

**CE 590 URBAN TRANSPORTATION PLANNING**  
**Tuesday/Thursday 3:30-4:45, EMS W119, Fall 2004**  
**E. Beimborn, E371D; Office hours Tues./Thurs. 10:00-11:00**  
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**Course Description:**

This course will examine techniques used to plan urban transportation systems; data collection, trip generation, trip distribution, factors underlying the choice of mode, traffic assignment, modelling and evaluation techniques.

**Course Objective:**

Broad Objectives

- The objective of this course is to provide an understanding of the nature of travel demand and methods used to plan for future transportation systems.

Learning Outcomes: Upon completing this course, students should have an understanding of:

- Factors underlying traveler choices of mode of travel, route choice and destination choice and how these processes can be represented mathematically.
- Steps necessary to complete a long-range transportation plan.
- The validity and source of information that comes from a sequence of travel forecasting models.
- The impact of federal rules and regulations for transportation planning.
- How engineers and planners interact with local and regional governments, citizens and elected officials to develop and interpret transportation plans.
- Knowledge of data required for transportation planning.
- Ability to make tradeoffs with multiple factors in project planning and design.

**Course Outline:**

Sept. 2 Course Introduction, Background, Transportation Problems, Approaches

Sept. 7 Urban Transportation Planning Process  
Decision Making, Alternatives, Inventories, Data Requirements

Sept. 14 Population, Economic and Land Use Forecasts

Sept. 21 Travel Demand Forecasts  
Zone and Network Structure

Sept. 28 Trip Generation

Oct. 5 Trip Distribution

Oct. 12 Midterm Exam – tentative date

Oct. 19 Mode Choice

- Oct. 26 Traffic Assignment, Performance Measures
- Nov. 2 Spatial Analysis of Travel, Land Use Modeling, Freight Forecasts
- Nov. 9 Planning for Livable Cities, Introduction to Belle Crisis
- Nov. 16 Transit Planning – Goals, Performance Evaluation, Transit Alternatives
- Nov. 23 Routing, Scheduling
- Nov. 30 Transit Costs, Demand Forecasts
- Dec. 7 Belle Crisis
- Dec 22 Final Exam, 12:30 p.m.

Final project report is due Tuesday, December 7.

**Books:** A set of class notes is available at Clark Graphics, 2915 N. Oakland Avenue. Other material may be available from U.S. DOT or as handouts, or may be available on a CE590 Web page. Information for the course may also be on a D2L web page.

**E-mail:** There is an e-mail reflector for the class that can be used to communicate with all class members. The e-mail address is [utp@uwm.edu](mailto:utp@uwm.edu). To send a message to the instructor, use [beimborn@uwm.edu](mailto:beimborn@uwm.edu).

**Grading:** Grading will be based on exams, 25% each; the project, 30%; the Belle project, 10%; and the Pox Problem, 10%. Please note that the Pox Problem is due in parts. The due dates are: Part 1, October 5; Part 2, October 28; Part 3, November 16; and Part 4, December 7. Late homework will be penalized 2 points per day and will not be graded if more than 10 days late. Grading is based on relative scores and rank in class.

**Undergraduate/Graduate Differentiation:** A graduate student taking this course will be required to do a class presentation and more advanced versions of the class projects.

**Projects:** There will be a midterm exam, and each student should work out the Pox Problem. Students will also be expected to prepare a term paper or project report. Students may work in groups of up to four students. A list of possible projects follows. Students may suggest other projects if they wish. The projects should be selected by the second week of the class. Submit a short memo with project topics on September 9 and progress reports on October 12 and November 16.

### **SOME POSSIBLE PROJECTS**

**Transportation for the Elderly:** Work with people from the Washington Park Seniors Center to identify options and programs that can be used to improve transportation for the elderly, especially for those who cannot (or should not) drive.

**Travel Models:** The projects are intended to provide experience with data analysis and travel forecasting. This will involve the development or testing of travel forecasts for some of the smaller cities in Wisconsin. Some choices are Wausau, Eau Claire, Sheboygan, La Crosse, Beloit, Oshkosh, Appleton and Green Bay. Networks are available for Sheboygan and Oshkosh from previous classes. For each city, a

network will have to be coded and data should be imported from the Census Transportation Package. Once coded, the QRS model can be used to analyze traffic flows that can be compared to WDOT traffic counts.

Model Testing and Demonstration: Become familiar with UrbanSim or some other software and prepare a presentation that explains how it works, including a demonstration of how it can be used.

Choice Behavior: Conduct a survey to determine factors that people actually consider when making travel choice decisions (i.e. route choice, destination choice, mode choice). Compare these results to assumptions used in travel demand analysis. Conduct a survey of travelers.

CAI Modules: Develop a computer aided instruction course (i.e. about 80 multiple choice questions) on some aspect of urban transportation planning to fit with the Transit CAI course.

Captive Users: Conduct a survey of the reasons people may feel they “must” use their car. This could be a general survey or might specifically deal with some issue such as safety and security or schedule.

Effects of Safety and Security on Mode Choice: Determine how concerns about personal security might affect the willingness to use transit. Describe past work, design, and conduct a survey related to this question.

## **UWM POLICIES THAT AFFECT THE CONDUCT OF A COURSE**

Participation by Students with Disabilities: If you need special accommodations in order to meet any of the requirements of this course, please contact me as soon as possible.

Accommodation for Religious Observances: Students will be allowed to complete examinations or other requirements that are missed because of a religious observance.

Academic Misconduct: The University has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors.

A more detailed description of Student Academic Disciplinary Procedures may be found in Regents Policy Statements, UWS Chapter 14 and UWM Faculty Document #1686.

Complaint Procedures: Students may direct complaints to the head of the academic unit or department in which the complaint occurs. If the complaint allegedly violates a specific university policy, it may be directed to the head of the department or academic unit in which the complaint occurred or to the appropriate university office responsible for enforcing the policy.

Grade Appeal Procedures: A student may appeal a grade on the grounds that it is based on a capricious or arbitrary decision of the course instructor. Such an appeal shall follow the established procedures adopted by the department, college, or school in which the course resides. These procedures are available in writing from the respective department chairperson or the Academic Dean of the College/School.

A more detailed description of the grade appeal policy may be found in UWM Selected Academic and Administrative Policies, Policy #S-28 and UWM Faculty Document #1243.

Sexual Harassment: Sexual harassment is reprehensible and will not be tolerated by the University. It subverts the mission of the University and threatens the careers, educational experience, and well being of students, faculty, and staff. The University will not tolerate behavior between or among members of the University community that creates an unacceptable working environment.

Attendance: Incompletes. A notation of "incomplete" may be given in lieu of a final grade to a student who has carried a subject successfully until the end of a semester but who, because of illness or other unusual and substantiated cause beyond the student's control, has been unable to take or complete the final examination or to complete some limited amount of term work. An incomplete is not given unless you prove to the instructor that you were prevented from completing course requirements for just cause as indicated above.

A more detailed description of the Incomplete Policy may be found in UWM Selected Academic and Administrative Policies, Policy #S-31 and UWM Faculty Documents #1558 and #1602. Also, a description of this policy may be found in the UWM Schedule of Classes.

Financial Obligation. The submission on your registration form and your subsequent assignment to classes obligates you to pay the fee-tuition for those classes or to withdraw your registration in writing no later than January 15. It is important to both you and the University that you make payment on time. A complete description of UWM fee policies may be found in the Schedule of Classes.