University of Connecticut
CE 6725 Statistical and Econometric Methods in Transportation
Course Syllabus – Spring 2020 – revised March 18, 2020

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Meeting times: Tuesday 5-7:30 PM, CAST 210; beginning March 24, 2020 via WebEx
Meeting link: https://uconn-cmr.webex.com/uconn-cmr/j.php?MTID=m8b3244eaee5905f64b63872c519dfca2
Meeting number: 644 283 769 Password: QpDjqPpW825

Pre-requisite: Recommended preparation: Completion of an introductory graduate-level statistics course or equivalent, and completion of a graduate-level transportation core course.

Text: Simon P. Washington, Matthew G. Karlaftis and Fred L. Mannering, *Statistical and Econometric Methods for Transportation Data Analysis*, 2nd Edition, CRC Press, Boca Raton, 2011. Additional readings will be posted on the class HuskyCT site at <http://lms.uconn.edu>.

Course Description: Application of various statistical methods for analysis of transportation data, including linear regression, count data models, logistic regression, discrete outcome models, ordered probability models, random parameter models, and duration models among others.

Homework: Homework will be assigned and due on HuskyCT as indicated on the syllabus.

Project: Students will complete a course project performing a statistical analysis of a real transportation data set. Students are encouraged to choose a project topic related to their thesis research. Students will present the results of their analysis in an oral presentation and a written report. The oral presentations will be made and the written reports will be due in a special class period on May 5 (during the final exam time). More information about the requirements for the oral presentation and the report will be distributed in class on March 10.

Grading: Each portion of the course work will contribute toward the final grade as follows:
Homework = 20% Project Presentation = 40% Project Report = 40%

Schedule of Topics, Readings and Assignments

Date	Topic(s)	Readings*	HW Assigned	HW Due
Jan. 21	Course Introduction; Descriptive Statistics; Statistical Modeling for Transportation	Chapters 1 & 2, Appendix A		
Jan. 28	Linear Regression; Violations of Regression Assumptions; Linear Regression Applications	Chapters 3 and 4, Modules 1 and 2	HW 1	
Feb. 4	Background and Exploration in Time Series;	Chapter 7		
Feb. 11	Forecasting in Time Series: ARIMA Models and Extensions	Chapter 8, notes	HW 2	HW 1
Feb. 18	Count Data Models	Chapter 11		
Feb. 25	Count Model Applications	Lord *et al.* (2004)	HW 3	HW 2
Mar. 3	Logistic Regression	Chapter 12		
Mar. 10	**PROJECT ASSIGNED**; Logistic Model Applications	Modules 3 and 4	HW 4	HW 3
Mar. 17	**SPRING RECESS – NO CLASS**			
Mar. 24	Discrete Outcome Models	Chapter 13		
Mar. 31	Discrete Outcome Model Applications	Modules 3 and 4	HW 5	HW 4
Apr. 7	Ordered Probability Models	Chapter 14		
Apr. 14	Ordered Model Applications	TBA	HW 6	HW 5
Apr. 21	Additional Topics (TBD)	Chapter 17, TBA		
Apr. 28	**(snow day makeup**)**			HW 6
May 5	**PROJECT PRESENTATIONS***; REPORTS DUE**			

* Chapter or Section in Washington et al. unless otherwise noted, in which case they will be found in the folder titled "Readings" in HuskyCT. "Modules" refers to Modules 1 through 4 provided in the "Extra Readings" folder in HuskyCT.
** If we miss a class due to inclement weather, the schedule will shift by one week for the rest of the semester.
***Project Presentations will be given using WebEx in the normal class schedule.