

Course Description

In a digital world, business leaders must understand AI to stay relevant and empower their organizations to stay ahead of the game. Even those who have no technical background in computer science, math, and statistics will have to lead and manage data scientists, ML developers and AI engineers. This course will allow students to gain a practical understanding of AI, how it works, what makes it work well, how it's been used in business, what its impact is, and what challenges it brings. Students will explore the fundamental concepts and terminologies in data science and learn how to use them to effectively communicate, manage, work and collaborate with data scientists. Students will also acquire a solid theoretical and operational understanding of ML, allowing them to understand the actual steps, reasoning, and computation behind the work of data scientists.

Learning Objectives

On successful completion, students will be able to:

- Understand the most important concepts in data science, machine learning (ML), and artificial intelligence (AI).
- Distinguish facts about AI and ML from popular fictions, and have a good sense for what is possible with this technology and what not.
- Utilize the proper vocabulary and understand theoretical and operational aspects of ML and AI sufficiently to effectively manage data scientists.
- Collaborate with data scientists to explore solutions for real-world business challenges.

Intended Audience

Executives, team leaders, heads of departments and managers, who are looking to develop their leadership and management abilities to supervise teams, departments or organizations that are implementing AI solutions.

Prerequisites

None specified.

Session by Session Summary

Total course contact hours: 8 hours

Module	Theme	Topics	Assignments/ Readings
1	The Fuel of AI: Big Data	<ul style="list-style-type: none"> • What is the difference between data, information, and insights • What’s signal and what’s noise in a dataset and why is big data so noisy • How to work with big data and how best to discover insights from it • What are the 3 layers of data science and how are they different • What are descriptive, predictive, and prescriptive analytics • What do data scientists actually do 	<ul style="list-style-type: none"> • Reading assignment on Big Data, Descriptive, Predictive and Prescriptive Analytics
2	The Engine of AI: Machine Learning	<ul style="list-style-type: none"> • What is machine learning (ML) and how it differs from data analysis and data mining • What are features, what is feature engineering, and why it is crucial to ML • What are common and popular ML paradigms • What is supervised, unsupervised, reinforcement, and adversarial learning • What are some examples and applications of supervised, unsupervised, reinforcement, and adversarial learning • What is the power of generative adversarial network and how deep fakes are created • How can we assess whether a model is working and validate its performance 	<ul style="list-style-type: none"> • Case assignment on application of ML in business. • Reading assignment on history of AI in business.
3	Understanding AI	<ul style="list-style-type: none"> • How did artificial intelligence (AI) develop and evolve historically • What is AI and how is it different from ML • What conditions made it possible AI to become so popular recently • What is the learning loop and how does it gives AI its intelligence and makes it smart • How is AI different from traditional automation • Why is ML so crucial to every AI and what is the true advantage of learning 	<ul style="list-style-type: none"> • Case assignment on application of AI in business. • Reading assignment on AI in business.

		<ul style="list-style-type: none"> • What are the 4 major applications of AI with examples • How to turn any feature into an AI feature that can learn and adapt 	
4	Leading and Managing Data Scientists	<ul style="list-style-type: none"> • Case studies: Managing Data Scientists • What are the best practices to lead and manage a data science team 	<ul style="list-style-type: none"> • Case study on AI and ML implementation in organizations.

Required Reading

No text book is required. Required readings will be provided to students in the form of handouts, articles, papers, case studies via the Learning Management System.

Methods of Instruction

This workshop provides students with the opportunity to learn by analysing cases they have personally experienced by applying the content and methods. Each session will consist of an interactive lecture to understand the theoretical underpinnings of the concepts and methods presented. In group work, students will apply and discuss these conceptual learnings and share their individual expertise. Guided discussions and presentations will allow students to deepen their understanding of the learnings and reflect on their practical implementation in their work. Between sessions, students will complete practical assignments and pre-readings.

Course Requirements

Discussion & Participation	10%
Assignments & Quizzes	35%
Case Study	55%
Total	100%

Credentialing

Students are eligible to receive a Type-C certificate as a completion award if they successfully complete all course requirements.

The award document will read:

<Student Name>
has successfully completed the
Expert Workshop: Demystifying AI: What Business Leaders Need to Know About AI
Program End/Award Date

Each student's record of credit or CEU courses will be maintained in the UC Berkeley Extension Registrar's Office.