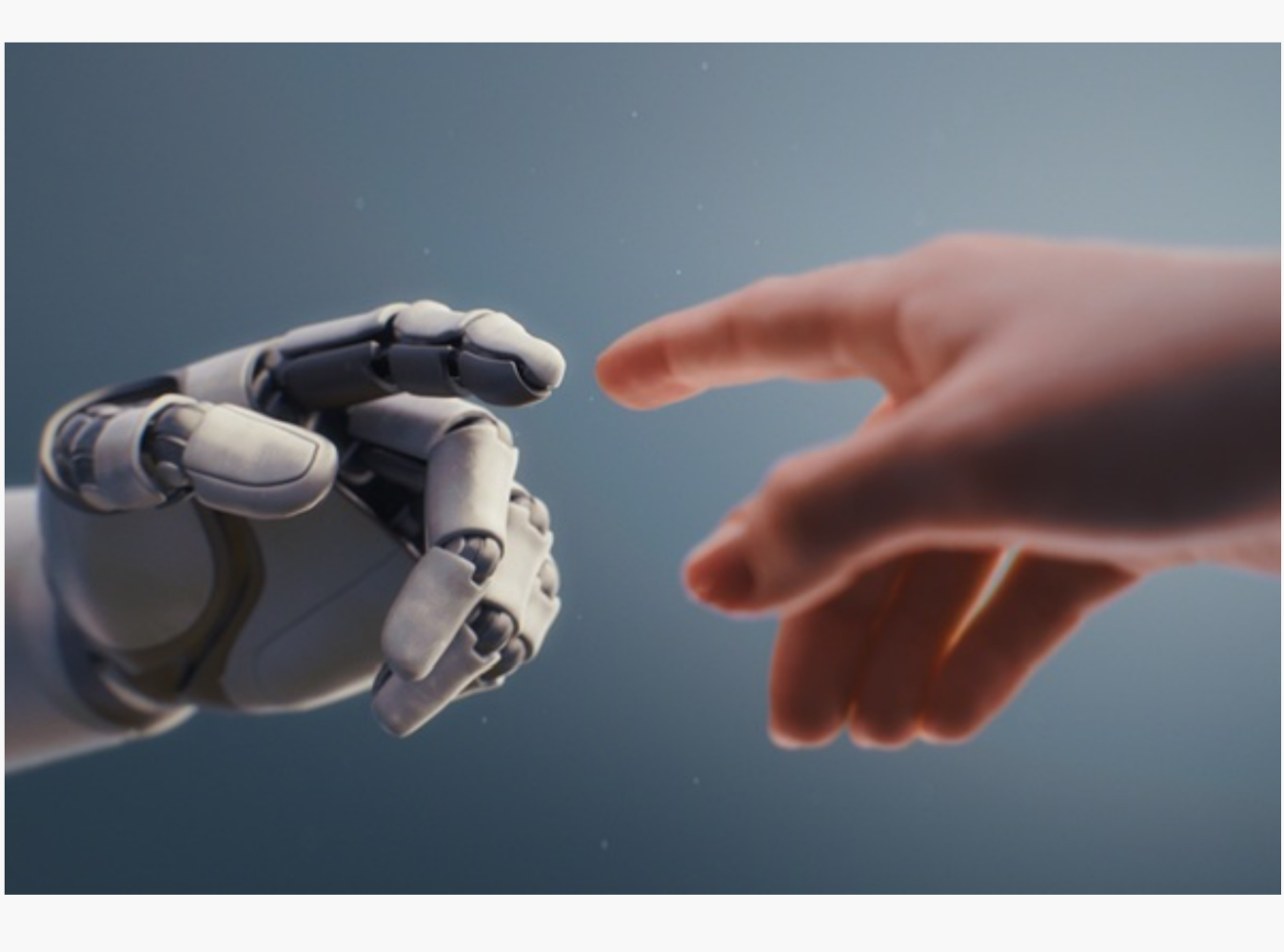
Collapse all

AI Applications & Ethics

ATTENTION

Grading may take up to 7 days at semester end and during the summer semester! Submit your **last assignment two weeks** before **your** school's semester ends.



How to Take This Course

Complete all the quizzes and the assignment in each unit. Once the quizzes for a unit are complete, you will have access to the unit test. We recommend you complete the unit assignment before you attempt the unit test; the assignment will help you prepare. You will have access to the final after you have been enrolled in the course for at least 30 days, all unit tests are completed, and your assignments are graded.

Allow 3-4 school days for an assignment to be graded. To understand the course grading, read the full course instructions.

Course Instructions

How This Course Works & Suggested Timeline

Submitting Your Assignments

Ask The Teacher

Meet your teacher for this course and ask a question.

Need help with the course? We offer online tutoring; find more details about it here.

MANDATORY QUIZ — Completion

You are required to take this quiz before you start the course. To prepare, read the course instructions and the "submitting your assignments" document, watch the video on the how this course works page and review the suggested timeline.

Learning Objectives & Standards Met By This Course

Unit 1: What Is AI?

Before you can make good use of AI, it helps to understand what it actually is — and what it isn't. This unit traces the idea of thinking machines from its origins in 19th-century philosophy through the long cycles of excitement and disappointment that shaped the field, right up to the powerful language models you're using today. Understanding where AI came from won't change how you type a prompt tomorrow, but it will help you understand why AI behaves the way it does — and why even the people who build it don't always fully understand it.

In this unit, you will:

- Explore the history of artificial intelligence, from early ideas about thinking machines to the development of modern AI systems.
- Examine the Turing Test and evaluate its role in measuring machine intelligence and its limitations.
- Investigate early successes, challenges, and periods of rapid growth that shaped the development of artificial intelligence.
- Compare how humans and AI process information, highlighting the differences between pattern recognition and human understanding.
- Analyze what it means for an AI model to "know" information and how AI systems generate responses.
- Evaluate the strengths and limitations of AI knowledge, including why AI can produce accurate information in some situations and unreliable information in others.

Unit 1 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

Click on the link above, and make a copy of the file. If you don't have access to Google Docs, preview the worksheet and download an editable version or in PDF.

1.1 A Brief History of "Thinking Machines"

Quiz 1.1 — Completion

1.2 The Turing Test

Activity: Alan Turing Chat

Quiz 1.2 — Completion

1.3 Early Successes (and Failures)

Quiz 1.3 — Completion

1.4 AI vs. People

Quiz 1.4 — Completion

1.5 What Does an AI Model Actually Know?

Quiz 1.5 — Completion

Unit 1 Assignment: What does AI know about your world? — Completion

Unit 1 Test

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Unit 2: How LLMs Work

You can treat AI as a "black box," a system that just does what it does without seeing all the machinery inside, but when you understand a little about how it works, you become a better judge of when to trust it and when to push back.

Often you need to use good old-fashioned human judgement to make sure AI is not misleading you. Don't be angry. It's not lying. It just works differently from the way people do.

In this unit, you will:

- Explore what AI models are, how they are trained, and how they differ from traditional computer programs.
- Examine how large language models generate original responses without understanding information the way humans do.
- Investigate why AI systems produce errors and hallucinations and apply strategies for identifying unreliable outputs.
- Evaluate the strengths of large language models for tasks such as writing, research, coding, analysis, and problem-solving.
- Compare different branches of artificial intelligence, including machine learning, deep learning, and generative AI.
- Understand how machine learning systems learn from data and how the training process influences AI performance and limitations.

Unit 2 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

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2.1 What Is a Model?

Quiz 2.1 — Completion

2.2 How Can LLMs Do Things Never Seen Before?

Activity: Ada Lovelace Chat

Quiz 2.2 — Completion

2.3 Hallucinations, Errors, and How to Catch Them

Quiz 2.3 — Completion

2.4 What LLMs Are Good At

Activity: Debate Whether Machines Can Think

Quiz 2.4 — Completion

2.5 The AI Family Tree

Quiz 2.5 — Completion

2.6 How Machines Learn — A Closer Look at Machine Learning

Quiz 2.6 — Completion

Unit 2 Assignment: Machine Learning — Completion

Unit 2 Test

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Unit 3: Ethics, Risk, and Trust

AI is a powerful tool, and like any powerful tool it can cause harm — sometimes unintentionally, sometimes not. This unit looks honestly at the ways AI can mislead, discriminate, deceive, and infringe, so you can use it more carefully and recognize when others are using it irresponsibly. These aren't abstract concerns. They show up in classrooms, courtrooms, newsrooms, and job applications already.

In this unit, you will:

- Evaluate when AI systems can be trusted and apply strategies for using AI responsibly in different situations.
- Examine how bias can develop in AI systems and analyze its impact on fairness and decision-making.
- Understand the role of academic integrity when using AI tools and distinguish between appropriate and inappropriate uses.
- Investigate how AI-generated misinformation and deepfakes are created, shared, and evaluated for credibility.
- Explore copyright, ownership, and legal considerations related to AI-generated content.
- Examine how AI systems collect and use personal data and identify strategies for protecting privacy and obtaining consent.

Unit 3 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

Click on the link above, and make a copy of the file. If you don't have access to Google Docs, preview the worksheet and download an editable version or in PDF.

3.1 Can We Trust AI?

Quiz 3.1 — Completion

3.2 Bias and Fairness

Quiz 3.2 — Completion

3.3 Before We Go Further: A Brief Word on Cheating

Quiz 3.3 — Completion

3.4 Deepfakes and Misinformation

Quiz 3.4 — Completion

3.5 AI and Copyright

Quiz 3.5 — Completion

3.6 Privacy and Consent

Quiz 3.6 — Completion

Unit 3 Assignment: A bias experiment — Completion

Unit 3 Test

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Unit 4: Becoming an AI Power User

Knowing how to communicate with AI is the single most practical skill this course can give you. A clear, well-constructed prompt can be the difference between a useful answer and a useless one — and that gap gets wider as the tasks get more complex. This unit covers prompt engineering from the basics through to more advanced techniques, and introduces the technology that lets AI work with your own documents and knowledge.

In this unit, you will:

- Develop effective prompt engineering skills by writing clear instructions, setting constraints, assigning roles, and refining prompts.
- Evaluate advanced prompting strategies and determine which techniques improve AI-generated responses.
- Compare keyword-based and meaning-based search methods and explain how they influence the information AI systems retrieve.
- Explore retrieval-augmented generation (RAG) and understand how AI systems use external documents and data to generate more accurate responses.

Unit 4 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

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4.1 AI Skill #1: Prompt Engineering

Quiz 4.1 — Completion

4.2 Advanced Prompting: What Changed and What Remains Useful

Quiz 4.2 — Completion

4.3 Lexical vs. Semantic Search

Quiz 4.3 — Completion

Activity: Exploring the Word Map

4.4 Retrieval Augmented Generation (RAG)

Quiz 4.4 — Completion

Unit 4 Assignment: Advanced AI Prompting — Completion

Unit 4 Test

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Unit 5: Beyond Chat

AI-generated images, music, voices, and videos are increasingly common in social media, entertainment, and professional creative work. You may already be familiar with many of these tools, but using them is different from understanding how they work, what data they learn from, and the legal and ethical questions they raise.

This unit provides that broader perspective. You will examine how generative media systems work, consider questions of creativity and authorship, and learn how to evaluate AI-generated content — including recognizing synthetic media when it appears in news, evidence, or messages from people you know.

In this unit, you will:

- Explore how AI image models generate visual content and evaluate the strengths and limitations of AI-generated images.
- Examine how AI systems create speech, voices, and music while identifying techniques for recognizing synthetic audio.
- Investigate AI-generated video and digital avatars and evaluate their impact on communication, media, and the reliability of visual evidence.
- Analyze questions of authorship, originality, and creativity in AI-generated art and media.
- Explore AI agents that can complete tasks on a user's behalf and evaluate their capabilities and limitations.
- Apply AI tools to design and build a simple interactive application while learning how AI can support the software development process.

Unit 5 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

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5.1 Image Models

Quiz 5.1 — Completion

5.2 Audio Models

Quiz 5.2 — Completion

5.3 Video, Film, and the Lifelike Avatar

Quiz 5.3 — Completion

Activity: AI Video

5.4 If It's AI, Is It Art?

Quiz 5.4 — Completion

5.5 Advanced Tools and Agents

Quiz 5.5 — Completion

5.6 You Can Program, Even If You Don't Know How

Quiz 5.6 — Completion

Unit 5 Assignment: Build a Game — Completion

Unit 5 Test

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Unit 6: Your Future with AI

The first five units were about understanding and using AI. This one is about what AI means — for work, for society, and for you specifically.

The lessons ahead don't have clean answers. AI is changing things fast enough that serious people disagree about where it's all heading. What this unit tries to do is give you a grounded, honest way to think about those changes — not to make you anxious, and not to make you falsely reassured, but to help you navigate what's coming with your eyes open.

In this unit, you will:

- Explore emerging areas of artificial intelligence, including robotics, reinforcement learning, diffusion models, and artificial general intelligence (AGI).
- Examine how AI is transforming the workplace and evaluate the opportunities and challenges created by automation.
- Analyze how AI is changing the development of expertise and the skills needed for future careers.
- Evaluate AI safety, alignment, and other long-term challenges while considering the responsible development and use of artificial intelligence.

Unit 6 Study Guide

This study guide will help you preview the concepts and guide your learning as each new skill or concept is introduced. Use this study guide as the foundation of your notes. You may use it on the unit quizzes, unit tests, and course final.

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6.1 Other Types of AI

Quiz 6.1 — Completion

6.2 The Future of Work

Quiz 6.2 — Completion

6.3 The Experience Gap

Quiz 6.3 — Completion

Activity: What Would You Lose?

6.4 Proceeding With Caution

Quiz 6.4 — Completion

Unit 6 Assignment: What problems would you solve with AI? — Completion

Unit 6 Test

Not available unless: The activity **Quiz 6.1** is marked complete ... Show more

Final Exam

You will have access to the final after you have been enrolled in the course for at least 30 days and when all unit tests are completed, and your assignments are graded.

Warning: You have only ONE attempt at the final. Are you ready to take the final? We highly recommend you take the practice final first, and if you are weak in any area, review the relevant course material again. You have unlimited attempts at the practice final; it will help you to prepare.

Remember, if you want to improve your grade in this course, you need to do that BEFORE you take the final exam.

Good Luck!!

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Course Completion & Requesting a Transcript

Transcript - Send a transcript to your school to report the credits you earned. A transcript will list all the courses you have taken with us, including those still in progress.

Feedback - Before you go, we would appreciate your opinion on the course; please take 1 minute to complete the feedback form. We hope you enjoyed this course!

Course Feedback

Thank you for taking this course! Let us know what you think about it.

Request a Transcript

Notify your school that you have completed your course. Send them a transcript by email or mail. A transcript will list all the courses you have completed and those in progress.