



Department of Mathematics and Statistics  
College of Physical and Engineering Science

**STAT\*2090: Introductory Applied Statistics II (0.5 credit)**  
**Course Outline for Winter 2021**

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**Disclaimer:**

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

The University will not normally require verification of illness (doctor's notes) for fall 2020 or winter 2021 semester courses. However, requests for Academic Consideration may still require medical documentation as appropriate.

**Lectures:**

- Online lectures using virtual classroom on the CourseLink.
- Lectures will be delivered using Virtual Classroom on a specific day and time (attendance is optional) and all lectures will be recorded and posted on Courselink for later viewing.
- Courselink: <https://courselink.uoguelph.ca/d2l/home/676028>

**Calendar Description:**

The topics covered in this course include analysis of qualitative data; analysis of variance for designed experiments; multiple regression; exposure to non-parametric methods; power and sample size calculations; special topics such as logistic regression. Examples come from a variety of disciplines, including nutrition, family studies, education, marketing, medicine, psychology and sociology.

**Prerequisites:** STAT\*2080

**Restrictions:** BIOL\*2250, STAT\*2050, STAT\*2250

**Course Materials:** \* 9<sup>th</sup> edition of Introduction to the Practice of Statistics  
by Moore, McCabe, and Craig  
\* STAT\*2090 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 and Outcomes:**

This course consolidates the concepts of data analysis, statistical reasoning and statistical inference that were learned in STAT\*2080. It extends these concepts to more complex experimental and sampling designs.

We will work through most of the remainder of the textbook, Introduction to the Practice of Statistics, 9th Edition. As you have seen, the textbook emphasizes the use of statistics to help resolve important problems. The answers for the 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 after the due date.

By the end of the course, you should:

- be able to apply the appropriate statistical method for data provided;
- be able to interpret results of statistical analyses;
- be able to develop and make inferences regarding statistical models;
- be able to critically evaluate statistical methods and results reported in the literature;
- understand and use experimental design principles;
- be able to use and understand output from SPSS for basic statistical analyses.

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

|              |     |   |
|--------------|-----|---|
| Assignments  | 36% | 3 assignments (the due dates are shown in the Course Schedule)  |
| Quizzes      | 14% | 2 quizzes (60 minutes), you will be able to have 2 attempts in each quiz and the highest attempt will be counted) |
| Midterm Test | 20% | Online (90 minutes), Tuesday, March 2 at 12:00 – 6:00 pm  |
| Final Exam   | 30% | Online (120 minutes), Thursday, April 15 at 11:30am - 1:30pm  |

**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 the Midterm Test during the semester for a **documented** valid reason (e.g., medical illness) you will be able to write a make up 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.

### **Problems in exams?**

If you encounter any technical issues, such as internet and/or computer, contact the CourseLink Support at [courselink@uoguelph.ca](mailto:courselink@uoguelph.ca) or 519-824-4120 ext. 56939 or 1-866-275-1478 (toll-free in Canada and US). Please do not contact your instructor because he is not able to help you in solving these issues.

### **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 smartphone. 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 an 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\*2090 Courselink site. You will be required to submit assignment responses via the Dropbox on the Courselink site by a specified due date and time. There will be enough 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\*2090 class.

**Teaching Assistants:**

|                   |  |
|-------------------|--|
| Amanjot Bhullar   | <a href="mailto:bhullara@uoguelph.ca">bhullara@uoguelph.ca</a> |
| Victoria Cheesman | <a href="mailto:vcheesma@uoguelph.ca">vcheesma@uoguelph.ca</a> |
| Graham Eckel      | <a href="mailto:geckel@uoguelph.ca">geckel@uoguelph.ca</a>     |
| Megan French      | <a href="mailto:mfrenc01@uoguelph.ca">mfrenc01@uoguelph.ca</a> |
| Vivek Gandhi      | <a href="mailto:vgandhi@uoguelph.ca">vgandhi@uoguelph.ca</a>   |
| Glen Reavie       | <a href="mailto:greavie@uoguelph.ca">greavie@uoguelph.ca</a>   |

Please contact any TA for on-line appointment in case you are having any difficulties in understanding the material.

**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 <mail.uoguelph.ca> e-mail account regularly: e-mail is the official route of communication between the University and its students. Any private email will be not responded to.

**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:** Students will have until the last day of classes (Monday, Apr 12) to drop courses without academic penalty. Review the Undergraduate Calendar for regulations and procedures for Dropping Courses.

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

**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 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.

For more information, contact [Student Accessibility Services](#) at 519-824-4120 ext. 56208 or email [accessibility@uoguelph.ca](mailto:accessibility@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 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 (subject to change):

| Date                   | Topic   | Textbook   | Assignments/Quizzes                              |
|------------------------|---|------------|--|
| Week 1 (Jan 11-15)     | Inference for Proportions   | Chapter 8  | Quiz 1 <b>due Jan. 24</b> at 11:59pm (7%)        |
| Week 2 (Jan 18-22)     |   |            |  |
| Week 3 (Jan 25-29)     | Analysis of Two-Way Tables  | Chapter 9  | Assignment 1 <b>due Feb. 7</b> at 11:59pm (12%)  |
| Week 4 (Feb 1-5)       |   |            |  |
| Week 5 (Feb 8-12)      | Inference for Regression  | Chapter 10 | Assignment 2 <b>due Feb. 28</b> at 11:59pm (12%) |
| Week 6 (Feb 15-19)     | <b>Break (NO CLASS)</b>   |            |  |
| Week 7 (Feb 22-26)     | Inference for Regression  | Chapter 10 |  |
| Week 8 (Mar 1-5)       | <b>Online Midterm Test (20%) in Chs. 8, 9, and 10; 90 minutes Tuesday, March 2 at 12:00 – 6:00 pm</b>         |            |  |
| Week 9 (Mar 8-12)      | Multiple Regression   | Chapter 11 | Quiz 2 <b>due Mar 21</b> at 11:59pm (7%)         |
| Week 10 (Mar 15-19)    | One-Way Analysis of Variance  | Chapter 12 |  |
| Week 11 (Mar 22-26)    | Two-Way Analysis of Variance  | Chapter 13 | Assignment 3 <b>due Apr 4</b> at 11:59pm (12%)   |
| Week 12 (Mar 29-Apr 2) | Logistic Regression   | Chapter 14 |  |
| Week 13 (Apr 5-9)      | Nonparametric Tests   | Chapter 15 |  |
| Week 14 (Apr 12-16)    | <b>Online Final Exam (30%) in Chs. 11, 12, 13, 14, and 15; 120 minutes Thursday, April 15 at 11:30 - 1:30</b> |            |  |

### Online Behaviour:

Inappropriate online behaviour will not be tolerated. Examples of inappropriate online behaviour include:

- Posting inflammatory messages about your instructor or fellow students
- Using obscene or offensive language online
- Copying or presenting someone else's work as your own
- Adapting information from the Internet without using proper citations or references
- Buying or selling term papers or assignments
- Posting or selling course materials to course notes websites
- Having someone else complete your quiz or completing a quiz for/with another student
- Stating false claims about lost quiz answers or other assignment submissions
- Threatening or harassing a student or instructor online
- Discriminating against fellow students, instructors and/or TAs
- Using the course website to promote profit-driven products or services
- Attempting to compromise the security or functionality of the learning management system
- Sharing your username and password
- Recording lectures without the permission of the instructor

### Recording of Lecture Materials:

The University of Guelph's primary mode of course delivery has shifted from face-to-face instruction to remote and online learning due to the ongoing COVID-19 pandemic. As a result, some learning activities (e.g., synchronous lectures or student presentations) may be recorded by faculty, instructors and TAs and posted to CourseLink for grading and dissemination; students may be recorded during these sessions.

By enrolling in a course, unless explicitly stated and brought forward to their instructor, it is assumed that students agree to the possibility of being recorded during lecture, seminar or other "live" course activities,

whether delivery is in-class or online/remote.

If a student prefers not to be distinguishable during a recording, they may:

1. turn off their camera
2. mute their microphone
3. edit their name (e.g., initials only) upon entry to each session
4. use the chat function to pose questions.

Students who express to their instructor that they, or a reference to their name or person, do not wish to be recorded may discuss possible alternatives or accommodations with their instructor.

### **Test Banks**

The offering for sale of, buying of, and attempting to sell or buy test banks (banks of any exam questions), or any course specific test questions is not permitted. Any student found to be doing this may be considered to have breached the Senate Policy on Academic Honesty. In particular, buying and attempting to sell banks of test questions may be considered as “Cheating in an attempt to gain an improper advantage in an academic evaluation” and/or “encouraging, enabling or causing others” to cheat.

Please note, the correct answer for any exam question is not available for students. Feel free to send me an email for general feedback on the questions you got wrong in case you need.