

Econ 4370/7370 – Quantitative Economics

Fall 2020

Department of Economics
University of Missouri-Columbia

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COURSE DESCRIPTION

The aim of this course is to provide an introduction to the fundamental mathematical tools and methods used for economic analyses. Topics include single- and multi-variable functions, matrix algebra, equilibrium analyses, optimization theory, and their applications in economics.

Prerequisites: MATH 1500 or equivalent. Graded on A-F basis only.

REQUIRED TEXTBOOK

Mathematics for Economics, Third Edition, MIT Press

by Michael Hoy, John Livernois, Chris McKenna, Ray Rees and Thanasis Stengos

OFFICE HOURS

There are no scheduled office hours. You are welcome to email me requests for Zoom meetings. My preferred Zoom meeting times are on Tuesdays from 3:00pm-5:00pm CT. However, if you cannot meet me during these hours, specify in your email your available times and I will respond with a proposed meeting time based on your availability and mine.

Discussion Board

For general questions (i.e., not specific to you personally), you are encouraged to post to the discussion board on our course Canvas site. All of you are strongly encouraged to both post and answer questions on the discussion board. It will be monitored throughout the week.

TESTS

- There is a test for each of three sections of the course.
- There is a cumulative final exam.
- All tests must be submitted in Canvas by the deadline in one PDF file.

MISSED TEST POLICY

If you have circumstances that affect your ability to take a test, please contact the instructor at least 2 days in advance of the test date.

GRADING

The course will be graded on the basis of three section tests and a cumulative final exam. Each section test is worth 45 points. The final exam is worth 65 points. The maximum total points will be 200. Letter grades will be assigned using the Grade Table below.

Plus/Minus Grade Table (Usual rules will be used to round decimals)

A+: 98-100 percent	A: 94-97 percent	A-: 90-93 percent
B+: 85-89 percent	B: 80-84 percent	B-: 75-79 percent
C+: 70-74 percent	C: 65-69 percent	C-: 60-64 percent
D+: 57-59 percent	D: 54-56 percent	D-: 50-53 percent
F: below 50 percent		

Major Topics

Readings in Text

Introduction

Chapters 2 & 3

sets, numbers,
functions,
sequences, limits, present value

2.1, 2.3
2.4
3.1–3.4

Univariate Calculus and Optimization

Chapters 4–6

continuity
differentiation, differential
convex & concave functions
Taylor’s formula
one-variable optimization

Ch. 4
5.1, 5.2, 5.4
5.5
5.6
Ch. 6

Linear Algebra

Chapters 7–10

system of linear equations
matrices
determinants, inverse matrix
Cramer’s rule
eigenvalues
quadratic forms

Ch. 7
Ch. 8
9.1, 9.2
9.4
10.2
10.3

Multivariate Calculus and Optimization

Chapters 11–15

functions of many variables, partial derivatives
optimization: first- & second-order conditions
constrained optimization: Lagrange multiplier method
comparative statistics
concave programming: Kuhn-Tucker conditions

11.1–11.5
12.1, 12.2
13.1, 13.2
Ch. 14
Ch. 15

ACADEMIC INTEGRITY

Academic integrity is fundamental to the activities and principles of a university. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed, and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards breaches of the academic integrity rules as extremely serious matters. Sanctions for such a breach may include academic sanctions from the instructor, including failing the course for any violation, to disciplinary sanctions ranging from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting, collaboration, or any other form of cheating, consult the course instructor.

ADA STATEMENT

If you anticipate barriers related to the format of requirements of this course, or if you have emergency medical information to share with me, please let me know as soon as possible. If disability related accommodations are necessary (for example, a note taker, extended time on exams), please establish an accommodation plan with the MU Disability Center (<https://disabilitycenter.missouri.edu/>), S5 Memorial Union, 573-882-4696, and then notify me of your eligibility for reasonable accommodations.

STATEMENT ON INTELLECTUAL PLURALISM

The University community welcomes intellectual diversity and respects student rights. Students who have questions or concerns regarding the atmosphere in this class (including respect for diverse opinions) may contact the departmental chair, the director of the Office of Students Rights and Responsibilities (<https://osrr.missouri.edu/>), or the MU Equity Office (<https://equity.missouri.edu/>). All students will have the opportunity to submit an anonymous evaluation of the instructor at the end of the course.

UNIVERSITY OF MISSOURI NOTICE OF NONDISCRIMINATION

The University of Missouri System is an Equal Opportunity/Affirmative Action institution and is nondiscriminatory relative to race, religion, color, national origin, sex, sexual orientation, age, disability or status as a Vietnam-era veteran. Any person having inquiries concerning the University of Missouri's compliance with implementing Title VI of the Civil Rights Act of 1964, Title IX of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Americans With Disabilities Act of 1990, or other civil rights laws should contact the Associate Vice Chancellor for Human Resource Services (<https://hrs.missouri.edu/>), 1095 Virginia Avenue, MO 65211, 573-882-4256.

TITLE IX POLICY

University of Missouri policies prohibit discrimination on the basis of race, color, national origin, ancestry, religion, sex, gender, gender identity, gender expression, sexual orientation, pregnancy, age, genetic information, disability and protected veteran status. Discrimination includes any form of unequal treatment such as denial of opportunities, harassment, and violence. Sex-based violence includes rape, sexual assault, unwanted touching, stalking, dating/interpersonal violence, and sexual exploitation.

If you experience discrimination, you are encouraged (but not required) to report the incident to the MU Office for Civil Rights & Title IX. Learn more about your rights and options at civilrights.missouri.edu or call 573-882-3880. You also may make an anonymous report online.

Students may also contact the Relationship & Sexual Violence Prevention (RSVP) Center, a confidential resource, for advocacy and other support related to rape or power-based personal violence at rsvp@missouri.edu or 573-882-6638, or go to rsvp.missouri.edu.

Both the [Office for Civil Rights & Title IX](#) and the [RSVP Center](#) can provide assistance to students who need help with academics, housing, or other issues.

GRADE APPEAL/GRIEVANCE POLICY

Information concerning student grade appeal procedures and non-academic grievances and appeals can be found at <https://registrar.missouri.edu/policies-procedures/grade-appeals.php>.

ONLINE CLASS NETIQUETTE

In an online classroom, our primary means of communication is written language. The written language has many advantages: more opportunity for reasoned thought, more ability to go in-depth, and more time to think through an issue before posting a comment on the Discussion Board forum. However, written communication also has certain disadvantages, such as lack of the face-to-face signaling that occurs through body language, intonation, pausing, facial expressions, and gestures. As a result, please be aware of the possibility of miscommunication and compose your comments in a positive, supportive, and constructive manner.