San José State University
CoSS/Department of Economics
ECON104, Mathematical Methods for Economics, Sec 1, Fall, and 2017

Course and Contact Information

Instructor: Dr. Rui Liu

Office Location: DMH 143

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Office Hours: T TH 2pm-3pm and by appointment

Class Days/Time: TTh 12:00pm-1:15pm

Classroom: DMH 140

Course Description

The objective of the course is to survey some basic mathematical techniques that are widely used to connect important elements in economic theory and to solve economic problems. It is a mathematical restatement of the economic theory contained in microeconomics and macroeconomics.

SJSU classes are designed such that in order to be successful, it is expected that students will spend, for each unit of credit, a minimum of forty-five hours over the length of the course (normally 3 hours per unit per week with 1 of the hours used for lecture) for instruction or preparation/studying or course related activities including weekly assignments, in-class simulations, and three exams. Careful time management will help you keep up with readings and assignments and enable you to succeed in this class. More details about student workload can be found in University Policy S12-3 at http://www.sjsu.edu/senate/docs/S12-3.pdf.

Course Learning Outcomes (CLO)

Students will acquire enough mathematical skill to access literature that is most relevant to their study.

Upon successful completion of this course, students will be able to:

CLO 1: *define and explain indifference curve, isoquant, cost minimization, profit maximization, equilibrium conditions in output and input markets, and the national income model.*

CLO 2: *identify and apply functions of one or more variables, simple differentiation, partial and total differentiation, and matrix algebra.*

CLO 3: *solve simple real-world optimization problems both mathematically and graphically.*

Recommended Texts/Readings

Textbook

Essential Mathematics for Economic Analysis, 4th Edition, by Knut Sydsaeter, Peter Hammond and Arne Strom, ISBN: 9780273760689.

Optional Readings

A Mathematical Approach to Economic Analysis, by P. Toumanoff & F. Nourzad

Course Requirements and Assignments

Students' grades for the course will be determined by scores on three exams, a final group project, and weekly homework assignments.

Weekly Homework:

There will be homework assignments each week. The work will be collected ***at the beginning of the class, and returned after record keeping (usually a week later). No early work or late work will be accepted.*** *Students should try to solve these problems independently.* ***Two of your lowest homework grades will be dropped.***

Exams:

There will be ***three*** *exams; each contains questions from the lecture, and some are similar to the examples used in class or homework assignments. The date and the coverage of each exam will be announced in class about two weeks in advance. Students are* ***required*** *to take exams according to schedule. In principle, no make-up exams will be given and no incomplete grades will be assigned. A student who misses an exam will receive zero point on that exam. However, if a student has serious and compelling reasons, he/she needs to contact the instructor and receives the instructor's approval* ***in advance****. The missed exam score due to excused absence will be replaced with the average of all other exam scores.*

Group Projects:

The group project should be completed by 4- 5 students. You may choose your own group. Self sign-ups for groups will be enabled on Canvas one week before the first project starts. Projects are mainly designed to horn your skills on mathematical modeling based on the tools introduced in the class. Each group is expected to submit one electronic copy of the project to Canvas by the specified deadline. Details of the project will be announced in class.

Announcements

Announcements will be posted in Canvas on a regular basis. They will appear on your Canvas dashboard when you log in and/or will be sent to you directly through your preferred method of notification from Canvas. Please make certain to check them regularly, as they will contain any important information about upcoming assignments or class concerns.

Final grades will be determined as follows:

Assignment	Points	Due Dates
Midterm I	20 points	9/29
Midterm II	20 points	11/3
Final	20 points	12/13, 9:45am
Group Project	15 points	Assigned on 12/19, due in 24 hours
Homework	25 points	Weekly

Grading Policy

The instructor will determine your grade at the end of the semester based on your performance on homework assignments (25%), three exams (60%), and one final project (15%). ***Two of your lowest homework grades will be dropped****. Letter grades will be determined as follows:*

A+ = 100-97%	A = 96-93%	A-= 92-90%
B+ = 89-87%	B = 86-83%	B- = 82-80%
C+ = 79-77%	C = 76-73%	C- = 72-70%
D+ = 69-67%	D = 66-63%	D- = 62-60%
F = 59-0% Unsatisfactory		

Classroom Protocol

Please try to arrive on time.

In consideration of others, please don't talk during class! And silence phones.

Be sure to notice the specific due dates for homework assignments.

University Policies

Per University Policy S16-9, university-wide policy information relevant to all courses, such as academic integrity, accommodations, etc. will be available on Office of Graduate and Undergraduate Programs' Syllabus Information web page at http://www.sjsu.edu/gup/syllabusinfo/"

ECON 104 / Math Econ, Fall 2017, Course Schedule

List the agenda for the semester including when and where the final exam will be held. Indicate the schedule is subject to change with fair notice and how the notice will be made available.

Course Schedule

Week	Topics, Readings, Assignments, Deadlines
1	Syllabus
2	Properties of Functions, Chp 4, 5
3	Differentiation, Chp 6
4	Derivatives in Use, Chp 7
5	Single Variable Optimization, Chp 8
6	**Exam**
7	Single Variable Optimization, Ch8
8	Functions of Many Variables, Chp 11
9	Multivariable Optimization, Chp 13

Week	Topics, Readings, Assignments, Deadlines
10	Spring Recess
11	Constrained Optimization, Chp 14 **Exam**
12	Linear Regression
13	Matrix and Vector Algebra, Chp15
14	Determinants and Inverse Matrices, Chp 16
15	Linear Programming
16	Linear Programming
17	Last day of Instruction, Project due
Final	12/13, 9:45am