

# DATA SCIENCES AND OPERATIONS

FALL 2024 SEMESTER

**DSO 464** — *Deep Learning for AI and Business Applications*

**Professor**  
Austin Pollok

*Section(s) – 16325*

**Email**  
[pollok@usc.edu](mailto:pollok@usc.edu)

**When**  
*Mon/Wed: 12:00 pm - 1:50 pm*

**Office**                      **Units**  
*BRI 307 J*                      *4.0*



## WHY TAKE THIS COURSE?

If you are a rising junior or senior undergraduate student who is interested in the basics of deep learning technologies for artificial intelligence (AI), and you want to understand and access the technology through hands-on coding in TensorFlow and Keras, all while working through business-related case studies, then you should take this course!

## COURSE OBJECTIVES

Upon successful completion, students will be able to:

- Understand the basics of and utilize current technologies in deep learning and AI
- Gather, categorize, analyze, interpret, and evaluate relevant qualitative and quantitative information for deep learning and business applications
- Conduct research on real-world projects using deep learning tools

## KEY CONCEPTS

- Neural networks and a neural network lens for data science
- Shallow vs deep neural networks
- Convolutional neural networks
- Autoencoders and generative adversarial networks
- Transformer networks
- Business applications (including texts and images)

## COURSE DESCRIPTION

Artificial intelligence (AI) tools play an increasingly important role in modern business and big data applications including new AI-based startups. In particular, deep learning has become the driving force of AI in recent years. This undergraduate elective course, which was created and offered initially in Spring 2018, provides an introduction to deep learning with a focus on business applications. It will help students learn the basics of deep learning technologies as well as some state-of-the-art developments that are reshaping and driving the modern business and industry. The course will benefit greatly students with strong interests in a future career or graduate program in Business Analytics or Data Science.