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 2016

Instructor: Gerarda Darlington
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Extension: 53292
email: gdarling@uoguelph.ca

Office hours: Wednesday 12:30pm to 1:30pm; Thursday 11:00pm to 1:00pm
Note: To meet me outside of these hours, please make an appointment by email.

Lectures: Monday, Wednesday, Friday at 3:30pm to 4:20pm in ROZH 101
Note: For Fall semester courses, an extra class day has been added at the end of the semester to replace Thanksgiving Monday.

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*2100, STAT*2120. BSc students cannot take this course for credit.

Course materials:
* 8^{th} 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, 8th 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 put on the Courselink site immediately after the due date.

Marking Scheme and Test Dates:

Assignments	16%	8 assignments (due on Thursdays at 11:59pm)
Test 1	13%	Friday October 14; in class (40 minute test)
Test 2	13%	Friday November 4; in class (40 minute test)
Test 3	13%	Friday November 25; in class (40 minute test)
Final Exam	45%	Monday December 12; 7:00pm to 9:00pm (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.

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.

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, iPhone, 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 GryphMail). 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. 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.

STAT*2080 Teaching Assistants:

Sarah Rathwell	srathwel@uoguelph.ca
Matthew Stephenson	stephenm@uoguelph.ca
Radia Taisir	rtaisir@uoguelph.ca
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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.

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 classmate or guest lecturer. Material recorded with permission is restricted to use for that course unless further permission is granted.

E-mail Communication: As per university regulations, all students are required to check their University of Guelph GryphMail account <uoguelph.ca> 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. The regulations and procedures for Academic Consideration are detailed in the Undergraduate Calendar.

Drop Date: The last date to drop one-semester Fall 2016 courses, without academic penalty, is Friday November 4. The regulations and procedures for Dropping Courses are available in the

Undergraduate Calendar.

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

Accessibility: The University of Guelph is committed to creating a barrier-free environment. Providing services for students is a shared responsibility among students, faculty and administrators. This relationship is based on respect of individual rights, the dignity of the individual and the University community's shared commitment to an open and supportive learning environment. Students requiring service or accommodation, whether due to an identified, ongoing disability or a short-term disability should contact the Centre for Students with Disabilities as soon as possible.

For more information, contact Student Accessibility Services (SAS) at 519-824-4120 ext. 56208 or email csd@uoguelph.ca

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 detailed in the Undergraduate Calendar

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

Tentative Course Schedule:

Dates	Topics
Sept 9 – 16	Introduction; Data; Displaying distributions with graphs; Describing distributions with numbers
Sept 19 – 23	Density curves and Normal distributions; **Assignment 1 due Thursday September 22 at 11:59pm**
Sept 26 – 30	Scatterplots; Correlation; **Assignment 2 due Thursday September 29 at 11:59pm**
Oct 3 – 7	Least-squares regression; Cautions about correlation and regression; The question of causation; **Assignment 3 due Thursday October 6 at 11:59pm**
Oct 10 – 14	Sources of data; Design of experiments; Sampling design; **Test 1 on Friday October 14 in class** FALL STUDY BREAK (no lectures): OCTOBER 10 and OCTOBER 11
Oct 17 – 21	Toward statistical inference; Randomness; Probability models; **Assignment 4 due Thursday October 20 at 11:59pm**
Oct 24 – 28	Random variables; Means and variances of random variables; **Assignment 5 due Thursday October 27 at 11:59pm**
Oct 31 – Nov 4	The sampling distribution of the sample mean; **Test 2 on Friday November 4 in class**
Nov 7 – 11	Sampling distributions for counts and proportions; **Assignment 6 due Thursday November 10 at 11:59pm**
Nov 14 – 18	Estimating with confidence; **Assignment 7 due Thursday November 17 at 11:59pm**
Nov 21 – 25	Tests of significance; **Test 3 on Friday November 25 in class**
Nov 28 – Dec 2	Inference for the mean of a population; **Assignment 8 due Thursday December 1 at 11:59pm**

*** NOTE: The STAT*2080 F16 Final Examination is on Monday December 12 at 7:00pm.**