WHAT IS THIS COURSE ABOUT?

We designed this course to provide a conceptual understanding of statistical analyses to advanced research designs and practical experience in the interpretation and communication of statistical analysis related to psychological research. We will meet three times a week and our meetings will include a combination of lecture, discussion, and workshop sessions.

The goal of this course is for you to become an intelligent and critical consumer of statistical claims. By the end of the course, you should be able to

- explain the logic and theory underlying each analysis and implement the computational procedures
- apply the appropriate statistic for testing a hypothesis given a particular research design and data
- describe strengths and weaknesses of a given research study
- correctly interpret and communicate the results of an analysis
- propose, analyze, and write a scientific report for an experiment using APA format

Before you take this course you need to have completed

- Psyc 300A with a minimum grade of 50%
- core requirements for Psychology Majors and Honours OR declared Major or Honours in Linguistics (BSc)

If there is a waitlist for the course, we will take attendance during the first three classes and if you are registered for the class but did not attend one of the first three classes, you may be dropped from the class. We will give priority to waitlisted students who meet all the pre-
requisites and have attended the first three classes. Be sure to check your registration status before the add deadline of July 11 because we won’t be able to add you to the course after that date.

MATERIALS: WHAT WILL YOU NEED FOR THIS COURSE?

Required Technology

- A basic calculator that has at least one memory and a square root key. You will be allowed to use this calculator during exams and you should also bring it to class to participate in class activities and workshop sessions.
- An iClicker Personal Response System. The iClicker can be purchased at the bookstore new or used. Both the first and second-generation iClickers can be used. In order to receive participation points, you must register your iClicker online. See page 5 for more information.

Optional Text

- Based on the feedback of previous students, this text is optional.
- Previous editions (7th, 8th) can also be used in this course.
- For summer 2017 only, PSYC 300B students will have free access to the online version of this textbook for a pilot project.

Computer software program for statistical analysis

Some homework and the research project require the use of computers. We will use SPSS as the software program for statistical analysis. SPSS can be used with either a MAC or a PC. Workstations are available in the Computer labs in the BEC Building (basement), in Clearihue A105 and in the Human and Social Development building (basement). It is essential that you gain some level of familiarity and comfort in using this computer software in 300B.

GENERAL FORMAT

Course material will be presented in 5 sections through text readings, lectures, handouts, class activities, workshop sessions, a research project, graded homework through MindTap and ungraded homework assignments and quizzes through CourseSpaces. At the start of each new section, a “Class Prep” outline is posted on CourseSpaces that details the related text readings for each day and the material you are expected to review prior to class lectures and class activities. Answer keys for workshops and practice homework will be available through CourseSpaces.

In this course we will cover measurement (independent and dependent variables), power, and inferential analysis for research designs under the Random Sampling Model of
Hypothesis Testing. Research designs including related-samples, bivariate correlation, independent samples for \( k = 2 \) and \( k > 2 \), and multi-factorial. Other topics we will cover include application of multiple comparisons to multi-group designs and analysis of frequency data.

**WHAT WE EXPECT FROM YOU**

**Attend class regularly.** Attending class regularly will help to increase your understanding of the material by providing you with opportunities to engage with and discuss the material. Since this is an intensive summer course, **we recommend that you do not take any other classes concurrently with PSYC 300B.**

**Prepare for class.** To facilitate discussion and allow you to clarify any questions you may have about the material, you should come prepared for class. Please complete the recommended readings and class assignments before class.

**Check the CourseSpaces website often.** All of the course materials, including lecture notes, will be available through CourseSpaces ([http://coursespaces.uvic.ca](http://coursespaces.uvic.ca)). CourseSpaces will be your guide on what needs to get done each week. You can sign into CourseSpaces using your NetLink ID.

**Conduct yourself appropriately.** You should listen to and interact with others in a respectful manner. We are all very diverse and have different values, beliefs, and opinions. Please maintain an open mind to these differences. You may argue with others who hold opinions different from your own, but you must remain respectful at all times. Respect also includes creating an environment conducive to learning, which means being on time, not leaving class early, turning off cell phones, listening, and only using computers to take notes and not to check e-mail or surf the web.

**Provide constructive feedback.** We are always looking for ways to improve the course to facilitate learning. You are highly encouraged to provide constructive feedback about your experiences in the course. Please see us in office hours to discuss your concerns or suggestions.

**Let us know if there are any special circumstances.** We learn in different ways and with varying degrees of success. If you know of any factors in your life that hinder your ability to learn up to your potential in this course, please contact the Resource Centre for Students with a Disability (RCSD; [http://www.rcsd.uvic.ca](http://www.rcsd.uvic.ca)) and let us know at once.

**WHAT YOU CAN EXPECT FROM US**

**We are available to help.** We are available to help via e-mail and office hours. For e-mail, please include “Psyc 300B” at the beginning of your subject headline and then followed by the subject of your e-mail. Before you compose your e-mail, check the course syllabus,
notes, with your classmates, and on CourseSpaces for the answer to your question. Please also be patient as I will be teaching two intensive courses this term and will try to respond to e-mails in a timely manner (within 48 hours during business hours and excluding weekends).

Please attend office hours for your more detailed or complicated questions. We will be available during office hours to discuss your grades, understanding of the material, or discuss more general topics about psychology and statistics.

We will upload class notes on CourseSpaces. A skeleton of the notes will be posted on CourseSpaces before class and full notes will be posted on CourseSpaces after class.

We will give and receive feedback. We will post answers to homework assignments and workshop sessions on CourseSpaces and be available in office hours to give feedback on assignments and exams. We are also open to receiving constructive feedback about your experiences with the course.

**HOW WILL WE EVALUATE YOUR PROGRESS?**

Final grades will be based on the following criteria

<table>
<thead>
<tr>
<th>Percent of grade</th>
<th>Evaluation tool</th>
<th>Date(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20%</td>
<td>Exam #1 (covers topics 1-4)</td>
<td>Mon Jul 17</td>
</tr>
<tr>
<td>20%</td>
<td>Exam #2 (covers topics 5-8)</td>
<td>Fri Aug 4</td>
</tr>
<tr>
<td>25%</td>
<td>Final Exam</td>
<td>Mon Aug 21</td>
</tr>
<tr>
<td>17%</td>
<td>Research report</td>
<td>Proposal: Jul 26 Final report: Aug 16</td>
</tr>
<tr>
<td>5%</td>
<td>Workshop sessions</td>
<td>Jul 10, 14, 21, 31, Aug 11, 18 in CLE A127</td>
</tr>
<tr>
<td>3%</td>
<td>Clicker Participation</td>
<td>Dates listed on course outline</td>
</tr>
<tr>
<td>10%</td>
<td>Online Problem Sets</td>
<td>Jul 9, 13, 20, 30, Aug 10, 17</td>
</tr>
</tbody>
</table>

**Grading Criteria**

<table>
<thead>
<tr>
<th></th>
<th>A+</th>
<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade</td>
<td>90-100</td>
<td>85-89</td>
<td>80-84</td>
<td>77-79</td>
<td>73-76</td>
<td>70-72</td>
<td>65-69</td>
<td>60-64</td>
<td>50-59</td>
<td>0-49</td>
</tr>
</tbody>
</table>

**Exam Format**

The exams will cover material from the class lectures and exercises, assigned readings, workshop sessions, online quizzes, and homework assignments. The specifics of the exam format will be discussed in class. Each exam will cover the designated sections (see above).
Exam Policies for Exam 1 & 2 (20% each)
You are responsible for attending exams as scheduled. **NO make-up exams will be given.** If you miss one exam due to illness, accident, or family affliction, you must supply documentation for your absence (e.g., doctor’s note) within 7 days of missing the exam. **Note that we will not accept other excuses such as holiday trips, weddings, or other summer courses.** If your documentation is approved, then we will generate a grade for that exam by weighting your grades from the remaining exams. For example, if you miss Exam 1, a grade will be created for Exam 1 by taking 45% of your grade for Exam 2 and adding it to 55% of your grade for Exam 3. If you miss both exams 1 & 2, you will not be permitted to write Exam 3 and will receive an “N” in this course.

Exam Policies for the Final Exam (25%)
If you are unable to attend the final exam you must apply to Records Services for a “Request for Academic Concession”, typically within 10 working days of the exam date. If an academic concession is granted for the final exam, an alternative date to write the make up exam must be arranged with the instructor. **If you do not take the final exam, you will received an “N” in this course regardless of the course percentage earned up until the exam.**

All grades will be posted on CourseSpaces following each exam. Please take the time to check this posting to make sure the grade is correct.

Research Project Report (17%)
An original research report is required for successful completion of this course. You will create your own study following the guidelines on CourseSpaces under “Research Project”. This project can be done in groups or on your own. You will then be provided with a data set unique to your study. **If you do not turn in the research project paper, you will receive an “N” in this course.** The research proposal will be due July 26th and the final project will be due on August 16th, uploaded to CourseSpaces.

In-class Workshop Sessions (5%)
**Note:** To facilitate group work, classes on workshop days will be held in Clearihue A127, an active learning classroom.

There will be 6 workshop sessions where we will work through problems in learning teams (4 team members). These sessions are loosely based on a method originating in university chemistry classes in 1994 called Process-Oriented Guided-Inquiry Learning (POGIL; see: [https://pogil.org/](https://pogil.org/) for more information). While lectures and reading the textbook can provide you with the information on statistics, in order to actually develop the skills necessary to succeed in the classroom and outside of the classroom you need work at it by doing homework and workshops. Not only do students working in groups learn, understand, and remember more but they also acquire skills essential in the workplace (Hanson, 2006). You
may actually find that you learn more from your colleagues than from listening to me lecture in class!

Each learning team will be given the same workshop activity. This will involve questions and problems that will prepare you for the exams. Each team will hand in one workshop report at the end of class and each team member will receive the same mark on the report. Team members will each be assigned a role and these roles will rotate throughout the semester. After the first couple sessions, the teams may also change to give you the opportunity to work with different students in the classroom. We will count the 5 highest workshop activity grades. Your lowest grade will be dropped. This will allow you flexibility to miss a workshop due to illness or other external circumstances without penalty.

**Clicker Participation (3%)**
We will base 3% of your final grade on your in-class participation using the *iClicker* Personal Response System.

You will need to **register your iclicker** using one of two ways:

1. Go to [http://www.uvic.ca/iclickerreg](http://www.uvic.ca/iclickerreg) and sign in with your NetLink credentials and you should be taken directly to the iclicker registration page; or

Note that iClicker serial numbers do not contain letter O’s, only number 0’s. For FAQ about the *iClicker* see: [http://www.uvic.ca/systems/support/learningteaching/iclicker/](http://www.uvic.ca/systems/support/learningteaching/iclicker/)

**Why do we use clickers in class?**
Clickers are used as a way to work together through questions posed in class. When used effectively, iclickers can increase your ongoing engagement and involvement, promote a safe environment to communicate your answers, and create lively discussions in class. Clickers can also provide immediate feedback about your understanding of the class material and help us figure out how to improve your understanding of a concept.

In order to receive the full 3%, you need to participate in **75% of the questions** per class in at least **10 of the 13 iClicker classes** (July 7, 10, 12, 17, 19, 24, 26, 28, 31, Aug 2, 9, 14, 16). There are no opportunities to make up clicker points as the level of participation required to receive maximum points is set at 75% of all classes to allow you to occasionally miss a class, forget your clicker, or run out of batteries and still receive the maximum amount of clicker points.

It is an academic infraction to use or bring another student’s clicker to class or to lend your clicker to another student. This will be treated similarly to other academic infractions (such as cheating on an exam) and will be subject to university disciplinary procedures. Please remember that the clickers provide you with an opportunity to enhance your in-class
learning, and it is expected you will cooperate in making the system work to help you and your colleagues learn.

**Online Problem Sets (10%)**

You will complete online problem sets through the MindTap (https://login.nelsonbrain.com/course/MTPQP45P453K; see coursespaces for more information). For this term only, we will have a free trial of MindTap. The problem sets are designed to encourage you to practice what you’ve learned in class, and prepare you for the workshops and the exams. There will be six problem sets throughout the term and your lowest grade will be dropped. This will allow you flexibility to miss a problem set deadline due to illness, technical issues, or other external circumstances without penalty.

<table>
<thead>
<tr>
<th>#</th>
<th>Topic</th>
<th>Due date (due at 11pm)</th>
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<tbody>
<tr>
<td>1</td>
<td>2. Related Samples</td>
<td>July 9</td>
</tr>
<tr>
<td>2</td>
<td>3/4. Correlation and Independent Samples</td>
<td>July 13</td>
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<tr>
<td>3</td>
<td>6. Power</td>
<td>July 20</td>
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<tr>
<td>4</td>
<td>7/8. Multi-group Designs and Multiple Comparisons</td>
<td>July 30</td>
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<tr>
<td>5</td>
<td>9/10. Multi-factorial Designs and Interactions</td>
<td>Aug 10</td>
</tr>
<tr>
<td>6</td>
<td>12. Frequency Data</td>
<td>Aug 17</td>
</tr>
</tbody>
</table>

**WHAT ELSE CAN YOU DO TO DO WELL IN THIS COURSE?**

**Do the practice quizzes and extra practice problems.** One of the best ways to learn statistics is to practice, practice, and practice some more! You will be given practice quizzes and practice problems online over the term on CourseSpaces and on MindTap. These quizzes and practice problems will provide you with more opportunities to test your mastery of the material. Answer keys will be provided on CourseSpaces and MindTap. Please only look at the answer key once you have completed each problem.

**Create study groups.** You can meet regularly in groups of 2-4 people to work through the material together. Not only can it be helpful to have others explain concepts to you but it can also be helpful to have to explain concepts to others!

**Attend office hours.** If you’re having a hard time understanding something please don’t struggle on your own. Come see us during office hours! E-mail us to set up alternative times to meet if you can’t make it to office hours. You are encouraged to use office hours to facilitate understanding of the course material, to review exams, or to seek assistance with your research project.

**Look at online resources.** I will post some additional resources on each topic on CourseSpaces. There are many different approaches to explain a particular concept and reading through alternative explanations might help you gain a better understanding of the material.
<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Class Topic</th>
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<tr>
<td></td>
<td></td>
<td><strong>Part I: Hypothesis testing with 1- and 2-Sample Designs</strong></td>
</tr>
<tr>
<td>1</td>
<td>Wed Jul 5</td>
<td>Topic 1. Independent and Dependent Variables / Topic 2</td>
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<td></td>
<td>Fri Jul 7*</td>
<td>Topic 2. Hypothesis Testing: Related Samples Design</td>
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<td></td>
<td>Mon Jul 10*</td>
<td>Workshop Session #1 / Topic 3. Correlation Design (CLE A127)</td>
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<td>Fri Jul 14</td>
<td>Workshop Session #2 (CLE A127)</td>
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<td></td>
<td><strong>Part 2: Variability Explained and Power</strong></td>
</tr>
<tr>
<td></td>
<td>Mon Jul 17*</td>
<td>Exam #1 (Topics 1-4) / Topic 5. Variability ($r^2$)</td>
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<td></td>
<td>Fri Jul 21</td>
<td>Workshop Session #3 (CLE A127)</td>
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<td></td>
<td><strong>Part 3: Hypothesis Testing with Multi-group Designs; Multiple comparisons</strong></td>
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<tr>
<td></td>
<td>Wed Jul 26*</td>
<td>Topic 7 continued / Research Proposal Due</td>
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<td></td>
<td>Fri Jul 28*</td>
<td>Topic 8. Multiple Comparisons</td>
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<td></td>
<td>Mon Jul 31*</td>
<td>Topic 8. Multiple Comparisons / Workshop Session #4 (CLE A127)</td>
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<td></td>
<td><strong>Part 4: Hypothesis Testing with Multi-Factorial Designs</strong></td>
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<td></td>
<td>Fri Aug 4</td>
<td>Exam #2 (Topics 5-8)</td>
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<td></td>
<td>Mon Aug 7</td>
<td>B.C. Day (No Class)</td>
</tr>
<tr>
<td>6</td>
<td>Wed Aug 9*</td>
<td>Topic 9 continued / Topic 10. Interactions in Factorial Designs</td>
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<td></td>
<td>Fri Aug 11</td>
<td>Workshop session #5 (CLE A127)</td>
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<tr>
<td></td>
<td></td>
<td><strong>Part 5: Options for Violations &amp; Frequency Data</strong></td>
</tr>
<tr>
<td>7</td>
<td>Mon Aug 14*</td>
<td>Topic 11. Options when assumptions are violated</td>
</tr>
<tr>
<td></td>
<td>Wed Aug 16*</td>
<td>Topic 12. Frequency Data / Final Project due</td>
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<tr>
<td></td>
<td>Fri Aug 18</td>
<td>Workshop Session #6 (CLE A127)</td>
</tr>
<tr>
<td></td>
<td>Mon Aug 21</td>
<td>Final Exam</td>
</tr>
</tbody>
</table>

*iClicker responses will count for marks on these days.*
Prerequisites

Students who remain in courses for which they do not have the prerequisites do so at their own risk. Students who complete courses without prerequisites ARE NOT exempt from having to complete the prerequisite course(s) if such courses are required for the degree program.

Program Requirements

For more information see pages 310-313 of the UVic Calendar May 2017.

Registration Status

Students are responsible for verifying their registration status. Registration status may be verified using My Page, View Schedule. Course adds and drops will not be processed after the deadlines set out in the current UVic Calendar.

Commitment to Inclusivity and Diversity

The University of Victoria is committed to promoting, providing and protecting a positive and supportive and safe learning and working environment for all its members.

In the Event of Illness, Accident or Family Affliction

What to do if you miss the final exam scheduled on the last day of classes

Apply at Records Services for a "Request for Academic Concession", normally within 10 working days of the date of the exam. Records Services will forward the form to the instructor. If the concession is granted, the instructor will determine how to deal with the situation (for example, a deferred exam). Where a concession is not applied for or where such application is denied, an N grade will be entered on the student’s academic record.

OR, you can download the Request for Academic Concession form here:
http://www.uvic.ca/registrar/assets/docs/record-forms/rac.pdf

What to do if you miss an exam other than one scheduled on the last day of classes

Do not apply at Records Services for a "Request for Academic Concession". Instead submit documentation of the illness, accident or family affliction directly to your course instructor (or designated teaching assistant).

What to do if you require additional time to complete course requirements

Apply at Records Services for a "Request for Academic Concession", normally within 10 working days of the end of the course. Records Services will forward the form to the instructor. If the concession is granted, the instructor will determine how to deal with the situation (for example, a deferred exam). Where a concession is not applied for or where such application is denied, an N grade will be entered on the student’s academic record.

OR, you can download the Request for Academic Concession form here:
http://www.uvic.ca/registrar/assets/docs/record-forms/rac.pdf
**Policy on Academic Integrity including Plagiarism and Cheating**

The Department of Psychology fully endorses and intends to enforce rigorously the Senate Policy on Academic integrity ([http://web.uvic.ca/calendar2017-05/undergrad/info/regulations/academic-integrity.html](http://web.uvic.ca/calendar2017-05/undergrad/info/regulations/academic-integrity.html), p. 45-48, UVic Calendar May 2017). It is of utmost importance that students who do their work honestly be protected from those who do not. Because this policy is in place to ensure that students carry out and benefit from the learning activities assigned in each course, it is expected that students will cooperate in its implementation.

The offences defined by the policy can be summarized briefly as follows:

1. **Plagiarism.** You must make sure that the work you submit is your work and not someone else’s. There are proper procedures for citing the works of others. The student is responsible for being aware of and using these procedures.

2. **Unauthorized Use of an Editor.** The use of an editor is prohibited unless the instructor grants explicit written authorization.

3. **Multiple Submission.** Only under exceptional circumstances may a work submitted to fulfill an academic requirement be used to satisfy another similar requirement. The student is responsible for clarifying this with the instructor(s) involved.

4. **Falsifying Materials Subject to Academic Evaluation.** This includes falsification of data, use of commercially prepared essays, using information from the Internet without proper citation, citing sources from which material is not actually obtained, etc.

5. **Cheating on Assignments, Tests, and Examinations.** You may not copy the work of others in or out of class; you may not give your work to others for the purpose of copying; you may not use unauthorized material or equipment during examinations or tests; and you may not impersonate or allow yourself to be impersonated by another at an examination. The Department of Psychology has a policy of not making old examinations available for study purposes. Therefore, use of old exams without the express written permission of the instructor constitutes cheating by the user, and abetting of cheating by the person who provided the exam.

6. **Being an Accessory to Offences.** This means that helping another student to cheat (for instance, by showing or communicating to them answers to an assignment, or by allowing them to view answers on an exam) is an academic offence.

Instructors are expected to make every effort to prevent cheating and plagiarism. This may include the assignment of seating for examinations, asking students to move during examinations, requests to see student identification cards, and other measures as appropriate. Instructors also have available to them a variety of tools and procedures to check for Internet and electronic media-based cheating. In instances of suspected or actual plagiarism or cheating, instructors, following prescribed procedures, are authorized to take steps consistent with the degree of the offence. These measures will range from a zero on the test or assignment or a failing grade for the course, probation within a program to temporary or even permanent suspension from the University.

Rights of Appeal are described in the Policy on Academic Integrity in the University calendar (on p. 46-47 in May 2017).

**The definitive source** for information on Academic Integrity is the University Calendar (p. 45-48 in May 2017) ([http://web.uvic.ca/calendar2017-05/undergrad/info/regulations/academic-integrity.html](http://web.uvic.ca/calendar2017-05/undergrad/info/regulations/academic-integrity.html))

**Other useful resources on Plagiarism and Cheating include:**

1. The Study Solutions Office: [https://www.uvic.ca/services/counselling/success/study/index.php](https://www.uvic.ca/services/counselling/success/study/index.php)
2. The Ombudsperson's office: [http://www.uvss.uvic.ca/ombudsperson/pubsguides/plagiarism.pdf](http://www.uvss.uvic.ca/ombudsperson/pubsguides/plagiarism.pdf)