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

Section 01: Tu We Fr 12:30 – 13:20
Section 02: Tu We Fr 15:30 – 16:20
Evening: Tu 19:00 – 22:00
Tutorial 01: Fr 8:30 - 9:20
Tutorial 02: Th 14:30 15:20
Class Location: MDCL/1105
Class Location: ITB/137
Class Location: MDCL/1105
Tutorial Location: JSH/264
Tutorial Location: JSH/264

Instructor: Dr. Fouzia Baki
bibif@mcmaster.ca
Office: DSB 409
Office Hours: Wednesday 11-12 and Friday 2-3
@DSB409
or by appointment through email

Teaching Assistant: TBA

Course Elements

<table>
<thead>
<tr>
<th>Credit Value:</th>
<th>3</th>
<th>Leadership:</th>
<th>Yes</th>
<th>IT skills:</th>
<th>Yes</th>
<th>Global view:</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avenue:</td>
<td>Yes</td>
<td>Ethics:</td>
<td>Yes</td>
<td>Numeracy:</td>
<td>Yes</td>
<td>Written skills:</td>
<td>Yes</td>
</tr>
<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>
</tr>
<tr>
<td>Evidence-based:</td>
<td>Yes</td>
<td>Experiential:</td>
<td>Yes</td>
<td>Final Exam:</td>
<td>Yes</td>
<td>Guest speaker(s):</td>
<td>Yes</td>
</tr>
</tbody>
</table>

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. In addition, emphasis will be placed on avoiding the many pitfalls that exist in applying statistical inference to business and economics. Students will be introduced to Excel.

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

REQUIRED COURSE MATERIALS AND READINGS

Avenue registration for course related materials
- http://avenue.mcmaster.ca


PACKAGE 1:
1) Sharpe Physical text + MyStatLab: Suggested List $130
   ISBN: 9780133740714

2) Sharpe Loose-Leaf, binder ready version + MyStatLab: Suggested List $118.75
   ISBN: 9780133448337

3) MyStatLab + etext (Stand Alone Access): Suggested List $91
   ISBN: 9780321821881

EVALUATION

Students have two grade schemes to choose from. By the end of third week, students need to notify the instructor about their preferred grade scheme. You have to give this information through avenue. Details will be given by the second week of class. You will not be able to change this option after that.
Component | Scheme #1 | Scheme #2
---|---|---
Assignment-submitted through MyStatLab | 10% | X |
Midterm | 30% | 35%
Group Project | 15% | 15%
Final | 45% | 50%
Total | 100% | 100%

Exams: Midterm and Final

Final and midterm are mandatory. All exams (midterm and final) will have multiple-choice questions and problem solving. Formula sheets will be provided. Only the use of a McMaster standard calculator is allowed during midterms and final in this course. See McMaster calculator policy at the following URL: [http://www.mcmaster.ca/policy/Students-AcademicStudies/examinationindex.html](http://www.mcmaster.ca/policy/Students-AcademicStudies/examinationindex.html)

Midterm Exam Schedule

<table>
<thead>
<tr>
<th>Midterm</th>
<th>Date</th>
<th>Time</th>
<th>Rooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm</td>
<td>Friday Oct. 25, 2013</td>
<td>6 - 8 PM</td>
<td>TBA</td>
</tr>
</tbody>
</table>

Final Exam

The final exam will be held during the final exam period in December. The exact date, time and location will be determined by the Registrar's Office.

Assignments

If you choose to do assignments, you must decide by the third week of class. Assignments are given, and marked through the MyStatLab website, which requires a separate registration process. When you buy your textbook from the bookstore, it will give you access to MyStatLab/ MyLab. You will only need to register once. After the registration process is complete, you will not need to enter the course key again. For technical problems or problems signing in, please send Aplia an e-mail by clicking on the "Support" link in the lower-right corner of any page. Regular assignments will make you better prepared for the tests. There will be assignments and practice problems given through MyStatLab/ MyLab regularly. For this course, regular practice is one of the important keys to learn.

You must attend tutorials. During the tutorials, Teaching Assistants (TAs) will solve problems and you will have to solve problems. Remember that tutorials are valuable components in your learning. We will also have tutorials for Excel.

Grade Conversion

At the end of the course your overall percentage grade will be converted to your letter grade in accordance with the following conversion scheme.
<table>
<thead>
<tr>
<th>LETTER GRADE</th>
<th>PERCENT</th>
<th>LETTER GRADE</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>90 - 100</td>
<td>C+</td>
<td>67 - 69</td>
</tr>
<tr>
<td>A</td>
<td>85 - 89</td>
<td>C</td>
<td>63 - 66</td>
</tr>
<tr>
<td>A-</td>
<td>80 - 84</td>
<td>C-</td>
<td>60 - 62</td>
</tr>
<tr>
<td>B+</td>
<td>77 - 79</td>
<td>D+</td>
<td>57 - 59</td>
</tr>
<tr>
<td>B</td>
<td>73 - 76</td>
<td>D</td>
<td>53 - 56</td>
</tr>
<tr>
<td>B-</td>
<td>70 - 72</td>
<td>D-</td>
<td>50 - 52</td>
</tr>
<tr>
<td>F</td>
<td>00 - 49</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Code of conduct**

You and hundreds of others are attending the class and tutorials. Please be courteous to each other, the instructor and the teaching assistants. Turn off your cell phones before class starts. Please do not listen to music, play computer games, check emails or Facebook, text message, read the newspaper, or hold loud conversations that may be disruptive to the rest of the class. Laptop computers should be used only for taking notes during class. If you have questions or comments, please raise your hand or come to see me later.

**Communication and Feedback**

Students that are uncomfortable in directly approaching an instructor regarding a course concern may send a confidential and anonymous email to the respective Area Chair or Associate Dean:


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 Administrative Assistant.

Instructors should conduct an informal course review with students by Week #4 to allow time for modifications in curriculum delivery. Instructors should provide evaluation feedback for at least 10% of the final grade to students prior to Week #8 in the term. Students who wish to have a course component re-evaluated must complete the following form:


In order for the component to be re-read:

- the component must be worth 10% or more of the final grade in the course
- students pay a fee of $50 in Gilmour Hall #209 (receipt is then brought to APO)
- the Area Chair will seek out an independent adjudicator to re-grade the component
- an adjustment to the grade for the component will be made if a grade change of three points or greater on the 12 point scale (equivalent to 10 marks out of 100) has been suggested by the adjudicator as assigned by the Area Chair
- if a grade change is made, the student fee will be refunded

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**ACADEMIC DISHONESTY**

It is the student’s responsibility to understand what constitutes academic dishonesty. Please refer to the University Senate Academic Integrity Policy at the following URL:

http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicIntegrity.pdf

This policy describes the responsibilities, procedures, and guidelines for students and faculty should a case of academic dishonesty arise. Academic dishonesty is defined as to knowingly act or fail to act in a way that results or could result in unearned academic credit or advantage. Please refer to the policy for a list of examples. The policy also provides faculty with procedures to follow in cases of academic dishonesty as well as general guidelines for penalties. For further information related to the policy, please refer to the Office of Academic Integrity at:

http://www.mcmaster.ca/academicintegrity

**REQUESTING RELIEF FOR MISSED ACADEMIC TERM WORK**

Students may request relief from a regularly scheduled midterm, test, assignment or other course component in the following two ways:

a) for absences from classes lasting up to five (5) days; or
b) for absences from classes lasting more than five (5) days.

a) For absences from classes lasting up to five (5) days

Students must use the MSAF (McMaster Student Absence Form). This is an on-line, self-reporting tool, for which submission of medical or other types of supporting documentation is normally not required. Students may use this tool to submit a maximum of one (1) request for relief of missed academic work per term as long as the weighting of the component is worth 29% of the final grade or less. Students must follow up with their course instructors regarding the nature of the relief within two days of submitting the form. Failure to do so may negate the opportunity for relief. It is the prerogative of the instructor of the course to determine the appropriate relief for missed term work in his/her course.

If the value of the component is worth 30% or more, students must report to the APO to discuss their situation and will be required to provide appropriate supporting documentation.

b) For absences from classes lasting more than five (5) days

Students cannot use the MSAF. They MUST report to the APO to discuss their situation and will be required to provide appropriate supporting documentation.

Students who wish to submit more than one request for relief of missed academic work per term cannot use the MSAF. They must report to the APO and discuss their situation with an academic advisor. They will be required to provide supporting documentation and possibly meet with the Manager.

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The MSAF cannot be used during any final examination period.

Students unable to write a mid-term at the posted exam time due to the following reasons: religious; work-related (for part-time students only); representing university at an academic or varsity athletic event; conflicts between two overlapping scheduled mid-term exams; or other extenuating circumstances, have the option of applying for special exam arrangements. Please see the DeGroote Missed Course Work Policy for a list of conflicts that qualify for academic accommodation.

http://ug.degroote.mcmaster.ca/forms-and-resources/missed-course-work-policy/

Such requests must be made to the Academic Programs Office at least ten (10) working days before the scheduled exam along with acceptable documentation. Instructors cannot themselves allow students to unofficially write make-up exams/tests. Adjudication of the request must be handled by the Academic Programs Office. If a mid-term exam is missed without a valid reason, students will receive a grade of zero (0) for that component.

**STUDENT ACCESSIBILITY SERVICES**

Student Accessibility Services (SAS) offers various support services for students with disabilities. Students are required to inform SAS of accommodation needs for examinations on or before the last date for withdrawal from a course without failure (please refer to official university sessional dates). Students must forward a copy of such SAS accommodation to the instructor immediately upon receipt. If a student with a disability chooses NOT to take advantage of an SAS accommodation and chooses to sit for a regular exam, a petition for relief may not be filed after the examination is complete. The SAS website is: [http://sas.mcmaster.ca](http://sas.mcmaster.ca)

**POTENTIAL MODIFICATIONS TO THE COURSE**

The instructor and university reserve the right to modify elements of the course during the term. The university may change 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.

**RESEARCH USING HUMAN SUBJECTS**

*ONLY IF APPLICABLE*

Research involving human participants is premised on a fundamental moral commitment to advancing human welfare, knowledge and understanding. As a research intensive institution, McMaster University shares this commitment in its promotion of responsible research. The fundamental imperative of research involving human participation is respect for human dignity.
and well-being. To this end, the University endorses the ethical principles cited in the Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans:

http://www.pre.ethics.gc.ca

McMaster University has mandated its Research Ethics Boards to ensure that all research investigations involving human participants are in compliance with the Tri-Council Policy Statement. The University is committed, through its Research Ethics Boards, to assisting the research community in identifying and addressing ethical issues inherent in research, recognizing that all members of the University share a commitment to maintaining the highest possible standards in research involving humans.

If you are conducting original research, it is vital that you behave in an ethical manner. For example, everyone you speak to must be made aware of your reasons for eliciting their responses and consent to providing information. Furthermore, you must ensure everyone understands that participation is entirely voluntary. Please refer to the following website for more information about McMaster University’s research ethics guidelines:

http://reo.mcmaster.ca/

Organizations that you are working with are likely to prefer that some information be treated as confidential. Ensure that you clarify the status of all information that you receive from your client. You MUST respect this request and cannot present this information in class or communicate it in any form, nor can you discuss it outside your group. Furthermore, you must continue to respect this confidentiality even after the course is over.

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# Commerce 2QA3
## Applied Statistics for Business
### Fall 2013 Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Week of</th>
<th>Topic</th>
<th>Text Book Connections</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sept. 3</td>
<td>Introduction of Statistics Course Overview (only day sections)</td>
<td>Chapter 1 Outline will be posted on avenue site</td>
</tr>
<tr>
<td>2</td>
<td>Sept. 10</td>
<td>Course overview (evening section) Brief overview of data, surveys, sampling, and dealing with skewed data; ethical aspects of statistical analysis, discussion about available and reliable data sources in library</td>
<td>Chapter 2, 3; 5.11; 5.14 Suggested problems:</td>
</tr>
<tr>
<td>3</td>
<td>Sept. 17</td>
<td>Review of probability distributions; discussion of Poisson and Exponential Distributions Sampling Distribution</td>
<td>9.1; 9.4; 9.7; 9.8; 9.12 Ch. 10 Suggested problems:</td>
</tr>
<tr>
<td>4</td>
<td>Sept. 24</td>
<td>Confidence intervals for proportions Testing hypothesis about proportions</td>
<td>Chapters 11 and 12 Suggested Problems:</td>
</tr>
<tr>
<td>5</td>
<td>Oct. 1</td>
<td>Confidence intervals and hypothesis tests for means</td>
<td>Chapter 13 Suggested Problems:</td>
</tr>
<tr>
<td>6</td>
<td>Oct. 8</td>
<td>Comparing two means</td>
<td>Chapter 14 Suggested Problems:</td>
</tr>
<tr>
<td>7</td>
<td>Oct. 15</td>
<td>Design of experiments and ANOVA</td>
<td>Chapter 15 Suggested Problems:</td>
</tr>
<tr>
<td>8</td>
<td>Oct. 22</td>
<td>Inference for counts Midterm review</td>
<td>Chapter 16</td>
</tr>
</tbody>
</table>

Midterm on October 25

| 9    | Oct. 29 | Introduction to linear regression Inference for regression | Chapters 7 and 18 |
| 10   | Nov. 5  | Understanding regression residual                                 | Chapters 19 |
| 11   | Nov. 12 | Multiple regression                                              | Chapter 20 |
| 12   | Nov. 19 | Building multiple regression model                                | Chapter 21 |
| 13   | Nov. 26 | Non parametric methods and review (evening)                      | Chapter 17 |
| 14   | Dec. 3  | Review (day)                                                     |             |

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