
University of Guelph
Introductory Applied Statistics II - STAT* 2090
Winter 2023 Course Outline
(January 9 - April 25)

1. Instructor Information

Instructor Name: Dr. Clémonell Bilayi-Biakana

Instructor Email: cbilayib@uoguelph.ca

Office Location: MACN 541

Office Hours: Thursday 2:15 - 3:45 pm in my office.

2. Course General Information

Course Title: STAT*2090: Introductory Applied Statistics II.

Course 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

Credit Weight: 0.5 credit

Academic Department (or campus): Mathematics & Statistics

Campus: Guelph

Class Schedule: M/W/F 2:30 - 3:20 pm, MACN, 105.

3. Course Resources

- **Textbook :** *Introduction to the Practice of Statistics, 10th Edition*, by Moore, McCabe and Craig.
- **Other Resources:** Lecture notes posted on Courselink. **The lecture notes are for independent use only and are not to be re-distributed in any form without my written permission.**

- **Statistics Learning Centre:** Located in the Science Commons on the 3rd Floor of the McLaughlin Library, the Statistics Learning Centre (SLC) is a drop-in extra-help centre staffed by Teaching Assistants who are there to help you with any questions you may have! No appointment is necessary! The hours of operation for the SLC are:
 - **Monday & Wednesday:** 9:30am - 3:30pm
 - **Tuesday & Thursday:** 10am - 4:00pm
 - **Friday:** 9:30am - 2:30pm
- **Courselink:** Course information and resources will be available on Courselink. Students are encouraged to check the website regularly for updated information and announcements.
- **Suggested Exercises:** There will be some indicated exercises on Courselink to help consolidate the information discussed in class. It will be assumed students are working through indicated exercises. Students are strongly encouraged to seek help as soon as possible when problems arise.

4. Course Content

1. Course Objectives

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.

2. Specific Learning Outcomes

By the end of this course, students should be able to:

- apply the appropriate statistical method for data provided;
- interpret results of statistical analyses;
- develop and make inferences regarding statistical models;
- critically evaluate statistical methods and results reported in the literature;
- understand and use experimental design principles;

3. Lecture Content

- Review of Inference for the Mean of a Population, Sample Size Calculation, and Sign Test for Matched Pairs; Comparing Two Means
- Comparing Two Means; Power and Inference as a Decision;
- Inference for a Single Proportion; Comparing Two Proportions; Data Analysis for Two-Way Tables;
- Inference for Two-Way Tables; Goodness of Fit

- Review of Scatterplots, Correlation, Least-Squares Regression; Simple Linear Regression
- Inference for Multiple Regression
- Inference for One-Way Analysis of Variance; Comparing the Means;
- Randomized Complete Block Designs; The Two-Way ANOVA Model
- Inference for Two-Way ANOVA
- The Logistic Regression Model;
- Inference for Logistic Regression

The schedule above is approximate, and subject to minor changes. As the class is scheduled to be in-person, the expectation is that students will be attending the live lectures to obtain notes, listen to course announcements, and ask relevant questions.

4. Course Assignments and Tests

The final grade will be calculated as follows:

Assignment 1: Due on February 5 at 11:59 pm	6%
Assignment 2: Due on March 8 at 11:59 pm	7%
Assignment 3: Due on April 5 at 11:59 pm	7%
Midterm 1: February 15, from 2:30 to 3:20 pm	20%
Midterm 2: March 17, from 2:30 to 3:20 pm	25%
Final Exam: April 15, 11:30 am - 1:30 pm	35%

- **The two midterms will be held in class during the regular lecture hours. The final exam room will be announced on Courselink. Note that the final exam will be in person.**
- **A mock exam will be posted prior to the midterm and final exam evaluations so that the students can have the opportunity to practice in a stress-free environment.**
- No classes are scheduled during **Winter Break** (February 20 - 26).

5. Course Policies

Communication Policies:

- Emails must be sent from your University of Guelph email account, and include STAT*2060 in your subject line, and include your name and student ID number in all correspondence.
- Emails that do not include a name and ID number, or from non-uoguelph accounts, will not be answered.
- I will try to respond to emails within 3 business days (8:30 am - 4:30 pm). Please note that I do not answer emails during weekends.

Term Tests Policies:

- **Term tests are scheduled during class time, and therefore no student should have a conflict with a test. If a conflict does exist, it is your responsibility to resolve it.**
- Students who miss a test for medical illness must contact me within 3 business days of the missed test. In the case of absence due to medical illness, you may be required to complete an alternative assessment in a format of my discretion. If you cannot write a test for mental health reasons or are seeking accommodation on compassionate grounds, you must speak with your Program Counsellor (and include them in all communication with me) before any accommodations will be considered.
- The final exam (date, time and location) is scheduled by the Registrars Office. Students who miss the final exam due to a valid, documented reason must contact their program counsellor for advice on University regulations regarding final exams. These procedures are based on University policy, and are not under the control of the course instructor.
- The format of the term tests and the final exam will be posted at a later date. Students are permitted to use a formula sheet during the test.
- Students are NOT permitted to post test questions to discussion boards (including the course discussion board, the SLC discussion boards, or chat groups on Facebook, Google, etc.), nor are students allowed to post test questions to websites such as Chegg in an attempt to solicit answers. These websites will be monitored for such activities, and students who violate these permissions may face an academic integrity investigation.

Regrade and Accommodation Request Policies:

- **Regrade requests must be submitted within 3 business days of a test being returned, after which regrade requests may no longer be submitted, and the test grade is considered final.** Prior to

submitting such a request, you should read carefully the test/assignment solution posted on Courselink. **Note that in the event that a student submits a test or assignment for regrading, I reserve the right to regrade the entire test/assignment, not just the question under consideration.**

- **Requests for accommodation due to illness, personal circumstances, etc. should be made within 3 business days of the due date / test date.** Accommodation will be provided at my discretion and should not be assumed. **In the event that an accommodation is not granted, students will be expected to complete the test.**

Course Policy on Group Work:

- Students are encouraged to work together to discuss course content, share ideas, and ask/answer questions. However, all term tests and the final exam are to be completed independently, and without collaboration with other individuals, regardless of whether they are registered in the course.
- Any unauthorized collaboration, completing another students work, or having another student complete your work, will constitute academic misconduct.

6. University Policies

Email 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 can be found on the SAS website

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 Guelphs 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.

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 two links: link 1 and link 2.
- Please note, that these guidelines may be updated as required in response to evolving University, Public Health or government directives.