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| **Instructor** | Ard Anjomani |
| **Office** | ARCH 418 |
| **Phone** | 817-272-3310 |
| **Email** | [anjomani@uta.edu](mailto:anjomani@uta.edu) |
| **Faculty Profile** | <https://www.uta.edu/profiles/ardeshir-anjomani> |
| **Office Hours** | Thursday | 3:00 - 5:00 pm or by Appointment |
|  |  |
| **Teaching Assistant** | Ahmad Bonakdar |
| **Office** | 105 |
| **Email** | [ahmad.bonakdar@mavs.uta.edu](mailto:ahmad.bonakdar@mavs.uta.edu) |
| **Office Hours** | Wednesday | 3:00 – 5:00 pm or by Appointment |
|  |  |
| **Section Information** | PLAN 5309 |
| **Time and Place of Class Meetings** | Thursday | ARCH 404 | 7:00 - 9:50 pm |

# 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 other 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:

* Briassoulis, H. (2000). *Analysis of Land Use Change: Theoretical and Modeling Approaches*, available online at <http://www.rri.wvu.edu/webbook/briassoulis/contents.htm>
* Dickey, J. W. (1983). *Metropolitan Transportation Planning* (2nd ed.), New York: McGraw Hill.
* Hanson, S. & Guiliano, G. (2004). *The Geography of Urban Transportation*, New York: The Guilford Press.
* Hensher, D. A., & Button, K. J. (2007) *Handbook of Transport Modeling* (2nd ed.)*.* Oxford: Pergamon.
* Hensher, D. A., Button, K. J., Haynes, K. E., & Stopher, P. R. (2004) *Handbook of Transport Geography and Spatial Systems*, Amsterdam: Pergamon.
* Meyer, M., & Miller, E. (2013). *Transportation planning: A decision-oriented approach*. Modern Transport Solutions, LLC, available online at <http://mtsplan.com/services.html>
* ~~Meyer, M. D. & Miller, E. J. (2013).~~ *~~Urban Transportation Planning~~* ~~(3~~~~rd~~ ~~ed), available online at~~ [~~http://mtsplan.com/services.html~~](http://mtsplan.com/services.html)
* Rodrigue, J. P. (2013). *The Geography of Transport Systems* (3rd ed.), available online at: <https://people.hofstra.edu/geotrans/index.html>
* Stopher, P. R., & Meyburg, A. H. (1979). *Survey Sampling and Multivariate Analysis for Social Scientists and Engineers.* MA: Lexington Books.

**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, active participation and careful reading of the assigned texts and respectful acknowledgement of views that may differ from your own is expected.

* Weekly Briefs

Every week, you should write and submit a 1-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 to get credit. Late weekly briefs submitted will not be acceptable. Briefs are not graded, but credit will be given on a weekly basis. The instructor or TA may contact you with feedback to give a chance to revise and resubmit your brief, if it is not satisfactory.

* In-class Discussion and Presentation

1. Students are required to read the assigned readings critically and lead an in-class discussion, providing the class with a few discussion points and if needed questions that would foster a quality discussion. If desired PowerPoints could be used as starting points and facilitating the discussions.

Suggested sessions are:

* + Week 02: A Brief History of Urban Transportation Planning and Key Issues
  + Week 03: An Overview to Integrated Land Use Transportation Modeling Process
  + Week 04: Historic Growth of Cities and Conceptual Land Use Models
  + Week 05: Land Use Modeling I: Land Suitability Models
  + Week 06: Land Use Modeling II: Lowry Type Models
  + Week 07: Land Use Modeling III: The New Generation of Integrated Urban Models
  + Week 10: Introduction to Transportation Modeling

1. Everyone is required to deliver an in-class presentation of one of the assigned land use models covered, providing the class with a short summary of the main concepts and fundamentals. Power Point presentations, if used, should be about 20-30 minutes.

In-class Presentation Topics:

**The New Generation of Integrated Urban Models**

* + TELUS, TELUM, ITLUP, METROPOLIS, DRAM/EMPAL
  + MEPLAN
  + TRANUS
  + PECAS
  + Anjomani Model
  + UrbanSim
  + Landis’s CUF, CUF II and CURB Family of Models and Other related Efforts
  + Other Integrated Urban Models
* 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 Paper **(Due May 05)**

Master students are required to turn in a paper on a topic of their interest related to the course materials, preferably on transportation modeling process since the Midterm exam covers the first part of class, which is more about land use modeling. The paper should be 8-10 pages long (including graphics, tables, etc.) and about 2000 -2500 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).

Doctoral students are required to further develop their papers (3000–3500 words and 12-15 pages), ensuring that their writing style and mechanics as well as their discussions are of high quality toward possible publication. Addition of a case study to the paper could help Ph.D. students develop their topics. Please meet with the instructor if further clarification is needed.

All students should run their draft paper through SafeAssign in the course Blackboard for ensuring originality and authenticity. Only when final papers are accepted will their matching score be %15 or less.

Regarding the style, please use Margins: 1 inch (all sides), Font Size: 12, and Line Spacing: 1.5, and Font Family of your own choice (Times New Roman or Calibri is preferred).

**Final Paper is due May 05** **at 11.59 pm.**

**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 and try to be pleasant and positive in your classroom behavior. 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**

|  |  |
| --- | --- |
| **Assignments** | **Points** |
| * Attendance and Class Participation * Weekly Briefs | 10  10 |
| * Presentation / Discussion | 15 |
| * Midterm Examination | 35 |
| * Final Paper | 30 |
| **Total** | **100** |

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| **Grade Scale** | **Description** |  | **Points** |
| * A | Excellent |  | 90-100 |
| * B | Good |  | 80-89 |
| * C | Fair |  | 70-79 |
| * D | Passing |  | 60-69 |
| * F | Failure |  | 0-59 |

**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 01 – 01/19/2017 Introduction to the Course, Expectations and Requirements**

**Instructor’s PPT 1— Introduction to the course**

* **Week 02 – 01/26/2017** **A Brief History of Urban Transportation Planning and Key Issues**

**Instructor’s PPT 2 — A Brief History of Urban Transportation Planning**

**Required readings:**

* Dickey, J. W. (1983). *Metropolitan Transportation Planning* (2nd ed.), New York: McGraw Hill – Chapter 3: Transportation Problems.
* Meyer, M. D. & Miller, E. J. (2013). *Urban Transportation Planning* (3rd ed.) - Chapter 1: Transportation Planning: Definition and Context.
* Transportation Research Board (2013). *Critical Issues in Transportation*, Washington DC: National Academy of Sciences.

**Recommended readings:**

* Hanson, S. (2004). The Context of Urban Travel: Concepts and Recent Trends. in S. Hanson, & G. Guiliano, *The Geography of Urban Transportation* (pp. 3-29), New York: The Guilford Press.
* Krueckeberg, D. & Silver, A. (1974). *Urban Planning Analysis: Methods and Models*, New York: Wiley and Sons – Chapter 9: Location and Travel Behavior.
* Meyer, M. D. & Miller, E. J. (2013). *Urban Transportation Planning* (3rd ed.) - Chapter 3: Section 3.2: Transportation System Impacts and Section 3.3: Characteristics of Urban Travel.
* U.S. Department of Transportation (2015). *The Transportation Planning Process Briefing Book*, Critical issues in transportation, Washington DC: Publication of Transportation Planning Capacity Building Program, Federal Highway Administration [FHA], Federal Transit Administration [FTA].
* **Week 03 – 02/02/2017** **An Overview to Integrated Land Use Transportation Modeling Process**

**Instructor’s PPT 3 — An Overview to Integrated Land Use Transportation Modeling Process**

**Required readings:**

* Anjomani, A. (2009). Integrated Land Use Transportation Modeling Needs and Legislative Mandates. *WSEAS Transactions on Environment and Development*, 5(11), 695-704.
* Torrens, P. M. (2000). *How Land Use – Transportation Models Work*, Centre for Advanced Spatial Analysis [CASA], Working Paper No. 20, London: UCL – Section 2: Why Land-Use–Transportation Models?

**PART I | LAND USE MODELING**

* **Week 04 – 02/09/2017** **Historic Growth of Cities and Conceptual Land Use Models**

**Instructor’s PPT 4 — Conceptual Models - EMPIRIC, Gordon & MacReynolds**

**Required readings:**

* Briassoulis, H. (2000). *Analysis of Land Use Change: Theoretical and Modeling Approaches*. - Chapter 4: Models of Land Use Change – Section 4.3.2: Econometric Models (EMPIRIC) and 4.5: Optimization Models. Available Online at <http://www.rri.wvu.edu/webbook/briassoulis/contents.htm>
* Dickey, J. W. (1983). *Metropolitan Transportation Planning (2nd ed.)*, New York: McGraw Hill. – Chapter 6: Models II: User Costs and Human Activities - Section 6.2: Affecting Factors - Section 6.3: Human Activities (Land Use).
* Gordon, P. & MacReynolds, W. K. (1974). Optimal Urban Forms, *Journal of Regional Science*, 14(2), 217-231.
* Meyer, M. D. & Miller, E. J. (2013). *Urban Transportation Planning* (3rd ed.) - Chapter 6: Urban Activity System Analysis - Section 6.4: Land Use Models.
* Rodrigue, J. P. (2013). *The Geography of Transport Systems* (3rd ed.) - Chapter 6: Urban Transportation - Urban Land Use and Transportation, Available Online at: <https://people.hofstra.edu/geotrans/index.html>
* Torrens, P. M. (2000). *How Land Use – Transportation Models Work*, Centre for Advanced Spatial Analysis [CASA], Working Paper No. 20, London: UCL – Section 3: Model Classification and Section 4: Descriptive and Analytical Urban Models.

**Recommended readings:**

* Johnston, R. A., Shabazian, D. R. & Shengyi, G. (2003). UPlan: A Versatile Urban Growth Model for Transportation Planning. *Transportation Research Record*, 1831, 202-209.
* Krueckeberg, D. & Silver, A. (1974). *Urban Planning Analysis: Methods and Models*, New York: Wiley and Sons – Chapters 10: Land Use and Transportation Models.
* Ochs, J. (1969). An Application of Linear Programming in Urban Spatial Organization, *Journal of Regional Science*, 9(3), 451-457.
* **Week 05 – 02/16/2017** **Land Use Modeling I: Land Suitability Models**

**Instructor’s PPT 5 — Suitability/Ecology & Environment**

**Required readings:**

* Anjomani, A., Zarin, B., Dolati, H., & Jackson, L. (2012). *Toward Implementation of the Anjomani Integrated Land Use Transportation Model in the DFW Demographic Forecasting Area*, Technical Report 2009-3-NCTCOG, Prepared for the North Central Texas Council of Governments through the Center for Transportation Research, The University of Texas at Austin - Chapter 4: Land Suitability/Development Potentials Sub-Model.
* Wang, X., & Hofe, R. (2007). *Research Methods in Urban and Regional Planning*. Springer Science & Business Media – Chapter 6: Land Use Analysis - Section 6.4: Land Suitability Analysis.
* Kockelman et al. (2008). *An Examination of Land Use Models, Emphasizing UrbanSim, TELUM, and Suitability Analysis, TxDOT Report* – Chapter 4: Review of Suitability Models and Their Potential Contribution.
* **Week 06 – 02/23/2017** **Land Use Modeling II: Lowry Type Models**

**Instructor’s PPT 6 — Lowry/Econ Dev**

**Required readings:**

* Briassoulis, H. (2000). *Analysis of Land Use Change: Theoretical and Modeling Approaches*. - Chapter 4: Integrated Models - Section 4.6.2A: The Lowry Model and Garin’s Versions. Available Online at <http://www.rri.wvu.edu/webbook/briassoulis/contents.htm>
* Reif, B., & Balyss, D. (1973). *Models in Urban and Regional Planning*, New York: Intertext Educational Publishers. – Chapter 12: A Model of Metropolis.
* Horowitz, A. J. (2004). Lowry-type Land Use Models. in D. A. Hensher, K. J. Button, K. E. Haynes, and P. R. Stopher (eds.), *Handbook of Transport Geography and Spatial Systems,* (167- 183), Amsterdam: Pergamon.
* Meyer, M. D. & Miller, E. J. (2013). *Urban Transportation Planning* (3rd ed.) - Chapter 6: Urban Activity System Analysis - Section 6.4: Land-Use Models.
* Rodrigue, J. P. (2013). *The Geography of Transport Systems* (3rd ed.), available online at: <https://people.hofstra.edu/geotrans/index.html> - Appendix: Methods in Transport Geography – The Lowry Model.

**Recommended readings:**

* Lee, D. B. (1973) Requiem for Large-Scale Models, *American Institute of Certified Planners Journal*, 39(3), pp. 163-178.
* **Week 07 – 03/02/2017** **Land Use Modeling III: The New Generation of Integrated Urban Models**

**Instructor’s PPT 7 — Selected Integrated Models**

**Required readings:**

* Hunt, J. D., Kriger, D. S., & Miller, E. J. (2005). Current Operational Urban Land Use-Transport Modelling Frameworks: A Review. *Transport Reviews*, 25(3), 329-376.
* Kockelman et al. (2008). *An Examination of Land Use Models, Emphasizing UrbanSim, TELUM, and Suitability Analysis, TxDOT Report* – Chapter 3: Investigation of Land Use Model Requirements and Compatibility with Existing TxDOT Data and Methods.
* Waddell, P. (2011). Integrated Land Use and Transportation Planning and Modelling: Addressing Challenges in Research and Practice. *Transport Reviews*, 31(2), 209-229.
* Wegener, M. 2014. Land-use transport interaction models. In Handbook of Regional Science, edited by M. Fischer and P. Nijkamp. Berlin: Springer
* Wegener, M. (2004). Overview of Land Use Transport Models. in D. A. Hensher, K. J. Button, K. E. Haynes, and P. R. Stopher (eds.), *Handbook of Transport Geography and Spatial Systems,* (128- 146), Amsterdam: Pergamon.

**Recommended readings:**

* Johnston, R. A., & McCoy, M. C. (2006). *Assessment of Integrated Transportation/land use Models*. Information Center for the Environment, Department of Environmental Science and Policy, University of California at Davis.
* Lacono, M., Levinson, D. & El-Geneidy, A. (2008). Models of Transportation and Land Use Change: A Guide to the Territory*. Journal of Planning Literature*, 22(4), 323-340.
* **Week 08 – 03/09/2017** **Land Use Modeling III: The New Generation of Integrated Urban Models**

**Instructor’s PPT 8 — PECAS/Anjomani Model**

**Required readings:**

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

* Varunraj, V., Kockelman, K., Duthie, J., & Zhou, B. (2007). *Forecasting Employment & Population in Texas: An Investigation on TELUM Requirements, Assumptions, and Results, including a Study of Zone Size Effects, for the Austin and Waco Regions*. Austin: University of Texas Austin.

**MEPLAN**

* Abraham, J. E. (1998). *A Review of the MEPLAN Modelling Framework from a Perspective of Urban Economics.* University of Calgary. Department of Civil Engineering.
* Echenique, M. (2001) *Transport and Land-Use Interaction Part A: Integrated Modeling Methodology, Report EUR 20124 EN*, Joint Research Center: European Commission.

**TRANUS**

* Johnston, R. A., & De La Barra, T. (2000). Comprehensive Regional Modeling for Long-range Planning: Linking Integrated Urban Models and Geographic Information Systems. *Transportation Research Part A: Policy and Practice*, 34(2), 125-136.

**PECAS**

* Hunt, J. D. & Abraham, J. E. (2003). *Design and Application of the PECAS Land Use Modelling System*. Paper presented at the 8th International Conference on Computers in Urban Panning and Urban Management, Sendai, Japan.

**Anjomani Model**

* Anjomani, A., Zarin, B., Dolati, H., & Jackson, L. (2012). *Toward Implementation of the Anjomani Integrated Land Use Transportation Model in the DFW Demographic Forecasting Area*, Technical Report 2009-3-NCTCOG, Prepared for the North Central Texas Council of Governments through the Center for Transportation Research, The University of Texas at Austin.
* Kockelman, K., Anjomani, A., Paul, B. M., Nostikasari, D., Tayyebi, A., & Kharel, G. (2010). *Design and Application of Accessible Land-use Modeling Tools for Texas Regions* (No. 5-5667-01-1). University of Texas at Austin. Center for Transportation Research.

**Recommended readings:**

* Briassoulis, H. (2000). *Analysis of Land Use Change: Theoretical and Modeling Approaches*. - Chapter 4: Section 4.6.3.A: Urban/Metropolitan Level Simulation Models. Available Online at <http://www.rri.wvu.edu/webbook/briassoulis/contents.htm>
* Hunt, J., Johnston, R., Abraham, J., Rodier, C., Garry, G., Putman, S., & De La Barra, T. (2001). Comparisons from Sacramento Model Test Bed. *Transportation Research Record: Journal of the Transportation Research Board*, (1780), 53-63.
* Pignataro, L., Wen, J., Burchell, R., Lahr, M., & Strauss-Wieder, A. (1998). Transportation Economic and Land Use System. *Transportation Research Record: Journal of the Transportation Research Board*, (1617), 84-89.
* **03/16/2017** **SPRING BREAK**
* **Week 09 – 03/23/2017** **Section 1:** **Land Use Modeling III: The Multinomial Logit Models**

**Instructor’s PPT 9 — UrbanSim**

**Required readings:**

**Transims**

* Smith, L. (1995) TRANSIMS - Transportation Analysis and Simulation System, Los Alamos National Library, New Mexico.

**UrbanSim**

* Kockelman et al. (2008). *An Examination of Land Use Models, Emphasizing UrbanSim, TELUM, and Suitability Analysis, TxDOT Report* – Chapters 5: Integration of Land Use Models with Travel Demand – Chapter 6: Use of TELUM – Chapter 7: Establish Calibration and Validation Procedures for Integrated Models – Chapter 8: Demonstration of System Integration, Modeling Approach, and Calibration Procedures Modeling (TDM) Procedures.
* Waddell, P., & Ulfarsson, G. F. (2004). Introduction to Urban Simulation: Design and Development of Operational, in D. A. Hensher, K. J. Button, K. E. Haynes, and P. R. Stopher (eds.), *Handbook of Transport Geography and Spatial Systems,* (203- 236), Amsterdam: Pergamon.
* Waddell, P. (2002). UrbanSim: Modeling Urban Development for Land Use, Transportation and Environmental Planning. *Journal of the American Planning Association*, 68 (3), 297-314.

**Recommended readings:**

* Anas, A. (1981). The Estimation of Multinomial Logit Models of Joint Location and Travel Mode Choice from Aggregated Data. *Journal of Regional Science*, 21(2), 223-242.
* An Open Source Transportation Modeling and Simulation Toolbox. Available Online at <https://code.google.com/p/transims>

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

**Recommended readings:**

* Jantz, C. A., Goetz, S. J., & Shelley, M. K. (2003). Using the SLEUTH Urban Growth Model to Simulate the Impacts of Future Policy Scenarios on Urban Land Use in the Baltimore-Washington Metropolitan Area. *Environment and Planning B*, 30, 251-271.
* Landis, J. D. (1995). Imagining Land Use Futures: Applying the California Urban Futures Model. *Journal of the American Planning Association*, 61(4), 438-457.
* Landis, J., & Zhang, M. (1998). The Second Generation of the California Urban Futures Model. Part 1: Model Logic and Theory. *Environment and Planning B*, 25, 657-666.
* Landis, J., & Zhang, M. (1998). The Second Generation of the California Urban Futures Model. Part 2: Specification and Calibration Results of the Land-use Change Submodel. *Environment and Planning B*, 25, 795-824.
* Miller, E., Kriger, D., & Hunt, J. D. (1999). Research and Development Program for Integrated Urban Models. *Transportation Research Record: Journal of the Transportation Research Board*, (1685), 161-170.
* Oguz, H., Klein, A. G., & Srinivasan, R. (2007). Using the SLEUTH Urban Growth Model to Simulate the Impacts of Future Policy Scenarios on Urban Land Use in the Houston-Galveston-Brazoria CMSA. *Research Journal of Social Sciences*, 2(1), 72-82.
* **Midterm Examination** will be made available online through Blackboard on **Mar 24** and the due date is **Apr 02, 11:59 pm**.

**PART II | TRANSPORTATION AND FOUR STEP MODELING PROCESS**

* **Week 10 – 03/30/2017** **Introduction to Transportation Modeling**

**Instructor’s PPT 10 — Travel Demand Modeling and Data Collection**

**Required readings:**

* Dickey, J. W. (1983). *Metropolitan Transportation Planning* (2nd ed.), New York: McGraw Hill – Chapter 7: Travel Demand – Section 7.1: Metropolitan Passenger Travel - Section 7.2: The Travel Estimation Process.
* McNally, M. G. (2007). The Four-Step Model. In: Hensher D. A., & Button K. J. (eds.), *Handbook of Transport Modeling* (2nd ed.)(pp. 35-52), Oxford: Pergamon – Chapter 3: The Four Step Model.
* Meyer, M. D. & Miller, E. J. (2013). *Urban Transportation Planning* (3rd ed) - Chapter 5: Demand Analysis - Section 5.1: The Role of Demand Analysis in Transportation Planning – Section 5.2: Analysis of Transportation Demand - Section 5.3: Simplified Demand Estimation Techniques - Section 5.4: The Four-Step Model.
* **Week 11 – 04/06/2017** **Data Collection and Analysis Techniques: Origin-Destination Surveys**

**Instructor’s PPT 11 — Trip Generation**

**Required readings:**

* Chang, C. L. & Meyers, D. T. (1999). Transportation Models, in: Edwards, J. D. (ed.) *Transportation Planning Handbook (2nd ed.)*. Washington DC: Institute of Transportation Engineers [ITE] – Chapter 6: Transportation Models.
* Stopher, P. R., & Meyburg, A. H. (1979). *Survey Sampling and Multivariate Analysis for Social* Scientists *and Engineers.* MA: Lexington Books – Chapters 2: Review of Data Needs and Sources of Error - Chapter 3: Design of Sampling Procedures.
* Dickey, J. W. (1983). *Metropolitan Transportation Planning (2nd ed.)*, New York: McGraw Hill. – Chapter 7: Models III: Travel Demand - Section 7.3: Trip Generation.
* Wang, X., & Hofe, R. (2007). *Research Methods in Urban and Regional Planning*. Springer Science & Business Media – Chapter 7: Travel Demand Modeling - Section 7.4.1: Trip Generation.
* **Week 12 – 04/13/2017** **Trip Distribution Models**

**Instructor’s PPT 12 — Trip Distribution Models**

**Required readings:**

* Dickey, J. W. (1983). *Metropolitan Transportation Planning (2nd ed.)*, New York: McGraw Hill. – Chapter 7: Models III: Travel Demand - Section 7.4: Trip Distribution Models.
* Wang, X., & Hofe, R. (2007). *Research Methods in Urban and Regional Planning*. Springer Science & Business Media – Chapter 7: Travel Demand Modeling - Section 7.4.2: Trip Distribution.
* **Week 13 – 04/20/2017** **Mode Choice Models**

**Instructor’s PPT 13 — Mode Choice Models**

**Required readings:**

* Ben-*Akiva*, M. and Lerman, S.R. (1985). *Discrete Choice Analysis: Theory and Application to Travel Demand*. MA: MIT Press – Chapter 3: Theories of Individual Choice behavior – Chapter 4: Binary Choice Models.
* *Dickey*, J. W. (1983). *Metropolitan Transportation Planning (2nd ed.)*, New York: McGraw Hill. – Chapter 7: Models III: Travel Demand - Section 7.5: Mode Choice.
* *Wang*, X., & Hofe, R. (2007). *Research Methods in Urban and Regional Planning*. Springer Science & Business Media – Chapter 7: Travel Demand Modeling - Section 7.4.3: Mode Choice.

**Recommended readings:**

* *Anas*, A. (1983). Discrete Choice Theory, Information Theory and the Multinomial Logit and Gravity Models. *Transportation Research Part B: Methodological*, 17(1), 13-23.
* *Haynes*, K. E., & Fotheringham, A. S. (1984). *Gravity and Spatial Interaction Models,* Scientific Geography Series 2. Beverly Hills: Sage publications.
* *Lour*, J. & Anjomani, A. (2002) Modal Choice Analysis for Multicenter Cities - The Case of Dallas-Fort Worth Metropolitan Area, *Unpublished*.
* McFadden, D. L. (2002). The Path to Discrete-Choice Models. *Access Magazine*, 1(20). 2-7.
* Walker, J. L. (2011). Beyond Rationality in Travel Demand Models. *Access Magazine*, 1(39). 8-15.
* **Week 14 – 04/27/2017** **Traffic Assignment Models and System Evaluation**

**Instructor’s PPT 14 — Assignment Models**

**Required readings:**

* Dickey, J. W. (1983). *Metropolitan Transportation Planning (2nd ed.)*, New York: McGraw Hill. – Chapter 7: Models III: Travel Demand - Section 7.6: Trip Assignment.
* Stopher, P. R., & Meyburg, A. H. (1979). *Survey Sampling and Multivariate Analysis for Social Scientists and Engineers.* MA: Lexington Books – Chapter 10: Network Assignment - Chapter 11: Transportation Plan Evaluation.
* Wang, X., & Hofe, R. (2007). *Research Methods in Urban and Regional Planning*. Springer Science & Business Media – Chapter 7: Travel Demand Modeling - Section 7.4.4: Trip Assignment.

**Recommended readings:**

* Beukers, E., Bertolini, L., & Te Brömmelstroet, M. (2012). Why Cost Benefit Analysis is Perceived as a Problematic Tool for Assessment of Transport Plans: A Process Perspective. *Transportation Research Part A: Policy and Practice*, 46(1), 68-78.
* Mackie, P., & Preston, J. (1998). Twenty-one Sources of Error and Bias in Transport Project Appraisal. *Transport Policy*, 5(1), 1-7.
* Zhou, Z., Chen, A., & Wong, S. C. (2009). Alternative Formulations of a Combined Trip Generation, Trip Distribution, Modal split, and Trip Assignment Model. *European Journal of Operational Research*, 198(1), 129-138.
* **Week 15 – 05/04/2017** **Course Review and Wrap-up Discussions**
* **Final Paper is due May 05, 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/aao/fao/](http://wweb.uta.edu/aao/fao/)).

**Disability Accommodations**

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. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

**Counseling and Psychological Serv­ices, (CAPS)** [www.uta.edu/caps/](http://www.uta.edu/caps/) or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

**Non-Discrimination Policy:**

*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://www.uta.edu/hr/eos/index.php)*.*

**Title IX Policy**

The University of Texas at Arlington (“University”) is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. For information regarding Title IX, visit [www.uta.edu/titleIX](http://www.uta.edu/titleIX) or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or [jmhood@uta.edu](file:///\\iridium\classes\cirp%205309\2017%20PLAN%205309\Syllabus\jmhood@uta.edu).

**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>.

**Campus Carry**

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>

**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 and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. 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.

**The IDEAS Center**

(2nd Floor of Central Library) offers free tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. To schedule an appointment with a peer tutor or mentor email [IDEAS@uta.edu](mailto:IDEAS@uta.edu) or call (817) 272-6593.

**The English Writing Center (411LIBR)**

The Writing Center Offers free tutoring in 20-, 40-, or 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Our hours are 9 am to 8 pm Mon.-Thurs., 9 am-3 pm Fri. and Noon-6 pm Sat. and Sun. Register and make appointments online at http://uta.mywconline.com. Classroom Visits, workshops, and specialized services for graduate students are also available. Please see [www.uta.edu/owl](http://www.uta.edu/owl) for detailed information on all our programs and services. The Library’s 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library’s hours of operation. <http://library.uta.edu/academic-plaza>.