Enterprise Artificial Intelligence - CPS (EAI)

EAI 2990. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

EAI 3990. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

EAI 4990. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

EAI 5000. Fundamentals of Artificial Intelligence. (2.25 Hours)
Introduces the fundamental problems, theories, and algorithms of the artificial intelligence field. Topics include heuristic search and game trees, knowledge representation using predicate calculus, automated deduction and its applications, problem solving and planning, and an introduction to machine learning. Required course work includes the creation of working programs that solve problems, reason logically, and/or improve their own performance using techniques presented in the course.

EAI 6000. Fundamentals of Artificial Intelligence. (3 Hours)
Introduces the fundamental problems, theories, and algorithms of the artificial intelligence field. Topics include heuristic search and game trees, knowledge representation using predicate calculus, automated deduction and its applications, problem solving and planning, and an introduction to machine learning. Required course work includes the creation of working programs that solve problems, reason logically, and/or improve their own performance using techniques presented in the course.

EAI 6010. Applications of Artificial Intelligence. (3 Hours)
Explores numerous industry applications of AI with emphasis on solving specific needs or problems. Topics include neural networks, natural language processing, and implications of cybersecurity. Artificial Intelligence is actively developing in applications across numerous fields and industries, including finance, healthcare, education, and transportation.

EAI 6020. AI System Technologies. (3 Hours)
Presents a selection of systems technologies utilized in AI, including data visualization; file systems for a large data mart; applications of structured query language; and filtering and transforming to ingest data, predictions, etc. Covers mathematics/statistics and computation, machine learning, and privacy requirements.

Prerequisite(s): EAI 6000 (may be taken concurrently) with a minimum grade of C- ; EAI 6010 (may be taken concurrently) with a minimum grade of C-

EAI 6050. Finance Information Processing. (3 Hours)
Covers advanced data management technologies and management systems with a focus on the finance industry. Emphasizes evaluating the advantages and disadvantages of such technologies in different application contexts. Addresses specific application contexts of AI and presents the entity relationship to data management (including network hierarchical and object oriented), with an emphasis on processing, storing, and retrieval, while also including privacy requirements.

EAI 6060. Healthcare Information Processing. (3 Hours)
Covers advanced data management technologies and management systems with a focus on the healthcare industry. Emphasizes evaluating the advantages and disadvantages of such technologies in different application contexts. Addresses specific application contexts of AI and presents the entity relationship to data management (including network hierarchical and object oriented), with an emphasis on processing, storing, and retrieval, while including privacy requirements.

EAI 6070. Human Resources Information Processing. (3 Hours)
Covers advanced data management technologies and management systems with a focus on human resources. Emphasizes evaluating the advantages and disadvantages of such technologies in different application contexts. Addresses specific application contexts of AI and presents the entity relationship to data management (including network hierarchical and object oriented), with an emphasis on processing, storing, and retrieval, while including privacy requirements.

EAI 6080. Advanced Analytical Utilization. (3 Hours)
Focuses on instrumental methods of data analysis and provides a foundation to the theory and application of modern analytical techniques for artificial intelligence. Explores the importance of instrumental analysis for specific uses of AI within various fields and context applications across numerous professional fields.

EAI 6120. AI Communication and Visualization. (3 Hours)
Offers an overview of key informational design concepts, emphasizing the relationship between information and audience in the context of communicating complex quantitative information. Encompasses three main context areas: exploratory data visualization, dashboard and scorecard design, and spatial data representation. Discusses ethical questions related to the communication and visualization of data analytics: storytelling; different techniques (such as R-spatial, GeoDa, GeoWave, GeoTrellis, GeoMesa, graph databases network visualization); and principles for visual design, including privacy requirements.

EAI 6400. Data Governance and Responsible AI. (3 Hours)
Focuses on data ethics, data privacy, data integrity, and protecting data from the viewpoint of an organization's internal and customer data. Covers the ethical challenges of AI and analytics systems, developing a model to provide a reliable and sustainable system complying with ethical standards, government regulations, and policies. Topics include data privacy, data regulations, bias in AI, and building a trustworthy AI system. Explores real-world scenarios and business cases, applying approaches to ethical issues organizations face throughout the complete lifecycle of analytics and AI models.

EAI 6610. Applied Machine Learning. (3 Hours)
Analyzes machine learning techniques, methodologies, and best practices tailored for advanced AI applications. Covers advanced supervised and unsupervised learning, deep learning architectures, reinforcement learning, and domain-specific applications. Explores crucial topics of ethics, privacy, and fairness in machine learning.

EAI 6962. Elective. (1-4 Hours)
Offers elective credit for courses taken at other academic institutions. May be repeated without limit.

EAI 6980. Integrated Experiential Capstone. (3 Hours)
Offers students an opportunity to apply the knowledge, skills, and best practices acquired throughout the Enterprise Artificial Intelligence program in the context of a practicum in the development and delivery of discipline-specific artificial intelligence projects. Students advance a project plan, conduct research, and create and deliver recommendations with the objective to apply artificial intelligence to real-world problems in organizations. Students develop and present the insights and recommendations for successful implementation of the capstone project.