

Online Econ 8370 – Mathematics for Economics

Fall 2021

Department of Economics
University of Missouri-Columbia

INSTRUCTOR: DR. X. H. WANG

EMAIL: wangx@missouri.edu

(All correspondences with me should be sent to this email address. Messages sent through Canvas may not be received in a timely manner.)

WEBPAGE: <https://economics.missouri.edu/people/wang>

(Note: All times used in this syllabus are US Central Time (CT). Daylight saving time in 2021 will end at 2:00am on Sunday, November 7.)

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.

LEARNING OBJECTIVES

After completing the entire course, you are expected to be able to

- Understand fundamental concepts of single- and multi-variable functions
- Understand basic concepts of matrix algebra
- Understand basic concepts of unconstrained and constrained optimization
- Apply basic mathematical concepts to analyze some important economic problems

REQUIRED TEXTBOOK

Mathematics for Economics, Third Edition, MIT Press
by Michael Hoy, John Livernois, Chris McKenna, Ray Rees and Thanasis Stengos

ONLINE COURSE ACCESS

You may access the course via <https://umsystem.instructure.com>. If you run into any technical difficulties, please contact the Mizzou IT Help Desk via phone 573-882-5000 or e-mail helpdesk@missouri.edu or from the self-service portal:

<https://cherwell.umsystem.edu/CherwellPortal/DoITPortal>.

OFFICE HOURS

You are welcome to email me requests for Zoom meetings. My preferred Zoom meeting times are on Thursdays from 3:30pm-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 weekly discussion board on our course Canvas site. Each week's board can cover topics covered during the week as well as topics from previous weeks. All of you are strongly encouraged to both post and answer questions on the discussion board. It will be monitored throughout the week.

ASSIGNMENTS AND TESTS

- Problems from Work Problems (WP) will be selected as homework problems. Assignments will be made for weeks 2, 4, 7, 9, 12 and 14. Your answers are due by 11:59pm on Saturday of the week. No late submissions will be accepted. Answer keys to homework problems are contained in WP-keys for each chapter.
- There is a test for each of three segments of the course. Each segment test will be on Thursday night in the segment review week. Each test will start at 7pm CT and end at 9pm CT (15 minutes for setting up; 90 minutes for answering questions; and 15 minutes for submission.)
- All assignments and tests must be submitted in Canvas by the deadline in one file (Please read the Instruction on File Submission file in Course Info). Please note that once the due time has reached, the link to submit disappears and you can no longer submit your answers.

MISSED TEST POLICY

You are expected to take all tests. But if you have an extraordinary circumstance that affects your ability to take a test, please contact the instructor at least 2 days in advance of the test date or ASAP.

SHOW YOUR INDEPENDENT WORK

All tests in this class will be open book and unsupervised. However, it is very important that all of your submitted answers are your own independent work. You are not allowed to consult anyone else.

GRADING

The course will be graded on the basis of six homework assignments and three tests. All assignments together will be worth 10 percent of your final grade. Each test will be worth 30 percent of your final grade. Letter grades will be assigned using the Grade Table below.

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

A+: 97-100 percent	A: 93-96 percent	A-: 88-91 percent
B+: 81-87 percent	B: 74-80 percent	B-: 67-73 percent
C+: 61-66 percent	C: 55-60 percent	C-: 50-54 percent
F: below 50 percent		

ADVICE (HOW TO BE SUCCESSFUL)

- Keep up on a regular schedule.
- Read the textbook/study the chapter slides: For each chapter covered, the first thing I recommend is to read both the chapter lecture slides in Canvas and the textbook.
- Watch the lecture videos. Each week has two or three lecture videos. These are recorded videos using voiceovers of lecture slides. I encourage you to view the videos at least once. However, each of you will develop a study method most suitable to you and some of you may find that studying

the chapter slides is more effective.

- Practice, practice, practice! For each chapter covered, problems from the textbook will be selected as Work Problems. You are strongly encouraged to work on these problems as practice problems and then check the answer keys.

WEEKLY SCHEDULE

Week	Unit	Tasks
0	Preparations	<ol style="list-style-type: none"> 1) Study carefully the course syllabus 2) Get and familiarize yourself with a PDF converter 3) Read Chapter 1 of textbook
1	Chapter 2	<ol style="list-style-type: none"> 1) Read Chapter 2 of textbook 2) Review Chapter 2 notes 3) Study Chapter 2 lecture slides 4) Watch Chapter 2 lectures 1-3 5) Work on Chapter 2 work problems
2	Chapter 3 Chapter 4	<ol style="list-style-type: none"> 1) Read Chapter 3 of textbook 2) Review Chapter 3 notes 3) Study Chapter 3 lecture slides 4) Watch Chapter 3 lectures 1-2 5) Work on Chapter 3 work problems 6) Read Chapter 4 of textbook 7) Review Chapter 4 notes 8) Study Chapter 4 lecture slides 9) Watch Chapter 4 lecture 10) Work on Chapter 4 work problems
3	Chapter 5	<ol style="list-style-type: none"> 1) Read Chapter 5 of textbook 2) Review Chapter 5 notes 3) Study Chapter 5 lecture slides 4) Watch Chapter 5 lectures 1-3 5) Work on Chapter 5 work problems
4	Chapter 6	<ol style="list-style-type: none"> 1) Read Chapter 6 of textbook 2) Review Chapter 6 notes 3) Study Chapter 6 lecture slides 4) Watch Chapter 6 lectures 1-2 5) Work on Chapter 6 work problems
5	Segment 1 Review and Test 1	<ol style="list-style-type: none"> 1) Review Chapters 2-6 2) Take Test 1 from 7pm-9pm on Thursday September 23

6	Chapter 7	<ol style="list-style-type: none"> 1) Read Chapter 7 of textbook 2) Review Chapter 7 notes 3) Study Chapter 7 lecture slides 4) Watch Chapter 7 lectures 1-2 5) Work on Chapter 7 work problems
7	Chapter 8	<ol style="list-style-type: none"> 1) Read Chapter 8 of textbook 2) Review Chapter 8 notes 3) Study Chapter 8 lecture slides 4) Watch Chapter 8 lectures 1-2 5) Work on Chapter 8 work problems
8	Chapter 9	<ol style="list-style-type: none"> 1) Read Chapter 9 of textbook 2) Review Chapter 9 note 3) Study Chapter 9 lecture slides 4) Watch Chapter 9 lectures 1-3 5) Work on Chapter 9 work problems
9	Chapter 10	<ol style="list-style-type: none"> 1) Read Chapter 10 of textbook 2) Review Chapter 10 notes 3) Study Chapter 10 lecture slides 4) Watch Chapter 10 lectures 1-3 5) Work on Chapter 10 work problems
10	Segment 2 Review and Test 2	<ol style="list-style-type: none"> 1) Review Chapters 7-10 2) Take Test 2 from 7pm-9pm on Thursday October 28
11	Chapter 11	<ol style="list-style-type: none"> 1) Read Chapter 11 Sections 11.1-11.3 of textbook 2) Review Chapter 11 notes part 1 3) Study Chapter 11 lecture slides part 1 4) Watch Chapter 11 lectures 1-3 5) Work on Chapter 11 work problems part 1
12	Chapter 11	<ol style="list-style-type: none"> 1) Read Chapter 11 Sections 11.4-11.5 of textbook 2) Review Chapter 11 notes part 2 3) Study Chapter 11 lecture slides part 2 4) Watch Chapter 11 lectures 4-6 5) Work on Chapter 11 work problems part 2
13	Chapter 12	<ol style="list-style-type: none"> 1) Read Chapter 12 of textbook 2) Review Chapter 12 notes 3) Study Chapter 12 lecture slides 4) Watch Chapter 12 lectures 1-2 5) Work on Chapter 12 work problems
		Thanksgiving Break: 11/22-11/28

14	Chapter 13 Chapter 14	<ol style="list-style-type: none"> 1) Read Chapter 13 of textbook 2) Review Chapter 13 notes 3) Study Chapter 13 lecture slides 4) Watch Chapter 13 lectures 1-2 5) Work on Chapter 13 work problems 6) Read Chapter 14 of textbook 7) Review Chapter 14 notes 8) Study Chapter 14 lecture slides 9) Watch Chapter 14 lecture 10) Work on Chapter 14 work problems
15	Segment 3 Review and Test 3	<ol style="list-style-type: none"> 1) Review Chapters 11-14 2) Take Test 3 from 7pm-9pm on Thursday December 9

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 or the [Office of Academic Integrity](#).

Students are expected to adhere to this honor pledge on all graded work whether or not they are explicitly asked in advance to do so: "I strive to uphold the University values of respect, responsibility, discovery, and excellence. On my honor, I pledge that I have neither given nor received unauthorized assistance on this work."

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 does not discriminate on the basis of race, color, national origin, ancestry, religion, sex* (including gender), pregnancy, sexual orientation, gender identity, gender expression, age, disability, protected veteran status, and any other status protected by applicable state or federal law. Discrimination includes any form of unequal treatment such as denial of opportunities, harassment, and violence. *Sex discrimination includes rape, sexual assault, sexual harassment, unwanted touching, stalking, dating/domestic violence, stalking, and sexual exploitation. Retaliation for making or supporting a report of discrimination or harassment is also prohibited.

If you experience discrimination or sexual violence, 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 and 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.

MENTAL HEALTH

The University of Missouri is committed to supporting student well-being through an integrated network of care, with a wide range of services to help students succeed. The MU Counseling Center offers professional mental health care, and can help you find the best approach to treatment based on your needs. Call to make an appointment at 573-882-6601. Any student in crisis may call or go to the MU Counseling Center between 8:00 – 5:00 M-F. After hours phone support is available at 573-882-6601.

Visit our website at <https://wellbeing.missouri.edu> to take an online mental health screening, find out about workshops and resources that can help you thrive, or learn how to support a friend. Download Sanvello, a phone app that teaches skills and strategies to help you maintain good mental health. Log in with your Mizzou e-mail to unlock all the tools available through Sanvello at no cost to you.

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.

ONLINE COURSE MATERIALS

All online contents of this class are copyrighted and are not to be shared or used outside of this class.

LAST DATE OF ATTENDANCE AND IMPACT ON FINANCIAL AID

Federal regulations for financial aid require the student financial aid office to document the attendance of students who have received federal financial aid if they do not successfully complete any courses during the term. As a result, the last day of attendance (or activity) for any student receiving an F, U, or FN in this course will be recorded in the grade roster and reported to the financial aid office. **Based on the last day of attendance, students may be required to repay a portion of their financial aid award for the semester.**

A student's last day of attendance (or activity) is the last day on which a student participates in an academically-related activity at the University. These include:

- Attendance in class, lab, or an instructor's office hours
- The completion of an assignment or examination
- An appointment with a professor or e-mail correspondence regarding course material
- (Online courses only) For online courses, the last day a student submits an assignment or exam. Only logging into an online class without participating is not acceptable for last day of attendance

Please note that discussing a course withdrawal or notifying the instructor of an absence in class does not constitute participation for financial aid purposes. Moreover, any office hour visits or email correspondence must be related to the course material.