**URP 6821**
**Transportation and Land Use Modeling**
Department of Urban and Regional Planning
University of Florida
**Spring 2024**

**Instructor**:
Dr. Zhong-Ren Peng, Professor (Room 462, 352-294-1491, zpeng@ufl.edu)
Teaching Assistants: Kaifa Lu (kaifa.lu@ufl.edu) and Yanghe Liu (liuyanghe@ufl.edu)

**Schedule**:
Class: Friday Period 6 - 8 (12:50 PM - 3:50 PM), Room: RNK 210
Office Hours: Architecture Building 462, Wednesday 10:30 AM - 12:30 PM or by appointment.
TA Office Hours: Architecture Building 135, Monday 1:30 PM - 3:30 PM or 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 impacts 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 policy-makers 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.

**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.

**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

**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.

## Course Policies:

**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 upon schedule will result in a failing grade for that project.*

**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 proofs.*

## UF Policies:

**University Policy on Accommodating Students with Disabilities:** Students requesting accommodation for disabilities must first register with the Dean of Students Office (https://biostat.ufl.edu/current-students/student-resources/uf-student-support-links/accommodations-for-students-with-disabilities/). The Dean of Students Office will provide documentation to the student who must then provide this documentation to the instructor when requesting accommodation. You must submit this documentation prior to submitting assignments or taking the quizzes or exams. Accommodations are not retroactive, therefore, students should contact the office as soon as possible in the term for which they are seeking accommodations.

**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.

## 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 |

## 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/.

## Schedule of Classes

1. Jan. 12 **Course Overview, Analytical Perspectives**, **Transportation Trends**
   Reading: Commuting in America 2021 and Commuting in America 2013, (available at https://transportation.org/traveltrends/)

2. Jan. 19 **Urban Transportation Planning and Decision Making**
   Reading: Meyer and Miller, Chapters 1, 2 and 3
   **Lab Session: Visum Installation and Introduction**

3. Jan. 26 **Transportation Data and System Characteristics, Transportation Analysis Zones**
   Reading: Meyer and Miller, Chapters 4 and 5
   **Lab Session: Objects in Visum**

4. Feb. 2 **Urban Transportation Demand Modeling: Trip Generation**

Reading: Meyer and Miller, Chapter 5
**Lab Session: Editing Objects: Nodes and Turns**

5. Feb. 9 **Urban Transportation Demand Modeling: Trip Distribution**
Reading: Meyer and Miller, Chapter 5
**Lab Session: Editing Objects: Links**

6. Feb. 16 **Urban Transportation Demand Modeling: Mode Choice**
Reading: Meyer and Miller, Chapter 5
**Lab Session: Trip Distribution: Adding OD-matrix; Creating Maps**

7. Feb. 23 **Urban Transportation Demand Modeling: Trip Assignment**
Reading: Meyer and Miller, Chapter 5
**Lab Session: Trip Assignment in Visum**

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

9. Mar. 8 **Land-Use Models, part 2**
Reading: Meyer and Miller, Chapter 6

10. Mar. 15 **UF Spring Break, no class**

11. Mar. 22 **Urban Transportation Demand Modeling: Time-of-Day Modeling, Activity-Based Models and Non-Motorize Travel Demand**
Reading: Meyer and Miller, Chapter 5

12. Mar. 29 **Mid-Term Exam**

13. Apr. 5 **Guest Lectures** by planners and engineers from Florida Department of Transportation and other agencies

14. Apr. 12 **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

15. Apr. 19 **Working on Your Project**

16. Apr. 26 **Final Project Presentation**

17. May 1 **Final Project Report Due**