

# Introduction to Math Economics

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**INSTRUCTOR:** Kaitlyn Woltz

**OFFICE LOCATION:** James Buchanan Hall D101

**EMAIL ADDRESS:** [kwoltz@gmu.edu](mailto:kwoltz@gmu.edu)

**OFFICE HOURS:** Tuesday, 2pm - 4pm; and by appointment

ECON 340-001

Spring 2019

James Buchanan Hall D001

MW: 3:00 – 4:15 PM

## 1. COURSE DESCRIPTION

This course is an introduction to mathematical economics. The aim of this course is to help students become comfortable using the language of mathematics to express economic ideas. Using mathematics to express economic ideas lends accuracy to the expression of those ideas. By the end of the course, students should be able to express basic economic ideas, including firm behavior, household behavior, growth theory, stabilization policy, and input-output analysis using math.

*Following Buchanan (1982) “Order Defined in the Process of its Emergence,” the character of this class will emerge as the semester progresses. To that end, I may have to adjust this syllabus to better fit the character of the class. I will alert students to any changes made to the syllabus via email.*

## 2. PREREQUISITES AND CLASS EXPECTATIONS

The prerequisites for the course include ECON 306, ECON 311, and MATH 113. I expect you to be competent in college-level algebra and familiar with college level calculus, as well as comfortable with economic theory at the intermediate level. If you need to review these topics, I recommend that you use Marginal Revolution University and Khan Academy.

I expect that you treat your fellow classmates with respect, even if you disagree with them; reasonable minds can differ on any number of perspectives, opinions, and conclusions. Constructive disagreement sharpens our thinking and deepens our understanding; therefore, it is not only encouraged, but expected. All viewpoints are welcome in my class.

Regular attendance is essential to successfully completing this course. If you need to miss a class, it is your responsibility to obtain all lecture notes and assignments from one of your classmates.

You are welcome to use whatever technology you like in the class as long as it does not distract myself or your classmates. **During quizzes and exams, however, the use of technology, e.g. cell phones, smart watches, laptops, tablets, etc., is prohibited. If I see any devices out during a quiz or exam, I will assume the student in possession of the device is cheating, meaning a grade of zero will be awarded for that assessment.**

## 3. COURSE MATERIALS

There is one required text for this course:

- Dowling, Edward T. (2012) *Introduction to Mathematical Economics* (3<sup>rd</sup> edition) in the Schaum’s outlines series, New York, NY: McGraw-Hill. (SO)

## 4. EVALUATION AND GRADING

Your grade in this course consists of daily quizzes, daily homework sets, two midterm exams, and one final exam.

Daily Quizzes	15%	
Homework	5%	
Midterm Exam 1	25%	<b>March 6, 2019</b>
Midterm Exam 2	25%	<b>April 10, 2019</b>
Final Exam	30%	<b>Monday, May 15, 2019, 1:30-4:15pm</b>

The daily quizzes will be on the material covered in the previous lecture and in the daily homework. While many answers for the homework will be readily available, attempting to find the answer on your own will best aid your learning of the material and your performance on the daily quizzes. I will drop your two lowest quiz grades to allow for any unexpected events that prevent you from attending class. **There will not be any make-up quizzes – no exceptions.**

The daily homework will consist of problems pulled from *Schaum's Outlines* as well as other problems. Homework will be graded according to completion. *Schaum's Outlines* provides the answers to many of the problems in the text. Ideally students will use those as guides when they get stuck. Simply copying the answers, while not hurting their homework grade, will have a negative impact on their understanding of the material and therefore their performance on quizzes and exams. Homework should be turned in at the beginning of class. **Late homework will not be accepted—no exceptions.**

There will be two midterms and one final for this class. All exams will be cumulative. **There will not be any make-up exams—no exceptions.**

In accordance with University policy, if you have three or more exams on the date of the final examination, you may reschedule it. To do so, you must contact me **no less than one week** prior to the final examination.

Grades will be assigned according to the following scale:

A+	100-97
A	96-92
A -	93-90
B+	89-87
B	86-84
B -	83-80
C+	79-77
C	76-73
C -	73-70
D	69-60
F	< 60

## 5. COURSE OUTLINE

This is a tentative outline, subject to change due to weather and other factors.

1. Review
2. Economic Application of Graphs and Equations
3. The Derivative and the Rules of Differentiation
4. Uses of the Derivative in Mathematics and Economics
5. Midterm 1 **March 6, 2019**
6. Spring Break, no class Monday, March 11 and Wednesday March 13
7. Calculus of Multivariable Functions
8. Midterm 2 **April 10, 2018**
9. Calculus of Multivariable Functions in Economics
10. Final Exam **Monday, May 15, 2019 1:30 – 4:15pm**

## 6. ADDITIONAL INFORMATION

Important Dates:

- Last day to add classes: **Tuesday, January 29**
- Last day to drop with no tuition penalty: **Tuesday, February 5**
- Withdrawal Period: **February 13-March 25**
- Selective Withdrawal Period: **February 26 – March 25**

I will be emailing students at their GMU email addresses in the event that updates to the class schedule and assignments are needed. Students are responsible for checking this email regularly. **Students must use their MasonLive email account to receive important University information, including communications related to this class. I will not respond to messages sent from or send messages to a non-Mason email address.**

Mason is an Honor Code university; please see the Office for Academic Integrity for a full description of the code and the honor committee process. The principle of academic integrity is taken very seriously, and violations are treated gravely. What does academic integrity mean in this course? Essentially this: when you are responsible for a task, you will perform that task. When you rely on someone else's work in an aspect of the performance of that task, you will give full credit in the proper, accepted form. Another aspect of academic integrity is the free play of ideas. Vigorous discussion and debate are encouraged in this course, with the firm expectation that all aspects of the class will be conducted with civility and respect for differing ideas, perspectives, and traditions. When in doubt (of any kind) please ask for guidance and clarification.

If you have a documented learning disability or other condition that may affect academic performance you should: 1) make sure this documentation is on file with Disability Services (SUB I, Rm. 4205; 993-2474; <http://ds.gmu.edu>) to determine the accommodations you need; and 2) talk with me to discuss your accommodation needs.

George Mason University is committed to providing a learning, living and working environment that is free from discrimination and a campus that is free of sexual misconduct

and other acts of interpersonal violence in order to promote community well-being and student success. We encourage students who believe that they have been sexually harassed, assaulted or subjected to sexual misconduct to seek assistance and support. [University Policy 1202: Sexual Harassment and Misconduct](#) speaks to the specifics of Mason's process, the resources, and the options available to students.

***Notice of mandatory reporting of sexual assault, interpersonal violence, and stalking:*** As a faculty member, I am designated as a "Responsible Employee," and must report all disclosures of sexual assault, interpersonal violence, and stalking to Mason's Title IX Coordinator per University Policy 1412. You may seek assistance from Mason's Title IX Coordinator, Jennifer Hammat, by calling 703-993-8730 or email [cde@gmu.edu](mailto:cde@gmu.edu). If you wish to speak with someone confidentially, please contact one of Mason's confidential resources, such as Student Support and Advocacy Center (SSAC) at 703-993-3686 or Counseling and Psychology Services (CAPS) at 703-993-2380. The 24-hour Sexual and Intimate Partner Violence Crisis Line for Mason is 703-380-1434.

\*\*\*For extra credit, please send me a cute picture of a dog before Monday, Jan. 28, 2019\*\*\*