

# Mathematical Economics

ECON 4191

Fall 2021

Dr. Bryan P. Cutsinger

Office Hours: By Appointment

## Course Description and Objective

The purpose of this course is to introduce students to the mathematics they will encounter at the graduate level. Upon successfully completing this course, students will possess a basic understanding of concepts in linear algebra, differential and integral calculus, and constrained optimization. Note that this course is just intended to be an introduction to these topics. Additional work by the students will be necessary to master the use of these topics in economics.

## Assessment

Assessment will consist of problem sets over the material that the students will turn to be graded. Since this course is self-paced, students will receive full credit on these assignments provided that students' assignments reflect a good-faith effort to answer the problem sets. Answer keys will be provided to the students so that they can check their work and determine what, if any mistakes they made in completing the assignment. Students are expected to contact me to discuss any material or assignments that they do not understand.

At the end of the course, I will provide a "test" that will have a number of economic problems to solve using the tools developed in this course. Students will not be graded on this test; instead, it's purpose is to relate the material covered in this course to that covered in other economic courses.

## Required Materials

The primary textbook for this course is:

- Chiang & Wainwright (2005). *Fundamental Methods of Mathematical Economics*, 4<sup>th</sup> edition.
- Dowling (2012). *Schaum's Introduction to Mathematical Economics*, 3<sup>rd</sup> edition.

Two other resources that could be valuable, but will not be required are:

- A "Pro" membership to Wolfram Alpha (<https://www.wolframalpha.com>)

Wolfram Alpha is an online computational resource that can help you work through all sorts of math problems. The "Pro" version includes step-by-step instructions that can be especially helpful when working on difficult problems.

## Course Outline

Week	Reading	Problems
8/23	C&W: 1&2; Schaum's: 1	C&W: All Exercises
8/31	C&W: 3; Schaum's: 2	C&W: All Exercises
9/6	C&W: 4.1-4.6; Schaum's: 10	C&W: All Exercises
9/13	C&W: 5.1-5.6; Schaum's: 11	C&W: All Exercises
9/20	C&W: 6; Schaum's: 3 & 4	C&W: All Exercises
9/27	C&W: 7; Schaum's: 3 & 4	C&W: All Exercises
10/4	C&W: 8; Schaum's: 3 & 4	C&W: All Exercises
10/11	C&W: 9.1-9.4; Schaum's: 3 & 4	C&W: All Exercises
10/18	C&W: 10; Schaum's: 7-9	C&W: All Exercises
10/25	C&W: 11; Schaum's: 5 & 6	C&W: All Exercises
11/1	C&W: 12; Schaum's: 5 & 6	C&W: All Exercises
11/8	C&W: 13; Schaum's: 13	C&W: All Exercises
11/15	C&W: 14; Schaum's: 14 & 15	C&W: All Exercises
11/22	C&W: 15; Schaum's: 16	C&W: All Exercises
11/29	C&W: 17; Schaum's: 17	C&W: All Exercises