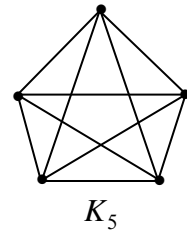


# Introduction to Graph Theory

MA/CS 447 Fall 2016



**Class meeting:** MWF 1-1:50 p.m. EGRA 208

**Prerequisites:** Math 349 or consent of instructor.

**Catalog Description:** Graph theory is an area of mathematics which is fundamental to solving problems in computer security, parallel processing, the structure of the World Wide Web, traffic flow and scheduling. It is also playing an increasingly important role within Computer Science.

After the basics, possible topics covered include: reconstruction, trees, connectivity, transversability, matchings and factorization, planarity, colorings, Ramsey theory, extremal graph theory, distance, domination, random graphs.

**Text:** G. Chartrand & P. Zhang, *A First Course in Graph Theory*, Dover, 2012.  
ISBN: 9780486483689, cost = \$20.

- The text is a relatively new book –first published in 2005—Chartrand and Zhang are some of the best writers and researchers in graph theory.
- It is a very well written book: there are many applications, and the mathematical proofs are easy to follow but still rigorous.
- Most new concepts will be introduced via an application.
- Handouts will be given, in particular for the applications.
- Some applications: solving a maze, minimum weight connected networks, efficient mail delivery routes, efficient traffic signal checking, scheduling exams, safe storage of chemicals, safe traffic flow, best placement of firehouse/hospital.

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