

West Virginia University
Department of Civil and Environmental Engineering
Highway Safety Engineering CE493Q/CE538
Fall 2018

Instructor: Dr. David Martinelli; drmartinelli@mix.wvu.edu, david.martinelli@mail.wvu.edu
Room 547 Engineering Sciences Building; 293-9936, cell/text 216.4222
Leslie Vanzant; leslie.vanzant@mail.wvu.edu; 293-9953

Office Hours: Arrange through Leslie, or by emailing the instructor

Meeting: Tuesdays, Thursdays 11:00-12:15 G83

Objectives:

Cultivate an appreciation for the highway safety problem, and a passion for doing something about it.
Gain proficiency in the following 5 “core competency” areas recommended by the Transportation Research Board:

1. The Nature of Road Safety
2. The History and Institutional Settings of Road Safety Management
3. The Origins, Characteristics, and Uses of Crash Data
4. Contributing Crash Factors, Countermeasure Selection, and Evaluation
5. Road Safety Program Management

Understand contemporary highway safety issues in an academic context by reading and critiquing scholarly literature on the subject as well as navigating the landscape of technical resources on the subject.

Outcomes Relevant to Accreditation:

- (d) An ability to function in multi-disciplinary teams
- (g) An ability to communicate effectively

Text:

“Traffic: Why We Drive The Way We Do (And What it Says About Us),” Tom Vanderbilt, Random House, N.Y., 2008

Additional relevant material:

WHO (2004) World Report on Road Traffic Injury Prevention. Eds. Peden et al. World Health Organization, Geneva. (http://www.who.int/violence_injury_prevention/publications/road_traffic/world_report/en/)

WHO (2013) Global status report on road safety. World Health Organization, Geneva. (http://www.who.int/violence_injury_prevention/road_safety_status/2013/report/en/index.html)

Ogden K. (1996) Safer Roads: A Guide to Road Safety Engineering. Ashgate Publishing, Limited, Hampshire, England.

Cameron, A.C., and P.K. Trivedi (1998) Regression Analysis of Count Data. Cambridge University Press, Cambridge, U.K.

Persaud, B.N. (2001) Statistical Methods in Highway Safety Analysis. NCHRP Synthesis of Highway Practice 295, TRB, Washington, D.C. (http://gulliver.trb.org/publications/nchrp/nchrp_syn_295.pdf)

Elvik, R. and T. Vaa (2009) Handbook of Traffic Safety Countermeasures. Elsevier Science. 2nd Ed., Amsterdam, The Netherlands.

ITE (1999) The Traffic Safety Toolbox: a primer on traffic safety. Institute of Transportation Engineers, Washington, D.C.

Additional reading material will be provided in class. I attached a partial list of documents relevant for this course. Additional references will be provided during class.

Topics:

- Introduction
- Highway Safety Trends/Demographics
- Roadway Users
- Vehicles
- Facilities
- Working with Crash Data
- Road Safety Audits
- Countermeasures/Traffic Control Devices
- Pedestrian Safety

Grading:

- Homework: 25%
- Class Participation 15%
- Exam 1: 15%
- Exam 2: 15%
- Presentation 1: 15%
- Presentation 2: 15%

Grading Scale:(CE493/CE538)

A: $\geq 90\%$ / ≥ 95
B: 80-89% / 85-94%
C: 70-79% / 75-84%
D: 60-69% / 65-74%
F: $< 60\%$ / $\leq 65\%$

Presentation Assignments

Presentation 1: October 2, 4

Presentation 2: November 6,8

In this class you will make two 20 minute *professional quality* presentations, each on a topic or issue of your choice related to highway safety, subject to instructor approval. You may make an appointment with me or email me to help you select a topic.

Below is a suggested format:

4-5 minutes motivating/introducing the topic

5-6 minutes summarizing the state of the practice

5-7 minutes summarizing research from academic literature

4-5 minutes conclusions

You will work in teams of four. Your team for Presentation 2 must be different from that of Presentation 1.

Your presentation will represent a *synthesis* of your topic, thus you will demonstrate knowledge of the topic through comprehensive research and engage in synthesis and critical thinking regarding the topic/issue (see <http://users.drew.edu/~sjamieso/Synthesis.htm> for a better understanding of a synthesis) . You will be graded on the following attributes:

- Technical merit and depth
- Synthesis and Critical thinking
- Quality visual aids
- Oral presentation skills
- Logical organization
- Quality of conclusions that are based on a *synthesis* of your research content

Presentation Powerpoint slides are to be submitted to david.martinelli@mail.wvu.edu by 9:00 PM on October 1 for Presentation 1 and 9:00 PM on November 5 for Presentation 2.

An abstract for Presentation 1 is due September 6 and for Presentation 2 is due October 16. Meetings with the instructor will be scheduled soon after abstracts are submitted.