CIRP 5309 | METROPOLITAN INTEGRATED LAND USE/TRANSPORTATION MODELING AND POLICY ANALYSIS

COURSE SYLLABUS | SPRING 2016

Instructor: Prof. Ard Anjomani
Office: ARCH 418 | Email: anjomani@uta.edu
Spring 2016 | Wednesday - 7:00PM - 9:50 PM

CAPPA College of Architecture, Planning and Public Affairs
The University of Texas at Arlington
Course Description

This course aims to provide an introduction to the metropolitan level integrated land use/transportation planning process. Transportation and land use development is essential in meeting economic, social, and environmental goals, which profoundly affect sustainability issues. We will concern ourselves with the techniques and research in integrated land use and transportation forecasting procedures currently used in the U.S. Metropolitan Planning Organizations [MPOs]/Council of Governments [COGs] including the four-step transportation modeling process. The course is also offering a brief introduction to TELUM/TELUS land use demographic forecasting and TransCAD transportation planning software. Issues stemming from the problems of forecasting households and employment in different categories, as well as the ways in which changes in land use and transportation network interact and affect the environment are the topics that will be discussed in the course.

Learning Outcomes

By the end of this course, students should be able to:

- Understand and explain integrated land use/transportation forecasting issues based on sustainability issues and environmental considerations
- Identify and explain different land use forecasting and analysis methods
- Identify and explain different transportation forecasting and analysis methods
- Describe metropolitan level land use/transportation policy planning and forecasting process
- Describe different land use analysis and forecasting techniques
- Describe different Integrated Urban Analysis models such as UrbanSim and TELUM/TELUS
- Identify and explain the suitability/GIS type land use forecasting models for LU/TDM
- Identify and explain the major techniques of land-use/transportation analysis including different types of gravity models, the Lowry model of metropolis and DRAM/EMPAL
- Describe the four step Transportation Demand Modeling
- Identify and explain Trip Generation Models
- Identify and explain Trip Distribution Models
- Identify and explain Mode Choice Models
- Identify and explain Trip Assignment Models
Required Textbooks and Other Course Materials

There are numerous textbooks written on transportation/land use planning, from which the instructor has selected the most useful chapters as parts of the required readings. In conjunction with the selected chapters, supplementary required articles and chapters from other sources will be made available every week throughout the semester in the course Blackboard accessible to students at https://elearn.uta.edu/

Some of the primary textbooks’ chapters have been selected for the course and are listed below:


Course Requirements

- To attend the entire class session every week and to participate in class discussions and all activities. In-class activities and discussions are an integral part of our learning together.
- To complete all assigned readings to prepare for discussions.
- If you fail to submit your assignments on time due to an emergency, contact the instructor for the possibility of an extension.

Description of Major Assignments and Examinations

- Attendance and Class Participation

    Apart from the attendance required for every session, I expect active participation guided by your careful reading of the assigned texts and respectful acknowledgement of views that may differ from your own.
• **Midterm Examination**

An exam in the 9th week will be administered and includes the topics that have been covered as of the 9th week.

• **Final Examination**

At the end of the semester a final exam is given to students to evaluate the understanding and critical thinking of students to identify and explain the reading materials discussed in the class.

• **Final Paper**

Students are required to turn in a paper whereby critically assessing one of the models discussed in the class, which should demonstrate their deep understanding and knowledge of the course. The paper should be 12-15 pages long (including graphics, tables, etc.) and minimum 2000 words. The use of graphics is highly recommended. In addition, make sure that the paper contains the necessary parts namely title, abstract, introduction, main body, discussion and conclusion and finally a list of references. Please use from one of the accepted mode of referencing style for in-text citations and for bibliography (e.g. APA, Harvard, Vancouver, Chicago). All students should run their draft paper through SafeAssign in the course Blackboard for ensuring originality and authenticity. Only when are final papers accepted that their matching score will be %20 or less.

Ph.D. students are required to further develop their papers (15-18 pages and minimum 3000 words). The paper should be high quality in terms of writing style and mechanics, in-depth discussions and academic sophistication. Please meet with the instructor if further clarification is needed.

• **In-class Presentation (Optional)**

Everyone who is willing to get extra credit for the course may lead an in-class presentation of one of the assigned land use models covered during the 7th through 9th week, providing the class with a short summary of the main concepts and fundamentals. Power Point presentations, if used, should not exceed 20 minutes total. It is recommended that students meet with the instructor to choose their models to present in the class.

• **Weekly Briefs (Optional)**

Every week, you may write and submit a 1-2 page, summary of the major points of the week’s readings. You are expected to turn in each paper no later than 2 hours before the class meeting. Please submit them via Blackboard that is available online. You should at least submit 10 weekly briefs out of possible 13 to get credit. Late weekly briefs submitted will not be acceptable.

**Attendance**

At The University of Texas at Arlington, taking attendance is not required. Rather, each faculty member is free to develop his or her own methods of evaluating students’ academic performance, which includes establishing course-specific policies on attendance. The attendance policy for this course requires regular class attendance from all students (If you must miss a class due to a conflict, please let the instructor
know ahead of time). Students are responsible for all course information, content, and assignments that may be missed due to absence.

Classroom Etiquette

Please arrive at class on time or before the starting time. Your cell phone devices should be turned off if they cannot be set to a silent mode. Please be prepared for the class discussions. Please try to be pleasant and positive in your classroom behavior. Show respect for all class members. We can learn a great deal from each other, but this can only happen in a comfortable learning environment for everyone in the class. We have people from many different backgrounds in this class and people with many different levels of academic preparation. So please use a respectful and calm tone of voice all the time and avoid sarcasm, heavily judgmental or confrontational comments that will create an inhospitable classroom atmosphere. If you have a real need to leave early, please inform the instructor and leave quietly.

Grading

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Course Calendar

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. – A. Anjomani
Week 1 - January 20

Introduction to the Course and Explain the Expectations and Requirements
Instructor’s PPT 1 — Introduction to the Course

Week 2 - January 27

Introduction - A Brief History of Urban Transportation Planning and Key Issues
Instructor’s PPT 2 — A Brief History of Urban Transportation Planning

Required readings:


Recommended readings:


○ Week 3 – February 03

An Overview to Integrated Land Use Transportation Modeling Process
Instructor’s PPT 3 — An Overview to Integrated Land Use Transportation Modeling Process
Introduction to TELUM/TELUS

Required readings:


PART I – LAND USE MODELING

○ Week 4 - February 10

Historic Growth of Cities and Conceptual Land Use Models | TELUM/TELUS
Instructor’s PPT 4 — Conceptual Models - EMPIRIC, Gordon & MacReynolds

Required readings:


**Recommended readings:**


**Week 5 - February 17**

Land Use Modeling I: Land Suitability Models | TELUM/TELUS
Instructor’s PPT 5 — Suitability/Ecology & Environment

**Required readings:**


Week 6 - February 24

Land Use Modeling II: Lowry Type Models | TELUM/TELUS
Instructor’s PPT 6 — Lowry/Econ Dev

Required readings:


Recommended readings:


Week 7 - March 02

Instructor’s PPT 7 — Selected Integrated Models

Required readings:


**Recommended readings:**


**Week 8 – March 09**

Instructor’s PPT 8 — PECAS/Anjomani Model

**Required readings:**

**TELUS, TELUM, ITLUP, METROPOLIS, DRAM/EMPAL**


**MEPLAN**


**TRANUS**


**PECAS**

Anjomani Model


Recommended readings:


- March 16 – Spring Break

- Week 9 - March 23

Section 1: Land Use Modeling III Continues: Multinomial Logit Models | TELUM/TELUS

Instructor’s PPT 9 — UrbanSim

Required readings:

Transims


UrbanSim


**Recommended readings:**


**Section 2: Landis’s CUF, CUF II and CURB Family of Models and Other related Efforts**

**Recommended readings:**


**Midterm Examination will be made available online through Blackboard on Mar 25 and the due date is Apr 01, 11:59 pm.**
PART II – TRANSPORTATION AND FOUR STEP MODELING PROCESS

- Week 10 - March 30

Introduction to Transportation Modeling | Introduction to TransCAD
Instructor’s PPT 10 — Travel Demand Modeling and data Collection

Required readings:


- Week 11 - April 06

Data Collection and Analysis Techniques: Origin-Destination Surveys | TransCAD
Instructor’s PPT 11 — Trip Generation

Required readings:


Week 12 - April 13

**Required readings:**


Week 13 - April 20

**Required readings:**


**Recommended readings:**


Week 14 – April 27

Traffic Assignment Models and System Evaluation | TransCAD
Instructor’s PPT 14 — Assignment Models

Required readings:


Recommended readings:


Week 15 – May 04

Course Review and Wrap-up Discussions

Final Examination will be made available online through Blackboard on **May 06** and the due date is **May 13, 11:59 pm**.
Drop Policy

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student’s responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships ([http://uta.edu/ao/aao/fao/](http://uta.edu/ao/aao/fao/)).

Americans with Disabilities Act

UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA), and Section 504 of the Rehabilitation Act. All instructors at UT Arlington are required by law to provide “reasonable accommodations” to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the **Office for Students with Disabilities (OSD)**. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

**The Office for Students with Disabilities, (OSD)**  [www.uta.edu/disability](http://www.uta.edu/disability) or calling 817-272-3364.

**Counseling and Psychological Services, (CAPS)**  [www.uta.edu/caps/](http://www.uta.edu/caps/) or calling 817-272-3671.

Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

Title IX

The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit [uta.edu/eos](http://uta.edu/eos). For information regarding Title IX, visit [www.uta.edu/titleIX](http://www.uta.edu/titleIX).

Academic Integrity

Students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

> I pledge, on my honor, to uphold UT Arlington’s tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

> I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.
UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents’ Rule 50101, §2.2, suspected violations of university’s standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student’s suspension or expulsion from the University.

Electronic Communication

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at http://www.uta.edu/oit/cs/email/mavmail.php.

Student Feedback Survey

At the end of each term, students enrolled in classes categorized as “lecture,” “seminar,” or “laboratory” shall be directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student’s feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington’s effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit http://www.uta.edu/sfs.

Final Review Week

A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week unless specified in the class syllabus. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Emergency Exit Procedures

Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit, which is located up the stairs. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist individuals with disabilities.