

CS 797B - Spring 2011

Network Flow with Its Applications

Instructor:	Bin Tang, Office: Jabara Hall 242, Tel: 316-978-3729, Email: bintang@cs.wichita.edu
Classroom:	Jabara Hall 226
Class Time:	Tuesday, Thursday: 12:30pm - 1:45pm
Office Hour:	Tuesday, Thursday: 3:30pm - 4:30pm, or by appointment
Prerequisite:	CS 560 Data Structures and Algorithms II, CS 460 (Algorithm Design Methodologies).

Course Description

This course will offer a comprehensive introduction to network flows, which concern how to route data or traffic in a network efficiently (Internet, telecommunication network, emerging networks such as P2P and sensor networks) subject to different kinds of constraints (bandwidth, storage, energy etc). It includes both theory (graph theory) and application (networking) components, with the goal to improve students' algorithm design and programming skills, and their knowledges in computer networking.

Textbook

No textbook is required. However, the below book is recommended.

Network Flows: Theory, Algorithms, and Applications, by Ravindra K. Ahuja, Thomas L. Magnanti, James B. Orlin; Prentice Hall, 1993

Grading Policy

- **Homework:** 20 %
 - **Midterm:** 30 %
 - **Final:** 20 %
 - **Course Project:** 30 %
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Homework

Homework includes written assignments and programming components. It will be done individually. There will be five homework. No late homework beyond the official deadline will be accepted, except with valid justification.

Midterm/Final Exams

They are open book, open notes and open handout. The idea is not to force you to memorize, but to understand well the course materials so that you can solve new problems.

Projects

There will be one project. Project will be done by each group of at most three students.

Topics

- Shortest path problem
 - Maximum flow problem
 - Minimum cost flow problem
 - Data-intensive Sensor Networks
 - SUN SPOT Java-based sensor programming
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Academic Honesty and other Departmental Policies

A standard of **honesty**, fairly applied to all students, is essential to a learning environment. Students abridging a standard of **honesty** must accept the consequences; penalties are assessed by appropriate classroom instructors or other designated people. Serious cases may result in discipline at the college or University level and may result in suspension or dismissal. Dismissal from a college for **academic** dishonesty constitutes dismissal from the University.

Special Needs

If you have a physical, psychiatric/emotional, medical, or learning disability that may have an impact on your ability to carry out assigned course work, I encourage you to contact the Office of Disability Services (DS), Grace Wilkie Annex, room 152, 978-3309 (voice tty). DS will review your concerns and determine, with you, what academic accommodations are necessary and appropriate for you.