



CS 469 Introduction to Database Design  
and Implementation for Business  
and  
CS 669 Database Design and Implementation  
for Business

<https://onlinecampus.bu.edu>

Instructor George Maiewski  
Original Slides by Prof. Robert Schudy

6 to 9 PM (Fall and Spring)  
6 to 9:30 PM (Summer)

# Differences between CS469 and CS669

Course	CS469	CS669
Credits	4 undergraduate	4 graduate
Readings	Textbook	Textbook
Lectures	Required	Required
Quizzes	At home online Quizzes	At home online Quizzes
Assignments	Advanced exercises extra credit	Basic and advanced exercises required
Term project	Optional, for extra credit	Required
Final Exam	In class closed book online	In class closed book online

# How to reach me

- The best way to reach me is by email through the course web site. Direct email can be sent to either [maiewski@bu.edu](mailto:maiewski@bu.edu) or [george.maiewski@gmail.com](mailto:george.maiewski@gmail.com) .
- I pick up my email many times per day.
- I can meet with you before class, during the break or after class.
- Special meetings if necessary.

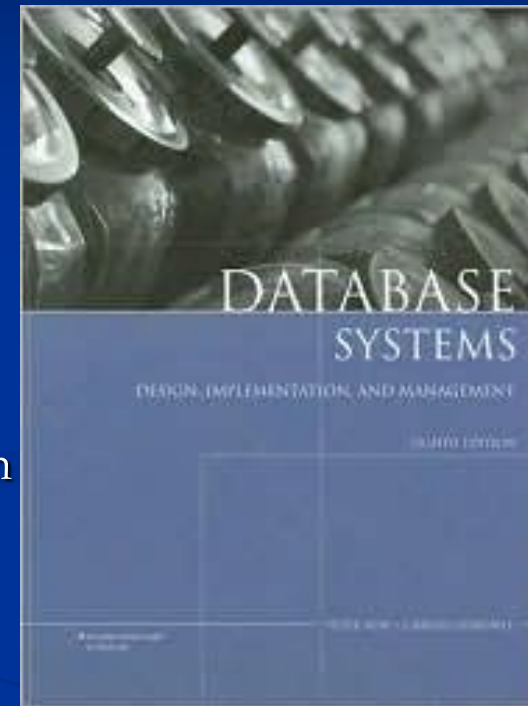
# Preparation for this class

- This class has no prerequisites other than computer literacy and willingness to study and learn.
- I will hold extra help classes and otherwise help students without programming or other background, so that no one is left behind.
- You do need to be computer literate; we will install Oracle, use web sites and do other geeky things.



# Our main Rob and Coronel text

- Our text for this course is Peter Rob and Carlos Coronel's *Database Systems: Design, Implementation, and Management*, Tenth Edition, Course Technology 2009
- The ISBN-ISBN-13: 9781111969608
- It is required.
- It is very accessible and a “good read.”
- We will cover the text one chapter per week.
- The text is available used. If you really need to save money, you can purchase the 8<sup>th</sup> or 9<sup>th</sup> edition for much less, but I urge you to purchase the 10<sup>th</sup>, because it is more up to date.
- It is readily available from the BU bookstore, Amazon, and many other web vendors.
- Beware that web vendors sometimes take many weeks to deliver, may ship the 7<sup>th</sup> edition as the 8<sup>th</sup>, and may not refund your money.



# *Oracle Database: The Complete Reference* (optional text for students who really want to learn Oracle)

- *Oracle Database 10g: the Complete Reference*, by Kevin Loney, Osborne Oracle Press, paperback, with CDROM, Sept 2004, 1369 pages, ISBN 0072253517
- This is the standard Oracle reference, which also includes excellent general tutorial material and fairly complete coverage of the Oracle 10g advanced features.
- It really is optional; everything that we need is on Rob and Coronel and the lectures.
- I refer to this text with the shorthand “Loney 10g.”
- The introductory tutorial and reference material in Loney is also excellent.
- This text is available from the BU bookstore. The list price is \$69.99. It is available for about \$10 used.
- *Oracle 11g: the Complete Reference* is due in December.

# The Term Project

- CS669 students must complete a significant term project which involves designing and implementing a modest but significant database system.
- The default term project is to design and implement a database system for a simple DVD rental business vaguely similar to NetFlix®.
- Undergraduate students taking CS469 may complete a term project for extra credit.
- You do not need to use Oracle for your projects.

# Extra Credit Projects

- You may do extra credit projects on any database topic of your choice.
- You can ask me for help if you wish.
- Extra credit projects won't hurt your grade. A good extra credit project may lift your grade if you are close to the higher grade but not quite there.
- Write a short proposal if you would like to do an extra credit project, so I can check the reasonableness of the topic and the required effort.

# Researching small topics for the class

- In a lecture or discussion a question may arise that you would like to research and present the results to the class. I will sometimes ask for volunteers, or you can volunteer.
- Usually we will want the answer at the next class session, or posted to the course website.
- Database is a huge technology and business area, and this is an important part of learning how to answer database questions.
- I give classroom contribution points for these small research efforts.
- These should be small efforts; if it turns out to be difficult let me know. That's OK.



# Ask lots of questions

- What seems like a “stupid question” or answer is one that shows that there is something that you don’t understand.
- If you don’t understand something it is likely that your classmates don’t understand it too.
- Stupid questions and answers help everyone, including me.
- So ask lots of questions, particularly stupid questions, and don’t be afraid to answer my questions.
- I give extra class participation credit for good questions and answers, particularly good stupid ones.
- The only stupid question is the one that you don’t ask; there are no bad questions.

# Grading

- Your grade is based on your performance in five areas:
  - ~25% of your grade is based on weekly graded quizzes.
  - ~15% of your grade is based on graded homeworks.
  - ~30% of your grade is based on a comprehensive final exam.
  - ~20% of your grade is based on your term project.
  - ~10% of your grade is based on classroom contributions, including questions, discussion, and small topics that you have researched for the class.
- It is occasionally possible to earn more than 100% for an exceptional answer or an extra credit problem.
- I don't grade on the curve, and would be delighted if everyone earned an A. I will try to help you do that.

# Grading standards

- The grade of “C” is the lowest grade acceptable for credit toward MS degree requirements.
- MS students must have a grade point average of at least 3.0 to graduate.
- A grade of “D” is the lowest passing grade for undergraduates.

Grade	Grade Points
A	4.0
A-	3.7
B+	3.3
B	3.0
B-	2.7
C+	2.3
C	2.0
C-	1.7
D	1.0
F	0



# Individual differences

- Please let me know soon if you have perceptual, cognitive, learning style or other significant individual differences or disabilities, so that I can better meet your needs.
- I base your grade on how well you have learned the material. With some disabilities some metrics may not be fair, so I may use other metrics when necessary to assure fairness.

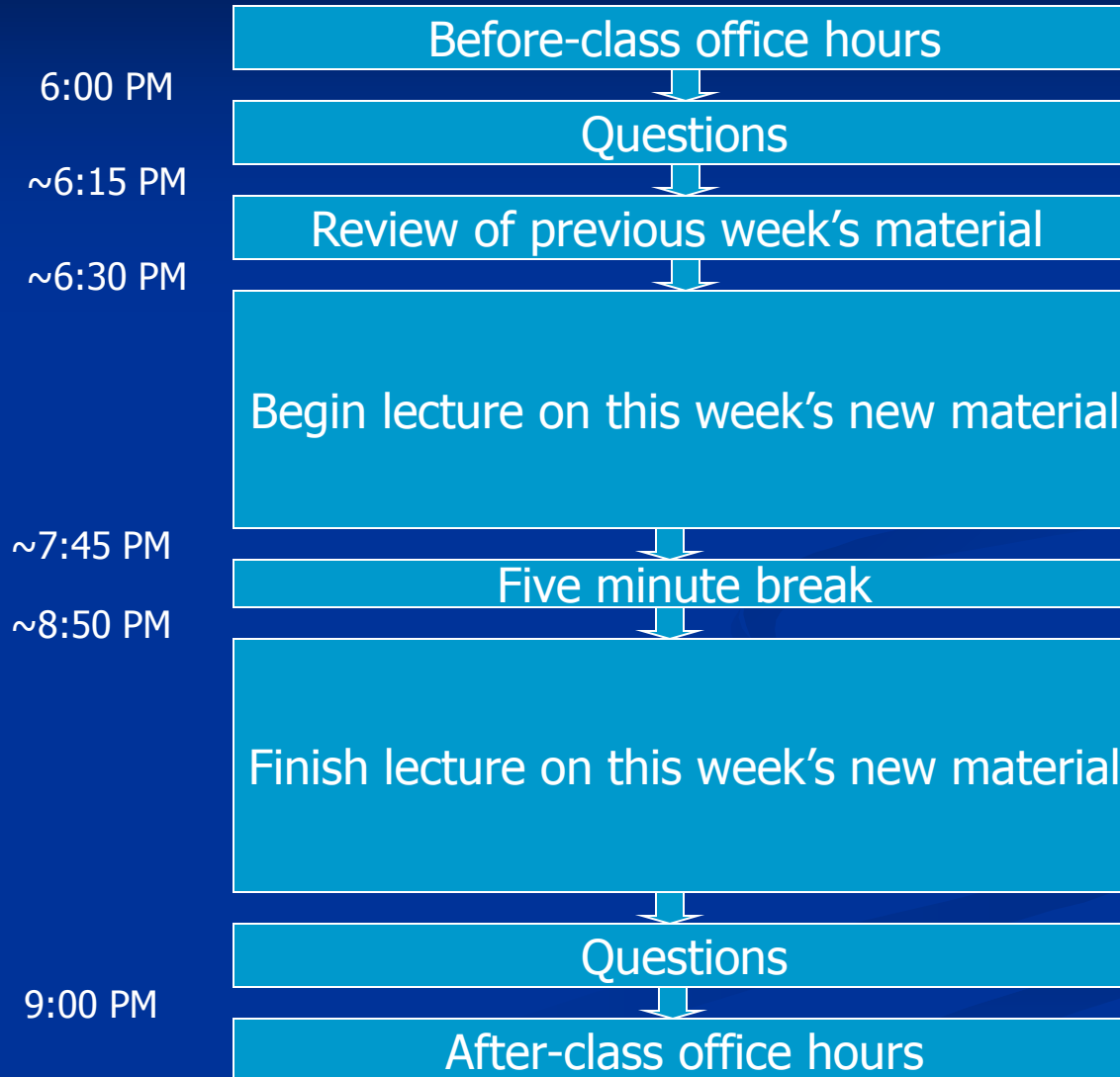
# About grades

- I feel that our students are generally very good, and not average, and there have been generally more A and B grades than lower grades.
- I determine the final grades for each of the grading measures (quizzes, final exam etc.) separately, and look at both the individual and collective measures for each student.
- Feel free to ask how you are doing and I will let you know.
- I will give you feedback along the way in the form of letter grades on quizzes, exercises and project submissions.

# The weekly “quizzercises”

- The quizzes will be taken online through the Blackboard Vista system. Quizzes are open book, the Final Exam is Closed Book.
- Most quizzes cover the material from the previous two week’s lectures.
- Most people should be able to finish the quizzes in the time given.
- I schedule the quizzes between classes. You will have about a week to find a time to take the quiz at home.
- You may make comments about each quiz online as you are taking the quiz. See the section at the end of the quiz.
- These are open book and open notes combination quizzes and exercises designed to measure how well you can apply what you have learned. Remember, the final exam is Closed Book, Closed Notes.

# A normal class meeting timeline



# How the classes are organized

- Before each class session is before-class office time when you can meet with me in the classroom. If you need help at any other time contact me by email. We can also talk by phone or meet if necessary.
- At 6 PM we will begin class with any questions that you may have.
- Next we review the material for the previous week for 15-30 minutes. In the first class we review the prerequisite material.
- Then we begin the first part of the lecture for the week.
- Then we take a halftime break.
- Then we continue the week's lecture and discussion.
- Quizzes are taken online, which cover the material introduced in the previous week's lecture and reviewed at the beginning of this week's lecture.
- At around 9 PM we begin after-class office hours.

# Why is the default DBMS Oracle?

(and not MSSQL, UDB/DB2, MySQL or another DBMS)

- Most of the examples in the text are based on Oracle.
- Oracle leads the industry in the development and delivery of database technology
- Oracle is the most commercially important DBMS.
- Oracle has essentially all of the features in any relational or object-relational DBMS.
- Many of the ANSI/ISO SQL standards are based on Oracle, and Oracle supports the standards comparatively well, so when you learn Oracle you are mainly close to the portable standards.
- Oracle runs on all common platforms, including Mac's and PCs.
- Oracle is very scalable.



# You can use another DBMS

- I don't require you to use Oracle for your exercises or term project.
- If it is better for you to use another SQL DBMS, for example because that's all that you use at work, let's discuss it.
- You will need to map some of the syntax.
- Microsoft SQL Server 2005 and 2008 support the functionality that we cover in this class, though sometimes in nonstandard ways.
- MySQL with the InnoDB back-end supports most of the functionality, though the implementation is not very mature.
- IBM's UDB supports all of the functionality in this class, with a solid comparatively standards-compliant implementation.

# Academic conduct policy

- Boston University takes academic conduct seriously, in part because academic honesty is critical to fostering a good fair learning community.
- Plagiarism can earn you a hearing before the Student Academic Conduct Review Board.
  - Students may be represented by an attorney.
  - The Board determines guilt or innocence and any punishment, which may include an F in the course, suspension, or expulsion.
- Our full academic conduct code is at [http://www.bu.edu/met/metropolitan\\_college\\_people/student/resources/conduct/code.html](http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html)
- The short form of the code is to never present someone else's work as your own.
- We use Turnitin.com to verify originality.



# MSDNAA

- Metropolitan College provides all registered students with access to the Microsoft Developer Network Academic Alliance (MSDNAA).
- This provides you with free access to most Microsoft software free of charge, for academic use. You may wish to download Visio Professional to develop database design diagrams for this class.
- Information on our MSDNAA program is available by following the MSDNAA link on the Met Computer Science home page, which is CSMET.bu.edu. The MSDNAA link looks like this:



- When I request your MSDNAA membership you will receive an email from the MSDNAA E-Academy License Management System (ELMS) at following address: [elms\\_support@e-academy.com](mailto:elms_support@e-academy.com). Some spam filters may direct this email to a junk email folder, so you may want to check your junk email folder or add the address above to your contacts or other white list. Later this academic year, you will be able to access the MSDNAA site using your Kerberos login.

# DBMS

- The recommended DBMS is Oracle Database 10g, 11g or 12c Express Edition.
- Some of you will be using Microsoft's MSSQL.

# The class schedule

- The class schedule follows the study guide found in the course web site.
- We will try to stick to this schedule but we could be off a little as needed.
- For assignment descriptions see Vista Blackboard Web Site at [vist.bu.edu](http://vist.bu.edu).

# Topics covered

<i>#</i>	<i>Topics</i>	<i>Assignments</i>
1	Course introduction. Chapter 1 Database Systems	Study RobCor Chapter 1 Install DBMS
2	Chapter 2 Data Models	Study RobCor Chapter 2 Quiz 1
3	Chapter 3 The Relational Database	Study RobCor Chapter 3
4	Chapter 4 ER Modeling	Study RobCor Chapter 4 Quiz 2
5	Chapter 5 Normalization	Study RobCor Chapter 5

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<i>#</i>	<i>Topics</i>	<i>Assignments</i>
<u>6</u>	<b>Chapter 6: Advanced Data Modeling</b>	<b>Study RobCor8 Chapter 6 Quiz 3</b>
7	<b>Chapter 7: SQL</b>	<b>Study RobCor8 Chapter 7</b>
8	<b>Chapter 8: Advanced SQL</b>	<b>Study RobCor8 Chapter 8 Quiz 4</b>
9	<b>Chapter 9: Database Design</b>	<b>Study RobCor8 Chapter 9</b>

<i>#</i>	<i>Topics</i>	<i>Assignments</i>
10	Chapter 10: Transaction Management and Concurrency Control	Study RobCor8 Chapter 10 Quiz 5
11	Chapter 11: Performance Tuning	Study RobCor8 Chapter 11
12	Chapter 12: Distributed DBMS	Study RobCor8 Chapter 12
13	Chapter 13: Business Intelligence and Data Warehouses	Study RobCor8 Chapter 13



14	Chapter 14: DB Connectivity and Web Technologies	Study RobCor8 Chapter 14
15	Chapter 15: Database Administration and Security	Study RobCor8 Chapter 15 Quiz 6
Final	Final exam	Comprehensive two-hour in-class exam in three hours. Closed book.

# Other Topics

	Topics suggested or provided by students	
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