Transportation and Urban Systems

Department Information

- **Program Director:** Denver Tolliver, Ph.D.
- **Department Chair:** Joseph Szmerekovsky, Ph.D.
- **Academic Coordinator:** Jody Bohn Baldock
- **Email:** jody.bohn.baldock@ndsu.edu
- **Department Location:** Upper Great Plains Transportation Institute, QBB 448
- **Department Phone:** (701) 231-7767
- **Department Web Site:** www.ndsu.edu/business/programs/masters/mtus/
- **Application Deadline:** July 1 for fall semester, December 1 for spring semester
- **Credential Offered:** M.S., M.T.U.S., Certificate - All programs offered online only
- **English Proficiency Requirements:** TOEFL iBT 71; IELTS 6

Program Description

The Department of Transportation, Logistics and Finance offers a Master of Science in Transportation and Urban Systems, a Master of Transportation and Urban Systems and a Certificate in Transportation and Urban Systems. The degree is awarded through the College of Business, which collaborates with the Upper Great Plains Transportation Institute to provide high-quality graduate programs for students. The program takes an interdisciplinary approach to transportation and logistics and attracts students with backgrounds in transportation and logistics, as well as agribusiness, applied economics, civil engineering, construction management, emergency management, finance, geosciences, industrial/ manufacturing engineering, and supply chain management.

Master of Science (M.S.) in Transportation and Urban Systems

This degree focuses on: (1) urban transportation systems; (2) relationships between transportation, land use, environment, emergency response, and logistical delivery systems; (3) coordinated planning, operations, and security; and (4) the spatial dimensions of urban systems. The curriculum is built around the topics of: public transportation systems, geographic information systems, freight transportation and logistical delivery systems, urban geography and land use, the environmental impacts of transportation systems, transportation cyber-physical security, and the sustainability of transportation and urban systems. The M.S. degree requires a thesis and is targeted at students with strong research interests.

Master of Transportation and Urban Systems (MTUS)

This is a non-thesis degree that is primarily intended for professional planners and engineers. Students in the M.S. and MTUS programs select from the same set of core courses. However, students enrolled in the non-thesis (MTUS) program have more opportunities for synthesis of practice and additional course work, with less emphasis on research.

Certificate in Transportation and Urban Systems

The Certificate in Transportation and Urban Systems is primarily targeted at practicing professionals who wish to gain additional knowledge in the emerging fields of transportation and urban systems.

Admission Requirements

The Transportation and Urban Systems programs are open to qualified graduates of universities and colleges of recognized standing. To be admitted with full standing, the applicant must:
1. Hold a baccalaureate degree from an educational institution of recognized learning with a minimum grade point average (GPA) of 3.0 or equivalent
2. Have adequate preparation in one or more of the disciplines comprising transportation and logistics and must have professional experience or interests in community practice
3. Have shown the potential to undertake advanced study as evidenced by prior academic performance and have a stated interest in transportation and (for the M.S.) the capability to conduct transportation research
4. Submit official transcripts
5. Submit a two-page resume
6. Submit a one-page "Letter of Intent" outlying their reasons for pursuing the Transportation and Urban Systems degree/certificate
7. Submit three letters of recommendation (NA for Certificate Option)
8. Submit online application through the NDSU Graduate School website
9. International applicants whose first language is not English and who do not possess a U.S. bachelor’s degree or higher are subject to additional requirements when they apply for admission. They must meet the minimum requirements on measures of general English language proficiency. The accepted measures of language proficiency are the TOEFL ibT 71 and IELTS 6.

Students who do not meet all requirements for admission or have deficiencies in prerequisite course work, but show satisfactory potential for graduate study, may be admitted conditionally. The conditional status may be changed to full graduate standing after the first or second semester of study, based on the student’s academic performance.

**Apply for Admission**

To apply for admission, please visit the Admission Information page (https://bulletin.ndsu.edu/graduate/admission-information).

**Degree Requirements**

**Master of Science (M.S.) in Transportation and Urban Systems**

A minimum of 30 credits is required for the degree of which 24 must be core courses. All students must take a final examination which covers the course work taken by the candidate, as well as the thesis topic as coordinated with their adviser.

Each thesis must be of sufficient depth and quality to warrant at least six (6) graduate credits. However, no more than 10 credits can be earned for any thesis. Each thesis will contribute one of the following:

- New models – may be achieved through the synthesis of several techniques, the modification of existing models, or new applications of analytical techniques to transportation/urban problems.
- Knowledge – may be accomplished through the collection and analysis of original data or the development of innovative planning techniques.

**Master of Transportation and Urban Systems (MTUS)**

The MTUS is an online graduate program and is a non-thesis degree. All 30 credits must be completed using the core courses below.

**Certificate in Transportation and Urban Systems**

The certificate in Transportation and Urban Systems will consist of a minimum of 9 credits selected from the core courses below.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>TL 751</td>
<td>Transportation Cyber-Physical Security</td>
<td>3</td>
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<td>TL 752</td>
<td>Transportation Planning and Environmental Compliance</td>
<td>3</td>
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<td>TL 753</td>
<td>Transportation System Modeling</td>
<td>3</td>
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<td>TL 754</td>
<td>Urban Transportation Systems Analysis</td>
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<td>TL 755</td>
<td>Context Sensitive Solutions</td>
<td>3</td>
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<td>TL 756</td>
<td>Transportation and Land Use Integration</td>
<td>3</td>
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<tr>
<td>TL 757</td>
<td>Intelligent Transportation Solutions</td>
<td>3</td>
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<td>TL 786</td>
<td>Public Transportation</td>
<td>3</td>
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<tr>
<td>TL 787</td>
<td>Public Transportation II</td>
<td>3</td>
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<tr>
<td>TL 789</td>
<td>Leadership, Ethics, and Academic Conduct in Transportation</td>
<td>3</td>
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<tr>
<td><strong>Thesis (M.S. only)</strong></td>
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<td><strong>6-10</strong></td>
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<td>TL 798</td>
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Faculty

Raj Bridgelall, Ph.D.
North Dakota State University, 2015
Research Interests: Big Data Analytics, Internet-of-Things (IoT), Cloud Computing; Connected and Autonomous Vehicles (CAV), Shared Mobility, Intelligent Transportation Solutions; Signal Processing and Mathematical Modeling of Transportation Systems; Remote Sensing with Unmanned Aircraft Systems; Hyperspectral Image Analysis; Radio Frequency Identification (RFID); Real-Time Locating Systems (RTLS); Energy Harvesting and Massive Scale Autonomous Wireless Sensor Networks
Department: Transportation, Logistics and Finance

Alan Dybing, Ph.D.
North Dakota State University, 2013
Research Interests: Asset Management, Energy Impacts, Freight Transportation, Agricultural Transportation, Supply Chain Management, Transportation Economics, Spatial Analysis, Transportation Systems Modeling
Department: Transportation, Logistics and Finance

Ranjit Godavarthy, Ph.D.
Kansas State University, 2012
Research Interests: Public Transportation in Small Urban and Rural Areas, Demand Response Transit and Paratransit, Bike Share, Roundabouts, Traffic Engineering and Operations, Transportation and Highway Safety
Department: Transportation, Logistics and Finance

Jill Hough, Ph.D.
University of California-Davis, 2007
Research Interests: Public Transportation in Rural and Small Urban Locations, Workforce Development, Mobility of the Aging, Transportation Planning and Policy, Intelligent Transportation Systems
Department: Transportation, Logistics and Finance

Pan Lu, Ph.D.
North Dakota State University, 2011
Research Interests: Connected and Autonomous Vehicles, Smart Material and Structure Health Monitoring, Big Data Analytics for Transportation, Smart Transportation, Transportation System, Asset Management, Multimodal Transportation, Geospatial Transportation Modeling
Department: Transportation, Logistics and Finance

Jeremy Mattson, Ph.D.
North Dakota State University, 2017
Research Interests: Public Transportation, Transportation Economics, Demand Modeling, Travel Behavior, Built Environment
Department: Transportation, Logistics and Finance

Diomo Motuba, Ph.D.
North Dakota State University, 2009
Research Interests: Transportation and Land Use Planning, Freight Modeling, Transportation Economics, Connected Automated Vehicles, Logistics and Supply Chain Management, Transportation Safety
Department: Transportation, Logistics and Finance

Tim O. Peterson, Ph.D.
Texas A&M University, 1988
Research Interests: Managerial Leadership, Application of Information Technology to Organizational Issues, Scholarship of Teaching
Department: Management and Marketing

Fred Riggins, Ph.D.
Carnegie Mellon University, 1994
Research Interests: Economics of Information Systems, Interorganization Systems, Adoption of New Technology, Radio Frequency Identification (RFID), Internet-of-Things (IoT), Blockchain, Cryptoeconomics, Information and Communication Technology in Microfinance
Department: Accounting and Information Systems

Joseph Szmerekovsky, Ph.D.
Case Western Reserve University, 2003
Research Interests: Project Management and Scheduling, Supply Chain Management and Technology, Energy Supply Chain Management, Healthcare Logistics
Department: Transportation, Logistics and Finance

Denver Tolliver, Ph.D.
Virginia Polytechnic Institute and State University, 1989
Research Interests: Highway Systems Modeling, Multimodal Transportation Planning, Freight Transportation, Energy and Environmental Analysis
Department: Transportation, Logistics and Finance

Kimberly Vachal, Ph.D.
George Mason University, 2005
Department: Transportation, Logistics and Finance