

Faculty of Science Course Syllabus (Section A)
Department of Mathematics & Statistics
STAT 1060/MATH 1060
Introductory Statistics for Science and Health Sciences
SUMMER 2024

Dalhousie University is located in Mi'kma'ki, the ancestral and unceded territory of the Mi'kmaq. We are all Treaty people.

We acknowledge the histories, contributions, and legacies of the African Nova Scotian people and communities who have been here for over 400 years.

Instructor(s): Mohammad M. Amirian m.amirianmatlob@dal.ca

Lectures: Asynchronous via Brightspace

Class Hours: MWF 13:05 PM to 14:55 ADT

Instructor's Office Hours: Mondays 15:00 to 17:00 ADT
(on Collaborate Ultra) Wednesdays 15:00 to 17:00 ADT
Fridays 15:00 to 17:00 ADT

TAs Fatemeh Tofighi & Jingyu Li

TA Hours: See Collaborate Ultra Tab on Brightspace for TA live hours.

CAPA TA: Jingyu Li Jingyu.Li@dal.ca

Course delivery: Asynchronous via Brightspace (lectures will be recorded).
Assignments online via CAPA.
Midterm exam in-person.
Final exam in-person.

Course Description

- This course gives an introduction to the basic concepts of statistics through extensive use of examples. The topics include experimental design, descriptive statistics, simple linear regression, and the basics of statistical inference. Students will also be introduced to the statistical package R.
- Delivery of the course will be synchronous, but the material can be read and viewed at any time once it is posted. It is highly recommended to stay on track of the weekly material since the assignments have specific due dates. The material in the course is also accelerated since the time period is shorter than the fall/winter semester.
- On Brightspace, the course material will be laid out in weekly modules (Week 1, Week 2, etc.) and posted each Monday at 8am ADT. The weekly modules can be found under the "Content" tab by scrolling down the page and looking on the left-hand side. In these weekly modules, you will find the notes for the week, example videos, and practice problems.
- Course announcements will be made on Brightspace, so try to login daily.

Course Prerequisites

Academic or advanced Grade 12 Mathematics (or pre-calculus) or equivalent.

Course Exclusion

COMM 2501, MGMT 1501, DISP, STAA 2000.

Students who have already taken university level Calculus should consider taking STAT 2060 instead of STAT 1060.

Learning Objectives

- Discuss basic statistical vocabulary and concepts,
- Identify and distinguish the contexts that can be analyzed using the statistical methods,
- Distinguish contexts that call for techniques beyond the scope of the course,
- Write clear statements (inference) supporting your interpretations of data analysis,
- Test one population proportion,
- Test one population mean,
- Compare two populations means,
- Test linear regression of two quantitative variables.

Course Materials

- **Textbook:** *STATS: Data and Models*, 3rd Canadian Ed. by Richard D. De Veaux et. al. Purchasing the textbook is optional, but a useful resource, so any edition may be used. A few physical copies of the textbook are available in the Killam Library.
- **Calculators:** You will also need a scientific calculator with natural log and exponential functions for assignments and exams.
- **Technology Requirements:** A computer to access course notes posted on Brightspace, complete assignments on CAPA and communicate with the instructor and TAs during office hours. The statistical software R, Minitab (or any other equivalent software) are helpful resources but are not required.
- **Discussion Boards:** For questions about the course or material, we encourage you to post it on the Discussion Boards on Brightspace, as others probably have similar questions. You may also email the instructor at m.amirianmatlob@dal.ca, or if you have questions regarding CAPA email the TA Jingyu Li (Jingyu.Li@dal.ca) with a STAT 1060 Summer 2024 heading. We intend to respond within 24hrs or next business day.
- **Time Zones:** All time zones for assignment due dates and exam times are in Halifax time (ADT).

Course Assessment

Assessment	Weight (% of final grade)	Date
<i>Assignments</i>	40%	See table below.
<i>Midterm</i>	30%	May 29, 13:00-15:00 ADT (In person; see below)
<i>Final exam</i>	30%	June 21, 13:00-15:00 ADT (In person; see below)

Assignments

- There are 8 weekly assignments (plus one optional, not graded, assignment) to be completed online at the course LON-CAPA website. Note that some assignments are due on the same date.
- Each assignment has a specific opening and closing time which is shown on the website and in the table below. 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.
- Within the time frame for each assignment, students may open and close the assignment as often as they like. Remember to **submit** your answers.
- Assignments will be marked electronically by LON-CAPA after their closing date/time has arrived. Answers are posted after the assignment closes.

Assignments	Opens Mondays at 8am	Due Sundays at 11:59pm ADT	Week #No
A1 and A2*	May 06	May 12	Week 1
A3 and A4	May 13	May 19	Week 2
A5	May 20	May 26	Week 3
A6	May 27	June 02	Week 4
A7 and A8	June 03	June 09	Week 5
A9	June 10	June 16	Week 6

*A2 is optional

Midterm (Exam 1)

- **When:** Wednesday, May 29, 13:00-15:00 ADT.
- **Where:** Students must write the midterm exam, **IN PERSON**. Location will be on McCain Aud.2-Ondaatje.
- **Topics:** The midterm will include material up until the section on Probability Model (Normal and Binomial) (course material weeks 1 to 3).

Final Exam (Exam 2)

- **When:** Friday, June 21, 13:00-15:00 ADT.
- **Where:** Students must write the final exam, **IN PERSON**. Location will be on Rowe 1028 - Potter Auditorium.
- **Topics:** The final exam will be cumulative covering all course material, with an emphasis on course material weeks 4 to 6: Sampling Distribution to Linear Regression.



Make Up Midterm (Exam 1)

- **When:** Monday, Aug 26, 16:00-18:00 ADT.
- **Where:** Students must write the midterm exam, **IN PERSON**. Location will be on Rowe 1028 - Potter Auditorium.
- **Topics:** The midterm will include material up until the section on Probability Model (Normal and Binomial) (course material weeks 1 to 3).

Make Up Final Exam (Exam 2)

- **When:** Tuesday, Aug 27, 16:00-18:00 ADT.
- **Where:** Students must write the final exam, **IN PERSON**. Location will be on Rowe 1028 - Potter Auditorium.
- **Topics:** The final exam will be cumulative covering all course material, with an emphasis on course material weeks 4 to 6: Sampling Distribution to Linear Regression.

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)		

How to Login to LON-CAPA for Assignments:

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 "Stat1060". 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.

Note: login errors may occur before the start of the course on May 6th. If problems persist after May 6th, contact the CAPA TA Jingyu Li (Jingyu.Li@dal.ca)

Course Policies related to Academic Integrity

- In the event that you are unable to attend the first round of exams (exam1 in May 29 & exam2 in June 21), you **MUST** contact your instructor before the exam with your reasoning along with you B00 and email address.

- Students are responsible to determine all due dates for assignments. No deadline extensions will be granted. For this reason, please determine the deadline times for your time-zone in advance. Missed assignments and midterm will be counted as zero.
- Assignments and Exams are to be done independently. If we suspect any students of copying assignments from another student, we are required to report the incident to the Senate Discipline Committee.

Course Outline

Week	Dates	Topic	Textbook chapter	Related assignments
1	May 6-12	Displaying and Summarizing Quantitative Data, Understanding and Comparing Distributions	3 & 4	A1 & A2
2	May 3-19	The Standard Deviation as a Ruler and Normal Model, From Randomness to Probability & Probability Rules	5 & 11-12	A3 & A4
3	May 20-26	Random Variables	13	A5
4	May 27-June 2	Sampling Distribution Models, Confidence Intervals for Proportions, Testing Hypotheses about Proportions	14-16	A6
		May 29—Midterm (in person)		
5	June 3-9	More about Tests & Inference about Means, Comparing Means (Independent & Paired Samples)	17-18 & 19-20	A7 & A8
6	June 10-16	Scatterplots, Association and Correlation, Linear Regression, Inference for Regression	6-7 & 23	
June 21—Final Exam (in person)				

Optional Textbook Readings:

Week 01:

- Chapter 3: Displaying and Summarizing Quantitative Data (exclude dotplots)
- Chapter 4: Understanding and Comparing Distributions (exclude timeplots)

Week 02:

- Chapter 5: The Standard Deviation as a Ruler and Normal Model (exclude section 5.5)



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- Chapter 11 - Randomness to Probability
- Chapter 12 - Probability Rules

Week 03:

- Chapter 13 - Random Variables (Exclude section 13.5 The Poisson Model)

Week 04:

- Chapter 14 - Sampling Distribution Models (Exclude 14.5)
- Chapter 15 - Confidence Intervals for Proportions (Exclude 15.5 and 15.6)
- Chapter 16 - Testing Hypotheses about Proportions

Week 05:

- Chapter 17 - More About Tests
- Chapter 18 - Inference About Means
- Chapter 19 - Comparing Means
- Chapter 20 - Paired Samples and Blocks

Week 06:

- Chapter 6 - Scatterplots, Association and Correlation
- Chapter 7 - Linear Regression
- Chapter 23 - Inference for Regression