ECONS - 426

Transportation Economics & Supply Chain Analysis

Course Details

Instructor: Mengshan Zhao (*mengshan.zhao@wsu.edu*)

Office hours: Zoom appointment

Please feel free to email me if you have any questions!

Course Communication:

- General course questions should be submitted to the "**Ask the Instructor**" forum located in Class Discussions.
- Read the **Instructor Interaction** section in this syllabus for more details about course communications.

Required Textbook: Prentice, B. E. and Prokop, D. (2016). *Concepts of Transportation Economics*. World Scientific.

The textbook is required. **You will be assigned to read a chapter of the book each week**. You can purchase the book at a discount price through *First Day*® (simply choose Course Materials from the Navigation Bar on Canvas), or purchase directly from the publisher, or from any other third parties. I highly recommend to order the book before the course starts. The electronic version (e-book) is also available if you want to have it right away.

Washington State University will bill you at the discounted price as a course charge for this course. ***You have the option to opt-out of this program in the LMS****. Bookmark the Faculty FAQ link for quick answers to common questions and troubleshooting:https://tinyurl.com/firstdayfacultyfaqs. Links to an external site.*

IMPORTANT: Visit the course "More Information" page to review details about textbooks, course materials, media, proctor requirements, and any fees associated with this course.

Course Overview

Transportation is the critical link in successful supply chains since transportation affects all aspects of our daily lives. In this course, we will start by laying the economic foundation and rationale for the role of transportation as well as its political and social importance. Students will learn how to use economic theory and empirical tools to

analyze transportation markets and policies. In particular, the course will discuss transportation costing and pricing in a market-based economy, and the role of technology in transportation. We will examine the key features and issues of the five basic modes of transportation (motor, rail, airline, water and pipeline). Finally, we will analyze how logistics service providers improve the efficiency, effectiveness, and execution of global supply chain flows.

Prerequisite: ECONS 301 or 305; ECONS 311

Student Learning Outcomes (SLOs)

This course aims to provide students a framework to understand in-depth analysis, and applications in transport economics. Students will be able to apply the models to understand and appreciate a wide range of transportation issues. By the end of the course, students should be able to:

A. Understand important concepts on transportation and supply chain.
B. Understand how fundamental microeconomic theory can be used to analyze transportation issues.
C. Modes of transportation and their advantages/disadvantages in supply chain.
D. Conduct basic costing and pricing analysis related to transportation.
E. Empirical analysis related to transportation issues.

Course Work

I expect students to be actively involved in the learning process. Students are expected to read the chapters of the textbook and review the power point slides located in the Modules section. In this way, you become an active participant and we engage in healthy policy discussions. I will upload short lecture videos of each chapter explaining some concepts in the chapter. If you have any questions, I recommend to post your questions on the provided weekly discussion forum. You may send me an email if you have private questions. Please also feel free to contact me during virtual Office Hour as indicated above. I am here to help you and your feedback will help everyone.

Problem Sets

There will be **weekly problem sets** throughout the semester for each chapter. They are intended to help you prepare for the exam. Working through the problem sets as a group is encouraged but individual problem sets need to be handed in. Problem Sets are to be submitted on or before the due date. See the late work policy for late submission. I will **drop the two lowest scores** among 13 problem sets, so only the scores of 11 problem sets will be counted at the end.

Paper Review

These papers are related to transportation economics. You have to read the papers and write a report for each paper.

- Paper 1: Are Consumers Myopic? Evidence from New and Used Car PurchasesLinks to an external site.
- Paper 2: Automobile Externalities and Policies
- Paper 3: Should Urban Transit Subsidies Be Reduced?

Project

You will be given a case to analyze along with the data. Using econometrics techniques, you have to analyze the data and write an academic report. This is an individual work. You have to submit your regression results, graphs (if any), and **codes**. You're welcome to use any statistical software (i.e. STATA, R, Python). For more information see the project file. Some useful resources are:

Stata: Student short-term license request (one week) : https://www.stata.com/customer-service/short-term-license/Links to an external site.
Stata Tutorial for regression: https://stats.idre.ucla.edu/stata/webbooks/reg/chapter1/regressionwith-statachapter-1-simple-and-multiple-regression/Links to an external site.

For advanced study, a good micro econometric book for **Stata** is:

https://searchit.libraries.wsu.edu/permalink/f/1j6uprt/CP71143073070001451 (Links to an external site.)

One book is in Pullman library. If you want to learn more about micro-econometrics using Stata. It will be a good reference book.

R and Python are free open source programming language

R : download R and R studio both, and using R based on R studio

- R download : https://www.r-project.org/Links to an external site.
- R studio for desktop download : https://rstudio.com/products/rstudio/Links to an external site.

R econometrics book (open resource): https://www.econometrics-with-r.org/index.htmlLinks to an external site.
R online book for econometrics (open resource): http://www.urfie.net/index.htmlLinks to an external site.
Python download: https://www.anaconda.com/Links to an external site.
Python online book for econometrics (open resource): http://www.urfie.net/index.htmlLinks to an external site.

Python linear regression basic tutorial (open resource): https://python.quantecon.org/ols.htmlLinks to an external site.

You need to do data pre-processing for econometrics analysis. For example, you need to change string variables as a binary dummy variable. You can do this by excel or other programming language (Stata, python, and R).

Especially, you need to use **Logit models** because it is discrete choice modeling.

Stata Tutorial for logit : https://www.princeton.edu/~otorres/Logit.pdfLinks to an external site.
R implementation for logit (open source tutorial) : https://www.princeton.edu/~otorres/LogitR101.pdfLinks to an external site.
Popular graduate level discrete choice book (Prof. Kenneth Train) is "**discrete choice modeling**" and it is open to the public : https://eml.berkeley.edu/books/choice2.htmlLinks to an external site.

You can download each chapter (free) on the author's homepage, please read ch2 and ch3, if you want to understand logistic regression in detail.

Chapter 2. Properties of Discrete Choice ModelsLinks to an external site.
Chapter 3. LogitLinks to an external site.

Exams

The midterm and the final exam will cover the applications of analytical tools to particular topics. The *Final Exam* is **NOT** comprehensive.

- Midterm exam covers Chapter 1-8
- Final Exam covers Chapter 9-14 (except Chapter 12)

The exams are **Online, Take Home, and timed--3 hours.** The exams will be available on the date and time stated in the Course Schedule. The midterm and non-comprehensive final are both **open note and open book**. The opening time and the closing times are indicated in the course schedule. Once you have begun the exam, you will **have 3 hours** to complete and **submit the exam via Canvas**. Download the exams, complete the problems and upload the Word or PDF version of Word file to the assessment drop box.

- You have **3 hours** to complete and submit the exam.
- **The word-file** should be in **Times New Roman, 12, double-spaced**. (Word or PDF version of Word file only)
- You can insert a picture of your graph (by hand-written) into **the Word-file.**
- Answer ALL 5 questions fully.
- Ensure each question is labeled so that it is clear what work is associated with which question.
- Once you complete the exam, **Make one pdf/doc file and upload the file.**

- This is an individual assessment. If your work is found to be the same or very similar to another student's exam, you will be reported for a cheating incidence and receive zero mark for the exam.

Due to the open note and open book nature, the problems on the exam are intensive and will require significant work to complete. Remember that this is an individual assessment and **NOT** a collaborative venture. **After the deadline will receive no credit.**

Extra Credit

You can submit **an introduction post** (available on the discussion board) and get **10 points or 2%** added to your total grade. Please check: **Canvas => Discussions => Forum: Introduce Yourself.** Post your introduction by the first week of the course (by August 23rd). You will get another 3% from participating the course evaluations.

Grading

Assignment Breakdown		
Assignment	**Points**	**Percent**
Problem Sets (13-2 = 11)*	110 (10 pts each)	30%
Paper Reviews (3)	60 (20 pts each)	15% (5% each)
Project	150	15%
Midterm Exam	100	20%
Final Exam	100	20%
TOTAL (without Extra Credit)	**520**	**100%**
Extra Credit	10	5%
TOTAL (with Extra Credit)	**530**	**105%**

*The two lowest scores of the problem sets will be dropped.

Grading Schema			
Grade	**Percent**	**Grade**	**Percent**
A	93 & above	C	65-69.99
A-	90-92.99	C-	60-64.99
B+	85-89.99	D+	55-59.99
B	80-84.99	D	50-54.99
B-	75-79.99	F	Below 50
C+	70-74.99		

- **Disclaimer**

The instructor reserves the right to change the course content and number of problem sets assigned as the class proceeds through the semester. This syllabus is subject to change to facilitate instructional and/or student needs.

Instructor Interaction

I anticipate being in the course space 3 - 5 times a week. If you have ***content related questions*****, please post them in** *Class Discussions***.** I will endeavor to respond to them within 24 hours. ***For*** *private matters* that should not be shared with the rest of the class, please contact me using the *email* address. I also plan to be available via other tools in the course space and will pursue these once the semester gets underway and announce to the class.

Academic Integrity Instructor Statement

The emergence of generative AI tools (such as ChatGPT , Claude or Co-pilot) has sparked interest among many students in our discipline. The use of these tools for brainstorming ideas, exploring possible responses to questions or problems, and creative engagement with the materials may be useful for you as you craft responses to class assignments. While there is no substitute for working directly with your instructor, the potential for

generative AI tools to provide automatic feedback, assistive technology and language assistance is clearly developing.

1) **All submitted work must be your own.** AI should assist in refining your ideas, not generating complete assignments.

2) Clearly indicate any AI tools used and describe their specific contributions to your work.

Failure to appropriately attribute AI assistance or submitting AI-generated content as your own may be considered a violation of the academic integrity policy. Ensure transparency in your use of AI tools. Please feel free to reach out to me well in advance of the due date of assignments for which you may be using generative AI tools and I will be happy to discuss what is acceptable.

Late Work Policy

All problem sets and paper reviews need to be submitted before the set deadlines. Each day of late submission will **leads to a *10% penalty*.** If you have unexpected issues, please send me an e-mail before the due day.

Incomplete Grade Policy (Academic Rule 90h)

Incompletes are granted only with permission of the instructor and are subject to the following guidelines:

1. Students must request an incomplete in writing or by e-mail from the instructor before the end of the semester.
2. The request must be signed and dated by the student (or identified by student's e-mail address) and must explain the reasons behind the request for the incomplete.
3. In order to be considered for an incomplete, there are two main conditions:
    1. A student must complete a minimum of 75 percent of the assigned course work.
    2. A student must have a mathematical possibility of scoring a 60 percent or above for the entire course.
4. If extraordinary circumstances (e.g., family emergency, serious illness) are involved and are documented to the instructor's satisfaction, the professor/ instructor retains the discretion to grant an incomplete even if the minimum conditions outlined in item 3 above are not met.

If an incomplete is granted, the standard WSU policy applies (i.e., ALL work must be completed within one full year from the end of the enrollment semester at issue, unless a shorter time is specified by the instructor. Otherwise, an automatic grade of "F," or failing, will be entered on the student's transcript).

Credit Hour Equivalent

Academic credit is a measure of the total minimum time commitment required of a typical student in a specific course. For the WSU semester system, one semester credit is assigned for a minimum of 45 hours of student effort. See Academic regulation 27.

For a 15-week course, students should expect to spend a minimum of 9 hours per week for each online 3-credit course engaged in activities including, but not limited to: reading, listening to/viewing media, completing assignments and reviewing instructor feedback, contributing to discussions, conducting research, studying for and completing assessments, etc.

For a 7-week course, students should expect to spend a minimum of 19 hours per week for each online 3-credit course engaged in the activities as listed above.

For Graduate Students

The Graduate Student Rights and Responsibilities describes procedures for channeling graduate student complaints, grievances, and concerns to faculty, staff and administrators for appropriate action. In conjunction with this document, graduate students must adhere to the Graduate School's Policies and Procedures. While these rights and responsibilities outline the complaint process, students are encouraged to use the Graduate School Deans for guidance and advice on conflicts that may arise at any point during their course of study at the University.

Academic Integrity

You are responsible for reading WSU's Academic Integrity PolicyLinks to an external site., which is based on Washington State lawLinks to an external site.. If you cheat in your work in this class you will:

- Incur a penalty up to and including failing the assignment, exam, quiz, course requirement, or the course itself.
- Be reported to the Center for Community StandardsLinks to an external site..
- Have the right to appeal my decision.
- Not be able to drop the course or withdraw from the course until the **appeals** process is finished.

If you have any questions about what you can and cannot do in this course, ask me.

If you want to ask for a change in my decision about academic integrity, use the formLinks to an external site. at the Center for Community StandardsLinks to an external site. website. You must submit this request within 21 calendar days of the decision.

Copyright

Any course-related materials, presentations, lectures, etc. are the instructor's intellectual property and may be protected by copyright. The use of University electronic resources for commercial purposes, including advertising to other students to buy notes, is a violation of WSU's computer abuses and theft policy (WAC 504-26-218). Selling class notes through commercial note taking services without written advance permission from the faculty, could be viewed as be as copyright infringement and/or academic integrity violation, WAC 504-26-010 (3)(a,b,c,i).

Academic Regulations

Students enrolled in online courses are subject to the same University academic regulations as on-campus students. For the most accurate and up to date information go to Academic RegulationsLinks to an external site..

Online Collaboration

The essence of education is exposure to diverse viewpoints. You will engage with people with vastly different opinions and backgrounds. You are encouraged to disagree with the substance of others' ideas and opinions but do so with an active sense of respect for one another, and without losing focus on the topic at hand. Personal attacks, inflammatory statements, flaming, trolling, and disruption of the discussion do not have a place in academic discourse. Postings must comply with University policy on use of computing resources, including those regarding harassment and discrimination, as well as conform to the WSU Community StandardsLinks to an external site..

Your instructors will promote high-quality academic discussions by removing any posts they view as disruptive of the educational process and alerting students whose posts have been removed that they have violated course expectations. Students who continue to misuse the discussion boards after a warning may be subject to removal of access rights, course failure, and referral to the Office of Community Standards.

Review the netiquette guidelines.Links to an external site.

Cougar Community and Reimbursement Options

Student InvolvementLinks to an external site.: Explore all the ways to become involved at WSU Global Campus and get connected with the Coug community.
ASWSU Global Grocery Voucher ProgramLinks to an external site.: Apply for assistance by applying for a grocery voucher through ASWSU Global Campus.

Mental Health Resources and Support

Mental HealthLinks to an external site.: Life as a student can be stressful. WSU Global Campus has mental health resources that may help.
988 Suicide & Crisis HotlineLinks to an external site.: 24/7 call for yourself or if you are concerned about a friend, acquaintance, or family member.

Technical Support

The WSU Global Campus Current StudentLinks to an external site. site has all the non-content, administrative, and contact related information you need to be a successful online learner as well as study tips and skills for successLinks to an external site.. Before contacting Technical Support please visit our Equipment Requirements web pageLinks to an external site. to ensure your system meets our computer requirements and test your connection.

Technical support is available 24/7

A member of our technical support team will assist you or direct your request to the appropriate group. The technical support team is NOT able to answer questions about course content or procedures (e.g., assignments, grades).

Please visit our Tech Support web pageLinks to an external site. for contact information.

Library Support

All students enrolled in Washington State University online courses can use the WSU Libraries online databases and receive reference and research assistance from their home campus. Students can also borrow books and other circulating material as well as access full-text journal articles.

General Library Links by Campus

- Pullman Library SupportLinks to an external site.
- Global Campus Library SupportLinks to an external site.
- Vancouver Library SupportLinks to an external site.
- Tri-Cities Library SupportLinks to an external site.
- Library Support at Spokane – Riverpoint and Nursing at YakimaLinks to an external site.
- College of Nursing Library SupportLinks to an external site.

Online Tutoring

As a WSU student enrolled in an **undergraduate course**, you have FREE unlimited access to Online Tutoring. This is not a course requirement, but a resource for you to utilize as needed.

With three ways to access a tutor you can choose the one that best fits your needs:

- **Submit a paper:** Writing Lab tutors will respond to papers in ANY academic subject. Just submit your paper, ask specific questions on the submission form, and a tutor will respond within 24-48 hours.
- **Live tutoring:** eChat rooms allow students to meet with tutors in one-on-one tutoring sessions via a fully interactive, virtual online environment.
- **Leave a question:** Students can leave specific questions for a tutor in any of our subjects by taking advantage of our eQuestions option. Our tutors will respond to your question within 24-48 hours.

More details and the list of available tutoring subjects can be found at eTutoringOnlineLinks to an external site..

As a WSU student enrolled in a **graduate level course**, you have FREE unlimited access to writing support through eTutoringOnline. This is not a course requirement, but a resource you may utilize as needed.

Writing Lab tutors will respond to papers in ANY academic subject. If you're working on a paper for ANY of your courses our tutors can help you. Just submit your paper, ask specific questions on the submission form, and a tutor will respond within 24-48 hours. For more information visit eTutoringOnlineLinks to an external site..

Important Dates and Deadlines

Students are encouraged to refer to the academic calendarLinks to an external site. often to be aware of critical deadlines throughout the semester.

Please see the Course Schedule for the most comprehensive list of due dates.

University Syllabus

Students are responsible for reading and understanding all university-wide policies and resources pertaining to all courses (for instance: accommodations, crisis resources, policies on discrimination or harassment), which can be found in the university syllabus:

https://syllabus.wsu.edu/university-syllabusLinks to an external site.