

# San José State University

## CoSS/Department of Economics

### ECON104, Mathematical Methods for Economics, Summer, and 2024

#### Course and Contact Information

Instructor: Dr. Rui Liu

Office Location: DMH 143

Telephone: 408-924-5423

Email: [rui.liu@sjsu.edu](mailto:rui.liu@sjsu.edu)

No appointment needed: Canvas Discussion Board

Office Hours: By appointment [via link](#): Wednesday 5:00-7:00 pm via ZOOM

**Three Synchronous Review Sessions via Zoom on 6/13, 6/27, 7/2, at 5:00-6:30 pm**

Class Days/Time: Join from PC, Mac, Linux, iOS or Android:  
<https://sjsu.zoom.us/j/81993891412>

Classroom: Canvas

#### 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

## Course Requirements and Assignments

The course grade will be based on weekly problem sets, discussion participation, a group project, two midterms, a final exam. The scores are averaged with the following weight:

Assignment	Weight	Due Dates
Problem Sets (two lowest dropped)	35%	<b>See assignment deadlines on Canvas</b>
Weekly Discussion	5%	<b>Every Thursday at 5:00 pm</b>
Group project	10%	<b>Wednesday, 6/26, at midnight</b>
Midterm 1	15%	<b>Monday, 6/17, at 6:30 pm-8:00 pm</b>

Five Weekly Discussions - Each week, you are expected to post at least one "muddy point" – that is, an unanswered question you have after completing the modules, an issue that you don't fully understand, or something that you just need clarification on. I will try my best to answer all your questions.

Two midterms will be administered during the course. Exams will be cumulative with a focus on the most recent concepts presented. Non-graphing calculators will be required to complete some questions. Students will work individually on exams. Exams will have a time limit and students will be free to consult a **one-sided letter-sized cheat sheet** during the examination. No late submission is accepted. No make-up exam will be given.

Exams open and close at specific times per the syllabus and Canvas scheduling. You cannot enter the exam before or after the scheduled time. Check the syllabus and Canvas for exam days/times. All midterms use the Canvas proctoring system and Respondus Lockdown Browser. All times are PST/PDT and you are responsible for awareness of any time zone differences.

## **Final Exam**

Final exam includes two portions- a multiple choice exam and a take-home exam. You will be given an "exam window"—a 10-hour period during which your exam must be taken.

The first portion is a **cumulative** multiple-choice exam using Respondus Lockdown Browser. You are allowed to use a one-sided letter-sized cheat sheet, a non-graphing calculator and two sheets of scratch paper during the examination. **The 90-minute exam will be made available from 2:00 pm to 11:59 pm on Friday, July 5th.**

The second portion is an open-book and open-note take-home exam. But you may not consult or collaborate with anyone about the questions. **The exam starts at 2:00 pm and closes at 11:59 pm on Friday, July 5th.** In order to complete the exam, you will write down your step-by-step solutions for each problem, scan your handwritten work using a smartphone to Canvas by midnight.

Students are **required** to take exams according to schedule. 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**. With an accepted excuse a makeup exam may be given.

The group project should be completed by 2-3 students. You will be randomly assigned to a group at the beginning of the course. Projects are mainly designed to hone 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.

**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.**

**Using LockDown Browser and a webcam (Respondus Monitor) for online exams**

be unable to exit the test until all questions are completed and submitted

- If a webcam is required, you will be recorded during the test to ensure you're using only permitted resources

## Grading Policy

*Letter grades will be determined as follows:*

rTm4Te

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		

Some have expressed a concern that their computers may be exposed to viewing during sessions or exams. In particular, the exam software requires that you show ID, scan your room and be visible throughout the entire exam and all aspects are recorded. If this is a concern of yours please reevaluate your desire to participate in an online course as these are all requirements of such courses. If you do wish to participate but do not wish to use your computer consider purchasing one strictly for use in this program or consider attending at a local library using their computers. These decisions are yours and the instructor is not responsible for any additional effort or cost you may need to expend to satisfy those desires.

You must also have the necessary system requirements to smoothly run the Canvas site. In an online class it is your responsibility to ensure you have the proper technology to view the online curriculum. I cannot provide tech support for your system or software. Canvas or SJSU e-campus can provide support for your system to get you started.

Canvas: [https://docs.google.com/forms/d/e/1FAIpQLScH7-UunrDkUrUUJig5aPIKJmpjXF84Pua\\_1Fpe0bpgVx5pw/viewform](https://docs.google.com/forms/d/e/1FAIpQLScH7-UunrDkUrUUJig5aPIKJmpjXF84Pua_1Fpe0bpgVx5pw/viewform)  
Or SJSU e-campus: <http://www.sjsu.edu/ecampus/> or: (408) 924-2337

**Technical support** is provided on campus when you are having technical difficulties such as password reset, browser problems, computer problems, accessibility and issues encountered when using Canvas courses. <http://www.sjsu.edu/ecampus/> or: (408) 924-

Week Topics, Readings, Assignments,  
Deadlines  
Syllabus

1 Properties of Functions, Chp 4, 5  
Differentiation, Chp 6  
Derivatives in Use, Chp 7

2 Single Variable Optimization,  
Chp 8

**Midterm Exam**

3 Functions of Many Variables,  
Chp 11  
Multivariable Optimization, Chp  
13

Constrained Optimization, Chp  
14

4 Matrix and Vector Algebra,  
Chp15  
Determinants and Inverse  
Matrices, Chp 16

**Group Project due**

**Midterm Exam**

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Week Topics, Readings, Assignments,  
Deadlines  
Linear Programming

**Final Exam**