

**University of Guelph**  
**Department of Mathematics and Statistics**  
**College of Engineering and Physical Sciences**  
**STAT\*2090: Introductory Applied Statistics II (0.5 credit)**  
**Winter 2024 Course Outline**

**Course Information:**

Sec.	Instructor	Office	Email	Lecture Times
01 In-person	Dr. Nagham Mohammad	MACN 513	naghamm	M/W/F 3:30 PM - 4:20 PM THRN 1200

You can expect a response to emails within 48 hours **Monday-Friday**.

**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:** STAT\*2050

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**Learning Resources**

**Required Textbook:**

**Title:** 10<sup>th</sup> edition of Introduction to the Practice of Statistics

**Author(s):** Moore, McCabe, and Craig

**Edition / Year:** 10th Ed.

**Publisher:** Macmillan

- Achieve for Introduction to the Practice of Statistics (1-Term Online): 9781319377625
- Loose-leaf Version for the Introduction to the Practice of Statistics 10e & Achieve for Introduction to the Practice of Statistics 10e (1-Term Access): 9781319414504

## Supplementary Materials (Instructor's Slides):

This course includes supplementary materials, including instructor fillable PowerPoint slides. These materials are meant to supplement the required readings and course content, and to provide study materials for the assignments and tests. You can print the PowerPoint slides and bring them with you in class. To access these materials, select **Content** on the navbar to locate **Supplementary Materials** in the table of contents panel.

THE LECTURE SLIDES ARE FOR INDEPENDENT USE ONLY AND  
ARE NOT TO BE RE-DISTRIBUTED IN ANY FORM WITHOUT MY  
WRITTEN PERMISSION

## Calculator Policy:

Regarding both **Midterm Tests and Final Exam**, only a non-programmable, non-graphical calculator **is allowed**. 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.

## 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.

We will work through most of the remainder of the textbook, *Introduction to the Practice of Statistics, 10<sup>th</sup> 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 immediately 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.

## Top Hat:

To facilitate discussion and to enhance your learning in and out of class, we will be using educational software called *Top Hat*. *Top Hat* allows you to answer questions and engage in discussion using your smartphone, tablet or laptop. You will need to purchase the *Top Hat* app. Instructions for purchasing, downloading and setting up the *Top Hat* software will be provided by e-mail. **Answering Top Hat questions for another student is an academic offence.**

For each Top Hat question asked during class, there will be two marks: one for participation (any answer), and another for a correct response.

**Notes:** Only the best 80% of the Top Hat marks will be used to determine your Top Hat final grade.

**\*Note\* There are no alternate dates nor make-up for missing any Top Hat questions. Dropping the lowest 20% of Top Hat marks is meant to take into account any absences.**

## Missed Lectures:

If you miss lectures then **you are responsible** for finding out what you missed. Your instructor will not reteach missed material.

## Out-of-Class Workload:

As in any university course, much of your learning in this course will take place outside of class time. Therefore, you should plan to spend 3-6 hours each week in out-of-class learning. This learning consists mostly of making sure you understand the concepts and steps that were used in class to solve problems and then solving problems from the practice problems on your own.

## Learning Centre:

Drop-in help is available in the [Mathematics and Statistics Learning Centre](#) in McLaughlin Library on the 3<sup>rd</sup> floor for students seeking help with course content and/or practice questions. Hours of operation are Monday/Wednesday: 9:30am - 3:30pm, Tuesday/Thursday: 10am - 4pm, Friday: 9:30am - 2:30pm. Students are expected to use the Mathematics & Statistics Learning Centre as a primary resource for help with course material.

## Course Website:

[CourseLink](#) (powered by D2L's Brightspace) is the course website and will act as your classroom. It is recommended that you log in to your course website every day to check for announcements, access course materials, and review the weekly schedule and assignment requirements.

<https://courselink.uoguelph.ca>

**Teaching Assistants:** Office hours with STAT\*2090 Teaching Assistants will be posted as soon as possible.

**E-mail 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.

## Assessment Descriptions:

A brief description of each assessment is provided below.

## Grading Scheme:

Every student is treated the same way according to the grading scheme below. We cannot modify final grades to give you an extra percent – this would be unfair to the other students. There are 2 grading schemes in order to minimize the impact of a poor performance on either of the 2 midterms. The scheme that gives you the best mark will be used **automatically**.

**Table 1: Grading Schemes**

Scheme 1		Scheme 2	
Top Hat Questions	5%	Top Hat Questions	5%
2 Assignments	10%	2 Assignments	10%
Test 1	25%	Best Test:	30%
Test 2	30%	Worst Test	15%
Final Exam:	30%	Final Exam	40%
<b>TOTAL</b>	<b>100%</b>	<b>TOTAL</b>	<b>100%</b>

## Midterm Tests:

- There will be two in-person (**NOT ONLINE**) 50-minute tests during this course.
- Material to be covered will be announced closer to the Midterm dates.
- Students must present a **valid Student ID card** to write all tests.

**Table 2: Tests Dates**

Test 1	Wednesday Feb. 7 <sup>th</sup>	During Lecture Time: 3:30 PM - 4:20 PM THRN 1200
Test 2	Wednesday March 20 <sup>th</sup>	During Lecture Time: 3:30 PM - 4:20 PM THRN 1200

**\*Note\* There are no alternate test dates nor make-up.**

**\*Note\* If a midterm test is missed for a valid reason, the weight from that test will be carried to the final exam.**

## Engaged Assignments

There are 2 scheduled Engaged Assignments to be completed during class time. See Table 3 below. The Assignments will be open book and you may work with others. Instructor and TAs will be presented to help. If you miss any of these assignments for a **valid** reason, the weight from that assignment will be **calculated from the weight of the two Midterm Tests (the 5% of missing one assignment will be calculated from the 55 points of the two midterm tests).**

**\*Note\* There are no alternate lab assignment dates nor make-up.**

**Table 3: Course Assignments Dates**

Assessment Item	Date Time: 3:30PM - 4:20PM
Assignment (1)	During Lecture Time: Wednesday, Jan. 24 <sup>th</sup>
Assignment (2)	During Lecture Time: Wednesday March. 6 <sup>th</sup>

## Remarking of Tests:

If you have a question regarding the marking of a midterm test/lab assignment you must first check the posted solutions. If you still have a question, then you should follow the procedure posted on the CourseLink. **You have 3 days to appeal a test/assignment grade.**

## Final Examination:

A two-hour final examination will be held on **Thursday April 11<sup>th</sup>, 2:30pm-4:30pm**. Please do not make any travel arrangements for immediately after, in case inclement weather delays the exam. Information regarding midterm tests, and final exam (e.g. material covered and locations) will be posted on the CourseLink. Students must present a valid Student ID card to write all tests and final exam.

University of Guelph degree and associate diploma students must check [WebAdvisor](#) for their examination schedule.

<https://webadvisor.uoguelph.ca>

## Missed Final Exam

The final exam (date, time and location) is scheduled by the Registrar's 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.

## Obtaining Grades and Feedback

Unofficial assessment marks will be available in the **Grades** tool of the course website. Your instructor will have grades posted online. Once your assignments/tests are marked you can view your grades on the course website by selecting **Grades** from the menu on the navbar. Your course will remain open to you for seven days following the last day of the final exam period, but the Grades will be hidden to work on the final grade of the course.

University of Guelph degree students can access their final grade by logging into [WebAdvisor](#) (using your U of G central ID).

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

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## Course Technology Requirements and Technical Support

### CourseLink System Requirements:

You are responsible for ensuring that your computer system meets the necessary system requirements. Use the [browser check](#) tool to ensure your browser settings are compatible and up to date. (Results will be displayed in a new browser window).

<https://courselink.uoguelph.ca/d21/systemCheck>

### Gradescope:

Gradescope is an online testing and assessment software that may be used in this course. Visit the Gradescope website to review the [Get Started videos](#) and [Student Help Centre](#).

[https://www.gradescope.com/get\\_started#student-submission](https://www.gradescope.com/get_started#student-submission)  
<https://help.gradescope.com/category/cyk4ij2dwi-student-workflow>

### Technical Support:

If you need any assistance with the software tools or the CourseLink website, contact CourseLink Support.

### CourseLink Support:

University of Guelph  
Day Hall, Room 211  
Email: [courselink@uoguelph.ca](mailto:courselink@uoguelph.ca)  
Tel: 519-824-4120 ext. 56939  
Toll-Free (CAN/USA): 1-866-275-1478

### Walk-In Hours (Eastern Time):

Monday thru Friday: 8:30 am–4:30 pm

### Phone/Email Hours (Eastern Time):

Monday thru Friday: 8:30 am–8:30 pm

Saturday: 10:00 am–4:00 pm

Sunday: 12:00 pm–6:00 pm

## **Technical Skills:**

As part of your learning, you are expected to use a variety of technology:

- Manage files and folders on your computer (e.g., save, name, copy, backup, rename, delete, and check properties);
- Install software, security, and virus protection;
- Use office applications (e.g., Word, PowerPoint, Excel, or similar) to create documents;
- Be comfortable uploading and downloading saved files;
- Communicate using email (e.g., create, receive, reply, print, send, download, and open attachments);
- Navigate the CourseLink learning environment and use the essential tools, such as **Dropbox, Quizzes, and Grades** (the instructions for this are given in your course);
- Access, navigate, and search the Internet using a web browser (e.g., Firefox, Internet Explorer); and
- Perform online research using various search engines (e.g., Google) and library databases.

## **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.



## **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.

### **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 outlined in the Undergraduate Calendar.

## **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: [www.uoguelph.ca/sas](http://www.uoguelph.ca/sas)

## **Course Evaluation Information (Student Feedback Questionnaires (SFQs)):**

Please see <https://uoguelphca.sharepoint.com/sites/ccs/SitePages/services/course-evaluation.aspx>

## **Copyright Notice:**

Content within this course is copyright protected. Third party copyrighted materials (such as book chapters and articles) have either been licensed for use in this course, or have been copied under an exception or limitation in Canadian Copyright law.

The fair dealing exemption in Canada's Copyright Act permits students to reproduce short excerpts from copyright-protected materials for purposes such as research, education, private study, criticism and review, with proper attribution. Any other copying, communicating, or distribution of any content provided in this course, except as permitted by law, may be an infringement of copyright if done without proper license or the consent of the copyright owner. Examples of infringing uses of copyrighted works would include uploading materials to a commercial third-party web site, or making paper or electronic reproductions of all, or a substantial part, of works such as textbooks for commercial purposes. Students who upload to CourseLink copyrighted materials such as book chapters, journal articles, or materials taken from the Internet, must ensure that they comply with Canadian Copyright law or with the terms of the University's electronic resource licenses. For more information about students' rights and obligations with respect to copyrighted works, review [Fair Dealing Guidance for Students](#).

[http://www.lib.uoguelph.ca/sites/default/files/fair\\_dealing\\_policy\\_0.pdf](http://www.lib.uoguelph.ca/sites/default/files/fair_dealing_policy_0.pdf)

## **Plagiarism Detection Software:**

Students should be aware that faculty have the right to use software to aid in the detection of plagiarism or copying and to examine students orally on submitted work. For students found guilty of academic misconduct, serious penalties, up to and including suspension or expulsion from the University can be imposed.

## **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 Guelph's 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 (<https://news.uoguelph.ca/2019-novel-coronavirus-information/>) and circulated by email.

## **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 links:

- <https://news.uoguelph.ca/return-to-campus/how-u-of-g-is-preparing-for-your-safe-return/>
- <https://news.uoguelph.ca/return-to-campus/spaces/#ClassroomSpaces>

Please note, that these guidelines may be updated as required in response to evolving University, Public Health or government directives.

## Mental Health Services:

One out of every five students in Canada experiences some sort of mental health issue at some point in their academic career. If you find yourself facing a mental health crisis, or just need to talk to someone, please consider taking advantage of one of the following resources available to University of Guelph students:

## Counselling Services:

Visit the Counselling Services website (<https://wellness.uoguelph.ca/counselling>) to get information on resources available to you, both online and in-person. You can also visit them at Health Services (J.T. Powell Building, ext. 53244) where they offer individual and group counselling sessions by appointment or walk-in.

***Student Support Network:*** is located in the Wellness & Education Promotion Centre in the J.T. Powell Building and offers confidential, peer-based, drop-in support.

***Good2Talk:*** ([1-866-925-5454](tel:1-866-925-5454)) is a free, 24/7 student hotline that provides professional counselling and referrals for mental health, addictions and well-being.

***Here 24/7:*** ([1-844-437-3247](tel:1-844-437-3247)) specializes in assessment, referral and appointment booking and is available 24/7 for crisis support.

You are not alone and you will not be judged for asking for help.