

Exploring AI with Python

Designed for learners in Grades 9-12



Course Description:

Students will learn the basics of Python and Artificial Intelligence to create a variety of "smart" projects involving art, games, and chatbots! No previous coding experience is required for this course.

Equipment, Curriculum, and Training Available:

- 15 Lesson Hours
- Curriculum and supporting materials
- Ongoing product and curriculum support
- Professional development
- Facilitation by a trained STEM instructor (optional)

Lesson	Learning Target Examples
1. Introduction to Python and AI	Introduce the foundational concepts of Artificial Intelligence and coding with Python 3.
2. Python Basics with the Turtle Library	Create a basic Python project and code a simple picture-drawing program.
3. Python Basics: Loops and Automation	Use for loops and the turtle library to create complex geometry that would otherwise be impossible to code.
4. Python Basics: Functions and Efficiency	Define functions in Python, then use pre-made functions with the turtle library to draw a variety of images.
5. Python Basics: Variables and User Input	Make a smart program that "reacts" to user input by storing information and running various functions.
6. Python Basics: Think Like a Human: If/Then	Use conditionals to make a program "make decisions".
7. Chatbots: Printing and Inputs in Python	Learn the foundations of chatbots by using the "print" and "user input" commands.
8. Chatbots: A Talking Calculator	Create a "smart calculator" by storing user input and responding to prompts.
9. Chatbots: Smart Apps with Comparisons	Create a smart "travel agent" chatbot that asks questions and makes decisions.
10. Games with Numbers	Code basic Python games that utilize numbers, such as a "lottery" game.
11. Games with Words	Code an interactive "Choose Your Own Adventure" game in Python.
12. Games with Graphics	Use Python and the turtle library to code a "ping pong" game with graphics.
13. Games that Learn	Interact with basic AI concepts such as "minimax" that allow games to learn and improve over time.
14. Create your own Game	Apply knowledge of number based, text based, graphic based, and "smart" games to create a unique Python game
15. AI and Beyond: Advanced	Explore deeper AI concepts such as: Deep Learning, Neural Networks, and AI Ethics