Course Description

This course will expose students to the basic concepts of transportation network analysis, as well as explore some applications. The course will require students to understand both the basic concepts of transportation network analysis and to apply these concepts in a project involving a written report. The course is divided into three parts. The first part focuses on reviewing some operation research topics such as transportation problem. The second part is devoted to understanding transportation systems and network models. The last part focuses on transportation equilibrium analysis including deterministic and stochastic equilibrium approaches. The dynamic equilibrium approach will be addressed as well.

Course Objectives

This course is designed to meet the needs of graduate students in the transportation engineering discipline to understand the most common widely used concepts in operation research and transportation network analysis. By the end of this course, students will be able to formulate a variety of transportation planning problems such as network models, system optimization, and traffic assignment, and have the practical knowledge needed to solve them. Furthermore, students will have a conceptual understanding of these models which allows them to understand and critically evaluate models’ results.

Assessment

Assignments: 20%
Quizzes: 20%
Midterm: 30%
Term Project: 30%

Reference Texts


Notes

- The instructor may alter the course outline and/or the marking scheme depending on the
class performance.

- All materials posted on cuLearn are for the exclusive educational purpose by registered students in this course in the designated term and cannot be used for any other purpose. These materials may not be reproduced or redistributed without prior written consent of the author(s).

- The evaluation of class participation will be based on student’s answering questions and responding to surveys in the lectures. Students who cannot use any of the class participation tools (see the following note) in all classes will have their participation grade transferred to the quizzes.

- In this course, the instructor will be using Poll Everywhere, an audience response system, to ask questions during class. Students will be able to respond to the questions through the use of a web browser on a computer or by SMS text messaging on a cell phone. Students can also download the Poll Everywhere app or respond via Twitter. The website and phone number to text to will be displayed in class. Please note that your phone will be charged regular SMS text fee if you choose to respond by SMS.

- Considerable percentage of the mark will be deducted for messy term work.


- You may need special arrangements to meet your academic obligations during the term. For an accommodation request the processes are as follows:

  - **Pregnancy obligation**: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: [http://www.carleton.ca/equity/](http://www.carleton.ca/equity/)

  - **Religious obligation**: write to me with any requests for academic accommodation during the first two weeks of class, or as soon as possible after the need for accommodation is known to exist. For more details visit the Equity Services website: [http://www.carleton.ca/equity/](http://www.carleton.ca/equity/)

  - **Academic Accommodations for Students with Disabilities**: The Paul Menton Centre for Students with Disabilities (PMC) provides services to students with Learning Disabilities (LD), psychiatric/mental health disabilities, Attention Deficit Hyperactivity Disorder (ADHD), Autism Spectrum Disorders (ASD), chronic medical conditions, and impairments in mobility, hearing, and vision. If you have a disability requiring academic accommodations in this course, please contact PMC at 613-520-6608 or pmc@carleton.ca for a formal evaluation. If you are already registered with the PMC, contact your PMC coordinator to send me your Letter of Accommodation at the beginning of the term, and no later than two weeks before the first in-class scheduled test or exam requiring accommodation (if applicable). After requesting accommodation from PMC, meet with me to ensure accommodation arrangements are made. Please consult the PMC website for the deadline to request accommodations for the formally-scheduled exam.

  - You can visit the Equity Services website to view the policies and to obtain more detailed information on academic accommodation at [http://www.carleton.ca/equity/](http://www.carleton.ca/equity/)