DSO 585 – *Data-Driven Consulting*

Professor
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When
Monday 6:30-7:50pm

Office
BRI 307J

Units
1.5

WHY TAKE THIS COURSE?

If you are a motivated graduate student who is looking to dive deep into a hands-on data driven company-sponsored project, then this is the class for you. The intended goal is to give students a project they can showcase to potential employers, as well as give students a place to practice their technical communication skills by presenting to stakeholders. This semester's topic is in finance and trading analytics.

COURSE OBJECTIVES

Upon successful completion, students will be able to:
- Identify opportunities to apply descriptive, predictive, and prescriptive analytics as a solution for a particular business problem.
- Translate a high-level business objective into a clear and precise data-driven objective.
- Build novel data sets by gathering, cleaning, and exploring data sources and vendors.
- Apply statistical analysis, machine learning, and optimization to help advance a data-driven solution for a company.
- Communicate effectively with both technical and non-technical business stakeholders on blockers, OKRs, KPIs, and recommendations.

KEY CONCEPTS

- Understanding financial market data from a wide variety of sources
- Use PyTorch and Keras/TensorFlow to implement deep-learning models, including the transformer architecture, and other deep time-series methods.
- Implement algorithms from reinforcement learning for prescriptive analytics.
- Communicating technical methodologies to business stakeholders
- Apply descriptive, predictive, and prescriptive tools in an unstructured setting

COURSE DESCRIPTION

This course will apply descriptive, predictive, and prescriptive analytics tools to a particular business problem faced by a company. (The business problem is subject to change per semester.) From the outset, we will learn the relevant business intelligence specific to the problem faced by the company. We will then move into properly scoping the project by setting objectives and key results (OKRs), as well as key performance indicators (KPIs). Finally, we will use Python programming, and any other necessary tools, to implement an analytics-based solution for the OKRs. This course can be challenging due to the hands-on nature of the course as well as the business problems and practical constraints faced by real-world companies. These features of the course will benefit graduate students interested in real-world applications of business analytics. The course is offered as a Credit/No Credit course.