

# Transportation and Urban Systems

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## Department Information

- **Department Chair:**  
Tim Peterson, Ph.D.
- **Academic Coordinator:**  
Jody Bohn Baldock
- **Email:**  
jody.bohn.baldock@ndsu.edu
- **Department Location:**  
Upper Great Plains Transportation Institute, QBB 418
- **Department Phone:**  
(701) 231-7767
- **Department Web Site:**  
[www.ndsu.edu/business/programs/graduate/mtus/](http://www.ndsu.edu/business/programs/graduate/mtus/) (<http://www.ndsu.edu/business/programs/graduate/mtus/>)
- **Application Deadline:**  
July 1 for fall semester; December 1 for spring semester; April 1 for summer semester
- **Credential Offered:**  
M.S., M.T.U.S., Certificate - All programs offered online only
- **English Proficiency Requirements:**  
TOEFL iBT 71; IELTS 6; Duolingo 100

The Department of Transportation, Logistics, and Finance offers an online master's degree and an online graduate certificate in Transportation and Urban Systems. The degree/certificate is awarded through the College of Business in collaboration with the Upper Great Plains Transportation Institute. The program's interdisciplinary approach attracts students with backgrounds in transportation and logistics, agribusiness, applied economics, civil engineering, construction management, emergency management, finance, geosciences, industrial/manufacturing engineering, and supply chain management.

The program options described below focus 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.

## Master of Science (M.S.) in 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 **non-thesis degree** is primarily intended for professional planners and engineers. Students enrolled in the MTUS program have more opportunities for synthesis of practice and additional course work, with less emphasis on research.

## Certificate in Transportation and Urban Systems

This program is primarily targeted at practicing professionals who are unable to study in residency, but who wish to gain additional knowledge in the emerging fields of transportation and urban systems.

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## 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. For those with GPAs of 2.99 or less, the applicant should consider submitting a GMAT/GRE score to be considered for acceptance.
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" outlining their reasons for pursuing the Transportation and Urban Systems degree/certificate
7. Submit three letters of recommendation (not required for certificate application)
8. Submit online application through the Graduate College 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/>).

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### 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.

| Code                      | Title  | Credits     |
|---------------------------|--|-------------|
| <b>Core Courses</b>       |  |             |
| TL 751                    | Supply Chain Transport Security                      | 3           |
| TL 752                    | Transportation Planning and Environmental Compliance | 3           |
| TL 753                    | Transportation System Modeling                       | 3           |
| TL 754                    | Urban Transportation Systems Analysis                | 3           |
| TL 755                    | City Logistics                                       | 3           |
| TL 756                    | Transportation and Land Use Integration              | 3           |
| TL 757                    | Technologies for Supply Chain Transport Solutions    | 3           |
| TL 786                    | Public Transportation                                | 3           |
| TL 787                    | Transportation and Distribution                      | 3           |
| TL 789                    | Managerial Leadership for Supply Chain Professionals | 3           |
| <b>Thesis (M.S. only)</b> |  | <b>6-10</b> |
| TL 798                    | Master's Thesis                                      |             |

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

The MTUS is a non-thesis degree. All 30 credits must be completed using the nine core courses below, and one elective course that can be any other TL course.

| Code                | Title  | Credits |
|---------------------|--|---------|
| <b>Core Courses</b> |  |         |
| TL 751              | Supply Chain Transport Security                      | 3       |
| TL 752              | Transportation Planning and Environmental Compliance | 3       |
| TL 754              | Urban Transportation Systems Analysis                | 3       |
| TL 755              | City Logistics                                       | 3       |
| TL 756              | Transportation and Land Use Integration              | 3       |
| TL 757              | Technologies for Supply Chain Transport Solutions    | 3       |

|  |  |           |
|--|--|-----------|
| TL 786   | Public Transportation                                | 3         |
| TL 787   | Transportation and Distribution                      | 3         |
| TL 789   | Managerial Leadership for Supply Chain Professionals | 3         |
| <b>Elective</b>  |  | <b>3</b>  |
| Any 700 or 800 level TL course not listed above may be taken as an elective. |  |           |
| <b>Total Credits</b>   |  | <b>30</b> |

## 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.

| Code  | Title  | Credits  |
|---|--|----------|
| Choose a minimum of 9 credits from the following: |  | 9        |
| TL 751  | Supply Chain Transport Security                      |          |
| TL 752  | Transportation Planning and Environmental Compliance |          |
| TL 753  | Transportation System Modeling                       |          |
| TL 754  | Urban Transportation Systems Analysis                |          |
| TL 755  | City Logistics                                       |          |
| TL 756  | Transportation and Land Use Integration              |          |
| TL 786  | Public Transportation                                |          |
| TL 787  | Transportation and Distribution                      |          |
| TL 789  | Managerial Leadership for Supply Chain Professionals |          |
| <b>Total Credits</b>                              |  | <b>9</b> |

## 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

### Robert Froberg, Ph.D.

North Dakota State University, 2019

Research Interests: Transport of Rolling Stock, Equipment, and Supplies to Austere Locations, Austere Environment Sustainment Planning, Transportation Analysis and Planning for Logistics, Supply Chain Planning, Assessment, and Optimization Leveraging (Big) Data, Modeling of Supply Chains and Transportation Networks

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

### 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

**Robert Swearingen, Ph.D.**

North Dakota State University, 2019

Research Interests: Change Management in Supply Chain Organizations, Lean Inventory Management Process Improvement Supported by Value Stream Mapping, Enterprise Information Systems Supporting Supply Chain Management

Department: Transportation, Logistics, and Finance

**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