



Sustainable Transportation Systems

UVM Certificate of Graduate Study in

Transportation is a transdisciplinary field of study that broadly examines the movement of people and goods over space as well as the economic, public health, environmental and social impacts of those systems. Local, regional and global transportation systems are vital to building community, the economy, and quality of life. Critical transportation system issues and problems in the 21st century will require interdisciplinary teams to design innovative solutions.



The Certificate program allows students to achieve three areas of competency:

(1) **Knowledge base**; where we employ original data gathering, analysis and modeling to gain fundamental insights regarding how humans make travel decisions and how transportation systems function,



(2) **Innovative Solutions**; where we explore how combinations of policy, education, design and technology intersect to advance new or improved



systems of mobility and access, and

(3) **Informed Decision-Making**; where we provide transportation research results, education and outreach to inform the development of sustainable transportation policies.



Earning a Certificate of Graduate Study:

The Certificate is designed to serve the needs of both full time graduate students from multiple fields, as well as working professionals seeking to deepen their understanding of transportation and build new skills and credentials, and already have an appropriate Master's or Ph.D., or equivalent work experience.

Core Classes: *Critical Issues in Transportation + Travel Safety and Human Factors + Land Use Policy and Economics*

Electives are then chosen from a set of approved courses in departments across the University to meet the specific interests of the student. Participants will work with the Graduate Coordinator to map out objectives and courses. New opportunities to do coursework through hybrid courses, institutes and other flexible learning formats are being developed.

For More Information:

Glenn McRae, Graduate Program Coordinator, UVM Transportation Research Center
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TRANSPORTATION RESEARCH CENTER

UVM TRANSPORTATION COURSES

Core Certificate Courses

TRC 312 – Critical Issues in Transportation (fall 2013)

An examination of how transportation designs, programs and policies impact the environment, energy, culture, equitable mobility between regions and groups, as well as our overall quality of life. In the context of 4-6 critical issues in transportation, students are introduced to advanced engineering, policy, science and social science frameworks that are used to characterize issues and design solutions. The course concludes with interdisciplinary groups working on detailed study and analysis of the most critical transportation and mobility issues facing a stakeholder group.

Time: Wednesday, 4:05-7:05p

Instructor: Brian Lee, Civil Engineering
(bhylee@uvm.edu)

TRC 314 – Travel, Safety and Human Factors (Spring 2014) This course introduces students to the issues in transportation safety and explores the methods used to quantify safety and inform policy and countermeasure development. It considers what quantitative methods and evidence are adequate for policy and design work. Instructor: Lisa Aultman-Hall, Civil Engineering (laultman@uvm.edu)

TRC 316 / NR377 - Land Use Planning and Economics

This is a graduate seminar covering land markets and regulation, with particular emphasis on the process of suburbanization and growth management strategies for controlling sprawl.

Faculty: Students in the Certificate program get access to highly qualified and experienced faculty. In addition to our core faculty from the College of Engineering, this year we welcome **John Adams** who will be teaching Land Use Planning and Economics in the spring as a lecturer at the Rubenstein School. John is a Planning Coordinator with the Vermont Department of Housing and community Development, and a former planner and administrator in Shelburne and Williston, with a Masters of Planning from Queen's University in Ontario.

Instructor: John Adams (john.e.adams@state.vt.us)

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Fall 2013 electives (samples)

CE 133: Transportation Systems

Transportation systems planning, analysis, and design with foci on modeling, decision support, environmental impacts, and economic evaluation.

Time: TR 8:30-9:45a

Instructor: Brian Lee

CE 253: Transportation and Air Quality

Air pollution sources, measurement methods, legislation, vehicle emissions formation, control and transport processes. Emphasis is on emission factor and dispersion multi-scale modeling using latest tools.

Time: TR 8:30-9:45a

Instructor: Britt Holmen

Biomass to Biofuels TRC 295 / ENSC 285 Z4/ NR 285

The course provides the participants with hands-on technical exposure to various Biofuels related science & technology topics, background & literature, besides addressing the environmental, economic, social and other Biofuels related issues. Numerous field trips.

Time: W F 12-3:00p

Instructor: Anju Dahiya

NR 343: Fundamentals of Geographic Information Systems

The purpose of this course is to introduce graduate students to the theories and methods of Geographic Information Systems (GIS), going beyond introductory GIS courses by introducing advanced methods with potential applications to graduate research. Labs illustrate class concepts and instruct in the use of the Arc GIS suite. Class projects allow students to apply the tools to a spatial problem of their choosing.

When: Tuesdays, Thursdays, 8:30-11:15AM

Faculty: Brian Voigt (brian.voigt@uvm.edu)