

## **Department of Mathematics and Statistics**

*STAT 2060/MATH 2060/ECON 2260*

*Introduction to Probability and Statistics I*

*Jul 6- Aug 24, 2020*

**Instructor(s):** Jing Zhang [jingzhang@dal.ca](mailto:jingzhang@dal.ca)

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**Lectures:** Live Lecture at Every Tuesday and Thursday 13:30-16:30 (Not mandatory but highly recommended)

Recorded Lecture video will be posted on Brightspace after each class.

**Tutorials:** *TBA*

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### **Course Description**

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.

### **Course Prerequisites**

MATH 1000.03 or MATH 1215.03 or MATH 1550 OR MATH 1500X/Y

### **Course Objectives/Learning Outcomes**

By the end of the course students will be able to:

1. Discuss basic statistical vocabulary and concepts
2. Identify and distinguish the contexts that can be analyzed using the statistical methods
3. Distinguish contexts that call for techniques beyond the scope of the course
4. Write clear statements (inference) supporting your interpretations of data analysis
5. Test one population proportion
6. Test one population mean
7. Compare two populations' means

### **Course Material**

Textbook: Probability and Statistics for Engineering and the Sciences, 9<sup>th</sup> edition, by J. Devore

## **Course Assessment**

Assignments 40%

Test 1 30%

Test 2 30%

## **Other course requirements**

### **Assignments**

1. There are 9 assignments to be completed online at LON-CAPA website.
2. Each assignment has a specific opening and closing time which is shown on the website. You may only access an assignment between its opening and closing times, all answers must be entered into LON-CAPA and submitted during that time frame. Un-submitted answers are not read by LON-CAPA.
3. Within the time frame for each assignment, students may open and close the assignment as often as they like. Remember to submit your answers.
4. Assignments will be marked electronically by LON-CAPA after their closing date/time has arrived. Answers will be posted after the assignment closes.
5. Assignments are to be done independently. If we suspect any students of copying assignments from another student or with the help of someone else, we are required to report the incident as an academic integrity offense. For more information, please read

[https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html)

### **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. 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.

## **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**

There will be a total of 2 tests. Both two tests will be done on LON-CAPA (test 1 and test 2)

1. Test 1: July 24, 2019, from 12:00pm to 2:00pm Halifax Time.
2. Test 2: Aug 19, 2019, from 12:00pm to 2:00pm Halifax Time.

#### **Note:**

The exams' time are Halifax Time, so please determine the time for your location in advance, as no online extensions will be made if the time slot is missed.

The online exams will be open-book.

**For those who live in completely different time zones, and the tests time will not work well for them, should provide their time zones information on the Brightspace and we will adjust the tests time period for them. More details will be posted on Brightspace during the first week of classes.**

#### **Makeup Exams Policy:**

This advisory is for students who find they are sick on the day of the scheduled exam and are therefore unable to write it. There will NOT be an online makeup exam. Students who need to write a makeup exam will be given the option of having their course status listed as “pending” (PND on transcripts) and will write a proctored exam at Dalhousie University or with a proctor once the situation with Covid-19 is over.

### **Course Content**

<b>Topics</b>	<b>Chapter</b>
Descriptive Statistics	Ch. 1
Probability	Ch. 2
Discrete Random Variables and Distributions	Ch. 3
Continuous Random Variables and Distributions	Ch. 4
Joint Probability Distributions	Ch. 5
Point Estimation	Ch. 6
Confidence Intervals Based on A single Sample	Ch. 7
Hypothesis Tests Based on A single Sample	Ch. 8
Inference Based on Two Samples	Ch. 9

## **University Policies and Statements**

**This course is governed by the academic rules and regulations set forth in the University Calendar and by Senate**

### **Missed or Late Academic Requirements due to Student Absence**

As per Senate decision instructors must not require medical notes of students who must miss an academic requirement, including a final exam, for courses offered during spring or summer sessions 2020 (until Aug 31, 2020).

Information on regular policy, including the use of the Student Declaration of Absence can be found here: [https://www.dal.ca/dept/university\\_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.html](https://www.dal.ca/dept/university_secretariat/policies/academic/missed-or-late-academic-requirements-due-to-student-absence.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:** [https://www.dal.ca/dept/university\\_secretariat/academic-integrity.html](https://www.dal.ca/dept/university_secretariat/academic-integrity.html)

## **Accessibility**

The Advising and Access Services Centre is Dalhousie's centre of expertise for student accessibility and accommodation. The advising team works with students who request accommodation as a result of a disability, religious obligation, or any barrier related to any other characteristic protected under Human Rights legislation (Canada and Nova Scotia).

**Information:** [https://www.dal.ca/campus\\_life/academic-support/accessibility.html](https://www.dal.ca/campus_life/academic-support/accessibility.html)

## **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.

**Code:** [https://www.dal.ca/dept/university\\_secretariat/policies/student-life/code-of-student-conduct.html](https://www.dal.ca/dept/university_secretariat/policies/student-life/code-of-student-conduct.html)

## **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

**Statement:** <http://www.dal.ca/cultureofrespect.html>

## **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 (1321 Edward St) ([elders@dal.ca](mailto:elders@dal.ca)).

**Information:** [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

## **Important Dates in the Academic Year (including add/drop dates)**

[https://www.dal.ca/academics/important\\_dates.html](https://www.dal.ca/academics/important_dates.html)

## **University Grading Practices**

[https://www.dal.ca/dept/university\\_secretariat/policies/academic/grading-practices-policy.html](https://www.dal.ca/dept/university_secretariat/policies/academic/grading-practices-policy.html)

## Student Resources and Support

### Advising

**General Advising** [https://www.dal.ca/campus\\_life/academic-support/advising.html](https://www.dal.ca/campus_life/academic-support/advising.html)

**Science Program Advisors:** <https://www.dal.ca/faculty/science/current-students/academic-advising.html>

**Indigenous Student Centre:** [https://www.dal.ca/campus\\_life/communities/indigenous.html](https://www.dal.ca/campus_life/communities/indigenous.html)

**Black Students Advising Centre:** [https://www.dal.ca/campus\\_life/communities/black-student-advising.html](https://www.dal.ca/campus_life/communities/black-student-advising.html)

**International Centre:** [https://www.dal.ca/campus\\_life/international-centre/current-students.html](https://www.dal.ca/campus_life/international-centre/current-students.html)

### Academic supports

**Library:** <https://libraries.dal.ca/>

**Writing Centre:** [https://www.dal.ca/campus\\_life/academic-support/writing-and-study-skills.html](https://www.dal.ca/campus_life/academic-support/writing-and-study-skills.html)

**Studying for Success:** [https://www.dal.ca/campus\\_life/academic-support/study-skills-and-tutoring.html](https://www.dal.ca/campus_life/academic-support/study-skills-and-tutoring.html)

**Copyright Office:** <https://libraries.dal.ca/services/copyright-office.html>

**Fair Dealing Guidelines** <https://libraries.dal.ca/services/copyright-office/fair-dealing.html>

### Other supports and services

**Student Health & Wellness Centre:** [https://www.dal.ca/campus\\_life/health-and-wellness/services-support/student-health-and-wellness.html](https://www.dal.ca/campus_life/health-and-wellness/services-support/student-health-and-wellness.html)

**Student Advocacy:** <https://dsu.ca/dsas>

**Ombudsperson:** [https://www.dal.ca/campus\\_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html](https://www.dal.ca/campus_life/safety-respect/student-rights-and-responsibilities/where-to-get-help/ombudsperson.html)

### Safety

**Biosafety:** <https://www.dal.ca/dept/safety/programs-services/biosafety.html>

**Chemical Safety:** <https://www.dal.ca/dept/safety/programs-services/chemical-safety.html>

**Radiation Safety:** <https://www.dal.ca/dept/safety/programs-services/radiation-safety.html>

**Scent-Free Program:** <https://www.dal.ca/dept/safety/programs-services/occupational-safety/scent-free.html>

