GRADUATE PROGRAMS IN TRANSPORTATION

Mobility and transportation are at the dawn of the most profound changes with an unprecedented combination of new technologies (autonomy, electrification, computation, and AI) meeting new and evolving priorities and objectives (decarbonization, public health, and social justice). And the time frame for these changes —decarbonization in particular—is short in a system with massive amounts of fixed, long-life assets and entrenched behaviors and cultures.

MIT provides students with a broad range of opportunities for transportation-related education to prepare them to address today's pressing transportation challenges. Housed under MIT's Mobility Initiative (*http://mmi.mit.edu*), the transportation program offers courses and classes that span the School of Engineering, the Sloan School of Management, the School of Architecture and Planning, and the Schwarzman College of Computing, with many activities covering interdisciplinary topics that prepare students for future industry, government, or academic careers.

A variety of graduate degrees are available to students interested in transportation studies and research, including the interdepartmental master of science program (MST) and doctoral program in transportation (PhD in Transportation), described below, and the Master of Engineering in Logistics (*http://catalog.mit.edu/interdisciplinary/graduate-programs/supply-chain-management*), described under Supply Chain Management. The MST and PhD in Transportation degrees are managed by MIT's Mobility Initiative and students are registered in the Department of Civil and Environmental Engineering or the Department of Urban Studies and Planning. The interdepartmental structure of these two programs allows students flexibility in developing individual programs of study that are cross-disciplinary and engage students in research with faculty supervisors across many departments.

Opportunities are also available for students to obtain dual master's degrees. Students who wish to pursue this option must follow the regular admissions procedure to be admitted to each degree program. Common dual degree pairings include the Master of Science in Transportation with:

- Master in City Planning
- Master of Science in Electrical Engineering and Computer Science
- Master of Science in Operations Research
- Master of Science in Technology and Policy

Information on requirements for dual degrees can be found in the section on General Degree Requirements for graduate education.

To learn more about current transportation research (*http://mmi.mit.edu/mi-people*) at MIT, visit the Mobility Initiative site.

Master of Science in Transportation

The Master of Science in Transportation (MST) (*https://catalog.mit.edu/degree-charts/master-transportation*) program is based on the premise that a common set of analytical approaches and methodologies can be applied to solve a range of transportation problems. The MST provides a common basis for addressing a wide range of problems while allowing enough flexibility to accommodate students with diverse backgrounds and interests.

Students must complete a program of coursework, plus a research-based master's thesis on a topic of their choosing approved by their thesis supervisor. Coursework includes two required core subjects, at least three additional transportation or related subjects comprising an individually designed program, one policy/technology subject, and a computer programming subject.

Generally, the three subjects chosen for the individually designed program relate to an area of specialization, although this is not required. Common areas of specialization include air transportation, data sciences for transportation, urban transportation, planning methods, logistics, and policy. Some students use the individually designed program to deepen their understanding of a selected area of interest, while others may choose to emphasize breadth rather than depth in their studies. At least one of the selected subjects should address policy or technology. At least two of the designated subjects should be clearly focused on transportation, while the third can be in a field that supports transportation, for example, a subject covering methods used in transportation drawn from fields such as economics, computer science, operations research, political science, or management.

The MST degree usually takes up to two years to complete.

For more information, see the full Master of Science in Transportation program description (*https://cee.mit.edu/education/graduate/graduate-degrees*).

Admission

An undergraduate degree in engineering is not necessary for admission to the Master of Science in Transportation program, but applicants are expected to have an aptitude for analytical thinking. Backgrounds in the physical or social sciences, urban planning, management, and many other disciplines are equally appropriate foundations for the program.

The only specific subjects required for admission are two subjects in calculus, one in economics, and one in probability. One or more of these subjects may be completed simultaneously with application to the program, and acceptance is then conditional on satisfactory completion of these prerequisites. Applicants should have roughly the equivalent of the following MIT subjects:

18.01	Calculus	12
18.02	Calculus	12

14.01	Principles of Microeconomics	12
6.3700	Introduction to Probability	12
or 1.010	Probability and Causal Inference	

Students without an equivalent microeconomics course can be admitted but will have to complete 14.01 Principles of Microeconomics, preferably during their first year in the degree.

Applicants whose native language is not English are required to submit an English Language Exam. Two exams are accepted: the Test of English as a Foreign Language (TOEFL) and the International English Language Testing System (IELTS). Applicants to the Master of Science in Transportation degree program should achieve a score of at least 100 on the TOEFL iBT or 7.5 on the IELTS.

Financial Support

Funding for MST students is usually offered to about 90% of each incoming class. A limited number of fellowships are offered each year, but more often funding takes the form of a research assistantship (RA). A student with RA funding typically works with a faculty member on a research project for 10–20 hours per week. The research that is conducted on that project generally becomes the topic of the student's thesis. RAs are awarded as either a half or full appointment. An award of a full RA (about 20 hours of work per week) covers the student's tuition for the academic year and provides a monthly salary to cover living expenses. A half RA (approximately 10 hours of work per week) covers half of the student's tuition for the academic year and provides half of the regular monthly salary.

Students who are not awarded financial aid at the time of admission may seek funding through other sources.

Doctor of Philosophy in Transportation

The interdisciplinary doctoral program in transportation provides a structured and direct follow-on doctoral program for students enrolled in the Master of Science in Transportation or other transportation-related master's degree programs offered at MIT or elsewhere. Outstanding applicants without a master's degree can also be considered for admission to the doctoral program. The interdisciplinary structure allows students great flexibility in developing individual programs of study that cross both disciplinary and departmental lines. The program is administered by the Transportation Education Committee, which is responsible for admissions, establishment and oversight of program requirements, and conduct of the general examination and dissertation defense.

The interdisciplinary doctoral program in transportation requires completion of at least 120 units of coursework in a program of study proposed by the student, the successful completion of a general examination consisting of both written and oral components, and the submission and defense of an acceptable dissertation. MIT graduate-level subjects taken to fulfill the requirements of the MST degree may be included in the doctoral program.

Students are required to take classes in Transportation Systems Analysis and select two subjects from one of the following five areas of focus — Demand, Performance and Optimization, Planning and Policy, Networks, or Logistics — to build the core knowledge.

Examples of coursework for each of the five areas include:

Transportation Systems Analysis		
1.200[J]	Transportation: Foundations and Methods	12
Select one of the following:		12
1.202	Demand Modeling	
1.208	Resilient Networks	
1.260[J]	Logistics Systems	
11.478	Behavioral Science, AI, and Urban Mobility	
Demand		
1.202	Demand Modeling	12
1.205	Advanced Demand Modeling	12
Performance and Optimization		
1.203[J]	Applied Probability and Stochastic Models	12
15.093		12
Planning and Policy		
11.478	Behavioral Science, AI, and Urban Mobility	12
11.526[J]	Comparative Land Use and Transportation Planning	12
11.540	Urban Transportation Planning and Policy	12
Logistics		
1.260[J]	Logistics Systems	12
15.764[J]	The Theory of Operations Management	12
Networks		
1.208	Resilient Networks	12
6.7260	Network Science and Models	12

Graduates of the interdisciplinary doctoral program receive a PhD in Transportation, although students may petition for other MIT graduate fields of study as their degree designation, subject to approval by the Transportation Education Committee.

Inquiries

Please direct questions about application to graduate programs in transportation to the Transportation Academic Office (*transportation-admission@mit.edu*).