

# **TTE 4106 Urban Transportation Planning**

## **Course Description**

Overview of the “four-step” urban transportation planning process, estimation of the travel demand models of trip generation, trip distribution, mode choice, and traffic assignment, and the forecasting of travel patterns using the travel-demand models, state-of-the-art approaches.  
(3 credits)

## **Pre-requisites**

TTE 4004 or equivalent & some familiarity with probability and statistics

## **Course Objectives**

1. Understand and critique the state-of-the-practice approach to transportation modeling and planning
2. Estimate and interpret the various types of models used for travel forecasting
3. Predict future travel patterns under different scenarios using the travel models
4. Understand the process of mathematical analysis of real-world problems

## **Instructor**

Dr. Sivaramakrishnan (Siva) Srinivasan

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Office Hours: Stop by my office or send-me an e-mail to set up a meeting time.

## **Teaching Assistant**

None

## **Meeting Times & Location**

MWF 11:45-12:35 @ Little Hall 121

## **Material and Supply Fees**

None

## **Text Books and Software Required**

There is no text book or software that you are required to purchase. Lecture slides/notes and references to other reading material (such as journal publications, book chapters, and web sites) will be made available electronically via the course web site or provided as hand-outs in class. Statistical software is available in the Circa Labs and via UF Apps <http://info.apps.ufl.edu/>

## **Recommended Reading**

Lecture slides will include references to additional reading material

## Course Outline

- Transportation planning in the current-day context
- Overview of the “Four-Step” travel-demand forecasting procedure
- Trip Generation
  - Simple (Cross-classification) approaches
  - Regression models for trip productions
    - Specification and interpretation
    - Ordinary least squares (OLS) estimation (using SPSS software)
    - Hypothesis testing, goodness of fit, and model refinement
    - Market segmentation and nonlinearities
    - Empirical applications using travel-survey data
  - Aggregate models for trip attractions
  - Trip balancing
- Trip Distribution
  - Growth factor approaches
  - Gravity model
    - Calibration (determination of the friction factors)
    - Application for forecasting
  - Disaggregate location-choice models
- Mode Choice
  - Theory of random-utility maximization
  - Specification and estimation of logit models
  - Empirical applications using travel survey data
- Network Assignment
  - Creating OD matrices from PA matrices
  - Network representation and shortest-path concepts
  - User equilibrium
  - System optimum
- Florida Standard Urban Transportation Model Structure (FSUTMS)
- A critical assessment of the state-of-the-practice approach
- State-of-the-art: tour-based and activity-based approaches
- Scenario Planning: Dealing with Autonomous and Connected Vehicles.

## Attendance and Expectations

1. Attendance is strongly encouraged and you are responsible for the material covered in class. Co-ordinate any absence with the instructor in advance.
2. Assignments (in hard copy) are due at the beginning of the class period on the date specified. Assignments will not be accepted after this time, except under extraordinary circumstances or when prior permission has been sought.
3. Students are expected to work on the assignments independently
4. As a courtesy to others, please turn off cell phones during the class

## Grading

Grades will be based on two exams (25% each) and several assignments (50% total). The final grade will be based on your overall performance relative to that of others in the class.

NOTE: A C- will not be a qualifying grade for critical tracking courses. In order to graduate, students must have an overall GPA and an upper-division GPA of 2.0 or better (C or better).

Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### **Make -up Exam Policy**

Requests for make-up exams are strongly discouraged. Such requests will be accommodated only under exceptional situations and when prior permission from the instructor has been sought adequately in advance.

### **Honesty Policy**

All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

### **Accommodation for Students with Disabilities**

Students requesting classroom accommodation must first register with the Dean of Students Office. That office will provide the student with documentation that he/she must provide to the course instructor when requesting accommodation.

### **UF Counseling Services**

Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

1. University Counseling Center, 301 Peabody Hall, 392-1575, Personal and Career Counseling.
2. SHCC mental Health, Student Health Care Center, 392-1171, Personal and Counseling
3. Center for Sexual Assault/Abuse Recovery and Education (CARE), Student Health Care Center, 392-1161, sexual assault counseling.
4. Career Resource Center, Reitz Union, 392-1601, career development assistance and counseling.

### **Software Use**

All faculty, staff and student of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.