ECON 261
MATHEMATICS FOR ECONOMISTS

Contact Information:

Instructor   : Asst. Prof. Ünay TAMGAÇ TEZCAN

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Web site   : http://unay.weebly.com

Office Hours   : Monday 16:30-17:30 (outside office hours please make an appointment via email.)

Course email:
etuiktisatders@gmail.com

Course hours and location:
Monday: 09:00-10:20
Thursday: 10:30-12:30

Course Assistant:
Gökçen Tezekici
gtezekici@etu.edu.tr
Office Hours: TBA   (outside office hours please make an appointment via email.)

The Class Aims to:
- teach students the mathematical concepts and tools most commonly used in economics;
- provide students with the mathematical background that will prepare them for their core economics courses
- show students how mathematical formulation can be used in the understanding of economic concepts;
- develop students' intuition for how and why the various mathematical techniques are used in economic modeling,
- prepare them for the understanding of more advanced economic models,

Course Description:
This course intends to introduce students the basic mathematical tools used in economics and with some of their applications. The course assumes familiarity with basic mathematics such as calculus and basic linear algebra. Mathematical preliminaries and their use in several economics problems will be of interest. Linear algebra, constrained and un-constrained optimization will be the main subjects of the course. The treatment of material will emphasize understanding of why certain mathematical concepts are needed rather than introducing the material without context. Examples and motivation will be drawn mostly from important topics in economics.

Course Book:
There is no required textbook for the class. The following constitute a partial list of recommended resources. some supplementary lecture notes may be provided as well.
- Chiang, A. and K. Wainwright, *Fundamental Methods of Mathematical Economics*, 4th ed, McGraw-Hill Irwin, 2005. (CW)
- Simon, C. P. and Blume ,*L. Mathematics for Economists*, 1st ed, Norton. 10994.
- Hoy, M. and Livernois, J. et al . *Mathematics for Econo*mics, 3d ed., The MIT Press, 2011.
- Klein, M. W., Mathematical Methods for Economics, 2nd ed., Addison Wesley, 2002. (K)
- Sundaram, R.K., A First Course in Optimization Theory, Cambridge University Press, 1996.

Course Organization:
- Students are responsible for all the material discussed in the lectures and also the supporting material assigned in the textbooks.
- Students are encouraged to take notes during the class.
- In addition to the class lectures, additional recitation lectures will be conducted by the course assistant to solve practice questions related to the covered topics. Students are expected to follow these recitation hours.
- Course updates will be announced during the class hour or via email and posted on the course website.
- The follow-up of the in class announcement and regularly checking their email to follow-up the announcements is the responsibility of the students.

Evaluation:
The final grades will be determined according to the following weights, with consideration of the class average (i.e. based on a curve system):
- Class Presentation, assignment and quizzes
- Midterm Exam
- Final Exam

❖ Midterm Exam will cover all of the topics lectured until the exam date.
❖ Final exam date will be determined by the university administration at the end of term.
❖ Final exam will be comprehensive and cover all of the topics lectured through the semester, with latest topics weighted.
❖ Detailed information about exams, homework and quizzes will be announced throughout the trimester.

Important Issues to Be Considered

1. **Attendance:** Attendance is obliged by the university. According to the rules set by the university, students who are absent more than 30 % of the total course hours will be grade with "U" from class.

2. **Class communication**: Communication for course-related questions and appointments, will be through email and during office hours. You must comply with the general rules of written communication in email correspondence. Please write" **IKT 261 and the SUBJECT TITLE" into the subject line of your mail.**
   Do not forget to write your NAME and LAST-NAME at the end of the email.
   *** Anonymous e-mails (without name & last name) with no subject title will not be considered. ***
   Use the course email address for your communications**: etuiktisatders@gmail.com**

3. **Office hours:** Each week office hours will be conducted. In case you cannot come to the office hours and have further questions ask for an appointment via email. Zoom meetings can also be arranged.
   *** No office hours will be conducted on exam days. ***

4. **Recitation Hours:** Students are expected to attend the recitation hours for their own benefit. Attendance will be taken for the recitation hours

5. **Homework:** Late submissions for homework are not accepted. Students will be informed about whether they should submit their assignments via email or in other ways, and points may be deducted from students who don't submit their homework in the announced way. While you are submitting assignments, you should write the number of assignment in the topic field, your name and last name information in the email. The emails that don't contain this information will not be accepted.

6. **Exam Content:** Students will be responsible topics covered in this course along and all the course material for exams. Mid-term exam will include the topics that discussed until the date. The final exam including all subjects in period but the weight will be after on the mid-term examination. Detailed information about homework and quizzes will be announced within the period.

7. **Cheating:** Cheating in exams or to inflict or attempt to is a disciplinary offence for one or two semester suspension by The Higher Education Institution. (http://www.yok.gov.tr/content/view/475/183/lang,tr/). The process will be conducted according to these rules set by our university.

8. **Make-up Exams:** Taking exams on the dates announced will be better for students. If you have a legally acceptable and documented excuse, you can take a make-up exam after the final exams are over. The make-up exam covered all the topics that given during the period. Considering that students will have more time in preparation for the make-up compared to the rest of the class, makeup exams will be designed to include more comprehensive and detailed topics. Student should expect the make-up exam to be more difficult.

TENTATIVE COURSE PLAN

- Review of numbers, sets, functions, exponents, logarithms, series etc.
- Review of some basic calculus (differentiation and integration)
- Static Optimization
- Constrained and unconstrained optimization
- Matrix (Linear Algebra)
- Introduction to dynamic optimization in discrete-time: Dynamic Lagrange method
- Introduction to dynamic programming and Bellman equation; and economic applications (if time permits)

Wish you a healthy, productive, successful and enjoyable term... ☺