**CE 660 Transportation Planning & Urban Development**

**Instructor: Robert Kluger**

**Course Location:**

**Section 50-Distance Ed. – Videos will be posted on Blackboard**

**Course Description:** This course is focused on the principles of transportation planning and urban development. Students will learn about trip generation, distribution, mode choice, and assignment, and approaches to travel demand forecasting. Students will also gain experience developing statistical models in R Programming Language and experience in research methods.

**Prerequisites:** CE 460 Transportation Systems Engineering

**Credit Hours:** 3 credit hours

**Textbooks:** Modelling Transport. 4th Edition. Ortúzar and Willumsen. 2011. Wiley

NCHRP 716: Travel Demand Forecasting: Parameters and Techniques. 2012. TRB.

**Software:** R (<https://www.r-project.org>), RStudio (<https://www.rstudio.com>), Citation software of choice ([Mendeley](https://www.mendeley.com/?interaction_required=true), [EndNote](https://library.louisville.edu/endnote))

**Course Format:** Each week an announcement will be posted on Blackboard listing the following:

* Lecture videos to watch for the week.
* Assigned and/or optional readings.
* Assignments with due dates.
* Take a quiz (if applicable)
* Other instructions.

The course will consist of a Term Paper covering a transportation-related topic of the student’s choice. Each student will write a paper and produce a short video to present the findings of the paper. Deadlines for the Term Paper will be posted in weekly announcements.

**Office Hours:** By appointment. E-mail is [robert.kluger@louisville.edu](mailto:robert.kluger@louisville.edu). Appointments can be arranged online or in-person. Dr. Kluger’s office is WS Speed 112.

**ABET Student Outcomes:**

(b) an ability to design and conduct experiments, as well as to analyze and interpret data

(f) an understanding of professional and ethical responsibility

(g) an ability to communicate effectively

(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context

(k) an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice.

**Blackboard:** Blackboard is the primary location for communication within the course. All students are required to check Blackboard **daily** for announcements, links to course material, and more. All assignments will be submitted to Blackboard.

**Grading Structure:**

**Quizzes (20%):** Quizzes will occur periodically covering materials from the lecture videos. They will take roughly 30 minutes and cover the topic from the previous week. All quizzes will be weighted equally and the lowest will be dropped.

**Term Paper (40%):** For more information, see “Term Paper Assignment” on Blackboard. Grade includes all benchmarks + final paper.

**Assignments (40%):** Assignments will involve traditional homework assignments and preparing short videos describing different concepts in class.

**Academic Dishonesty:** Students are held to the highest standard in regard to academic dishonesty. Any student caught cheating or in any other violation of the [Student Code of Conduct](http://louisville.edu/dos/students/studentrightsandresponsibilities) will be subject to consequences. At a minimum, the student will receive a 0 on the assignment that is not eligible to be dropped.

**Title IX/Clery Act Notification:**

Sexual misconduct (including sexual harassment, sexual assault, and any other nonconsensual behavior of a sexual nature) and sex discrimination violate University policies. Students experiencing such behavior may obtain confidential support from the PEACC Program (852-2663), Counseling Center (852-6585), and Campus Health Services (852-6479). To report sexual misconduct or sex discrimination, contact the Dean of Students (852-5787) or University of Louisville Police (852-6111).

Disclosure to University faculty or instructors of sexual misconduct, domestic violence, dating violence, or sex discrimination occurring on campus, in a University-sponsored program, or involving a campus visitor or University student or employee (whether current or former) is not confidential under Title IX. Faculty and instructors must forward such reports, including names and circumstances, to the University’s Title IX officer.

For more information, see the [Sexual Misconduct Resource Guide](http://louisville.edu/hr/employeerelations/sexual-misconduct-brochure).

**COVID 19:**

As a Community of Care, all Cardinals are expected to abide by public health guidelines and regulations as published by the University. For Spring 2021, this includes:

1. wearing of cloth/paper masks (covering nose and mouth) when in shared indoor spaces like classrooms, or when appropriate physical distancing cannot be maintained. (Per the code of student conduct--[revised July 2020](https://louisville.edu/dos/students/codeofconduct)--a student who refuses to follow these guidelines may be asked to leave a classroom)
2. staying home when sick—any UofL community member experiencing fever, consistent dry cough, or other symptoms of contagious disease should remain at home until symptoms subside or advised that it is safe to return by a medical professional.
3. practicing good hygiene and responsibility for one’s own surrounding.
   1. Cover sneezes and coughs
   2. Wash hands frequently with soap and water when possible, use hand sanitizer when soap and water are not available
   3. Wipe down frequently touched surfaces
   4. Maintain 6 feet physical distancing when possible

Faculty have the responsibility to help students meet these recommendations by:

1. allowing for remote participation in class
2. allowing students absent for reason of illness to make up missed work and not penalize students for these absences
3. not requiring doctor’s notes for absences of less than the equivalent of two weeks of class. If the absences occur on the day of a scheduled assessment, the student may be asked to provide documentation for the absence
4. Notifying physical plant when classrooms are not adequately stocked with cleaning supplies and arranging classroom furniture or seating charts to maximize physical distancing where possible.

Your instructors are committed to your safety and health as well as your academic success. If we all work together, we can have a safe and rewarding semester. Know that your instructors are aware of the many challenges you will face this semester, make sure you afford them the same courtesy.

**Computer Issues and IT Support:** Speed IT staff are available by appointment from 9 am to 4 pm to assist you with your technology needs. You may schedule an appointment by sending a detailed email including any relevant error codes and screen snips at [SPDHelp@Louisville.edu](mailto:SPDHelp@Louisville.edu) (preferred) or 502-852-7620.

**Course Topics \*\*SUBJECT TO CHANGE\*\***

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| **Week** | **Topic** | **Videos** | **Assignments** |
| **1** | **Course Intro** | **Course Overview**  **Video Creation** | **Admin Video** |
| **Intro to US Transportation Policy** | **Intro to USDOT** |
| **2** | **MLK Holiday** | | |
| **3** | **USDOT Admin Videos** | **Classmates’ Admin Video** | **Quiz 1**  **Term Paper Topic Selection** |
| **Term Paper Overview** | **Term Paper Overview** |
| **4** | **Modeling Transport Ch 1** | **1-1 Characteristics of Transport Problems**  **1-2 Modeling and Decision Making**  **1-3 4-Step Modeling approach** | **Read Ch 1MT**  **Read NCHRP 716**  **MPO Videos**  **TP Annotated Bib** |
| **Term Paper Lit Review** | **How to Do a Lit Review** |
| **5** | **Modeling Transport Ch 3 Data/Space** | **3-1 Samples/Populations**  **3-2 Errors in Modeling/Forecasting** | **Read Ch 3-1/2 MT**  **Transportation Data Assignment** |
| **6** | **Modeling Transport Ch 3 Stated Preference Surveys** | **3-3 Surveying**  **3-4 Stated Preference Surveys**  **Analysis of Stated Choice Surveys in R** | **Quiz 2**  **Read NCHRP 716 Ch 2 & 3**  **Read Ch 3-3/4 MT** |
| **7** | **Trip Generation** | **4-1 Basics**  **4-2 Cross Classification**  **4-3 Regression** | **Read MT Ch 4**  **Read NCHRP 716 Ch 4**  **TP 5-Page Draft** |
| **8** | **Trip Generation** | **Trip Generation in R** | **Trip Gen Assignment**  **Quiz 3** |
| **9** | **Trip Distribution** | **5-1 Trip Distribution**  **5-2 Growth Factors**  **5-3 Gravity Model** | **Read MT Ch 5**  **Read NCHRP 716 Ch 5** |
| **10** | **Trip Distribution** | **Trip Distribution in R** | **Trip Dist Assignment**  **Quiz 4** |
| **11** | **Mode Choice** | **6-1 Mode Choice Basics**  **6-2 Discrete Choice Models**  **7-1 Nested Logit Models** | **Read MT Ch 6 & 7**  **Read NCHRP 716 Ch 6** |
| **12** | **Mode Choice** | **Mode Choice Models in R Video 1**  **Mode Choice Models in R Video 2** | **Read Croissant Paper**  **Quiz 4** |
| **13** | **Traffic Assignment** | **10/11 Traffic Assignment** |  |
| **14** | **Term Papers Due** | | |
| **15** | **Term Paper Assignment** | | |