

**University of Guelph**  
**College of Social and Applied Human Sciences**  
**Department of Sociology and Anthropology**  
**SOAN 3120: Quantitative Methods**  
**September – December, 2006**

**Instructor:** David Walters  
**Email:** walters@sociology.ca  
**Web Page:** www.sociology.ca  
**Office:** MacKinnon (MAC) 614  
**Office Hours:** TBA in class

**Section 01** 2:30-3:30 Mon/Wed Landscape Architecture Bldg. (LA), room 204  
**Section 02** 3:30-4:20 Mon/Wed Landscape Architecture Bldg. (LA), room 204

**Course Prerequisites:** SOAN 2120

**Course Objectives:**

The purpose of this course is to provide you with an introduction to quantitative methods and inferential statistics. Topics that we will cover include: experimental versus survey research, variables, measures of central tendency and dispersion, inferential statistics, hypothesis testing, analysis of variance, correlation and regression analysis. At times this course can be mathematically intensive. Thus, students are strongly encouraged to have taken a university level math course before enrolling in SOAN 3120.

**Evaluation:**

Midterm test #1: 25%  
Midterm test #2: 25%  
Assignment: 10%  
Homework: 5%  
Final exam: 35%

**Required Text:**

Moore, David (2004) *The Basic Practice of Statistics, Third Edition*. New York: W.H. Freeman & Company.

**Statistical Software:**

The statistical software packages that we will be using in this class are SPSS (statistical package for the social sciences) and R, an open-source (free) version of S-Plus. R is an extremely flexible statistical software program that is becoming very popular within the social sciences. It can be downloaded without any cost from the CRAN webpage (see below). As well, an executable version of R will be made available for download on WebCT. Both software programs are available in the computing lab at the University of Guelph (Mack 028).

### *Information on R*

R software: CRAN (Comprehensive R Archive Network)

<http://cran.r-project.org/>

<http://socserv.socsci.mcmaster.ca/jfox/Misc/Rcmdr/>

Maindonald, John H. (2001) Using R for Data Analysis and Graphics: An Introduction,

<http://www.cran.r-project.org/doc/contrib/usingR.pdf> (read only pages 1-112).

### *Information on SPSS*

SPSS Tutorial

[http://www.cas.lancs.ac.uk/short\\_courses/intro\\_spss.html](http://www.cas.lancs.ac.uk/short_courses/intro_spss.html)

A 30 day trial version of SPSS is available at [SPSS.com](http://SPSS.com)

## **Computer Assignment and Homework**

Information about homework, the final assignment, and weekly readings will be provided in class. All homework assignments are due in your labs. Additional details regarding homework, computer software, and statistical computing will be provided by your lab instructor. The lab component of this course will be discussed in further detail during the first week of class.

## **Labs**

### **Section 1**

<i>01 Mon 10:30</i>	<i>MACK 028</i>
<i>02 Mon 11:30</i>	<i>MACK 028</i>
<i>03 Tue 11:30</i>	<i>MACK 028</i>
<i>04 Wed 7:00 pm</i>	<i>MACK 028</i>
<i>05 Thu 10:30</i>	<i>MACK 028</i>

### **Section 2**

<i>06 Mon 12:30</i>	<i>MACK 028</i>
<i>07 Tue 9:30</i>	<i>MACK 028</i>
<i>08 Tue 12:30</i>	<i>MACK 028</i>
<i>09 Wed 8:00 pm</i>	<i>MACK 028</i>
<i>10 Fri 10:30</i>	<i>MACK 028</i>

## Tentative Class Schedule

(Weekly exercises will be provided in class)

Date:	Topic
Week 1	Introduction to the course Introduction to quantitative methods and statistics
Week 2	Experimental versus survey research Readings: Chapter 1
Week 3	Introduction to statistics Introduction distributions Statistical notation Measures of central tendency and dispersion Readings: Chapters 2 & 3
Week 4	Sampling distributions Inferential statistics and estimation Readings: Chapters 10 & 13
Week 5	Hypothesis testing (Note: Monday is a holiday) Confidence intervals Readings: Chapter 14
Week 6	Test #1 (Chapters 1, 2, 3, 10, 13, 14)
Week 7	Relationships between categorical variables The Chi-square distribution Readings: Chapter 20
Week 8	Correlation and least-squares regression Correlation coefficients, slope coefficients, R-square Readings: Chapter 4 & 5
Week 9	One way Analysis of Variance (ANOVA) Comparing several means The analysis of variance $F$ test. Readings: Chapter 22
Week 10	Test #2 (Chapters 20, 4, 5, 22)

Week 11	Multiple regression (The General Linear Model) Regression with both quantitative and categorical predictors The $t$ -test and the $t$ distribution
Week 12	Multiple regression continued... Review of statistical inference Population parameters versus sample estimates
Week 13	Review for final exam (final assignment due)

The final exam will be scheduled during the final exam period and is cumulative (based on material for the entire term).

**Dates to remember:**

Classes commence Mon. September 11.  
Monday October 9<sup>th</sup> is a holiday. No class.  
Last day to drop a course is Mon. Nov. 6  
Classes conclude on Friday December 1<sup>st</sup>  
Exams commence on Monday December the 5<sup>th</sup>  
Exams conclude on Friday December 15<sup>th</sup>

**Please read the following...**

**E-mail Communication**

As per university regulations, all students are required to check their <uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the university and its students.

**When You Cannot Meet a Course Requirement...**

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor [or designated person] in writing, with your name, id#, and e-mail contact. Where possible, this should be done in advance of the missed work or event, but otherwise, just as soon as possible after the due date, and certainly no longer than one week later. Note: if appropriate documentation of your inability to meet that in-course requirement is necessary, the course instructor, or delegate, will request it of you. Such documentation will rarely be required for course components representing less than 10% of the course grade. Such documentation will be required, however, for Academic Consideration for missed end-of-term work and/or missed final examinations. See the undergraduate calendar for information on regulations and procedures for Academic Consideration. ([http://www.uoguelph.ca/undergrad\\_calendar/c08/c08-ac.shtml](http://www.uoguelph.ca/undergrad_calendar/c08/c08-ac.shtml))

### **Drop Date**

The last date to drop one-semester Fall 2006 courses, without academic penalty, is **Monday, November 6<sup>th</sup>**. For regulations and procedures for Dropping Courses, see the Undergraduate Calendar. ([http://www.uoguelph.ca/undergrad\\_calendar/c08/c08-drop.shtml](http://www.uoguelph.ca/undergrad_calendar/c08/c08-drop.shtml))

### **Copies of out-of-class assignments**

Keep paper and/or other reliable back-up copies of all out-of-class assignments: you may be asked to resubmit work at any time.

### **Academic Misconduct**

The University of Guelph is committed to upholding the highest standards of academic integrity and enjoins all members of the University community – faculty, staff, and students – to be aware of what constitutes academic misconduct and to do as much as possible to prevent academic offences from occurring. The University of Guelph takes a serious view of academic misconduct, and it is your responsibility as a student to be aware of and to abide by the University's policy. Included in the definition of academic misconduct are such activities as cheating on examinations, plagiarism, misrepresentation, and submitting the same material in two different courses without written permission from the relevant instructors. To better understand your responsibilities, read the Undergraduate Calendar.

([http://www.uoguelph.ca/undergrad\\_calendar/c01/index.shtml](http://www.uoguelph.ca/undergrad_calendar/c01/index.shtml)) for a statement of Students' Academic Responsibilities; also read the full Academic Misconduct Policy ([http://www.uoguelph.ca/undergrad\\_calendar/c08/c08-amisconduct.shtml](http://www.uoguelph.ca/undergrad_calendar/c08/c08-amisconduct.shtml)). You are also advised to make use of the resources available through the Learning Commons (<http://www.learningcommons.uoguelph.ca/>) and to discuss any questions you may have with your course instructor, TA, or academic counsellor.

Instructors have the right to use software to aid in the detection of plagiarism or copying and to examine students orally on submitted work. For students found guilty of academic misconduct, serious penalties, up to and including suspension or expulsion, can be imposed. Hurried or careless submission of work does not exonerate students of responsibility for ensuring the academic integrity of their work. Similarly, students who find themselves unable to meet course requirements by the deadlines or criteria expected because of medical, psychological or compassionate circumstances should review the university's regulations and procedures for Academic Consideration in the calendar ([http://www.uoguelph.ca/undergrad\\_calendar/c08/c08-ac.shtml](http://www.uoguelph.ca/undergrad_calendar/c08/c08-ac.shtml)) and discuss their situation with the instructor and/or the program counsellor or other academic counsellor as appropriate.