

ARTIFICIAL INTELLIGENCE STRATEGY & INNOVATION (AIN)

AIN 710. Artificial Intelligence Foundations and Evolution. (3 h)

This course will provide a comprehensive overview and historical progression of Artificial Intelligence. This course provides students with a solid grounding in the essential principles of AI, covering key topics such as machine learning, neural networks, and natural language processing. It delves into the historical milestones that have shaped the development of AI, examining pivotal research breakthroughs and technological advancements. The course also explores the current landscape and future directions of AI, emphasizing the use of AI in various industries such as healthcare, finance, and retail. By the end of the course, students will have a thorough understanding of AI's foundational theories, practical applications, and evolutionary trajectory.

AIN 712. Strategic Leadership in Artificial Intelligence. (3 h)

Students will learn and perform the best practices for building artificial intelligence systems in real-world applications. This course will include modules on change management specific to AI implementation. Students will build AI systems knowledge and the skills necessary to develop and implement AI strategies effectively in diverse organizational contexts.

AIN 714. Emerging Tools and Technologies in Artificial Intelligence. (3 h)

This course will provide students with skills in leveraging the latest tools and methodologies in the field. Students will track the continuous iterations of artificial intelligence as one of the most rapidly evolving technologies of our time through LLM benchmarking and scoring various models. Students will experiment with various LLMs, learning to craft and refine prompts to optimize model outputs for different applications.

AIN 720. Applications of Machine Learning Techniques. (3 h)

This course covers a broad range and overview of machine learning techniques, including supervised, unsupervised, and reinforcement learning. Students will learn about key algorithms such as linear regression, decision trees, support vector machines, k-means clustering, and neural networks. The course emphasizes practical applications, guiding students through the process of implementing these techniques using popular programming languages and frameworks. By the end of the course, students will be proficient in selecting and applying appropriate machine learning techniques to solve complex problems, including crafting effective prompts and evaluating their performance, and understanding their theoretical underpinnings.

AIN 722. Ethics and Responsible Artificial Intelligence. (3 h)

This course will introduce students to the key areas of consideration when deploying products that contain AI. Students will discuss the social, political, and economic effects that AI may have on society - today and in the future. It will cover developing an understanding of public concerns with AI, including economic, equity, and human rights. Students will study diverse ethical issues that arise with the widespread and rapid integration of AI technologies. This course will also include the tools and frameworks for ensuring ethical AI practices to mitigate AI bias (examples include: AI Fairness 360, Explainable AI Frameworks, etc.). Students will also explore how prompt engineering can influence the fairness and transparency of LLMs, experimenting with prompts to understand and mitigate bias in outputs.

AIN 724. Artificial Intelligence Implementation Across Industries. (3 h)

This course explores the selection and implementation of artificial intelligence across various industries and teams. This course will equip students with the skills to leverage AI technologies in interdisciplinary contexts to foster collaboration, ethical decision-making, problem-solving, and impactful integration. Students will review real-world, industry-specific case studies and strategic frameworks in various sectors.

AIN 750. Deep Learning and Advanced Artificial Intelligence. (3 h)

This course teaches foundations on neural networks and deep learning networks. The course will cover deep neural networks and their applications to various problems. Students will participate in hands-on labs with real-world datasets to enhance practical skills, and use prompt engineering to interact with advanced models; Including topics on GANs, transformers, and other advanced deep learning techniques.

AIN 751. Applied Computer Vision for Artificial Intelligence. (3 h)

This course provides an introduction to computer vision by exploring a combination of traditional AI, machine learning, image processing, and mathematical theories to provide ways of programming a computer to understand visual imagery. The course will expose students to the techniques required to efficiently analyze images for representation in applicable context scenarios.

AIN 799. Capstone: Interdisciplinary Artificial Intelligence Project. (3 h)

Integrating and applying what is learned across a set of courses and experiences leads to deeper understanding and habits of practice that inform a career. The capstone project applies the knowledge and skills gained through the program to a real-world challenge in the field of artificial intelligence. The specific project will vary depending on student interest and goals. Students will work with practicing professionals or industry partners in a relevant field to define and develop their capstone project. Students must complete all core courses prior to the capstone project.