

UCIRVINE | EXTENSION

# Database Management Certificate Program



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University of California, Irvine | P.O. Box 6050, Irvine, CA 92616-6050  
[www.extension.uci.edu](http://www.extension.uci.edu)

## OVERVIEW

This certificate program allows students to apply both Oracle and Microsoft SQL Server courses toward their certificate requirements. In today's job market, candidates with knowledge of more than one vendor's product are in greater demand. The Database Management Certificate Program recognizes the need for an education covering both database products.

There are two types of courses in this program: general database courses, which are vendor-neutral and focus on database concepts and practices common to all relational database products; and vendor specific courses, which focus in detail on the Oracle and Microsoft SQL Server 2008 products. You can apply the courses that are of greatest interest to you toward your certificate requirements. Also, our Oracle and Microsoft courses use official course materials provided by Oracle and Microsoft, respectively. This helps you become better prepared for Oracle and Microsoft certification examinations. (Note: certification exams are offered by Prometric and Pearson VUE Testing Centers)

All Microsoft and Oracle database courses are taught by vendor-certified instructors who have met UC Irvine's rigorous qualifications. The courses are held in collaboration with EmpowerTrain, UC Irvine Extension's partner for certified training. (See EmpowerTrain's Web site for more information: [www.empowertrain.com](http://www.empowertrain.com).)

## WHO SHOULD ENROLL

This program focuses on developing proficiency with both the Oracle and Microsoft SQL Server database management systems. It is designed to provide students with the skills for setting up and maintaining a database in either an Oracle or Microsoft Windows environment. The program is of interest to anyone who wants to use the powerful capabilities of relational databases for data storage and retrieval, and for data analysis in support of management decision-making. It also benefits information technology staff members who are responsible for database administration within their organization.

## CERTIFICATE AWARD REQUIREMENTS

To receive the Database Management Certificate, you must complete a minimum of 150 hours (15 units) of

coursework from any combination of the courses listed in the table on the next page with a grade of "C" or higher in each course. If you complete a sufficient number of Oracle courses to be eligible for the Oracle DBA or Oracle Application Developer certificates, you must choose whether you wish to receive this (Database Management) certificate, or the Oracle certificate. You cannot receive both. Students must submit an Application for Candidacy form before completing their third course in the program.

## PROGRAM BENEFITS

- Be better prepared for the job market.
- Gain the advantage of knowing more than one database management system.
- Prepare yourself to take and pass Oracle and Microsoft certification exams.

## PROGRAM FEES

Your total cost may vary substantially depending on the specific courses you choose. Course fees range from \$845 to \$1,495. Online course fees are usually \$695-\$795 per course. Note that parking is free for all Microsoft and Oracle courses conducted at EmpowerTrain in University Tower, across the street from the UCI campus in Irvine.

Course fees (One general and 4 Oracle courses)	\$5,775
Candidacy Fee	\$125
Textbooks <sup>1</sup>	\$75
Parking (\$34 per quarter) <sup>2</sup>	\$68
<b>Total Estimated Cost</b>	<b>\$6,043</b>

Your actual cost could be more or less than this amount (most likely less because this is a conservative estimate).

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<sup>1</sup> The cost of course books are included in the course fees for all Oracle and Microsoft certified courses. The \$75 amount included here represents a book you might have to purchase for one of the general database courses.

<sup>2</sup> Parking at EmpowerTrain is free so there will be no parking charges associated with Oracle or Microsoft courses. However, if you take either or both of the general database courses on the UCI campus, you *will* have to pay a parking fee.

## LIST OF COURSES

Catalog Number	Title	Units
<b><i>General Database Courses</i></b>		
I&C SCI X426.81	Designing Relational Databases	3.0
I&C SCI X425.32	Data Modeling	2.5
<b><i>Oracle Database Courses</i></b>		
I&C SCI X440.55	Oracle Database 11g: Introduction to SQL	3.5
I&C SCI X440.56	Oracle Database 11g: Administration Workshop I	3.5
I&C SCI X440.57	Oracle Database 11g: Administration Workshop II	3.5
I&C SCI X440.58	Oracle Database 11g: Program with PL/SQL	3.5
I&C SCI X440.60	Oracle Application Express 3.0: Developing Web Applications	3.5
I&C SCI X440.93	Oracle Database 11g: Performance Tuning	3.5
I&C SCI X440.92	Oracle 11g Database: SQL Tuning Workshop	3.0
<b><i>Crystal Reports Courses</i></b>		
I&C SCI X470.01	Crystal Reports Workshop 1: Introduction	1.5
I&C SCI X470.02	Crystal Reports Workshop 2: Intermediate	1.5
I&C SCI X470.03	Crystal Reports Workshop 3: Advanced	1.5

## ***Microsoft SQL Server 2008 Database***

I&C SCI X450.40	Writing Queries Using Microsoft SQL Server 2008 Transact-SQL (Microsoft Course 2778)	2.5
I&C SCI X450.41	Update SQL Server 2005 Skills to SQL Server 2008 (Microsoft Course 6158)	2.5
I&C SCI X450.42	Maintaining a Microsoft SQL Server 2008 Database (Microsoft Course 6231)	3.5
I&C SCI X450.43	Implementing a Microsoft SQL Server 2008 Database (Microsoft Course 6232)	3.5
I&C SCI X450.44	Implementing and Maintaining Microsoft SQL Server 2008 Integration Services (SSIS) (Microsoft Course 6235)	2.5
I&C SCI X450.45	Implementing and Maintaining Microsoft SQL Server 2008 Reporting Services (Microsoft Course 6236)	2.5
I&C SCI X450.46	Implementing and Maintaining Microsoft SQL Server 2008 Analysis Services	2.5

For the complete listing of courses, please visit our Web site:  
[http://unex.uci.edu/certificates/it/database\\_mgmt/courses.asp](http://unex.uci.edu/certificates/it/database_mgmt/courses.asp)

## COURSE DESCRIPTIONS

### Designing Relational Databases

#### I&C SCI X426.81 (3.0 Units)

If you need to learn more about the design of relational database systems, this course is for you. You'll explore how the relational database approach is used in both open and closed systems and on both mainframe and client/server platforms, and learn about the design of systems of all sizes including standalone, workgroup, departmental, and enterprise-wide applications. You'll also learn how to incorporate data from legacy systems as well as how to develop entirely new systems. You'll have the opportunity to design a relational database model in class and refine it for a real-world system or case study. Topics include an overview of database systems, defining business entities, entity relationship modeling (ERM) for top-down analysis, defining relational database tables and attributes, conversion of logical design to physical design, normalization of tables, and using structured query language (SQL) to process data and generate reports.

### Data Modeling

#### I&C SCI X425.32 (2.5. Units)

Learn how to develop a graphical model of the information (data) that an organization uses to carry out its business functions. This course explores several methods for performing data modeling with the available in the Oracle Database. This course discusses how to use the regular expression support in SQL.

### Oracle Database 11g: Administration Workshop I

#### I&C SCI X440.56 (3.5 Units)

This course is designed to give students a firm foundation in basic administration of Oracle Database 11g. In this class, students learn how to install and maintain Oracle Database 11g. Students gain a conceptual understanding of the Oracle database architecture and how its components work and interact with one another. Students learn how to create an operational database and properly manage the various structures in an effective and efficient manner including performance monitoring, database security, user management, and backup/recovery techniques. Topics in this course include: Oracle database architecture, Oracle Net services, database storage structures, backup and recovery, data and concurrency, undo data, performance and database diagnostic. The lesson topics are reinforced with structured hands-on practices.

### Oracle Database 11g: Administration Workshop II

#### I&C SCI X440.57 (3.5 Units)

In this course, the concepts and architecture that support backup and recovery, along with the steps of how to carry it out in various ways and situations, are covered in detail. This includes how to define and test

primary objective being to identify and document specific information, such as customer names or product codes, that an organization needs in order to carry out its business functions. Topics include performing data requirements analyses, identifying entities and attributes, determining the relationships among entities, creating an entity-relationship diagram, and implementing the diagram in the form of a relational database. The emphasis of this course is on the analysis rather than on the actual implementation of the database.

### Oracle Database 11g: Introduction to SQL

#### I&C SCI X440.55 (3.5 Units)

In this course, students learn the concepts of relational databases. This course provides the essential SQL skills that allow developers to write queries against single and multiple tables, manipulate data in tables, and create database objects. Students learn to control privileges at the object and system level. This course covers creating indexes and constraints, and altering existing schema objects. Students also learn how to create and query external tables. Students learn to use the advanced features of SQL in order to query and manipulate data within the database, use the dictionary views to retrieve metadata and create reports about their schema objects. Students also learn some of the date-time functions

your own backup and recovery scenarios. Also, the students learn to manage memory effectively and to perform some performance evaluation and tuning tasks, including using some of the advisors. All types of flashback technologies, scheduling jobs inside and outside of the database, and controlling system resource usage are covered. Topics are reinforced with hands-on practices.

### Oracle Database 11g: Program with PL/SQL

#### I&C SCI X440.58 (3.5 Units)

This course introduces students to PL/SQL and helps them understand the benefits of this powerful programming language. Students learn to create PL/SQL blocks of application code that can be shared by multiple forms, reports, and data management applications. Students learn to create anonymous PL/SQL blocks as well as stored procedures and functions. Students learn to develop, execute, and manage PL/SQL stored program units such as procedures, functions, packages, and database triggers. Students also learn to manage PL/SQL subprograms, triggers, declaring identifiers and trapping exceptions. Students are introduced to the utilization of some of the Oracle-supplied packages.

**Oracle Database 11g: SQL Tuning Workshop**  
**I&C SCI X440.92 (3.0 Units)**

The SQL Tuning Workshop class covers investigative methods that reveal varying levels of detail about how the Oracle database executes a SQL statement. Students learn the different ways in which data can be accessed, which ones are most efficient under specific circumstances, and how to ensure that the best method is used. Partitioning topics are covered, in addition to taking advantage of hints, bind variables, and different types of indexes. Topics are reinforced with hands-on practices.

**Oracle Application Express 3.0: Developing Web Applications**

**I&C SCI X440.60 (3.5 Units)**

This course is designed to introduce the students to Oracle Application Express 3.0. The course covers various Application Express components and wizards to build applications and database objects that are easy to deploy. The students learn how to build forms and reports and incorporate different types of items and shared components. Creating and utilizing various navigation components as well as session management and debugging are discussed. In addition, students incorporate access control, and session protection to enforce application security. Once the application is complete, students learn how to define their packaged application and export the application. Students will also use all the Utilities and Report capabilities that Oracle Application Express provides to build a robust application. The audience for this course includes: Forms Developer, Reports Developer, Application Developers, PL/SQL Developer.

**Oracle Database 11g: Performance Tuning**  
**I&C SCI X440.93 (3.5 Units)**

This course will teach students how to get the most out of Oracle 11g Database by learning performance tuning methods that maximize the utility of the database. Students learn how to benefit from Oracle Database 11g automatic tuning features, as well as practicing the manual tuning methods using the Statspack tool. After clearly defining the various methodologies one can use to tune an Oracle Database, the course covers the various tunable components of an Oracle Database. Throughout the course, students experience hands-on the tuning of an Oracle Database by practicing through a series of workshops.

**Writing Queries Using Microsoft SQL Server 2008 Transact-SQL (Microsoft Course 2778) (2.5 units)**  
**I&C SCI X450.40**

This course provides students with the concepts of relational databases and the powerful Transact-SQL queries for Microsoft SQL Server 2008. In this class students will learn the essential SQL skills that allow

developers to write queries against single and multiple tables, manipulate data in tables, create database objects, and query metadata. In addition, the advanced features of Transact-SQL in order to query and manipulate data within the database are taught. Advanced querying and reporting techniques are explained. Topics in this course include: group and summarize data, join data from multiple tables, write queries that retrieve and modify data by using subqueries, learn data manipulation language, query text fields with full-text search, use various techniques when working with complex queries. *Prerequisites: Basic knowledge of database system.*

**Update SQL Server 2005 Skills to SQL Server 2008 (Microsoft Course 6158) (2.5 units)**

**I&C SCI X450.41**

This course provides students with the knowledge and skills to upgrade their SQL Server 2005 skills to SQL Server 2008. Upon completion of this course, students will be able to describe new features of SQL Server 2008, manage SQL Server 2008, optimize SQL Server 2008, secure a SQL Server 2008 Database, create and maintain highly available SQL Server 2008 databases, create and use a SQL Server 2008 data warehouse, use SQL Server 2008 Analysis Services, use SQL Server 2008 Report Services. *Prerequisites: Experienced SQL Server 2005 developers and database administrators.*

**Maintaining a Microsoft SQL Server 2008 Database (Microsoft Course 6231) (3.5 units)**

**I&C SCI X450.42**

Gain the knowledge and skills needed to maintain a Microsoft SQL Server 2008 database. This course addresses your job as a database administrator after you have set up a database. You'll learn how to manage database files and security, back up and restore databases, monitor SQL Server performance, and troubleshoot database problems. You'll also learn how to transfer data among various data sources and ensure that your database remains available to users. Topics in this course include: manage database files, backup and restore databases, manage security, transfer data into and out of SQL Server, automate administrative tasks, automate administrative tasks, replicate data between SQL Server instances, maintain high availability, monitor SQL Server. *Before attending this course, students must have basic knowledge of the Microsoft Windows operating system and its core functionality, working knowledge of Transact-SQL, working knowledge of relational databases.*

**Implementing a Microsoft SQL Server 2008 Database (Microsoft Course 6232) (3.5 units)  
I&C SCI X450.43**

Gain the knowledge and skills needed to implement a Microsoft SQL Server 2008 database.

You'll learn how to set up a new database and prepare it to be used by individual users or external applications that need to access or manipulate data. Topics include creating database files, creating tables and assigning data types, using XML in a database, setting up and optimizing an index, enforcing data security, implementing stored procedures and functions, ensuring data integrity (constraints, triggers, and XML schemas), manage transactions and locks, and using managed code within the database. *Prerequisites:* Before attending this course, students must have basic knowledge of the Microsoft Windows operating system and its core functionality, working knowledge of Transact-SQL, working knowledge of relational databases.

**Implementing and Maintaining Microsoft SQL Server 2008 Integration Services (SSIS) (Microsoft Course 6235) (2.5 units)  
I&C SCI X450.44**

This course provides students with the knowledge and skills to successfully implement an Integration Services solution in an organization. The course discusses how to develop, deploy, and manage Integration Services packages. This course covers the following topics: create an Integration Services package, implement control flow implement data flow and logging in an Integration Services, debug and implement error handling, deploy, manage and secure an Integration Services package. *Prerequisites:* Before attending this course, students must have experience navigating the Microsoft Windows Server environment, experience with Microsoft SQL Server, including, SQL Server Agent, SQL Server query language (SELECT, UPDATE, INSERT, and DELETE), SQL Server System tables, SQL Server accounts (users and permissions).SQL Server 2008 Analysis Services, use SQL Server 2008 Report Services. *Prerequisites:* Experienced SQL Server 2005 developers and database administrators.

**Implementing and Maintaining Microsoft SQL Server 2008 Reporting Services (Microsoft Course 6236) (2.5 units)  
I&C SCI X450.45**

This course provides students with the knowledge and skills required how to implement a Reporting Services solution in an organization. The course discusses how to use the Reporting Services development tools to create reports, and how to use the Reporting Services management and administrative tools to manage a Reporting Services solution. This course covers the following topics: create a Reporting Services report, enhance a Reporting Services report, configure report publishing and execution settings, implement

subscriptions for reports, administer Reporting Services, implement custom Reporting Services applications. *Prerequisites:* Before attending this course, students must have experience navigating the Microsoft Windows Server environment, and exposure to creating reports in Microsoft Access or other third-party reporting products, such as Crystal Reports.

**Implementing and Maintaining Microsoft SQL Server 2008 Analysis Services (Microsoft Course 6232) (2.5 units)  
I&C SCI X450.46**

This course teaches students how to implement an Analysis Services solution in an organization. The course discusses how to use the Analysis Services development tools to create an Analysis Services database and an OLAP cube, and how to use the Analysis Services management and administrative tools to manage an Analysis Services solution.

**Crystal Reports Workshop 1: Introduction**  
**I&C SCI X470.01 (1.5 units)**

This two-day, interactive workshop was designed for new users of Crystal Reports XI. Some of the topics covered include a review of the software features, report design, and the creation of presentation quality reports. The course incorporates a number of hands-on exercises to reinforce the learning process. Audience: Administrators, developers and end-users who need to create dynamic reports from varying data sources.

**Crystal Reports Workshop 2: Intermediate**  
**I&C SCI X470.02 (1.5 units)**

This two-day workshop is designed to enhance your basic report writing skills and move you into creating more complex reports. Time will be spent walking you through the tips and tricks of advanced report writing along with a good amount of hands-on practice. In addition, you will cover professional design, techniques, subreporting, and advanced formulas. This course incorporates a number of hands-on exercises that reinforce the learning process. Audience: Administrators, developers and end-users who need to create dynamic reports from varying data sources.

**Crystal Reports Workshop 3: Advanced**  
**I&C SCI X470.03 (1.5 units)**

This two-day workshop is designed to expand your working knowledge of Crystal Reports and move you into creating more complex reports. Time will be spent walking you through the tips and tricks of advanced report writing, along with a lot of hands-on practice. In addition, you will cover custom function, advanced formulas, and report efficiencies techniques. This course incorporates a number of hands-on exercises that reinforce the learning process. Audience: Administrators, developers and end-users who need to create dynamic reports from varying data sources.

UNIVERSITY OF CALIFORNIA, IRVINE  
UNIVERSITY EXTENSION

APPLICATION FOR CANDIDACY

Certificate Program in Database Management

This form must be submitted, along with a filing fee of \$125, prior to completion of the third course in the Program.

NAME  Mr.  Mrs.  Ms.

HOME ADDRESS

CITY

STATE

ZIP

PHONE: DAY

EVENING

SOCIAL SECURITY NUMBER

JOB TITLE

EMPLOYER

EMPLOYER ADDRESS

***Payment must be included with application.***

MY CHECK FOR \$125 IS ENCLOSED (Payable to Regents of University of California).  
CANDIDACY FEE IS NONREFUNDABLE AND NONTRANSFERABLE.

CHARGE TO:  VISA  MASTERCARD  AMERICAN EXPRESS

ACCOUNT NUMBER

EXP DATE

AUTHORIZED SIGNATURE

***Mail To:***

University of California, Irvine  
University Extension  
PO Box 6050, Irvine, CA 92616-6050  
FAX (949) 824-2090

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