

METU Fall 2025-2026
ECON 417 Mathematical Analysis for Economics

Instructor: Nil İpek Şirikçi
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CLASS SCHEDULE: Tuesday 9:40 -12:30 FZ15

COURSE OUTLINE:

WEEK	TOPIC	READINGS
1-4	Logic, Set theory (correspondences, equivalence relations, weak and partial order, lattices)	Relevant material from CSZ Ch. 1, Ch. 2.1-2.7
5-7	Set theory (selected topics from supermodularity and lattices, Tarski's Lattice fixed point theorem and stable matchings, axiom of choice, revealed preference and rationalizability)	Relevant material from CSZ Ch.2.8-2.13
8-10	The space of Real numbers (Cauchy sequences, completeness of real numbers, supremum and infimum, $\liminf$ and $\limsup$)	Relevant material from CSZ Ch.3
11-13	The finite dimensional metric space of real vectors (basic definitions, discrete spaces, completeness, closure, convergence)	Relevant material from CSZ Ch. 4.1-4.5
14	The finite dimensional metric space of real vectors (selected topics from separability, compactness, continuous functions, Lipchitz and uniform continuity, correspondences, Banach's contraction mapping theorem, connectedness), selected topics from finite dimensional convex analysis.	Relevant material from CSZ Ch. 4.6-4.12, Ch. 5

COURSE MATERIAL

Corbae D., Stinchcombe M.B. and Zeman J. (2002, modified May 27, 2003, March 31, 2004, June 2008) *An Introduction to Mathematical Analysis for Economic Theory and Econometrics*.

Ok E. (2007) *Real Analysis with Economic Applications*, Princeton: Princeton University Press.

COURSE ASSESSMENT

	Date	Percentage
Midterm Exam:	November 18th, 2024 Tuesday	45 %
Final Exam:	TBA	50 %
Homework:	TBA	5 %

REQUIREMENTS and CLASS PARTICIPATION

You should study on weekly basis and actively participate in regular classes so that you can benefit from the course at the maximum level. The students are required to study all uploaded material.

EXAMS and MAKE-UP EXAMS

Students must present a valid METU Student ID during the exam. Cellular phones must be turned off and stowed away during the examinations. Students whose phones are observed to be turned on and/or not stowed away will receive a score of zero for the examination. STUDENTS WILL NOT BE ALLOWED TO LEAVE THE EXAM FOR ANY REASON EXCEPT PROVEN MEDICAL RECORD. Additional exam rules will be announced before the exams.

You will be asked for a document for your valid reason (illness, conflicting exams) for missing any of the exams. In this case, you will be required to take a make-up exam which will replace the exam that you have missed.

ACADEMIC HONESTY:

All university, faculty, and department principles on academic honesty will be strictly enforced. The usual consequence for academic dishonesty is failure in the course and additional disciplinary action. Examinations are individual and are to be completed without unauthorized outside assistance.

INFORMATION FOR STUDENTS WITH DISABILITIES:

Any student, who, because of a disabling condition, may require special arrangements in order to meet course requirements, should contact the Disability Support Office ([Engelsiz ODTÜ Birimi](mailto:Engelsiz_ODTÜ_Birimi), [ODTÜ Kütüphanesi](mailto:Engelsiz_ODTÜ_Kütüphanesi), [Solmaz İzdemir Salonu](mailto:Engelsiz_Izdemir_Salonu), Phone: 2107196; engelsiz@metu.edu.tr) as soon as possible. For detailed information, please visit the website of Disability Support Office: <https://engelsiz.metu.edu.tr/en/> . Please note that no accommodations will be provided to the disabled students prior to the completion of the approved University process.