

## Course Outline

### **BUSADMIN i602: Economics & Business Statistics (Fall 2017)**

**Operations Management AND Finance & Business Economics  
DeGroot School of Business  
McMaster University**

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## COURSE OBJECTIVE

The first part of the course (i.e., Statistics) provides an in-depth knowledge of fundamental statistical techniques, and their applications in business and economics. Extensive examples and real data will be used throughout the course to illustrate the concepts in an *applied fashion*. For this, the use of computer software becomes an essential component of the course where R and R Commander (a menu-driven package with R as the analysis engine) are employed to assist in applying such techniques to solve a variety of practical problems. Also, the emphasis in the course is neither the mathematical derivation of the formulas, nor their technical proofs.

The second part of the course (i.e., Economics) introduces how the economic paradigm can be used to inform managerial decision making. The tools and techniques of economics, which encompass numerical and statistical supports for reasoning, provide rigorous treatment of current strategies and practice in business and how leaders manage in a competitive marketplace. These skills will be used to motivate evidence-informed judgements about alternative courses of action to produce *creative, action-oriented, practical* strategies to business challenges. There will be opportunities to improve written and oral communication proficiencies within various functional business areas.

## INSTRUCTORS/TA'S AND CONTACT INFORMATION

### Statistics Part

#### Instructor

**Dr. Manaf Zargoush**

**Health Policy & Management Area**

[zargoush@mcmaster.ca](mailto:zargoush@mcmaster.ca)

**Office Hours:** by appointment

#### Teaching Assistant

**Name:** Ali Vaezi

**Email:** [vaezia2@mcmaster.ca](mailto:vaezia2@mcmaster.ca)

**Office Hours:** by email

### Economics Part

#### Instructor

**Dr. Sultan M. Awan**

**Finance & Business Economics Area**

[awan@mcmaster.ca](mailto:awan@mcmaster.ca)

**Office Hours:** by appointment

#### Teaching Assistant

**Name:** TBD

**Email:** TBD

**Office Hours:** TBD

## COURSE ELEMENTS

<b>Avenue:</b>	Yes	<b>Leadership:</b>	No	<b>IT skills:</b>	Yes	<b>Global view:</b>	Yes
<b>Participation:</b>	Yes	<b>Ethics:</b>	Yes	<b>Numeracy:</b>	Yes	<b>Written skills:</b>	Yes
<b>Evidence-based:</b>	Yes	<b>Innovation:</b>	Yes	<b>Group work:</b>	Yes	<b>Oral skills:</b>	No

## COURSE DESCRIPTION

This course is focused on the integration of information into effective decision making for strategic action. Students will explore approaches to organizing and interpreting numerical information (data) and utilizing it as an evidentiary basis for economic decisions within the organization. Students will develop and hone proficiencies in asking good questions and using information to make beneficial and ethical decision that take account of the feedback of actions by other decision-making organizations.

Statistics has become an essential tool for modern management practice, and this part of the course will emphasize the application of statistical techniques and modeling for business decision-making. The focus will be on analysis and interpretation of statistical methods through applying the concepts of statistical inference to the real decision-making problems. The statistical techniques in this part of the course not only can be applied to a variety of business problems, but most importantly, they will provide students with the critical skills required to assess the validity, significance, and interpretation of many of the reports that they deal with during their education and career. The techniques presented in the course will build on the Data Analytics/Stats Module in Foundations 1, and will include topics in sampling distributions, Analysis of Variance (ANOVA), and an in-depth analysis of multiple regression using in-class experiments, computer software and macro/micro datasets.

The economics concepts developed in the Economics Fundamentals module in Foundations 1 will then be applied in data-informed contexts to develop proficiencies with making decisions using economic thinking. Managers use the logic of marginal analysis, the analysis and application of demand and cost concepts, and intelligent responses to strategic behavior and to external forces like government policy and international macroeconomic trends, together with statistical and numerical techniques learned earlier, to analyze situations and develop courses of action. This part of the course is taught primarily through analytic examples that serve as a platform for using the economic approach to problems thinking. There will be opportunities to make predictions and identify productive questions to ask about economic problems faced by the manager.

## LEARNING OUTCOMES

Upon completion of this course, students will be able to complete the following key tasks:

- ✓ To understand sampling distributions, with emphasis on comparing population mean and variance.
- ✓ To understand the nature of statistical relationships between variables.
- ✓ To introduce fundamental ideas of experimental design, and the analysis of variance (ANOVA).
- ✓ To explore regression analysis, including simple linear regression, and multiple linear regression.
- ✓ To be able to identify common regression pitfalls.
- ✓ To learn techniques for selecting appropriate regression models for prediction.
- ✓ To become more familiar with R, a free statistical computing/programming software, and one of its menu-driven graphical user interfaces, R Commander (Rcmdr). Although we will primarily be using R Commander for statistical analyses, but the skills learned will be transferable to other statistical analysis packages.
- ✓ To be able to critically read and understand regression and factorial models in business and financial research papers.
- ✓ To utilize economic analytical techniques and forms of evidence to support decision-making;
- ✓ To understand and anticipate risks and opportunities in economic contexts, such as the strategic interplay of competitors, the conditions that support profitable multinational exchange and the challenges and opportunities for business of international macroeconomic events;
- ✓ To choose between and defend your choice of optimal responses to economic conditions;
- ✓ To understand and be able to explain the differences between: micro and macroeconomics; private and public; short-term and long-term; and economics and finance;
- ✓ To communicate economic concepts and recommendations to others persuasively using clear non-specialist language, in written and verbal form;
- ✓ To work collaboratively on authentic situations to identify the significant issues and present them effectively; and,
- ✓ To develop proficiency with the economic way of assessing and evaluating opportunities, which relies on data and strong numeracy, in order to have the benefit of this powerful paradigm in decision-making.

## REQUIRED COURSE MATERIALS AND READINGS

### ➤ Both Parts:

1. Readings and handouts to be assigned/provided by instructors FREE
2. Avenue registration for course content, readings, and materials  
• <http://avenue.mcmaster.ca> FREE

### ➤ Statistics Part:

3. Statistics for Business and Economics 12<sup>th</sup> Ed. By McClave, Benson & Sincich.  
Purchase options at the main campus bookstore:  
• **Hard Copy: Available to buy** by early October \$199.95  
• **E-Text: Available to buy** by early October \$95.00
4. Using the R Commander: A Point-and-Click Interface for R. By John Fox.  
Chapman & Hall/CRC The R Series.  
• A recent reference for R Commander. Available to buy online \$ 83.90
5. Business Analytics for Managers (**Use R!**). W. Jank.  
• **Available free** for download from McMaster online library FREE
6. Applied Statistics for Economics and Business. By Durmuş Özdemir  
• **Available free** for download from McMaster online library FREE
7. Business Statistics for Competitive Advantage with Excel 2016. By Fraser.  
• **Available free** for download from McMaster online library FREE
8. Statistics for Business and Financial Economics. By Lee, Lee, & Lee.  
• **Available free** for download from McMaster online library FREE

### ➤ Economics Part:

9. Managerial Economics & Strategy; 2<sup>nd</sup> Edition By Perloff and Brander with MyEconLab Access Card  
• Hardcover Text with MyEconLab and eBook \$179.10  
• Loose-leaf book with MyEconLab and eBook access \$107.96  
• Standalone MyEconLab with e-text \$90.00
10. Economics: The Essentials. By W. Scarth  
• Electronic copy provided on AVENUE, with thanks to Dr. Scarth FREE

## EVALUATION

Learning in this course results primarily from in-class discussion and participation in in-class activities. The balance of the learning results from the lectures, related readings, and researching your readings, assignments and assessments. Written tests will be evaluated on an individual basis. *Your final grade in this course will be calculated as follows:*

➤ **Components and Weights**

Component	Weight
<b>Both Parts (10%)</b>	
Integrative Group Project	10%
<b>Statistics Part (45%)</b>	
4 Homework Assignments	4×5%=20%
Written Assessment	25%
<b>Economics Part (45%)*</b>	
4 EconLab Tests	15%
Written Assessment	30%
<b>Total</b>	<b>100%</b>

**\*Components and Weights distribution - Economics Part**

<b>EconLab Test 1</b>	Online Multiple Choice (individual)	7.5%
<b>EconLab Test 2</b>	Online Multiple Choice (individual)	7.5%
<b>EconLab Test 3</b>	Online Multiple Choice (individual)	7.5%
<b>EconLab Test 4</b>	Online Multiple Choice (individual)	7.5%
<b>Written Assessment</b>	Cumulative	60%
<b>Total</b>		<b>90%</b>

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

[www.mcmaster.ca/policy/Students-AcademicStudies/UndergraduateExaminationsPolicy.pdf](http://www.mcmaster.ca/policy/Students-AcademicStudies/UndergraduateExaminationsPolicy.pdf)

➤ **Integrative Group Project**

To be announced later.

➤ **About Written Assessments**

Both written exams will be an individual assessment activity. They will be designed to test students' in-depth understanding and application of key concepts and theoretical models (qualitative and quantitative) covered in the textbook and other material discussed in the class. Final exams will consist of multiple choice questions, numerical problems, graphical, and descriptive questions. The Final Exams will be cumulative and will be scheduled by the registrar office.

➤ **Written Assessment: Statistics Part**

On November 10, there will be an individual assessment of student's statistics knowledge. This will be a compulsory two-hour, closed book exam. Students may

prepare a one-page, 8.5×11, single-sided crib sheet to bring to the exam. The crib sheet can be handwritten or typed in a font size of at least 12 point. Photocopied miniaturized versions will not be accepted.

### ➤ **EconLab Tests: Economics Part**

EconLab provides online access to various learning tools designed for this course. Students are expected to treat EconLab chapter related study plan, practice quiz and multiple-choice tests, graphical tools, and short-answer questions as online learning projects. After every 1 ~ 2 lectures, multiple-choice questions homework on the covered topics will be assigned on the EconLab. This learning tools provides students with helpful hints in case of difficulty, allow students to get TA feedback, and also allows students to review their work before submitting online. This will be an individual assessment activity. No exceptions or alternate dates will be provided for any missed EconLab online test.

### ➤ **Written Assessment: Economics Part**

An individual assessment of student's understanding and application of course contents will be held during the fall final examination period on a date and at a time scheduled by registrar office. This assessment will integrate elements of knowledge and processes of thinking learned through Foundations and during this nine-week course. More information on this assessment will be provided at the midpoint of the course.

### **Please Note:**

1. There will be NO make-up for any missed assessment activity and NO extra credit work will be offered under any circumstance.
2. Marks for all pre-final exam evaluation activities will be posted on Avenue.
3. Your final grade should come through official channels. Hence, marks for final exam will not be posted on Avenue.

### ➤ **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.

<b>Letter Grade</b>	<b>Percent</b>	<b>Points</b>
A+	90-100	12
A	85-89	11
A-	80-84	10
B+	75-79	9
B	70-74	8
B-	60-69	7
F	00-59	0

## 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:

<http://mbastudent.degroote.mcmaster.ca/contact/anonymous/>

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 provide evaluation feedback for at least 10% of the final grade to students prior to Week #5 in the term.

## 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:

<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

### **Language for Use in Courses with an On-Line Element-Economics Part**

In this course, we will be using MyEconLab, an online learning tool designed by course textbook publisher to assist and test students learning in the Economics part of this course. 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.

## ACADEMIC POLICIES

### ➤ **Missed Homework Assignments**

Where students miss a regularly scheduled mid-term or class participation for legitimate reasons as determined by the MBA Academic Services Office, the weight for that test/participation will be distributed across other evaluative components of the or be made up at the discretion of the instructor. Documentation explaining such an absence must be provided to the MBA Academic Services Office within five (5) working days upon returning to school.

To document absences for health related reasons, please provide the Petition for Relief for MBA Missed Term Work and the McMaster University Student Health Certificate which can be found on the DeGroote website at

<http://mbastudent.degroote.mcmaster.ca/forms-and-applications/>

Please do not use the online McMaster Student Absence Form as this is for Undergraduate students only. University policy states that a student may submit a maximum of three (3) medical certificates per year after which the student must meet with the Director of the program.

To document absences for reasons other than health related, please provide the Petition for Relief for MBA Missed Term Work and documentation supporting the reason for the absence.

Students unable to write a mid-term assessment 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. Such requests must be made to the MBA Academic Services 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 MBA Academic Services Office.

If a mid-term assessment is missed without a valid reason, students will receive a grade of zero (0) for that component.

### ➤ **Missed Written Assessments**

A student who misses an end of term assessment without good reason will receive a mark of 0 on the assessment.

All applications for deferred and special examination arrangements must be made to the MBA Academic Services Office. Failure to meet the stated deadlines may result in the denial of these arrangements. Deferred examination privileges, if

granted, must be satisfied during the examination period at the end of the following term. There will be one common sitting for all deferred exams.

Failure to write an approved deferred examination at the pre-scheduled time will result in a failure for that examination, except in the case of exceptional circumstances where documentation has been provided and approved. Upon approval, no credit will be given for the course, and the notation N.C. (no credit) will be placed on the student's transcript. Students receiving no credit for a required course must repeat the course. Optional or elective courses for which no credit is given may be repeated or replaced with another course of equal credit value.

Requests for a second deferral or rescheduling of a deferred examination will not be considered. Any student who is unable to write a final examination because of illness is required to submit the Application for Deferred MBA Final Examination and a statement from a doctor certifying illness on the date of the examination. The Application for Deferred MBA Final Examination and the McMaster University Student Health Certificate can be found on the DeGroote website at:

<http://mbastudent.degroote.mcmaster.ca/forms-and-applications/>

Please do not use the online McMaster Student Absence Form as this is for Undergraduate students only. Students who write examinations while ill will not be given special consideration after the fact. In such cases, the request for a deferred examination privilege must be made in writing to the MBA Academic Services Office within five business days of the missed examination.

Special examination arrangements may be made for students unable to write at the posted exam time due to compelling reasons (for example religious, or for part-time students only, work-related reasons):

- Students who have religious obligations which make it impossible to write examinations at the times posted are required to produce a letter from their religious leader stating that they are unable to be present owing to a religious obligation.
- Part-time students who have business commitments which make it impossible to write examinations at the times posted are required to produce a letter on company letterhead from the student's immediate supervisor stating that they are unable to be present owing to a specific job commitment.

In such cases, applications must be made in writing to the MBA Academic Services Office at least ten business days before the scheduled examination date and acceptable documentation must be supplied.

If a student is representing the University at an academic or athletic event and is available at an overlapping scheduled time of the test/examination, the student may write the test/examination at an approved location with an approved invigilator, as determined by the MBA Academic Services Office.

In such cases, the request for a deferred examination privilege must be made in writing to the MBA Academic Services Office within ten business days of the end of the examination period.

Note: A fee of \$50 will be charged for a deferred exam written on campus and a fee of \$100 for deferred exams written elsewhere. In cases where the student's standing is in doubt, the Graduate Admissions and Study Committee may require that the student with one or more deferred examination privileges refrain from re-registering until the examination(s) have been cleared.

## **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>

## **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.

## **ACKNOWLEDGEMENT OF COURSE POLICIES**

Your registration and continuous participation (e.g. on A2L, in the classroom, etc.) to the various learning activities of MBA i602 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.

## CLASS SCHEDULE

### CLASS DATES

Cohort	Class Dates
1	Mon/Wed 14:30 -16:30
2	Tue/Thu 8:30 -10:30
3	Tue 14:30 -16:30 Thu 11:30 -13:30
4	Mon/Wed 8:30 -10:30

### TENTATIVE COURSE SCHEDULE

PART	WEEK	CLASS	TOPICS	SUBJECTS
STATISTICS	Oct. 9	1	Introduction, Review & Sampling Methods	1. Course Outline 2. Review from Foundations 1 3. Sample Mean
		2	Sampling Methods (Cont.)	1. Sample Mean (Cont.) 2. Sample Proportion 3. Central Limit Theorem
	Oct. 16	3	Inference for Single Samples	1. Hypothesis Testing, 2. Confident Intervals
		4	Inference for Two Samples	<i>Comparing:</i> 1. Population Mean, 2. Population Variance
	Oct. 23	5	Experimental Design & Analysis of Variance	1. One-Way ANOVA, 2. Two-Way ANOVA
		6	Analysis of Correlation & Simple Linear Regression	1. Correlation Analysis, 2. Correlation vs. Causation, 3. Simple Linear Regression
	Oct. 30	7	Multiple Regression (1)	1. Multiple Regression Models 2. Goodness of Fit Measures <i>Models with</i> 3. Dummy Predictors, 4. Models with Interaction
		8	Multiple Regression (2)	1. Multicollinearity, 2. Other Regression Pitfalls, 3. Model Selection
	Nov. 6	9	REVIEW	1. Review of concepts, 2. Review of HW Solutions
		9'	<b>Written Assessment: (Nov. 10)</b>	

PART	WEEK	CLASS	TOPICS	SUBJECTS
<b>ECONOMICS</b>	Nov. 13	10	Outline Review, Market Determination of Price	Analysis of Demand, Supply, and Price Control
		11	Demand and Optimal Pricing	Demand Analysis: Estimation, Forecasting, and Sensitivity Analysis
	Nov. 20	12	Firm Supply I - Production	Production Process, Productivity Analysis, input choices, constrained production decisions
		13	Firm Supply II - Cost	Principles of relevant Cost, Optimal Cost and Output Decisions, Economies of Scale and Scope
	Nov. 27	14	Prices, Output, and Strategy	Competitive Firms and Markets
		15	Price and Output Determination	Monopoly and Dominant Firms
	Dec. 4	16	Price and Output Determination	Oligopoly and Monopolistic Competition
		17	Market Failure and Government Intervention	Market Regulation, Competition Policy, Externalities
	Dec. 11	18	Capital Budgeting and Long-Term Investment Analysis	Cash flow analysis, Cost of Capital, New Investment Evaluation, Optimal Capital Budget

**Note:** THE READING LIST FOR EACH CLASS WILL BE PROVIDED IN THE LECTURE NOTES.

**HOMEWORK SCHEDULE**

<b>PART</b>	<b>Hw#</b>	<b>POSTING DATE</b>	<b>DUE DATE</b>	<b>WEIGHT</b>
Statistics	1	Class #2	Class #4	5%
	2	Class #4	Class #6	5%
	3	Class #6	Class #8	5%
	4	Class #8	<b>Nov. 10</b> (Exam day)	5%
Economics	Test 1	Nov. 13	Nov. 20	7.5%
	Test 2	Nov. 20	Nov. 27	7.5%
	Test 3	Nov. 27	Dec. 4	7.5%
	Test 4	Dec. 4	Dec. 11	7.5%
Both	Integrative Project	Class # 8	Class # 16	10%

**EXAMS SCHEDULE – BOTH PARTS**

<b>EXAM</b>	<b>EXAM DATE</b>	<b>WEIGHT</b>
Written Assessment (Statistics)	November 10, 9-12 a.m.	25%
Written Assessment (Economics)	December 18, 9-12 a.m.	30%

\*\*\*\*\***END of i602 Outlines**\*\*\*\*\*