under some circumstances, students who do not have these prerequisites may be admitted to the course. Students without the required pre-requisites who do not obtain permission from me may not be given credit for the course. In all cases, students who complete courses without prerequisites are not exempt from having to complete the prerequisite courses at some later date if such courses are required for the degree program or entry into other courses.

SEQUEL COURSES

Students in the Honours Psychology programs [both B.A. & B.Sc.] are required to take two more research methods / statistics courses as part of their programs. To be admitted to the first course in the series [i.e., PSYO 372], students must attain a minimum grade of 80% in this course and also in PSYO 270; to get into PSYO 373, students will need a minimum of 76% in PSYO 372.

Entry into PSYO 372 will be based on academic performance in Psychology courses: We will initially have everyone interested in PSYO 372 go on a waitlist. We will then rank order applicants based on their Psychology weighted average. Entry will depend on the number of seats we ultimately decide to open, but currently we expect there to be 35 openings. Entry into PSYO 373 is also limited by space.

If you are completing a Major you are **not** required to take any more stats/methods courses, but are advised that these courses would be helpful if you are planning to attend graduate studies in psychology or related social sciences. Taking the PSYO 372/373 will keep your options open for doing an Honours degree at a later date. There is a provision for students to return to the University and upgrade their Major in Psychology to an Honours in Psychology by taking the Honours thesis and additional psychology credits. If you already have PSYO 372/373, this can be done in one academic year; if not, it will likely take two academic years. Entry into these courses is limited and does **not** guarantee admissions to the Honours programs.

MISSED ASSIGNMENTS/EXAMS

It should be noted that if the date specified for an completing assignment is missed, the mark for that assignment will be zero unless prior approval has been given. The Midterm and Final examinations **must** be written during the designated times; no alternative exam will be available. You need to contact me if you miss the Midterm Exam.

Students who miss the Midterm Exam for legitimate reasons governed by UBC's Academic Concession Policy [See http://www.calendar.ubc.ca/Okanagan/index.cfm?tree=3,48,0,0] may have the marks from that Midterm Exam shifted to the cumulative Final Exam.

FINAL EXAMINATIONS

The examination period for Term 2 of Winter 2020-21 is April 12-27. Students are permitted to apply for out-of-time final examinations only if they are representing the University, the province, or the country in a competition or performance; serving in the Canadian military; observing a religious rite; working to support themselves or their family; or caring for a family member. This option is also available in the case of examination clashes and hardships (three or more formal examinations scheduled within a 23 hr 59 min period) or unforeseen events. Unforeseen events include (but may not be limited to) the following: ill health or other personal challenges that arise during a term and changes in the requirements of an ongoing job. Exam are to be written based on the Kelowna time zone.

Students who miss, or plan to miss the Final Exam, **must** consult the office of the Associate Dean, Curriculum and Student Affairs and follow the University's policies on out-of-time exams. See https://fass.cms.ok.ubc.ca/wp-content/uploads/sites/131/2020/06/Out-of-time-examination-FASS.pdf

Further information on Academic Concession can be found under Policies and Regulation in the *Okanagan Academic Calendar* http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,48,0,0

ACADEMIC INTEGRITY

The academic enterprise is founded on honesty, civility, and integrity. As members of this enterprise, all students are expected to know, understand, and follow the codes of conduct regarding academic integrity. At the most basic level, this means submitting only original work done by you and acknowledging all sources of information or ideas and attributing them to others as required. This also means you should not cheat, copy, or mislead others about what is your work. Violations of academic integrity (i.e., misconduct) lead to the breakdown of the academic enterprise, and therefore serious consequences arise and harsh sanctions are imposed. For example, incidences of plagiarism or cheating usually result in a failing grade or mark of zero on the assignment or in the course. Careful records are kept in order to monitor and prevent recidivism.

A more detailed description of academic integrity, including the policies and procedures, may be found at https://learningcommons.ubc.ca/academic-integrity/ and
http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,54,111,959

Just to be clear, students who do not do their own work are violating the principle of academic integrity. It should be obvious that we are operating on the basis of mutual, personal trust. I am expecting you to act ethically just as you are expecting me to do the same.

If you have any questions about how academic integrity applies to this course, please talk to me.

Academic Integrity Examination Policies for Open-Book Exams

The examinations in this course are all open-book, so you may have access to any of the course materials, including your notes, the text, and clean power points during the exam. It is important to realize, however, that you will likely not have enough time to look up the majority of the answers. Accessing video recordings of the lectures is not recommended due to time constraints. You should prepare for these exams as if you had to do them under supervised conditions so studying for them will be necessary if you wish to succeed.

You are **not** to use any search engines or other programs except for the program you used to construct your notes [e.g., Word]; it is not that difficult to identify cheating with the technology we have. Communication with other students (written, text, verbal, etc.) is also **not permitted**. If you violate these conditions you have engaged in Academic Misconduct and will be subject to the consequences articulated in the Academic Integrity section [http://www.calendar.ubc.ca/okanagan/index.cfm?tree=3,54,111,959].

DISABILITY RESOURCES
If you require disability-related accommodations to meet the course objectives please contact the Coordinator of Disability Resources located in the Student Development and Advising area of the Student Services building. For more information about Disability Resources or about academic accommodations please visit the following website:
http://students.ok.ubc.ca/drc/welcome.html

EQUITY, HUMAN RIGHTS, DISCRIMINATION, AND HARASSMENT
UBC Okanagan is a place where every student, staff, and faculty member should be able to study and work in an environment that is free from human rights-based discrimination and harassment. UBC prohibits discrimination and harassment on the basis of the following grounds: age, ancestry, colour, family status, marital status, physical or mental disability, place of origin, political belief, race, religion, sex, sexual orientation, or unrelated criminal conviction. If you require assistance related to an issue of equity, discrimination, or harassment, please contact the Equity and Inclusion Office – Okanagan and/or your department head.

Equity and Inclusion Office - Okanagan. Phone: 250-807-9291; Toll-free: 1-866-596-0767 ext. 2-6353. Email: equity.ubco@ubc.ca **Web:** https://equity.ok.ubc.ca/

OFFICE OF THE OMBUDSPERSON FOR STUDENTS

The mandate of the Ombuds Office is to ensure that students are treated fairly in every aspect of their university life. The office is a safe and confidential place where students can get assistance and guidance on existing resources and processes, and help in resolving conflicts related to fairness issues. If you require assistance, please contact the Office of the Ombudsperson: ombuds.office@ubc.ca | 604-822-6149 www.ombudsoffice.ubc.ca

SAFEWALK

Don't want to walk alone at night? Not too sure how to get somewhere on campus?

*Call Safewalk at **250-807-8076. For more information, see:***
http://security.ok.ubc.ca/welcome.html

USEFUL CONTACTS

THESE ARE ALL UBC PHONE NUMBERS, SO THEY START WITH 250-80

Very Important Numbers

First Aid / Emergency	78111	
Security (non-emergency)	79236	
IT Services Helpdesk	79000	
	https://it.ok.ubc.ca/welcome.html	

Contacts for Students

Marla MacDonald, Psychology Secretary	79258	ART 321
	psychology.okanagan@ubc.ca	
Dean's Office [Students]	fass.students.ubco@ubc.ca [BA]	
	fos.students.ubco@ubc.ca [BSc]	

Places to Refer Students

Psychology Program Advisor - Jan Cioe	78732	ASC285
	jan.cioe@ubc.ca	
Academic Advising	79100	UNC 207
	https://students.ok.ubc.ca/academic-success/academic-advising/contact/	
Disability Resource Centre	79263	UNC 227
	drc.questions@ubc.ca	
Psychology Course Union		ART281
	ubcopsyc@gmail.com	
Math and Science Centre		UNC 201
Writing and Research Centre	79185	LIB 237
Health and Wellness	79270	UNC 337
Equity Office	79291	FIP 302
Safewalk	78076	

Useful People to Talk To

Cindy Bourne, Co-ordinator-Learning Centre	78065	UNC 325H
Janine Hirtz, e-Learning Support (Canvas)	79133	SCI 200
	https://faculty.canvas.ubc.ca/for-students/	
Liz Hilliard, Manager, Campus Life	79012	UNC 329B
	https://ok.ubc.ca/student-life/	
Terina Mailer, Senior Academic Advisor	78726	UNC 207D
	terina.mailer@ubc.ca	

Unit #	Wk	Date	Module	Readings	Topic
1	1	Jan. 14	W1-L1	R1 & R2	Introduction – Course outline; nature of science and basic concepts from P270
			W1-L2	R3	Nature of measurement; scales of measurement. Measurement error.
1	2	21	W2-L1&2	R4 & R5	Frequency distributions and graphs.
			W2-L3&4 **W2-L4 →LIVE**	R6 & R7	Frequency distributions and graphs [rest]. Summation signs.
2	3	28	W3-L1&2	R8 [see 1.6.2 in R5]	Descriptive statistics: Measures of central tendency.
			W3L3&4	R9 & R10	Descriptive statistics: Measures of variability.
2	4	Feb 4	W4-L1&2	R11	Resistant indicators. Percentile points.
			W4-L3&4 **W4-L4→LIVE**	R12	Percentile ranks. Calculations
3	5	11	W5-L1, 2 &3	R13	Effects of scale change. z scores. Standard normal distribution.
			W5-L4&5 **W5-L5→LIVE**	--	Application of standard normal curve problems.
	6	15-19			**FAMILY DAY & READING BREAK: No classes**
	7	25			**MIDTERM EXAM – All material up to and including Feb. 11th [Units 1-3]**
4	8	Mar 4	W8-L1&2	R14	Probability theory.
			W8-L3&4	R15	Introduction to hypothesis testing; sampling distribution; sampling error; central limit theorem.
4	9	11	W9-L1&2	--	Hypothesis testing: Strategy for experimental inferences. z test for true means.

Unit #	Wk	Date	Module	Readings	Topic
			W9-L3&4 <mark>**W9-L4→LIVE**</mark>	R16	Inferential statistics: populations & samples, null hypothesis, statistical decisions, type I & II error, power, and directional tests.
4	10	18	W10-L1&2	R17	The *t* distribution; *t* test for true mean.
			W10-3&4 <mark>**W10-L4→LIVE**</mark>	R18	Difference between means *t* test, independent-samples *t*.
4	11	25	W11-L1&2	R19	Correlated / paired-samples *t*.
			W11-L3&4 <mark>**W11-L5→LIVE**</mark>	R20	Regression: Linear regression; regression line; standard error of estimate. [**Last day to withdraw yourself with a W: March 19**]
5	12	Apr 1	W12-L1&2	R21, R22	Correlation: Pearson product moment correlation coefficient. Properties of *r*.
			W12-L3&4	R23	Factors that change *r*. Causality and correlation. Inferences about correlations.
		5			<mark>**EASTER MONDAY: No class**</mark>
5	13	8	W13-L1&2	R24 [see also R15]	Effect size and interval estimation: Limitations of hypothesis testing; indices of effect size; interval estimation.
		12	W13-L3&4	R25	*F* test; One-way ANOVA; factorial ANOVA
		16–29			<mark>**Final Exams – NOTE: Saturday exam is possible. ALL MATERIAL TO DATE in 2.5-hr format.**</mark>