

**Faculty of Science Course Syllabus**  
**Department of Mathematics and Statistics**  
**STAT 2060/MATH 2060/ ECON 2260**  
***Introductory Statistics for Science and Health Sciences***  
***Fall 2016***

**Instructor(s):** Dr. Ammar Sarhan      ammar.sarhan@dal.ca   Chase 105

**Lectures:**      MWF 10:35-11:25      **MCCAIN ARTS&SS AUD-1**

**Laboratories:** None

**Tutorials:** None

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*Submit course syllabus to your Depart office for posting on the Dept website prior to the start of term*  
*Submit requests for final exam exemptions to the Dean's office at least 2 weeks prior to the start of term*

### **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

### **Course Objectives/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.
4. Identify the foundations for classical inference involving confidence intervals and hypothesis testing.

### **Course Materials**

- *Textbook:* Probability and Statistics for Engineering and the Sciences, 8<sup>th</sup> edition, by J. Devore.
- A scientific calculator with natural log and exponential functions.
- Course website: Brightspace

## Course Assessment

**NOTE:** An exemption is required if you are not planning to hold a final exam scheduled by the Registrar's Office for the final exam period. Submit your syllabus along with your request (**and reason for the request**) to the Assistant Dean ([scieasst@dal.ca](mailto:scieasst@dal.ca)) at least 2 weeks prior to the start of classes.

Component	Weight (% of final grade)	Date
<b>Tests/quizzes</b>	Midterm, 30%,	October 26 (7:00-8:30pm)
<b>Final exam</b>	45%	(Scheduled by Registrar)

Note: To pass the course, you must get at least 50% of the two exams (midterm and final) combined.

### **Assignments: 25%**

Assignment	Due date	Assignment	Due date
1	Sept 17	6	Nov 5
2	Sept 24	7	Nov 12
3	Oct 1	8	Nov 19
4	Oct 8	9	Nov 26
5	Oct 15	10	Dec 4

*Nine best assignment scores will be used to compute the assignment portion of the course grade.*

## Other course requirements: None

### 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

Late work with a good documented excuse may be accepted, provided the solutions have not yet been posted and/or discussed in class.

Non-attendance at the midterm test, without a valid documented excuse as determined by the professor, will result in a mark of 0.

## Course Content

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

### ACCOMMODATION POLICY FOR STUDENTS

Students may request accommodation as a result of barriers related to disability, religious obligation, or any characteristic protected under Canadian Human Rights legislation. The full text of Dalhousie's Student Accommodation Policy can be accessed here:

[http://www.dal.ca/dept/university\\_secretariat/policies/academic/student-accommodation-policy-wef-sep--1--2014.html](http://www.dal.ca/dept/university_secretariat/policies/academic/student-accommodation-policy-wef-sep--1--2014.html)

Students who require accommodation for classroom participation or the writing of tests and exams should make their request to the **Advising and Access Services Centre (AASC)** prior to or at the outset of the regular academic year. More information and the ***Request for Accommodation*** form are available at [www.dal.ca/access](http://www.dal.ca/access).

### ACADEMIC INTEGRITY

Academic integrity, with its embodied values, is seen as a foundation of Dalhousie University. It is the responsibility of all students to be familiar with behaviours and practices associated with academic integrity. Instructors are required to forward any suspected cases of plagiarism or other forms of academic cheating to the Academic Integrity Officer for their Faculty.

The Academic Integrity website (<http://academicintegrity.dal.ca>) provides students and faculty with information on plagiarism and other forms of academic dishonesty, and has resources to help students succeed honestly. The full text of Dalhousie's ***Policy on Intellectual Honesty*** and ***Faculty Discipline Procedures*** is available here:

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

### STUDENT CODE OF CONDUCT

Dalhousie University has a student code of conduct, and it is expected that students will adhere to the code during their participation in lectures and other activities associated with this course. In general:

"The University treats students as adults free to organize their own personal lives, behaviour and associations subject only to the law, and to University regulations that are necessary to protect

- the integrity and proper functioning of the academic and non – academic programs and activities of the University or its faculties, schools or departments;
- the peaceful and safe enjoyment of University facilities by other members of the University and the public;
- the freedom of members of the University to participate reasonably in the programs of the University and in activities on the University's premises;
- the property of the University or its members."

The full text of the code can be found here:

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



## SERVICES AVAILABLE TO STUDENTS

The following campus services are available to help students develop skills in library research, scientific writing, and effective study habits. The services are available to all Dalhousie students and, unless noted otherwise, are free.

Service	Support Provided	Location	Contact
<b>General Academic Advising</b>	Help with <ul style="list-style-type: none"> <li>- understanding degree requirements and academic regulations</li> <li>- choosing your major</li> <li>- achieving your educational or career goals</li> <li>- dealing with academic or other difficulties</li> </ul>	<b>Killam Library Ground floor</b> Rm G28 <b>Bissett Centre for Academic Success</b>	In person: Killam Library Rm G28 By appointment: <ul style="list-style-type: none"> <li>- e-mail: <a href="mailto:advising@dal.ca">advising@dal.ca</a></li> <li>- Phone: (902) 494-3077</li> <li>- Book online through MyDal</li> </ul>
<b>Dalhousie Libraries</b>	Help to find books and articles for assignments Help with citing sources in the text of your paper and preparation of bibliography	<b>Killam Library Ground floor</b>  Librarian offices	In person: Service Point (Ground floor)  By appointment: Identify your subject librarian (URL below) and contact by email or phone to arrange a time: <a href="http://dal.beta.libguides.com/sb.php?subject_id=34328">http://dal.beta.libguides.com/sb.php?subject_id=34328</a>
<b>Studying for Success (SFS)</b>	Help to develop essential study skills through small group workshops or one-on-one coaching sessions  Match to a tutor for help in course-specific content (for a reasonable fee)	<b>Killam Library 3<sup>rd</sup> floor</b>  Coordinator Rm 3104  Study Coaches Rm 3103	To make an appointment: <ul style="list-style-type: none"> <li>- Visit main office (Killam Library main floor, Rm G28)</li> <li>- Call (902) 494-3077</li> <li>- email Coordinator at: <a href="mailto:sfs@dal.ca">sfs@dal.ca</a> or</li> <li>- Simply drop in to see us during posted office hours</li> </ul> <b>All information can be found on our website: <a href="http://www.dal.ca/sfs">www.dal.ca/sfs</a></b>
<b>Writing Centre</b>	Meet with coach/tutor to discuss writing assignments (e.g., lab report, research paper, thesis, poster) <ul style="list-style-type: none"> <li>- Learn to integrate source material into your own work appropriately</li> <li>- Learn about disciplinary writing from a peer or staff member in your field</li> </ul>	<b>Killam Library Ground floor</b> Learning Commons & Rm G25	To make an appointment: <ul style="list-style-type: none"> <li>- Visit the Centre (Rm G25) and book an appointment</li> <li>- Call (902) 494-1963</li> <li>- email <a href="mailto:writingcentre@dal.ca">writingcentre@dal.ca</a></li> <li>- Book online through MyDal</li> </ul> We are open six days a week <b>See our website: <a href="http://writingcentre.dal.ca">writingcentre.dal.ca</a></b>