

# CIS 120AI : ESSENTIALS OF ARTIFICIAL INTELLIGENCE

## Transcript title

Essentials of AI

## Credits

4

## Grading mode

Standard letter grades

## Total contact hours

50

## Lecture hours

30

## Other hours

20

## Course Description

Explores the fundamentals of artificial intelligence (AI), focusing on real-world applications, essential AI tools, and basic techniques for interacting with AI technologies. Includes experiences for gaining hands-on experience with popular AI tools, defining key concepts in AI, and evaluating AI's ethical and societal impacts.

## Course learning outcomes

1. Identify real-world scenarios and industries where AI tools can enhance productivity, optimize workflows, and solve complex problems effectively.
2. Recognize popular AI tools and platforms and explain their unique strengths, applications, and limitations.
3. Apply advanced prompting techniques to interact with AI tools, ensuring accurate, efficient, and relevant responses tailored to specific needs or questions.
4. Assess various AI tools for particular tasks or problem-solving scenarios, considering factors like ethical implications, potential biases, and data security.
5. Classify different types of AI (e.g., machine learning, natural language processing, computer vision) and understand the best use cases for each, along with an appreciation of their technological foundations.
6. Evaluate the social, ethical, and economic impacts of AI on society, understanding both the benefits and potential risks of AI integration.
7. Conceptualize and design simple AI-driven solutions tailored to specific problems, demonstrating an understanding of how AI can be integrated into various business or technological contexts.

## Content outline

1. Introduction to AI
  - a. Overview of AI
    - i. Definition and history of AI
    - ii. Types of AI (Narrow AI, General AI)
    - iii. Key concepts and terms (machine learning, neural networks, NLP)
  - b. Applications of AI
    - i. Real-world examples across industries
    - ii. Discussion on the scope and limitations of AI
2. Exploring Key AI Tools
  - a. Introduction to Popular AI Tools
    - i. Overview of tools
    - ii. Comparison of tools for specific tasks: text generation, image generation, predictive analytics
  - b. Hands-on Practice
    - i. Students set up accounts on selected tools and complete basic interactions
    - ii. Simple exercises demonstrating tool capabilities
3. Effective Prompting Techniques
  - a. Understanding Prompts and Responses
    - i. Basics of effective prompting
    - ii. How to phrase questions and requests for the best results
    - iii. Common pitfalls in AI interactions
  - b. Practicing Prompting
    - i. Students practice creating prompts to achieve specific results
    - ii. Case studies in using prompts for problem-solving
4. Suitability and Evaluation of AI Tools
  - a. Evaluating Tool Suitability
    - i. How to assess which AI tool fits which purpose
    - ii. Case studies on tool selection for different business needs
  - b. Considerations for Ethical Use
    - i. Bias in AI and fairness issues
    - ii. Data privacy, security, and ethical guidelines for responsible use
5. Key AI Technologies and Use Cases
  - a. Understanding Core AI Technologies
    - i. Introduction to machine learning, natural language processing (NLP), and computer vision
    - ii. Use cases for each technology (e.g., voice assistants, image recognition, chatbots)
  - b. Hands-on Project
    - i. Group project: Identify a real-world problem and outline an AI-based solution
    - ii. Presentations to showcase AI technology selection and solution design
6. Social, Ethical, and Economic Impacts of AI
  - a. AI's Impact on Society
    - i. How AI changes industries and job roles
    - ii. Discussion on ethical challenges and future implications
  - b. Case Studies and Debates
    - i. In-class debates on ethical dilemmas in AI
    - ii. Research and presentation on AI's economic impacts in different sectors
7. Final Project and Presentation
  - a. Designing AI Solutions
    - i. Students conceptualize a basic AI-driven solution to a given problem
    - ii. Integrate prompt design, tool selection, and ethical considerations
  - b. Course Wrap-Up

- i. Review of key concepts learned
- ii. Reflection on AI's role and personal viewpoints on its future

## Required materials

None.