



Economics 3620: Mathematics for Economists  
Fall Semester 2019

Tuesday - Thursday / 12:25 PM-01:45 PM ; Gardner Commons 3700

**Instructor:** Dođuhan Sündal

**Email:** doguhan.sundal@utah.edu

**Office Hours:** Tuesday 02.00 PM – 04.00 PM and by appointment

**Office Location:** Gardner Commons 4<sup>th</sup> floor, study area

### **Required Materials**

Chiang, A. C., and K. Wainwright (2004) Fundamental Methods of Mathematical Economics, 4th Edition (or any earlier edition), McGraw-Hill Education

The textbook can be found at the Campus Store, [www.used.addall.com](http://www.used.addall.com) or in the University library

### **Course Description**

This course will introduce students how to use mathematical language and techniques to formulate and solve problems in economics. For this purpose, the topics will cover linear algebra, differential calculus, and constrained optimization. It is intended to cover these mathematical concepts that will be studied in the context of their applications to economics. Also, it is aimed to develop students' abilities to use mathematical techniques to solve problems in economics.

### **Course Outcomes**

At the end of this semester, students would be expected to understand basic mathematical techniques used in economics such as linear algebra, derivative, differential, optimization with and without constraints, and matrix algebra and be prepared to take courses in the Economics major that have 3620 as a prerequisite.

### **Teaching and Learning Methods**

This class uses a combination of lectures, assignments and exams. Class attendance and participation are integral aspects of this course, and you will not likely pass the course without consistent attendance and participation. Like any other quantitative class, reviewing class materials and completing assignments will be helpful to understand the course material.

**Communication Policy:** Please notify me ahead of time if you know you will not be able to fulfill any course requirements by sending an email to me. If you miss an exam or a submission deadline, as long as you can document why you missed them, there can be a make-up possibility.

## University Policies

- 1. *The Americans with Disabilities Act.*** The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.
- 2. *University Safety Statement.*** The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit [safeu.utah.edu](http://safeu.utah.edu).
- 3. *Addressing Sexual Misconduct.*** Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veteran's status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).
- 4. *Wellness Statement*** Personal concerns such as stress, anxiety, relationship difficulties, depression, crosscultural differences, etc., can interfere with a student's ability to succeed and thrive at the University of Utah. For helpful resources contact the Center for Student Wellness at [www.wellness.utah.edu](http://www.wellness.utah.edu) or 801-581-7776.
- 5. *Veterans Center*** If you are a student veteran, the U of Utah has a Veterans Support Center located in Room 161 in the Olpin Union Building. Hours: M-F 8-5PM. Please visit their website for more information about what support they offer, a list of ongoing events and links to outside resources: <http://veteranscenter.utah.edu/>. Please also let me know if you need any additional support in this class for any reason.
- 6. *LGBT Resource Center*** If you are a member of the LGBTQIA community, I want you to know that my classroom is a safe zone. Additionally, the U of Utah has an LGBT Resource Center on campus. They are located in Room 409 in the Oplin Union Building. Hours: M-F 8- 5PM. You can visit their website to find more information about the support they can offer, a list of events through the center and links to additional resources: <http://lgbt.utah.edu/>. Please also let me know if there is any additional support you need in this class.

7. **Learners of English as an Additional/Second Language** If you are an English language learner, please be aware of several resources on campus that will support you with your language and writing development. These resources include: the Writing Center (<http://writingcenter.utah.edu/>); the Writing Program (<http://writing-program.utah.edu/>); the English Language Institute (<http://continue.utah.edu/eli/>). Please let me know if there is any additional support you would like to discuss for this class.

**Course Policies**

1. **Attendance & Punctuality**. You will not be graded on attendance, however, it is a must for this course if you wish to pass. Notify me in the event of an emergency that prevents you from doing an exam or completing the course immediately
2. **Food & Drink**. You can eat and drink in the class without disturbing others
3. **Electronic Devices in Class**. You are not allowed to use your electronic devices in class

**Assignments**

- Quizzes
- Homeworks
- Midterms
- Final

**Grading Policy (Evaluation Methods & Criteria)**

- Homeworks: 30%
- Quizzes: -
- Midterms: 20%
- Final: 30%

Scale Score: A 93-100 ; A- 90-92 ; B+ 87-89 ; B 83-86 ; B- 80-82 ; C+ 77-79 ; C 73-76 ; C- 70-72 ; D+ 67-69 ; D 63-66 ; D- 60-62 ; E 0-59

**Course Schedule**

<u>Week</u>	<u>Date</u>	<u>Topic</u>	<u>Textbook</u>
<u>1</u>	<u>08.20.2019</u>	1. The nature of mathematical economics and economic models	<u>Chapters 1, 2 and 3</u>
	<u>08.22.2019</u>		
<u>2</u>	<u>08.27.2019</u>	2. Equilibrium analysis in economics	<u>Chapters 1, 2 and 3</u>
	<u>08.29.2019</u>		
<u>3</u>	<u>09.03.2019</u>	3. Matrices, vectors and matrix operations	<u>Chapter 4</u>
	<u>09.05.2019</u>		
<u>4</u>	<u>09.10.2019</u>	4. Matrix Operations and Determinants	<u>Chapter 4</u>
	<u>09.12.2019</u>		
<u>5</u>	<u>09.17.2019</u>	5. Non-singularity of a	<u>Chapter 5</u>

		matrix	
	<u>09.06.2019</u>		
<u>6</u>	<u>09.24.2019</u>	6. Inverse matrix and Cramer's rule	<u>Chapter 5</u>
	<u>09.26.2019</u>		
<u>7</u>	<u>10.01.2019</u>	7. Matrix applications	<u>Chapter 5</u>
	<u>10.03.2019</u>	<b>Midterm - I</b>	
<u>8</u>	<u>10.08.2019</u>	<b>FALL BREAK</b>	
	<u>10.10.2019</u>	<b>FALL BREAK</b>	
<u>9</u>	<u>10.15.2019</u>	8. Comparative statics and derivation	<u>Chapter 6</u>
	<u>10.17.2019</u>		
<u>10</u>	<u>10.22.2019</u>	9. Rules of differentiation	<u>Chapter 7 and 8</u>
	<u>10.24.2019</u>		
<u>11</u>	<u>10.29.2019</u>	12. Differentials	<u>Chapter 7 and 8</u>
	<u>10.31.2019</u>		
<u>12</u>	<u>11.05.2019</u>	13. Total Derivatives	<u>Chapter 8</u>
	<u>11.07.2019</u>		
<u>13</u>	<u>11.12.2019</u>	14. Use of total derivatives, applications	<u>Chapter 8</u>
	<u>11.14.2019</u>	<b>Midterm - II</b>	
<u>14</u>	<u>11.19.2019</u>	15. Optimization	<u>Chapter 9 and 11</u>
	<u>11.21.2019</u>		
<u>15</u>	<u>11.26.2019</u>	16. Optimizing multivariable functions	<u>Chapter 9 and 11</u>
	<u>11.28.2019</u>	<b>THANKSGIVING BREAK</b>	
<u>16</u>	<u>12.03.2019</u>	17. Optimization with constraints: Lagrange-Multiplier method	<u>Chapter 12</u>
	<u>12.05.2019</u>		

*Note: This syllabus is meant to serve as an outline and guide for our course. Please note that I may modify it with reasonable notice to you. I may also modify the Course Schedule to accommodate the needs of our class. Any changes will be announced in class and posted on Canvas under Announcements.*

# CSBS EMERGENCY ACTION PLAN



## BUILDING EVACUATION

EAP (Emergency Assembly Point) – When you receive a notification to evacuate the building either by campus text alert system or by building fire alarm, please follow your instructor in an orderly fashion to the EAP marked on the map below. Once everyone is at the EAP, you will receive further instructions from Emergency Management personnel. You can also look up the EAP for any building you may be in on campus at <http://emergencymanagement.utah.edu/eap>.



## CAMPUS RESOURCES

**U Heads Up App:** There's an app for that. Download the app on your smartphone at [alert.utah.edu/headsup](http://alert.utah.edu/headsup) to access the following resources:

- **Emergency Response Guide:** Provides instructions on how to handle any type of emergency, such as earthquake, utility failure, fire, active shooter, etc. Flip charts with this information are also available around campus.
- **See Something, Say Something:** Report unsafe or hazardous conditions on campus. If you see a life threatening or emergency situation, please call 911!

**Safety Escorts:** For students who are on campus at night or past business hours and would like an escort to your car, please call 801-585-2677. You can call 24/7 and a security officer will be sent to walk with you or give you a ride to your desired on-campus location.