Commerse 2QA3
Applied Statistics for Business
Spring 2018 Course Outline

Information, Marketing, Operations Area
DeGroote School of Business
McMaster University

COURSE OBJECTIVE

This course provides an introduction to the application of statistical analysis in managerial decision-making. The concepts of statistical analysis are applied to a variety of topics, including decision-making, estimation by sampling, hypothesis testing, analysis of variance, simple linear and multiple regression.

INSTRUCTOR AND CONTACT INFORMATION

Lectures: Mon,Wed 19:00-22:00  Tutorials: Mon,Wed 18:00-19:00

Shervin Shams-Shoaaee  TBA
Instructor  Teaching Assistant

shamsshs@mcmaster.ca

Office Hours: TBA

Lecture and Tutorial Location:
  BSB B135

Course website: http://avenue.mcmaster.ca

COURSE ELEMENTS

<table>
<thead>
<tr>
<th>Credit Value:</th>
<th>3</th>
<th>Leadership:</th>
<th>Yes</th>
<th>IT skills:</th>
<th>No</th>
<th>Global view:</th>
<th>Yes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A2L:</td>
<td>Yes</td>
<td>Ethics:</td>
<td>Yes</td>
<td>Numeracy:</td>
<td>Yes</td>
<td>Written skills:</td>
<td>Yes</td>
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<tr>
<td>Participation:</td>
<td>Yes</td>
<td>Innovation:</td>
<td>No</td>
<td>Group work:</td>
<td>Yes</td>
<td>Oral skills:</td>
<td>Yes</td>
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<tr>
<td>Evidence-based:Yes</td>
<td>Experiential:</td>
<td>Yes</td>
<td>Final Exam:</td>
<td>Yes</td>
<td>Guest speaker(s):</td>
<td>Yes</td>
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**COURSE DESCRIPTION**

**Theoretical Coverage:**
The main emphasis will be on statistical inference, including confidence intervals, hypothesis testing, regression, and ANOVA.

**Business Application Coverage:**
Numerous examples will illustrate the practical applications of statistical inference. Emphasis will be placed on avoiding the many pitfalls that exist in applying statistical inference to business and economics.

**LEARNING OUTCOMES**

This course deals with basic statistical methods, in converting data into information, and further yet - into knowledge. Primary focus is on business related data, but data coming from other sources (e.g., economic, social, etc.) will also be explored, analyzed and discussed. Upon completion of the course, students will be able to:

- describe, summarize and interpret statistical (both qualitative and quantitative) data
- solve problems using appropriate probability theorems
- estimate, test and draw inferences about important characteristics of data
- do hypothesis testing
- use statistical software packages to perform basic analysis of data
- learn relationship between variables using regression analysis

**COURSE MATERIALS AND READINGS**

Avenue registration for course related materials: [http://avenue.mcmaster.ca](http://avenue.mcmaster.ca)

**Textbook:**

Business Statistics (Third Canadian Edition) by Sharpe, De Veaux, Velleman and Wright

Three different packages available in the bookstore. You choose to buy EITHER of them.

1. Sharpe Physical text + MyStatLab
   - ISBN: 9780321876195

2. Sharpe Loose-Leaf, binder ready version + MyStatLab
   - ISBN: 9780133448337

3. MyStatLab + eText (Stand Alone Access) [Use course ID shams-shoaaee44156]
   - ISBN: 9780321821881
EVALUATION

All exams (midterm and final) will have multiple-choice questions and problem solving (not finalized yet). Formula sheets will be provided.

Missed tests/exams will receive a grade of zero unless the student has submitted and been approved for a Notification of Absence or MSAF. Late assignments will be penalized 15% for each day they are late. Your final grade will be calculated as follows:

Components and Weights

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
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</thead>
<tbody>
<tr>
<td>Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Midterm</td>
<td>35%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>45%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
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NOTE: Only the use of a McMaster standard calculator is allowed during examinations in this course. See McMaster calculator policy.

http://www.mcmaster.ca/policy/Students-AcademicStudies/examinationindex.html

Communication and Feedback

Students who wish to correspond with instructors or TAs directly via email must send messages that originate from their official McMaster University email account. This protects the confidentiality and sensitivity of information as well as confirms the identity of the student. Emails regarding course issues should NOT be sent to the Area Administrative Assistants. Instructors are required to provide evaluation feedback for at least 10% of the final grade to students prior to Week #9 in the term. Instructors may solicit feedback via an informal course review with students by Week #4 to allow time for modifications in curriculum delivery.

Course Deliverables

Assignments
There are four assignments each worth 5% of your final grade and will be marked individually.

Midterm and Final Exams – Multiple Choice and (possibly) Long Answer Exam
There will be a midterm and a final exam each worth 35% and 45% of your final grade, respectively. Exams will cover material from the text book, readings, lectures and class discussion. They will NOT cover optional readings.
**Tutorials**

During tutorials, the teaching assistant (TA) will solve practice problems and answer your questions. Although attending tutorials is not mandatory and will not affect your mark, it is highly recommended that you attend these sessions as they will give you the opportunity to review the course material by solving practice problems.

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**ACADEMIC DISHONESTY**

You are expected to exhibit honesty and use ethical behaviour in all aspects of the learning process. Academic credentials you earn are rooted in principles of honesty and academic integrity.

Academic dishonesty is to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. This behaviour can result in serious consequences, e.g. the grade of zero on an assignment, loss of credit with a notation on the transcript (notation reads: “Grade of F assigned for academic dishonesty”), and/or suspension or expulsion from the university.

It is your responsibility to understand what constitutes academic dishonesty. For information on the various types of academic dishonesty please refer to the *Academic Integrity Policy*, located at:  

[www.mcmaster.ca/academicintegrity](http://www.mcmaster.ca/academicintegrity)

The following illustrates only three forms of academic dishonesty:

1. Plagiarism, e.g. the submission of work that is not one’s own or for which other credit has been obtained.
2. Improper collaboration in group work.
3. Copying or using unauthorized aids in tests and examinations

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**ONLINE COURSE COMPONENTS**

In this course we will be using Avenue to Learn. Students should be aware that when they access the electronic components of this course, private information such as first and last names, user names for the McMaster e-mail accounts, and program affiliation may become apparent to all other students in the same course. The available information is dependent on the technology used. Continuation in this course will be deemed consent to this disclosure.

If you have any questions or concerns about such disclosure, please discuss this with the course instructor.

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**REQUESTING RELIEF FOR MISSED ACADEMIC WORK**

Students may request relief from a regularly scheduled midterm, test, assignment or other course components. Please refer to the policy and procedure on the DeGroote website at the link below;  

**STUDENT ACCESSIBILITY SERVICES**

Students who require academic accommodation must contact Student Accessibility Services (SAS) to make arrangements with a Program Coordinator. Academic accommodations must be arranged for each term of study. Student Accessibility Services can be contacted by phone 905-525-9140 ext. 28652 or e-mail sas@mcmaster.ca.

For further information, consult McMaster University’s Policy for Academic Accommodation of Students with Disabilities:


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**POTENTIAL MODIFICATION TO THE COURSE**

The instructor reserves the right to modify elements of the course during the term. There may be changes to the dates and deadlines for any or all courses in extreme circumstances. If either type of 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 McMaster email and course websites weekly during the term and to note any changes.

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**RESEARCH USING HUMAN SUBJECTS**

All researchers conducting research that involves human participants, their records or their biological material are required to receive approval from one of McMaster’s Research Ethics Boards before (a) they can recruit participants and (b) collect or access their data. Failure to comply with relevant policies is a research misconduct matter. Contact these boards for further information about your requirements and the application process.

McMaster Research Ethics Board (General board): https://reo.mcmaster.ca/
Hamilton Integrated Research Ethics Board (Medical board): http://www.hireb.ca/

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**ACKNOWLEDGEMENT OF COURSE POLICIES**

Your enrolment in Commerce 2QA3 will be considered to be an implicit acknowledgement of the course policies outlined above, or of any other that may be announced during lecture and/or on A2L. **It is your responsibility to read this course outline, to familiarize yourself with the course policies and to act accordingly.**

Lack of awareness of the course policies **cannot be invoked** at any point during this course for failure to meet them. It is your responsibility to ask for clarification on any policies that you do not understand.
# COURSE SCHEDULE

### Commerce 2QA3
**Applied Statistics for Business**  
**Spring 2018 Tentative Course Schedule**

<table>
<thead>
<tr>
<th>Date</th>
<th>Topics</th>
<th>Assignments Due</th>
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</table>
| 01 M, Apr 30 | Ch 1: An Introduction to Statistics  
|           | Ch 2: Data  
|           | Ch 3: Surveys and Sampling  
|           | Ch 4: Displaying and Describing Categorical Data  
|           | Ch 5: Displaying and Describing Quantitative Data |                 |
| 02 W, May 02 | Ch 6: Scatterplots, Association, and Correlation  
|           | Ch 7: Introduction to Linear Regression |                 |
| 03 M, May 07 | Ch 8: Randomness and Probability  
|           | Ch 9: Random Variables and Probability Distributions  
|           | Ch 10: Sampling Distributions | Assignment 1 |
| 04 W, May 09 | Ch 11: Confidence Intervals for Proportions  
|           | Ch 12: Testing Hypotheses About Proportions |                 |
| 05 M, May 14 | Ch 13: Confidence Intervals and Hypothesis Tests for Means | Assignment 2 |
| 06 W, May 16 | Ch 14: Comparing Two Means |                 |
| M, May 21   | Victoria Day, No Class |                 |
| 07 W, May 23 | Midterm Exam |                 |
| 08 M, May 28 | Ch 15: Design of Experiments and Analysis of Variance (ANOVA) | Assignment 3 |
| 09 W, May 30 | Ch 18: Inference for Regression |                 |
| 10 M, Jun 04* | Ch 19: Understanding Regression Residuals |                 |
| 11 W, Jun 06* | Ch 20: Multiple Regression |                 |
| 12 M, Jun 11 | Ch 21: Building Multiple Regression Models | Assignment 4 |
| 13 W, Jun 13 | Final Exam |                 |

*Note that classes on June 4th and 6th will be rescheduled. New dates and an updated schedule will be provided on Avenue to Learn.*