

CE 595: Transportation Safety

Fall 2014, 3 credits, Tuesday 5:05 PM - 7:45 PM



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SUMMARY: Define safety from the perspective of more than one discipline and identify the significant challenges for transportation safety. Describe the roadway, vehicle, environmental and human factors involved in crashes. Explicate human, economic, mobility and other benefits of investing in transportation safety.

COURSE DESCRIPTION

This course focuses on major transportation safety issues. Approximately 32,000 people lose their lives in motor vehicle crashes every year (about 90 deaths per day) and nearly 3 million police reported injuries occur every year, with much less public or media interest than the loss of one airliner. In Tennessee 988 transportation deaths and 385,000 injuries occurred in motor vehicle crashes. The course examines how death, injury and property damage and the public perception of risk detract communities from achieving their goals. The specific issues relate to transportation safety goals, relevant frameworks, and the selection of safety countermeasures and their evaluation in terms of specific criteria. We will discuss the 2010 Highway Safety Manual (HSM) procedures. The specific topics covered in the course will include:

- Diagnosing safety problems
- Study design and data collection methods (e.g., police reports vs. naturalistic driving)
- Use of analysis methods (crash rates, safety performance functions, crash modification factors)
- Highway Safety Manual overview and methods
- Modeling of safety outcomes
- Applying the HSM tools to specific types of facilities (e.g., two-lane roads, intersections)
- Selection/evaluation of safety countermeasures, e.g., Haddon Matrix, infrastructure improvements.
- Using the HSM in project identification and safety improvement programs.
- Case studies of highway safety issues.
- Pedestrian/bicycle issues.

Course website: You will find most of the readings at the course Blackboard website. Access the site with your UTK username and password.

Students: This course is for graduate students in Engineering, and for other graduate students interested in transportation-related crashes and injuries. Students should be interested in exploring and critically appraising transportation safety issues. They will be encouraged to work on transportation safety issues of their interest, and the class project will involve analysis and modeling of safety data.

Prerequisites, credits and format: Graduate standing required. This is 3-credit course with lectures, discussions, student participation/presentations, and occasional guest speakers.

