



STAT*2080 Introductory Applied Statistics I

Fall 2019

Section(s): C01

Department of Mathematics & Statistics

Credit Weight: 0.50

Version 1.00 - September 04, 2019

1 Course Details

1.1 Calendar 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.

Pre-Requisites: (4U mathematics or equivalent) or 0.50 credit in mathematics.

Restrictions: STAT*2040, STAT*2060, STAT*2100, STAT*2120. BSC students cannot take this course for credit.

1.2 Timetable

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

Note: For Fall semester courses, an extra class day has been added at the end of the semester to replace Thanksgiving Monday.

1.3 Final Exam

Tuesday December 10

11:30AM - 01:30PM

Room TBA

Note that final exam time and location are subject to change. Please see WebAdvisor for the latest information.

2 Instructional Support

2.1 Instructional Support Team

Instructor: Gerarda Darlington
Email: gdarling@uoguelph.ca
Telephone: +1-519-824-4120 x53292
Office: MACN 514
Office Hours: Wednesdays: 3:00PM to 4:30PM in MACN 514

Thursdays: 1:00PM to 3:00PM in MACN 514

In addition, there are optional computer lab hours with either me or a STAT*2080 TA:

Tuesdays: 8:30AM to 10:20AM in SSC 1303

Thursdays: 8:30AM to 10:20AM in SSC 1303

2.2 Additional Help

The Mathematics and Statistics Learning Centre in McLaughlin Library on the 3rd 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.

3 Learning Resources

3.1 Required Resources

9th edition of Introduction to the Practice of Statistics by Moore, McCabe, and Craig (Textbook)

STAT*2080 lecture notes (provided on the Courselink site) (Notes)

Calculator (Equipment)

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

4 Learning Outcomes

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, 9th Edition. The answers for odd-numbered exercises are given at the end of the textbook. 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.

5 Teaching and Learning Activities

5.1 Lecture

Fri, Sep 6 - Fri, Sep 13

Topics: Introduction; Data; Displaying distributions with graphs; Describing distributions with numbers

Mon, Sep 16 - Fri, Sep 20

Topics: Density curves and Normal distributions;

Assignment 1 due Friday September 20 at 8:00am

Mon, Sep 23 - Fri, Sep 27

Topics: Scatterplots; Correlation;

Assignment 2 due Friday September 27 at 8:00am

Mon, Sep 30 - Fri, Oct 4

Topics: Least-squares regression; Cautions about correlation and regression; The question of causation;

Assignment 3 due Friday October 4 at 8:00am

Mon, Oct 7 - Fri, Oct 11

Topics: Sources of data; Design of experiments; Sampling design;

Test 1 on Wednesday October 9 in class

Mon, Oct 14 - Fri, Oct 18

Topics: Toward statistical inference; Randomness; Probability models;

Assignment 4 due Friday October 18 at 8:00am

FALL STUDY BREAK (no lectures and labs): OCTOBER 14 and OCTOBER 15

Mon, Oct 21 - Fri, Oct 25

Topics: Random variables; Means and variances of random variables;

Assignment 5 due Friday October 25 at 8:00am

Mon, Oct 28 - Fri, Nov 1

Topics: The sampling distribution of the sample mean;

Test 2 on Wednesday October 30 in class**Mon, Nov 4 - Fri, Nov 8****Topics:** Sampling distributions for counts and proportions;**Assignment 6 due Friday November 8 at 8:00am****Mon, Nov 11 - Fri, Nov 15****Topics:** Estimating with confidence;**Assignment 7 due Friday November 15 at 8:00am****Mon, Nov 18 - Fri, Nov 22****Topics:** Tests of significance;**Test 3 on Wednesday November 20 in class****Mon, Nov 25 - Fri, Nov 29****Topics:** Inference for the mean of a population;**Assignment 8 due Friday November 29 at 8:00am**

6 Assessments

6.1 Marking Schemes & Distributions

NOTE: You should have NO conflicts concerning the dates and times of tests and the final exam. If you do it is your responsibility to resolve them as soon as possible.

IMPORTANT: Assignment marks will NOT count toward your final grade if you fail all 3 tests and the final exam.

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.

Calculator for Tests and Final Exam: 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 assignment mark when computing your final assignment grade. All assignment marks are of equal weight when I compute your final assignment grade.

Name	Scheme A (%)
Assignments	21
Test 1	13
Test 2	13
Test 3	13
Final Exam	40

Name	Scheme A (%)
Total	100

6.2 Assessment Details

Assignments (21%)

Date: Due Fridays at 8am

There will be a total of 8 assignments.

Test 1 (13%)

Date: Wednesday October 9, In Class

45 minute test

Test 2 (13%)

Date: Wednesday October 30, In Class

45 minute test

Test 3 (13%)

Date: Wednesday November 20, In Class

45 minute test

Final Exam (40%)

Date: Tuesday December 10 from 11:30am to 1:30pm, Room TBA

7 University Statements

7.1 Email Communication

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

7.2 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. The grounds for Academic Consideration are detailed in the Undergraduate and Graduate Calendars.

Undergraduate Calendar - Academic Consideration and Appeals

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-ac.shtml>

Graduate Calendar - Grounds for Academic Consideration

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

Associate Diploma Calendar - Academic Consideration, Appeals and Petitions

<https://www.uoguelph.ca/registrar/calendars/diploma/current/index.shtml>

7.3 Drop Date

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. This applies to all students (undergraduate, graduate and diploma) except for Doctor of Veterinary Medicine and Associate Diploma in Veterinary Technology (conventional and alternative delivery) students. The regulations and procedures for course registration are available in their respective Academic Calendars.

Undergraduate Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-drop.shtml>

Graduate Calendar - Registration Changes

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/genreg-reg-regchg.shtml>

Associate Diploma Calendar - Dropping Courses

<https://www.uoguelph.ca/registrar/calendars/diploma/current/c08/c08-drop.shtml>

7.4 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.

7.5 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 book their exams at least 7 days in advance and not later than the 40th Class Day.

For Guelph students, information can be found on the SAS website

<https://www.uoguelph.ca/sas>

For Ridgetown students, information can be found on the Ridgetown SAS website

<https://www.ridgetownc.com/services/accessibilityservices.cfm>

7.6 Academic Integrity

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 encourages academic integrity. 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.

Undergraduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/undergraduate/current/c08/c08-amisconduct.shtml>

Graduate Calendar - Academic Misconduct

<https://www.uoguelph.ca/registrar/calendars/graduate/current/genreg/index.shtml>

7.7 Recording of Materials

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

7.8 Resources

The Academic Calendars are the source of information about the University of Guelph's procedures, policies, and regulations that apply to undergraduate, graduate, and diploma programs.

Academic Calendars

<https://www.uoguelph.ca/academics/calendars>