COMP 5610, Artificial Intelligence Programming

**Credit hours:** 3 lecture

**Contact hours:** 3 lecture

**Catalog Description:** Design and implementation of advanced artificial intelligence techniques including expert systems, planning, logic, and constraint programming, knowledge representation and heuristic search methods.

**Prerequisites:** COMP 5600

**Corequisites:** None

**Selected Elective Course** (CSCI, SWEN, WIRS)

**Instructor or Course Coordinator:** Dr. Hari Narayanan

**Required Textbook**

**Course Outcomes**
The student will be able to
- understand effective machine learning techniques
- design, develop, and analyze machine learning solutions

**Topics Covered**
- Linear regression with one variable, linear algebra review (3 hours)
- Linear regression with multiple variables (3 hours)
- Logistic regression (3 hours)
- Regularization (3 hours)
- Neural networks: representation (3 hours)
- Neural networks: learning (3 hours)
- Applying machine learning (3 hours)
- Machine learning system design (3 hours)
- Support vector machines (3 hours)
- Unsupervised learning (3 hours)
- Dimensionality reduction (3 hours)
- Anomaly detection (3 hours)
- Recommender systems (3 hours)
- Large scale machine learning (3 hours)
- Exams (3 hours)

**Course Requirements**
- Homework assignments (40%)
- Exams (60%)