



Overview of Discover AI

Discover AI is a student-centered learning experience that exposes students to fundamental AI concepts through interactive discussions, conversations with AI experts, research and hands-on assignments. In Discover AI students take ownership of their learning and are encouraged to leverage their existing knowledge and interests to build their understanding of artificial intelligence through the lens of societal impact and ethics.

Upon successful completion of Discover AI, students will receive a certificate of completion. Students who complete Discover AI are eligible to participate in Apply AI.

Curriculum Details

The Discover AI curriculum is divided into a sequence of four modules described in the table below.

Essential Question

- How can artificial intelligence impact our world?

Understandings

- Artificial intelligence like any innovation has the potential to be used to benefit society or exacerbate and even create social problems.
- As an artificial intelligence advocate and leader it is your responsibility to expose and mitigate the potential negative impacts of artificial intelligence.
- Artificial intelligence is an interdisciplinary field with applications and opportunities that go beyond computer science.

Key Deliverables

- **Reflection Assignments** where students reflect upon their learning and engage in discussing articles/research with classmates.
- **Research Assignments** where students will have an opportunity to further explore the topics presented in the lectures.
- **Hands-On Activities** will focus on the development of a simple AI/ML project. Students will work on this project throughout the course of the program
- **Project Proposal** is a 1 to 2 page document outlining what team plans to achieve for their final presentation & project.
- **Project Proposal Feedback** will be provided to each team by their peers & mentors.
- **Final Presentation:** A final presentation/project that teams will share during a



showcase at the end of the program. Teams will have the freedom of deciding the medium that will be used.

- **Github Repository:** Students will create a Github repository that will showcase their work and that can be shared publicly.
- **My AI Roadmap** highlighting actionable next steps students will take to pursue a career in AI.

<p>Module 1: What is AI?</p>	<p>Students are exposed to the introductory AI concepts and definitions including machine learning, types of AI and impact. Topics covered:</p> <ul style="list-style-type: none"> ● Definitions of AI & ML ● Categories of AI ● Impact of AI <p>Lectures & Discussions:</p> <ul style="list-style-type: none"> ● Defining AI ● Machine Learning <p>Assignments:</p> <ul style="list-style-type: none"> ● Project Work: Brainstorming areas of interest for final project ● Research: Identify examples of positive and negative impacts of AI ● Hands-On Activity: Exploring and playing with various algorithms - classifier, k-means clustering and reinforcement learning
<p>Module 2: Algorithms, Data and Bias</p>	<p>Students take a closer look at machine learning, different algorithms and bias. Topics covered:</p> <ul style="list-style-type: none"> ● AI/ML creation process/cycle ● Defining data, algorithms and bias ● The relationship between data, algorithms and bias ● Type of Machine Learning <p>Lectures & Discussions:</p> <ul style="list-style-type: none"> ● Data & Bias ● Types of Machine Learning <p>Assignments:</p> <ul style="list-style-type: none"> ● Project Work: Project proposal ● Research: Identify two machine learning algorithms and research how they are implemented, examples applications that use them and the implications of these applications. ● Hands-On Activity: Loading & investigating datasets with Python
<p>Module 3: Gradient Descent</p>	<p>This module focuses on the fundamentals of gradient descent. Topics covered:</p> <ul style="list-style-type: none"> ● Gradient descent



	<ul style="list-style-type: none">● Cost functions● Learning rate <p>Lectures & Discussions:</p> <ul style="list-style-type: none">● Gradient Descent <p>Assignments:</p> <ul style="list-style-type: none">● Project Work: Student continue working on final presentation● Research: Types of gradient descent● Hands-On Activity: Train and evaluate a ML simple model in Python
Module 4: Neural Networks	<p>This module introduces additional concepts related to neural networks and their applications. Topics Covered:</p> <ul style="list-style-type: none">● Neural Networks <p>Lectures & Discussions:</p> <ul style="list-style-type: none">● Neural Networks <p>Assignments:</p> <ul style="list-style-type: none">● Project Work: Final Presentation showcase● Hands-On Activity: Train and evaluate a ML simple model in Python● My AI Roadmap