OCI AI: Generative AI Professional Training

Oracle Cloud Infrastructure

DURATION	MODULES	COURSE CODE
4 Days	**8 Lectures**	**—**

Course Overview

Evaluate the capabilities, frameworks, and use cases of Generative AI models in enterprise contexts.

What You Will Learn

- Table of
- Module 1
- OCI AI Foundations
- Employees want AI at work
- AI helps break the career ceiling
- AI is going Mainstream
- For Whom is this Course Intended?
- Course Outline
- Get Certified for FREE!
- Course Instructors
- Get the Most Out of This Course
- Get the Answers You Need
- Ratings and Feedback
- Keep Progressing: You're on Your Way to Success!
- Module 2
- Objectives
- Introduction to AI
- What is Artificial Intelligence?
- Human Intelligence
- AI Examples
- AI Terminology
- Why do we need AI?
- AI Domains and Examples
- AI – Tasks and Data
- Commonly Used AI Domains
- Language-Related AI Tasks

- 12
- 12
- 13
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- 21
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- 25
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- 34
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- Oracle Cloud Infrastructure AI Foundations 3
- Text as Data
- Language AI Models
- Speech-Related AI Tasks
- Audio and Speech as Data
- Audio and Speech AI Models
- Vision-Related AI Tasks
- Images as Data
- Vision AI Models
- Other AI Tasks
- AI vs. ML vs. DL
- Relationship Between AI, ML, and DL
- Machine Learning
- How Businesses Took Decisions
- Train a Model to Predict Outcomes
- Machine Learning
- What story does the data tell?
- Gain Insights by Clustering Data
- Machine Learning
- How do we learn to play a game like chess?
- Deep Learning

- Neural Networks
- Generative AI
- Module 3
- Machine Learning Foundations
- Objectives
- Machine Learning Foundations
- What is Machine Learning?
- Machine Learning Example
- 36
- 37
- 38
- 39
- 40
- 41
- 42
- 43
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- 51
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- 62
- Oracle Cloud Infrastructure AI Foundations 4
- ML Applications
- ML Model: Inputs and Outputs
- ML Model to Classify Cats and Dogs
- Data Types
- Flavors of Machine Learning
- ML Examples
- When is ML NOT the optimal solution?
- Supervised Learning-Classification
- Classification

- Logistic Regression
- Why is Logistic Regression Required?
- Building Blocks of Evaluation Metrics for Classification
- Evaluation Metrics for Classification
- Supervised Learning-Regression
- Supervised Learning
- Supervised Learning Model to Identify Fruits
- Steps in Supervised Machine Learning
- Types of Supervised Learning
- Regression
- Linear Regression Model for Weight Prediction
- Regression Line
- Loss
- Train a Model
- Evaluation Metrics for Regression
- Unsupervised Learning
- What is Unsupervised Learning?
- Clustering
- Use Case 1
- 63
- 64
- 65
- 66
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- 70
- 71
- 72
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- 90
- Oracle Cloud Infrastructure AI Foundations 5
- Use Case 2
- Use Case 3
- Similarity
- Unsupervised Workflow
- Types of Clustering Algorithms
- K-Means Algorithm
- Module 4
- Deep Learning Foundations
- Objectives
- Deep Learning Fundamentals
- What is Deep Learning?
- Why do we need Deep Learning?
- Brief History of Deep Learning
- Types of Deep Learning Algorithms
- Classification of Deep Learning
- What is Artificial Neural Network (ANN)?
- Building Blocks of ANN
- Handwritten Character Recognition
- Network Architecture of Handwritten Character Recognition
- How are ANNs trained?
- Deep Learning Models – Sequence Models
- Sequence Models
- What is Recurrent Neural Network (RNN)?
- Types of RNN Architecture
- What is Long Short-Term Memory?
- Step-by-Step Working of LSTM
- Deep Learning Models – Convolution Neural Networks
- Deep Learning Models
- 91
- 92
- 93
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- 104
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- 117
- Oracle Cloud Infrastructure AI Foundations 6
- What is a Convolution Neural Network (CNN)?
- CNN Layers Overview
- Robotic House Inspection
- Feature Extraction Layers
- Limitations of CNN
- Applications of CNN
- Module 5
- Generative AI and LLM Foundations
- Objectives
- Introduction to Generative AI
- What is Generative AI?
- How does Generative AI work?
- Machine Learning
- How is Generative AI different from other AI approaches?
- Types of Generative AI Models
- Generative AI Applications
- Introduction to Large Language Models
- What is a Large Language Model?
- Large Language Model Examples
- Large Language Model Features
- Model Size and Parameters
- Transformers (Part 1)
- Understanding Language for Machines can be tricky
- Recurrent Neural Networks (RNN) – used for input data (sequence)
- But RNNs struggle with Long-Range Dependencies
- Transformers understand relationships between all the words in a sentence
- Attention Mechanism: adds context to the Text
- Transformers
- 118
- 119
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- 149
- Oracle Cloud Infrastructure AI Foundations 7
- Transformers (Part 2)
- Encoder – Decoder
- Tokens
- Embeddings
- Encoders
- Embeddings use case
- Decoders
- Encoder –Decoder
- Transformer Model Types
- Prompt Engineering
- Prompt & Prompt Engineering
- LLMs as next word predictors
- Aligning LLMs to follow instructions
- In-context Learning and Few-shot Prompting
- Chain-of-Thought Prompting
- Hallucination
- Customize LLMs with your data
- Customize LLMs with your data
- Retrieval-Augmented Generation (RAG)
- LLM Fine-tuning and Inference
- Fine-tuning a pretrained model
- Fine-tuning Benefits

- Customize LLMs with your data
- Module 6
- OCI AI Portfolio
- Objectives
- AI Services Overview
- AI for the enterprise
- 150
- 151
- 152
- 153
- 154
- 155
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- 166
- 167
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- 177
- Oracle Cloud Infrastructure AI Foundations 8
- Oracle AI Stack
- Ways to Access Oracle Cloud Infrastructure AI Services
- Overview of AI Services
- Language Overview
- Vision
- Speech
- Document Understanding
- Digital Assistant
- ML Services Overview
- The Oracle AI Stack
- What is Oracle Cloud Infrastructure Data Science?

- Core Principles of OCI Data Science
- What, Whom, Where, and How of Data Science
- Data Science Features and Terminology
- AI Infrastructure
- What is a GPU?
- Nvidia GPU Comparison
- OCI AI Infrastructure
- OCI Supercluster with Nvidia Blackwell and Hopper GPUs
- GPU Use Case
- Responsible AI
- Trustworthy AI
- What are guiding principles for AI to be trustworthy?
- AI Needs to Be Lawful
- Human Ethics and Fundamental Rights
- Ethical Principles and Requirements of Responsible AI
- Responsible AI Cycle and Roles
- Healthcare AI: Challenges
- 178
- 179
- 180
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- Oracle Cloud Infrastructure AI Foundations 9

- Module 7
- OCI Generative AI Service
- OCI Generative AI Introduction
- OCI Generative AI Service
- How does OCI Generative AI service work?
- Pretrained Foundational Models
- Fine-tuning
- Dedicated AI Clusters
- AI Vector Search Oracle Database 23ai
- Agenda
- Oracle AI Vector Search
- Database-Native Vector Embedding Generation
- Vector Datatype
- Vector Distance Function
- Vector Search SQL
- Vector Index Syntax
- Vector Search
- Similarity Search Over Joins
- AI Vector Search powers Gen AI pipelines
- Key Takeaways
- Natural Language Queries Just Ask Your Database
- Oracle can bring AI to the enterprise at every layer of our stack.
- Agenda
- Autonomous Database Select AI
- Select AI
- Demonstration
- Chat with your data
- Select AI
- 206
- 206
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- 232
- Oracle Cloud Infrastructure AI Foundations 10
- Select AI Translates Your Language into Oracle SQL Language
- Developing Apps with Select AI
- Easy to Extend and Build New Natural Language Apps
- Have a Conversation to Get Your Questions Answered
- Future-Enabled: Easy to Configure Your Data for Natural Language Queries
- Easy to Configure Your Data for Natural Language Queries
- SQL Query Generation Process Flow
- Key Takeaways
- Module 8
- OCI AI Services
- Objectives
- OCI Language
- Oracle Cloud Infrastructure Language
- OCI Language
- OCI Speech
- Oracle Cloud Infrastructure Speech
- OCI Speech
- Console Walkthrough: OCI Speech
- OCI Vision
- Oracle Cloud Infrastructure Vision
- Introduction to OCI Vision
- OCI Vision: Image Analysis
- Console Walkthrough: OCI Vision
- Document Understanding
- OCI Vision: Document AI
- Oracle AI APIs and SDKs
- Oracle AI APIs