

# ECO 220 Y L0201/L5101: Quantitative Methods 2013-14

**Instructor:** Migiwa TANAKA

E-mail: [migiwa.tanaka@utoronto.ca](mailto:migiwa.tanaka@utoronto.ca) (Please refer to section 8 for the e-mail policy.)

Office Hour: W2:30-4:30pm, (T5-6 by appointment)

at 150 St. George Street, Economics Department Room 266

**Meeting Time and Location:**

Section L0201: Lecture T2-4 at MP103, Tutorial/Lecture/Test/Quiz M6-8\*

Section L5101: Lecture T6-8 at MP102, Tutorial/Lecture/Test/Quiz M6-8\*

\*See section 4.1

**TAs:** Lei Tang (Head TA), Tadhg Cahalan, Peng Fei Li, Gleb Sivitsky,  
Cecelia Sun, Fransiscus Winson

**Course Website:** The university portal (Blackboard) and  
discussion board (Piazza):  
[www.piazza.com/utoronto.ca/fall2013/eco220yl02015101/home](http://www.piazza.com/utoronto.ca/fall2013/eco220yl02015101/home)

**1. Prerequisite:**

ECO100Y1(67%) / ECO105Y1(80%); MAT133Y1/(MAT123H1, MAT124H1) /  
(MAT135H1, MAT136H1)/MAT137Y1/MAT157Y1

Note that an administrator will remove you if your prerequisites are incomplete.

**2. Learning Outcomes:**

At the completion of this course, you should be able to:

- A. Explain basic concepts of statistics.
- B. Analyze data using statistical methods, interpret the results, and draw conclusion.
- C. Understand the limitation of each statistical method.
- D. Read and interpret the outputs from statistical analysis software packages including STATA.
- E. Interpret statistical information presented in various sources.
- F. Evaluate the validity of claim based on statistic data.
- G. Use Excel to perform statistical analysis.

### 3. Required Textbook & iClicker:

The required textbook is "Business Statistics," the 3rd custom Canadian edition for ECO220Y, published 2013, by Sharpe, DeVeaux, Velleman, and Wright (ISBN 978-1-269-51416-3). This edition is a proper subset of ISBN 978-0-321-78183-3 and includes only chapters that are covered in ECO220Y. It is available at the U of T Bookstore and Discount Textbooks. Since this is new edition, no used book is available. It is not recommended to use an older edition since it does not include all the relevant topics, exercises and solutions. To register for MyStatLab, which is available only with new copies and is useful but not required, go to [www.mystatlab.com](http://www.mystatlab.com) and use this course ID: instructo98625.

***Using an iClicker remote is required:*** new and used ones are widely available (e.g. U of T Bookstore, [amazon.ca](http://amazon.ca)). You may also borrow an iClicker from a friend/relative or you may share an iClicker with another student so long as they are not currently taking ECO220Y with Prof. Tanaka. If you are unable to obtain an iClicker you may register for a short-term loan service.<sup>1</sup>

### 4. Class Meeting:

The lectures are given at the scheduled time as above for each session. Tutorial sessions will be given on Mondays, but these hours may be used for make-up lectures (See 4.1). You may attend lectures of either L0201 or L5101 but not both. Lecture slides are posted on the portal prior to the lecture. You should print them out in your preferred format and bring them to the lecture so that you can take notes. You should also bring your iClicker remote. Mature conduct in classroom is the requirement for this course. In lectures, you are expected to:

- Arrive on time.
- Switch off cell phones and other communication devices, including Wi-Fi of your laptop/tablet computer before the lecture starts.
- Respect learning opportunities of others and constructively contribute to the learning environment of the class. Distracting behavior is not tolerated.

#### 4.1 Mondays

Two hours on Mondays (6-8pm) are reserved for tutorials, term tests, a quiz and, makeup lectures. In most weeks, a TA will run two 50-minute tutorials, where he will give

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<sup>1</sup> This is only a short-term loan service: you need to return the borrowed iClicker remote after each class. Stop by the Economics Department Reception Desk (150 St George St) weekdays between 9:00 and 4:00 for more information.

a brief review of the lecture of the previous week and go through selected homework questions. It will take place from 6:10-7:00pm at MP102 for L0201 and from 7:10-8:00pm at MP102 for L5101. You can attend either L0201 or L5101 tutorial. The schedule of Mondays will be available on the portal.

## 5. Assessment Scheme and Course Organization:

Your course grade is determined by 3 term tests (2 in the first term and 1 in the second term), iClicker questions, the Excel test, and the final examination. The detail on each assessment is summarized as follows.

Assessment	% of grade	Length	Dates, Time
Term Test #1	17%	110 minutes	Nov 18 (6-8pm)
Term Test #2	17%	110 minutes	Feb 3 (6-8pm)
Term Test #3	17%	110 minutes	Mar 31 (6-8pm)
Refresher Quiz	(Optional, see 5.2.)	50 minutes	Jan 13 (6-7pm)
iClicker	9%		Every lecture
Excel Test	6%	50 minutes	TBD
Final Exam	34%	180 minutes	TBD, Exam Period

### 5.1. Term Test and Final Examination

Term tests and the final examination will include multiple choice (including true/false), short mathematical derivations, and short answer questions. For test and the final examination, you may bring a non-programmable calculator and must bring your University of Toronto TCard. Aid sheets consisting of basic formulae will be provided during the term test and the final examination. A copy of the aid sheets will also be made available on the portal in advance. All term tests and exams are cumulative.

I can accommodate documented direct academic conflicts in terms of term tests - you may start the test earlier or later than the regular time for the term test. To be eligible to write the term test earlier or later, you need to submit following information to me **no later than two weeks before the date of the conflict**: (1) 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. Once your request is approved, I will inform you where you will take the test.

## 5.2. Refresher Quiz (Optional)

There will be a 50-minute quiz scheduled on January 13. This quiz consists only of multiple choice questions. This optional quiz will serve as a makeup for multiple choice question (MCQ) part of Term Test #1 only for those who took Term Test #1. That is to say, if your percentage score of MCQ portion of the test is lower than the percentage score of this quiz, you can replace it with the quiz score. The participation for this quiz is optional but I encourage all of you to take it since it will help you to keep up with materials. There is no makeup for this quiz.

## 5.3. Class Participation with iClicker

iClicker will be used in every lecture. Answering multiple choice questions in real time with iClicker will help you actively participate in class and discuss materials with your classmates. Also, you and I will get immediate feedback from these questions. This is beneficial for you because it provides a real time assessment of how well you are understanding the topic discussed in the class. And it is helpful for me because I would know if the class needs more (or less) time on the particular topic.

**How it counts:** You will earn participation points if you answer an iClicker question. You will earn extra points if your answer is correct. (Usually it is equivalent value to the participation points.) It helps you focus on the course concepts and skills rather than excessively worrying about marks. Each unanswered question earns 0 point. Point values may vary across questions. For the first term, your iClicker score is average of the highest 10 scores out of 11 lectures. For the second term, it will be the average score of the highest 11 scores out of 12 lectures. In this way, your lowest score in each semester will be dropped. In each semester, iClicker points will count for 4.5 percent of course grade, totaling 9 percent.

**Registration:** To register your remote, go to <http://www.iclicker.com/support/registeryourclicker/>. You **MUST** use your **UTORid –not student ID number--** as your **“Student ID.”** If you are sharing your friend/relative and it is not registered with you UTORid, please contact Prof. Tanaka as soon as possible so that your score will be correctly counted.

**Your responsibility:** It is your responsibility to: correctly register your iClicker, bring it to class, bring any aids you need (calculator, textbook, statistical tables), arrive on time, and stay for the entire lecture. You may only enter responses yourself using your own properly registered iClicker. Your iClicker participation is a single assessment worth 9 percent of your course grade. A student suspected of cheating on any question jeopardizes this entire mark and possibly much more. All cases will be reported to the Economics Department and to the Office of Student Academic Integrity. A student that

“helps” by operating someone else’s iClicker can expect an equally harsh penalty. Protect your friends: do your own work.

**In class:** A green light illuminates on your iClicker remote when your response has been successfully recorded; a red light or lack of any light indicates a problem. If you forget your iClicker, I usually bring a backup. Nearly all iClicker malfunctions – including a “dead” remote – are easily resolved: call the technical support at 866-209-5698 or e-mail support@iclicker.com.

You may attend L0201 or L5101: your iClicker works in both. If you attend the same lecture twice, only the first one will count towards your mark.

I invite any student who has concerns about their ability to fully participate in using the iClicker system to approach me early in the semester. I am happy to clarify the process and discuss your concerns.

#### 5.4. Homework

On each lecture day, homework problems will be posted on the course website. Although they are not graded, completing them on time is essential for your success in this course.

#### 5.5. Grading

For term tests, a machine will mark the multiple choice questions. Your mark and machine-read responses will be posted at “My Grade” section on the portal as soon as possible. For short mathematical derivations and short 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 (Idea: plus more)

For these questions, earning partial credit requires that some part of your answer is clearly correct, directly relevant to the question asked, and not contradicted by other parts of your answer. I accept application for re-grades if it: (1) Is made in writing and 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** after the test is returned. The entire assessment will be re-graded, not just the disputed parts. Your grade 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 mistake occurs, please let me know as soon as possible.

## 5.6. Missed Term Work

In order to obtain credit for this course, it is important for you to complete term work in a timely manner. If you feel that is difficult, I encourage you to postpone taking this course. If you have to miss any of the term tests for reasons beyond your control, such as medical and other emergencies, you should contact me before the test either by e-mail or in person. Note that work and personal commitments are unlikely to be considered worthy of special consideration. Also, note that there is only one chance of make-up test. In order to qualify for special consideration, you must take following steps:

**[Step 1]** Contact me by using your **U of T e-mail account (@mail.utoronto.ca) before the test starts**. (Note: Five percentage points will be deducted from your make-up test mark for each hour or part of an hour that your e-mail is late. It is unacceptable to fail to show up for an important engagement without any advance notice.) In your correspondence with me, you should mention (1) your full official name, (2) student ID number, (3) your section number (either L0201 or L5101), (4) the reason for your absence, (5) list of all of the other courses you are currently taking and the names of your other professors, (6) along with item (5), list all term work, including tests and class attendance you submitted in other courses on the same day or two days before or after the missed term test in our course, and (7) the clause, "I understand that it is a punishable academic offense to present false or misleading information in support of my request for accommodation for missed term work." Refer also section 8 for e-mail etiquette in general.

**[Step 2]** Present a **written proof** that shows why you could not attend the test **within 7 days after the test for Term Test #1 and #2, and .within 2 days for Term Test #3**. If the absence is for medical reasons, you must provide a U of T Verification of Student Illness or Injury, available at <http://www.illnessverification.utoronto.ca/>. No other form is accepted. The form must be completed by a Medical Doctor and include the doctor's OHIP registration number and the **original** has to be submitted. Note that suspicious certificates will be forwarded to the Office of Student Academic Integrity (OSAI) for further evaluation. I will consider a case only when the evaluation of a practitioner on your "Degree of Incapacitation on Academic Function" is either "Serious" or "Severe."

**[Step 3]** After verifying the information provided by you, I will notify you the detail of the make-up test if you are considered qualified for the make-up test.

**[Step 4]** You will complete a cumulative make-up test on April 4th from 6-8pm. Missed make-up test will automatically earn score of ZERO.

## 5.7. Excel Training Sessions and Excel Test

Instructor Chen (christy.chen@utoronto.ca) gives the required Excel Course Module

(ECM) that complements our course. The ECM will start in January; you will have a chance to sign up for training held in a computer lab. (These are separate from regular TA tutorials.) While seated at a computer, you will learn how to do statistical analyses using an augmented version of MS Excel. These help you prepare for the Excel Test to be scheduled in March, which you will take in a computer lab. The ECM information is updated on the portal.

## 6. Course Materials

Following is the list of chapters from the required textbook that are covered in this course. A detailed schedule is available on the course website. Students are expected to read the part that is announced on the course website before the lecture. Many of iClicker questions are based on the required reading, including “*Just Checking*,” “*What Can Go Wrong?*” and “*Ethics in Action*.”

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: Scatterplots, Association, and Correlation

Chapter 7: Introduction to Linear Regression

Chapter 8: Randomness and Probability

Chapter 9: Random Variables and Probability Distributions (Excluding Sections 9.7 The Poisson Distribution and 9.12 The Exponential Distribution)

Chapter 10: Sampling Distributions

Chapter 11: Confidence Intervals for Proportions

Chapter 12: Testing Hypotheses About Proportions

Chapter 13: Confidence Intervals and Hypothesis Tests for Means

Chapter 14: Comparing Two Means

Chapter 18: Inference for Regression

Chapter 19: Understanding Regression Residuals

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

Chapter 21: Building Multiple Regression Models

Please see the portal for the schedule and topics to be covered each week.

## **7. Study Resources:**

### **7.1. Economic Study Centre**

The Economics Study Centre provides peer mentoring system to students taking this course.

Please see the following website for further details.

<http://www.economics.utoronto.ca/index.php/index/undergraduate/load/studyCentre>

The Centre also carries several copies of the required textbook. It will open on September 30.

### **7.2. Discussion Board “Piazza”**

We are going to use the website “Piazza” as one of the communication devices for this course. Piazza will allow students to ask questions to peers and answer peers’ questions regarding course materials. This site is adopted because (1) explaining your understanding of the materials is great way of learning, and (2) students often have common questions and your question and correspondence with peers will benefit rest of the class. I encourage you to ask questions when you are re struggling to understand a concept—you can even do so anonymously. TAs (Lei, Tadhg, Peng Fei) and I will regularly monitor the activities.

You will receive an e-mail (to the utoronto.ca account) inviting you to enroll in this site. Please follow the instructions in the e-mail and enroll. If you have any question about the content of this course, please post your question on the “Q and A” section of Piazza. The quicker you begin asking questions on Piazza (rather than via emails), the quicker you'll benefit from the collective knowledge of your classmates.

## **8. Communication & E-mail Etiquette**

TAs and I will use the portal, and e-mails (to your utoronto.ca e-mail account) to share the information about the course. It is your responsibility to check the information sources regularly.

Please do send me an e-mail if you would like to inform me about issues regarding the course, such as typos in the course materials, or missing link on the course website, etc. If you have any questions about course material, please ask me in person, before and after lectures, or during office hours. Alternatively, please post your question on Piazza.

If you need to contact me for other matters regarding the course via e-mail, you should be aware of following guidelines. An e-mail not following the guidelines may not be answered.

- The e-mail has to be sent from your U of T e-mail account (@mail.utoronto.ca).

- Subject of your e-mail should include course code (ECO220Y) and section number (L0201 or L5101).
- Your official name should be included in the text.
- You should review the syllabus before sending a question to me.
- Your e-mails should be written in concise and professional manner. Consider this an opportunity to learn business etiquette. For instance, the use of casual language such as “how r u?” or emocons, is not appropriate in this situation.
- I will make an effort to reply to your e-mails as soon as I can but my response may take 2 business days.

## 9. Academic Integrity

*“Academic integrity is a fundamental value essential to the pursuit of learning and scholarship at the University of Toronto. Participating honestly, respectfully, responsibly, and fairly in this academic community ensures that the UofT degree that you earn will continue to be valued and respected as a true signifier of a student’s individual work and academic achievement. As a result, the University treats cases of academic misconduct very seriously. The University of Toronto’s Code of Behaviour on Academic Matters (<http://www.governingcouncil.utoronto.ca/policies/behaveac.htm>) outlines the behaviours that constitute academic misconduct, the processes for addressing academic offences, and the penalties that may be imposed. You are expected to be familiar with the contents of this document.” –Academic Integrity Handbook, Office of Student Academic Integrity, Faculty of Arts and Science, University of Toronto.*

TAs and I will be vigilant over plagiarism and investigate any suspected case thoroughly, irrespective of whether it is intentional or unintentional.

## 10. Accommodations and Accessibility

If you have a disability and/or accessibility concern, and require accommodations, you are encouraged to contact Tanya Lewis, Director, U of T Accessibility Services at 416-978-6268; [tanya.lewis@utoronto.ca](mailto:tanya.lewis@utoronto.ca), immediately. They will provide you with relevant information and make necessary arrangements with you. The Academic Skills and Accessibility Services’ website is given as follows: <http://www.accessibility.utoronto.ca/>.