

University of Guelph
Department of Mathematics and Statistics
Course Outline: Stat*2050 Winter 2017
Statistics II

General Information

Course Title: Stat*2050: Statistics II

Course Description (from the Undergraduate Calendar 2016-2017)

In this course, students will learn how to implement good study design and analyze data from complex studies. This course follows naturally from [STAT*2040](#) and features both previously unseen statistical techniques, as well as studying in greater depth some topics covered in [STAT*2040](#). These topics will include: experiments and observational studies; a review of t-tests and confidence intervals; confounding variables; association and causality; Analysis of Variance (ANOVA); simple and multiple linear regression; binary responses (logistic regression); odds ratios and relative risk; and an introduction to experimental design (including blocked designs and factorial treatment designs). Assignments carried out using modern statistical software will form the basis for mastering the material.

Offering(s): Also offered in the Fall semester.

Prerequisite(s): [STAT*2040](#)

Restriction(s): [BIOL*2250](#), [STAT*2090](#), [STAT*2250](#)

Department(s): Department of Mathematics and Statistics

Credit Weight: 0.5

Class Schedule and Location: MWF 8:30 - 9:20 a.m., in Richards 2520

Instructor Information

Instructor Name: Gary J. Umphrey

Instructor Email: umphrey@uoguelph.ca

Office Phone: (519) 824-4120 x53288

Office location and office hours: MacNaughton 551, Monday 10:30-12:30 and Thursday 1:00-3:00.

Course Content

Specific Learning Outcomes:

I try to optimize the educational outcomes for each student in the course. Specifically some of the outcomes I consider desirable are:

- Improve your ability to understand, implement and interpret core statistical methodologies, especially in the areas of regression analysis and experimental design.
- Improve your capacity to design experiments and other research studies that will require subsequent quantitative analysis.
- Improve your capabilities to critically interpret results in research papers or other reports that include statistical analysis and reasoning.
- Improve your capacity to communicate statistical results to other researchers.

Lecture Content:

Lectures vary a fair bit in style and content, you need to be there to understand what is going on!

Labs:

Instead of a “closed” lab, you will have access to an open “R” lab in SSC 1303, staffed by a GTA with a high level of ability in the use of R statistical software. The hours of the R lab are 12:30-2:30 (2 hours), Monday to Friday.

The computers in this room have R installed on them. You cannot save files for the longer term on these computers, so you will want to email files to yourself or store them on a memory stick.

The R lab will be used by other courses, so at times the GTA will be inundated by students seeking assistance. Try to plan to access the lab in lower demand times and please be patient!

Course Assignments and Tests:

Your final grade is determined as follows:

Four graded assignments, equally weighted, worth 30% in total.

Two tests, worth 20% each for a total of 40% of your final grade.

Final exam, worth 30% of your final grade.

If you cannot make a test or graded assignment and have a valid reason with proper documentation, the weight of the missed test or assignment will be transferred to the final exam.

Test Dates and Times:

Test 1 is on Monday February 13, 2017 at 6:00 pm–7:30pm (90 minutes, written).

Test 2 is on Monday March 13, 2017 at 6:00pm–7:30pm (90 minutes, written).

Room assignments will be announced.

Final examination date and time:

Tuesday April 11, 2017. (2 hours, written)

Room assignments for the final exam will be announced by the Office of the Registrar.

“Open Notes” for Tests and Exam:

You are allowed to take a binder of notes to the tests and exam. The binder can contain any form of written or printed material. There are to be no loose pages.

Course Resources

We will not have a text that you are required to buy. Instead we will use chapters of books available online through the University of Guelph Library. The two key books and chapters are:

(1) Regression Analysis by Example, 4th ed., by S. Chatterjee & A. S. Hadi (Wiley, 2006). We'll cover material (in whole or in part) in chapters 1–6, 11, and (time permitting) possibly 12.

(2) Design and Analysis of Experiments in the Health Sciences, by G. Van Belle and K. Kerr (Wiley, 2012). We'll cover material in chapters 1–5.

Math & Stats Learning Centre: At least some TAs in the Mathematics and Statistics Learning Centre (MSLC) on the third floor of the library will be able to provide substantial assistance with general Stat*2050 material

JBSTATISTICS Youtube Videos: Feeling rusty about what you recall for Stat*2040? A great resource is a series of videos (well over 100 of them) on Youtube produced by the University of Guelph's own Dr. Jeremy Balka. Check them out!

Other Resources:

I post some slides on our course website and I like short in-class handouts. With some exceptions slides are posted after each class (within a day or so) rather than prior to class. I do not post full notes; I expect you to be at class to make your own notes to supplement the slides. If you are absent from a class for any reason you need to negotiate with a class colleague to get the notes you missed.

I'll have more to say about other resources as we go through the semester.

Course Policies

Grading Policies

This semester Stat*2050 will have four graded assignments; these will be equally weighted and worth 30% of your final grade. Your assignment solutions will be submitted and returned electronically via Crowdmark and your university email account. Details on submission will be posted on our course website. The four Graded assignments will be posted at least one week before the due date on our Courselink website. Late submissions will be subject to a 20% penalty per day and will not be accepted once they are more than two days late unless academic consideration for extenuating circumstances is granted. Sometimes I extend due dates a day or so due to (for example) midterm scheduling in other courses. Instructions for completing and submitting each graded assignment will come when it is assigned.

Plagiarism will not be tolerated and if detected will be subject to penalties for academic misconduct. If a graded assignment allows a “group work” option and you choose to work in a group make sure that you know where the contributions from each group member is coming from, as each group member is responsible for ensuring that the submitted graded assignment does not contain plagiarized material.

The due dates for the graded assignments are:

Assignment #1 – due Friday January 20

Assignment #2 – due Friday February 3

Assignment #3 – due Friday March 3

Assignment #4 – due Friday March 31

Course Policy on Group Work:

Some graded assignments may allow group work on one or more components. Explicit rules for such components can vary, and will be detailed with the assignment guidelines.

Course Policy regarding use of electronic devices and recording of lectures

Electronic recording of classes is expressly forbidden without consent of the instructor. When recordings are permitted they are solely for the use of the authorized student and may not be reproduced, or transmitted to others, without the express written consent of the instructor.

University Policies

Academic Accommodation of Religious Obligations

If you are unable to complete a course requirement due to religious obligations, please let the instructor know within the first two weeks of class. See the academic calendar for more information:

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

Academic Consideration

When you find yourself unable to meet an in-course requirement because of illness or compassionate reasons, please advise the course instructor in writing, with your name, id#, and e-mail contact. See the academic calendar for information on regulations and procedures for Academic Consideration:

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

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:

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

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 Student Accessibilities Services (SAS) as soon as possible.

For more information, contact SAS at 519-824-4120 ext. 56208 or email csd@uoguelph.ca or see the website: <http://www.uoguelph.ca/csd/>

Course Evaluation Information

Please see:

https://mathstat.uoguelph.ca/sites/uoguelph.ca.mathstat/files/public/TeachevaluationformW16_1.pdf

Drop date

The last date to drop one-semester courses, without academic penalty, is **Friday, March 10, 2017**.

For regulations and procedures for Dropping Courses, see the Academic Calendar:

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