



**College of Engineering and Physical Sciences
Department of Mathematics and Statistics**

**STAT*2060 - Statistics for Business Decisions (0.5 credit)
Course Outline for Winter 2022**

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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).

For information on current safety protocols, follow these links:

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

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

Lectures:

- In the first two weeks of the semester, all classes are online.
- F2F lecture (will not be recorded) on Mondays at 4:30 pm and online lectures.
- Online lectures will be delivered on a specific day and time and only online lectures will be recorded and posted on the Courselink for later viewing.
- Courselink: <https://courselink.uoguelph.ca/d2l/home/736931>

Calendar Description:

This course is designed for students interested in the application of statistics in a business setting. Topics will include graphical and numerical methods for describing various data types, including time series data; basic probability; discrete and continuous probability distributions; sampling distributions; confidence intervals and hypothesis testing for one- and two-sample problems; and linear regression and correlation. The role of statistics in business decisions will be discussed throughout the course, and industry relevant

software will be used for data visualization and computation.

Prerequisites: 1 of 4U Calculus and Vectors, Advanced Functions and Calculus, OAC Calculus, MATH*1080

Restrictions: STAT*2040, STAT*2080, STAT*2120, STAT*2230. Not available to B.Sc. students.

Credit Weight: 0.5 credit

Course Materials:

- Introductory Statistics: A Problem-Solving Approach, 3rd. Ed., by Stephen Kokoska. Hard cover, loose-leaf, and electronic versions are available. Two copies of the text are on reserve in the Library. We will cover almost all the materials in chapters 1–12.
- STAT*2060 lecture notes (would be posted on the Courselink site). *The lecture notes are for independent use only and are not to be re-distributed in any form without my written permission.*

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.

Learning Outcomes:

By the end of this course, you should be able to

1. create and properly interpret numerical and graphical data summaries.
2. properly interpret probability and carry out basic probability calculations.
3. carry out probability calculations for various discrete and continuous probability distributions, and choose the appropriate probability distribution in different scenarios.
4. explain statistical inference concepts and methods, including concepts related to sampling distributions, confidence intervals, and hypothesis tests.
5. choose an appropriate statistical inference procedure in a variety of situations, carry out the procedure, and effectively communicate a proper interpretation of the results.
6. explain the design of some basic experiments and observational studies, and describe how statistical conclusions differ between experiments and observational studies.
7. conduct a linear regression analysis, including statistical inference procedures on the model parameters, and provide a proper interpretation of the results.
8. use industry-relevant software to assist in conducting the above-mentioned learning outcomes.

Marking Scheme and Exam Dates:

Assignments	30%	3 assignments, 10% each (the due dates are shown in the Course Schedule Section).
Quizzes	16%	Online 2 quizzes, 8% each (60 minutes), you will be able to have 2 attempts in each quiz and the highest attempt will be counted. You will have 4 days to complete it (the due dates are shown in the Course Schedule Section).
Midterm Exam	22%	Online (90 minutes); Monday, Feb. 28 at any time during a timeframe (6 hrs.) 10:00 am – 4:00 pm ET.
Final Exam	32%	Online (120 minutes); Thursday, Apr. 14. You can start at any time during a timeframe (1 hr.) 11:30 am – 12:30 pm ET.

Notes:

- You should have **NO** conflicts concerning these dates and times. If you do, it is your responsibility to resolve them as soon as possible.
- All exams are online open book delivered using Quizzes tool on the Courselink.
- There will be one midterm and one final exam in the course. Students are allowed to use their notes, copies of assignments, a calculator, a software, and the course textbook during all exams. **However, they cannot communicate with their peers or any other people during the exams.**
- The Respondus lockdown browser is not required in all exams.
- Students are **NOT** permitted to post exam 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 exam questions to websites such as Chegg and Cregg to solicit answers. These websites will be monitored for such activities, and students who violate these permissions may face an academic integrity investigation.

Policy for Missed Exams:

If you miss the Midterm Exam during the semester for a **documented** valid reason (e.g., medical illness) you will be able to write a makeup exam.

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 based on University policy and are not under the control of the course instructor.

Problems in exams?

If you encounter any technical issues, such as internet and/or computer, contact the CourseLink Support at 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.

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

Calculator:

You must have a stand-alone calculator for all exams, preferably with regression and correlation functions. Your calculator should be able to calculate at least one-variable statistics. 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 any exam, it will be reported as possible academic misconduct. It's a good idea to have a backup calculator available during exams that you know how to use.

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 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. 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*2060 Courselink site. Assignments will be submitted and returned electronically through CrowdMark. You'll

receive a template via email to your University of Guelph email account; you will upload pdf or jpg files with your solutions to this template. Details on submission will be posted on our Courselink. We will have three assignments; these will be equally weighted.

Any unauthorized collaboration, completing another student's work, or having another student complete your work, will constitute academic misconduct.

Late Policy:

Extensions on the assignments will be considered for medical reasons or other extenuating circumstances. If you require an extension, discuss this with the instructor as soon as possible and well before the due date. Barring exceptional circumstances, extensions will not be granted once the due date has passed. These rules are not designed to be arbitrary, nor are they inflexible. They are designed to keep you organized, to ensure that all students have the same amount of time to work on assignments, and to help to return marked materials to you in the shortest possible time.

Teaching Assistants:

Mohsen Selseleh	mselsele@uoguelph.ca
Amanjot Bhullar	bhullara@uoguelph.ca
Alysha Cooper	acoope05@uoguelph.ca
Mohsen Kasiri	mkasiri@uoguelph.ca

Please contact any TA for online appointment (their office hours will be posted on the Announcements page of the Courselink) in case you have any difficulties in understanding the materials and for assignments and exams feedback.

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. The e-mail is the official route of communication between the University and its students. Any private email would be not responded to.

Emails must 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 and from non-uoguelph accounts 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#, e-mail contact, and the course name. The regulations and procedures for [Academic Consideration](#) are detailed in the Undergraduate Calendar.

Drop Date:

Students will have until the last day of classes to drop courses without academic penalty. The deadline to drop two-semester courses will be the last day of classes in the second semester. [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.

Use of the SAS Exam Centre requires students to book their exams at least 14 days in advance and not later than the 40th Class Day.

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

Academic Integrity:

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.

Learning Centre:

The Statistics Learning Centre (SLC) provides free, online support for students in STAT*2060 via Discussion Boards, instant messaging, and live chat with a Teaching Assistant. The hours of operation for the SLC are:

- Monday & Wednesday, 9:30am – 3:30pm
- Tuesday & Thursday, 10am – 4pm
- Friday, 9:30am – 2:30pm

You can access the SLC through Courselink, by clicking on the “Resources” link and then the Statistics Learning Centre site.

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.

Test Banks:

The offering for sale of, buying off, 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 has been not made available for students. Feel free to send me an email for brief general feedback on the questions you got wrong in case you need it.

Tentative Course Schedule (subject to changes):

Date	Topic	Textbook	Assignments/Quizzes
Week 1 (Jan 10-16)	An Introduction to Statistics and Statistical Inference	Chapter 1	Quiz 1 in Chs 1 and 2; due Jan 23 at 11:59pm (8%)
Week 2 (Jan 17-23)	Tables and Graphs for Summarizing Data	Chapter 2	
Week 2 (Jan 17-23)	Numerical Summary Measures	Chapter 3	Assignment 1 in Chs. 3 and 4, due Jan 30 at 11:59pm (10%)
Week 3 (Jan 24-30)	Probability	Chapter 4	
Week 4 (Jan 31 - Feb 6)	Random Variables and Discrete Probability Distributions	Chapter 5	Assignment 2 in Chs. 5 and 6; due Feb 13 at 11:59pm (10%)
Week 5 (Feb 7-13)	Continuous Probability Distributions	Chapter 6	
Week 6 (Feb 14-20)	Sampling Distributions	Chapter 7	
Week 7 (Feb 21-27)	Break – No classes		
Week 8 (Feb 28-Mar 6)	Online Midterm Exam (22%) in Chs. 1-7; Time limit is 90 minutes. Monday, Feb 28 at any time in a timeframe (6 hrs.) 10:00 am – 4:00 pm		
Week 9 (Mar 7-13)	Confidence Intervals Based on a Single Sample	Chapter 8	Quiz 2 in Chs 8 and 9; due Mar 20 at 11:59pm (8%)
Week 10 (Mar 14-20)	Hypothesis Tests Based on a Single Sample	Chapter 9	
Week 11 (Mar 21-27)	Confidence Intervals and Hypothesis Tests Based on Two Samples or Treatments	Chapter 10	Assignment 3 in Chs. 10 and 13; due Apr 3 at 11:59pm (10%)
Week 12 (Mar 28-Apr 3)	Chi-Square Tests for Independence	Chapter 13	
Week 13 (Apr 4-10)	Correlation and Linear Regression	Chapter 12	
Week 14 (Apr 11-17)	Online Final Exam (32%) in Chs. 8, 9, 10, 12, 13; Time limit is 120 minutes; Thursday, Apr. 14. You can start at any time during a timeframe (1 hr.) 11:30 am – 12:30 pm ET.		

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.

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

Getting Help in the Course:

If you run into problems with course material, you have several options:

- Get help from your fellow students (online via the discussion feature on Courselink).
- There is the U of G tutoring site: <http://www.uoguelph.ca/tutoring>

- 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: <https://www.youtube.com/user/jbstatistics>

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.