

MATH 554 - Discrete Applied Mathematics II

Course Description from Bulletin: A graduate-level course that introduces students in applied mathematics, computer science, natural sciences, and engineering, to the application of modern tools and techniques from various fields of mathematics to existential and algorithmic problems arising in discrete applied math. Probabilistic methods, entropy, linear algebra methods, combinatorial nullstellensatz, and Markov chain Monte Carlo, are applied to fundamental problems like Ramsey-type problems, intersecting families of sets, extremal problems on graphs and hypergraphs, optimization on discrete structures, sampling and counting discrete objects, etc. (3-0-3)

Enrollment: Graduate Elective Course for Applied Math and other majors. a

Textbook(s): Lecture Notes, supplemented by recommended textbooks: S. Jukna, An e
N. Alon and J. Spencer,

Other required material:

Prerequisites: MATH

a. Elementary argume