**CE 6306: Transit Planning & Operations**

**Spring 2018**

**MW 4-5:20 PM (COBA 256)**

**Instructor:** Sia Ardekani

**Office Number:** 434 Nedderman Hall

**Office Telephone Number:** 817-272-3762

**Email Address:** Ardekani@uta.edu

**Faculty Profile:** [**http://www.uta.edu/ce/facultyintro.php?id=2**](http://www.uta.edu/ce/facultyintro.php?id=2)

**Office Hours:** Tuesdays 9 AM-12 Noon and 1-5 PM or by appointment

**Section Information** Sec.001, #30286 & Sec 101, #30133

**Time and Place of Class Meetings:** MW 4-5:20 PM, COBA 256

**Course Content:** Theory and application of technologies used for transit demand analysis, routing, scheduling, evaluation, crew assignment, maintenance strategies, and management. Land-use impact on public transit policy and operation is also introduced.

**Student Learning Outcomes:**

1. To command basic and applied knowledge of Transportation Planning and Engineering principles,
2. To demonstrate the mastery of the theory and application of transportation models beyond the fundamental knowledge gained in undergraduate courses,
3. To conduct independent and original study involving gathering, analysis, and interpretation of data,
4. To present scientific results in both written and oral format

**Techniques, Skills and Modern Engineering Tools Used in this Course:**

Regression Modeling, Excel Data Analysis Module

**Prerequisites:** CE 4311 or CE 5337 or equivalent

**Required Textbook:** None

**Major assignments and examinations:** Homework assignments, in-class exam, term project, written and oral presentations. All homework assignments must be turned in at the start of the class. If submitted electronically (allowed for Distance Learning students only), they must be submitted prior to the class period they are due. Failure to do so will constitute a grade of zero for the homework assignment. One week of advanced notice will be provided in scheduling the in-class exam. Failure to appear for the exam at its scheduled time will constitute a grade of zero in the exam. There will be a term project in lieu of the final exam. The term project entails field data collection, data analysis, and written and in-class oral reports. Distance learning students are required to attend class in person on the day of the exam and on when their presentations are scheduled.

**Attendance Policy:** Attendance is not mandatory; however, no special accommodations will be made for incomplete or missed assignments and exams due to unexcused absences.

**Grading Policy:** Homework (30%), In-class exam (35%),

Term project written report (30%), Project oral presentation (5%).

The overall course grade will be based on the composite grade, as follows:

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| **Composite Grade, X** | **Course grade** |
| X≥90 | A |
| 80≥X<90 | B |
| 70≥X<80 | C |
| 60≥X<70 | D |
| X<60 | F |

**Make-up Exam Policy**: No make-up exams are given except for medical or other similar hardships where advanced arrangements are made with the instructor; or in case of non-selective medical emergencies with appropriate physician’s note or documentation. Other than circumstances described above, failure to take the exam at the scheduled time will constitute a grade of zero in the exam.

**Grade Grievance Policy**: Grade grievances will be handled according to the policy described in the College of Engineering portion of the Catalog.

**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://wweb.uta.edu/aao/fao/>).

**Americans with Disabilities Act:** The University of Texas at 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)*. 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 that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. 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.

**Academic Integrity:** It is the philosophy of The University of Texas at Arlington that academic dishonesty is a completely unacceptable mode of conduct and will not be tolerated in any form. All persons involved in academic dishonesty will be disciplined in accordance with University regulations and procedures. Discipline may include suspension or expulsion from the University. According to the UT System Regents’ Rule 50101, §2.2, "Scholastic dishonesty includes but is not limited to cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts."

**Student Support Services Available:** The University of Texas at Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. These resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals to resources for any reason, students may contact the Maverick Resource Hotline at 817-272-6107 or visit [www.uta.edu/resources](http://www.uta.edu/resources) for more information.

**Electronic Communication Policy:** The University of Texas at Arlington has adopted the University “MavMail” address as the sole official means of communication with students. MavMail is used to remind students of important deadlines, advertise events and activities, and permit the University to conduct official transactions exclusively by electronic means. For example, important information concerning registration, financial aid, payment of bills, and graduation are now sent to students through the MavMail system. All students are assigned a MavMail account. ***Students are responsible for checking their MavMail regularly.*** Information about activating and using MavMail is available at <http://www.uta.edu/oit/email/>. There is no additional charge to students for using this account, and it remains active even after they graduate from UT Arlington.

To obtain your NetID or for logon assistance, visit <https://webapps.uta.edu/oit/selfservice/>. If you are unable to resolve your issue from the Self-Service website, contact the Helpdesk at helpdesk@uta.edu.

**Student Feedback Survey:** At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a 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. Classes are held as scheduled during this week and lectures and presentations may be given.

**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 at the end of the hallway to the left of the classroom. 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 handicapped individuals.

**References:**

1. Canadian Transit Handbook, The Urban Transit Association of Canada, 3rd Ed., 1993 (on 24-hour reserve).

2. Gray, G.E. & Hoel, L.A., Urban Transit: Systems and Technology, John Wiley & Sons, 2007.

3. Dickey, J.W., Metropolitan Transportation Planning, 2nd Ed., McGraw Hill, 1983 (library call# HE305 .M47).

4. Vuchic, V.R., Urban Public Transportation, Prentice Hall, 1981 (call# HE4211 .V83).

5. Lam, W.H.K. & Bell, M.G.H., Advanced Modeling for Transit Operations and Service Planning, Elsevier Science, 2003 (ISBN:0-08-044206-4).

6. Domencich, T.A. & D. McFadden, Urban Travel Demand: A Behavioral Analysis, North-Holland, 1975 (call# HE336.C5 D65).

7. Manheim, M., Fundamentals of Transportation Systems, MIT Press, 1979 (call# HE199.9 .M34).

8. Highway Capacity Manual, Transportation Research Board, 5th Ed., 2010.

9. Larson, R. & A. Odoni, Urban Operations Research, Prentice Hall, 1980.

10. Tyler, N., Accessibility and the Bus System, Thomas Telford Ltd, 2002 (call#TA 1225 .A24).

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| **Topic** | **Hours** | **Recommended Reading** |
| Legislation and Financing | 2 | Ref.1/Ch.4  Ref.3/pp.495-502 |
| Mass Transit Systems | 2 | Ref.1/Chs.3,9&10 |
| Intelligent Transit Concepts | 2 | Handout |
| Demand Analysis | 2 | Ref.1/Chs.5&7  Ref.6/Chs.1&2  Ref.7/Chs.2,3&4 |
| Demand Estimation  Corradino's  Buttke's  UMTA Sketch Planning | 2  2  4 | Ref.1/Ch.7  Handout  Handout  Ref.3/pp.178-210 & Handout |
| Transit Routing | 4 | Ref.1/Chs.6&14  Ref.5/Ch.2  Ref.9/Ch.6 |
| Bus Stops & Terminals | 2 | Ref.1/Ch.8 |
| Transit Capacity | 5 | Ref.1/Chs.3&15  Ref.8/Ch.12 |
| Scheduling | 6 | Ref.1/Chs.11&15  Ref.5/Ch.3  Ref.9/Ch.2 |
| Cost Estimation & Analysis | 4 | Ref.1/Chs.4,12&16 |