Transportation and Logistics

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, Quentin Burdick Building 448
- **Department Phone:** (701) 231-7767
- **Department Web Site:** www.ndsu.edu/business/departments/tl/
- **Application Deadline:** See Admission Requirements
- **Degrees Offered:** Ph.D.
- **Test Requirement:** GRE (GMAT may be substituted)
- **English Proficiency Requirements:** TOEFL iBT 71, IELTS 6

Program Description

The Department of Transportation, Logistics and Finance offers a Ph.D. degree in Transportation and Logistics (TL). The degree is awarded through the College of Business in collaboration with the Upper Great Plains Transportation Institute to provide high quality assistantships 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.

Admission Requirements

The Transportation and Logistics Ph.D. 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 master's degree (preferred) from an educational institution of recognized learning, baccalaureate degree a minimum.
2. Have adequate preparation in one or more of the disciplines comprising transportation and logistics
3. Have shown the potential to undertake advanced study and research as evidenced by prior academic performance
4. Have earned a cumulative grade point average of at least 3.0 or equivalent in all courses completed at the highest education level reached
5. Submit a Graduate Record Examination (GRE) score at the time of the application. If a student has a recent GMAT score it may be substituted for the GRE.
6. Submit an NDSU Graduate School application consisting of the application, letter of intent, official transcripts, letters of reference, and English proficiency scores (if applicable). Additional documents that may be submitted could include resume and professional vita. Applications for admission will be submitted via the Graduate School website. Applicants must meet all application requirements of the graduate school and department before being considered for acceptance.
   - Applicants requesting funding and all international applicants, the application deadline is April 1 for fall semester and September 1 for spring semester.
   - Applicants not requesting funding and domestic applicants, the application deadline is July 1 for fall semester and December 1 for spring semester.
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.

The Transportation Infrastructure and Capacity Planning option is restricted to students with undergraduate degrees in Civil or Construction Engineering. A student wishing to pursue an area of concentration in Transportation Economics and Regulation must have completed intermediate-level microeconomics and taken at least one course in macroeconomics. In order to pursue an area of concentration in Logistics and Supply Chain Systems, a student must have earned a baccalaureate degree in Agribusiness, Business, Economics, Finance, Industrial Engineering, Management, Marketing, or a related field. All applicants must meet the general program prerequisites of at least one year of calculus and one course in statistics and economics.

**Apply for Admission**

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

**Financial Assistance**

The number of assistantships vary from year to year, depending on grant availability and the number of students in residence. Applicants are considered on the basis of scholarship and potential to undertake advanced study and research.

To be considered for an assistantship, an applicant must complete a Graduate School application, be accepted by the department, and identify the desire for an assistantship or financial need in the statement of purpose.

Graduate tuition is waived for students with assistantships, but all fees are the student's responsibility.

**Degree Requirements**

The Ph.D. program requires the completion of a minimum of 90 credits of graduate study beyond the baccalaureate degree with an overall GPA of 3.0 or higher. Each student must develop a plan of study under the guidance of a faculty adviser and a supervisory committee. Twenty-four of the graduate credit hours must consist of core Transportation & Logistics courses or suitable substitutes. A minimum of 30 credit hours must be taken in the student's area of concentration, including quantitative methods courses related to the concentration. A minimum of 30 credit hours must consist of research-based dissertation credits. The remaining credits may be comprised of technical electives and additional dissertation credits.

Students must take a qualifying examination upon completion of the core courses as identified below. In addition to core courses, transportation elective courses in supply-chain, transportation, and quantitative methods are typically completed after the first year.

The qualifying exam will include two components: (1) core transportation and logistics knowledge and (2) competency in quantitative methods. After passage of the qualifying examination and successful completion of the courses designated in the plan of study, the student may schedule a comprehensive examination. The comprehensive exam includes written and oral components related to the student's area of concentration. The comprehensive exam also includes a dissertation prospectus examination in which the student must present and defend a plan for undertaking and completing a dissertation. After passage of the comprehensive exam and completion of the dissertation, the doctoral candidate must pass a final examination in which the completed dissertation is presented and defended.

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>Core Courses (≥ 24 credits)</td>
<td></td>
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<tr>
<td>TL 757</td>
<td>Intelligent Transportation Solutions</td>
<td>3</td>
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<tr>
<td>TL 782</td>
<td>Highway Planning and Logistics</td>
<td>3</td>
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<tr>
<td>TL 783</td>
<td>Transportation Systems 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>TL 831</td>
<td>Modeling for Transportation and Logistics Decision Analysis</td>
<td>3</td>
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<tr>
<td>TL 885</td>
<td>Geospatial Information Systems for Transportation</td>
<td>3</td>
</tr>
<tr>
<td>TL 892</td>
<td>Graduate Teaching Experience</td>
<td>1-6</td>
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<tr>
<td>ENGR 770</td>
<td>Quantitative Modeling</td>
<td>3</td>
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<tr>
<td>Transportation Concentration Elective Courses (≥ 9 credits)</td>
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<tr>
<td>TL 751</td>
<td>Transportation Systems Security</td>
<td>3</td>
</tr>
<tr>
<td>TL 752</td>
<td>Transportation Planning and Environmental Compliance</td>
<td>3</td>
</tr>
<tr>
<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>
<td>3</td>
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<tr>
<td>TL 755</td>
<td>Context Sensitive Solutions</td>
<td>3</td>
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<tr>
<td>TL 756</td>
<td>Transportation and Land Use Integration</td>
<td>3</td>
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TL 781  Program Evaluation  
TL 785  Spatial Analysis in Transportation  
TL 786  Public Transportation  
TL 787  Public Transportation II  

**Supply-chain Concentration Elective Courses (≥ 9 credits)**

TL 715  Introduction to ERP  
TL 719  Crisis Analysis and Homeland Security  
TL 721  International Logistics Management  
TL 725  ERP Configuration  
TL 733  Case Studies in Logistics  
TL 735  Practical Data Analytics  
TL 811  Modeling for Logistics Research  
TL 823  Contemporary Supply Chain Research  
TL 829  Supply Chain Risk Management  

**Quantitative Methods Elective Courses (≥ 6 credits)**

COMM 707  Quantitative Research Methods in Communication  
EDUC 885  Structural Equation Modeling Fundamentals  
ENGR 771  Probabilistic and Deterministic Methods  
SOC 700  Qualitative Methods  
SOC 701  Quantitative Methods  

**Dissertation (≥ 30 credits)**

TL 899  Doctoral Dissertation  

In addition to these courses, technical electives may be selected from graduate courses offered by participating departments, subject to the approval of the student's advisory committee. For a description of potential electives, see the graduate program descriptions for: Agribusiness and Applied Economics (https://bulletin.ndsu.edu/graduate/programs/agribusiness-applied-economics), Business Administration (https://bulletin.ndsu.edu/graduate/programs/business-administration), Civil Engineering (https://bulletin.ndsu.edu/graduate/programs/civil-engineering), Construction Management (https://bulletin.ndsu.edu/graduate/programs/construction-management), and Industrial and Manufacturing Engineering (https://bulletin.ndsu.edu/graduate/programs/industrial-manufacturing-engineering).

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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 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