BOSTON UNIVERSITY
METROPOLITAN COLLEGE
MS Computer Information Systems
Summer 2017

Course Title: CS 669, Database Design and Implementation for Business. 4 credits.
Instructor: Richard Parrott, Ph.D.
Telephone: (252) 548-6373
E-Mail Address: parrottr@bu.edu

Course Description:
Students learn the latest relational and object-relational tools and techniques for persistent data and object modeling and management. Students gain extensive hands-on experience using Oracle or Microsoft SQL Server as they learn the Structured Query Language (SQL) and design and implement databases. Topics covered include: the relational and entity-relational models, data modeling, normalization, object modeling, SQL, advanced SQL, stored procedures, triggers, database design, database lifecycle, and transactions. Students are introduced to advanced topics including performance tuning, distributed databases, replication, business intelligence, data warehouses, internet databases, database administration, security, backup and recovery. Students design and implement a database system as a term project.

Required Texts:
Database systems: Design, implementation, and Management, (12th ed). Coronel, C. M., Morris, S., Boston: Cengage Learning, 2016, ISBN-10: 1-30-562748 ISBN-13: 978-1-30-562748-2

Required Software:
You will need to download and install Oracle Database 11g Express Edition, found here:
http://www.oracle.com/technetwork/products/express-edition/overview/index.html

Optional Reference Text:
Oracle 11g: The Complete Reference. Loney, K., McGraw-Hill Osborne Media, 2008, ISBN-10: 0071598758 ISBN-13: 9780071598750

Optional Software:
Microsoft Visio Pro 2010 or newer to create entity-relationship diagrams. This can be obtained free of charge from the Microsoft Imagine (old DreamSpark) program, which is offered by BU. Most students use Microsoft Visio to create ERDs, but you are not required to do so. You may use any capable database diagramming application.

Supplemental Reading Material and Handouts (Required):
Course Outline and Lecture Notes, Parrott, R., 2017 (This will be supplied to you in class.)

Course Objective:
This course will provide students with an understanding and hands-on experience with database technology, database design, SQL and the roles of databases in business. This course will enable you to:

- Explain RDBMS concepts
- Design and implement SQL databases of ordinary complexity
- Explain and use top-down database design with bottom-up techniques
- Understand and use basic design techniques using the EERD notation
- Understand and use the Structured Query Language - DDL, DML and DCL

- Write simple stored procedures and triggers using PL/SQL or Transact-SQL
- Normalize database tables
- Use and develop application databases
- Understand the basics of database performance tuning, distributed databases, and data warehouses

The class schedule lists each class session's topics and readings. The intent is to cover the topic of Database Design and Implementation for Business as completely as possible with emphasis on the importance of data in business. Related to that objective are the information technology tools that are necessary to carry out the responsibilities of an effective leader in the 21st century. Chapter 13 and Chapter 15 cover two areas that are the core of those tools.

Learning Activities:
In-class learning experiences will include lectures by the instructor on related subject material as well as analysis of actual business database systems (case studies and vignettes). Some of the more current topics in database design such as ”Business Intelligence (BI)” are among the issues to be discussed in class. Out-of-class learning experiences will include reading assignments from the text, a database project, and preparation for a mid-term exam and Final exam.

Final Exam
This course has a final. There are 50 questions consisting of multiple choice, True/False, Short Answer, and analysis of code samples. All in-class exams are closed book and closed notes. You will have 3 hours to complete the exam.

Homework & Assignments
Homework and assignments will be assigned each meeting. They are due BEFORE the next meeting (e.g. Homework assigned meeting #1 will be due meeting #2). Please email homework.

Participation
You are also expected to attend and participate in class discussions by sharing your experiences and observations on current topics.

Term Project
You will be assigned a database project in which you will use Systems Analysis methods to develop a database. The project is designed to be completed in phases, much like the Systems Analysis and Design Model. See the project deliverables table below.

Quizzes
Quizzes are given during each meeting and cover that meeting’s topics. All quizzes have twenty questions. The questions are either choose multiple, multiple choice (choose one), or True/False.

Course Policies
You are expected to attend every lecture. Your success in this course will depend on your attendance, participation, and performance on all assignments. However, your professor understands that sometimes life happens and you cannot make it to class. Please notify Boston University staff or your professor in advance either by email or voice if you are going to miss a meeting. The most important thing to remember is to communicate with your friendly Boston University Staff and Faculty. We are here to help!

Information technology is a quickly changing field. Class participation is very important. Throughout this accelerated course you are encouraged to openly discuss alternative solutions and methods on various subjects.

MET CS 669, Database Design and Implementation for Business

Cheating and plagiarism will not be tolerated in any Metropolitan College course. They will result in no credit for the assignment or examination and may lead to disciplinary actions. Please take the time to review the Student Academic Conduct Code:
http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html .
This should not be understood as a discouragement for discussing the material or your particular approach to a problem with other students in the class. On the contrary – you should share your thoughts, questions and solutions. Naturally, if you choose to work in a group, you will be expected to come up with more than one and highly original solutions rather than the same mistakes.

Meeting # Date	**Topic**	**Reading**
#1: May 14	Database Concepts; Introduction to SQL; Data assets.	Ch. 1 – All Ch. 2 – All Ch. 7 – sections 7.1, 7.2, and 7.5 Ch. 15 – sections 15.1 and 15.2
#2: June 4	Relational Database Model; ERM; More SQL.	Ch. 3 – All Ch. 4 – All Ch. 7 – sections 7.3, 7.4, and 7.6 Appendix N
#3: June 18	Normalization; ER→ Database Structure.	Appendix D Ch. 6 – All Ch. 7 – sections 7.7
#4: July 9	Advanced SQL; Database Design	Ch. 8 – All Ch. 9 – All
#5: July 23	Advanced Database Concepts	Ch. 10 – All Ch. 11 – sections 11.1 to 11.7
#6: Aug. 6	Advanced Database Concepts, continued.	Ch. 12 – All Ch. 13 – sections 13.1 to 13.6 Ch. 14 – sections 14.1 and 14.2
#7: Aug. 20	Review **Final Exam**	

Subject to change

Meeting # Date	Project Deliverables
#1: May 14	Choose the default or student-defined term project.
#2: June 4	Conceptual Entity-Relationship Diagram for your term project.
#3: June 18	Normalized, logical Entity-Relationship diagram
#5: July 23	Tables, data, and SQL which answer the questions for the Term Project description. If you want to develop a trigger or procedure to exceed requirements, you may want to attempt one here.
#6: Aug. 6	Prepare your term project for final submission.

Grading Criteria:

Final examination	30%
Homework & Assignments	20%
Term Project	20%
Participation	10%
Quizzes	20%

Boston University Grading System:

A	95 – 100	(4.0)
A-	91 – 94	(3.7)
B+	86 – 90	(3.3)
B	81 – 85	(3.0)
B-	76 – 80	(2.7)
C+	71 – 75	(2.3)
C	66 – 70	(2.0)
C-	61 – 66	(1.7)
D	56 – 60	(1.0)
F	0 – 55	(0.0)

Academic Conduct Policy

For the full text of the academic conduct code, please go to http://www.bu.edu/met/for-students/met-policies-procedures-resources/academic-conduct-code/

A Definition of Plagiarism

"The academic counterpart of the bank embezzler and of the manufacturer who mislabels products is the plagiarist: the student or scholar who leads readers to believe that what they are reading is the original work of the writer when it is not. If it could be assumed that the distinction between plagiarism and honest use of sources is perfectly clear in everyone's mind, there would be no need for the explanation that follows; merely the warning with which this definition concludes would be enough. But it is apparent that sometimes people of goodwill draw the suspicion of guilt upon themselves (and, indeed, are

guilty) simply because they are not aware of the illegitimacy of certain kinds of "borrowing" and of the procedures for correct identification of materials other than those gained through independent research and reflection."

"The spectrum is a wide one. At one end there is a word-for-word copying of another's writing without enclosing the copied passage in quotation marks and identifying it in a footnote, both of which are necessary. (This includes, of course, the copying of all or any part of another student's paper.) It hardly seems possible that anyone of college age or more could do that without clear intent to deceive. At the other end there is the almost casual slipping in of a particularly apt term which one has come across in reading and which so aptly expresses one's opinion that one is tempted to make it personal property."

"Between these poles there are degrees and degrees, but they may be roughly placed in two groups. Close to outright and blatant deceit-but more the result, perhaps, of laziness than of bad intent-is the patching together of random jottings made in the course of reading, generally without careful identification of their source, and then woven into the text, so that the result is a mosaic of other people's ideas and words, the writer's sole contribution being the cement to hold the pieces together. Indicative of more effort and, for that reason, somewhat closer to honest, though still dishonest, is the paraphrase, and abbreviated (and often skillfully prepared) restatement of someone else's analysis or conclusion, without acknowledgment that another person's text has been the basis for the recapitulation."