

**School of Community and Regional Planning (SCARP)  
University of British Columbia  
DRAFT COURSE OUTLINE**

<b>Course Number</b>	<b>PLAN 535</b>
<b>Course Credit(s)</b>	<b>3.0</b>
<b>Course Title</b>	<b>Transportation Planning &amp; Analysis</b>
<b>Term</b>	<b>2018-2019 Winter Term 2</b>
<b>Day/Time</b>	<b>Monday/Wednesday</b>

Cross-listed CIVL 583 and CIVL 441

<b>Instructor</b>	Alex Bigazzi
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<b>Office Hours</b>	By appointment

**Short Course Description**

This course covers fundamental urban travel demand modelling techniques and aims to help students understand how travel models are used in the planning process. There are no prerequisites, but PLAN 580 is recommended and students should be comfortable working with spreadsheet software.

**Course Format**

This course is primarily lecture-based. There will be homework assignments, in-class exams, and a term project.

**Course Overview, Content and Objectives**

This course covers the foundations of urban travel modelling: data needs; survey and sampling techniques; model calibration and validation; discrete choice modeling; 4-step travel demand forecasting (trip generation, trip distribution, mode choice, and network assignment). Advanced travel modelling topics will be addressed as well, including activity based models and integrated land use/transport models. This course aims to help students understand 1) how travel demand models are used in the urban planning process, 2) fundamental modeling techniques, and 3) contemporary issues in transport modeling. Students will also develop deeper understanding of a selected modeling technique or issue.

**Learning Outcomes**

After completing this course, students will be able to:

- Describe how travel demand models are used in the urban planning process
- Evaluate basic travel survey data
- Estimate and apply trip generation and trip distribution models
- Interpret and apply mode choice model estimation results
- Implement a basic highway traffic assignment model
- Identify limitations of the 4-step modeling framework and contemporary approaches to urban transport modeling

### **Additional Course Requirements**

N/A

### **Attendance**

Attendance is strongly encouraged. If you miss a class session, it is your responsibility to check Connect for any materials and to check with a classmate for any announcements or other information not posted on Connect. No make-up exams will be given; if you miss the mid-term exam due to illness, the final exam will be weighted more in the final grade calculation. All students must take the final exam to pass the class.

### **Evaluation Criteria and Grading**

Final course percentage grades will be calculated using the following approximate weights (subject to change until the first day of class – see syllabus on Connect):

Assignments	20%	Approximately 4 problem sets will be posted to the course website
Midterm exam	20%	Closed-book written in-class exam; 1-sided, entirely handwritten and original notes sheet allowed; students must comply with APEGBC policies for calculators
Final exam	30%	Comprehensive, closed-book written in-class exam; 2-sided, entirely handwritten and original notes sheet allowed; students must comply with APEGBC policies for calculators
Term paper	25%	Details to be provided the first week of class
Participation	5%	Participation is evaluated based classroom civility, thoughtful questions and contributions to classroom discussions.

Final course letter grades will be assigned as indicated on the UBC website: <http://www.calendar.ubc.ca/vancouver/index.cfm?tree=3,42,96,0>

### **Required Readings and Videos**

Ortuzar and Willumsen, *Modelling Transport*, Wiley, 4<sup>th</sup> Ed., 2011. ISBN: 978-0-470-76039-0

### **Recommended Readings**

To be provided on Connect

### **Course Schedule**

This schedule is tentative.

Week	Topic
1	Course introduction, course scope, and contemporary issues in transportation planning analysis
2	Modeling urban transportation & the planning process; population, economic, & land use forecasts
3	Travel data, surveys, & sampling techniques; model calibration and validation
4	Trip generation; modeling decisions to undertake travel
5	Trip distribution; modeling travel destination selection

6	[Continued – trip distribution]
7	Modeling choice of travel mode & discrete choice modeling techniques
8	[Continued – mode choice]
9	Network assignment & route choice modeling
10	[Continued – network assignment]
11	Activity based models and other disaggregate travel modeling techniques
12	Integrated land use/transport models
13	Student presentations and review

**Special Needs**

**Academic Integrity**

The University is an environment that fosters learning and the free exchange of ideas while maintaining responsibility and integrity. Violations of academic integrity include but are not limited to plagiarism, cheating, dishonesty, fabrication of information, submitting previously completed work and misusing or destroying school property. Any material or ideas obtained from digital or hard copy sources must be appropriately and fully referenced. Students are expected to uphold all the standards articulated in [UBC's academic integrity site](#). If the instructor finds evidence of a violation of academic integrity the case will be investigated by the Faculty of Graduate Studies and, where appropriate, action will be taken. Disciplinary action may lead to a failing grade or suspension from the University.