**PLAN 539.001: Understanding and Planning for Freight Flows**

Spring 2022

**Instructor:**  Charles Edwards

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**Office Hours:** TBD

**Course Meetings:** Tuesday 8:15 – 10:45am, Location: Murphey, Room 0111

**Course Description:** This course introduces students to the unique characteristics of freight transportation and the impact of urban and regional planning. The course provides a broad overview of the field and is intended for students intending to concentrate in transportation planning or those who want a broad overview of the field. Freight transport, which is a critical segment of supply chains, is undergoing dramatic changes. The impact of e-Commerce is revealed in the constant re-organization of supply chains and the need for freight transport to respond accordingly. Planning for infrastructure – roads, bridges, ports, airports, railroads, etc. – involves a new element of adaptability based on uncertainty. As a result, historic approaches to infrastructure planning are being challenged.

This course prepares students to be effective practitioners or informed citizens in this uncertain environment. We’ll focus on three aspects:

**• Key Issues:** What are the key issues in the logistics and freight transport field? The section focuses on understanding the forces that impacting supply chains and freight transport patterns (and their links to land use).

**• Institutions:** This section provides a broad introduction to the relationship between public agencies which are responsible for the majority of transport planning in the U.S. and private enterprises which operate the majority of the logistics and freight transport systems. The challenge of decision and policy makers of public agencies to accommodate the ever-changing logistics and freight transport landscape will be discussed.

**• Analytic Tools:** Transportation planning relies heavily on rational planning models. This section of the course will introduce you to the common analysis techniques used in supply chain and freight transportation planning.

**Course Objectives:** At the end of this course, you will be able to understand the primary drivers for freight transport operations and their infrastructure requirements. You will be knowledgeable of the typical terms used by practitioners and employ them in developing surveys and appropriate procedures and plans. Furthermore, you will be able to discuss authoritatively the key policy issues in current transportation planning debates.

**Course Requirements:**

In-class participation is an important aspect of this course. As noted below in the “Grading” section, your active participation accounts for 30% of the course’s final grade. In-class participation is possible in two forms. The first is to challenge the instructor through incisive questions or to bring to the class environment additional information about the freight and logistics industry in the United States or worldwide.

**In-Class Project:** A recurring issue is the disconnect between community planners and economic developers. This disconnect creates confusion and delay. In numerous instances such delays mean that a project is shifted from one community to another, to the detriment of the losing community in a variety of ways. The course will involve studying the industrial and logistics developments in Johnston County, North Carolina. Information about the project will be available to all students on or about February 1, 2022. The class will be given assignments which challenge them to analyze the situation, compare it with other similar projects, and to assess the processes employed to develop the project. Students will have the option, with the instructor’s explicit permission, to substitute their work on this project with one or two of the required essays. The determination of how many essays are replaced will depend on the level of commitment of the student to the project and related assignments. Guest speakers in the field of economic development will be invited to address the class during the semester.

**Essays:** Students must complete 2 essays, except as noted above regarding the “**In-Class Project**”. Essays are to be no more than 2,000 words in length. Use of tables and graphics is highly recommended. All pages must be numbered. Papers are to be submitted in .doc or .docx format ONLY. Citations do not count towards the word count. Suggested topics for the essays include:

* Blockchain – what is and explain one application
* Challenges and Opportunities of new Urban Freight Transport Technology Options
* Freight Transport Supply Chain Interface – select one supply chain
* Freight Transport and Globalization – use one example
* Freight Flows vs. Urban Planning
* Impact of e-Commerce on Urban Planning

**Final Exam:** A *synthetic* final exam covering lecture materials and readings will be held during exam period. There will be no make-up exams. If you miss the exam due to an excused absence (illness, family emergency), there will be no make-up. When the exam is missed for an excused absence, the other course requirements will be re-weighted, and the final exam will not be considered in your course grade. If you miss the final for an unexcused absence, you will receive a grade of 0 for the final exam.

With the instructor’s permission, graduate students may write a research paper on a topic related to the class rather than taking the final exam. Any graduate students interested in doing this must submit a proposal by the Wednesday before Spring Break.

**Participation**

***Consistent participation in each classroom session and effective collaboration with your classmates is essential in this course. Students will be expected to have read the appropriate chapter for each class and the assigned readings and be prepared to discuss the readings in relation to the issue addressed in the assigned reading. In addition, the in-class project, mentioned above, will be employed throughout the course to introduce class participants to the re. Active participation in the in-class project will be the equivalent of writing one essay.***

**Grading**

**Assignments % of Final Grade**

1.a Essay #1 / #2 25 each (replaced in whole or in part by In-class project)

1.b In-class project 25 – 50 (subject to instructor approval)

2. Final Exam 20

5. In-class Participation/Exercises 30



**Late Assignments**

Each student has 3 ‘late days’ to use at their own discretion. If an assignment is turned in after the due date but before 24 hours have passed, that would be one day late, and a student could opt to use a ‘late day’ to avoid grade penalties. Late days are not sub dividable. A paper that is 2 hours late is the same as a paper that is 23 hours late.

Any assignments turned in late (i.e. after allowances for the 3 late days) will incur a penalty of a half-grade (letter graded assignments) or half the standard deviation (numeric graded assignments). For example, if a paper is a day late, the grade would change from a B to a B-. If the paper is two days late, the grade would change from a B to a C+.

**Readings**: The course will employ one textbook • Rodrigue, J-P, The Geography of Transport Systems,5th Edition, 2020, Routledge. Readings for each session will be a combination of the case studies associated with each chapter and readings of current situations that correspond with the topic of each class. The readings will be issued at the end of the preceding class.

**Honor Code:** The UNC Honor Code states: “***It shall be the responsibility of every student at The University of North Carolina at Chapel Hill to obey and to support the enforcement of the honor code, which prohibits lying, cheating, or stealing when these actions involve academic processes or University, student or academic personnel acting in an official capacity.”***

This standard does **not** preclude discussions of assignments with other students. However, I expect that each person turns in their own work. You must also provide citations for any ideas that are not your own.

**Course Schedule**

**Date Textbook Chapter / Topics / Class Overview**

**11-Jan** ***NO CLASS – Transportation Research Board Annual Conference*  \_\_\_\_\_\_\_\_\_\_\_\_\_**

**18-Jan**  **CH-1 – Transportation and Geography**

*Transportation and space*

 **CH-2 – Transportation and Spatial Structures**

*Review of transport networks*

180727 The Founding Forties, Richard Malkin, Flying Typers

200601 Strategies and future development of transport corridors, Theo Nootboom, ITMMA

210923 How the world ran out of everything, [Peter S. Goodman](https://www.nytimes.com/by/peter-s-goodman) and [Niraj Chokshi](https://www.nytimes.com/by/niraj-chokshi), The New York Times

211022 Neighborhood street clogged by trucks hauling shipping containers, CBS-AP

210727 Transportation’s Role in Equity and Justice Restoring and Revitalizing Neighborhoods and Communities, National Academies of Science

211020 Raleigh developer joins rush for industrial space with large project near RDU, Triangle Business Journal

211013 5 ways New York City can overhaul its streets to be more resilient, Smart Cities Dive

**25-Jan** **CH-3 – Transportation, economy, and society**

*Transport and society / Transport costs / Transport supply and demand*

211007 various supply chain articles, The Atlantic

**01-Feb CH-4 – Transportation Modes**

*The four primary modes / Intermodal freight transport*

171019 Intermodal Benefits Come Into focus, Inbound Logistics

210902 Grim Outlook for intermodal as an alternative to ‘maxed out’ US truck market, Ian Putzger, The Loadstar

**CH-5 – Transportation Terminals**

*Freight terminal types / Location criteria*

191025 Duisburg to get largest inland terminal of Europe, RailFreight.com

201120 Supply Chain Cities, Danielle Ternes, Supply Chain Dive

**Johnston County Economic Development**

*Introduction to economic development*

**8-Feb**  **CH-6 – International trade and freight distribution**

*Globalization / Trans-border trade / Transport’s role / Logistics’ impact*

210616 North America supply chain reshoring will not happen, Mark Solomon, American Shipper

210816 Global Supply Chains Get Battered by Fresh Covid Surges, Bloomberg

211021 How the maker of Cheerios and Haagen-Dazs copes with hundreds of supply chain snafus a month, CNN Business

**Johnston County Economic Development**

Assigned reading materials

**15-Feb** **CH-7 – Urban Transportation**

*Urban land use and transportation / urban mobility / urban transport issues*

170804 The Secret Life of the City Banana, The New York Times

180420 Cities Struggle to Contain Curbside Congestion, Future structure

211007 Why rural is hard to define, The Well, UNC-CH

**Johnston County Economic Development**

***ESSAY #1 DUE***

**22-Feb CH-7 – Urban Transportation**

*Impact of e-Commerce / urban transport issues / environmental issues*

180404 Inside UPS’s Electric Vehicle Strategy, UPS Longitudes

180420 Last Mile Report, eft

210901 We Are Going to Need a Lot More Electric Delivery Bikes, David Zipper, Bloomberg CityLab

**Johnston County Economic Development**

What are the issues which affect integration of Johnston County into the transport eco-system?

**01-Mar** **CH-8 – Transport, energy, and environment**

*Energy applications / sustainability / green logistics*

171231 UPS 2017 Sustainability Report

180729 Energy Efficiency is Key to Better Logistics, Industry Week

190211 Yes, Sustainability can be a strategy, Harvard Business Review

**Johnston County Economic Development**

*Topics for detailed study*

**08-Mar CH-9 – Transport planning and policy**

*Nature of transport planning*

170101 INFRASTRUCTURE FINANCING – Guide for Local for Local Government Managers, ICMA

**Johnston County Economic Development**

*Detailed study*

**15-Mar NO CLASS – Spring Break**

**22-Mar CH-10 – Methods in transport geography**

Graph theory / GIS applications / Transportation and accessibility

180220 Capturing the Value of Predictive Modeling in Logistics, Supply Chain at MIT

**Johnston County Economic Development**

*Detailed study*

**29-Mar e-Commerce Operations in an Urban Environment**

190901 Solving the final 50 feet – Interview with Barbara Ivanov, DC Velocity

STRIDE project

211025 Flexibility, flight to suburbs emerge as pandemic real estate trends, Smart Cities Dive

211002 US Parcel Volume up 37%, MH&L

210527 The new parcel reality: Record volumes, tight capacity, higher costs, inconsistent service, Gary Frantz, DC Velocity

**Johnston County Economic Development**

*Detailed study*

***Essay # 2 DUE***

**05-Apr Johnston County Economic Development**

*Detailed study*

**12-Apr** **Rural development – a case study**

*Southwest and Northeast North Carolina study presentation*

**Johnston County Economic Development**

*Detailed study*

**19-Apr Johnston County Economic Development**

*Detailed study*

**26-Apr Course Review**

**TBD-Apr/May Examination – Take Home**

**UNC-Chapel Hill Spring 2022 Academic Calendar**

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| **Event** | **Date** |
| **Classes begin** | Monday, January 10 |
| **Last day of late registration** | Sunday, January 16 |
| **Holiday (MLK Jr.). No classes** | Monday, January 17 |
| **Spring break begins 5:00 p.m.** | Friday, March 11 |
| **Classes resume 8:00 a.m.** | Monday, March 21 |
| **Spring holiday. No classes** | Friday, April 15 |
| **Classes end** | Wednesday, April 27 |
| **Reading days** | Thursday, April 28 to Wednesday, May 3 |
| **Exam days** | Friday, April 29Saturday, April 30Monday, May 2Tuesday, May 3Thursday, May 5Friday, May 6 |
| **Spring Commencement** | Sunday, May 8 |