

University of Waterloo

Course Outline

Term & Year:

Winter 2012

Course Number & Title:

ECON 471: Computational Economics

Lecture Times, Building & Room Number:

MW 1:00–2:20, PAS 2083

Instructor's Name, Office Location, Office Hours, Contact:

Prof. T. Nguyen, HH 202, MW 10:00–11:50, 519-888-4567 ext 32794, eco471uw@gmail.com

(bookmark and use this address; emails to my other addresses might be filtered and junked)

TA's Name, Office, Office Hours, Contact:

(see LEARN)

LEARN web site

Registered students with completed fee arrangements can access <http://learn.uwaterloo.ca> using WatIAM/Quest username and password.

1. Course Description

This course introduces students to the basic concepts, methodology, and techniques of an area of computational economics, also known as computable general equilibrium (CGE) or applied general equilibrium (AGE) or numerical general equilibrium (NGE) modeling. Students will learn to build economic models to analyze economic problems, collect data, use numerical methods and modeling software to solve models, interpret results, draw economic conclusions, and make policy recommendations.

Although there will be some computer programming involved, this is an economic course with a strong focus on how to use economic theory to build numerical models to solve economic problems. Previous experience with programming languages is nice but not absolutely required as students will have the opportunity to try various modeling software such as GAMS, MSPGE, GTAP, GEMPACK. Basic software instructions will be provided.

It is essential that students have a firm grasp of the basic skill set covered in the economic core sequence (ECON 301/302) and standard tools of calculus and matrix algebra. The key word is “firm grasp” since this is the time for students to apply the skills they have already acquired from the core sequence (not learning or re-learning).

Depending on the class progress, student interests, and available time, applications may include numerical models in taxation, single-country trade, global trade, development policy, environment policy, dynamics, and finance.

2. Required Text

There is no required text for this course as the course materials will be based journals, online sources, and lectures. Some lecture notes or presentation slides will be available on LEARN (but not all) so regular class attendance is critical for a successful completion of the course.

3. Topics

The list of topics might be changed to suit the class progress, student background and interests.

- Introduction & Overview
- Basic Building Blocks
 - consumer and producer
 - leontief, cobb-douglas and ces/cet functions, nesting level
- General Equilibrium Framework
 - exchange economy
 - production economy
- Numerical Presentation of an Economy
 - unit convention
 - intermediate goods, input-output matrix
 - social accounting matrix
 - benchmark equilibrium data set
 - model calibration and calibration check
- Counter-Factual Policy Simulation
 - tax policy
 - trade policy
 - development policy

4. Evaluation

class attendance		2%
modeling exercises		25%
midterm	wed mar 7	25%
modeling project on approved topic	april 9-21	50%

The course mark is determined as the smaller of the total mark and 100 (i.e., capped at 100). That is, if your total mark is 75, the course mark will be $\min\{75, 100\} = 75$. On the other hand, if your total mark is 102, the course mark will be $\min\{102, 100\} = 100$.

1. Regular class attendance is required. Students are expected to (a) attend all class meetings, (b) remain in class for the entire period, and (c) participate in class discussions including answering questions. Casual presence (e.g., reading newspaper or email, study other courses in class, arrive at the end of the class period, or 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. 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 (which is not true).
2. The modeling exercises are needed to build the skills for the project. For a hands-on practice course like this (think of it as learning to play music), students cannot pass the course without doing the practice exercises. Cheating is no use, and last-minute rush will not work.

5. Policies & Procedures

This section covers policies and procedures for a smooth administration of the course. Students should give a quick glance to get a general idea of what they are all about, and then come back to

any specific item in case a situation arises. Think of it as a FAQ of WTD (frequently asked questions of what to do). If you send me an email asking a question and do not get a reply within a reasonable period of time, there is a good chance that an answer has already been given in this section. Check this section before re-sending your email.

(a) Missing Midterm Due to Illness

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;
- the form must be submitted as soon as possible (usually within five working days after the missed course work) for consideration; late submission of the form will not be considered.

(b) Late Submission

- Late submissions less than 24 hours pay a high penalty of 50%. Late submissions more than 24 hours will not be accepted. If late submissions are due to illness, then they can be treated according to the “missing midterms” procedure above.
- Students are responsible to ensure that their work are submitted on time and in full. That is, make sure that I have your submitted work. If I do not have your submitted work, you will get zero marks.
- Work must be submitted in class. Work submitted in other ways (e.g., the instructor’s office, mailbox, email) do not count and are not accepted.

(c) Unauthorized Collaboration in Exams

- Students must work alone and unaided during examination. 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.

(d) Return of Marked Papers

- Marked papers will be returned in class. Exams that are not picked up in class on the day they are returned, must be picked up in the office during the office hours within two weeks. Papers left unclaimed after two weeks will not be available for pickup.
- For multiple choice exams, marks and solutions will be posted on LEARN and hence the Scantron computer cards will not be returned.
- Submitted projects are treated as final exams and will not be returned.

(e) Uses of Electronic Devices in Exams

- Electronic and communication devices are not allowed in examination. These devices include computers (laptop, netbook, tablet), cell phones, mobile phones, blackberrys, iphones, ipads.
- Whenever calculators are allowed, it means stand-alone non-programmable calculators (no sharing). Cell phones and similar electronic and communications devices may not be used as a calculator in examination.

(f) Uses of Electronic Devices in Classes

- Video and voice recordings in class are not allowed. Selective note-taking during classes helps reinforcing the learning process. (it also keeps students awake). Suggestions for relevant points to take notes will be given during lectures.

- Laptops (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. Examples of unacceptable uses of laptops in class include personal email, facebook, games, movie, surfing, and work on other courses. These activities create distractions to other students. Students will be asked to leave.

(g) Unacceptable classroom behavior

Examples of unacceptable classroom behavior that interferes with other students' learning effort include chatting, private talk, computer games, watching movies. Students will be asked to leave.

6. 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.