Math 349 Introduction to Analysis / Fall Term of 2020

Credits: 4

Prerequisite: Math 252 (or equivalent) or the Consent of the Department

Instructors: Yıldıray Özan, M-217

Schedule: Tuesday 08:40-10:30 and Thursday 08:40-10:30 as online Zoom Lecture. Recorded lectures will be posted on the internet.

Web Site: http://www.metu.edu.tr/~ozan

Office Hours: Wednesday between 10:40-11:30 via Zoom.

Textbook: Main: An Introduction to Real Analysis by Tosun Terzioğlu.

Exams and Grading: There will be 2 midterm exams and a final exam. Each midterm exam will worth 35% and the final exam will worth 30% of the total grade. The midterms will be written exams, whereas the final exam will be an oral exam covering all the topics. Throughout the semester I will list several problems, mostly theoretical. The oral exam content will be from these problems and written exams questions.

Exam Dates: Midterm 1: November 16, 2020, Monday at 17:40.
              Midterm 2: December 28, 2020, Monday at 17:40.

Tentative Syllabus

Weeks 1-2: The Real Number System
Weeks 3-4: Preliminaries and basics of metric spaces, open / closed sets, Cauchy sequences and completeness
Weeks 5-6: Continuous functions and Completions of metric spaces
Weeks 7-8: Compactness
Weeks 9-10: Connectedness
Week 11: Banach Contraction Principle, Existence-Uniqueness Theorem for O.D.E.’s
Week 12: Baire Category Theorem
Week 13: Arzela-Ascoli Theorem
Week 14: Sequences and Series of functions, Abel’s Theorem