University of Waterloo
Course Outline

Term & Year:
>   Spring 2011

Course Number & Title:
>   ECON 221-002, Statistics for Economists (Section 2)

Lecture Times, Building & Room Number:
>   MW 10:00–11:20, RCH 112

Instructor's Name, Office Location, Office Hours, Contact:
>   Prof. Nguyen, HH 202, MW 11:30–12:30 (additional hours announced in class)
>   519-888-4567 ext 32794 (email is preferred)
>   eco221.uw@gmail.com (use this address; email to other addresses might be filtered and junked)

TA's Name, Office, Office Hours, Contact:
>   Jung Baek, PAS 1288, Thu 2:00-4:00, Fri 10:00-12:00
>   jbaek@uwaterloo.ca
>   jbaek567@gmail.com

1. Course Description

This course introduces students to basic concepts and techniques of modern statistics. There are four basic components: data, probability, statistics, and econometrics. Students will learn basic statistical procedures commonly used in economics. The teaching approach is problem-solving designed to help students develop the necessary quantitative skills in "thinking statistics" and apply theory to simple examples. These skills take time to develop and students are expected to fully participate in all class activities including attendance, discussions, readings, exercises. Computer is an important teaching tool and integrated part of the course.

2. Course Objectives

At the end of the course, students should be able to
- understand and apply basic tools and techniques of economic statistics covered in the course;
- formulate and solve basic problems in economic statistics;
- perform common basic tasks in economic statistics using computers;
- see the connection between statistics and economics in ECON 101-102

3. Required Texts

Nguyen, T. *Statistics With Shazam* (5th edition, 2011) available from UW Book Store. This new edition has 17 chapters compared to the older edition which has only 13 chapters. The older version will not be used. The library has indicated that, under its Collection Development Policy, the library does not purchase textbooks, especially at undergraduate levels.

The course software "Shazam Econometrics Software" (version 10 pro) is available from Arts Nexus for course work. Registered students can also run the software on their own computer to do the course work (details in class). The software runs under Windows. However, students have been able to run it smoothly on Mac machines using Bootcamp and on Linux machines using Wine. Prior knowledge of the software is not assumed and instructions will be given in class as needed (regular class attendance is therefore important). Students will learn to use the software and develop a basic skill set which might be helpful for entry co-op jobs.

4. Topics

The table below shows the connection of four subjects, namely, probability, statistics, econometrics, and Shazam, covered in 17 chapters of the text. The number denotes the chapter number and the symbol § denotes the section number. This might be changed to suit the class progress, student interest and/or background preparedness.

Probability	Shazam	Statistics	Econometrics
1. Introduction			
	3. Shazam basics		
	4. Descriptive statistics with Shazam	2. Descriptive statistics	
5. Probability basics			
6. Probability rules			
7. Expectations			
8. Variances			
9. Binomial distribution	§9.4 Binomial distribution with Shazam		
10. Normal distribution	§10.4 Normal distribution with Shazam		
11. Central limit theorem	§11.4 Central limit theorem with Shazam		
	§12.3 Sampling distribution with Shazam	12. Sampling distribution	
	§13.4 Statistical estimation with Shazam	13. Statistical estimation	
	§14.4 Testing hypotheses with Shazam	14. Testing hypotheses	
	§15.3 Simple regression with Shazam		15. Simple regression
	§16.3 Statistical analysis of regression with Shazam		16. Statistical analysis of regression
	§17.2 Multiple regression with Shazam		17. Multiple regression

5. Evaluation

The mark breakdown is as follows:

final exam	55%
midterm	25%
in-class quizzes (2 at 5% each)	10%
on-line quizzes (5 with 4 best marks)	10%

- **Final Exam**
  The scope of the final exam (2½ hrs, closed-book, bring calculator, pencils, and eraser) is _comprehensive_ covering the entire term (not just materials after the midterm) including all course materials. The final exam date is scheduled by the Registrar's Office and cannot be changed to accommodate student travel plans for whatever reasons. See Section 6(a) for rules on missing a final exam due to illness.

- **Midterm**

  Midterm (1½ hrs, in class, closed-book, bring calculator, pencils, and eraser). The Registrar's Office arranged rooms and hence the midterm date cannot be changed to accommodate student travel plans or midterms of other classes. See Section 6(b) for rules on missing a midterm due to illness.

midterm (80 min)	Wed Jun 15	RCH 112 (last names A-L)
		RCH 110 (last names M-Z)

- **In-class Quizzes (QIC)**

  There are 2 in-class quizzes of 5% each (15-20 minutes, in-class, closed book, bring calculator, pencils, and eraser). The topic of a quiz might be announced to the class. The purpose of the quiz system is to keep students on track and provide early warning signals if necessary. The quiz date is an integrated part of the course schedule and cannot be changed to accommodate student plans. See Section 6(b) for rules on missing a quiz due to illness.

in-class quiz #1 (20 min)	Wed June 1
in-class quiz #2 (20 min)	Wed July 6

- **On-line Quizzes (QOL)**

  The purpose of on-line quizzes is to use technology to give students quick feedbacks on their progress and early detection of potential problems. There are 5 on-line quizzes on uw-ace (30 minutes, closed book, calculator allowed, no collaboration) with the best 4 marks (i.e., drop the lowest mark).

  Each on-line quiz allows 2 attempts with the best marks of two. Quizzes normally open at 9:00 am on Friday and close at 9:00 am on the following Tuesday so students have 4 full days to work on them. See section 6(d) for rules on late submission as the computer is not very forgiving on late submission.

on-line quiz #1 (30 min)	9:00 am Fri May 20	9:00 am Tue May 24
on-line quiz #2 (30 min)	9:00 am Fri May 27	9:00 am Tue May 31
on-line quiz #3 (30 min)	9:00 am Fri June 24	9:00 am Tue June 28
on-line quiz #4 (30 min)	9:00 am Fri July 15	9:00 am Tue July 19
on-line quiz #5 (30 min)	9:00 am Fri July 22	9:00 am Tue July 26

6. Rules & Procedures

(a) Missing Final Exam Due to Illness

Missing the final exam is a very serious matter which automatically results in a zero mark for the exam itself and possibly a failing mark for the course. In case of illness, see the deferred exam policy at http://economics.uwaterloo.ca/DeferredExams.html:
- notify the instructor within 48 hours (preferably by email)
- get your doctor to complete the UW Verification of Illness form (the only acceptable proof) see http://www.healthservices.uwaterloo.ca/Health_Services/verification.html
- submit the petition http://economics.uwaterloo.ca/specialrequest_deferred_exam.pdf together with the UW Verification of Illness form to the instructor for department approval.

Note that (a) you should be prepared to write the deferred exam in short notice as it is not a time extension to study, and (b) you will automatically get a zero mark if you are granted a deferred exam and miss it (you get only one chance).

(b) Missing Quizzes and Midterm Due to Illness

By default, the computer automatically assigns zero marks for all missing required course work. In case of illness, remedies, if approved, include manual override to shift the weight of the missing work to the final exam. Follow the instructions below carefully:

- notify the instructor within 48 hours (preferably by email)
- get your doctor to complete the UW Verification of Illness form (the only acceptable proof) see http://www.healthservices.uwaterloo.ca/Health_Services/verification.html
- submit the special request form http://economics.uwaterloo.ca/SpecialRequest.pdf together with the UW Verification of Illness form to the instructor for approval.

(c) Missing Quizzes and Midterm Due to Non-Illness Circumstances

By default, the computer automatically assigns zero marks for all missing required course work. Occasionally, non-illness events (e.g., job interviews, emergencies, death in family) might be considered. These are not always granted and decisions will be made on a case-by-case basis and by discretion. If approved, remedies include manual override to shift the weight of the missing work to the final exam. Follow the instructions below carefully:

- notify the instructor well ahead of the event or within 48 hours (preferably by email)
- submit the special request form http://economics.uwaterloo.ca/SpecialRequest.pdf together with supporting documentation (this is essential) to the instructor for approval.

(d) Late Submission

Late submissions will not be accepted and missed submission will receive zero marks.

- For online quizzes, the computer usually gives some warnings before the deadline and refuses to accept late submissions (even if you miss by a fraction of a second) for whatever reason. The time zone of the deadline is set to be the local Waterloo time.
- For paper quizzes and exams, late submissions are not accepted and missed submission will receive zero marks for whatever reason.
- It is students' responsibility to submit exam papers (completely intact) on time. Exams not submitted on time (or submitted with missing pages) receive zero marks.

(e) Group Work

- Students may elect to study alone or in group depending on their tastes and learning styles. In tests, they must work alone and unaided
- Unauthorized collaboration with other students (or non-students like family members and friends) and unauthorized uses of books, notes, study aids, cheat sheets, electronic and communication devices are not permitted. Violations of these rules are considered serious breach of academic integrity. Non-programmable calculators are usually allowed.

(f) Laptop Computers

- Laptop computers (including notebooks, netbooks, ipads, iphones, blackberrys, and the likes) may be used during classes provided they are used for learning purposes directly related to the course (e.g., note taking, problem solving, numerical calculations, online search for materials related to topic being discussed in class).
- Examples of unacceptable uses of laptops during class include: personal email, facebook, movie, inappropriate surfing, and work on other courses. These activities create distractions to other students.

(g) Class Attendance

- This course is <u>not</u> an online course. Regular class attendance is an essential ingredient for successful completion of the course. Although not included in the official mark breakdown, class attendance is <u>not</u> optional.

- Students are expected to (a) attend all class meetings, (b) remain in class for the entire period, and (c) fully participate in class activities.
- Casual presence (e.g., reading email, study other courses in class, come at the end of the class period, sign attendance records and leave) does not count and is treated as absence.
- Students who miss classes for whatever reasons are responsible to catching up with course materials on their own. Class handouts are distributed to students attending classes only.
- While there is no mark penalty for not showing up in class, a good record of class attendance can help in borderline cases, bonus marks, and letters of reference down the road.
- Students should always sign the same way on the attendance records. Signing for someone else (or having someone to sign for you in your absence) is as serious as cheating since it gives a false pretense that a student is attending class (while he/she is at somewhere else).

7. University Statements

Cross-listed Course

A cross-listed course will count in all respective averages no matter under which rubric it has been taken. For example, a PHIL/PSCI cross-list will count in a Philosophy major average, even if the course was taken under the Political Science rubric.

Academic Integrity

Academic Integrity: In order to maintain a culture of academic integrity, members of the University of Waterloo are expected to promote honesty, trust, fairness, respect and responsibility.

Discipline: A student is expected to know what constitutes academic integrity, to avoid committing academic offences, and to take responsibility for his/her actions. A student who is unsure whether an action constitutes an offence, or who needs help in learning how to avoid offences (e.g., plagiarism, cheating) or about "rules" for group work/collaboration should seek guidance from the course professor, academic advisor, or the Undergraduate Associate Dean. When misconduct has been found to have occurred, disciplinary penalties will be imposed under Policy 71 Student Discipline. For information on categories of offenses and types of penalties, students should refer to Policy 71 Student Discipline,
http://www.adm.uwaterloo.ca/infosec/Policies/policy71.htm

Grievance: A student who believes that a decision affecting some aspect of his/her university life has been unfair or unreasonable may have grounds for initiating a grievance. Read Policy 70 Student Petitions and Grievances, Section 4, http://www.adm.uwaterloo.ca/infosec/Policies/policy70.htm

Appeals: A student may appeal the finding and/or penalty in a decision made under Policy 70 Student Petitions and Grievances (other than regarding a petition) or Policy 71 Student Discipline if a ground for an appeal can be established. Read Policy 72 Student Appeals, http://www.adm.uwaterloo.ca/infosec/Policies/policy72.htm

Academic Integrity website (Arts): http://arts.uwaterloo.ca/arts/ugrad/academic_responsibility.html

Academic Integrity Office (University): http://uwaterloo.ca/academicintegrity/

Accommodation for Students with Disabilities

Note for students with disabilities: The Office for Persons with Disabilities (OPD), located in Needles Hall, Room 1132, collaborates with all academic departments to arrange appropriate accommodations for students with disabilities without compromising the academic integrity of the curriculum. If you require academic accommodations to lessen the impact of your disability, please register with the OPD at the beginning of each academic term.