

Artificial Intelligence (AI SCI)

Courses

AI SCI 210. Introduction to Python Programming and Artificial Intelligence. 4 Units.

Introduction to Python programming and artificial intelligence. Programming emphasis on techniques used in artificial intelligence. Jupyter Notebooks, NumPy, pandas, Matplotlib.

AI SCI 220. Methods in Machine Learning and Artificial Intelligence. 4 Units.

Fundamental concepts, algorithms, and techniques in machine learning, along with an overview of the necessary mathematics. Basic principles underlying regression, classification, and unsupervised learning.

AI SCI 230. Software Engineering and Data Visualization for Artificial Intelligence. 4 Units.

Best practices of software engineering for machine learning and artificial intelligence. Effective data visualization and exploratory data analysis.

AI SCI 240. Neural Networks and Deep Learning. 4 Units.

Key concepts of neural networks and deep learning. Selecting appropriate architecture, training, evaluation of neural networks. Convolutional neural networks, transformers.

AI SCI 285. Special Topics in Machine Learning and Artificial Intelligence. 4 Units.

Special topics in machine learning and artificial intelligence of particular relevance to applications in industry, including use of large-language models. Repeatability: May be taken 1 time as topics vary

AI SCI 286. Research Topics in Machine Learning and Artificial Intelligence. 4 Units.

Research topics in machine learning and artificial intelligence. Emphasis on recent developments and applications in the physical sciences.

AI SCI 290A. Project Course A. 4 Units.

Fundamental concepts of artificial intelligence through programming projects. Data preprocessing, model evaluation, interpretation of results, managing large datasets, cloud-based resources.

AI SCI 290B. Project Course B. 4 Units.

Fundamental concepts of artificial intelligence through programming projects. Emphasis on adapting and applying state-of-the-art neural networks.

AI SCI 290C. Project Course C: Artificial Intelligence for Science Capstone. 4 Units.

Capstone project applying techniques from artificial intelligence to a problem related to the physical sciences.

AI SCI 294. Ethics in Data Science. 2 Units.

Seminar on ethical issues related to machine learning and artificial intelligence.

AI SCI 295. Professional Development. 2 Units.

Seminar preparing students for careers in artificial intelligence. CV/resume, portfolio, interview skills, the AI/ML job landscape.