# MySQL Database Administration

**Category:** Software Development & Programming | **Vendor:** Various

**Duration:** 40.00 hours (5 days) **32.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

## Course Information

**Delivery Format:** Instructor Led - Online

## Course Overview

This MySQL Database Administration course is designed for MySQL Database Administrators who have a basic understanding of a MySQL database and SQL commands. The course provides practical experience in setting up and maintaining a MySQL server, including backing up, recovery, configuration and tuning.

Note:
Delegates who are also considering attending the 3 Day MySQL Database Administration for Experienced Database Administrators should note that both courses cover the same content but the 3 day course is delivered at a faster pace due to the delegates already having database administration experience.

## About This Course

This MySQL Database Administration course is designed for MySQL Database Administrators who have a basic understanding of a MySQL database and SQL commands. The course provides practical experience in setting up and maintaining a MySQL server, including backing up, recovery, configuration and tuning.

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## Who Should Attend

Anyone who needs to administer, monitor and support MySQL databases and servers.

### Prerequisites & Entry Requirements

**General Prerequisites:**

A working knowledge of MySQL is required. This can be gained by attendance on the Introduction to MySQL course.

# Learning Outcomes

**Upon successful completion of this course, participants will be able to:**

- Using Client Programs for MySQL DBA Work
- Obtaining Metadata
- Configuring the Server
- Server Installation, Administration and Upgrading
- Setting up Character Set Support
- Configuring Log Files
- Interpreting Error Messages
- Creating, Altering and Dropping Databases and Tables
- Locking and Transactions
- Using Storage Engines, including the MyISAM and InnoDB engines
- Table Maintenance
- Backup and Recovery, including Exporting (mysqldump) and Importing (mysqlimport)
- Administering Users and Privileges
- Using Stored Procedures and Triggers for Database Administration Tasks
- Securing the Server
- Tuning Queries
- Tuning Tables and Indexes
- Tuning the Server
- Using the Event Scheduler
- Creating Partitioned Tables
- Replication
- Using MySQL Workbench

# Detailed Course Outline

Course Contents - DAY 1

Course Introduction

- Administration and Course Materials
- Course Structure and Agenda
- Delegate and Trainer Introductions

Session 1: CLIENTS AND TOOLS

- Introduction
- MySQL
- MySQL Admin
- Exercises: Using Client Programs

Session 2: OBTAINING METADATA

- What is Metadata?
- The mysqlshow Client Program
- The SHOW and DESCRIBE Commands
- The Information_Schema
- Show Command and Information_Schema Differences
- Exercises: Obtaining Information about MySQL

Session 3: CONFIGURING THE SERVER

- MySQL Server Options and Variables
- MySQL Status Variables
- Configuring MySQL Enterprise Audit
- Exercises: Configuring the Server

Session 4: MYSQL SERVER INSTALLATION AND CONFIGURATION

- MySQL Distributions
- Installing on Windows
- Installing on Linux and UNIX
- Starting and Stopping on Windows
- Starting and Stopping on UNIX/Linux
- Status Files
- Upgrading the Server
- Time Zone Tables
- Exercises: Installing, stopping and starting

Session 5: SQL MODES, LOG FILES AND BINARY LOGGING

- MySQL Error Messages
- The SHOW Errors Statement
- The SHOW Warnings Statement
- SQL Modes
- Note Messages
- The PERROR Utility
- The General Log
- The Error Log
- The Slow Query Log
- The Binary Logs
- Exercises: Interpreting Errors and Configuring the Logs

Course Contents - DAY 2

Session 6: MYSQL ARCHITECTURE

- Client/Server Overview
- Communication Protocols
- The SQL Parser and Storage Engine Tiers
- How MySQL Uses Disk Space
- How MYSQL Uses Memory
- Exercises: Examining the Architecture

Session 7: TABLES, DATA TYPES AND CHARACTER SET SUPPORT

- Table Properties
- Creating Tables
- Altering Tables
- Dropping Tables
- Emptying Tables
- Obtaining Table Metadata
- Column Attributes
- Bit Data Type
- Numeric Data Types
- Character String Data Types
- Binary String Data Types
- Enum and Set Data Types
- Temporal Data Types
- Auto_Increment
- Handling Missing or Invalid Data Values
- Exercises: Creating and Maintaining Tables

Session 8: TRANSACTIONS AND LOCKING

- Locking Concepts
- Explicit Table Locking
- Advisory Locking
- Exercises: Locking

Session 9: STORAGE ENGINES

- Introduction
- The MYISAM Engine
- The Merge Engine
- Other Engines: Archive, Memory, Federated, Blackhole, CSV
- Cluster Engine Overview
- Overview of High Availability Techniques
- Memcached and NoSQL Overview
- Exercises: Using Storage Engines

Course Contents - DAY 3

Session 10: THE INNODB ENGINE

- Introduction
- Features of Innodb
- Transactions

- Referential Integrity
- Physical Characteristics of Innodb Tables
- System Tablespace Configuration
- Log File and Buffer Configuration
- Innodb Status
- Exercises: Using the InnoDB Engine

Session 11: TABLE MAINTENANCE

- Table Maintenance Operations
- Check Table
- Repair Table
- Analyze Table
- Optimize Table
- MySQL Check
- MYISAMCHK
- Repairing Innodb Tables
- Enabling MYISAM AutoRepair
- Exercises: Maintaining Tables

Session 12: BACKUP AND RECOVERY

- The Advantages and Disadvantages of Different Methods
- Binary Backups of MYISAM Tables
- Binary Backups of Innodb Tables
- Recovery
- Import and Export Operations
- Exporting Using SQL

- Importing Using SQL
- Exporting from the Command Line using mysqldump
- Importing from the Command Line using mysqlimport
- Exercises: Backing Up and Recovery

Session 13: USER MANAGEMENT

- Introduction
- User Accounts
- Creating Users
- Renaming Users
- Changing Passwords
- Dropping Users
- Granting Privileges
- The User Table
- Connection Validation
- Exercises: Creating, Managing and Dropping Users

Course Contents - DAY 4

Session 14: PRIVILEGES

- Introduction
- Types of Privileges
- Revoking Privileges
- Resource Limits
- The MySQL Database

- The Show Grants Command

- Exercises: Granting and Revoking Privileges

Session 15: USER VARIABLES AND PREPARED STATEMENTS

- User Variables

- Prepared Statements

- Exercises: User Variables and Prepared Statements

Session 16: STORED ROUTINES FOR ADMINISTRATION

- Types of Stored Routines

- Benefits of Stored Routines

- Stored Routines Features

- Stored Routine Maintenance

- Obtaining Stored Routine Metadata

- Stored Routine Privileges and Execution Security

Session 17: TRIGGERS

- DML Triggers

Session 18: SECURITY

- Security Risks

- Users, Operating System, File System and Network Security
- Using SSL With MySQL
- Remote Connecting to the MySQL Server Using SSH
- Exercises: Securing the Server

Session 19: TUNING QUERIES

- Tuning Overview
- Identifying Candidates for Query Analysis
- Using Explain to Analyze Queries
- Meaning of Explain Output
- Explain Extended
- Exercises: Explaining and Tuning Queries

Session 20: TUNING AND INDEXES (1)

- Indexes for Performance
- Creating and Dropping Indexes
- Obtaining Index Metadata
- Indexing Principles
- Exercises: Creating and Using Indexes

Session 21: TUNING AND INDEXES (2)

- Indexing and Joins
- Fulltext Indexes

- MyISAM Index Caching

- Exercises: Creating and Using Indexes

Session 22: TUNING AND TABLES

- General Table Optimizations

- Myisam Specific Optimizations

- Innodb Specific Optimizations

- Other Engine Specific Optimizations

- Exercises: Tuning Tables

Course Contents - DAY 5

Session 23: TUNING THE SERVER

- Status Variables

- Server Variables

- Performance Schema Overview

- The Query Cache

- Exercises: Tuning the Server

Session 24: THE EVENT SCHEDULER

- Event scheduler concepts

- Event scheduler configuration

- Creating, altering and dropping events

- Event scheduler monitoring

- Events and privileges

- Exercises: Using the event scheduler

Session 25: PARTITIONED TABLES

- Partitioned tables concepts

- Obtaining Partitioned Table Metadata

- Types of Partitioning

- Subpartitioning

- Maintenance of partitioned tables

- Exercises: Using partitioned tables

Session 26: REPLICATION

- Replication Overview

- Testing Replication

- Monitoring and Troubleshooting Replication

- Files and Threads Involved in Replication

- Excluding Databases or Tables From Replication

- Complex Replication Topologies

- Example: Setting Up a Master Slave Replication

- Replication Using GTIDs

- MySQL Replication Utilities

- Controlled Switchover

- Exercises: Setting Up and Testing Replication

Session 27: MYSQL WORKBENCH

- Installation

- Connecting

- Screens

- Exercises: Using MySQL Workbench

**Skills You Will Learn:**

- Using Client Programs for MySQL DBA Work<br>- Obtaining Metadata<br>- Configuring the Server<br>- Server Installation, Administration and Upgrading<br>- Setting up Character Set Support<br>- Configuring Log Files<br>- Interpreting Error Messages<br>- Creating, Altering and Dropping Databases and Tables<br>- Locking and Transactions<br>- Using Storage Engines, including the MyISAM and InnoDB engines<br>- Table Maintenance<br>- Backup and Recovery, including Exporting (mysqldump) and Importing (mysqlimport)<br>- Administering Users and Privileges<br>- Using Stored Procedures and Triggers for Database Administration Tasks<br>- Securing the Server<br>- Tuning Queries<br>- Tuning Tables and Indexes<br>- Tuning the Server<br>- Using the Event Scheduler<br>- Creating Partitioned Tables<br>- Replication<br>- Using MySQL Workbench

# Frequently Asked Questions

### Q: What delivery options are available for MySQL Database Administration?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

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### Q: How many CPD hours does this course provide?

The 5-day MySQL Database Administration course provides up to 32.5 CPD hours of structured learning. CPD certificates can be provided upon request.

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### Q: What is the duration of the MySQL Database Administration training?

The training takes place over 5 day(s), with each day lasting approximately 40.00 hours including breaks for lunch and refreshments.

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### Q: Do you provide corporate training for MySQL Database Administration?

Yes, we provide corporate training, dedicated training, and closed classes for MySQL Database Administration. Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

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### Q: What related terms do people search for?

Popular related searches include: MySQL Database Administration, Programming, MYSDBA

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## Q: Why choose Nexus Human for MySQL Database Administration?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

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## Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your MySQL Database Administration training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.


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