

**SCHOOL OF ARCHITECTURE AND URBAN PLANNING
UNIVERSITY OF WISCONSIN-MILWAUKEE**

**URBPLAN-692 GIS and Transportation
Tuesday 1:30-4:10PM, AUP 194**

Instructor: Lingqian (Ivy) Hu
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Office Hours: Tuesday 4:15PM-5:30PM and by appointment

Course Objectives:

This course provides a comprehensive introduction to transportation planning and related GIS analysis methods in the U.S. context. It focuses on policies, models, and analysis methods associated with transportation planning practice. Particularly, it emphasizes GIS applications. By the end of this course, students will understand the fundamentals of demand, supply and impact analysis, be able to use GIS to create multimodal transportation networks, and conduct basic network analysis.

Texts and Reading:

All readings will be available on the course website

Course requirements:

The class is organized as partly lecture and partly labs. Students are expected to attend ALL class sessions. Students should read weekly assignments and be prepared for class. Technical material will be presented in the form of lecture. In addition to class participation, course requirements include assignments and exams, all of which are graded. Late assignments are not accepted unless a student obtains an extension based upon justification such as religious observances, illness or family/workplace emergency.

On average, students should spend 48 hours per credit per semester on in-class activities and activities outside of the classroom (e.g. reading and working on assignments and exams), and thus students spend approximately 144 hours for this 3-credit course. Please note that the workload is an estimate and that students are assessed on the performance, not on the time put into the course.

Grading:

The course grade will be calculated as follows:

Assignment 1	10%
Assignment 2	10%
Assignment 3	10%
Midterm exam	25%
Final exam	35%
Class participation and discussion	10%

Special Accommodation

The University of Wisconsin-Milwaukee supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty will work either directly with the student or in coordination with the Accessibility Resource Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA.

Academic Conduct

The University, as an instrument of learning, is predicated on the existence of an environment of integrity. Faculty have the primary responsibility for establishing and maintaining an atmosphere and attitude of academic integrity such that the enterprise may flourish in an open and honest way. Students share this responsibility for maintaining standards of academic performance and classroom behavior conducive to the learning process. Please review Chapter UWS 14 and Faculty Document No. 1686 at: http://www4.uwm.edu/acad_aff/policy/academicmisconduct.cfm for UWM's expectations of appropriate student academic conduct.

Original Work and Plagiarism

All work in this course should be your own. In written work, cite sources for quotes, facts, and opinions, both in the body of student work and in the bibliography. Do not copy word for word unless place the words in quotation marks. Any plagiarism will be dealt with as a serious ethical breach. If you have questions about whether you are crossing an ethical line, ASK ME.

Other Course Policies

This course adheres to campus policies regarding students with disabilities, religious observances, active military service, incompletes, discriminatory conduct, academic misconduct, complaints about the course, grade appeals, and firearms. For details about these policies, see <http://uwm.edu/academicaffairs/facultystaff/policies/> and <https://uwm.edu/secu/syllabuslinks/>.

Course Schedule

Here is the course schedule of topics and reading assignments. This schedule is subject to change, depending on the needs and preparation of class members. If more time is required for difficult material, the schedule will be revised accordingly.

Week 1	9/4	Introduction
Week 2 Readings	9/11	Transportation Planning Process Meyer and Miller P6-34, P41-60
Week 3 Readings	9/18	GIS for Transportation Nyerges, chapter 7 in Hanson and Giuliano (2004) Miller and Shaw, Chapter 3 (2001)
Week 4 Lab	9/25	Transportation Network and TAZ Build a transportation network and set up TAZ
Week 5 Lab	10/2	Network Analysis I Creating a network dataset Finding the best route using a network dataset
<u>Assignment 1 due</u>		Transportation Network
Week 6 Lab	10/9	Network Analysis II Finding the closest fire stations Calculating service area and creating an OD cost matrix
Week 7 Readings <u>Assignment 2 due</u>	10/16	Demand Analysis I NCHRP 365, Chapter 3-4 Network Analysis
Week 8 Readings	10/23	Demand Analysis II NCHRP 365, Chapter 6, 9
Week 9	10/30	Mid-term
Week 10 Readings	11/6	Impact Analysis 1. Transportation Conformity: A Basic Guide for State & Local Officials 2. Schwanen, 2011, Scientific research about climate change mitigation in transport
Week 11 Readings	11/13	Public Transit Kain, 1999, chapter 11 in Gomez-Ibanez and Winston

Lab		Set up public transit network
Week 12	11/20	Integrated Transportation and Land Use
Readings		Meyer and Miller, 354-365
Demonstration		Envision Tomorrow
<u>Assignment 3 due</u>		Public Transit Network
Week 13	11/27	Supply Analysis
Readings		Meyer and Miller, P396-406
Week 14	12/4	Course Summary
Week 15	12/11	Final Exam Due