URP 6821
Transportation and Land Use Modeling
Department of Urban and Regional Planning
University of Florida
Spring 2025

Instructor
Dr. Zhong-Ren Peng, Professor (Room 462, 352-294-1491, zpeng@ufl.edu)
Teaching Assistants: Qing Hou (houqing@ufl.edu)

Schedule
Class: Friday Period 6 - 8 (12:50 PM - 3:50 PM), Room: AH 439
Office Hours: Architecture Building 462, Wednesday 11:00 AM - 12:30 PM or by appointment.
TA Office Hours: Architecture Building 135, by appointment.

COURSE OVERVIEW

This course provides guidance, and skill sets for students to address fundamental questions in transportation and land use planning, such as:

- What can be done to alleviate traffic congestion in urban areas? Is it achieved through building new roads, adding lanes, improving public transport, or a combination of these? How can the results be quantified?
- What are the transportation impacts of proposed land use developments?
- How does land use change over time, and how does it impact the city and transportation networks? How can we estimate the impact of the transportation network on land use?
- How do different land use and transportation policies affect transportation and land use systems in cities?

Being able to answer these questions using transportation and land use modeling tools and software is crucial for transportation and land use planning. Therefore, this course is essential for anyone interested in working in the transportation and land use planning fields.

This course focuses on planning process, modeling and applications for passenger transportation of metropolitan areas. The class will help develop an understanding of the federally mandated transportation planning process, travel demand models, transportation and land use interaction modeling, GIS applications in transportation, and simulations of transportation planning and policies. We will consider the role of planning in both advising politicians and policymakers and also in advocating on behalf of communities that are affected by transportation projects.

This is a hands-on course. Students will have the opportunity to use transportation demand models in a transportation modeling software package (e.g., Visum by PTV Group). We will also have occasional guest speakers who are involved in transportation planning, modeling and project management.

Course Objectives

This course aims to equip students with the knowledge and skills that are necessary in understanding and analyzing the complex interactions between transportation systems and land use. Students will learn to evaluate solutions for alleviating traffic congestion, assess the transportation impacts of land use developments, and simulate transportation policies using advanced modeling tools, Visum. Emphasis will be placed on understanding federally mandated transportation planning processes, applying GIS in transportation planning, and exploring the dynamic relationship between transportation networks and urban development. The course also fosters critical thinking and problem-solving skills, enabling students to advocate for affected communities and provide informed advice to policymakers. Through hands-on practice and guest lectures from industry professionals, students will gain practical experience and insights into real-world transportation and land use planning challenges.

Grading Policies

Grading will be based on the following components: 10% class participation, 30% assignments, 30% exam and 30% final project. Each assignment, exam and final project will be first assigned point grades, and then converted into the letter grade based on the following grade scale. Late assignment without prior approval will be reduced by one letter grade.

Tasks	Points or percentage
Class participation	10%
Assignments	30%
Exam	30%
Final Project	30%

Grading Scale: For greater detail, see the Registrar's Grade Policy regulations at
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx.

University of Florida Grade Policy

Percentage of points earned	>93%	90%-92.9%	87%-89.9%	83%-86.9%	80%-82.9%	77%-79.9%	73%-76.9%	70%-72.9%	67%-69.9%	63%-66.9%	60%-62.9%	<60%
Letter grade equivalent	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

Letter Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	E	WF	I	NG	S-U
Grade Points	4.0	3.67	3.33	3.0	2.67	2.33	2.0	1.67	1.33	1.0	0.67	0	0.0	0	0.0	0.0

Prerequisites

Either of the following courses is required prior to take this course: URP 6716 Transportation Policy/Planning, or TTE 5006 Advanced Urban Transportation Planning. If you have not taken any of these, please talk with the instructor and get an approval first.

Computer Requirements

This course requires students to have a **window-based PC**. A Mac computer is not compatible with the software requirement and thus does not work, even when virtualizations like Parallels and VMW are installed.

Assignments

There will be weekly or bi-weekly assignments. Many of them will require the use of transportation planning & demand modeling software like Visum or GIS software like ArcGIS. There will be a mid-term exam and a final project.

Textbook and Readings:
- Meyer, Michael D. and Eric J. Miller. *Urban Transportation Planning: A Decision-Oriented Approach*. New York: McGraw Hill. Second edition.
- Other readings as assigned

Course Evaluations:

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

COURSE POLICIES:

Students with Disabilities

Students requesting classroom accommodation must first register with the Dean of Students Office. The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation.

Electronic Equipment Usage Policy

Distractions are a part of our daily activities, and they often result from electronic technology (e.g., laptops, tablets, cellphones). The challenge is to ensure that they take a proper role in teaching and learning. Because this course is designed to maximize participation, students should plan to minimize the interference of technology during class. Students will turn off and put away cellphones and other handhelds, tablets and other devices that are not a direct part of the educational experience. If you are expecting an urgent call, please let your instructor know so that you do not disturb the class when the call comes in.

Attendance Policy

Students are expected to attend all classes and labs and to stay until the class/lab period ends. Role will be taken randomly; more than 3 unexcused absences will result in the loss

of a letter grade. In the case of illness or a family emergency, a schedule for the completion of make-up work must be determined with the instructor as soon as possible upon a student's return to class. Failure to comply with the agreed schedule will result in a failing grade for that project. Requirements for class attendance and make-up exams, assignments, and other work in the course are consistent with university policies. See UF Academic Regulations and Policies for more information regarding the University Attendance Policies.

Assignment and Quiz/Exam Policy
Students MUST follow the University's policy regarding unauthorized use of materials (i.e., cheating), prohibited collaboration, and the use of copyrighted materials. Students are responsible for reading and abiding by the University's student code of conduct (https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/) and the University Honor Code. Under the Student Honor Code, "on all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: 'On my honor, I have neither given nor received unauthorized aid in doing this assignment'" (https://handbook.aa.ufl.edu/teaching/policies/). In particular, there are rules governing plagiarism and unauthorized collaboration. If you directly quote someone or use an idea from another source, you must attribute that idea or those words to an original author. If you are unclear about what constitutes plagiarism, please make an appointment with me to discuss this. You can also consult the above website and the graduate catalog for further information. In the context of this course, if you directly quote someone or use an idea from another source even if it is your own previously submitted work, you must attribute that idea or words. Failure to follow the rules regarding Integrity in Graduate School may result in a failure in this course and possible disciplinary action under the Judicial Process for Academic Honesty Violations. If you are unclear about what constitutes plagiarism or other aspects of academic honesty, please make an appointment with the instructor to discuss this.

The following are some examples that are considered to be academic dishonesty:
- copying graphics or texts from any sources for your report without crediting the original source;
- representing someone else's work as your own;
- allowing someone else to represent your work as his/her own;
- Multiple submissions of the same or similar work without prior approval;
- Cheating in exams (e.g., looking at books or notes in a closed-book examination).
- Falsifying information such as changing or leaving out data, such as manipulating or misreporting statistics for a research project; altering work after it has been submitted; hiding reference materials, etc.

Make-up Policy
Students will be permitted a reasonable amount of time to make up the material or activities covered in their absence due to a true emergency, but the instructor must be informed of the legitimate absence ahead of time with proof.

UF POLICIES
University Policy on Accommodating Students with Disabilities
Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. See the "Get Started With the DRC" webpage on the Disability Resource Center site. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

University Policy on Academic Misconduct
Academic honesty and integrity are fundamental values of the University community. Students should be sure that they understand the UF Student Honor Code at https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/.
**Netiquette: Communication Courtesy: All members of the class are expected to follow rules of common courtesy in all email messages, threaded discussions and chats.

GETTING HELP
For issues with technical difficulties for E-learning in Sakai, please contact the UF Help Desk at:
- Learning-support@ufl.edu
- (352) 392-HELP - select option 2
- https://elearning.ufl.edu/student-help/student-help-faqs/

** Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from LSS when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail your instructor within 24 hours of the technical difficulty if you wish to request a make-up.

Other resources are available at https://www.ufl.edu/current-students/
Disability resources
- Resources for handling student concerns and complaints
- Library Help Desk support

Should you have any complaints with your experience in this course please visit http://www.distance.ufl.edu/student-complaints to submit a complaint.

The U Matter, We Care Initiative
Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact umatter@ufl.edu so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

SCHEDULE OF CLASSES

1. Jan. 17 **Course Overview, Analytical Perspectives**, **Transportation Trends**
   Reading: Commuting in America 2021 and Commuting in America 2013, (available at https://transportation.org/traveltrends/) Meyer and Miller, Chapters 1, 2 and 3
   Lab Session: Visum Installation and Introduction

2. Jan. 24 **Transportation Data and System Characteristics, Transportation Analysis Zones**
   Reading: Meyer and Miller, Chapters 4 and 5
   Lab Session: Objects in Visum

3. Jan. 31 **Urban Transportation Demand Modeling: Trip Generation**
   Reading: Meyer and Miller, Chapter 5
   Lab Session: Editing Objects: Nodes and Turns

4. Feb. 7 **Urban Transportation Demand Modeling: Trip Distribution**
   Reading: Meyer and Miller, Chapter 5
   Lab Session: Editing Objects: Links

5. Feb. 14 **Urban Transportation Demand Modeling: Mode Choice**
   Reading: Meyer and Miller, Chapter 5
   Lab Session: Trip Distribution: Adding OD-matrix; Creating Maps

6. Feb. 21 **Urban Transportation Demand Modeling: Trip Assignment**
   Reading: Meyer and Miller, Chapter 5
   Lab Session: Trip Assignment in Visum

7. Feb. 28, **Lab Session: more Visum**

8. Mar. 7, **Land-Use Models, part 1**
   Reading: Meyer and Miller, Chapter 6

9. Mar. 14 **Land-Use Models, part 2**
   Reading: Meyer and Miller, Chapter 6

10. Mar. 21 **UF Spring Break, no class**

11. Mar. 28 **Mid-Term Exam**

12. Apr. 4 **Urban Transportation Demand Modeling: Time-of-Day Modeling, Activity-Based Models and Non-Motorize Travel Demand**
    Reading: Meyer and Miller, Chapter 5

Guest Lectures by planners and engineers from Florida Department of Transportation and other agencies

13. Apr. 11 **GIS Applications in Transportation: Linear data model**
Reading: 1) Timothy Nyerges, 1995. Geographic Information System Support for Urban/Regional Transportation Analysis. In Susan Hanson, ed. *The Geography of Urban Transportation*. Second Edition. The Guilford Press. pp. 240-268.
2) Dueker, K. J. and Vrana, R. (1992). Dynamic Segmentation Revisited: A Milepoint Linear Data Model. Journal of the Urban and Regional Information Systems Association, 4(2): 94-105

14. Apr. 18 **Final Project Presentation**

15. Apr. 25 **Reading Day, No Class**

16. May 2 **Final Project Report Due**