UNIVERSITY OF NEBRASKA AT OMAHA

MATH 8440: NETWORK PROGRAMMING

MW 5:30 - 6:45 PM | Remote Synchronous | Dr. Love

Network Programming, or ***Network Optimization,*** is an advanced area of operations research that is concerned with problems that can be represented by a graph, or network. These include many transportation problems where the roads and cities forms the network, but also includes problems in many other areas that can be modeled using networks. These problems are a special case of linear programming problems for which the underlying mathematical structure provides a basis for specialized algorithms.

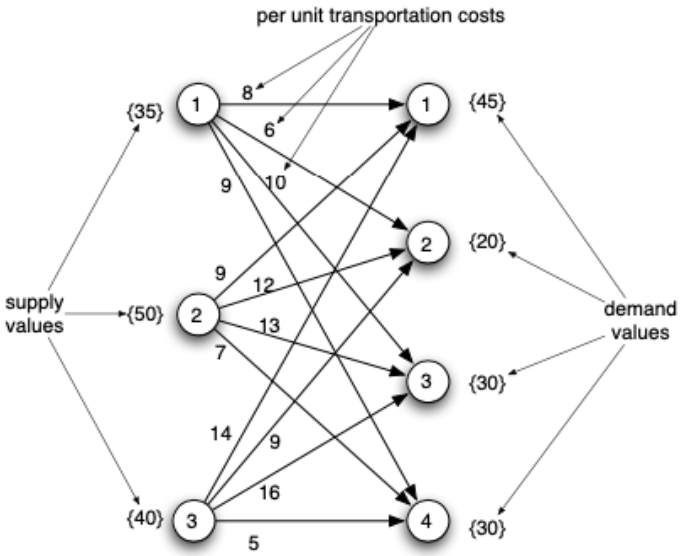
Textbook: Free notes written by Dr. Love will be available to students through canvas.

Course description: This course explores the mathematical models of network flow problems and algorithms for solving such problems.

Prerequisites: MATH/CSCI 4300/8306 or permission of instructor.

Types of network models that will be explored include:

- Shortest Path: how does google maps figure out the shortest route to your destination?
- Maximum Flow: how many links must be removed to totally disconnect a telecommunications network?
- Assignment Problem: how should arriving airplanes be assigned to gates so as to minimize time on the ground?
- Transportation Problem: how can disparate records from different databases be optimally matched?
- Transshipment Problem: how does Target figure out the least expensive way to get goods from its warehouses to its stores?



For more information, email Dr. Love at blove@unomaha.edu

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