

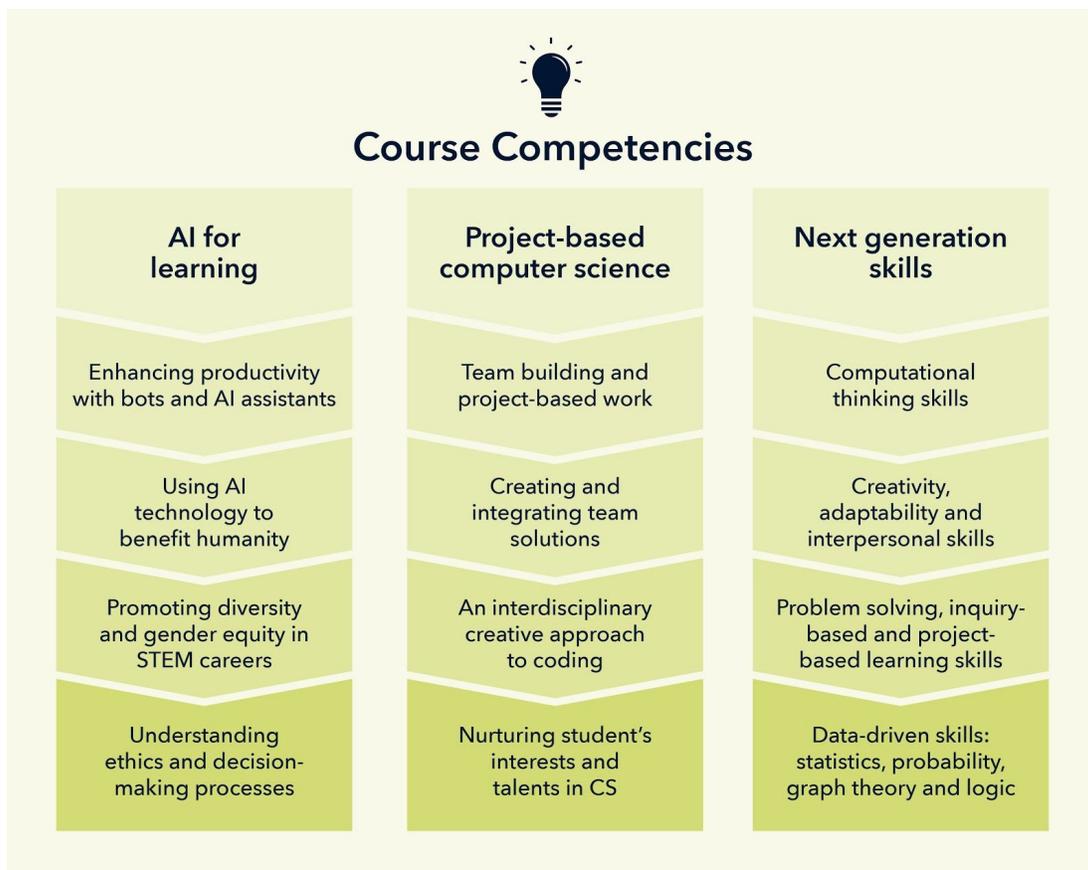
ARTIFICIAL INTELLIGENCE EXPLORATIONS

ONLINE COURSE SYLLABUS

Course Description

Artificial Intelligence Explorations and Their Practical Use in School Environments introduces you to the field of Artificial Intelligence (AI) and its application in K-12 environments through presentations, examples of practical use, tools and resources for implementation, and interactive activities. This course focuses on aspects of AI technologies that have the potential to facilitate and leverage learning, and solve real problems in schools and communities. As educators, you will also learn to unveil to your students how AI technologies are embedded in many different aspects of our lives. You will actively engage in the course content as you participate in online activities, and complete hands-on assignments to apply your learning. Throughout the course, you will acquire strategies to draw upon as you develop a project-based unit where students apply artificial intelligence to solve a problem.

As a result of the AI Explorations course, you will have the competencies to nurture student understanding of AI applications in learning; develop students' project-based computer science skills; and provide opportunities to build next generation skills.



Course Structure

The course is 30-hours with 10 modules. The course will take you 6–10 weeks to complete, depending on how many hours you spend each week. Your Virtual Coach will be monitoring the course, answering your questions, and providing you with feedback. This is a self-paced course (meaning that you can complete course components at anytime), however, there is a defined start and end date for the course.

Course Goals and Outcomes

Artificial Intelligence Explorations and Their Practical Use in School Environments prepares you to introduce AI into your classroom. As a result of the course, you will be able to meet the following goals:

- Articulate a basic understanding of different artificial intelligence components: what they are, how they work, and their current applications.
- Describe how exploring artificial intelligence concepts and applications with students can support the development of project-based learning, STEM skills and career awareness, digital fluency in the classroom, and critical use of technology.
- Identify and apply specific tools and approaches for using artificial intelligence to support interdisciplinary teaching.
- Use a project-based learning framework to design a project-based unit that applies artificial intelligence to solve a problem.
- Reflect on ways to leverage artificial intelligence applications to support student achievement and nurture students' interests and talents in computer science.

Participant Profile

This course is intended as a primer on AI and is appropriate for middle/high-school educators, across all content areas, who are comfortable with technology and technology integration. Coding skills are not required in this course. The course is meant to provide an interdisciplinary approach to integrating AI experiences that allow students to create with AI technology and leverage AI for learning.

ISTE Standards and Competencies

The course addresses ISTE's Standards with a strong emphasis on the [ISTE Standards for Educators](#) and [ISTE Standards for Students](#). These Standards are woven throughout the activities and assignments in the course.

Module Descriptions

MODULE 1: INTRODUCTION TO AI

Are machines outsmarting humans? What exactly is Artificial Intelligence (AI)? And, how does it affect me and my students? Module 1 provides an overview of AI and explores its origins.

MODULE 2: AI PERCEPTION AND HUMAN-COMPUTER INTERACTION

In Module 2, you will explore visual perception and linguistic capabilities of machines. Machine perception aims to replicate a human's ability to understand their surroundings and involves technologies such as image and speech recognition.

MODULE 3: PBL AND DESIGN THINKING

In Module 3, you will be introduced to project-based learning (PBL) and how it can be integrated through a design thinking model. During this course, you will be creating a PBL experience for your students centered on AI, therefore this module provides background for your Capstone Project.

MODULE 4: MACHINE LEARNING AND PROBLEM SOLVING

In Module 4, you will explore how machines make decisions. One of the characteristics of human intelligence is the ability to learn by making associations based on past experiences. Recreating that ability in AI has been one of the biggest challenges, but the field recently has had a lot of success in this area.

MODULE 5: VIRTUAL FACILITATORS

What if you had an avatar as a classroom assistant? How would this impact your teaching? In Module 5, you will examine how a machine can communicate in ways that go beyond printed text; for example, by synthesising speech and using human-like faces or emotive avatars.

MODULE 6: AUTOMATING INTERACTIONS VIA CHATBOTS AND VOICE EXPERIENCES

In Module 6, you will explore chatbots and voice experiences, learn how they function, what their relationship is to AI, and how they can be useful in K-12 education. In addition, you will develop a chatbot or voice experience that can be shared with others.

MODULE 7: IMPROVING STUDENT AND TEACHER UNDERSTANDING WITH DATA MINING

In Module 7, you will become aware of AI tools and applications that can identify trends in data and be used to monitor students' progress and support student learning.

MODULE 8: SEARCH

In Module 8, you will learn how AI makes searching better. This information has numerous applications in the classroom. Many students and teachers use search engines on a daily basis, and having a basic understanding of search technology can drastically improve your search findings and research skills.

MODULE 9: CREATING A PBL AND DESIGN THINKING EXPERIENCE

In Module 9, you will focus on developing a project-based unit that leverages the AI concepts, tools, and approaches that you have explored throughout the course. Your instructional unit will support students with applying artificial intelligence to solve a problem.



MODULE 10: AI CONSIDERATIONS AND THE FUTURE

In Module 10, you will explore ethical issues that AI poses as you consider the impact of AI on your and your students' lives. This module also provides time for you to finalize and submit your Capstone Project.

Completion Criteria

The course is designed to be completed in 30 hours, and is eligible for 2 graduate-level credits. Course completion is determined by submitting all assignments including your Capstone Project. The course is graded complete or incomplete. We recommend completing the course over a 10 week period.

Disclaimers

This course is a production of the International Society for Technology in Education (ISTE). This course contains examples and resource materials that are provided for participants' convenience and information. The inclusion of any material is not intended to endorse any views expressed, or products or services offered. These materials may contain the views and recommendations of various subject matter experts as well as hypertext links, and websites to information created and maintained by other public and private organizations. The opinions expressed in any of these materials do not necessarily reflect the positions or policies of ISTE. ISTE does not control or guarantee the accuracy, relevance, timeliness, or completeness of any outside information included in these materials.

NOTE: A variety of applications are highlighted throughout this course. Prior to using any of them with students, it is imperative that participants check the account requirements for each application against their school/district student data privacy policy to insure the application complies with district policy. In addition, some applications' Terms of Service may require parental permission to be COPPA and FERPA compliant for students younger than 13 years of age. Before any student under the age of 18 accesses the Amazon Developer Portal, a parent or legal guardian must create a developer account for that student.

Content in this course is subject to change at instructor's or ISTE's discretion.