

**Psychology 359: Advanced Research Methods in Behavioural Sciences**  
Tentative Syllabus: Spring 2008

**Course Information and Objective**

Lecture: Tuesday/Thursday 2-3:30                      Buchanan B223  
Labs: T or TH 12:30-1:45                                      (Computer Lab)

This course is an advanced introduction to statistical methods in psychology. There are 4 main goals of this course.

1. A general introduction to statistical inference. Some of this should be review, but many of you will have covered this at different levels in previous courses. Here we will cover parameter estimation, sampling theory, hypothesis testing, confidence intervals, effect sizes, causal inference, statistical power, and understanding  $p$ -values. These are the basic inferential tools for all statistical analyses and for understanding your data. At this point we will stay with the simple two-group experimental design (i.e.,  $t$ -tests) while covering these topics.

2. An introduction to ANOVA. Here we will cover the one-way ANOVA, mean comparisons, and the two-way ANOVA (main effects, interactions, contrasts). We will only cover between-group designs given our limited time.

3. An introduction to the general linear model (multiple regression) focusing on one predictor and two predictor regression equations. We will conclude with broader theoretical models and mediation. Time permitting we will also examine moderation, but I suspect we will not have time.

4. Reporting and conveying results. Each problem set will ask you to write a brief summary of the results in APA format. Generally these will only be 1-4 sentences long. We will provide templates as guides. Remember to communicate what you learned/discovered/concluded. Statistics are simply the appendages to sentences that provide the rationale or basis for your conclusion.

The first three goals will roughly correspond to the three sections of this course. By the end of this course you will be able to (1) identify relevant statistical approaches to analyzing data, (2) conduct those appropriate analyses, (3) report your results, and (4) explain and defend your conclusions. At the end of each of the first three sections I will provide a general review guide so that you know what topics I expect you to know.

**Office and Appointments**

*Instructor:*

Jeremy Biesanz, Assistant Professor  
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*Teaching Assistants:*

Catherine Rawn  
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Office Hours: TH 11-12.

*Please make an appointment with one of us if you cannot make the scheduled office hours.*

**Class Website (for notes/readings/materials):** <http://www.psych.ubc.ca/~jbiesanz/Psych359/>

Username: psych                      Password: stats

### Text

Howell, D. C. (2007). *Statistical Methods for Psychology (6<sup>th</sup> Ed)*. Thompson-Wadsworth.

### Software

The primary major statistical package that we will teach this semester is SPSS. Feel free to use another package such as SAS for your assignments if you so desire. If you have difficulty obtaining access to computing resources, please see either Catherine or myself as soon as possible.

During the section on multiple regression we will use ARC. This is a free computer program that runs on Windows, Macintosh (you must install classic and OS 9.2.2; see me if you do not have classic on your Mac), or UNIX. You can download a copy for your computer at this site (<http://www.stat.umn.edu/arc/software.html>). We will also briefly use R (<http://cran.r-project.org/>). You will need to download and install this on a computer for several parts of several assignments.

### Grading

Course grades will be based on two major components. First, there will be a number of problem sets during the semester (approximately 6-7; these will be provided at least 2 weeks before they are due) that will be worth 30% of your grade. Second, there will be a midterm and a final exam, each worth 30% of your grade. Participation (including the summary/comments for designated assigned readings) will be worth 10%. The problem sets are to be turned in the date they are due in lecture. Failure to turn in an assignment by the due date will result in the loss of 5% of the assignment's value for each day beyond the deadline. Keep a copy of all assignments in case of loss. *Although I encourage you to work in groups to discuss your assignments, I require that every person turn in their own programming, output, and assignment; Group projects are not acceptable.*

### Handouts & Additional Materials

These will be made available on the website several weeks in advance. Check the website frequently for detailed information on the timing of the sections of this course. During the semester I will be providing detailed lecture notes. Some of these were originally based on materials developed primarily by Dr. Leona Aiken and Dr. Stephen West; however, any errors are strictly mine. These materials will be available on the class website in advance of the lectures. Occasionally the notes in the section related to multiple regression will refer to the Cohen, Cohen, West, and Aiken text (CCWA) and you may ignore these references.

### Strategy for the Course

It is critical to keep up with the course on a *weekly* basis. As soon as you can, identify several classmates from whom you can get notes (or clarifications of the lecture notes) should you miss class. It has been my experience that students tend to have difficulty studying on their own without attending class. Coming to class and completing the problem sets will help you keep up and will help to check your understanding of the material.

It is a good strategy to review your notes from the previous lecture before coming to class. In this way you will discover if parts of your notes are not clear can ask for clarification in class. I will look to you throughout the course for feedback about your level of understanding. **YOU SHOULD ASK QUESTIONS IN CLASS.** If you have a question, it is very likely that other students in the room have the same question. It helps to actively participate in class.

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### Psychology Department's Position on Academic Misconduct

Cheating, plagiarism, and other forms of academic misconduct are very serious concerns of the University, and the Department of Psychology has taken steps to alleviate them. In the first place, the Department has implemented software that, can reliably detect cheating on multiple-choice exams by analyzing the patterns of students' responses. In addition, the Department subscribes to *TurnItIn*--a service designed to detect and deter plagiarism. All materials (term papers, lab reports, etc.) that students submit for grading will be scanned and compared to over 5 billion pages of content located on the Internet or in TurnItIn's own proprietary databases. The results of these comparisons are compiled into customized "Originality Reports" containing several, sensitive measures of plagiarism; instructors receive copies of these reports for every student in their class.

In all cases of suspected academic misconduct, the parties involved will be pursued to the fullest extent dictated by the guidelines of the University. Strong evidence of cheating or plagiarism may result in a zero credit for the work in question. According to the University Act (section 61), the President of UBC has the right to impose harsher penalties including (but not limited to) a failing grade for the course, suspension from the University, cancellation of scholarships, or a notation added to a student's transcript.

All graded work in this course, unless otherwise specified, is to be original work done independently by individuals. Do **not** use Google/Yahoo/MSN Search/etc. to find articles for assignments in this course. **Do** use any of the indexes and databases listed under Indexes and Databases, Subject Resources, OneSearch or Metasearch on the Library's website at <http://www.library.ubc.ca>. (Not sure which index to use? Click HELP on the library homepage at [www.library.ubc.ca](http://www.library.ubc.ca) or try Subject Resources.)

If you have any questions as to whether or not what you are doing is even a borderline case of academic misconduct, please consult your instructor. For details on pertinent University policies and procedures, please see Chapter 5 in the UBC Calendar (<http://students.ubc.ca/calendar>).

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