USC Marshall School of Business

DATA SCIENCES AND OPERATIONS

SPRING 2025

DSO 569 – *Deep Learning for Business Applications*

Section(s)-16280/16281

Professor

Yingying Fan

Email

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When

Tue/Th; ***(2nd half of the semester)***

16280*: 11- 12:20 pm &* ***16281****: 2 – 3:20 pm*

Office *BRI 307B*

Units *1.5*

WHY TAKE THIS COURSE?

This course will introduce popular AI and deep learning tools from machine learning for modern business applications. The course will benefit graduate students from business and other areas who are interested in a future career in business analytics and big data analytics.

COURSE OBJECTIVES

1. Describe the core concepts of neural networks and modern techniques for AI and deep learning.
2. Write code that uses neural networks and deep learning to solve complex pattern recognition problems in business applications.
3. Build business strategies and conduct technical planning on new AI and deep learning services and products.
4. Research and analyze business data to gain business insight and help better decision-making.
5. Demonstrate and improve the ability to present complex technical data.

KEY CONCEPTS

Deep learning, supervised learning, unsupervised learning, Neural networks, Transformer, Python

COURSE DESCRIPTION

This course will introduce popular AI and deep learning tools from machine learning for modern business applications. We will start with neural networks and learn about their basic structures, and the general ideas for learning and tuning these networks. Then we will move to networks with more specific structures such as convolutional neural networks and recurrent neural networks. At last, we will discuss generative deep learning techniques such as GAN and autoencoders. We will also cover the business applications of these techniques in areas such as finance, text, and health care. We will use Python to implement these business applications. The course will benefit graduate students from business and other areas who are interested in a future career in business analytics and big data analytics.