COURSE CALENDAR DESCRIPTION

The goal of this course is to introduce students to the major theories, principles and methods used in the field of urban transportation planning and evaluation. Under transportation planning, the course considers how transportation planners and decision-makers have historically analyzed the way people and goods move around cities. The course examines the four-step travel demand model (the currently most widely used model) giving emphasis to the analytical techniques used to forecast future daily traffic demand on a roadway network. Under transportation project evaluation, the course presents the fundamental concepts and tools used in the economic evaluation of surface infrastructure and transportation system improvement projects. The emphasis is on understanding benefit-cost analysis and life-cycle cost analysis, and how these analyses are used to support decision makers' project investment decisions. Prerequisites: LE/ENG 2001 3.00; LE/CIVL 3250 3.00

INSTRUCTOR(S)

<table>
<thead>
<tr>
<th>Name</th>
<th>Section / Format / Term</th>
<th>Contact Email</th>
<th>Contact Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gingerich, Kevin</td>
<td>Sec. A / LECT / F</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

ADDITIONAL INFORMATION

TOPICS AND CONCEPTS

This course is designed to give upper-level civil engineering undergraduates a solid understanding of the major theories, principles and hands-on tools used in the field of urban transportation planning and economics. The course consists of two, 1.5-hour lectures every week and a 2-hour tutorial every other week (total tutorial time equal to 12 hours). In addition, students are expected to work in a group environment to successfully apply the course materials towards a final term project.

The following general topics will be covered:

Introduction to land use/transportation planning including fundamental principles and concepts
1. The impacts of socio-economic variables on the transportation system and the feedback between transportation and land use
2. Quantitative models comprising the four stage Urban Transportation Planning System (UTPS) including:
   • Trip generation modelling
   • Trip distribution modelling
   • Modal split modelling
   • Traffic assignment modelling

Introduction to the principles and concepts necessary for an evaluation of transportation projects
1. Perform cost/benefit analyses including:
   • Assign monetary values to user benefits and non-user benefits
   • Estimate present value of a project based on the life cycle and expected benefits/costs
• Account for the impacts of uncertainty (risk and sensitivity analysis)
1. Compare alternative projects using multi-criteria evaluations (MCE)

LIST OF LEARNING OUTCOMES AND EXAMPLES OF
Upon the completion of this course, students are expected to learn and retain the following concepts and skills:
• Explain the macro-level relationship between land-use and transportation infrastructure system
• Calculate forecasted future traffic volumes following four-step transportation planning process for a network
• Explain the principles and limitations that apply to the financial evaluation of transportation infrastructure projects
• Assess user benefits and costs for transportation infrastructure improvement projects
• Prioritize transportation infrastructure projects using financial and/or non-financial evaluations

GRADED ASSESSMENT
Attendance/participation: 5%
Assignments: 10%
Term Project and Labs: 25%
Midterm Examination: 25%
Final Examination: 35%

ADDITIONAL INFORMATION
No textbook is required for purchase since all necessary information will be provided by the instructor. However, the following references are suggested reading materials for the course:
• ISBN: 978-0-470-76039-0

Tutorials will primarily introduce students to EMME, a popular transportation software package used by government/industry to model the macroscopic flow of traffic on road/transit networks.

ACADEMIC INTEGRITY LINKS
• Senate Policy on Academic Honesty - http://secretariat-policies.info.yorku.ca/policies/academic-honesty-senate-policy-on/
• Academic Integrity - http://lassonde.yorku.ca/academic-integrity

STUDENT LINKS
• Student Rights and Responsibilities - http://oscr.students.uit.yorku.ca/student-conduct
• Religious Observance - https://w2prod.sis.yorku.ca/Apps/WebObjects/cdm.woa/wa/regobs
• Academic Accommodation for Students with Disabilities - http://secretariat-policies.info.yorku.ca/policies/academic-accommodation-for-students-with-disabilities-policy/
• Counselling and Disability Services - http://cds.info.yorku.ca/
• York University’s Policies on Sexual Violence - http://secretariat-policies.info.yorku.ca/policies/sexual-violence-policy-on/
• York University’s Policies on Gender/LGBTQ*/Positive Space - http://rights.info.yorku.ca/lgbtq/

LAND ACKNOWLEDGEMENT
• We acknowledge our presence on the traditional territory of many Indigenous Nations. The area known as Tkaronto has been care taken by the Anishinabek Nation, the Haudenosaunee Confederacy, the Huron-Wendat, and the Métis. It is now home to many Indigenous Peoples. We acknowledge the current treaty holders, the Mississaugas of the New Credit First Nation. This territory is subject of the Dish With One Spoon Wampum Belt Covenant, an agreement to peaceably share and care for the Great Lakes region.
• The Indigenous Framework for York University: A Guide to Action can be found here: http://indigenous.info.yorku.ca/
• Meaning of a land acknowledgement: http://healthydebate.ca/opinions/indigenous-land-acknowledgements

Many courses utilize Moodle, York University’s course website system. If your course is using Moodle, click here to access it.

Moodle @ York University