

**Commerce 2QA3
Applied Statistics for Business
Spring 2020 Course Outline**

**Operations Management Area
DeGroot School of Business
McMaster University**

COURSE OBJECTIVE

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

SCHEDULE AND CONTACT INFORMATION

Lecture: MoWe 07:00PM – 10:00PM Virtual Classroom

Tutorial: MoWe 06:00PM – 07:00PM Virtual Classroom

All Sections:

Dr. Behrouz Bakhtiari

Instructor

bakhtib@mcmaster.ca, (905) 525-9140 x23998, TSH 607

Office Hours

Wednesdays:

03:00PM – 06:00PM at Virtual Classroom (in addition to the specified hours, additional office hours can be scheduled by appointment)

Teaching Assistants:

TBA on Avenue to Learn announcement section.

COURSE ELEMENTS

Credit Value: 3	Leadership: No	IT skills: Yes	Global view: Yes
A2L: Yes	Ethics: Yes	Numeracy: Yes	Written skills: No
Participation: No	Innovation: No	Group work: No	Oral skills: No
Evidence-based: Yes	Experiential: Yes	Final Exam: Yes	Guest speaker(s): No

COURSE DESCRIPTION

The main emphasis will be on the applications of statistical data analysis in business. Students learn different aspects of working with and making sense of data and learn how to use data to provide insight into different business problems. Students in this course will engage with concepts from descriptive, diagnostic as well as predictive analytics to address problems from different disciplines of business. Some examples include the application of visualization, probabilities, confidence intervals, hypothesis testing, simple and multiple regressions, etc. Application of data analysis techniques with spreadsheets (MS Excel) will also be introduced in the course.

Numerous examples will illustrate the practical applications of statistical analysis in business. Emphasis will be placed on connecting theory to real-world problems from different business disciplines.

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:

- understand, describe, summarize, visualize and interpret statistical (both qualitative and quantitative) data
 - understand randomness and basic probability concepts (random variables, probability density functions, etc.)
 - estimate, test and draw inferences about important characteristics of data
 - identify the hypothesis that needs to be tested and conduct hypothesis testing
 - understand output of different statistical analyses (outputs are usually similar regardless of the software used to perform the analysis).
 - Understand, test and draw inference on comparisons between parameters relating to two or multiple populations
 - understand correlation and measure the strength of linear correlation between variables.
 - understand and use simple and multiple regression methods to perform predictive analytics based on data provided.
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VIRTUAL CLASSROOM

The course will be offered online in the form of a virtual classroom. The platform to run the lectures and tutorials is Microsoft Teams. All McMaster students have access to Microsoft Teams. Students enrolled in this course will have access to the course environment in MS Teams.

The assignments, midterm and final exams will be run on Avenue to Learn.

COURSE MATERIALS AND READINGS

Required:

- Slides (and other material) will be available on Avenue To Learn (<http://avenue.mcmaster.ca>)
- Business Statistics (Third Canadian Edition) by Sharpe, De Veaux, Velleman and Wright. ISBN: 978-0133899122 (the ISBN is for the physical book only, the version that comes with MyStatLab has a different ISBN).

Please visit the following link to learn about the availability of the textbook at the campus bookstore.

https://campusstore.mcmaster.ca/cgi-mcm/ws/txsub.pl?wsTERMG1=202&wsDEPTG1=COMMERCE&wsCOURSEG1=2QA3&wsSECTIONG1=EVE%20C01&crit_cnt=1

Note: If you choose to purchase MyStatLab, you can use course code bakhtiari45842 at <https://www.pearsonmylabandmastering.com/> to register for Pearson’s MyLab Statistic. Email bakhtib@mcmaster.ca if you have any questions or concerns regarding registration for MyStatLab.

EVALUATION

Missed tests/exams will receive a grade of zero unless the student has submitted and been approved for a Notification of Absence or MSAF. Your final grade will be calculated as follows:

Component	weight
2 Assignment-submitted through Avenue to Learn	25%
Midterm exam	32%
Final Exam	40%
in-lecture quizzes (participation)	3%
Bonus	2%
Total	102%

NOTE: Only the use of a **McMaster standard calculator** is allowed during examinations in this course. See McMaster calculator policy.

Course Deliverables

Assignments (25% - 2 assignments)

The 2 assignments combined are worth 25% of your final grade and will be marked individually. Assignments will be submitted online (on Avenue to Learn) and marked automatically. The following table shows the dates when each assignment will become available.

Assignment number	Date available
1	May 19 – May 22
2	June 09 – June 12

Once available, each student will have **1 attempt** in the assignment. Material covered in each assignment will be announced on Avenue to Learn.

Mitern Exam (32%)

The midterm exam is mandatory. The exam is scheduled as,

Exam	Date	Time	Rooms
Midterm	Friday, May 29	TBA	Virtual Classroom

Final Exam (40%)

The final exam is cumulative. However, several chapters already tested in the midterm exam will be removed from the material covered in the final exam. The time of the final exam will be announced in May.

In-lecture quizzes (3%)

Each lecture may have zero, one or multiple quizzes. The mark in this component is gained based on the number of quizzes you participate in. You will get the mark by participating in the quizzes and will not lose any marks if the answers provide are not correct.

The purpose for this component is to encourage class participation and active learning.

Bonus (2%)

The 2% bonus mark is awarded based on your responses to the in-class quizzes. You get this bonus mark based on the number of correct answers you provide for in-lecture quizzes.

Tutorials

Although attending tutorials is not mandatory and will not affect your mark, it is highly recommended that you attend these session as they will give you the opportunity to review the course material by solving practice problems.

MyStatLab

The use of MyStatLab is **NOT** mandatory for this course and is absolutely optional. However, you can benefit from practice problems and exercises that the publisher offers to students. If you choose to purchase MyStatLab code with your hardcopy or eText, you still need to register on the publisher's website to access it.

<https://www.pearsonmylabandmastering.com>

In order to register as “Student” you require an access code (the MyStatLab code that you purchased) as well as a course ID. The course ID for students registered in all sections of 2QA3 is **bakhtiari45842**.

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 may solicit feedback via an informal course review with students by Week #2 to allow time for modifications in curriculum delivery.

ACADEMIC INTEGRITY

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

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

ONLINE COURSE COMPONENTS

In this course we will be using Avenue to Learn and Microsoft Teams for live lectures. 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.

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;

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

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:

<http://www.mcmaster.ca/policy/Students-AcademicStudies/AcademicAccommodation-StudentsWithDisabilities.pdf>

ACADEMIC ACCOMMODATION FOR RELIGIOUS, INDIGENOUS OR SPIRITUAL OBSERVANCES (RISO)

Students requiring academic accommodation based on religious, indigenous or spiritual observances should follow the procedures set out in the RISO policy. Students requiring a RISO accommodation should submit their request, including the dates/times needing to be accommodated and the courses which will be impacted, to their Faculty Office normally within 10 days of the beginning of term or to the Registrar's Office prior to their examinations. Students should also contact their instructors as soon as possible to make alternative arrangements for classes, assignments, and tests.

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.

The University reserves the right to change the dates and deadlines for any or all courses in extreme Circumstances (e.g., severe weather, labour disruptions, etc.). Changes will be communicated through regular McMaster communication channels, such as McMaster Daily News, A2L and/or McMaster email.

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.

VIRTUAL COURSE OFFERING ADDITIONAL POINTS

McMaster is committed to an inclusive and respectful community. These principles and expectations extend to online activities including electronic chat groups, video calls and other learning platforms. If you are concerned about your virtual classroom experiences, the Equity and Inclusion Office (EIO) is available to advise and assist students who may be experiencing any equity, accessibility, inclusion, harassment, discrimination or sexual violence concerns. You can reach the EIO at equity@mcmaster.ca. Thank you for joining us in ensuring that our McMaster online communities are spaces where no one feels excluded and everyone is able to enjoy learning together.” <https://equity.mcmaster.ca/contact-us>

Students who have access to authorized recorded lectures in a course may use these recordings only for personal or group study and should not reproduce, share or upload the recording to any publicly accessible web environment. Similarly, notes, slides, evaluations and tests are for personal use and should not be shared with others outside of a course.

COURSE SCHEDULE

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Spring 2020 Course Schedule**

Note: Depending on the pace of the lectures the schedule below may change slightly.

Note: If, for any reason, any section or part from the material stated in the table below is to be removed from the covered material, it will be announced on the course webpage on Avenue.

Week (excl. reading week)	Reading Material
#1	<ul style="list-style-type: none"> • Chapter 1: Sections 1.1 to 1.3 (inclusive). • Chapter 2: Sections 2.1 to 2.3 (inclusive). • Chapter 3: Sections 3.1 to 3.8 (inclusive). • Chapter 4: Sections 4.1 to 4.5 (inclusive). • Chapter 5: Sections 5.1 to 5.14 (inclusive). • Chapter 6: Sections 6.1 to 6.5 (inclusive). • Chapter 7: Sections 7.1 to 7.8 (inclusive).
#2	<ul style="list-style-type: none"> • Chapter 8: Sections 8.1, 8.4, 8.5, 8.6. • Chapter 9: Sections 9.1, 9.2, 9.4, 9.6, 9.8, 9.9, 9.10. • Chapter 10: Sections 10.1 to 10.5 (inclusive). • Chapter 11: Sections 11.1 to 11.6 (inclusive).
#3	<ul style="list-style-type: none"> • Chapter 12: Sections 12.1 to 12.10 (inclusive). Note: in 12.7, one-sided confidence interval is not covered. • Chapter 13: Sections 13.1 to 13.6 (inclusive).
#4	<ul style="list-style-type: none"> • Chapter 14: Sections 14.1 to 14.5 (inclusive). • Chapter 15: Sections 15.1 to 15.9 (inclusive).
#5	<ul style="list-style-type: none"> • Chapter 18: Sections 18.1 to 18.6 (inclusive). • Chapter 19: Sections 19.1, 19.2, 19.3, 19.4, 19.6, 19.7, 19.8 (inclusive).
#6	<ul style="list-style-type: none"> • Chapter 20: Sections 20.1 to 20.6 (inclusive). • Chapter 21: Sections 21.1 to 21.5 (inclusive).