Syllabus for FNT740 Artificial Intelligence and Machine Learning in FinTech

NOTE: This syllabus document contains the basic information of this course. The most current syllabus is available in the full course.

Course Description

FNT 740, Artificial Intelligence and Machine Learning in FinTech, covers artificial intelligence and machine learning strategies and how they can be used to build more efficient financial services. AI/ML techniques include decision trees, k-nearest neighbor (KNN), random forests, and support vector machine (SVM) for applications such as credit evaluation, fraud detection, loan underwriting, algorithmic trading, and chatbots.

Prerequisite(s)

None.

Course Outcomes

Upon completing this course, you will be able to do the following:

- Use digital tools and techniques for analytical applications in financial organizations.
- Utilize artificial intelligence and machine learning in financial applications.
- Analyze and differentiate between various AI and ML algorithms, including decision trees, KNN, SVM, random forests, and regression.
- Assess the effectiveness of AI/ML techniques in FinTech domains like credit evaluation, fraud detection, loan underwriting, algorithmic trading, and chatbots.
- Create AI and ML applications tailored for financial services using programming platforms such as Python.

Course Requirements/Components

Readings/Viewings

Readings and videos are made available through the Canvas platform.

Assignments

In Modules 1-5, you'll complete a variety of assignments, including quizzes to verify your understanding of foundational concepts and hands-on coding assignments where you'll explore and manipulate machine learning models. You'll also develop your own machine learning models, conduct research on AI and machine learning in FinTech, and discuss the benefits, risks, and ethics of AI and machine learning.

Final Project

For the final project, you'll have three options for demonstrating your understanding of the course concepts. You'll pick one of the three options. You can choose to (1) write a high-quality professional report on the use of AI in the FinTech industry, (2) complete a coding project where you'll employ machine learning techniques to achieve a particular goal, or (3) participate in a challenging data

science tournament on NumerAI, a hedge fund that leverages machine learning models to make investment decisions.

Grading

The following grading scale will be used to evaluate all course requirements and to determine your final grade:

Grade	Percentage Range
A	90% - 100%
B	80% - 80%
C	70% - 79%
F	< 70%

Assignments	Percent
Exploration of AI	6%
Machine Learning (ML) Quiz	2%
Code Review Quiz	2%
Stock Prediction Activity	10%
Stock Prediction with Different ML Models	10%
Machine Learning Problems	10%
Researching FinTech Applications	15%
Benefits, Risks, and Ethics Discussion	20%
Final Project	25%
Total	100%