Oracle Autonomous Database Professional (2025)

Data Management

DURATION	MODULES	COURSE CODE
3 Days	**23 Lectures**	**—**

Course Overview

Learn how to automate key operational tasks — provisioning, patching, scaling, backup, and recovery — while leveraging Oracle's autonomous capabilities. You'll discover how to optimize database performance, enhance security, and reduce downtime by tapping into AI-driven features. The course addresses challenges around manual administration, cost-efficiency, and high availability, giving learners the skills to simplify database operations and focus on innovation.

What You Will Learn

- SECTION I: Introduction to Autonomous Database

Module 1: Getting Started with Autonomous Database

- Topics
- Objectives and Overview
- Oracle Autonomous Database: Complete Automation
- High Availability and Service Differentiation
- Articulating Key Features
- Offerings and Revolution in Data Management
- History of Oracle Database Automation
- One Autonomous Database: Attributes and Service Differences
- Serverless vs Dedicated Deployment
- Licensing, ECPU Metrics, and Universal Credit Payment Structures
- Learning Objectives
- Understand Autonomous Database fundamentals and architecture
- Distinguish between serverless and dedicated deployments
- Learn licensing models and pricing structures

Module 2: Oracle Cloud Infrastructure Overview

- Topics
- Complete Cloud Infrastructure Platform

- Core Infrastructure Services
- Database Services and Analytics Support
- Data Management, Data Science, and SaaS Capabilities
- Auto Scaling in Autonomous Database Serverless
- Setting Up Auto Scaling: At Provisioning and Any Time
- Learning Objectives
- Understand OCI services that support Autonomous Database
- Configure serverless auto scaling for optimized performance
- SECTION II: Provisioning and Managing ADB

Module 3: Provisioning Autonomous Database

- Topics
- Provisioning the Database
- Starting, Stopping, and Scaling ADB
- Creating and Managing Users
- Changing Admin Passwords
- Using Database Actions for User Management
- Learning Objectives
- Provision ADB instances and configure users
- Start, stop, and scale databases efficiently

Module 4: Database Consolidation and Elastic Resource Pools

- Topics
- Overview of Elastic Resource Pools
- Cost Optimization with Resource Pools
- Summary of Key Concepts
- Learning Objectives
- Consolidate databases using Elastic Resource Pools
- Reduce costs while optimizing resources

Module 5: Cloning, Moving, and Events

- Topics
- Cloning Autonomous Databases
- Refreshable Clones: Key Considerations
- Moving ADB Resources
- Creating Alarms and Notifications
- Defining Events, Topics, and Subscriptions
- Alarm Configuration (e.g., CPU Utilization)
- Learning Objectives
- Clone and move databases across environments
- Set up monitoring and alerting

Module 6: Backup, Recovery, and Data Guard

- Topics

- ADB Backups (Manual & Automatic)
- Restoring and Recovering ADB
- Autonomous Data Guard: Enabling, Switchover, Failover
- Cross-Region Data Guard Setup
- Learning Objectives
- Implement backup and recovery strategies
- Configure Data Guard for high availability and disaster recovery
- SECTION III: Dedicated Infrastructure

Module 7: Dedicated Autonomous Database Overview

- Topics
- Benefits of Dedicated Deployment
- Workload Isolation and Management Model
- Network Architecture and Cloud@Customer Connectivity
- Exadata Infrastructure Options
- Learning Objectives
- Understand dedicated deployment architecture and advantages
- Learn connectivity and backup options for dedicated environments

Module 8: Provisioning Dedicated Infrastructure

- Topics
- Provisioning Dedicated Resources
- Security Setup: Security Lists, Internet Gateway, Route Tables
- Creating Autonomous Container Databases
- OCI Policies, Roles, Fleet Admins, Developers, and DBAs
- Maintenance Schedule Configuration
- Learning Objectives
- Deploy ADB on dedicated infrastructure
- Configure security and administrative roles

Module 9: Dedicated Database Operations and Monitoring

- Topics
- Database Operations on Cloud Control Plane
- Service Monitoring and Event Notifications
- Update Policies and Maintenance Scheduling
- One-Off Patching and Unscheduled Maintenance
- Learning Objectives
- Monitor, update, and maintain dedicated ADB infrastructure
- Use events and notifications to track operations
- SECTION IV: Managing and Securing ADB

Module 10: REST APIs and OCI CLI

- Topics
- Managing ADB using REST APIs

- Using OCI CLI: Requirements, Supported Services, Examples
- Patching, Upgrades, and Transparent Application Continuity
- Learning Objectives
- Automate database management using APIs and CLI
- Apply patches and upgrades with minimal application impact

Module 11: Network Security and Access Control

- Topics
- ACLs and Private Endpoints
- Network Security Groups
- Monitoring Performance and Notifications
- Encryption and Key Management
- End-to-End Data Protection
- Learning Objectives
- Secure database connections and network traffic
- Monitor and manage database encryption keys

Module 12: Auto Indexing and Performance Optimization

- Topics
- Auto Index Creation and Continuous Optimization
- Configuring and Monitoring Automatic Indexes
- Using SQL Developer Web for Index Management
- Learning Objectives
- Implement automatic indexing for query performance optimization
- Monitor index creation and database performance

Module 13: Data Safe and Security Assessment

- Topics
- Oracle Data Safe Overview
- Security Zones of Control
- Database Security Assessment
- Configuration and User Risk Assessment
- Activity Auditing, Sensitive Data Discovery, and Masking
- Learning Objectives
- Assess and maintain database security
- Use Data Safe for monitoring risks and compliance
- SECTION V: Connectivity and Development Tools

Module 14: ADB Connectivity

- Topics
- mTLS and TLS Connections
- JDBC Thin and Universal Connection Pool
- Connecting via Python, Node.js, SQL Developer, Database Actions
- Wallet Management and Credential Expiration

- Disaster Recovery Configuration
- Learning Objectives
- Connect applications securely to ADB
- Manage credentials and wallets for secure access

Module 15: Autonomous Database Tools

- Topics
- SQL Developer, APEX, REST, JSON, SQLcl
- Data Studio: Catalog, Data Load, Data Share
- Machine Learning Notebooks, Graph Studio
- Development Environment Setup with ADB
- Learning Objectives
- Utilize development and analytics tools in ADB
- Integrate ML, graph analytics, and data insights into applications
- SECTION VI: Application Development and Machine Learning

Module 16: APEX on Autonomous Database

- Topics
- Rapid Schema Design with Quick SQL
- Creating New Apps and Using Sample Apps
- Database Actions Integration
- Learning Objectives
- Build applications with APEX on ADB
- Leverage quick schema design and automation features

Module 17: Machine Learning with Autonomous Database

- Topics
- AutoML in OML4Py
- UI Pipeline, Algorithm Selection, Feature Selection, Model Tuning
- Analytic Views, Data Analysis, and Insights
- Demo: Data Studio and Analytics Simplification
- Learning Objectives
- Apply AutoML to automate model building
- Use analytic views to optimize data queries and insights

Module 18: Select AI and Generative AI Integration

- Topics
- Generative AI Overview and Use Cases
- Natural Language Queries with Select AI
- SQL Query Generation and AI-Enhanced App Development
- Demonstrations and Key Takeaways
- Learning Objectives
- Build AI-driven applications using natural language
- Generate SQL queries and insights using Select AI

- SECTION VII: JSON, Text, Graphs, Spatial, and Data Sharing

Module 19: Autonomous JSON Database

- Topics
- Converged Database and JSON Storage
- MongoDB Compatibility and API
- Document Collections and SQL Integration
- Pricing and Performance
- Learning Objectives
- Use ADB for JSON workloads and document storage
- Integrate MongoDB-compatible APIs

Module 20: Oracle Text and Hybrid Vector Index

- Topics
- Full Text Indexes and Queries
- Text Analytics and Faceted Navigation
- Hybrid Vector Index Overview and JSON Vectorization
- Learning Objectives
- Implement text search and analytics
- Explore hybrid vector indexing for modern workloads

Module 21: Spatial Data Management

- Topics
- Spatial Concepts and Relationships
- Native Spatial Data Management
- Geocoding, Spatial Studio, Analysis, Visualization, Publishing
- Learning Objectives
- Perform spatial analysis and visualize geospatial data

Module 22: Graph Analytics

- Topics
- Property Graph Data Model and PGQL
- Graph Creation, Querying, Visualization
- Prebuilt Algorithms for Graph Analytics
- Using Graph Studio
- Learning Objectives
- Model and analyze graph data
- Apply graph algorithms for insights and visualization

Module 23: Data Sharing and Migration

- Topics
- Data Sharing Concepts and Benefits
- Modern Data Sharing with ADB

- Migration to Autonomous Database: Loading, Import, Data Pump, Object Store
- Learning Objectives
- Share data securely and efficiently
- Migrate workloads to ADB using best practices

This modular structure organizes your entire workshop into 23 comprehensive modules, progressing from basic concepts to advanced features, AI integration, and development tools.