

## 3XXX Computer Science: Artificial Intelligence

### **About this course** 关于本课

Artificial Intelligence gained worldwide popularity with the release of ChatGPT on November 30, 2022. As a result, there is a strong demand for basic knowledge about Artificial Intelligence, even for K-12 students. There is a popular movement called “Democratizing Artificial Intelligence”. Roughly speaking, the movement aims to equip people who do not have a PhD in Computer Science to understand and use AI for the work and in their daily life. Teaching AI to elementary, middle and high school students is a perfect example of the movement.

This course is for young people (age 10 to 17) who have interests in learning the hottest technology of the modern day. There is no prerequisite for taking the course. However, we do expect students to take the study seriously and put their best efforts in learning and participating in class activities.

### **Software Requirements:**

Students MUST have an adult Google account (over the age of 18) so that they can access Google Colab. Google Colab is totally free.

### **Required Textbooks:**

Students are required to buy the required textbook before the first day of class. No exception. The textbook is cheap and should be available from amazon.com or other places.

Book 1: Artificial Intelligence For Dummies (For Dummies (Computer/Tech)) 2nd Edition by John Paul Mueller (Author), Luca Massaron (Author) Published by For Dummies; 2nd edition (November 24, 2021) ISBN-13 : 978-1119796763. Amazon.com price: 22.33 dollars

**Important Notice: the third edition will be available soon. However, the essential concepts should be very similar.**

Book 2: Artificial Intelligence Programming with Python: From Zero to Hero 1st Edition by Perry Xiao (Author) Publisher : Wiley; 1st edition (March 29, 2022) ISBN-13 : 978-1119820864 Amazon.com price: 25.99 dollars

### **Words from the teacher:**

My name is Max Li (李海飞). I have taught college students for many years (17 to be exact). I also have industrial experiences for 6 years before coming to US for graduate studies. In addition, I have been a researcher at IBM Thomas J. Watson Research Center for 2 years. I got a doctoral degree from the University of Florida (2001), a master's degree from the University of Florida (1998) and a bachelor's degree from Xi'an Jiaotong University (1990). All my degrees are related to computer science and engineering.

VERY important requirement: A laptop (either Windows or Mac) is required for the course. Please bring the laptop to the classroom every time because every student needs to use his/her own computer for working with the code.

### **Course Teaching Schedule (for Fall 2024 and Spring 2025)**

## **Fall 2024 (use the first textbook)**

September, 2024

Part 1/ Part2: Introducing AI/Considering the Uses of AI in Society

October, 2024

Part 3: Working with Software-based AI Applications

November, 2024

Part 4: Working with Hardware-based AI Applications

December, 2024

Part 5: Considering the Future of AI

January, 2025

Part 6: The Part of Tens

## **Spring 2025 (use the second textbook)**

February, 2025

Part I: Chapter 1: Introduction to AI and Chapter 2: AI Development Tools

March, 2025

Part II. Chapter 3 Machine Learning and Chapter 4: Deep Learning

April, 2025

Chapter 5: Image Classification and Chapter 6: Face Detection

May, 2025

Chapter 7: Object Detection and Chapter 8: Image Segmentation

June, 2025

Chapter 9: GAN and Neural-Style Transfer and Chapter 10: Natural Language Processing