

# Quantitative Method in Economics (ECO220Y1), 2011-2012

## Section L5101

**Instructor:** Margarita Pivovarova

**Lectures:** Tuesdays, 6:00 - 9:00 pm, MP202 <sup>1</sup>

**Drop by Office Hours:** Wednesdays, 3:00 - 4:00 pm, GE 228 <sup>2</sup>

**TA Tutorials:** The last hour of the 3-hour lecture is reserved for TA tutorial. Please watch BlackBoard portal for TA announcements: TA will announce the plan for tutorial each week.

**Course Websites:** <http://individual.utoronto.ca/pivovarova/ECO220.html> and BlackBoard portal.

**Head TA:** Inga Anuscenko

## 1 Academic Integrity

You are expected to behave with integrity, respect and professionalism in all interactions related to our course. If you require accommodations or have accessibility concerns, please visit <http://www.accessibility.utoronto.ca> to gather information, to make arrangements, and to ensure a positive learning experience.

## 2 Course Description

A rigorous introduction to probability, mathematical statistics and statistical analysis, including such topics as data description and analysis, elementary probability theory, sampling distributions, tests of hypotheses, estimation, analysis of variance and regression analysis. Emphasis is placed on applications in economics and business problems.

## 3 Prerequisites

An administrator will remove you if your prerequisites are incomplete. It is your responsibility to ensure that you met the prerequisites for this course: ECO110Y1(67%)/ECO105Y1(80%); MAT133Y1/(MAT123H1, MAT124H1)/(MAT135H1, MAT136H1)/MAT137Y1/MAT157Y1. For more information, please see: <http://www.economics.utoronto.ca/index.php/index/undergraduate/load/prerequisites>.

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<sup>1</sup>McLennan Physical Laboratories, 255 Huron Street

<sup>2</sup>Max Gluskin House, 150 St. George Street

## 4 Required Textbook

The required textbook is the first Canadian Edition of *Business Statistics* by Sharpe, De Veaux, Velleman, and Wright (2011) which comes complete with a solution manual and access to online content at MyStatLab (ISBN-10: 0132841401). The University of Toronto custom package is available at the U of T bookstore. Other editions and books are not substitutable<sup>3</sup>. Some used copies may be available from Summer 2011. The online component of our textbook is available at <http://www.pearsoned.ca/mystatlab>. To access the online resource, you will need to register with the course id (id for our course is **instructo48723**) and access code that comes with your hardcopy textbook.

## 5 Weekly Lectures, TA Tutorials and Mini-quizzes

Lectures are PowerPoint presentations. The lecture slides in the pdf format will be posted at least one day before our Thursday's meetings. You are welcome to print the lecture slides and bring them to class to take your own notes. The third hour of the 3-hour lecture slot is reserved for TA tutorials. Occasionally, this hour will be used for graded mini-quizzes. There will be 6 quizzes in the Fall term and 5 quizzes in the Winter term. These quizzes are "impromptu" - the date for the mini-quiz is only announced during the lecture preceding the quiz. Mini-quiz consists of about 8-12 multiple choice questions based on the material covered in the last two lectures including the one on the day of the quiz. The grade for the mini-quizzes will be based on (1) your participation, and (2) the quality of your responses. That means all answers, even the incorrect ones, earn points. Each unanswered question earns 0 points.

## 6 Readings and Homework

The required readings from the textbook as well as additional handouts are posted on the website and portal each week together with the assigned but not graded homework. You are expected to complete the required readings before the related lecture. The Chapters in the textbook contain many segments such as "what can go wrong", "just checking", and "ethics in action". These all are always part of the required readings although not specifically listed in the reading assignment for each class. As we progress through the course, there will be a number of additional required readings. These will be distributed to you during the lectures or posted on the BlackBoard portal.

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<sup>3</sup>You may, however, use the full Canadian edition (ISBN-10: 0321754247)

## 7 Excel Course Module - ECM

Instructor C.Chen ([christy.chen@utoronto.ca](mailto:christy.chen@utoronto.ca)) will give the required Excel Course Module (ECM) that is an integral part of our course. The ECM will start in January; you will have a chance to sign up for an Excel training session held in a computer lab. You will learn how to apply the concepts learned in the course using Excel. At the end of the course, you will be required to take a graded Excel Test in a computer lab. The ECM will use the portal for communication and announcements.

## 8 Marking Scheme and Assessments

Assessment	% of Grade	Length	Dates & Time
Mini-quizzes (Fall Term)	7 %		Graded: Sept. 22 - Dec. 1 during TA tutorials
Term Test # 1	14 %	90 min.	Friday, Nov. 11, EX 200 <sup>4</sup> 11:00 am - 12:30 pm
Mini-quizzes (Winter Term)	7 %		Graded: Jan. 12 - Apr. 5 during TA tutorials
Term Test # 2	16 %	100 min.	Friday, Jan. 20, EX 100 10:10 - 11:50 am
Term Test # 3	16 %	100 min.	Friday, March 23, EX 300/310 10:10 - 11:50 am
Excel Test	6 %	TBA	TBA Prof. Chen in March
Final Exam	34 %	3 hrs.	Apr. 11 - 30, TBA by A&S

### 8.1 Academic Conflicts

We can accommodate documented direct academic conflicts - you may start the test earlier or later than the regular time for the term test. (Please note, that this only applies to the Term Tests as those are scheduled outside our regular class time, but does not apply to the mini-quizzes.) To be eligible to write the Term Test earlier or later, you need to complete the following steps: (1) Print a hardcopy of your ROSI personal timetable; (2) in writing, indicate the other course with the conflict, note the piece of work in conflict in our course and describe the work in the other course that conflicts; (3) give the hardcopy of your timetable to either Instructor or a Head TA **no later than two weeks before** the date of the conflict; (3) find out when and where you are supposed to write our test.

## 8.2 Missed Term Work

Under no circumstances will the weight of the missed term work be reallocated to the final exam or any other piece of the term work. You must write a make-up test. You may miss only one term test and then write a make-up test; all other missed term tests will automatically earn a mark of zero. The make-up test is cumulative. You are eligible to write a make-up test only if all of the following requirements are met:

1. You have notified me by e-mail **within one day of the missed term work** (example: Term Test #2 is scheduled on Friday, January 20th from 10:10 to 11:50 am and you are not able to attend it due to illness. You must notify me about that no later than January 21st, 10:10 am).
2. Write a letter where you specify the piece of term work you missed, explain why you missed the term work. Your letter is word-processed, it closes with your signature, your name, your student number and your U of T e-mail address.
3. Submit a signed copy of your letter to me **no later than one week** from the date of the missed term work.

The cumulative make-up test is on Wednesday, April 4th, from 4:10 to 5:50pm. A missed make-up automatically earns a mark of zero.

## 8.3 Grading

The mini-quizzes include only multiple choice questions, and the term tests include both multiple choice and long answer questions. A machine marks multiple choice questions, and long answers questions are marked by the TAs. For long answer questions handwritten marks include the points you earned and, if applicable, the following symbols:

Symbol	Near the part of your answer that is:
X	Incorrect
?	Logically unclear, confusing or illegible
⊕	Imprecise, incomplete, insufficiently shows work

I accept application for re-grade if it: (1) is made in writing and is given to me along with your entire assessment, (2) clearly specifies which questions were improperly marked and explains why, (3) is submitted within four weeks from the test date. The entire assessment will be re-graded, not just the disputed parts. Your mark can go up, down, or remain unchanged. These conditions do not apply to clerical errors such as adding up your score wrong. If a clerical error occurs, please let me know as soon as possible.

## 9 Topics and Required Readings

The course covers the following chapters in the required textbook.

Chapter 1. An Introduction to Statistics

Chapter 2. Data

Chapter 3. Surveys and Sampling

Chapter 4. Displaying and Describing Categorical Data

Chapter 5. Displaying and Describing Quantitative Data

Chapter 6. Randomness and Probability (Excluding Section 6.9 Reversing the Conditioning: Bayes's Rule)

Chapter 7. Scatterplots, Association and Correlation

Chapter 8. Introduction to Linear Regression

Chapter 9. Random Variables and Probability Distributions (Excluding Sections 9.7 The Poisson Distribution and 9.11 The Exponential Distribution)

Chapter 10. Sampling Distributions

Chapter 11. Confidence Intervals for Proportions (Excluding Section 11.5 A Confidence Interval for Small Samples)

Chapter 12. Testing Hypotheses About Proportions

Chapter 13. Confidence Intervals and Hypothesis Tests for Means

Chapter 14. Comparing Two Means

(Chapter 15. Paired Samples and Blocks (this chapter included if time permits))

Chapter 16. Inference for Counts: Chi-Square Tests (Only Section 16.5 Confidence Intervals for the Difference of Two Proportions)

Chapter 18. Inference for Regression

Chapter 19. Understanding Residuals

Chapter 20. Multiple Regression (Excluding Section 20.7 The Logistic Regression Model)

Chapter 21. Building Multiple Regression Models