Syllabus

11.S03 First-Year Discovery Subject:

Transportation shaping sustainable urbanization: connections with behavior, urban economics and planning

This version: August 13th, 2020

Units: 2 (1-0-1)
Subject can count toward the 9-unit discovery-focused credit limit for first-year students
Grading Type: P/D/F
Class meeting time and place: 11am-12:30pm Thursdays; H1; @ https://mit.zoom.us/j/94567146486
Instructors: Fabio Duarte | Senseable City Lab | fduarte@mit.edu
Adriano Borges Costa | Sustainable Urbanization Lab | abcosta@mit.edu

Course Description and Objectives

Notable characteristics of cities are correlated with their historical and current transportation features. Central areas of most European cities created during the pre-modern transportation era are more walkable, dense, and diverse. Auto-oriented North American suburbs sprawled during the massive increase in car ownership. This course introduces students to the theoretical basis and empirical evidence to explore the changes in the built environment expected from transportation investments, and how they can be used to promote sustainable and equitable cities. Along the way, we will reflect on the urban transformation AVs will bring and how shared mobility services are affecting travel behavior, and its implications from an urban planning perspective. Lectures will be interspersed with guest speakers and one field trip.

This 2 units P/NR course proposal was designed to meet the requirement for a First-Year Discovery (FYD) subject. Its main purpose is to introduce students to an urban studies approach to analyze transportation phenomena, putting first-year undergrad students in contact with DUSP faculty and the kind of data, methods and questions mobilized on their research. Students will also be exposed to a real transportation project and its local urban impacts. Transportation serves as one of the cross-cutting research/education areas in DUSP and there is no FYD subject to help undergrad students explore this topic in the department and from an urban planning approach.
Structure and Schedule

Week 1 | 9/3
Topics: Introduction
Theoretical framework
Urban studies approach to analyze transportation phenomena

Week 2 | 9/10
Topics: Transportation shaping US cities and transit-oriented planning
Speaker: Prof. Christopher Zegras
Professor of Mobility and Urban Planning @ DUSP-MIT
Department head @ DUSP-MIT

Week 3 | 9/17
Topics: Transportation and air quality in Chinese cities
Speaker: Prof. Siqi Zheng
Samuel Tak Lee Professor @ DUSP-MIT
Faculty Director, Sustainable Urbanization Lab
Faculty Director, MIT Center for Real Estate

Week 4 | 9/24
Topics: Transportation in Latin America and its impact on built environment
Speaker: Adriano Borges Costa
Post-doc researcher, Sustainable Urbanization Lab
Lead, Global Project on Subway Network and Urban Vibrancy

Week 5 | 10/1
Topics: Autonomous vehicles and new mobility technologies shaping future cities
Speaker: Prof. Fábio Duarte
Lecturer @ DUSP-MIT
Principal Research Scientist, Senseable City Lab

Week 6 | 10/8
Topics: Behavior science and transportation technology shaping travel behavior
Speaker: Prof. Jinhua Zhao
Edward H. and Joyce Linde Professor @ DUSP-MIT
Faculty Director, Urban Mobility Lab