

# AI - Artificial Intelligence

## **AI 301 Artificial Intelligence (AI) Literacy: Concepts and Implications (3 Credit Hours)**

This course emphasizes fundamental AI concepts, an awareness of AI applications across various fields, and the critical evaluation of AI's growing integration into daily life. Students will explore the opportunities and challenges presented by AI in diverse contexts while examining its ethical, social, and economic implications.

**Prerequisites:** Permission of Instructor

## **AI 302 Artificial Intelligence (AI) Literacy: Applications and Responsible Use (3 Credit Hours)**

This course focuses on practical applications and the responsible use of AI tools across various disciplines. Students will participate in hands-on projects to explore real-world applications, critically evaluate AI's limitations, and address challenges such as data privacy, bias, and societal impacts.

**Prerequisites:** Permission of Instructor

## **AI 315 Artificial Intelligence in Content Creation (3 Credit Hours)**

This course explores the intersection of marketing and digital design, focusing on how to effectively integrate AI tools into modern content creation workflows. Students will utilize AI tools while developing content for a specific brand. By the end of the course, you will be equipped to harness AI in ideation, design, and distribution, empowering you to streamline and elevate your marketing content creation process.

**Prerequisites:** Permission of instructor

## **AI 319 Artificial Intelligence (AI) in Digital Marketing Management (3 Credit Hours)**

This course provides a comprehensive exploration of how artificial intelligence is transforming digital marketing. It equips students with the knowledge and skills to leverage AI tools and technologies across various aspects of marketing strategy and management. Students will build a strong foundation of AI concepts and technologies relevant to marketing and will learn to leverage AI to better understand and engage customers, plan and execute marketing plans, and increase operational efficiency. The course also highlights unique ethical considerations related to AI in marketing and examines emerging trends in AI-powered marketing, preparing students for a successful future in the field.

**Prerequisites:** Permission of Instructor

## **AI 410/510 Artificial Intelligence (AI) Methods and Models (3 Credit Hours)**

This course offers an introduction to Artificial Intelligence (AI). Students will explore the field's fundamental concepts, techniques, and applications. Methods, such as Generative AI (GenAI) that enable machines to learn and process information, and models, such as machine learning (ML) that uses data sets to recognize patterns and make decisions without human intervention will be covered. The course is designed for non-specialists and does not require prior computer science or programming knowledge.

**Prerequisites:** Permission of the instructor

## **AI 421/521 Generative AI in Cybersecurity (3 Credit Hours)**

This course provides an in-depth examination of the intersection between Generative AI (Gen AI) and Cybersecurity. It focuses on the dual nature of advanced AI systems as both enhancers and potential threats to security infrastructure. Students will acquire a comprehensive understanding of the underlying principles, algorithms, and practical applications of Gen AI models in the discovery of attack vectors, identification of cyber threats, and automation of security tasks. Additionally, the course will address defensive strategies aimed at mitigating the risks stemming from AI-driven cyberattacks.

**Prerequisites:** Permission of Instructor

## **AI 446/546 Artificial Intelligence (AI) Ethics and Policy (3 Credit Hours)**

This course explores whether and how ethical AI is possible by examining moral standards as they apply to the various dimensions of AI development and use. It reviews the major ethical theories and discusses how principles such as transparency, privacy, safety, non-discrimination, and sustainability should govern the creation and use of AI technologies. Moreover, it considers how these principles could serve as the ethical framework for the social and policy structures that regulate and shape the future development of these technologies.

**Prerequisites:** Permission of Instructor

## **AI 466/566 Principles and Practices of Cyber Defense (3 Credit Hours)**

This course is designed to help students gain a thorough understanding of vulnerabilities and attacks in systems and networks and learn cyber defense best practices. It covers fundamental security design principles and defense strategies and security tools used to mitigate various cyber attacks. The topics may include identification of Recon Ops, intrusion detection, identification of C2 Ops, data exfiltration detection, identifying malicious codes, network security techniques, cryptography, malicious activity detection, system security architectures, defense in depth, distributed/cloud and virtualization.

**Prerequisites:** Permission of Instructor

## **AI 481/581 Trustworthy Health Analytics (3 Credit Hours)**

This course offers a comprehensive, project-driven approach to integrating AI in healthcare, focusing on building prototype models for prevention, diagnosis, and treatment while stressing the need of adopting ethical, responsible methods to reduce risks and improve patient outcomes.

**Prerequisites:** Permission of Instructor

## **AI 483/583 Artificial Intelligence Applications in Health (3 Credit Hours)**

This course offers an exploration of how artificial intelligence (AI) is transforming healthcare delivery and improving patient outcomes. Building on foundational knowledge from AI Ethics and Policy and AI Methods and Models, students will dive deeper into the integration of AI in clinical and operational contexts. Key topics include the role of AI in diagnostics and personalized medicine and other AI implementations in healthcare.

**Prerequisites:** Permission of instructor

## **AI 495/595 Topics in Artificial Intelligence (AI) (1-3 Credit Hours)**

The advanced study of selected artificial intelligence topics designed to permit small groups of qualified students to work on subjects of mutual interest. These courses will appear in the course schedule and will be more fully described in information distributed to academic advisors.

**Prerequisites:** Permission of Instructor

## **AI 510 Artificial Intelligence (AI) Methods and Models (3 Credit Hours)**

This course offers an introduction to Artificial Intelligence (AI). Students will explore the field's fundamental concepts, techniques, and applications. Methods, such as Generative AI (GenAI) that enable machines to learn and process information, and models, such as machine learning (ML) that uses data sets to recognize patterns and make decisions without human intervention will be covered. The course is designed for non-specialists and does not require prior computer science or programming knowledge.

## **AI 521 Generative AI in Cybersecurity (3 Credit Hours)**

This course provides an in-depth examination of the intersection between Generative AI (Gen AI) and Cybersecurity. It focuses on the dual nature of advanced AI systems as both enhancers and potential threats to security infrastructure. Students will acquire a comprehensive understanding of the underlying principles, algorithms, and practical applications of Gen AI models in the discovery of attack vectors, identification of cyber threats, and automation of security tasks. Additionally, the course will address defensive strategies aimed at mitigating the risks stemming from AI-driven cyberattacks.

**AI 546 Artificial Intelligence (AI) Ethics and Policy (3 Credit Hours)**

This course explores whether and how ethical AI is possible by examining moral standards as they apply to the various dimensions of AI development and use. It reviews the major ethical theories and discusses how principles such as transparency, privacy, safety, non-discrimination, and sustainability should govern the creation and use of AI technologies. Moreover, it considers how these principles could serve as the ethical framework for the social and policy structures that regulate and shape the future development of these technologies.

**AI 566 Principles and Practices of Cyber Defense (3 Credit Hours)**

This course is designed to help students gain a thorough understanding of vulnerabilities and attacks in systems and networks and learn cyber defense best practices. It covers fundamental security design principles and defense strategies and security tools used to mitigate various cyber attacks. The topics may include identification of Recon Ops, intrusion detection, identification of C2 Ops, data exfiltration detection, identifying malicious codes, network security techniques, cryptography, malicious activity detection, system security architectures, defense in depth, distributed/cloud and virtualization.

**AI 581 Trustworthy Health Analytics (3 Credit Hours)**

This course offers a comprehensive, project-driven approach to integrating AI in healthcare, focusing on building prototype models for prevention, diagnosis, and treatment while stressing the need of adopting ethical, responsible methods to reduce risks and improve patient outcomes.

**AI 583 Artificial Intelligence Applications in Health (3 Credit Hours)**

This course offers an exploration of how artificial intelligence (AI) is transforming healthcare delivery and improving patient outcomes. Building on foundational knowledge from AI Ethics and Policy and AI Methods and Models, students will dive deeper into the integration of AI in clinical and operational contexts. Key topics include the role of AI in diagnostics and personalized medicine and other AI implementations in healthcare.

**AI 595 Topics in Artificial Intelligence (AI) (1-3 Credit Hours)**

The advanced study of selected artificial intelligence topics designed to permit small groups of qualified students to work on subjects of mutual interest. These courses will appear in the course schedule and will be more fully described in information distributed to academic advisors.

**AI 610 Strategic Artificial Intelligence (AI) Leadership (3 Credit Hours)**

This course examines the leadership and organizational challenges of successfully integrating AI into business strategy and operations. Students will explore AI's impact on organizational structure, culture, and decision-making processes, and develop the skills to lead AI-driven transformations while considering ethical implications and societal impact.

**AI 611 AI Product Management & Operations (3 Credit Hours)**

This course will go over AI product management, as well as the challenges in operations for AI based products. The primary focus will be on the foundations for leadership, product development, and operations for AI products, which differ significantly from those found in typical software products.

**AI 620 Foundations of Artificial Intelligence (AI) in Education and Learning Technologies (3 Credit Hours)**

This course introduces students to the foundational concepts of Artificial Intelligence (AI) as applied to education and learning design. Students will explore key AI frameworks and theories within the context of learning design, including the use of AI tools in various educational processes. Topics covered include AI-enhanced course design, AI application in instructional delivery, the role of AI in assessments and personalized feedback, AI in research and evaluation, and AI's impact on academic integrity, as well as additional ethical considerations.

**AI 621 Applications of Artificial Intelligence (AI) in Education and Learning Technologies (3 Credit Hours)**

This course focuses on the practical application of AI in designing instructional strategies, activities, and materials. Students will use AI tools to brainstorm various pedagogical techniques as well as to create still images, videos, animations, audio narration, slides-based presentations, gamification, virtual environments, and personal AI learning assistants/chatbots. Through hands-on projects, students will demonstrate mastery of the instructional design process by developing AI-enhanced tools and media to solve real-world instructional problems.

**AI 669 Artificial Intelligence (AI) Practicum (3 Credit Hours)**

Students demonstrate an ability to integrate and synthesize competencies from their certificate or degree program coursework applied to concentration areas. Students produce high quality written products and an e-portfolio that demonstrate the analysis, synthesis and intersection of AI knowledge with specific domains.

**Prerequisites:** Good academic standing (Graduate GPA of at least 3.0)