Florida Atlantic University

School of Urban and Regional Planning

Course: URP 4712

RI: Shared and Automated Transport: Current Trends

Syllabus last updated April 17, 2020

Basic Course Information

Shared and Automated Transport: Current Trends
Urban and Regional Planning 4712
Credit Hours: 3
Mondays 6:30-9:20 PM
Classroom: 285 Social Sciences (SO 44)
Spring 2020, Jan. 11th – May 8th

Primary Instructor:
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Office: 284I, College of Design and Social Inquiry (SO)
Office Hours: Fridays 2:30-4:00 PM or by appointment

Course Description and Goals

Shared and Automated Transport will engage students with the current state of knowledge regarding emerging shared and automated transport modes, drawing from information about current professional practices as well as the research literature. As a seminar-style course, students will engage in readings, discussions, and presentations to learn about these new modes and grapple with the emerging policy and planning issues surrounding them.

Shared modes include car sharing, bike sharing, ride sourcing/ride hailing, ride sharing, demand responsive transit, and more. Automated modes include semi-automated and fully automated vehicles (self-driving cars, but also self-driving buses, etc.) operating on public roadways or on dedicated guideways. We will also discuss connected vehicles, where vehicles transmit real-time information to each other and to surrounding infrastructure to improve safety and traffic flow.

Topics will include trends in shared and automated mobility, their observed and expected impacts on the transportation system and the environment, and the potential integration of these new modes with public transit.

As an advanced, seminar-style course, students will have the opportunity to engage directly with the most recent knowledge on shared and automated transport modes. Students will develop a detailed case study of an existing shared mode and present the results of their case study to the class. Students will also conduct a literature review on a topic of their own choosing.

This course contains an assignment or multiple assignments designed to help students conduct research and inquiry at an intensive level. If this class is selected to participate in the university-wide assessment

program, students will be asked to complete a consent form and submit electronically some of their research assignments for review. Visit the Office of Undergraduate Research and Inquiry (OURI) for additional opportunities and information at http://www.fau.edu/ouri.

The goals of the Shared and Automated Transport course are:

- Learn about the current state of emerging shared transportation modes, including operational and user characteristics
- Learn about the current state and anticipated future state of automated and connected transport modes
- Understand the range of potential implications of shared and automated modes in terms of the sustainability and environmental impacts
- Identify and discuss the policy and planning challenges surrounding shared and automated modes
- Develop basic research skills for independent inquiry into transportation policy issues
- Discuss economic, social, and cultural factors in urban growth and change in relation to emerging transportation technologies and systems

Required Text

Sperling, D. (2018). Three revolutions: Steering automated, shared, and electric vehicles to a better future. Washington DC: Island Press.

Research Intensive Course Designation (RI) and Requirements

This course contains an assignment or multiple assignments designed to help students conduct research and inquiry at an intensive level. If this class is selected to participate in the university-wide assessment program, students will be asked to complete a consent form and submit electronically some of their research assignments for review. Visit the Office of Undergraduate Research and Inquiry (OURI) for additional opportunities and information at http://www.fau.edu/ouri.

Student Learning Outcomes

The research project is designed to achieve all six of the following Student Learning Outcomes (SLOs):

SLO 1: Knowledge. Students are expected to demonstrate content knowledge, and knowledge of core principles and skills.

SLO 2: Formulate Questions. Students are required to formulate research questions, scholarly or creative problems in a manner appropriate to the planning discipline.

SLO 3: Plan of Action. Students are expected to develop and implement a plan of action to address research and inquiry questions or scholarly problems.

SLO 4: Critical Thinking. Students are expected to apply critical thinking skills to evaluate information, their own work, and the work of others.

SLO 5: Ethical Conduct. Students are expected to identify significant ethical issues in research and inquiry and/or address them in practice.

SLO 6: Communication. Students will convey all aspects of their research and inquiry (processes and/or products) in appropriate formats, venues, and delivery modes.

Course Policies

Attendance Policy

Students are expected to attend all of their scheduled University classes and to satisfy all academic objectives as outlined by the instructor. The effect of absences upon grades is determined by the instructor, and the University reserves the right to deal at any time with individual cases of non-attendance.

Students are responsible for arranging to make up work missed because of legitimate class absence, such as illness, family emergencies, military obligation, court-imposed legal obligations or participation in University-approved activities. Examples of University-approved reasons for absences include participating on an athletic or scholastic team, musical and theatrical performances and debate activities. It is the student's responsibility to give the instructor notice prior to any anticipated absences and within a reasonable amount of time after an unanticipated absence, ordinarily by the next scheduled class meeting. Instructors must allow each student who is absent for a University-approved reason the opportunity to make up work missed without any reduction in the student's final course grade as a direct result of such absence.

Cell phone and laptop use during class time is not permitted, except when these resources are being used for a specific in-class exercise. We need you to be fully present to improve the learning experience for everyone. Your ideas are important and so I need you to be fully engaged during class time.

Complete all reading assignments in advance of the class. As a seminar-based course, we cannot have productive dialogue unless everyone has completed the readings in advance.

All assignments should be turned in on time or your grade will be penalized. Homework assignments will be penalized one letter grade per day late, with the first late day beginning at the time when the assignment is due. **If an assignment is 10 days late, it automatically becomes a 0**. If you know you cannot meet a deadline, you should inform me well in advance and make a specific proposal about when you can complete the assignment by. I will allow for a certain amount of flexibility for those who plan and notify me in advance of difficult scheduling situations.

Respect for Diversity Statement

Our classroom and our university should always be spaces of mutual respect, kindness, and support for individuals regardless of race/ethnicity, nationality, gender, class, sexuality, religion, culture, age, or ability. It is expected that this be demonstrated in all written and verbal communications from the instructor to all students, from all students to their instructor, and between all students in the course.

Freedom from Discrimination, Harassment, and Violence

Should you ever need assistance or have concerns about discrimination, harassment, or violence, please access the resources available to you on campus. Please note that, because FAU faculty are considered "responsible employees" by the Department of Education, any disclosure of gender discrimination (including sexual harassment, sexual misconduct, and sexual violence) made to a faculty member must

be reported by that faculty member to the university's Title IX coordinator. For more information on the campus policy regarding sexual misconduct, please see: http://www.fau.edu/eic/title-ix/.

Communication with the Instructor

All communications with the instructor (and with other students) should be professional in tone. Address people by their name (and title where appropriate), use complete sentences, and take the time to use correct grammar in email exchanges.

Please do not assume I am on call all day and night to answer questions! In general, I will respond to email inquiries within 24 hours. Before assignment deadlines and tests, I will try to respond to queries submitted before 9 PM on the day before these come due.

In addition, I am happy to meet with students to talk about general professional and academic concerns beyond the scope of this course during office hours. When we are talking about material outside the course, you may address me more informally.

Accommodation for Students with Disabilities

In compliance with the Americans with Disabilities Act Amendments Act (ADAAA), students who require reasonable accommodations due to a disability to properly execute coursework must register with Student Accessibility Services (SAS) and follow all SAS procedures. SAS has offices across three of FAU's campuses – Boca Raton, Davie and Jupiter – however disability services are available for students on all campuses. For more information, please visit the SAS website at www.fau.edu/sas/.

It is a goal of this class to ensure that all students are encouraged to participate and engage as fully as possible. Therefore, if you have a physical or learning disability that requires accommodations, please let me know.

Religious Observances

If you have a religious observance that conflicts with required course activities, please let me know as soon as possible.

Mental Health

Life as a university student can be challenging physically, mentally and emotionally. Students who find stress negatively affecting their ability to achieve academic or personal goals may wish to consider utilizing FAU's Counseling and Psychological Services (CAPS) Center. CAPS provides FAU students a range of services – individual counseling, support meetings, and psychiatric services, to name a few – offered to help improve and maintain emotional well-being. For more information, go to http://www.fau.edu/counseling/

If you are unsure of where to seek help, please feel free to ask me and I will help you find the right venue for assistance. If you are undergoing a mental health issue and personal crisis and it is affecting your work in this course, please let me know in a way that is comfortable for you. You do not have to share the personal details of your situation to let me know that family or outside personal issues are impacting your ability to perform in this class.

Academic Integrity

Your assignments should be predominantly written in your own words. If you use outside sources of information for ideas of information, they should be cited. If you use sentences or significant portions of words taken verbatim from sources, they must be quoted and cited.

Students at Florida Atlantic University are expected to maintain the highest ethical standards. Academic dishonesty is considered a serious breach of these ethical standards, because it interferes with the University mission to provide a high-quality education in which no student enjoys an unfair advantage over any other. Academic dishonesty is also destructive of the University community, which is grounded in a system of mutual trust and places high value on personal integrity and individual responsibility. Harsh penalties are associated with academic dishonesty. For more information, see the Code of Academic Integrity in the University Regulations at

http://www.fau.edu/regulations/chapter4/4.001_Code_of_Academic_Integrity.pdf.

Outside of exams, all assignments are "open book" and you may discuss them with anyone, including the primary instructor, in order to solicit general ideas and advice. You may discuss with your fellow students, how to approach an assignment, what data sources to use, what steps to pursue in data analysis, and so forth.

If you are unsure if your approach to an assignment or a test constitutes academic dishonesty, please consult with the instructor.

Assignments and Grading

Your grade will be comprised of the following:

Grade Component	Percentage
Participation	20%
Reading Summaries	20%
Shared Mobility Profile	30%
Literature Review Paper	30%
Research Intensive Subtotal	*60%*
Total	100%

Participation will be graded through attendance and participation in course discussions.

Every student will hand in 10 **Reading Summaries** during the course. Any assigned readings of **5 pages or more** can be the subject of a reading summary. Reading summaries must be printed and handed in at the start of class, though you should bring a second copy to refer to during class.

The **Shared Mobility Profile** will be a presentation of an existing shared mobility system based upon your research. Primary research (i.e. a site visit) and secondary research should be completed where possible. The goal is to provide an overview of the current state of a shared mobility service and its opportunities and challenges for the future. A short written report should accompany the presentation.

The **Literature Review Paper** will be a paper investigating a topic of the student's choice. A literature review to assess the current state of knowledge is required. Students will summarize what is known

through the existing literature and also identify important research questions that have not yet been answered by the literature.

Integration of SLOs and Research Assignments

SLOs	Assignment Requirements and Assessments
SLO-1: Knowledge	Students will demonstrate knowledge of transportation planning, including emerging shared mobility modes and the travel behavior associated with these modes. Students will be able to articulate formally defined levels of vehicle automation and the challenges in bringing automated vehicles into general public use. Students will be capable of discussing the policy concerns regarding shared and automated modes from local and state regulatory perspectives.
SLO-2: Formulate Questions	Students will formulate their own research question in consultation with the instructor as part of their Literature Review assignment. Their research questions must address an as yet unanswered aspect of either shared or automated mobility modes. In addition, for the shared mobility profile assignment, students will formulate their own questions about the user experience, operations, business concept, and issues of a particular shared mobility system.
SLO-3: Plan of Action	Again, students develop a plan of action for both the Literature Review and for the Shared Mobility Profile. For the Literature Review, they identify likely databases for finding relevant literature and develop a list of search terms in consultation with a librarian. For the Shared Mobility Profile, students develop a plan of investigation, including likely places to find written sources, a possible site visit, and one or more interviews.
SLO-4: Critical Thinking	Students will demonstrate critical thinking by evaluating the literature surrounding their Literature Review research question both identifying what is known and what is omitted from the current literature. The course guides students through a template that they can use to evaluate current literature including its findings, its methods, and its limitations. Students also formulate recommendations for the shared mobility system they profile, synthesizing their applied research into practical policy recommendations.
SLO-5: Ethical Conduct	Students will read, review, and discuss the code of ethics of the American Institute of City Planners (AICP) and specifically discuss its applicability to applied professional research. Students will also be introduced to basic concepts of research ethics relating to the social sciences and the role of the Institutional Review Board in ensuring ethics in research.
SLO-6: Communication	Students must produce three research products during this course. One is a formal literature review, which must adhere to academic standards for written communication including the correct use of citations. The second product is a professional-style report that communicates the information they found in their Shared Mobility Profile in a digestible manner. The third communication element is their in-class presentation about a shared mobility system to their classmates. The visual quality of the Shared Mobility Profile presentation is a key element of their evaluation.

Grading Policy

The primary purpose of grades is to provide you feedback so that you can become better at what you do!

If you want to become better at your work, you will continue to seek feedback and consider it thoughtfully over the course of your entire career. None of us ever reach perfection, and we can always perform better at some aspect of our work. Handling constructive criticism with poise is one of the most important marks of a mature professional.

Grading

Grades will be out of 100 possible points for the Homework, Midterm, and Final. The grade will be created by subtracting off points for each missing and/or incorrect item.

The Meaning of Letter Grades

The grading scheme:

A is for high quality, professional work. This work would satisfy a client or a supervisor in a work setting.

B is the grade for work which mostly meets expectations but is not fully up to professional quality. B+ indicates above average and B- indicates below average.

C is offered when the assignment has been completed but is lacking in some important aspect. For example, the writing is difficult to understand, or the presentation is disorganized, or perhaps an important table shows incorrect statistics.

D reflects a serious shortfall in meeting the assignment's expectations.

F is usually possible only if nothing is handed in, or if it is handed in so late as to be irrelevant. This grade may also be used for work that does not meet basic college-level requirements, i.e. it is not readable.

Schedule

Date	Topic	Readings and Assignments
01/13	History and Definitions for Shared Mobility Research Methods for The Future of Mobility	Dewey Rayle 2016 Lindsay 2018 SUMC 2015 pp. 3-16 SUMC 2017 (webpage)
01/20	MLK Holiday	
01/27	Vehicle Electrification	Three Revolutions, Chapter 2. Electric Vehicles
02/03	Introduction to Vehicle Automation	Three Revolutions, Chapter 4. Vehicle Automation Chronin 2016 (slides) Hughes 2017 Madrigal 2014
02/10	Transportation Network Companies/ Ride-Hailing	Three Revolutions, Chapter 3. Shared Mobility Conway Salon 2018 Davidson 2017 Schneider 2019 Scott 2016
02/17	Bike Sharing and Micromobility	The Belmont Report 1979 DePuis Greiss 2019 CityLab – The Bike Share Boom (webpage) Cohen 2017
02/24	Public Transit and New Mobility	Three Revolutions, Chapter 5, Transit Hanna 2018 Webinar TCRP Research Report 204 Transit and TNC partnerships Woodman 2016
03/02	Public Policies for Shared and Automated Mobility	Three Revolutions, Chapter 6. Equity NACTO 2017 (Data sharing) NACTO 2018 (Shared active transportation) Shaheen Cohen 2018 Small Bliss 2019 SUMC 2017 (Twin Cities Plan) Zipper 2018
03/09	Spring Break	

03/16	Transition to AVs; Public Opinion	Bansal Kockelman 2017 Litman 2014 Schoettle Sivak 2016
03/23	AVs and Safety	Bliss 2018 Kalra 2016 USDOT ITS JPO Connected Vehicle Webpage + Videos US ITS JPO 2016 (Connected Vehicle Pilot Study) US ITS JPO 2017 (DSRC Fact Sheet) **Literature Review Due**
03/30	Shared Automated Vehicles	Merlin 2019 Viegas Martinez 2016
04/06	Environmental Impacts	Haley Kwok 2017 Wadud Marsden 2017 Rodier 2018
04/13	Future for AVs/ Scenario Thinking	Calthorpe Walter 2017 Fulton Mason 2018 Roustan 2018 Whittle 2017 Townsend 2016
04/20	Congestion	Bliss 2017 Dougherty 2017 Hensher 2018 **Shared Mobility Report Due**
04/27	Student Presentations	**Shared Mobility Presentation Due**

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