M.S. in Transportation

Degree Requirements

Students who lack an appropriate background may be admitted and required to make up deficiencies by taking a program of bridge courses designed in consultation with graduate advisors. These courses are taken in addition to the degree requirements. See the undergraduate catalog for descriptions of 100 to 400-level courses. Students may be required to take or demonstrate that they already have taken courses equivalent to the bridge courses.

Students must select one area of specialization and take a minimum of 30 credits. TRAN 792 Pre-Doctoral Research is required for all students who receive departmental or research-based awards. A maximum of 6 credits may be taken from the 500-level courses for the master of science.

Three general areas of specialization are available. While they share a common methodological core, each is designed to suit various interests:

- **Transportation Engineering** focuses on traffic engineering, physical design and operational aspects of transportation systems. This area is best suited for students with an undergraduate engineering degree.
- **Transportation Planning** emphasizes the analysis and planning aspects, in particular the integration of transportation systems with urban and regional considerations such as economics, land use, and the environment.
- **Advanced Transportation Systems and Technologies** emphasizes the use of emerging technologies such as intelligent transportation systems in planning, design and operations of multi- and inter-modal transportation systems.

Additional elective courses for all areas of specialization may be taken with approval of the graduate advisor.

Students receiving financial aid at any point in their studies must complete 6 credits of TRAN 701 Master's Thesis. Any students are able to substitute Master’s thesis in their program.

### M.S. in Transportation Engineering

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge Courses</td>
<td></td>
<td></td>
</tr>
<tr>
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<tr>
<td><strong>Total Credits</strong></td>
<td><strong>16</strong></td>
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</table>

1 Students who have demonstrated professional transportation work experience may have this course waived.

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<tr>
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<tr>
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<tr>
<td>Electives</td>
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<td>Select four of the following:</td>
<td>12</td>
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<tr>
<td>CE 611</td>
<td>Project Planning and Control</td>
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<tr>
<td>EM 691</td>
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<td>TRAN 552</td>
<td>Geometric Design of Transportation Facilities</td>
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<tr>
<td>TRAN 659</td>
<td>Flexible and Rigid Pavements</td>
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<td>Airport Design and Planning</td>
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<td>TRAN 754</td>
<td>Port Design and Planning</td>
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<td>TRAN 755</td>
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<tr>
<td>TRAN 760</td>
<td>Urban Trans Networks</td>
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**Total Credits:** 30

### M.S. in Transportation Planning

#### Bridge Courses

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<tr>
<td>TRAN 655</td>
<td>Land Use Planning</td>
<td>3</td>
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<td>TRAN 625</td>
<td>Public Transportation Operations and Technology</td>
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<td>or TRAN 705</td>
<td>Mass Transportation Systems</td>
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<td>Multi-modal Freight Transportation Systems Analysis</td>
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<td>CS 661</td>
<td>Systems Simulation</td>
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<td>ECE 642</td>
<td>Communication Systems I</td>
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<td>EM 714</td>
<td>Multicriteria Decision Making</td>
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<td>Heuristic Methods</td>
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<td>IE 642</td>
<td>Network Flows and Applications</td>
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<td>IE 644</td>
<td>Application of Stochastic Modeling in Systems Control</td>
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<td>IE 706</td>
<td>A Queueing Approach to Performance Analysis</td>
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