Course Description

Overview: Much of what we know about the world around us comes from statistics. We are inundated by the media with statistical claims about our society—what we believe and think, what we buy, how well we are doing financially, etc. But how do we evaluate what we read, hear, and see? How do we use statistics to make honest assessments of social processes, rather than to simply confirm our preconceived notions?

In this introductory course in statistics, we will cover the basics of descriptive and inferential statistics. Descriptive statistics involve organizing and summarizing key characteristics of data. The techniques of inferential statistics guide informed judgments about the unknown characteristics of a population based on the known characteristics of a sample. We will also measure and evaluate our uncertainty about those judgments.

Throughout, we will draw on real-world examples from social science, including public opinion polls, surveys, and economic data. In addition to learning the basics of statistical analysis, this course will also introduce students to the use of computing software for data analysis, specifically the free version (PSPP) of the widely-used statistical package SPSS.

The emphasis of this course will not be on computation, but on understanding the process of analysis and interpreting results. No prior knowledge of statistics is assumed or required, although students should have working knowledge of algebra.

Prerequisites: 1.0 Sociology course at the 1000 level.
**Antirequisites:** Biology 2244A/B; Economics 2122A/B, 2222A/B; Geography 2210A/B; Health Sciences 3801A/B; MOS 2242A/B; Psychology 2810, 2820E, 2830A/B, 2850A/B, 2851A/B; Social Work 2207A/B; Statistical Sciences 2035, 2141A/B, 2143A/B, 2244A/B, 2858A/B.

**Learning Outcomes**

1. Learn the terminology and techniques of basic statistical analysis.
2. Gain an understanding of how statistics can be used to address research questions in the social sciences.
4. Be able to read and evaluate empirical, quantitative sociological research.

**Textbook and Other Course Materials**

**Textbook:** We will rely primarily on the following textbook:


I encourage you to get the least expensive option you can. You may also use a prior edition (e.g., the 3rd Canadian Edition); do check with me in the beginning of the semester so we can make sure you are reading from the right sections. Readings from the textbook are labeled **HPL** in the course schedule below. You do **not** need to complete the exercises at the back of each chapter prior to class; these are good opportunities for additional practice, but they are not required.

**PSPP:** Throughout the term, we will gain basic familiarity with statistical analysis software. We will be using PSPP, a **free** version of the common software SPSS (formerly known as Statistical Package for the Social Sciences). More information on downloading PSPP will follow in the first few weeks of class. If you would like to get a head start and see what it’s all about, you may go to this website: [https://www.gnu.org/software/pspp/get.html](https://www.gnu.org/software/pspp/get.html). From there, you can download the package (“Binaries”) that is right for your computer (most likely either Windows or Mac OS).

For class sessions that are marked with **Lab** in the outline below, please bring your laptop or notebook. For students without a laptop, have no fear—we’ll partner up during class and all post all related material to OWL.

**Clicker:** As a way to get even more practice in, and to maximize students’ engagement with the material, we will be using **iClickers**. This is a **free app** (Western has purchased a university subscription) that can be downloaded to your smart phone, laptop, or tablet. This is required, as we will sometimes use the clickers to record our responses to in-class exercises (see below). Please create an iClicker account by visiting [https://www.iclicker.com](https://www.iclicker.com). You can also download the app for your smart devices. Again, this is a free app, and you do not need to purchase anything to use the software.
**Calculator:** You will need a calculator for this class. It should be able to take square roots and natural logs (ln(x)). You won’t need anything fancier than that, and it shouldn’t run you more than about $20. Note that for exams, you will **not** be able to use the calculator on your phones.

**Additional Materials:** Additional readings and materials will be made available through the course website on OWL. Anything you should read prior to class that is available there is marked **OWL** in the course outline below.

**Course Evaluation**

**Problem Sets (30%):** In statistics, as in life, practice makes habit. As such, there will be three (3) problem sets to provide you with the opportunity to practice what we learn—including what we do on PSPP—in a relatively low-stakes, non-test environment. Completed problem sets must be uploaded to OWL by the start of class on the date stated in the course schedule below. Students may work together, but each must turn in their own assignment.

**In-Class Exercises (15%):** There will be approximately seven (7) short in-class exercises carried out at various points throughout the term to assess understanding of current topics or to practice using the statistical software. Each is worth 3 percent of your final mark. Total in-class exercise points in excess of 15 will be discarded. These are unannounced, and there will be no make-ups offered for any reason.

**Midterm Exam (25%):** There will be one in-class midterm exam that will be comprised of conceptual (multiple choice) and computational questions. This exam will not test your memorization of statistical formulas; instead, you will be asked to know when and how to employ the statistical concepts and formulas that we discuss in class.

**Final Exam (30%):** There will also be a final exam scheduled for the regular end-of-term exam period. The format of this exam will be similar to the midterm exam. While it will be cumulative, you should expect more questions from the second half of the term.

If you miss the midterm exam and either the Academic Counseling office approves your absence or you use one of your Self-Reported Absences (see below), we will re-weight your final exam (equal to 55% of your final grade). If you miss the final exam and the Academic Counseling office approves your absence, there will be one makeup date, which will be announced in advance. The form of the make-up final exam is within the discretion of the instructor. If there is no approved justification for a missed exam, the student will receive a mark of zero for that exam.

**Additional Notes About Grading:** There will be no opportunities for extra credit. I encourage you to work consistently throughout the semester, and to see me or our TA as soon as you experience difficulty with the material. In keeping with departmental guidelines, it is expected that the class average for this course will be around 69-73%. Should the final overall grades yield a value significantly below this range, grades will be adjusted upward to ensure an appropriate mean for the class.
How to Contact Me

I can be reached via email at pdenice@uwo.ca. Students are also encouraged to come to my student hours, to set up an appointment, or to approach me before or after class.

How to Get Important Information

You will find course content and announcements posted to our OWL course website. I will also announce any upcoming deadlines or changes to the course schedule in class. If you miss a class, check first with a classmate for any notes or other materials.

Important Policies

**Assignment Deadlines:** Students must submit their assignments by the date and time stated in the course outline and on the OWL website. Late assignments will be penalized 10% for each day they are late. Any assignment not received within 5 days of the due date will not be accepted, except in the event of a documented medical or family emergency. If a student anticipates an issue with an assignment, they are recommended to speak to the professor as early as possible to make alternative arrangements.

**Plagiarism:** Students must write their assignments in their own words. Whenever students take an idea from another author, they must acknowledge their debt both by using quotation marks where appropriate and by proper referencing such as footnotes or citations. Plagiarism is a major scholastic offence (the Scholastic Offence Policy can be viewed in the Western Academic Calendar).

All required papers may be subject to submission for textual similarity review to the commercial plagiarism detection software under license to the University for detection of plagiarism. All papers submitted for such checking will be included as source documents in the reference database for the purpose of detecting plagiarism of papers subsequently submitted to the system. Use of the service is subject to the licensing agreement, currently between The University of Western Ontario and Turnitin.com (www.turnitin.com).

**Laptops and other Electronics/Phones in Class:** I encourage you to take notes without a computer if you are able. If you need a laptop to take notes during class, please refrain from browsing the internet, texting, or going on social networking sites such as Facebook or Twitter. Students who disrupt their colleagues’ learning through the use of their laptop or tablet will be told to put away their device, and they will not be permitted to use it for the remainder of the class. Be sure that all cell phones are silenced and put away at the beginning of class.

**Recording Devices:** Recording devices may not be used in this class. If you require a recording device for medical, accessibility, or other reasons, please see me.

**Lectures and Other Course Materials:** Any materials created by the instructor (e.g., notes, handouts, summaries, slide decks, assignments, exams, etc.) are protected by copyright law and may not be copied or distributed in any form without the explicit permission of the instructor. Any non-authorized use of these materials constitutes an academic offense.
Scholastic Offenses: Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offense (www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf).

Academic Consideration for Missed Work: Students who are seeking academic consideration for missed work during the semester may submit a self-reported absence form online provided that the absence is 48 hours or less and the other conditions specified in the Senate policy are met. There are two important exceptions to this rule: SRAs will not be allowed for final examinations or assessments worth more than 30% of a given course.

Students whose absences are expected to last longer than 48 hours, or where the other conditions detailed in the policy are not met (e.g., work is worth more than 30% of the final grade, the student has already used 2 self-reported absences, the absence is during the final exam period) may receive academic consideration by submitting a Student Medical Certificate (for illness) or other appropriate documentation (for compassionate grounds).

All students pursuing academic consideration, regardless of type, must contact their instructors no less than 24 hours following the end of the period of absence to clarify how they will be expected to fulfill the academic responsibilities missed during their absence. Students are reminded that they should consider carefully the implications of postponing tests or midterm exams or delaying submission of work, and are encouraged to make appropriate decisions based on their specific circumstances. For the full SRA policy, see here: https://counselling.ssc.uwo.ca/procedures/having_problems/Self_Reported_Absence.html.

Accessibility Options: Please contact the course instructor if you require material in an alternate format or if you require any other arrangements to make this course more accessible to you. You may also wish to contact Services for Students with Disabilities (SSD) at 519-661-2111, x82147, for any specific question regarding an accommodation. Information regarding accommodation of exams is available on the Registrar’s website: www.registrar.uwo.ca/examinations/accommodated_exams.html.

Mental Health: Students who are in emotional/mental distress should refer to Mental Health Wellbeing at Western (http://uwo.ca/health/mental_wellbeing/index.html) for a complete list of options for getting help.

Disputing a Grade: Students who wish to dispute an assignment, exam, or course grade must write a one-page explanation justifying why their work should be re-evaluated. Work will not be re-evaluated on the basis that students were sick or feelings stressed when completing the assignment. Please be advised that a student’s mark may go up or down upon re-evaluation.

Extraordinary Circumstances: The content and/or evaluation of this course is subject to change in the event of extraordinary circumstances beyond the University’s or instructor’s control.
Course Schedule

*Please note: Readings should be completed prior to class on the date listed. This outline is subject to change over the course of the term in order to meet the needs of the class. Any changes will be announced in class and/or through our OWL course website.*

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Readings and Deadlines</th>
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<tbody>
<tr>
<td>Jan. 8</td>
<td>Introduction, What is statistics? Data measurement</td>
<td>HPL: Ch. 1</td>
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<tr>
<td>Jan. 15</td>
<td>Organizing our data, Lab 1: The basics</td>
<td>HPL: Ch. 2, OWL: PSPP Lab 0 Install PSPP on your computer</td>
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<td>Jan. 22</td>
<td>Measures of central tendency, Measures of variability</td>
<td>HPL: Ch. 3, Problem Set 1</td>
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<td>Jan. 29</td>
<td>Probability, The Normal Curve</td>
<td>HPL: Ch. 4</td>
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<td>Feb. 5</td>
<td>Calculating z-scores, Lab 2: Describing data</td>
<td>Problem Set 2</td>
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<td>Feb. 12</td>
<td>Midterm Exam</td>
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<tr>
<td>Feb. 19</td>
<td>Reading Week</td>
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**Part I: Descriptive statistics**

**Part II: Inferential statistics**

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<tr>
<th>Date</th>
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<th>Readings and Deadlines</th>
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<tbody>
<tr>
<td>Feb. 26</td>
<td>Samples and populations</td>
<td>HPL: Ch. 5-6</td>
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<tr>
<td>Mar. 4</td>
<td>Hypothesis testing: Differences in means</td>
<td>HPL: Ch. 7 (pp. 206-212), 10, 11</td>
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<td>Mar. 11</td>
<td>Hypothesis testing: Proportions, Lab 3: Testing differences</td>
<td>Problem Set 2, HPL: Continue with above</td>
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<td>Mar. 18</td>
<td>Nonparametric test of significance, Lab 4: Chi-square</td>
<td>HPL: Ch. 7 (pp. 212-231)</td>
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<td>Mar. 25</td>
<td>Correlation, Introduction to regression</td>
<td>HPL: Ch. 13-14</td>
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Apr. 1 Regression (continued)  
**Lab 5:** Correlation and regression

**Problem Set 3**

**HPL:** Continue with above

*Final Exam – Date, Time, Location TBD (set by Registrar)*