

Transportation and Urban Systems

Program and Application Information

Program Director:	Dr. Denver Tolliver
Department Chair:	Dr. Joseph Szmerekovsky
Academic Coordinator:	Jody Bohn Baldock
Email:	jody.bohn.baldock@ndsu.edu
Department Location:	Upper Great Plains Transportation Institute
Department Phone:	(701) 231-7767
Department Web Site:	www.ndsu.edu/business/departments/tl/
Application Deadline:	July 1 for fall semester, December 1 for spring semester
Degrees Offered:	M.S., M.T.U.S., Certificate - ALL PROGRAMS ONLINE ONLY
English Proficiency Requirements:	TOEFL iBT 71; IELTS 6

Program Description

The Department of Transportation and Logistics offers a Master of Science (M.S.) in Transportation and Urban Systems, a Master of Transportation and Urban Systems (MTUS) 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 systems security, and the sustainability of transportation and urban systems. The M.S. degree requires a thesis, it is targeted at students with strong research interests.

Master of Transportation and Urban Systems (MTUS)

This is a non-disquisition degree that is primarily intended for professional planners and engineers. Students in the M.S. and MTUS programs can select from a common set of courses. However, students enrolled in the non-disquisition (MTUS) program have more opportunities for synthesis of practice and additional course work, with less emphasis on research. Students in this option are required to complete a creative component as coordinated with their advisor.

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. The certificate requires a minimum of 9 course credits that can be selected from a list of on-line courses, including: Transportation Systems Security, Transportation Planning and Environmental Compliance, Transportation System Modeling, Urban Transportation Systems Analysis, Context Sensitive Solutions, Transportation Systems Laboratory, Public Transportation, and Public Transportation II.

Admission Requirements

The Transportation and Urban Systems master's program is 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 to attain full standing.
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 the capability to conduct transportation research.
4. Submission of official transcripts
5. Submit a two-page resume

6. Submit a one-page "Letter of Intent" outlining your reasons for pursuing the Master of Transportation and Urban Systems.
7. Submit three-letters of recommendation (NA for Certificate Option)
8. Submit applications directly to the NDSU Graduate School via the on-line application process.
9. International applicants whose first language is not English and who do not possess an U.S. bachelor's degree or higher are subject to additional requirements when they apply for admission to the Master of Managerial Logistics program. 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.

Students will be accepted from many disciplinary backgrounds, including (but not limited to): architecture, business, civil engineering, environmental engineering or science, geography, government, political science, sociology, and urban affairs. However, acceptance is on an individualized basis.

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

A minimum of 30 credits is required for the degree of which 21 must be core courses and 3 credits of electives. 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)

MTUS is a non-thesis degree. However, each student must complete a creative component, which can be a case study, practicum, or paper. In the creative component, a student may develop a case study of a metropolitan region, transit system, or public program. Case studies may include:

1. Comprehensive transportation planning processes in metropolitan areas,
2. Urban transit systems or operations,
3. Emergency or disaster response case studies or plans,
4. Security programs or issues, and
5. Integrated transportation/environmental plans.

The case study must be approved by the student's adviser and should involve transportation and community professionals from federal, state, or local agencies, or private industries. In lieu of a case study, the adviser may approve other activities or outcomes that would comprise the creative component.

A minimum of 30 credits is required for the degree of which 21 must be core courses and 7 credits of electives. A minimum of two (2) credits and a maximum of four (4) credits will be awarded for the creative component.

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. Additional courses may be offered online in the future.

Areas of Focus

Spatial Analysis		
GEOG 655	Introduction to Geographic Information Systems	4
GEOG 656	Advanced Geographic Information Systems	3
TL 785	Spatial Analysis in Transportation	3
Information Systems Technologies		
TL 725	ERP Configuration	3
Enterprise Management		
TL 715	Introduction to ERP	3
TL 727	Organizational Change Management	3

Transportation Planning		
CE 780	Transportation Planning	3
Emergency Response and Disaster		
TL 719	Crisis Analysis and Homeland Security	3
Core Courses		
TL 751	Transportation Systems 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	Context Sensitive Solutions	3
TL 756	Transportation and Land Use Integration	3
TL 757	Intelligent Transportation Solutions	3
Electives		
TL 711	Logistics Systems	4
TL 715	Introduction to ERP	3
TL 719	Crisis Analysis and Homeland Security	3
TL 721	International Logistics Management	4
TL 723	Advanced Supply-Chain Planning Across the Enterprise	3
TL 725	ERP Configuration	3
TL 727	Organizational Change Management	3
TL 729	Adaptive Planning in Logistics Systems	3
TL 731	Logistics Decision Analysis	3
TL 781	Program Evaluation	3
TL 785	Spatial Analysis in Transportation	3
TL 786	Public Transportation	3
TL 787	Public Transportation II	3
TL 789	Leadership, Ethics, and Academic Conduct in Transportation	3
CE 780	Transportation Planning	3
GEOG 655	Introduction to Geographic Information Systems	4
GEOG 656	Advanced Geographic Information Systems	3
Creative Component		
TL 798 or TL 797	Master's Thesis (for M.S.) Master's Paper	3

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 and Logistics

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 and Logistics

Ranjit Godavarthy, Ph.D.

Kansas State University, 2012

Research Interests: Public transportation in small urban and rural areas, Demand response transit and paratransit research, Bike share research, Roundabouts research, Traffic engineering and operations, Transportation and highway safety

Department: Transportation and Logistics

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 and Logistics

Michal Jaroszynski, Ph.D.

Florida State University, 2014

Research Interests: Socioeconomic impacts of transportation investments and policies; Travel demand modeling; Transportation funding, finance, and equity; Multimodal transportation systems

Department: Transportation and Logistics

Pan Lu, Ph.D.

North Dakota State University, 2011

Research Interests: Transportation infrastructure management, Freight rail transportation, Multi-mode transportation efficiency, GIS application in transportation, Operations research in transportation, Commercial truck safety, Railway transportation safety, Data mining application in transportation, Transportation resiliency analysis

Department: Transportation and Logistics

Jeremy Mattson, Ph.D.

North Dakota State University, 2017

Research Interests: Public transportation, Transportation economics, Demand modeling, Travel behavior, Built environment

Department: Transportation and Logistics

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 and Logistics

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 and Logistics

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 and Logistics

Kimberly Vachal, Ph.D.

George Mason University, 2005

Research Interests: Human factors in traffic safety, Healthy community transport, Agricultural and biofuels transportation, CMV safety & security, Containerized and identity preserved grain marketing, Regional economic development

Department: Transportation and Logistics