

ISE 534 Data Analytics Consulting
Spring 2024, Monday/ Wednesday 6:00 – 7:50 PM;
THH208

Instructor	Dr. Maryam Pishgar
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Office Hour	Tuesday 3:30-4:30PM(OHE310u) or by appointment https://uic.zoom.us/j/84033140815
Course Producer	Yuhai Wang
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Office Hour	Monday 11:00-12:00 PM https://usc.zoom.us/j/96712713865
Course Producer	Kaiyu Zhao
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Course Producer	Edison Yu
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Office Hour:	Monday 10:00-11:00 AM https://usc.zoom.us/j/94472410881
Course Producer	Weizhi Lin
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Office Hour:	Thursday 3:00 - 4:00 PM https://usc.zoom.us/j/99923259721
Required textbooks	<ol style="list-style-type: none">1. Learning from Data (optional), by Yaser S. Abu-Mostafa, Malik Magdon- Ismail, and Hsuan-Tien, Lin (http://amlbook.com)2. Machine Learning: A Probabilistic Perspective (optional), The MIT Press, by Kevin P. Murphy3. Neural Networks and Deep Learning (optional): A Textbook, Springer, by Charu Aggarwal
Workload	<ul style="list-style-type: none">• Roughly Four homework sets for the semester• No late homework will be accepted• Start your homework assignments early
Project	One main project
Grade Distribution	Homework 30% Preliminary presentation: 20% Final Project Presentation: 20% Final Project Report : 20% Participation:10%
Goals	The objective of this course is to understand big data analysis by implementing machine learning/deep learning methodologies by using real-life medical dataset, learn intellectual research, and gain intellectual presentation skills.

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

- SLO1: Students will be able to implement preprocessing and clean big data using server
- SLO2: Students will be able to implement State-of-The-Art machine learning and deep learning models
- SLO3: Students will be able to interpret model results contextually
- SLO4: Students will be able to understand the advanced methods of preprocessing, dimensionality reduction, RL, GAN, diffusion model, transfer learning, federated learning, imbalance data, clustering, and computer vision.

SCHEDULE

****Subject to Change**

Class days	Deliverables	Topic
Jan 8		Introduction / Syllabus
Jan 10	HW1 Regression Analysis	Review Regression Models
Jan 15		No Class (MLK Day)
Jan 17	HW 2 Classification	Review Classification
Jan 22		Data Preprocessing I
Jan 24	TA Edison	Data Preprocessing II
Jan 29		Introduction of MIMIC III & IV
Jan 31		Introduction of the Main Project (Form Groups)
Feb 5	HW 3 Main Project Charter	Introduction of the Main Project
Feb 7		No class (Presidents Day)
Feb 12		Introduction to Use Server
Feb 14		Clustering
Feb 19		Imbalance Data
Feb 26		Group Meeting
Feb 28		Preliminary Presentation
Mar 4		Preliminary Presentation
Mar 6		Preliminary Presentation
Mar 11		No Classes (Spring Break)
Mar 13		No Classes (Spring Break)
Mar 18		Neural Network & Deep Learning
Mar 20	TA Yuhai	Computer Vision and CNN & Implementation
Mar 25		GAN + Diffusion model
Mar 27	TA Kaiyu	Reinforcement Learning

Apr 1		Group Meeting
Apr 3	Assign to Students	Transfer Learning
Apr 8	Assign to Students	Federated Learning
Apr 10	TA Weizhi	Basics of computational geometry
Apr 15	HW4 Process Mining	Process Mining
Apr 17		Final Presentation
Apr 22		Final Presentation
Apr 24		Final Presentation