

Dalhousie University

Department of Mathematics and Statistics

MATH/STAT 2060: Introduction to Probability and Statistics I Fall 2024

Dalhousie University acknowledges that we are in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq People and pays respect to the Indigenous knowledges held by the Mi'kmaq People, and to the wisdom of their Elders past and present. The Mi'kmaq People signed Peace and Friendship Treaties with the Crown, and section 35 of the Constitution Act, 1982 recognizes and affirms Aboriginal and Treaty rights. We are all Treaty people.

Dalhousie University also acknowledges the histories, contributions, and legacies of African Nova Scotians, who have been here for over 400 years.

Instructor Orla Murphy
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Please only send emails from your Dalhousie email account with subject line STAT 2060.

Time of Lectures Tuesday and Thursday: 1:05pm – 2:25 pm
Lecture Location In-person in SIR JAMES DUNN BUILDING 117
Course Delivery Lectures are in-person and will not be recorded.
Mandatory tutorials:

Course	Tutorial	M	T	W	R	F	Time	First name	Last name	email
STAT 2060	T01				R		0935-1125	Fatemeh	Tofighi	Ft898255@dal.ca
STAT 2060	T02			W			1535-1725	Joseph	Barss	js845528@dal.ca
STAT 2060	T03					F	0935-1125	Fatemeh	Tofighi	Ft898255@dal.ca
STAT 2060	T04	M					0935-1125	Claire	Cui	claire.cui@dal.ca
STAT 2060	T05	M					1535-1725	Claire	Cui	claire.cui@dal.ca
STAT 2060	CAPA:20							Xinyue	Zhang	xn770547@dal.ca

Course Website Course website: Brightspace (course materials) and LON-CAPA (homework)

Office Hours Tuesdays 10am–12pm, or at other times by prior appointment, subject to availability.

Course Prerequisites MATH 1000.03 or MATH 1215.03 or CSCI 1300 with a minimum grade of C

Required Text Probability and Statistics for Engineering and the Sciences, 9th edition, by J. Devore. [Any old edition will work]

Required materials A non-programmable scientific calculator with natural log and exponential functions.

Course Description

From the Academic Calendar:

Rigorous introduction to probability and statistical theory. Topics covered include elementary probability, random variables, distributions, estimation and hypothesis testing. Estimation and testing are introduced using maximum likelihood and the generalized likelihood ratio.

Learning Outcomes

Generally, students understand basic concepts of statistics and probability, comprehend methods needed to analyze and critically evaluate statistical arguments, and recognize the importance of statistical ideas. At the end of this course, students should be able to:

1. Demonstrate an understanding of the basic concepts of probability and random variables.
2. Understand the concept of the sampling distribution of a statistic, and in particular describe the behaviour of the sample mean.
3. Identify the foundations for classical inference involving confidence intervals and hypothesis testing.

Outline:

1. Descriptive statistics
2. Probability
3. Discrete random variables and distributions
4. Continuous random variables and distributions
5. Joint probability distributions
6. Point estimation
7. Confidence intervals based on a single sample
8. Hypothesis tests based on a single sample
9. Inference based on two samples

Note that topics may be altered as term progresses.

How to Login to LON-CAPA:

1. In your web browser, go to <http://capa.mathstat.dal.ca>.
2. You will be prompted to enter a username and password. By default, your username is your Dalhousie NetID and your password is your banner number (your Dalhousie student number that starts with B00). Your full banner number must be entered, that is: the upper-case letter B, followed by two zeros, then followed by 6 digits.
3. You then have to select a role for the course you wish to enter. Most likely, you will have only one choice: a student user role for the course titled "Stat 2060". Click on the Select button next to that choice.
4. You will be directed to the home page of the course. Navigation is easiest by using the tabs in the top blue bar. The Contents tab is where the assignments will be posted.
5. For increased security and convenience, you should change the default password to the one you use for all other Dalhousie-related activities. Click on the Main Menu tab in the top blue bar, then click on Set my user preferences and then click on Password. Enter the current (default) password and enter (twice) your new password.
6. For technical support, please contact the CAPA assistant.

Evaluations:

Assessment	Weight (% of final grade)
9 Assignments (online through CAPA)	15%
9 Quizzes (in-person in mandatory tutorials)	10%
Midterm exam (in-class, tentative date: October 15)*	25%
3-hr Final exam (during exam period)*	50%

*The exams will be closed book with one page (double sided) of notes allowed.

Assessment schedule

Assignment	Due date	Assignment	Due date
1	22-Sep	6	03-Nov
2	29-Sep	7	10-Nov
3	06-Oct	8	29-Nov
4	13-Oct	9	01-Dec
5	27-Oct		

Quiz	Due date	Quiz	Due date
1	Sept 16-20	6	Oct 28-Nov 1
2	Sept 23-27	7	Nov 4-8
3	Sept 30-Oct 4	8	Nov 18-22
4	Oct 7-11	9	Nov 25-29
5	Oct 21-25		

Conversion of numerical grades to Final Letter Grades follows the Dalhousie Common Grade Scale

A+ (90-100)	B+ (77-79)	C+ (65-69)	D (50-54)
A (85-89)	B (73-76)	C (60-64)	F (<50)
A- (80-84)	B- (70-72)	C- (55-59)	

Course Policies on Missed or Late Academic Requirements:

- Students experiencing a short-term absence that is no longer than three consecutive days and results in a missed assessment *must*:
 - Notify the instructor by email prior to the academic deadline or scheduled time, and
 - Download, complete, and submit the Student Declaration form within 3 days of the assessment deadline. Submission must be made on Brightspace.
 See: [Student Declaration Information](#) for form. No make-up midterm or assignments will be offered. **Only one such form submission per student will be accepted in the course and the weight of that assessment will be moved to the final exam.** SDAs are not required for assignment extensions. Assignment extensions must be requested explicitly by email prior to the deadline and are at the discretion of the instructor. **An SDA cannot be submitted for the final exam.**
- Each assignment will be available for an entire week. Therefore, students can have access to it for during that week and I will not accept any late assignment. In the case if a student is sick during that week, they **MUST** contact me before the closing date. Note that all extensions are at the instructor's discretion and that repeat requests for extensions may not be granted. SDA forms are not used for an extension.

- Quizzes will take place during the tutorials and if a student misses it due to illness, they may be able to write a makeup quiz in another tutorial section, subject to the instructor's discretion and availability. The student must contact the instructor in advance of the assessment to have consideration for a makeup quiz.
- A make-up final exam can only be arranged in exceptional circumstances such as illness. In such circumstances, the student must inform the instructor as soon as possible prior to the exam's time.

Grading:

- Please note that there will be no grade modifications beyond 2 weeks after the returned assessment. **Grading inquiries accepted only by email.**
- Although students may discuss individual assignments in groups, the submitted work must be your own. Any identical submitted assignments will receive a grade of 0 and, according to university regulations, will be reported to the Academic Integrity Office.

Recognition of Mi'kmaq Territory

Dalhousie University would like to acknowledge that the University is on Traditional Mi'kmaq Territory. The Elders in Residence program provides students with access to First Nations elders for guidance, counsel, and support. Visit or e-mail the Indigenous Student Centre at 1321 Edward St or elders@dal.ca. Additional information regarding the Indigenous Student Centre can be found at: https://www.dal.ca/campus_life/communities/indigenous.html

Internationalization

At Dalhousie, 'thinking and acting globally' enhances the quality and impact of education, supporting learning that is "interdisciplinary, cross-cultural, global in reach, and orientated toward solving problems that extend across national borders." Additional internationalization information can be found at: <https://www.dal.ca/about-dal/internationalization.html>

Academic Integrity

At Dalhousie University, we are guided in all of our work by the values of academic integrity: honesty, trust, fairness, responsibility and respect (The Center for Academic Integrity, Duke University, 1999). As a student, you are required to demonstrate these values in all of the work you do. The University provides policies and procedures that every member of the university community is required to follow to ensure academic integrity.

Information: [Academic Integrity](#)

Accessibility

The Student Accessibility Centre is Dalhousie's centre of expertise for matters related to student accessibility and accommodation. If there are aspects of the design, instruction, and/or experiences within this course (online or in-person) that result in barriers to your inclusion, please contact the Student Accessibility Centre:

[Academic Support](#)

Student Code of Conduct

Everyone at Dalhousie is expected to treat others with dignity and respect. The Code of Student Conduct allows Dalhousie to take disciplinary action if students don't follow this community expectation. When appropriate, violations of the code can be resolved in a reasonable and informal manner—perhaps through a restorative justice process. If an informal resolution can't be reached, or would be inappropriate, procedures exist for formal dispute resolution.

The full Code of Student Conduct can be found at: [Student Code of Conduct](#)

Conduct in the Classroom – Culture of Respect

Substantial and constructive dialogue on challenging issues is an important part of academic inquiry and exchange. It requires willingness to listen and tolerance of opposing points of view. Consideration of individual differences and alternative viewpoints is required of all class members, towards each other, towards instructors, and towards guest speakers. While expressions of differing perspectives are welcome and encouraged, the words and language used should remain within acceptable bounds of civility and respect.

Diversity and Inclusion – Culture of Respect

Every person at Dalhousie has a right to be respected and safe. We believe inclusiveness is fundamental to education. We stand for equality. Dalhousie is strengthened in our diversity. We are a respectful and inclusive community. We are committed to being a place where everyone feels welcome and supported, which is why our Strategic Direction prioritizes fostering a culture of diversity and inclusiveness (Strategic Priority 5.2). Additional diversity and inclusion information can be found at:

[Diversity and Inclusion](#)

Fair Dealing Policy

The Dalhousie University Fair Dealing Policy provides guidance for the limited use of copyright protected material without the risk of infringement and without having to seek the permission of copyright owners. It is intended to provide a balance between the rights of creators and the rights of users at Dalhousie. Additional information regarding the Fair Dealing Policy can be found at: https://www.dal.ca/dept/university_secretariat/policies/academic/fair-dealing-policy-.html

Originality Checking Software

The course instructor may use Dalhousie's approved originality checking software and Google to check the originality of any work submitted for credit, in accordance with the Student Submission of Assignments and Use of Originality Checking Software Policy. Students are free, without penalty of grade, to choose an alternative method of attesting to the authenticity of their work and must inform the instructor no later than the last day to add/drop classes of their intent to choose an alternate method. Additional information regarding Originality Checking Software can be found at: [Originality Checking Software](#)

Student Use of Course Materials

Course materials are designed for use as part of this course at Dalhousie University and are the property of the instructor unless otherwise stated. Third party copyrighted materials (such as books, journal articles, music, videos, etc.) have either been licensed for use in this course or fall under an exception or limitation in Canadian Copyright law. Copying this course material for distribution (e.g. uploading to a commercial third-party website) may lead to a violation of Copyright law.

Student Resources and Support

Important Dates in the Academic Year (including add/drop dates): [Important dates](#)

University grading practices: [University Grading Practices](#)

Advising

[General advising](#)

[Science Program Advisors](#)

[Indigenous Student Center](#)

[Black Students Advising Centre](#)

[International Centre](#)

Academic supports

[Library](#)

[Writing Centre](#)

[Studying for Success](#)

[Copyright Office](#)

[Fair Dealing Guidelines](#)

Other supports and services

[Student Health & Wellness Centre](#)

[Student Advocacy](#)

[Ombudsperson](#)

Safety

[Biosafety](#)

[Chemical Safety](#)

[Radiation Safety](#)

[Scent-Free Program](#)

[Dalhousie COVID-19 information and updates](#)

Important Notice:

The instructor and university reserve the right to modify elements of the course during the term. If a modification becomes necessary, reasonable notice and communication with the students will be given with explanation and the opportunity to comment on changes. It is the responsibility of the student to check their Dalhousie email and the course website regularly during the term and to note any changes.