Mathematical Economics I

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Office Hours: Zoom Wednesdays 10:30- 11:30 (subject to adjustment)

TA: TBA

Class Times: TWF   8:30 - 9:50   CLE A127
Lab: B01   Th   14:30 - 15:20   CLE A108
       B02   Th   15:30 - 16:20   CLE A108
       B03   Th   16:30 - 17:20   CLE A108

 Course Website: https://bright.uvic.ca/

This course will familiarize you with the mathematical tools most frequently used by economists. Expect there to be considerable overlap with material in your prior courses, as part of the purpose here is to give you more practice using these tools. Topics include single and multiple variable calculus, unconstrained and constrained optimization, matrix algebra and real analysis. Examples from economics will be used frequently, but the emphasis is mostly on the tools. The lab will include a graded module introducing the Maple math software.

Textbook: *Mathematics for Economics* 4th ed. by Michael Hoy, John Livernois, Chris McKenna, Ray Rees, and Thanasis Stengos (MIT Press: Cambridge 2022)

Evaluation
       Best 5 of 6 bi-weekly quizzes   **50%**
       Lab Assignment   **10%**
       Final Exam   **40%**

There will be a **quiz** every second Friday (starting in week 2). The quiz questions will largely be similar or identical to those assigned from the textbook as daily homework over the preceding two weeks. Be prepared to write your answers by hand without the aid of study materials or notes. The homework itself will carry no direct weight in the final grade, but is the most valuable study guide for the quizzes. I encourage you to collaborate with classmates and see other sources of study material.
Teaching Assistants will provide additional discussion and support in the weekly labs. Three labs sessions will be devoted to an introduction to Maple mathematical software. You will be required to complete a short project in Maple, submitted as a **Lab Assignment**. More details will be given in class. The **Final Exam** covers the entire course. Grade will be assigned according to the category descriptors in the Calendar (see below).

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Course Outline

Topics:	Chapter:
1. Introduction. Models & logic. Sets & functions.	1, 2
2. Sequences and Limits	3
3. Univariate Calculus: Continuity, Derivatives	4, 5
4. Univariate Calculus: Optimization	6
5. Linear Algebra: Systems of Equations, Matrices	7, 8
6. Linear Algebra: Determinants and Inverses	9
7. Linear Algebra: Advanced topics	10
8. Multivariate Calculus: Functions of n-Variables;	11
9. Multivariate Calculus: Optimization, unconstrained and constrained	12, 13
10: Multivariate Calculus: Comparative Statics	14
11. Multivariate Calculus: Concave Programming	15
12. Review	

Course Policies

The Proper Use of Email I do not promise to answer email. I will read it if it conforms to the following simple guidelines. 1. Use meaningful subject lines, such as the course name, and a word or two summarizing why you are writing. 2. Include your name and your student number in the body of the message. 3. Email is satisfactory for sending simple information, so use it for this. 4. be succinct. 5. be polite. I will not reply with information on this outline or the Brightspace pages, so look in those places before you write. I will not provide detailed answers to questions by email: ask me those in class, or during office hours. **Please send questions you would like me to discuss in class** (*e.g.* Subject: Econ 350, question for class).

Missed work: I recognize that students are occasionally prevented by reasons beyond their control from writing an exam or submitting an assignment exactly on time. This is particularly likely for the coming term. In such cases, concessions can sometimes be made. Concessions must not significantly alter the assessment of overall performance in the course and will not alter the required components of the course, as described below under the heading grading. Please let me know as soon as possible if you need an academic concession, and be sure to support your request with and explanation and where appropriate with documentation. In the unlikely event that they occur this term, family holidays and celebrations do not automatically constitute a valid reason for missed work.

Standard Department of Economics Policies:

All of the Course Policies on the Department of Economics website apply in this class.

Policy on Inclusivity and Diversity: The University of Victoria is committed to promoting, providing and protecting a positive, supportive and safe learning and working environment for all its members. **It is the responsibility of all students to conduct themselves in a way that fosters this objective.**

Academic Integrity: Academic integrity requires commitment to the values of honesty, trust, fairness, respect, and responsibility. Students are expected to observe the same standards of scholarly integrity as their academic and professional counterparts. Students must not engage in unethical academic behaviour, including the practices described in the Policy on Academic Integrity in the University Calendar. Such behavior is subject to penalty by the University. Please ensure that your use of materials conforms to the university policy on copyright. **Note that any unauthorized posting of course material from Economics 350 is a violation of copyright and constitutes a breach of academic integrity.**

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Attendance: Students are expected to attend all classes in which they are enrolled (https://www.uvic.ca/calendar/undergrad/index.php#/policy/ryNResf_E). Students who do not attend classes <u>must not assume</u> that they have been dropped from a course by a department or an instructor. Courses that are not formally dropped will be given a failing grade, students may be required to withdraw, and will be required to pay the tuition fee for the course.

An instructor may refuse a student admission to a lecture or laboratory because of lateness, misconduct, inattention or failure to meet the responsibilities of the course. Students who neglect their academic work, including assignments, may be refused permission to write the final examination in a course. Instructors must inform students at the beginning of term, in writing, of the minimum attendance required at lectures and in laboratories in order to qualify to write examinations. Students who are absent because of illness, an accident or family affliction should report to their instructors upon their return to classes.

Grading: Students who have completed the following elements will be considered to have completed the course:
- Four of six quizzes
- The final exam

<u>Failure to complete one or more of these elements will result in a grade of "N" regardless of the cumulative percentage on other elements of the course</u>. N is a failing grade and factors into GPA with the value 0.

Passing Grades	Description
A+ A A-	**Exceptional**, **outstanding** and **excellent** performance. These grades indicate a student who is self-initiating, exceeds expectation and has an insightful grasp of the subject matter.
B+ B B-	**Very good**, **good** and **solid** performance. These grades indicate a good grasp of the subject matter or excellent grasp in one area balanced with satisfactory grasp in the other area.
C+ C	**Satisfactory**, or **minimally satisfactory**. These grades indicate a satisfactory performance and knowledge of the subject matter.
D	**Marginal** Performance. A student receiving this grade demonstrated a superficial grasp of the subject matter.
Failing Grades	**Description**
F	**Unsatisfactory** performance. Wrote final examination and completed course requirements.
N	**Did not** write examination or complete course requirements by the end of the term.

Course letter grade - numerical score (%) equivalencies

A+	A	A-	B+	B	B-	C+	C	D	F
90-100	85-89	80-84	77-79	73-76	70-72	65-69	60-64	50-59	0-49