

**University of Guelph**  
**Department of Mathematics and Statistics**  
**College of Physical and Engineering Science**

**STAT\*2080: Introductory Applied Statistics I (0.5 credit)**  
**Course Outline for Fall 2022**

**Instructor:** Gerarda Darlington  
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**Office hours:**

Wednesdays, 2:00pm to 4:00pm in MACN 514;  
Thursdays, 2:00pm to 4:00pm in MACN 514.

**Lectures:** Monday, Wednesday, Friday at 11:30am to 12:20pm in MACN 105

Note: For Fall semester courses, extra class days have been added at the end of the semester to replace Fall Study Break Day and Thanksgiving Monday:

Classes rescheduled to Friday, December 2 from Monday October 10;

Classes rescheduled to Thursday, December 1 from Tuesday October 11.

**Course description:** The topics covered in this course include: Frequency distributions, graphing and tabulation of data; measures of central tendency, variability and association; elementary probability; hypothesis testing and confidence intervals; basic concepts of experimental design; treatment designs; simple linear regression and correlation. Examples come from a variety of disciplines, including family studies, education, marketing, medicine, psychology and sociology.

**Prerequisites:** (4U mathematics or equivalent) or 0.50 credit in mathematics.

**Restrictions:** STAT\*2040, STAT\*2060, STAT\*2120, STAT\*2230. BSc students cannot take this course for credit.

**Course materials:**

- \* **10<sup>th</sup> edition** of Introduction to the Practice of Statistics by Moore, McCabe, and Craig
- \* STAT\*2080 lecture notes (provided on the Courselink site)

**Calculator:** Your calculator should be able to calculate at least one-variable statistics. If you're not sure about your calculator, please just ask me.

**Course Objectives:** Statistical reasoning is used widely for establishing social policy, health research, evaluation of foods, political forecasting, etc. Researchers are faced with the questions of how to design surveys and experiments; how to obtain valid data; how to analyse the data properly; how to make relevant interpretations. This course examines some of these questions and

attempts to start answering them. It recognizes the importance of having a quantitatively literate citizenry and it will help you understand the importance of developing skills in the critical reading of your area of study as well as the popular media. By the end of the course you should:

- be familiar with the basic vocabulary of Statistics;
- be able to calculate descriptive statistics and perform exploratory data analyses;
- be able to investigate relationships between two variables;
- know basic study designs;
- understand randomness and probability and be able to apply probability rules;
- be able to calculate the mean and variance of a random variable;
- understand population distributions and sampling distributions;
- understand and be able to apply basic confidence intervals and hypothesis testing;
- be able to use and understand output from SPSS for basic statistical analyses.

We will work through most of the first seven chapters of the textbook, *Introduction to the Practice of Statistics, 10<sup>th</sup> Edition*. The answers for odd-numbered exercises in the text are given at the end of the book. Do as many of these as you feel you need in order to understand the concepts and techniques covered in the course. Solutions for assigned questions will be posted on the CourseLink site immediately after the due date.

#### **Marking Scheme and Test Dates:**

Assignments	25%	8 assignments (due on Fridays at 8:00am)
Test 1	10%	Friday October 14; during class time (40 minute test)
Test 2	10%	Friday November 4; during class time (40 minute test)
Test 3	10%	Friday November 25; during class time (40 minute test)
Final Exam	45%	Monday December 5; 8:30am to 10:30am (Room TBA)

**NOTE:** You should have **NO** conflicts concerning these dates and times. If you do it is your responsibility to resolve them as soon as possible.

**POLICY for missed tests:** If you miss a test during the semester for a **documented** valid reason (e.g., medical illness) your final exam will be reweighted to make up for the missed test.

If you miss the final exam for any reason, you must see your program counsellor. University regulations require specific procedures to be followed regarding the conduct of final exams, including recourse, if any, for missed final examinations. These procedures are out of my control.

**Tests and Exam calculator:** You must have a stand-alone calculator for all tests and the final exam. You will **not** be permitted to use a calculator on a laptop computer, smartphone, etc. If you are discovered to be using anything but a stand-alone calculator during a test or the final exam, it will be reported as possible academic misconduct.

**Assignments:** The assignments support and supplement the lectures. Working through examples and assigned problems is the key to success in the course. You are responsible for doing your own work. It is definitely beneficial to work with others but getting another student to do your assignment for you is academic misconduct.

We will be using the Courselink site for assignment distribution and for assignment answer submission. You can get access by going to <http://courselink.uoguelph.ca/> and then you log in using your university account login and password (the one you use for Gryph Mail). Assignments will be made available to you via pdf files on the STAT\*2080 Courselink site. You will be required to submit assignment responses via the appropriate assignment “quiz” on the Courselink site by a specified due date and time. You will be able to have unlimited attempts when entering your answers until the time that the assignment is due. **Your final attempt is the one that will be graded and will count toward your final assignment grade.** Remember to save your answers right after you enter them and then finally submit the quiz at some time prior to the time that the assignment is due. There will be plenty of time to do the assignments and to submit your answers so the only legitimate reason for a late assignment would be a campus-wide failure of the Courselink system that I will definitely be aware of and that I will take into account since it will affect the entire STAT\*2080 class. The bottom line is that **if you don’t fill in, save, and submit your assignment answers before the due date and time, you will receive a mark of zero for that assignment.**

To account for some reasonable excuse for non-submission of or poor performance on an assignment, I will **discard your worst two assignment marks** when computing your final assignment grade. All assignment marks are of equal weight when I compute your final assignment grade.

**Teaching Assistants:** Office hours with STAT\*2080 Teaching Assistants will be posted as soon as possible.

The [Mathematics and Statistics Learning Centre](#) in McLaughlin Library on the 3<sup>rd</sup> floor, is staffed by teaching assistants. It is another place, other than my and STAT\*2080 teaching assistant office hours, where you can get help on the material in the course.

**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, such as a teaching assistant) in writing, with your name, id#, and e-mail contact. See the Undergraduate Calendar for information on regulations and procedures for [Academic Consideration](#).

**Drop Date:** Courses that are one semester long must be dropped by the end of the last day of classes; two-semester courses must be dropped by the last day of classes in the second semester. The regulations and procedures for [Dropping Courses](#) are available in the Undergraduate Calendar.

**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.

**Accessibility:** The University promotes the full participation of students who experience disabilities in their academic programs. To that end, the provision of academic accommodation is a shared responsibility between the University and the student.

When accommodations are needed, the student is required to first register with Student Accessibility Services (SAS). Documentation to substantiate the existence of a disability is required, however, interim accommodations may be possible while that process is underway.

Accommodations are available for both permanent and temporary disabilities. It should be noted that common illnesses such as a cold or the flu do not constitute a disability.

Use of the SAS Exam Centre requires students to make a booking at least 14 days in advance, and no later than November 1 (fall), March 1 (winter) or July 1 (summer). Similarly, new or changed accommodations for online quizzes, tests and exams must be approved at least a week ahead of time.

More information: [www.uoguelph.ca/sas](http://www.uoguelph.ca/sas)

**Academic Misconduct:** The University of Guelph is committed to upholding the highest standards of academic integrity and it is the responsibility of 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. University of Guelph students have the responsibility of abiding by the University's policy on academic misconduct regardless of their location of study; faculty, staff and students have the responsibility of supporting an environment that discourages misconduct. Students need to remain aware that instructors have access to and the right to use electronic and other means of detection.

Please note: Whether or not a student intended to commit academic misconduct is not relevant for a finding of guilt. Hurried or careless submission of assignments does not excuse students from responsibility for verifying the academic integrity of their work before submitting it. Students who are in any doubt as to whether an action on their part could be construed as an academic offence should consult with a faculty member or faculty advisor.

The [Academic Misconduct Policy](#) is outlined in the Undergraduate Calendar.

**Recording of Materials:** Presentations which are made in relation to course work—including lectures—cannot be recorded or copied without the permission of the presenter, whether the instructor, a classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

**Resources:** The [Academic Calendars](#) are the source of information about the University of Guelph’s procedures, policies and regulations which apply to undergraduate, graduate and diploma programs.

**Disclaimer:** Please note that the ongoing COVID-19 pandemic may necessitate a revision of the format of course offerings, changes in classroom protocols, and academic schedules. Any such changes will be announced via CourseLink and/or class email.

This includes on-campus scheduling during the semester, mid-terms and final examination schedules. All University-wide decisions will be posted on the COVID-19 website (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

**Illness:** Medical notes will not normally be required for singular instances of academic consideration, although students may be required to provide supporting documentation for multiple missed assessments or when involving a large part of a course (e.g., final exam or major assignment).

**COVID-19 Safety Protocols:** For information on current safety protocols, follow these links:

- <https://news.uoguelph.ca/return-to-campus/how-u-of-g-is-preparing-for-your-safe-return/>
- <https://news.uoguelph.ca/return-to-campus/spaces/#ClassroomSpaces>

Please note, that these guidelines may be updated as required in response to evolving University, Public Health or government directives.

**Tentative Course Schedule:**

<b>Dates</b>	<b>Topics</b>
Sept 9 – 16	Introduction; Data; Displaying distributions with graphs; Describing distributions with numbers
Sept 19 – 23	Density curves and Normal distributions; <b>Assignment 1 due Friday September 23 at 8:00am</b>
Sept 26 – 30	Scatterplots; Correlation; <b>Assignment 2 due Friday September 30 at 8:00am</b>
Oct 3 – 7	Least-squares regression; Cautions about correlation and regression; The question of causation; <b>Assignment 3 due Friday October 7 at 8:00am</b>
Oct 10 – 14	Sources of data; Design of experiments; Sampling design; <b>Test 1 on Friday October 14</b> FALL STUDY BREAK (no lectures): OCTOBER 10 and OCTOBER 11
Oct 17 –21	Toward statistical inference; Randomness; Probability models; <b>Assignment 4 due Friday October 21 at 8:00am</b>
Oct 24 – 28	Random variables; Means and variances of random variables; <b>Assignment 5 due Friday October 28 at 8:00am</b>
Oct 31 – Nov 4	The sampling distribution of the sample mean; <b>Test 2 on Friday November 4</b>
Nov 7 – 11	Sampling distributions for counts and proportions; <b>Assignment 6 due Friday November 11 at 8:00am</b>
Nov 14 – 18	Estimating with confidence; <b>Assignment 7 due Friday November 18 at 8:00am</b>
Nov 21 – 25	Tests of significance; <b>Test 3 on Friday November 25</b>
Nov 28 – Dec 2	Inference for the mean of a population; <b>Assignment 8 due Friday December 2 at 8:00am</b>

**\* NOTE: The STAT\*2080 F22 Final Examination is on Monday December 5; 8:30am to 10:30am (Room TBA)**