

## Syllabus

**Course Number and Name:** *CIS/CS 445 Database Management*

### Course Description

Introduces core concepts in data management. Students identify organizational information requirements, convert conceptual data models into relational data models, apply normalization techniques, and utilize an Oracle relational database management system in a virtual lab environment.

### Prerequisite Courses:

CS 310 Data Structures or equivalent transfer credit

### Course Outcomes

Upon the completion of this course, learners should be able to:

1. Analyze the organizational business needs and their impact on the database environment.
2. Formulate the database business rules necessary to support the organizational needs.
3. Demonstrate entity relationship modeling, normalization, and the application of business rules.
4. Implement a database schema using ANSI-Standard SQL and Oracle's Relational Database Management System (RDBMS).
5. Develop and execute SQL query statements in a real-world virtual lab environment.
6. Analyze current trends related to Big Data.
7. Differentiate between an Online Transaction Processing System (OLTP) and a data warehouse.
8. Discuss the value of web-based database architecture components.

### Course Materials:

#### *Required Text(s)*

##### **Print Version:**

Hoffer, Jeffrey A., Ramesh, V. and Topi, Heikki (2016). Modern Database Management. (12th edition). Upper Saddle River, NJ. Prentice Hall. ISBN 13: 978-0-13-354461-9

OR

##### **E-Textbook Version (can also rent e-book here)**

<https://www.vitalsource.com/products/modern-database-management-jeffrey-a-hoffer-v9780133544770>

ISBN 13: 978-0-13-354477-0

Note that your facilitator may provide additional required readings.

### *Required Resources:*

American Psychological Association (APA) Publication Manual (current edition). Retrieved from <http://www.apastyle.org>. Free tutorials.

Research Tutorials and Guides. Regis University Library.

- All tutorials, see <http://libguides.regis.edu/tutorials>.
- Computer and Information Science (CIS)
  - Research Guide by Subject area, see [http://libguides.regis.edu/computer\\_informationsciences?hs=a](http://libguides.regis.edu/computer_informationsciences?hs=a).
  - Research Tutorial, see [https://mediaspace.regis.edu/media/Regis+Library+-+Resources+for+computer+and+information+science+/0\\_blk905nh/10579702](https://mediaspace.regis.edu/media/Regis+Library+-+Resources+for+computer+and+information+science+/0_blk905nh/10579702)

### *Optional/Suggested Resources:*

Here are just a few (out of about 100) Oracle books online for free. These textbooks may help you in this course. To get to it: [www.regis.edu](http://www.regis.edu) ->Regis Library->A-Z Databases->Books24x7

- Practical Guide to Using SQL in Oracle
- Mastering Oracle SQL and SQL\* Plus
  
- Purdue Online Writing Lab (OWL). Retrieved from <https://owl.english.purdue.edu/owl/section/2/10/>.
  
- Adobe Acrobat Reader, RealPlayer

### *Technology Tools*

Minimum Technology Requirements: <http://www.regis.edu/CPS/CPS-Student-Portal/College-for-Professional-Studies/Academic-Resources/Online-Learning/System-Requirements.aspx>

### **Software:**

- CC&IS Virtual Lab (two options)
  1. The Oracle DBMS is freely available via the CC&IS Virtual Lab (recommended option). You only need a web browser and cloud technology for the Virtual Lab. Technical Support will be available via the Regis Database Practicum. Details on how to connect to the server are available in the Week 1's To-Do List webpage.
  2. Alternatively you can download a personal version of the Oracle DBMS (version 12c). Free download available at <http://www.oracle.com/technology/software/products/database/index.html>. Please note that no technical support will be available for this option of individual installation.
  
- Data Modeling Tools
  - **Microsoft Visio**

You may obtain a free copy of Microsoft Visio 2016 through Regis University's academic alliance with Microsoft (MSDNAA). Please email the MSDNAA Administrator ([msdnaa@regis.edu](mailto:msdnaa@regis.edu)) with your name and course number. You will

receive an email from the Administrator *in your RegisNet* account that provides you with a link to the Microsoft DreamSpark website and instructions. The software expires in one year.

- **Lucidchart**

You can get a free “Single User” version of Lucidchart which is a web-based diagramming tool at <https://www.lucidchart.com>. You will want to use the “ER Diagram Tool.” There are also a number of free ERD tools you can find on the internet.

### Pre-Assignment

Complete the assigned readings in the Course Activities and Assignments table below for Week 1

### Course Activities and Assignments:

This course includes discussions, scenarios, course project components, a research paper, and a final exam to measure student success.

Week	Topics	Readings *see Required Resources above ** see Recommended Videos above	Assignments and/or Assessments
1	Database Concepts	Hoffer, Ramesh, & Topi (2016). Chapter 1, and skim Glossary’s for any new terms.  **Videos from the Hoffer, et al. textbook  From the Expert: -Database Concepts -Historical Evolution of Database Systems	Introductions – initial response required by Wednesday of Week 1  Discussion Questions  CC&IS Virtual Lab – Oracle Access  Obtain an Entity-Relationship Diagramming Tool
2	Database Analysis - Modeling Data	Hoffer, et al. (2016). Chapters 2 & 3 and skim Glossary’s for any new terms.  From the Expert: -Relational Database Model -Entity Relationship Diagram (ERD) Resources	Develop Entity Relationship Diagram  Discussion Questions  Course Project Requirements and Rubric (review)
3	Database Design - Logical and Physical	Hoffer, et al. (2016). Chapters 4 & 5 and skim Glossary’s for any new terms.	Discussion Questions  Course Project – Deliverable 1 – Dataset Definitions

		<p>**Videos from the Hoffer, et al. textbook</p> <p>From the Expert: -Database Design Process</p>	
4	Implementation - Structured Query Language (SQL)	<p>Hoffer, et al. (2016). Chapters 6 &amp; 7 and skim Glossary's for any new terms.</p> <p>**Videos from the Hoffer, et al. textbook</p> <p>From the Expert: -Introduction to SQL</p>	<p>Discussion Questions</p> <p>Practicing DDL and DML Using Oracle</p> <p>Course Project – Deliverable 2 - Data Modeling and Analysis</p>
5	Database Transactions and Distributed Databases	<p>Hoffer et al. (2016). Chapters 12 (skip DB Admin) &amp; 13 (online) and skim Glossary's for any new terms.</p> <p>From the Expert: -Database Transactions -Practical Concurrency Control -Object-Oriented Databases</p>	<p>Discussion Questions</p> <p>Submit Course Project Deliverables 1 &amp; 2 to Dropbox for review &amp; feedback</p> <p>Course Project – Deliverable 3 - Data Dictionary</p>
6	Data Warehousing, Business Intelligence, and Big Data	<p>Hoffer, et al. (2016). Chapters 9 and 11 and skim Glossary's for any new terms.</p> <p>From the Expert: -Data Warehouse</p>	<p>Discussion Questions</p> <p>Research Paper - Big Data</p> <p>Course Project – Deliverables 4 &amp; 5 – DDL &amp; DML</p>
7	Database Application Development	<p>Hoffer, et al. (2016). Chapter 8 and skim Glossary's for any new terms.</p> <p>From the Expert: -Internet Database Technologies</p>	<p>Discussion Questions</p> <p>Course Project – Deliverable 6 - Database Queries</p>
8	Database Administration	<p>Hoffer, et al. (2016). Chapter 12 (only DB admin section) and skim Glossary's for any new terms.</p> <p>From the Expert: -Database Administration</p>	<p>Discussion Questions</p> <p>Final Exam</p> <p>Course Project – submit all seven Deliverables</p>

**Summary of Assignments and Percentage Weight towards course grade:**

<b>Assignments</b>	<b>Weighted Percentage</b>
Discussion Questions / Participation (Weeks 1-8)	25%
Practice ERD & SQL Assignments	10%
Research Paper - Big Data (Week 6)	10%
Course Project (Weeks 2-8)	35%
Final Exam (Week 8)	20%
<b>Total</b>	<b>100%</b>

**College for Professional Studies Grading Scale:**

<b>CPS Percentage Grading Scale</b>	
<i>Letter Grade</i>	<i>Percentage</i>
A	93 to 100
A-	90 to less than 93
B+	88 to less than 90
B	83 to less than 88
B-	80 to less than 83
C+	78 to less than 80
C	73 to less than 78
C-	70 to less than 73
D+	68 to less than 70
D	63 to less than 68
D-	60 to less than 63
F	Less than 60

**College for Professional Studies Policies (Links):**

You must enter a valid Regis University UserID and password to access the following policies.

*Academic Integrity*

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/Academic%20Integrity%20Policy%20and%20Board%20-%20December%202020,%202010.doc>

*Attendance Participation*

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Attendance%20Participation.pdf>

*Confidential Proprietary Information Policy*

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Confidential%20Proprietary%20Information%20Policy.pdf>

*Dayton Memorial Library*

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Dayton%20Memorial%20Library.pdf>

*Diversity*

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Diversity%20at%20RU.pdf>

*Equal Access and Disability Services*

[https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Equal%20Access\\_Disability%20Services.pdf](https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Equal%20Access_Disability%20Services.pdf)

*Human Subjects Review (IRB)*

<http://www.regis.edu/Academics/Academic-Research-and-Grants/Regis%20Review%20Boards.aspx.UTEPrVeQnN0>

*Inclement Weather and Class Cancellation*

In the event of inclement weather (i.e., blizzard), students should call the University Weather line at 303-458-1818 for closure information.

*Late or Incomplete Course Procedures*

[https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Late%20Assignments\\_Assignment%20Revisions%20Policy%20CPS.pdf](https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Late%20Assignments_Assignment%20Revisions%20Policy%20CPS.pdf)

*Learner Conduct*

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Learner%20Conduct.pdf>

*Writing Assistance*

<https://in2.regis.edu/sites/spsdean/CPS%20Approved%20Policies%20and%20Procedures/CPS%20Syllabus%20Policies/Writing%20Assistance.pdf>

**Other Information**

**Note to Learners:** On occasion, the course facilitator may, at his or her discretion, alter the Learning Activities shown in this Syllabus. The alteration of Learning Activities may not, in any way, change the Learner Outcomes or the grading scale for this course as contained in this syllabus. Examples of circumstances that could justify alterations in Learning Activities could include number of learners in the course; compelling current events; special facilitator experience or expertise; or unanticipated disruptions to class session schedule.