Commerce 2QA3
Applied Statistics for Business
Summer 2014 Course Outline

Dr. Fouzia Baki
Operations Management 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

Section 01: Mo We 18:00 – 21:00
Class Location: TSH B105

Instructor: Dr. Fouzia Baki
bakif@mcmaster.ca
Office: DSB 409
Office Hours: 5-5:30, Wednesdays @DSB409
or by appointment through email

Teaching Assistant: Vanessa Bai
baiw2@mcmaster.ca
Office hour and location: 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>No</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.

www.degroote.mcmaster.ca
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

You choose to buy EITHER of them.

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 second 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.

<table>
<thead>
<tr>
<th>Component</th>
<th>Scheme #1</th>
<th>Scheme #2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Assignment-submitted through MyStatLab</td>
<td>10%</td>
<td>X</td>
</tr>
<tr>
<td>Midterm 1</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>20%</td>
<td>25%</td>
</tr>
<tr>
<td>Final</td>
<td>40%</td>
<td>40%</td>
</tr>
<tr>
<td>Class Work</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>
Midterms

Midterms 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

Midterm Exams Schedule

<table>
<thead>
<tr>
<th>Midterm</th>
<th>Date</th>
<th>Time</th>
<th>Rooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm 1</td>
<td>Monday, May 21, 2014</td>
<td>6 – 8 PM</td>
<td>Classroom</td>
</tr>
<tr>
<td>Midterm 2</td>
<td>Monday, June 2, 2014</td>
<td>6 - 8 PM</td>
<td>Classroom</td>
</tr>
</tbody>
</table>

Please assume that the regular classes will be held after the midterms unless otherwise specified by the instructor.

Final Exam

Final is mandatory. The final exam will be held on June 18. It will be three hour exam starting from 6PM. Final exam will be cumulative unless otherwise notified.

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 mylab an e-mail by clicking on the "Support" link. Regular assignments will make you better prepared for the tests. There will be assignments problems given through MyStatLab/ MyLab regularly. For this course, regular practice is one of the important keys to learn.

Classes

Class work is one of the components of your final grade. During the classes, Teaching Assistant (TA) and the instructor will help you to work on the given problems. **If you have a laptop, please bring it to the class.** Please make sure that you have Excel loaded in your laptop. Class works will be group and/individual work. After every class, we are going to collect and grade your work. Before you attend the class, you must go through the slides. Slides will be available under content section of the avenue site.

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.
Letter Grade | Percent | Letter Grade | Percent
---|---|---|---
A+ | 90 - 100 | C+ | 67 - 69
A | 85 - 89 | C | 63 - 66
A- | 80 - 84 | C- | 60 - 62
B+ | 77 - 79 | D+ | 57 - 59
B | 73 - 76 | D | 53 - 56
B- | 70 - 72 | D- | 50 - 52
F | 00 - 49

**Code of conduct**

You are not alone in the class. Please be courteous to each other, the instructor and the teaching assistant. 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:


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
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 ways:

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

c) for conflicts arising from Faculty Office approved events

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 their Faculty Office (the APO for Commerce students) 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 their Faculty Office (the APO for Commerce students) 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.

c) For conflicts arising from Faculty Office approved events
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.
Non-Commerce students must submit their documentation to their own Faculty Office and then alert the Academic Programs Office of their interest in an alternate sitting of the midterm.

Instructors cannot themselves allow students to unofficially write make-up exams/tests. Adjudication of the request must be handled by the Academic Programs Office.

The MSAF cannot be used during any final examination period.

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.
# Commerce 2QA3
## Applied Statistics for Business
### Summer 2014 Course Schedule

<table>
<thead>
<tr>
<th>Classes</th>
<th>Topic</th>
<th>Text Book Connections</th>
</tr>
</thead>
</table>
| May 5     | • Course Overview  
• Introduction of Statistics  
• Overview of Data (context of data, different data types)  
• Surveys and sampling  
• Displaying and Describing data (You are familiar with the most of the materials that are covered during the first class) | • Outline will be posted on avenue site  
• Chapters 1, 2, 3, 4 and 5 |
| May 7     | Association and correlation of data, Linear regression                | Chapters 6 and 7                                           |
| May 12    | Review of probability rules, probability distributions, discussion of Poisson and Exponential Distributions  
Sampling Distribution | 8.4, 8.5, 9.1; 9.4; 9.7; 9.8; 9.12  
Ch. 10 |
| May 14    | Confidence intervals for proportions  
Testing hypothesis about proportions  
Midterm review | Chapters 11 and 12 |

Midterm 1: May 21

| May 26    | Confidence intervals and hypothesis tests for means, Comparing two means | Chapters 13 and 14 |
| May 28    | Design of experiments and ANOVA, Midterm review                        | Chapter 15 |

Midterm 2: June 2

| June 4    | Inference for counts                                                   | Chapter 16 |
| June 9    | Introduction to linear regression  
Inference for regression | Chapter 18 |
| June 11   | Understanding regression residual and Multiple regression               | Chapters 19 and 20 |
| June 16   | TBA and Review                                                         |               |

Final: June 18