

Transportation Systems Engineering

CEEatGT
2018-2019
GRADUATE
STUDIES

MASTER'S DEGREE REQS*

NON-THESIS OPTION

THESIS OPTION

SPECIALIZATION REQUIREMENT**	18 CREDITS	12 CREDITS
APPROVED ELECTIVES	12 CREDITS	12 CREDITS
THESIS	0 CREDITS	6 CREDITS
TOTAL REQUIRED CREDITS	30 CREDITS	30 CREDITS

*Degree requirements for the MSCE and MSENVE degrees. Requirements for the MSBIOE, MSCSE, and MSESME degrees differ – please contact gradinfo@ce.gatech.edu for more information. **Specializations include: Construction and Infrastructure Systems Engineering; Environmental Engineering; Geosystems Engineering; Structural Engineering, Mechanics and Materials; Transportation Systems Engineering; Water Resources Engineering.

PH.D. DEGREE REQS

The Ph.D. program includes research and approximately 50 credits beyond the Bachelor's degree. Doctoral students, in concert with their advisor and thesis committee, construct an individualized program of study tailored to the student's research interests.

Major elements of the program include:

- Comprehensive exam
- Minor
- Research Proposal
- Thesis
- Oral defense

THE Transportation Systems Engineering graduate program at the Georgia Institute of Technology provides students with in-depth knowledge of design and performance and encourages them to understand the environmental, institutional and societal context in which these systems operate. At the core of the program is the understanding that transportation systems engineering can promote a thriving economy and a high quality of life by ensuring the safe and efficient movement of information, people, goods and services. We also recognize that transportation systems affect the environment through construction, maintenance and operation of facilities, and through the travel behaviors they encourage. Students supplement the core technical transportation courses in urban transportation planning, traffic engineering, highway and transit facility design, administration and statistical analysis with technical electives from other academic units.

RESEARCH AREAS

- Planning methods for transportation investment
- Enhanced methods for monitoring and modeling travel behavior
- Airline passenger behavior
- Smart city infrastructure with connected and automated vehicles
- New models for estimating vehicle emissions
- Improved concepts for intermodal passenger and freight transportation
- Sustainable development and transportation
- Decision support tools for infrastructure management
- Dynamics and evolution of transportation networks

UNIVERSITY TRANSPORTATION CENTERS

Our nation's transportation system has achieved unprecedented levels of mobility and contributed to our economic health and the quality of life enjoyed by all residents. However, the United States faces critical infrastructure, funding, technology and demographic challenges to preserve and enhance its transportation system for future generations.

To address these challenges, Georgia Tech is a key partner in six U.S. Department of Transportation University Transportation Centers (UTCs), four within the transportation group: the National Center for Sustainable Transportation (NCST); the Southeastern Transportation Research, Innovation, Development and Education (STRIDE) Center; the Center for Advancing Research in Transportation Emissions, Energy and Health (CAR-TEEH), and the Center for Teaching Old Models New Tricks (TOMNET). These centers work with state, regional and local agencies to provide leadership on research, education and technology transfer with respect to today's most pressing transportation issues.



Georgia Tech also leads the Georgia Transportation Institute (GTI), which was established to coordinate and act as a focal point for transportation research in the state of Georgia. GTI-affiliated researchers are active in a broad range of topics including policy and planning, environmental issues, transportation technology, transportation infrastructure, safety, and traffic operations.

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Georgia Tech School of Civil and Environmental Engineering
 College of Engineering

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FACULTY

ADJO A. AMEKUDZI-KENNEDY, PH.D. Associate Chair, Global Engineering Leadership and Entrepreneurship & Professor
Civil infrastructure/asset management, sustainable infrastructure systems, engineering leadership and entrepreneurship.

SAMUEL D. GOOGAN, PH.D. Assistant Professor
Autonomous systems, transportation networks, cyber-physical systems, control theory, formal methods.

LAURIE GARROW, PH.D. Professor
Travel behavior analysis, application and estimation of advanced discrete choice models, airline passenger behavior.

RANDALL GUENSLER, PH.D. Professor
Motor vehicle and personal activity monitoring, transportation planning, vehicle emissions, air quality modeling, sidewalk infrastructure management, environmental impact assessment, environmental policy analysis.

MICHAEL P. HUNTER, PH.D. Director, Georgia Transportation Institute & Professor: Traffic operations and design, signal optimization, safety, transportation simulation, smart cities, and autonomous vehicles.

JORGE LAVAL, PH.D. Associate Professor
Traffic flow theory and simulation, freeway operations, queueing theory, network modeling.

PATRICIA L. MOKHTARIAN, PH.D. Susan G. and Christopher D. Pappas Professor & Group Coordinator
Statistical, econometric, and psychometric methods applied to measuring and modeling travel-related attitudes and behavior.

SRINIVAS PEETA, PH.D. Frederick R. Dickerson Chair & Professor: Network modeling and dynamics, connected and autonomous transportation systems, traveler behavior/learning, traffic flow modeling, interdependent infrastructure systems.

MICHAEL O. RODGERS, PH.D. Director, Georgia Tech Air Quality Laboratory & Regents Researcher: Air quality and transportation, transportation modeling and simulation, mobile source emissions modeling, remote sensing of vehicle emissions, transportation statistics.

YI-CHANG (JAMES) TSAI, PH.D., P.E. Professor
Smart city infrastructure health and safety condition monitoring and management using sensing technologies and artificial intelligence, autonomous vehicles, large-scale infrastructure/asset management, pavement technology, spatial big data analytics.

KARI E. WATKINS, PH.D., P.E. Frederick Law Olmsted Associate Professor: Public transit planning and operations, complete street design, mode choice decision-making, information technology in transportation.

RESEARCHERS

GIOVANNI CIRCELLA, PH.D. Senior Research Engineer
Travel behavior, discrete choice modeling, travel demand modeling, land use/transportation interactions.

THOMAS DOUTHAT, J.D., PH.D. Research Engineer I
Transportation planning, economic development, city planning, law and policy.

FRANKLIN GBOLOGAH, PH.D. Research Engineer II
Transportation safety and operations.

ANGSHUMAN GUIN, PH.D. Senior Research Engineer
Freeway operations, Intelligent Transportation Systems (ITS), transportation safety, traffic simulation and data management.

HAOBING LIU, PH.D. Research Engineer II
Vehicle operations, lifecycle energy and emissions, model development, distributed computing, pollutant dispersion, road grade.

OLGA KEMENOVA, PH.D. Research Engineer II
Transportation statistics, mobile source emissions modeling and analysis.

JEFFREY NEWMAN, PH.D. Research Engineer II
Travel demand forecasting, application and estimation of advanced discrete choice models, machine learning for travel behavior analysis.

ALEXANDER SAMOYLOV, PH.D. Senior Research Scientist
Vehicle remote sensing, motor vehicle emissions analysis, database applications.

JACK WEI, M.S. Research Engineer I
Remote sensing technologies for intelligent roadway asset/infrastructure/pavement management using mobile LiDAR, image processing and GPS/GIS

YICHING WU, Research Engineer II
Infrastructure asset management, pavement technology, roadway safety, logistics, GPS/GIS technologies.

ADJUNCT FACULTY

JOHN Z. LUH, PH.D., P.E.
ITS design, traffic signal design, highway network evaluation, traffic engineering, transportation planning.

CATHERINE L. ROSS, PH.D.
Transportation planning/impact analysis, land use and regional governance, sustainable development, and quality growth.

FRANK SOUTHWORTH, PH.D.
Freight and passenger transportation planning, public transit, land use/transportation interaction, sustainable transportation systems.

ROGER L. WAYSON, PH.D., P.E.
Air and noise pollution measurement, modeling, abatement and engineering.

