

# Transportation Systems Engineering

**CEEatGT**  
2019-2020  
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
<b>TOTAL REQUIRED CREDITS</b>	<b>30 CREDITS</b>	<b>30 CREDITS</b>

\*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.

CE.GATECH.EDU/GRADUATE  
GRADINFO@CE.GATECH.EDU





 @CEEatGT

**Georgia Tech** School of Civil and Environmental Engineering  
 College of Engineering

# Transportation Systems Engineering

CEEatGT  
2019-2020  
GRADUATE  
STUDIES

## 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. COOGAN, 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.

**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.

## 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.

