



**SIE 465/565 Supply Chain Management
Spring 2025**

Department of Systems and Industrial Engineering
The University of Arizona

Class Time: MWF 9:00 - 9:50 AM

Class Location: ENGR 304

Instructor: Dr. Yue Wang, Assistant Professor

Email: ywang23@arizona.edu

Office Location: ENGR 127

Office Hours: [In-person] Mon. 10:00 - 11:00 AM MST
[Online] Wed. 10:00 – 11:00 AM MST (by D2L -> UA Tools -> Zoom)

Teaching Assistant: Toluwanimi "Tolu" Olorunnisola

Email: taolorunnisola@arizona.edu

Office Hours: Tue. & Thu. 11:00 AM – 12:00 PM MST
Online only via Zoom (by D2L -> UA Tools -> Zoom)

Prerequisites: SIE 305, SIE 340. Basic knowledge of mathematical programming, probability, statistics, and algebra. Prior computer programming experience is a plus.

Course Description

This course introduces students to the principles and practices of supply chain management and analytics, emphasizing data-driven decision-making to optimize supply chain performance. Topics include customer and supplier management, demand forecasting, inventory and warehouse management, and transportation and logistics. Students will learn to apply Python and essential python libraries to analyze and solve real-world supply chain problems. The course combines theoretical insights with practical applications, equipping students with the skills necessary for managing complex supply chains in a globalized environment.

Learning Objectives

Upon successful completion of this course, students will be able to:

1. Understand fundamental concepts of supply chain management, including customer, supplier, demand, inventory, and logistics management.
2. Apply Python and key libraries (e.g., NumPy, Pandas, Matplotlib) to analyze and visualize supply chain data.
3. Develop and implement quantitative models for forecasting, optimization, and decision-making in supply chain contexts.

4. Work both individually and collaboratively on projects to solve complex supply chain problems, integrating technical and managerial perspectives.

Course Materials

- **Required Textbook:** Liu, Kurt Y. *Supply chain analytics: concepts, techniques and applications*. Palgrave Macmillan, 2022. (Free online access on D2L or through the UA library website.)
- **Supplemental Books:** James, Gareth, Daniela Witten, Trevor Hastie, Robert Tibshirani, and Jonathan Taylor. *An introduction to statistical learning: With applications in python*. Springer Nature, 2023. (Free online access at: <https://www.statlearning.com/>)
- **Required Software and Tutorials:** You will use Python within Jupyter Notebook to complete various assignments and the final project. If you are unfamiliar with Python, you are required to complete a **2.5-hour online tutorial** either before or within the first two weeks of your enrollment. This tutorial is available for free for UA students via [LinkedIn Learning](#). To access it, you will need a personal LinkedIn profile linked to LinkedIn Learning, which can be set up when logging in with your UA NetID credentials.

Steps to access and complete the tutorials:

1. Log in to the [LinkedIn Learning](#) platform with your UA NetID credentials. You will be prompted to link your personal LinkedIn profile.
2. Search for the course titled “*Python Data Analysis*” by *Michele Vallisneri*.
3. Begin the tutorial at your own space, following the lecture videos and exercises chapter by chapter.
4. Complete the quizzes at the end of each chapter.
5. Download the certificate upon completing all lecture videos and quizzes as proof of completion. (*Note: You are not required to take the exam at the end of the tutorial.*)

By completing this tutorial, you will gain foundational skills in:

- Installing and setting up Python and Jupyter Notebook via Anaconda.
- Using essential libraries like NumPy, Pandas, and Matplotlib.
- Applying these libraries in basic data analysis examples.

Completing the tutorial will serve as **Option A of Homework Assignment 1**, designed to ensure you are well-prepared to succeed in this course. If you already have prior coding experience in Python and feel confident in your programming skills, you may choose to skip the tutorial and complete **Option B of Homework Assignment 1** instead.

As the course progresses, we will explore additional libraries not covered in this tutorial.

Course Outline

- ❑ Introduction to Supply Chain
- ❑ Python Basics
- ❑ Data Manipulation and Visualization
- ❑ Customer Management
 - Customers in Supply Chain
 - Cohort Analysis
 - RFM Analysis
 - Clustering Algorithms
- ❑ Supply Management
 - Supplier Selection and Evaluation
 - Supplier Relationship Management
 - Supplier Risk Management
 - Regression Algorithms
- ❑ Demand Management
 - Demand Forecasting
 - Time Series Forecasting
 - Traditional Forecasting Methods
 - Machine Learning Methods
- ❑ Warehouse and Inventory Management
 - Warehouse Management
 - Inventory Management
 - Optimization using Linear Programming
 - Classification Algorithms
- ❑ Transportation and Logistics Management
 - Logistics Management
 - Transportation in Logistics
 - Logistics Network Design
 - Route Optimization

Course Assessment

	Undergraduate	Graduate
Homework Assignments (1-7)	35%	35%
Quizzes (1-6)	25%	25%
Project	40% (Teamwork with up to 5 members)	40% (Individual, or teamwork with up to 3 members)

Remarks:

- Problems given in quizzes will vary between 465 and 565 students.
- Project requirements will vary between 465 and 565 students.
- Project is divided into in four phases, each with specific deadlines (**by 11:59 PM MST on the proposed date**) to ensure steady progress and quality deliverables:

- Phase 1 Problem Identification and Proposal: **02/10**
- Phase 2 Data Exploration and Preparation: **03/19**
- Phase 3 Analytical Modeling: **04/21**
- Phase 4 Recommendations and Final Report: **05/09**
- Team presentation: **05/09**
- Peer evaluations: **05/13**

Grading Scale

- A = 90-100%
- B = 80-89%
- C = 70-79%
- D = 60-69%
- E = < 60%

Course Website

The course will use D2L (<http://d2l.arizona.edu>). You can login to the system using your NetID username and password. Please check the course website regularly, as it will be used to post announcements, quizzes and exams, homework assignments, lecture slides, and other course materials. **Any information posted on the course website will be treated as if it is announced in the class and you are responsible to be aware of it.**

Homework Policies

- Students may work together on homework assignments, but **identical submissions will receive zero points.**
- The penalty for late submission (within 72 hours) is 30% of the points allocated to the assignment. **Submission will not be accepted if it is more than three days late.**

Quiz Policies

- Quizzes are open books and open notes. However:
 - Use of email or any other communication apps (texting, WhatsApp, GroupMe, etc.) is prohibited during quiz time.
 - Use of Generative AI (ChatGPT, etc.) or search engine (Google, Bing, etc.) is prohibited during quiz time.
- Detailed instructions will be provided by the instructor prior to or during each quiz.

Absence and Make-Up Policies

- Missing a quiz is only allowable with an excuse pre-approved by the UA Dean of Students office. For more information, please refer to [Attendance Policies and Practices](#).
- Missing a regular quiz without an approved absence will result in a grade of zero with no option to retake.

Classroom Behavior Policy

To foster a positive learning environment, students and instructors have a shared responsibility. We want a safe, welcoming, and inclusive environment where all of us feel comfortable with each other and where we can challenge ourselves to succeed. To that end, our focus is on the tasks at hand and not on extraneous activities (e.g., texting, chatting, reading a newspaper, making phone calls, web surfing, etc.).

Code of Academic Integrity

Graded work must be the product of independent effort unless otherwise instructed. Students are expected to adhere to the UA Code of Academic Integrity as described in the UA General Catalog. See: <https://deanofstudents.arizona.edu/policies/code-academic-integrity>. There is zero tolerance towards plagiarism and any act of intellectual dishonesty.

Accessibility and Accommodations

Our goal in this classroom is that learning experiences be as accessible as possible. If you anticipate or experience physical or academic barriers based on disability, please let me know immediately so that we can discuss options. You are also welcomed to contact Disability Resources (520-621-3268) to establish reasonable accommodations. For additional information on Disability Resources and reasonable accommodations, please visit <http://drc.arizona.edu/>. If you have reasonable accommodations, please plan to meet with me by appointment or during office hours to discuss accommodations and how my course requirements and activities may impact your ability to fully participate.

Threatening Behavior Policy:

The UA Threatening Behavior by Students Policy prohibits threats of physical harm to any member of the University community, including to oneself. See <http://policy.arizona.edu/education-and-student-affairs/threatening-behavior-students>.

Nondiscrimination and Anti-harassment Policy:

The University is committed to creating and maintaining an environment free of discrimination; see <http://policy.arizona.edu/human-resources/nondiscrimination-and-anti-harassment-policy>.

Subject to Change Statement:

Information contained in the course syllabus, except the grading policy, may be subject to change.