

ADVANCED MATHEMATICAL ECONOMICS
ECONOMICS 3310A-001

Peter Streufert
Western University
Department of Economics
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Lectures. Mondays 2:30–4:30 and Wednesdays 2:30–3:30. Sommerville House 3305. No lecture on October 26.

Questions. My office hours are Mondays 1:00–2:00, Tuesdays 2:30–3:30, Wednesdays 3:30–4:30, and Thursdays 2:30–4:00. My office is Social Science 4040, my phone is 519-661-2111x85384, and my email is pstreuf@uwo.ca. I can talk with you on the phone and answer your emails only during office hours (excepted are calls about illness before an examination). Also, I will not be in my office October 24–28 (emails and calls about illness are nonetheless welcome). Please direct general undergraduate inquiries to the undergraduate secretary at Social Science Center 4075, 519-661-3507, econugrd@uwo.ca.

Registration. You are responsible for ensuring you are registered in the correct courses. If you are not registered in a course, the Department will not release any of your marks until your registration is corrected. You may check your timetable by using the Login on the Student Services website at <https://student.uwo.ca>. If you notice a problem, please contact your home Faculty Academic Counsellor immediately.

Prerequisites. There are two prerequisites for this course. [1] Registration in the honors economics program, in an honors specialization in economics, in a combined honors program with economics, or in a major in economics on main campus. (This prerequisite applies to all Economics courses numbered 2200 and above.) [2] At least one of the following. [a] Economics 2210. [b] Both Calculus 1501A/B and the former Linear Algebra 1600 (Calculus 1301A/B with a mark of at least 85% will be allowed as a substitute for Calculus 1501A/B, and Mathematics 1600 will be allowed as a substitute for Linear Algebra 1600.)

You are responsible for ensuring that you have successfully completed the above prerequisites, and that you have not taken the anti-requisite

course (Economics 2142). Lack of prerequisites may not be used as a basis for appeal. If you are found to be ineligible for a course, you may be removed from it at any time and you will receive no adjustment to your fees. This decision cannot be appealed.

If you find that you do not have the course prerequisites, it is in your best interest to drop the course well before the end of the add/drop period. Your prompt attention to this matter will not only help protect your academic record, but will ensure that spaces become available for students who require the course in question for graduation.

Description. This course covers some topics of mathematics which are applied in economics. These topics will be drawn from logic, set theory, algebra, geometry, topology, and real analysis. Some of these topics were already discussed in Economics 2210, and will be discussed here in greater depth. Many other topics will be new, especially topics used for dynamic optimization. Essentially, the course will allow students to glimpse how mathematics is used by graduate programs in economics.

Learning Outcomes. Students will have the opportunity to learn to distinguish between [1] mathematics used to define algorithms and [2] mathematics expressed in definitions and theorems; to comprehend the details of theorem statements, to recognize a sound proof for a difficult theorem, and to write a sound proof for a simple theorem; and to know some specific material in logic, set theory, algebra, geometry, topology, and real analysis, and to know how that material is applied within economics.

Assessment. [1] Students are expected to attend the lectures regularly. Students who fail to attend two-thirds of the lecture hours will not be allowed to take the final examination. [2] Students are expected to work on the regularly distributed problem sets. This work will not be marked. [3] Students are expected to take the midterm examination in lieu of the lecture on October 24. The mark on this examination will constitute 40% of the course mark. [4] Students are expected to take the final examination at a time and location determined by the registrar. The mark on this examination will constitute 60% of the course mark.

Textbook. The examinations will be based on lectures and problem sets, as well as on readings from *Mathematics for Economists* by Carl P. Simon and Lawrence Blume (Norton, 1994). This textbook is available for purchase in the bookstore, and is on two-hour reserve in Weldon library. Note that the textbook readings cannot be used as a substitute for the lectures.

Electronic Devices. During lectures, students may use an electronic device for matters directly related to the lecture. Students found using an electronic device for any other purpose will be prohibited from using one in the classroom thereafter. During examinations, all electronic devices are prohibited. This includes not only cell phones but also dictionaries. The mere existence of an electronic device at your seat is a serious academic offence that can well lead to your failing the course.

Makeup Examinations. See the Department Policies below. In addition, students are expected to contact me as soon as possible. Here are a few examples. [1] You should contact me as soon as you become aware of a schedule conflict and at least one week before the examination. [2] You should phone me before the examination if you are ill. [3] You or a friend of yours should phone me within 24 hours if you are unfortunately injured in a bicycle accident while traveling to the examination. Failure to contact me in a timely manner can lead to your getting a zero on the examination.

Scholastic Offences. Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following website: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_undergrad.pdf.

1Please Note
Department Policies for 2016 – 2017

Remember that the University expects all students to take responsibility for their own academic Programs. Also remember to check your registration to make sure you are enrolled in the correct courses.

1. Guidelines and policies for the Faculty of Social Science and the Department of Economics are posted online in the current Western Academic Calendar at <http://westerncalendar.uwo.ca>.
2. Students must familiarize themselves with the “Rules of Conduct for Examinations” <http://westerncalendar.uwo.ca/2016/pg136.html>.
3. **Cheating as an academic offence:** Students are responsible for understanding what it means to “cheat”. The Department of Economics treats cheating incidents very seriously and will investigate any suspect behavior. Students found guilty will incur penalties that could include a failing grade or being barred from future registration in other economics courses or programs. The University may impose further penalties such as a notation on your official academic transcript, suspension or expulsion.
4. **Plagiarism:** Students must write their essays and assignments in their own words. Whenever students take an idea or a passage from another author, they must acknowledge it by using quotation marks where appropriate and referencing with footnotes or citations. Plagiarism is a major academic offence (see Scholastic Offence Policy in the current UWO Academic Calendar at <http://westerncalendar.uwo.ca/2016/pg113.html>).

The University of Western Ontario uses software to check for plagiarism and students may be required to submit their written work in electronic form. Those found guilty will have penalties imposed as noted in point 3.

5. It is Department of Economics policy that **NO** assignments be dated, stamped or accepted by staff. Students are responsible for submitting assignments in class or to the instructor during office hours.
6. When appealing a mark, students should refer to the University’s Procedures in the current UWO Academic Calendar (<http://westerncalendar.uwo.ca/2016/pg112.html>). Please note the relevant deadlines.

The Department will not consider any appeal unless an attempt has been made to settle the matter first with your instructor. If after this discussion you remain dissatisfied with a grade or other decision, you may proceed with a written appeal (e-mails are not acceptable) to the Undergraduate Director in Economics, stating the reasons for your appeal. A useful form and checklist is provided at (http://economics.uwo.ca/undergraduate/program_counselling/responsibilities_policies.html#appeals).

7. Systematic adjustments of a class grade distribution (either up or down) can occur in Economics courses. The fact that grades have been adjusted is **not** grounds for an appeal.

8. Note the following add and drop deadlines:

Last day to **add** a first term half course:

Friday, September 16th, 2016

Last day to **drop** first term half course without academic penalty:

Monday, November 7th, 2016

9. Faculty of Social Science policy states that oversleeping or misreading an exam schedule is not an excuse for a make-up. This rule applies to all mid-term tests and final exams in the Department of Economics.

Policy Regarding Makeup Tests and Final Examinations

*Academic accommodation will **not** be granted automatically on request. You **must** demonstrate by documentation that there are **compelling** medical or compassionate grounds before academic accommodation will be considered.*

If you decide to write a test or an examination, you must be prepared to accept the mark you earn. Rewriting tests or examinations, or having the value of the test or examination reweighted on a retroactive basis, is **not** permitted. Book airline flights after you know the dates of your final examinations. Airline flights must not conflict with test or final exams.

If you are requesting a makeup test for a midterm or a final examination, unless medically incapable, notify your instructor by email or phone, preferably prior to the scheduled date of the test, but definitely within **24 hours** of the date of the test or exam. Failure to follow this procedure may result in denial of a request for academic accommodation or result in a grade of zero. Set up an appointment as soon as possible to meet personally with your instructor. If the instructor is not available, you may send an email message, copying the Undergraduate Coordinator at econugrd@uwo.ca (Social Science Room 4075). **Notifying your instructor of a missed test or exam does not automatically entitle you to a makeup test.**

Students who seek a makeup test or examination must provide medical or other relevant verification that their absence from a regularly scheduled test or examination is beyond their control. Documentation must support your reasons. Medical documentation should be given to the Academic Counselling Office of your *home* Faculty **as soon as possible (preferably within 24 hours of the test)** if you know you may not be able to write your final examination on the scheduled day and time. Failure to follow this procedure, or to provide supporting documentation, may result in denial of a request for academic accommodation or result in a grade of zero. If your documentation is not acceptable, you will be given a zero for the missed test.

For personal illness, if you consult Student Health Services regarding your illness or personal problem, you should request a Student Medical Certificate from the physician. If you were seen by an off-campus doctor, obtain a certificate from his/her office at the time of your visit. The off-campus medical certificate form must be used and can be found at: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/medicalform.pdf. Notes stating "For Medical Reasons" are not considered sufficient.

For any other circumstances, if you are not sure what documentation to provide, ask your Academic Counsellor. If your documentation is judged sufficient, the Academic Counsellor will issue a Recommendation for a Special Examination (a single form for midterms or a triple color form for final examinations). Once you have this form, contact your instructor as soon as possible to make arrangements. Even if approved from your home faculty Academic Counsellor, there is no guarantee that you will be allowed to write the makeup test and exam.

For final examinations, you need permission from your *home* Faculty Counsellor, your instructor, and the Department Undergraduate Director. Failure to follow this procedure may result in an examination grade of zero. You must ensure that the Special Examination form has been signed by the instructor and Department Undergraduate Director and that the form is returned to the Academic Counselling Office for approval without delay. Make-up final examinations, if permitted, will be written within one month of the end of the exam period.

Policies Regarding Academic Accommodation

Information about the Faculty of Social Science's policies regarding academic accommodation is found on its website at <http://counselling.ssc.uwo.ca/procedures/havingproblems.asp> or in Social Science Room 2105. Your "Academic Rights and Responsibilities" are also outlined in the current UWO Calendar at <http://westerncalendar.uwo.ca/2016/pg111.html>. Claiming that "you didn't know what to do" is not an acceptable excuse for not following the stated procedures.

Policy Regarding Class Attendance

If your instructor views your class attendance as unsatisfactory, you can be prohibited from writing the final examination. If there is intent to make use of this University policy, you will be notified in writing.

Statement on Mental Health and Support Services

If you or someone you know is experiencing emotional/mental distress, there are several resources here at Western to assist you. Please visit <http://www.uwo.ca/uwocom/mentalhealth/> for more information and a complete list of resources, as well as how to obtain help.