

ANALYSIS OF BEHAVIOURAL DATA

PSYC 218, SECTIONS 005 AND 006, 3 CREDITS

TERM II, 2007 - 2008

SECTION 005: T Th 2:00 PM - 3:30 PM, BUCH A202

SECTION 006: T Th 3:30 PM - 5:00 PM, BUCH A202

Instructor: Professor Geoffrey Hall.

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Office Hour: Thursday 11:00 - 12:00 or by appointment.

Course Materials Web Page: www.psych.ubc.ca/~ghlab/teaching/218/index.htm [login = psyc218; password = stats]

Teaching Assistants: Krista Byers-Heinlein (KB) and Jess Gao (JG).

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Office Hours: Tuesday 12:00 - 1:00 (KB) and Monday 12:00 - 1:00 (JG) or by appointment.

COURSE DESCRIPTION:

- PSYC 218 is a course in statistical data analysis and is designed to follow directly from PSYC 217. The course will cover (1) descriptive statistics, (2) an introduction to inferential statistics, and (3) a survey of some common statistical tests.

PREREQUISITES:

- PSYC 217.

REQUIRED TEXTBOOK:

- Pagano, R. R. (2007). **Understanding statistics in the behavioral sciences (Eighth Edition)**. St. Paul, MN: West Publishing [available in UBC Bookstore]. An optional study guide to accompany this text is also available in the bookstore.

COURSE REQUIREMENTS AND GRADING:

- **Midterm exams:** Two 50-minute mid-term examinations (worth $2 \times 30\% = 60\%$), consisting of short answer and/or multiple choice questions, will be held in class on **FEBRUARY 14** and **MARCH 20**. These two exams will be non-cumulative and closed-book.
- **Final exam:** A final examination (worth 40%), also consisting of short answer and/or multiple choice questions, will be scheduled during the **APRIL EXAM PERIOD**. The final exam will be cumulative, but will emphasize material covered after the second mid-term. The final exam will also be closed-book.
- **Optional computational exercises:** During the term, three optional computational exercises will be uploaded to the course web page (one before each midterm, and one before the final exam). Listen for announcements in class, and check the course materials web page. No marks will be given for these exercises, but students are encouraged to complete them to help prepare for examinations.
- **Optional computer labs:** Students interested in learning how to perform computerized data analysis will have the opportunity to do so. During the term, two optional computer instructional labs will be scheduled, outside of class time. (Given the large size of the class, multiple sections of each lab will be offered.) Listen for announcements in class, and check the course materials web page. No marks will be given for these labs, but students are encouraged to take advantage of the chance to learn computerized data analysis.

ADDITIONAL INFORMATION:

- **Lecture notes:** Lecture notes will be uploaded to the course materials web page over the course of the term.
- **Review sessions:** An optional review session will be scheduled by Professor Hall before each examination, outside of class time. Listen for announcements in class, and check the course materials web page. No new material will be presented during these sessions, but they will provide an opportunity for students to ask questions and to see solutions to the computational exercises worked out in detail.
- **Calculators:** A calculator will be useful for studying and for exams. Calculators with advanced statistical functions (e.g., automatic calculation of regression lines) are not permitted in exams.
- **Missed exams:** Students must inform Professor Hall if an exam is to be missed (e-mail geoff@psych.ubc.ca) and produce a medical certificate upon returning to class; otherwise, a grade of 0 will be assigned.
- **Cheating:** Cheating on exams will result in a grade of 0 on the exam and a report to the President's Advisory Committee on Student Discipline (see UBC Calendar). Students should be able to produce identification during exams.
- **Scaling of grades:** If necessary, course grades may be scaled so that the class average is approximately 65% and the standard deviation is approximately 14%. An announcement will be made if scaling is to be used.
- **Research participation credit:** Students may receive up to a maximum of 2 points of research participation credit for this course. These points will be added to final course grades, after any scaling has been applied. Please follow the link on the department's web page (hsp.psych.ubc.ca) for further information about the UBC Psychology Research Participation System.

COURSE OUTLINE:

There are three main sections to the course, and they are described below. We will cover these sections and the topics within them in the order shown. Required readings are listed below each section. Depending on time considerations, some of the readings may be omitted, so listen carefully in class for announcements and check the announcements on the course materials web page.

1. Overview and descriptive statistics

- Statistics and scientific method.
- Basic mathematical and measurement concepts.
- Frequency distributions.
- Measures of central tendency and variability.
- The normal curve and standard scores.
- Correlation.
- Linear regression.

[Required readings: TEXT, Chapters 1-7]

2. Inferential statistics: Introduction

- Random sampling and probability.
- Binomial distribution.
- Introduction to hypothesis testing using the sign test.
- Power.

[Required readings: TEXT, Chapters 8-11]

3. Inferential statistics: Survey of some common statistical tests

- Sampling distributions, sampling distribution of the mean, the normal deviate (z) test.
- Student's t -test for single samples.
- Student's t -test for correlated and independent groups.
- Introduction to the analysis of variance.

[Required readings: TEXT, Chapters 12-15. We will likely cover only a portion of Chapter 15.]