ARTIFICIAL INTELLIGENCE MASTER'S PROGRAM

In collaboration with IBM

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About the Course

This Artificial Intelligence Master's Program covers the crucial skills you need for a successful career in artificial intelligence (AI). As you undertake your AI engineer training, you'll master the concepts of deep learning, machine learning, natural language processing (NLP), plus the programming languages needed to excel in an AI career with exclusive training and certification from IBM. You will learn how to design intelligent models and advanced artificial neural networks and leverage predictive analytics to solve real-time problems in this course, in collaboration with IBM.

Key Features

Portfolio-worthy capstone demonstrating mastered concepts

Industry-recognized certificates from IBM(for IBM courses) and Simplilearn

20+ In-demand skills

15+ Real-life projects providing hands-on industry training

192 hours of instructor-led training

19 hours of self-paced learning

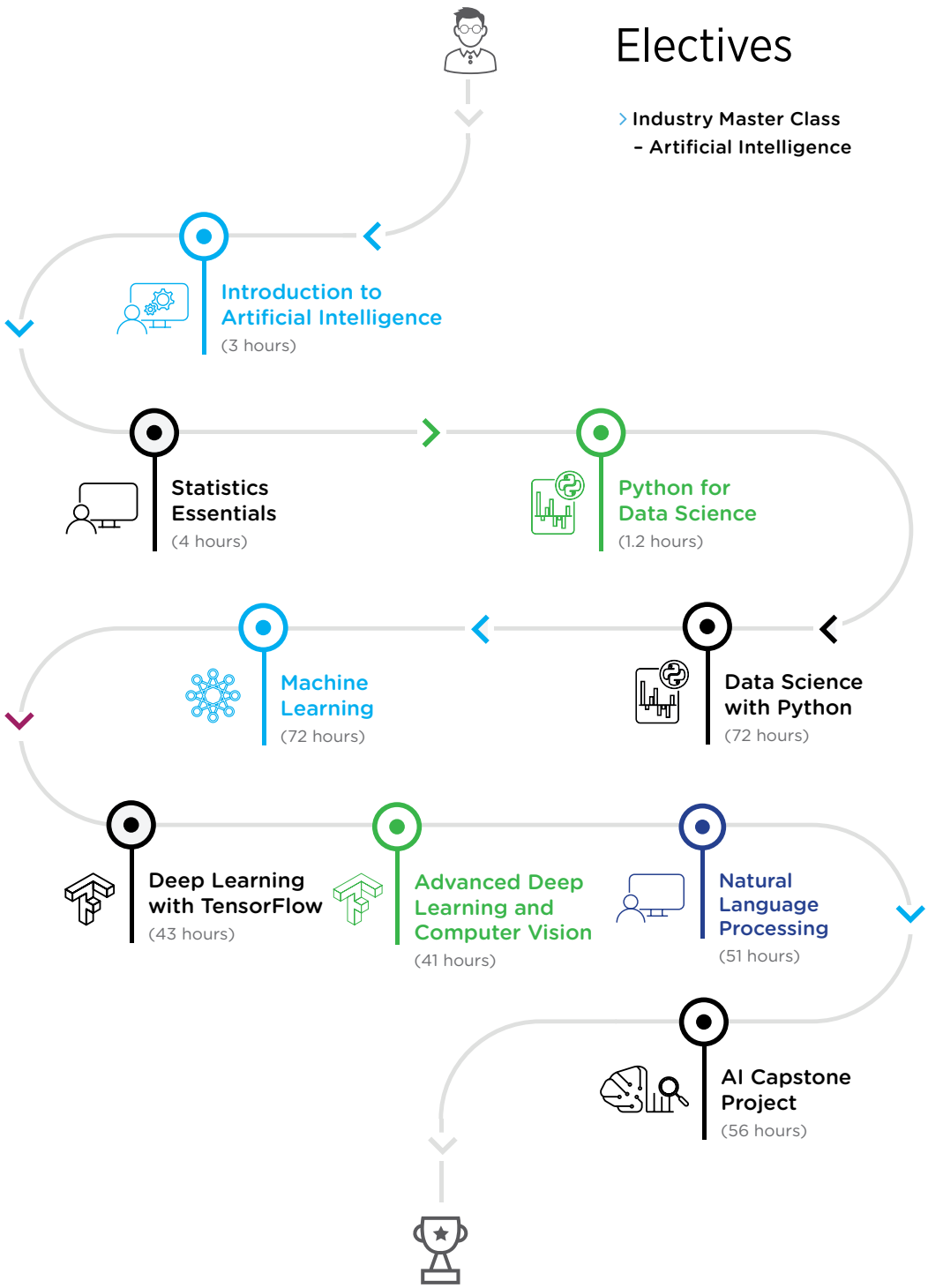
About IBM and Simplilearn collaboration

This joint partnership between Simplilearn and IBM introduces students to an integrated, blended learning experience, with the goal of making them experts in AI and data science. Students will be industry-ready for AI and data science job roles upon successfully completing this course. IBM is a leading cognitive solution and cloud platform company, headquartered in Armonk, New York, offering a plethora of technology and consulting services. IBM invests $6 billion in research and development annually and has achieved five Nobel Prizes, nine US National Medals of Technology, five US National Medals of Science, six Turing Awards, and 10 Inductions in the US Inventors Hall of Fame.

About Simplilearn

Simplilearn is the world's #1 online bootcamp provider that enables learners through rigorous and highly specialized training. We focus on emerging technologies and processes that are transforming the digital world, at a fraction of the cost and time as traditional approaches. Over one million professionals and 2000 corporate training organizations have harnessed our award-winning programs to achieve their career and business goals.

Learning Path - Artificial Intelligence



Artificial Intelligence Engineer Master's Program Outcomes

Learn about the major applications of Artificial Intelligence across various use cases across various fields like customer service, financial services, healthcare, etc.

Implement classical Artificial Intelligence techniques such as search algorithms, neural networks, and tracking.

Gain the ability to apply Artificial Intelligence techniques for problem-solving and explain the limitations of current Artificial Intelligence techniques.

Master the skills and tools used by the most innovative Artificial Intelligence teams across the globe as you delve into specializations, and gain experience solving real-world challenges.

Design and build your own intelligent agents and apply them to create practical Artificial Intelligence projects including games, Machine Learning models, logic constraint satisfaction problems, knowledge-based systems, probabilistic models, agent decision-making functions and more.

Understand the concepts of TensorFlow, its main functions, operations, and the execution pipeline.

Understand and master the concepts and principles of Machine Learning, including its mathematical and heuristic aspects.

Master and comprehend advanced topics such as convolutional neural networks, recurrent neural networks, training deep networks, and high-level interfaces.

Learn to deploy deep learning models on Docker, Kubernetes, and in serverless environments (cloud)

Understand the fundamentals of Natural Language Processing using the most popular library; Python's Natural Language Toolkit (NLTK).

Who Should Enroll in this Program?

With the demand for Artificial Intelligence in a broad range of industries such as banking and finance, manufacturing, transport and logistics, healthcare, home maintenance, and customer service, the Artificial Intelligence course is well suited for a variety of profiles like:

- Developers aspiring to be an 'Artificial Intelligence Engineer' or Machine Learning engineers
- Analytics managers who are leading a team of analysts
- Information architects who want to gain expertise in Artificial Intelligence algorithms
- Graduates looking to build a career in Artificial Intelligence and Machine Learning

Introduction to Artificial Intelligence

Simplilearn's Introduction to Artificial Intelligence course is designed to help learners decode the mystery of Artificial Intelligence and understand its business applications. The course provides an overview of Artificial Intelligence concepts and workflows, Machine Learning, Deep Learning, and performance metrics. You'll learn the difference between supervised, unsupervised learning—be exposed to use cases, and see how clustering and classification algorithms help identify Artificial Intelligence business applications.

Key Learning Objectives

- Meaning, purpose, scope, stages, applications, and effects of Artificial Intelligence
- Fundamental concepts of Machine Learning and Deep Learning
- Difference between supervised, semi-supervised and unsupervised learning
- Machine Learning workflow and how to implement the steps effectively
- The role of performance metrics and how to identify their essential methods

Course curriculum

- Lesson 1 - Decoding Artificial Intelligence
- Lesson 2 - Fundamentals of Machine Learning and Deep Learning
- Lesson 3 - Machine Learning Workflow
- Lesson 4 - Performance Metrics

Statistics Essential

Statistics is the science of assigning a probability to an event based on experiments. It is the application of quantitative principles to the collection, analysis, and presentation of numerical data. Ace the fundamentals of Data Science, statistics, and Machine Learning with this course. It will enable you to define statistics and essential terms related to it, explain measures of central tendency and dispersion, and comprehend skewness, correlation, regression, distribution. You will be able to make data-driven predictions through statistical inference.

Key Learning Objectives

- Understand the fundamentals of statistics
- Work with different types of data
- How to plot different types of data
- Calculate the measures of central tendency, asymmetry, and variability
- Calculate correlation and covariance
- Distinguish and work with different types of distribution
- Estimate confidence intervals
- Perform hypothesis testing
- Make data-driven decisions
- Understand the mechanics of regression analysis
- Carry out regression analysis
- Use and understand dummy variables
- Understand the concepts needed for data science even with Python and R!

Course curriculum

- Lesson 1 - Introduction
- Lesson 2 - Sample or population data?
- Lesson 3 - The fundamentals of descriptive statistics
- Lesson 4 - Measures of central tendency, asymmetry, and variability
- Lesson 5 - Practical example: descriptive statistics
- Lesson 6 - Distributions
- Lesson 7 - Estimators and estimates
- Lesson 8 - Confidence intervals: advanced topics
- Lesson 9 - Practical example: inferential statistics
- Lesson 10 - Hypothesis testing: Introduction
- Lesson 11 - Hypothesis testing: Let's start testing!
- Lesson 12 - Practical example: hypothesis testing
- Lesson 13 - The fundamentals of regression analysis
- Lesson 14 - Subtleties of regression analysis
- Lesson 15 - Assumptions for linear regression analysis
- Lesson 16 - Dealing with categorical data
- Lesson 17 - Practical example: regression analysis

Python for Data Science

Kickstart your learning of Python for Data Science with this introductory course and familiarize yourself with programming. Carefully crafted by IBM, upon completion of this course you will be able to write your Python scripts, perform fundamental hands-on data analysis using the Jupyter-based lab environment, and create your own Data Science projects using IBM Watson.

Key Learning Objectives

- Write your first Python program by implementing concepts of variables, strings, functions, loops, conditions
- Understand the nuances of lists, sets, dictionaries, conditions and branching, objects and classes
- Work with data in Python such as reading and writing files, loading, working, and saving data with Pandas

Course curriculum

- Lesson 1 - Python Basics
- Lesson 2 - Python Data Structures
- Lesson 3 - Python Programming Fundamentals
- Lesson 4 - Working with Data in Python
- Lesson 5 - Working with NumPy arrays

Data Science with Python

This Data Science with Python course will establish your mastery of Data Science and analytics techniques using Python. With this Python for Data Science Course, you'll learn the essential concepts of Python programming and gain in-depth knowledge in data analytics, Machine Learning, data visualization, web scraping, and natural language processing. Python is a required skill for many Data Science positions, so jump start your career with this interactive, hands-on course.

Key Learning Objectives

- Gain an in-depth understanding of Data Science processes, data wrangling, data exploration, data visualization, hypothesis building, and testing. You will also learn the basics of statistics
- Install the required Python environment and other auxiliary tools and libraries
- Understand the essential concepts of Python programming such as data types, tuples, lists, dicts, basic operators and functions
- Perform high-level mathematical computing using the NumPy package and its vast library of mathematical functions
- Perform scientific and technical computing using the SciPy package and its sub-packages such as Integrate, Optimize, Statistics, IO, and Weave
- Perform data analysis and manipulation using data structures and tools provided in the Pandas package
- Gain expertise in Machine Learning using the Scikit-Learn package
- Gain an in-depth understanding of supervised learning and unsupervised learning models such as linear regression, logistic regression, clustering, dimensionality reduction, K-NN and pipeline

- Use the Scikit-Learn package for natural language processing
- Use the matplotlib library of Python for data visualization
- Extract useful data from websites by performing web scraping using Python
- Integrate Python with Hadoop, Spark, and MapReduce

Course curriculum

- Lesson 1: Data Science Overview
- Lesson 2: Data Analytics Overview
- Lesson 3: Statistical Analysis and Business Applications
- Lesson 4: Python Environment Setup and Essentials
- Lesson 5: Mathematical Computing with Python (NumPy)
- Lesson 6 - Scientific computing with Python (Scipy)
- Lesson 7 - Data Manipulation with Pandas
- Lesson 8 - Machine Learning with Scikit–Learn
- Lesson 9 - Natural Language Processing with Scikit Learn
- Lesson 10 - Data Visualization in Python using matplotlib
- Lesson 11 - Web Scraping with BeautifulSoup
- Lesson 12 - Python integration with Hadoop MapReduce and Spark

Machine Learning

Simplilearn's Machine Learning course will make you an expert in Machine Learning, a form of Artificial Intelligence that automates data analysis to enable computers to learn and adapt through experience to do specific tasks without explicit programming. You will master Machine Learning concepts and techniques, including supervised and unsupervised learning, mathematical and heuristic aspects, and hands-on modeling to develop algorithms and prepare you for your role with advanced Machine Learning knowledge.

Key Learning Objectives

- Master the concepts of supervised and unsupervised learning, recommendation engine, and time series modeling
- Gain practical mastery over principles, algorithms, and applications of Machine Learning through a hands-on approach that includes working on four major end-to-end projects and 25+ hands-on exercises
- Acquire thorough knowledge of the statistical and heuristic aspects of Machine Learning
- Implement models such as support vector machines, kernel SVM, naive Bayes, decision tree classifier, random forest classifier, logistic regression, K-means clustering and more in Python
- Validate Machine Learning models and decode various accuracy metrics. Improve the final models using another set of optimization algorithms, which include Boosting & Bagging techniques
- Comprehend the theoretical concepts and how they relate to the practical aspects of Machine Learning

Course curriculum

- Lesson 1: Introduction to Artificial Intelligence and Machine Learning
- Lesson 2: Data Preprocessing
- Lesson 3: Supervised Learning
- Lesson 4: Feature Engineering
- Lesson 5: Supervised Learning-Classification
- Lesson 6: Unsupervised learning
- Lesson 7: Time Series Modelling
- Lesson 8: Ensemble Learning
- Lesson 9: Recommender Systems
- Lesson 10: Text Mining

Deep Learning with TensorFlow

This Deep Learning with TensorFlow course by IBM will refine your machine learning knowledge and make you an expert in deep learning using TensorFlow. Master the concepts of deep learning and TensorFlow to build artificial neural networks and traverse layers of data abstraction. This course will help you learn to unlock the power of data and prepare you for new horizons in AI.

Key Learning Objectives

- Understand the difference between linear and non-linear regression
- Comprehend convolutional neural networks and their applications
- Gain familiarity with recurrent neural networks (RNN) and autoencoders
- Learn how to filter with a restricted Boltzmann machine (RBM)

Course curriculum

- Lesson 1 - Introduction to TensorFlow
- Lesson 2 – Convolutional Neural Networks (CNN)
- Lesson 3 – Recurrent Neural Networks (RNN)
- Lesson 4 - Unsupervised Learning
- Lesson 5 - Autoencoders

Advanced Deep Learning and Computer Vision

Take the next big step toward advancing your deep learning skills with this high-level course. This Advanced Deep Learning and Computer Vision course covers real applications of computer vision, generative-adversarial networks (GANs), distributed and parallel computing with GPUs, and deployment of deep learning models on cloud.

Key Learning Objectives

- Learn how to filter with restricted Boltzmann machines (RBMs)
- Work on image translation with GAN
- Encode, decode, and denoise images with autoencoders
- Understand the structure and function of neural networks and CNNs/ pooling
- Detect objects in images with You Only Look Once (YOLOv3)
- Learn to deploy deep learning models on Docker, Kubernetes, and in serverless environments (cloud)

Course curriculum

- Lesson 1 - Course Introduction
- Lesson 2 - Prerequisites for the course
- Lesson 3 - RBM and DBNs
- Lesson 4 - Variational AutoEncoder
- Lesson 5 - Working with Deep Generative Models
- Lesson 6 - Applications: Neural Style Transfer and Object Detection
- Lesson 7 - Distributed & Parallel Computing for Deep Learning Models
- Lesson 8 - Reinforcement Learning
- Lesson 9 - Deploying Deep Learning Models and Beyond

Natural Language Processing

This Natural Language Processing course will give you a detailed look at the science behind applying Machine Learning algorithms to process large amounts of natural language data. You will learn the concepts of Natural Language understanding, Feature Engineering, Natural Language Generation, Speech Recognition techniques.

Key Learning Objectives

- Learn how to perform text processing and find a pattern
- Find the most relevant document by applying TF-IDF
- Write a script for applying parts-of-speech and extraction on focus words
- Create your own NLP module
- Classify the cluster for articles
- Create a basic speech model
- Convert speech to text

Course curriculum

- Lesson 1 - IIntroduction to Natural Language Processing
- Lesson 2 - Feature Engineering on Text Data
- Lesson 3 - Natural Language Understanding Techniques
- Lesson 4 - Natural Language Generation
- Lesson 5 - Natural Language Processing Libraries
- Lesson 6 - Natural Language Processing with Machine Learning and Deep Learning
- Lesson 7 - Speech Recognition Technique

Artificial Intelligence Capstone Project

Simplilearn's Artificial Intelligence Capstone project will allow you to implement the skills you learned in the masters of Artificial Intelligence. With dedicated mentoring sessions, you'll know how to solve a real industry-aligned problem. You'll learn various Artificial Intelligence-based supervised and unsupervised techniques like Regression, SVM, Tree-based algorithms, NLP, etc. The project is the final step in the learning path and will help you to showcase your expertise to employers.

Key Learning Objectives

Simplilearn's online Artificial Intelligence Capstone course will bring you through the Artificial Intelligence decision cycle, including Exploratory Data Analysis, building and fine-tuning a model with cutting edge Artificial Intelligence-based algorithms and representing results. The project milestones are as follows:

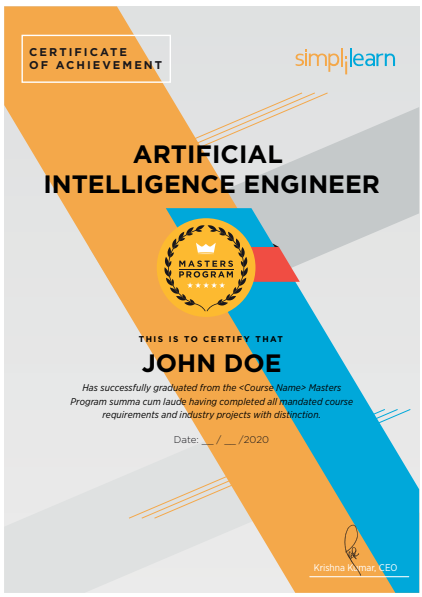
- **Exploratory Data Analysis** - In this step, you will apply various data processing techniques to determine the features and correlation between them, transformations required to make the data sense, new features, construction, etc.
- **Model Building and fitting** - This will be performed using Machine Learning algorithms like regression, multinomial Naïve Bayes, SVM, tree-based algorithms, etc.
- **Unsupervised learning** - Clustering to group similar kind of transactions/reviews using NLP and related techniques to devise meaningful conclusions.
- **Representing results** - As the last step, you will be required to export your results into a dashboard with useful insights.

Elective Course

Industry Master Class – Artificial Intelligence

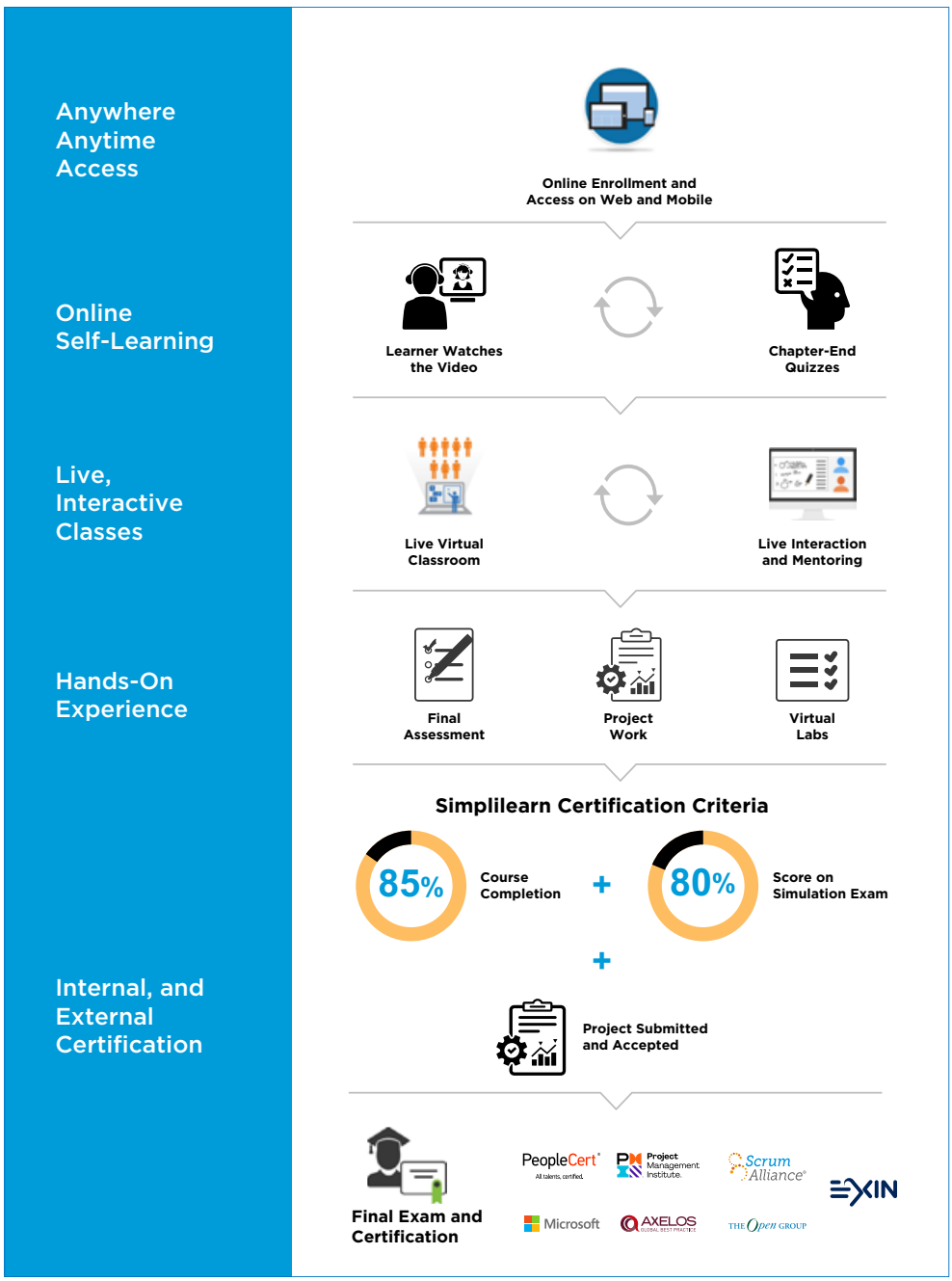
Attend this online interactive industry master class to gain insights about advancements in Data Science, AI and Machine Learning techniques.

Certificates



Upon completion of this Master's Program, you will receive the certificates from IBM and Simplilearn for the AI courses in the learning path. These certificates will testify to your skills as an expert in artificial intelligence. Upon program completion, you will also receive an industry recognized Master's Certificate from Simplilearn.

Classroom-Level Immersion: Delivered Digitally



Customer Reviews

Vishwanath Ragha

The awesome learning experience with Simplilearn. I am in the Artificial Intelligence Engineer Master's Program. So far, I have completed up to the Data Science with Python course. All the courses are well structured with self-learning, live classes, and assessment. The trainers are good, connect to students, and answer questions. Happy learning.

Janani Varun

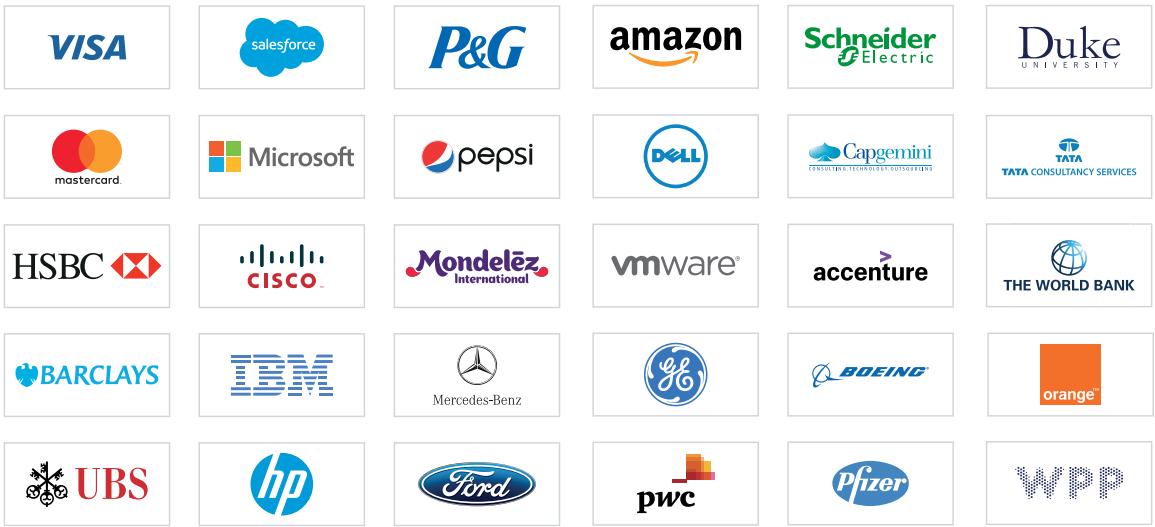
I would give a 5-star rating for the Simplilearn course I took. It helps me understand the content easily through online self-learning videos, and trainers assist us with their enriched knowledge, as well.

Leena Jayamohan

I took the AI Master's program, which consisted of multiple classes. Overall the teachers knew the subject and covered what was promised. The industry-related projects were excellent, and it helped put into practice what we learned in the class. I would recommend these classes to anyone planning to enter the Data Analytics field.

Corporate Training

Top clients we work with:



Features of Corporate Training:

- Tailored learning solutions
- Flexible pricing options
- Enterprise-grade learning management system (LMS)
- Enterprise dashboards for individuals and teams
- 24X7 learner assistance and support

simplilearn

USA

Simplilearn Americas, Inc.
201 Spear Street, Suite 1100, San Francisco, CA 94105
United States
Phone No: +1-844-532-7688

INDIA

Simplilearn Solutions Pvt Ltd.
53/1 C, Manoj Arcade, 24th Main, Harlkunte
2nd Sector, HSR Layout
Bangalore - 560102
Call us at: 1800-212-7688

www.simplilearn.com