



AMBROSE  
UNIVERSITY COLLEGE

**BHS 310 QUANTITATIVE METHODS for the BEHAVIOURAL SCIENCES Winter 2009**  
**Instructor:** Don Liteplo

**Contacting the Instructor**

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**Course Term**

**Dates:** January 6<sup>th</sup> to April 15<sup>th</sup>, 2009

**Times:** Lectures – Wed & Fri 9:45 to 11:00 am

**Room:** Airhart Theater

Labs – Mon 9:45 to 11:00 am or 11:15 to 12:30 am

**Room:** A2212

**Course Description**

This course is designed to give students a basic understanding of descriptive and inferential statistics. Emphasis is placed on practical application and students will learn to analyze and interpret basic statistical research. They will also learn to use computer software (SPSS) to run analyses and create their own statistical tables/charts. Lab time will be primarily spent working on the computer. Students will be required to work in groups during some of the lab sessions. In particular, students will participate in a group project assigned near the end of the semester where each group will collect and analyze data, and present a written report on the procedure and findings.

**Course Objectives**

The main purpose is to provide students taking their first course in descriptive and inferential statistics with an understanding of the rationale and use of statistical methods in social research. Emphasis is on understanding:

- why the social researcher uses statistical analysis,
- what the major basic techniques (or tools) of analysis are,
- the general conditions for applying statistical procedures to basic research problems, and
- generally acceptable forms of interpretation/reporting of results.

In addition to the successful completion of prerequisite courses (see Calendar), students are required to be competent in the use of personal computers and must have a good working knowledge of basic mathematics (e.g., fractions, percentages, decimals, algebraic equations) in order to complete the course successfully. No statistical software experience is expected. If your math skills are a bit rusty, the text includes a basic math review (see Appendix B).

**Required Text (must be possessed by each student)**

Levin, J. and Fox, J.A. (2006) *Elementary Statistics in Social Research, (Tenth Edition)* Allyn & Bacon, Boston.

## Other Materials

A hand-held electronic calculator *with statistical functions* is required. The calculator must be able to accept the input of raw statistical data and provide the student with at least the following output:  $\sum x$ ,  $\sum x^2$ , mean, variance, and standard deviation.

Students will find that using such a tool will considerably reduce time spent in calculations. This is especially valuable when handling complex assignments and writing quizzes and examinations. While a particular calculator (make and model) cannot be specified, it is recommended that any such calculator purchased should have statistical capabilities similar to the TI BA II Plus. Students who do not already possess such a calculator may wish to obtain information from the instructor during the first week of classes before deciding on the make and model to acquire. Note that the course instructor will endeavour to assist students with calculator applications, and can provide considerable assistance with the above-named calculator but, because of the wide variety of calculators in use, each student is ultimately responsible for knowing how to use the calculator that he/she brings to the course.

## Course Schedule

A *Detailed Course Schedule* will be handed out in the first week of the semester. This schedule will set out the topics, dates, and times for the lectures and lab sessions, and will also show the dates and times for assignments, quizzes, and the mid-term examination. The dates and times are subject to change at the instructor's discretion as the course progresses; changes, if any, will be few and will be communicated in advance.

### Broad Course Schedule

TOPIC	TEXT REFERENCE
Why the Social Researcher Uses Statistics	Chapter 1
Organizing the Data	Chapter 2
Measures of Central Tendency	Chapter 3
Measures of Variability	Chapter 4
Probability and the Normal Curve	Chapter 5
Samples and Populations	Chapter 6
Mid-Term Examination (includes Chapters 1, 2, 3, 4, 5, and 6)	
Testing Differences Between Means	Chapter 7
Analysis of Variance	Chapter 8
Nonparametric Tests of Significance	Chapter 9
Correlation	Chapter 10
Nonparametric Measures of Correlation	Chapter 12
Regression Analysis	Chapter 11
Final Examination (comprehensive, but will emphasize the material of Chapters 7, 8, 9, 10, 11, and 12)	

## Course Requirements and Grading

Student performance will be evaluated in a combination of classroom participation and graded assignments, quizzes, mid-term examination, and final examination. Mark allocation is as follows:

Participation	5%
Assignment #1 (take-home)	5%
Quiz #1 (in-class)	5%
Assignment #2 (take-home)	5%
Mid-Term Examination	20%
Assignment #3 (take-home)	5%
Quiz #2 (in-class)	5%
Assignment #4 (take-home)	10% (group project)
Quiz #3 (in-class)	5%
Final Examination	<u>35%</u>
	100%

Students need not receive a passing grade on all components of term work and examinations in order to pass the course. However, failure to submit an assignment or write a quiz/examination, without the prior approval of the instructor, may result in an F grade for the course.

Marks for classroom participation are based on the instructor's impression (cumulative through the semester) of:

- the student's efforts to review and comprehend assigned group work, text readings, and class handouts,
- the student's classroom attitude, quality of responses to questions asked by the instructor, and quantity/quality of contributions to classroom discussion.

As well, absences from class can negatively impact marks for *participation*.

Students are required to read the above-listed chapters in the textbook in order to be prepared for the classroom lectures, discussion, and problem-solving.

### Assignments/Quizzes

The quizzes will be written in-class. The assignments will be take-home exercises. Deadlines for completion and submission of the assignments will be clearly indicated in advance.

Take-home assignments submitted after the due date will be penalized by 50%, but if submitted after answer keys have been posted, or after any graded materials have been returned to any students, a grade of 0% will be awarded.

As has been noted, Assignment #4 is specifically a group project. This assignment gives students the opportunity to apply learned statistical concepts to an original research paper using a data set collected by the students. With his/her group (assigned by the instructor), each student will work to write a 4 to 5-page paper using double-spaced type (1" margins and font size no larger than 12) in which the students demonstrate their ability to:

- collect and analyze variables, and
- describe and interpret patterns within a data set.

The group will be required to present and interpret a table and a graph within the body of the paper. (We will be discussing formatting (APA style) and different types of data analysis in class.) Please note that all members of a group will receive the same grade for the submitted paper.

All assignment and quiz papers must include the student's name and student ID number.

Note that in order for a student to be eligible to write the final examination, he/she must submit all take-home papers by the last day of lectures and must have written all quizzes on the scheduled dates. The mark for a quiz which is *missed with a legitimate reason* (typically illness, evidenced by a Doctor's note) will normally be spread across (transferred to) the other quizzes.

### **Mid-Term Examination**

The mid-term examination will be 1 1/4 hours (75 minutes) in length. It will be written during regular class time *per the Detailed Course Schedule* and can cover all materials included in the course up to the date of the exam.

A grade of 0% will be awarded for a mid-term examination missed *without a legitimate reason*. If the mid-term examination is missed *with a legitimate reason*, a make-up mid-term examination will be arranged within one week. If the instructor determines that this arrangement is not practical, half of the 20% will be added to the weight of the final examination and the other half will be spread across (transferred to) the three quizzes.

### **Final Examination**

The final examination can include questions on any course materials covered during the semester, but emphasis will be on materials included in Chapters 7, 8, 9, 10, 11, and 12. Allowed writing time for the final examination will be three hours (180 minutes). Use of a personal computer will not be required, but students are advised to bring a hand-held electronic calculator *with statistical functions*.

The exact time and date for writing will be posted by the Registrar. The final examination will be written during the final examination period – April 16<sup>th</sup> to 22<sup>nd</sup>, 2009 – following the last day of classes. It is the student's responsibility to ensure that he/she does not have any conflicting commitments during the final examination period.

Graded final examinations will be available for supervised review at the request of the student.

Students need not receive a passing grade on all components of term work and examinations in order to pass the course.

### **Available Letters for Course Grades**

<u>% Grade</u>	<u>Letter Grade</u>	<u>Description</u>
95% to 100%	A+	
90% to 94%	A	Excellent
85% to 89%	A-	
80% to 84%	B+	
76% to 79%	B	Good
72% to 75%	B-	
68% to 71%	C+	
64% to 67%	C	Satisfactory
60% to 63%	C-	
55% to 59%	D+	
50% to 54%	D	Minimal Pass
0% to 49%	F	Failure

## **Important Notes**

A student's final course grade is not based upon the student's attendance record; however, the general expectation is that students will attend all classes in which they are registered. A combination of low academic performance and notable absences from class may be brought to the attention of program administrators.

January 16<sup>th</sup>, 2009, is the last day to enter a course without permission and to withdraw from a course and receive tuition refund.

March 13<sup>th</sup>, 2009, is the last day to voluntarily withdraw from a course or change to audit without academic penalty.

Course withdrawal forms are available from the Registrar. Students who do not follow the proper withdrawal procedures will be recorded as having failed the course.

It is the responsibility of all students to become familiar with and adhere to the academic policies contained in the Student Handbook and Academic Calendar.

Students are reminded that examinations will be actively invigilated. Students may only bring to an examination room items stipulated by the instructor to be required for the completion of the examination. All non-essential items (including, but not limited to, hats, coats, gloves, knapsacks, purses, and electronic devices other than approved calculators) must be left in an area of the examination room designated by the instructor. All cell phones and other unauthorized electrical devices **MUST** be turned off during examinations. Failure to comply may result in a failing grade for the examination.

Students are advised to retain this course outline for future reference.