AI AND SOMETHING MORE
ADD AN AI MINOR TO YOUR MAJOR

AI: THEORY, METHODS, AND APPLICATIONS (AITMA) MINOR

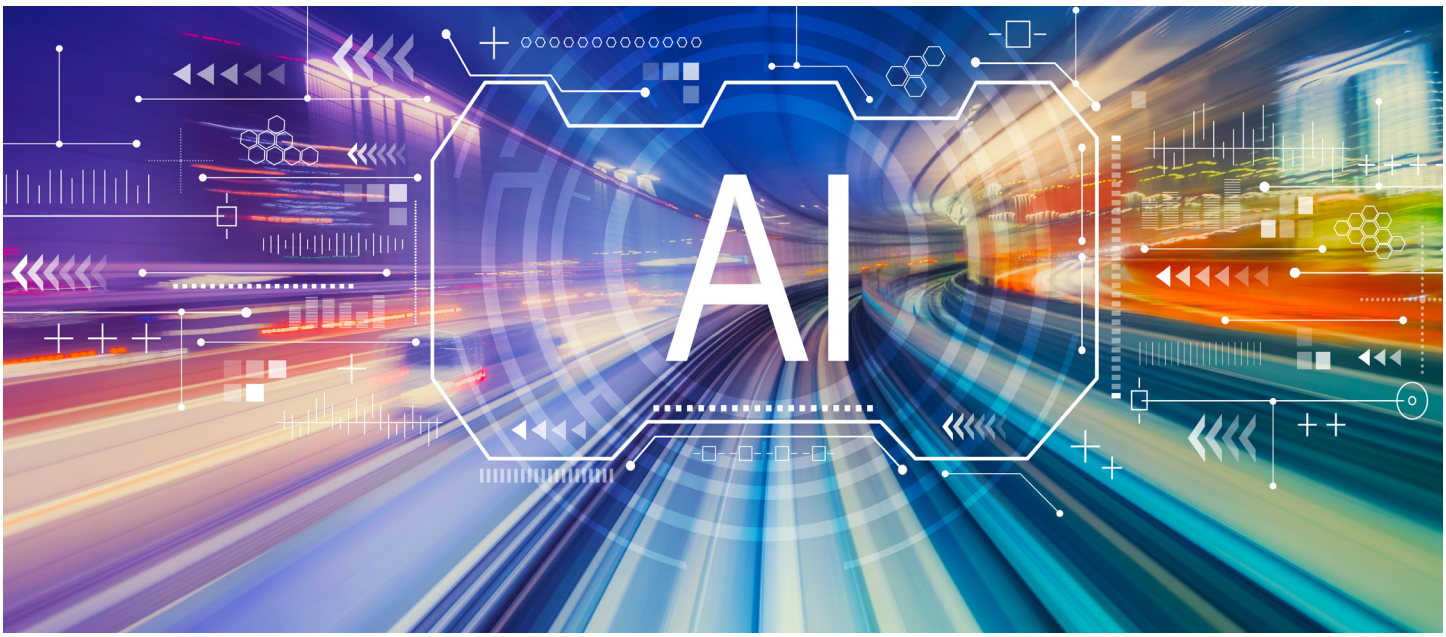
Artificial Intelligence is transforming nearly every sector, from software and computer engineering to healthcare, business, finance, cybersecurity, manufacturing, transportation, and communications.

This minor is open to all undergraduate students at the University of Iowa, including those in liberal arts and sciences, business, and other non-engineering majors.

This minor is designed to be multidisciplinary and allows students to build advanced AI expertise without pursuing a second major. It complements students' primary fields of study while strengthening their technical portfolios.

What you will learn
- AI Theory: Understand how intelligence can be modeled mathematically and computationally.
- AI Methods: Learn the algorithms and techniques that power modern AI systems.
- AI Applications: Apply AI tools to real-world engineering problems in areas such as smart systems automation, healthcare technologies, energy systems, and advanced computing.

Why earn the AITMA minor?
- Strengthen your resume with specialized AI credentials
- Differentiate yourself in a competitive job market
- Gain practical, hands-on experience building intelligent systems
- Position yourself not just to use AI tools, but to design and engineer them



Flexible Requirements for Non-engineers.
- **Count up to one approved AI course from your major toward the minor.**
- Count up to one approved support course, such as ethics, probability, or high-performance computing, toward the minor.
- No programming course requirement in your major? Take ENGR:1300 Introduction to Engineering Computing and apply it to the minor.
- No linear algebra requirement in your major? Apply an approved linear algebra course as your support course.

AI: THEORY, METHODS, AND APPLICATIONS (AITMA) MINOR

Major with no programming or linear algebra requirement course list example
- ENGR:1300 Introduction to Engineering Computing (prerequisite exception for ENGR:3110)
- MATH:2700 Introduction to Linear Algebra (prerequisite exception for ENGR:3110)
- ENGR:3110 Introduction to AI/ML (required course)
- ECE:5215 Applied Machine Learning (methods elective)
- ECE:5230 Generative AI Tools: ChatGPT and Beyond (applications elective)

Major focused minor course list example
- ENGR:3110 Introduction to AI/ML (required course)
- ECE:5215 Applied Machine Learning (methods elective)
- ECE:5230 Generative AI Tools: ChatGPT and Beyond (applications elective)
- AI course from major (applications elective)
- Approved AI Ethics course (support elective)

Large language models course list example
- ENGR:3110 Introduction to AI/ML (required course)
- ECE:5200 Machine Learning (theory elective)
- ECE:5225 Statistical Foundations of Inference and Machine Learning (theory elective)
- ECE:5215 Applied Machine Learning (methods elective)
- ECE:5250 Large Language Models (methods elective)
- ECE:5230 Generative AI Tools: ChatGPT and Beyond (applications elective)

Note: Although labeled at the 5000 level, 5000 level ECE courses are intended for advanced undergraduate students and serve as senior-level offerings. These courses are numbered 5000 so they may also count toward graduate degrees.

LEARN MORE

AI: Theory, Methods, and Applications (AITMA) Minor

ece@engineering.uiowa.edu (319) 335-5197 engineering.uiowa.edu/ece/ai-minor