Printable View of:Syllabus and Course Information

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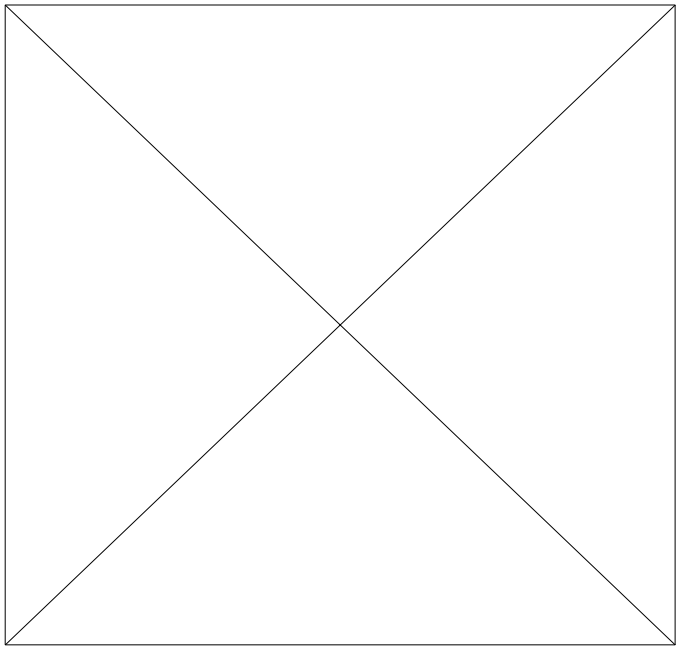
File: Database Design and Implementation for Business

Course Description

MET CS 669
Database Design and Implementation for Business
Robert Schudy

Professor Schudy's Video Introduction



This course uses the latest database tools and techniques for persistent data and object-modeling and management. Students gain extensive hands-on experience with exercises and a term project using Oracle and other leading database management systems. Students learn to model persistent data using the standard Entity-Relationship model (ERM) and how to diagram those models using Entity-Relationship Diagrams (ERDs), Extended Entity-Relationship Diagrams (EERDs), and UML diagrams. Students learn the standards-based Structured Query Language (SQL) and the extensions to the SQL standards implemented in Oracle and other DBMS. Students learn the basics of database programming, and write simple stored procedures and triggers,

The following topics are covered:

- Database basics
- Installing and connecting to Oracle
- Relational database concepts
- Relational database design using ERD
- Normalizing database designs
- Database integrity
- Object-relational design using EERD
- The Structured Query Language (SQL) and practice using Oracle
- Advanced SQL
- The DBMS lifecycle
- Database transactions and concurrency
- Preview of advanced topics in databases including: performance tuning, data warehouses, and distributed databases.

The Role of this Course in the MSCIS Online Curriculum

This is a core course in the MSCIS online curriculum. It provides students with an understanding and experience with database technology, database design, SQL, and the roles of databases in enterprises. This course is a prerequisite for the three additional database courses in the MSCIS online curriculum,

which are CS674 *Database Security*, CS699 *Data Mining and Business Intelligence* and CS779 *Advanced Database Management*. By taking these three courses you can obtain the *Concentration in Database and Knowledge Management*. CS674 *Database Security* also satisfies an elective requirement for the *Concentration in Security*. CS779 *Advanced Database Management* covers advanced design and normalization, ANSI and Oracle extensions to the relational model, object-oriented and object-relational databases, XML in databases, advanced database tuning, emerging database technologies, and other more advanced database topics.

Technical Note

The table of contents expands and contracts (+/- sign) and may conceal some pages. To avoid missing content pages, you are advised to use the next/previous page icons in the top right-corner of the learning modules.

File: Course Objectives

Course Objectives

This course will enable you to:

- Explain database concepts, particularly the concepts of relational databases
- Design and implement SQL databases of ordinary complexity
- Explain and use top-down database design with bottom-up techniques
- Understand and use basic object-oriented design techniques and the EERD notation.
- Understand and use the Structured Query Language - DDL, DML and DCL.
- Write simple stored procedures and triggers using PL/SQL or another database programming language.
- Use and develop application databases.

Learning Outcomes

By reading the lectures and completing the assignments in this course, you will be able to:

- Understand and explain the roles that databases play in organizations.
- Normalize database tables so that you can design and implement correct database systems.
- Understand and use the Structured Query Language (SQL) in depth and obtain ample hands-on practice.
- Understand and use database transactions and concurrency.
- Create a Term Project that covers all aspects of designing a database and the SQL requests that run against that database.
- Understand the basics of advanced topics such as database performance tuning, distributed databases, and the data warehouse.

File: Course Outline

Course Outline

The course parallels the fifteen chapters of our Rob and Coronel text, with one lecture for each chapter of the text. There is also a “hands-on” lecture, with readings from Chapter 7, in each of the first three modules. In the first two modules, we learn the fundamentals of databases and database design. With this foundation we are then prepared to learn about relational databases and entity-relationship models, and the basics of the Structured Query Language (SQL) In the third module we learn about how to validate our data models using normalization, and better ways to model specialization-generalization relationships. We devote our entire fourth module to SQL and a little database programming In the fifth module, while you work on your term projects we study the larger issues of the database design life cycle and also learn about transactions and concurrency. In the sixth module, we briefly introduce four more advanced topics while you complete your term projects. In each of the first six modules there is one review quiz (a self assessment with tutorial answers which does not count on your grade) and one quiz (which counts). The first three modules include hands-on lectures that guide us as we learn to use database management systems and SQL. In each of the modules you will complete term project tasks that are based on the material covered in that module.

- **Calendar Tool** - You can see many due dates in the Vista calendar tool  . You may add your own events there as well. However, please be aware that you may not find all of the important dates for the course listed there. You will stay current by checking announcements, discussions, and emails in the course.
- **Readings** - Each week there are both textbook readings and online lectures.  . Your professor may suggest additional readings during the running of the course.
- **Discussion** - There are weekly discussions  between you and your classmates. These discussions are moderated by your facilitator. Postings for each discussion should be completed by the assigned due dates. There are also general discussions boards, which are not graded, for you to use to discuss any issues with your classmates. Please see the Discussion Module on the home page for more details.
- **Assignment** - There are assignments  that are due throughout the courses and accessed from the Assignments menu item.
- **Assessments/Quizzes** - Quizzes  are also listed in the course calendar and accessed from the Assessments menu item.

Module 1 - Database Systems and Data Models

- File systems and databases: data, information, databases, database management systems, data redundancy, database systems, DBMS functions, and connecting a client to the Oracle DBMS. (Rob and Coronel Chapter 1)
- Data models: entities, attributes, relationships, business rules. Data abstraction, conceptual, internal, and external models. (Rob and Coronel Chapter 2)
- Hands on: Installing and connecting to a database management system; introduction to SQL, data definition commands (Rob and Coronel Chapter 7 sections 7.1 and7.2)

Module 2 - Relational Databases and ER Models

- The relational database model: tables, keys, integrity, operators, linking tables, data redundancy. The basics of SQL (Rob and Coronel Chapter 3)
- ER Modeling: Entities, Relationships, Weak, Recursive, Composite, Developing an ER Diagram.

(Rob and Coronel Chapter 4)
- Hands on: SQL data manipulation commands, SQL SELECT queries (Rob and Coronel Chapter 7 sections 7.3 and 7.4)

Module 3 - Normalization and Advanced Data Modeling

- Normalization of database tables. Data redundancies, data anomalies, bottom up modeling of data using normal forms. 1NF, 2NF, 3NF, refinement, BCNF, and 4NF. (Rob and Coronel Chapter 5)
- Advanced Data Modeling: The extended entity relationship (EER) model, generalization, specialization, supertypes, subtypes, clusters, primary key selection. (Rob and Coronel Chapter 6)
- Hands on: Advanced SQL data definition commands and SELECT queries (Rob and Coronel Chapter 7 sections 7.5 and 7.6)

Module 4 - Advanced SQL

- Creating views, joining database tables, relational set operators, SQL join operators, subqueries and correlated queries (Rob and Coronel sections 7.7, 7.8, 8.1, 8.2, 8.3)
- SQL functions, Oracle sequences, updatable views, procedural SQL, triggers, stored procedures, embedded SQL. (Rob and Coronel sections 8.4, 8.5, 8.6, 8.7, 8.8)

Module 5 - Database Design and Transaction Management and Concurrency Control

- Database Design: systems development life cycle, database life cycle, database revisions, top-down versus bottom-up design, centralized versus decentralized design. (Rob and Coronel Chapter 9)
- Transactions and concurrency control: locking, time stamping and data recovery. (Rob and Coronel Chapter 10)

Module 6 - Preview of Advanced Topics

This module introduces performance tuning, distributed databases and data warehousing. CS 779 *Advanced Database Management* covers these topics as well as other advanced database topics in more detail. This week also provides you more time to concentrate on your term project.

- Database performance Tuning and Query optimization (Rob and Coronel Chapter 11)
- Distributed Database Management Systems (Rob and Coronel Chapter 12)
- Business Intelligence and Data Warehouses (Rob and Coronel Chapter 13)
- Database Connectivity and Web Technologies (Rob and Coronel Chapter 14)

Module 7 - Prepare for and take the final exam

You will prepare for and take the proctored final exam.

The course will remain open two weeks after the final exam, so that you can continue discussions and ask any questions about database technology, your grades or the course. This is also a time when we enter into a dialog where we endeavor to learn from you how we can modify the course so that it better meets your needs.

File: Instructor Biography

Instructor

Robert Schudy

Office Location:
808 Commonwealth Avenue, Boston, MA 02215

Office Hours: By appointment or via email

Office Phone: (617) 358-0009

E-Mail: rschudy@bu.edu

Hello,

My name is Robert Schudy. I am your professor for this course. I love database management and teaching and have been practicing advanced database management in industry and teaching database classes in industry and at BU for years. My responsibilities as an Associate Professor in the MET Computer Science Department include faculty coordination of the database area and faculty coordination of this MSCIS online program. Please feel free to bring to me any subject having to do with this course or the program.

I received my doctorate in Computer Science from the University of Rochester. I have conducted research and developed systems at Hewlett Packard Laboratories (where I initiated or assisted in the bubble jet, laser printer, and RISC/Unix areas), Bolt Beranek and Newman (where I pioneered intelligent aircraft systems and autonomous air vehicles). I have served as chief scientist for startups and have architected, designed and managed the development of many computer systems.

The best way to reach me is to email me within the course itself. If you would like to phone me my office number is listed above. If the course email is not available when you want to contact me you can contact me at my main BU email address (also listed above). I normally pick up my email many times per day.

Initial Course Developer

Dr. Vijay Kanabar

This course was originally developed by Professor Vijay Kanabar. Dr. Kanabar has been consulting and teaching in the applied areas of IT and Project Management for more than 25 years in the US and Canada. He has authored two database books - An Introduction to Structured Query Language (Wm C Brown now McGraw-Hill) and XBase for the True Beginner (McGraw-Hill) - and has been recognized with awards for outstanding teaching and research. He has substantial business experience and is frequently invited to present seminars at conferences organized by corporations such as Fidelity, BEA, Staples, Fleet and State Street. Dr. Kanabar holds graduate degrees in Computer Science from Florida Tech and a PhD in Information Systems from University of Manitoba. Professor Kanabar and is a certified Project Management Professional (PMP) and the

author of a recent text on project management.

File: Study Guide

Study Guide

Module 1 Study Guide and Deliverables

Readings:	Online lectures 1 & 2 Rob and Coronel, chapters 1, chapter 2 (with less emphasis on sections 2.5.1, 2.5.2, and 2.5.5), sections 7.1, 7.2 Notes for Chapter 2: Business rules (section 2.4) and the entity-relationship model (section 2.5.4) are used extensively in the course.
Discussions:	Discussion 1 postings due January 18 at 6:00 AM ET
Assignments:	Assignments 1.0, 1.1, 1.2 due by 6:00 AM ET January 18
Term Project Milestones:	Read the term project specification Decide if you are doing the default or student-defined term project and submit your decision (Assignment 1.0)
Assessments:	Quiz 1 due January 19 at 6:00 AM ET
Hands On:	Read Hands On Week 1 Lecture Install Oracle or another approved DBMS of your choice and demonstrate it to your facilitator Read Rob and Coronel, sections 7.1 (Introduction to SQL), and 7.2 (Data Definition Commands)

Module 2 Study Guide and Deliverables

Readings:	Online lectures 3 & 4 Rob and Coronel, chapters 3 & 4, except the DIVIDE operator on page 78.
Discussions:	Discussion 2 postings due January 25 at 6:00 AM ET
Assignments:	Assignments 2.0, 2.1, 2.2, 2.3 due January 25 at 6:00 AM ET
Term Project Milestones:	Submit the entity-relationship diagram for your Oracle term project (Assignment 2.0)
Assessments:	Quiz 2 due January 26 at 6:00 AM ET
Hands On:	Read Hands On Week 2 Lecture Read Rob and Coronel, sections 7.3 (Data Manipulation Commands), and 7.4 (Select Queries)

Module 3 Study Guide and Deliverables

Readings:	Online lectures 5 & 6 Rob and Coronel, chapters 5 & 6
Discussions:	Discussion 3 postings due February 1 at 6:00 AM ET
Assignments:	Assignments 3.0, 3.1, 3.2 due February 1 at 6:00 AM ET
Term Project Milestones:	Submit a normalized, logical entity-relationship diagram for your term project database (Assignment 3.0)
Assessments:	Quiz 3 due February 2 at 6:00 AM ET
Hands On:	Read Hands On Week 3 Lecture Read Rob and Coronel, sections 7.5 (Advanced Data Definition Commands), and 7.6

(Advanced Select Queries)

Module 4 Study Guide and Deliverables

Readings: For Lecture 7: Online lecture 7 and Rob and Coronel, sections 7.7 (Virtual Tables: Creating a View), 7.8 (Joining Database Tables), 8.1 (Relational Set Operators), 8.2 (SQL Join Operators), and 8.3 (Subqueries and Correlated Queries)

Online lecture 8 and Rob and Coronel, sections 8.4–8.8

Discussions: Discussion 4 postings due February 8 at 6:00 AM ET

Assignments: Assignments 4.1, 4.2, 4.3, 4.4 due February 8 at 6:00 AM ET

Term Project Milestones: Submit the SQL statements for your term project (Assignment 4.0)

Assessments: Quiz 4 due February 9 at 6:00 AM ET

Hands On: Read Hands On Week 4 Lecture
Read Rob and Coronel, sections 7.5 (Advanced Data Definition Commands), and 7.6 (Advanced Select Queries)

Module 5 Study Guide and Deliverables

Readings: Online lectures 9 & 10
Rob and Coronel, chapters 9 & 10

Discussions: Discussion 5 postings due February 15 at 6:00 AM ET

Assignments: Assignments 5.0, 5.1, 5.2 due February 15 at 6:00 AM ET

Term Project Milestones: Submit the transactions for your term project as a Microsoft Word document. The SQL should be executable by cut-and-paste. (Assignment 5.0)

Assessments: Quiz 5 due February 16 at 6:00 AM ET

Module 6 Study Guide and Deliverables

Readings: Online lectures 11–15
Rob and Coronel, chapter 11 (sections 11.1 to 11.7 only), chapter 12 (sections 12.1 to 12.11 only), chapter 13 (sections 13.1 to 13.9 only), chapter 14 (sections 14.1 to 14.2 only), chapter 15 (sections 15.1 to 15.5 only)

You are not expected to be familiar with all of the details in any of the above readings, but you should have a high-level understanding of most of them.

Discussions: Discussion 6 postings due February 22 at 6:00 AM ET

Assignments: The only assignment for this module is the term project, due February 22 at 6:00 AM ET

Term Project Milestones: Address any feedback from your facilitator based on previous term project milestones, and prepare all of your term project files as a zip file, and submit them.

Assessments: Quiz 6 due February 23 at 6:00 AM ET

Module 7 Study Guide and Deliverables

Readings: There are no new readings

Discussions: There is no discussion

Assignments: There is no assignment

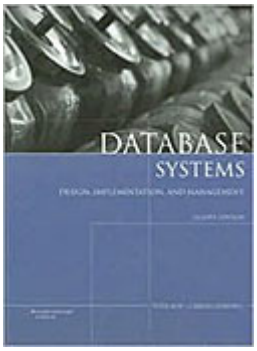
Term Project Milestones: During this week outstanding term projects will be selected for publication to the entire class.

Assessments:	The Final Exam opens at 9:00 AM on Friday, February 26 and closes at 11:59 PM on Tuesday, March 2. Please click here for more details on the exam.

File: Course Resources

Course Resources

Required Textbook



Database Systems: Design, Implementation & Management, 8th Edition

by Peter Rob and Carlos M. Coronel
Publisher: Course Technology (Thomson Learning, Inc.)
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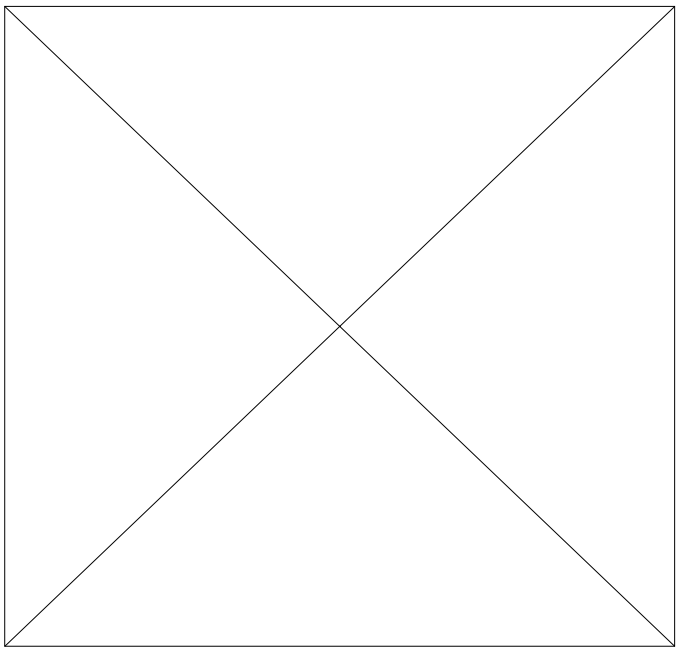
This required textbook can be purchased from Barnes & Noble at Boston University.

View Professor Schudy's Video Introduction to the Textbook

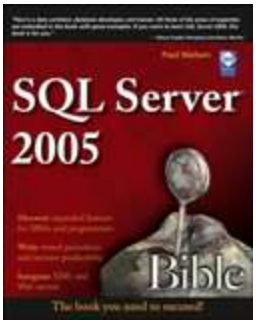


Recommended Textbook

Students have the option to use Microsoft SQL Server (MSSQL) 2005 or 2008 for the exercises and term

project in this class. (Microsoft SQL Server 2008 is preferred over 2005.) Students who choose to use MSSQL who are not highly skilled in MSSQL are urged to purchase one of the following two texts to help with material that is specific to MSSQL.

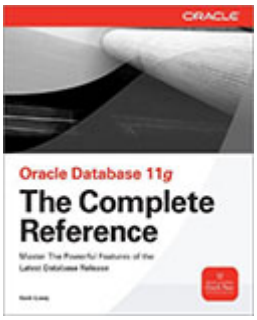
Murach's SQL Server 2008 for Developers
by Bryan Syverson and Joel Murach
22 chapters, 778 pages, 336 illustrations
ISBN-13: 978-1-890774-51-6



SQL Server 2005 Bible (Paperback)

by Paul Nielsen
Publisher: Wiley (November 6, 2006)
ISBN-13: 978-0764542565

Optional Reference Text



Oracle 11g: The Complete Reference

by Kevin Loney
Publisher: McGraw-Hill Osborne Media, 2008
ISBN-13: 978-0071598750

This is the standard Oracle reference. It includes excellent general SQL database tutorial material and extensive material on Oracle. You do not have to purchase this text for the course. There are no assignments from this text. This reference is here in case you want a good Oracle reference text. This is a required text for CS779 Advanced Database Management.

Required Software: Oracle 10g

You will need access to the Oracle Database Management System software to do the SQL homework and the term project. The best way for most students to access Oracle is to download it from the Oracle web site and install it on a personal computer such as the one that you are using for the course. You should have received the Oracle setup instructions and completed your Oracle installation before the course starts. If you have not done so, do not put it off, because the installation of Oracle or any other DBMS can occasionally be difficult, and we will need time to help you work through any difficulties that you encounter. Use the link below to download a PDF with the most recent version of the detailed instructions:

Oracle Installation and Configuration Instructions

Any version of Oracle 8, 9, 10, or 11 will work fine for this class. You may use Microsoft SQL Server for this class, preferably the most recent release that you can download from MSDNAA. The SQL syntax for Microsoft SQL Server is slightly non-standard, so you will need to make adjustments relative to the text and assignments. The course includes support for Microsoft SQL Server. You may also use a recent release of MySQL. If you wish to use Microsoft SQL Server or MySQL please inform the professor at least a week before class opens, so that you can be assigned to a facilitator skilled in your chosen DBMS.

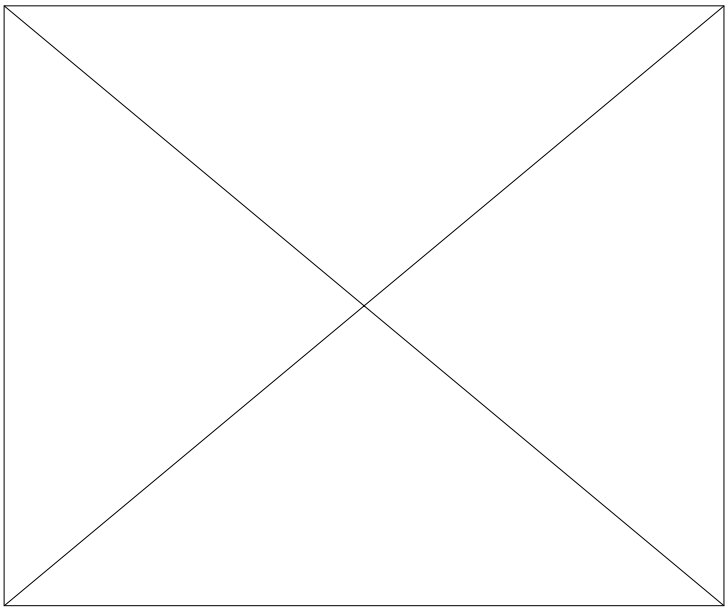
Obtaining Oracle: As explained in the documentation you received by mail you can download a free copy of Oracle from Oracle.com (http://oracle.com) or you can obtain an Oracle 10g CD-ROM from Boston University's MET College Computer Science Department.

Most people with broadband access should be able to complete the download and install the program with minimal difficulty. If you experience difficulties downloading the software, please contact **Chris Hutchison-Jones** in the MET Computer Science Department (crhj@bu.edu). You will receive a response normally within 24 hours. Chris will send you a copy of the Oracle database CD-ROM via overnight delivery.

Installing Oracle: To download, install and configure Oracle 10g see the documentation sent to you. This documentation can also be found in the Supplemental Materials folder of this course.

Asking for Help: Oracle and other DBMS are more deeply integrated with the operating system than ordinary applications. Oracle installations on compatible unmodified environments usually occur without significant issues. However, many things can go wrong, particularly with modified operating system environments. Don't feel embarrassed if something goes wrong. Unexpected events are common for database installations. If you encounter difficulties with Oracle when the course is running just email your facilitator, with a copy to your professor so that he knows what difficulties you are experiencing.

About Installing Oracle - Professor Schudy



Recommended Software: Visio Professional

In this class we will use Visio Professional to create entity-relationship diagrams. You can obtain Visio Professional free of charge from the Microsoft Developer Network Academic Alliance (MSDNAA) Program, to which the College subscribes. Please see the next page for more information on the MSDNAA program.

Web-Based Resource: Turnitin.com

As part of this course you have access to the Turnitin.com service (http://turnitin.com). You can submit your papers or anything that you wish to Turnitin, which compares the text that you submit with a large database of text from the web and other sources, including every paper that it has ever scanned. Turnitin uses artificial intelligence algorithms to identify text that may have been copied into a document or paraphrased without attributing the source. Your facilitators and I use Turnitin to verify that your work is original. You should consider submitting text that you find on the web to Turnitin before you include it as a reference, because you may find that it has been plagiarized, and you should reference the original

source. You should run your term papers through Turnitin to verify that you didn't inadvertently incorporate someone else's work without properly referencing it. If you submit a paper to Turnitin you will still need to submit it in the usual way through Vista. We routinely run term projects, assignments, and discussions through Turnitin, to verify that they are original and not copied from the web or elsewhere. All of the work which you submit, whether in exercises, discussion postings or term project, should be your own original writing, or quoted and properly referenced material from other original sources. There is a Turnitin discussion forum where you can discuss and learn about Turnitin and the amazing things that it does.

General Software

General software you will need to use in this and other online courses may include word processing, spreadsheet, and presentation software, such as Word, Excel, and PowerPoint found in Microsoft Office. You will also need to be comfortable with various aspects of using the Internet such as search engines, newsgroups, email, and file downloads.

Important Note

Students should retain the textbook(s) and any Oracle downloads or CD-ROMs for future courses in this program.

Live Classroom

Live Classroom Instructions and Procedures

In this class we will use the Horizon Wimba web-based Live Classroom. I plan to hold Live Classroom sessions twice per week, probably at 10 or 11 AM and 7 or 8 PM EST on Saturdays. Live Classroom sessions provide you with an opportunity to talk with me and ask me questions. Sometimes I answer these questions using slides or electronic whiteboard. The Live Classroom supports chat, voice conferencing over telephone or internet, and a variety of visual interaction facilities, including PowerPoint slides and even video if we choose to use it. Our facilitator at large will also host about four Live Classrooms per week, on a variety of topics, including how to use Oracle, Visio, TOAD, and our other database software tools.

To take advantage of the ability to talk with me and each other over the Internet I recommend that you purchase a headset designed to plug into the audio jacks or USB port on your computer. These headsets are available from many vendors. The price ranges from $10 for a basic but serviceable model up to $50 for a professional model. You can also telephone into the Live Classroom as you would to a conference call.

You do not need to be present when the Live Classroom is held to listen to and watch the sessions, because I often record Live Classroom sessions, particularly when students ask good leading questions. If students are interested in material that is not already in the course I often prepare a lecture with slides and deliver it and record it using Live Classroom.

I look forward to talking with you, discussing the material, and answering your questions.

In order to participate in these discussions or to access the archived sessions, you will need to go to the Live Classroom link on your homepage (located near the bottom of the page) and complete the Setup Wizard. It is recommended you finish all of the login steps at least five minutes prior to the start of the synchronous discussion, so that you are fully prepared to access your live class session.

Live Classroom Instructions and Procedures

Live Offices

This course includes a “Live Office” for each facilitator, one for Professor Schudy, and one for student use. Live Offices are similar to Live Classroom, except for a few minor configuration differences. Live Offices are a good way for facilitators and students to go over their assignments or other course material, because it supports convenient document or web sharing and voice. A headset is convenient for Live Office. The student Live Office is for study groups, team projects, or similar group activities. You can schedule Live Offices using the discussion topic for each Live Office in the Live Office Scheduling discussion category.

Boston University Library Link

As Boston University students you have full use of the BU Library-even if you do not live in Boston. From any computer, you can access any of the library's resources that are electronically formatted-or better said, available online. Use this link http://www.bu.edu/library/index.shtml to access the library's content whether you are connected through your online course or not, by confirming your status as a BU community member using your Kerberos.

Using the links on the right side of the page, you can find articles, eJournals, and eBooks, and you can easily search the library's content by subject. In addition, through the "Reference Shelf," you will have access to dictionaries, encyclopedias, handbooks, and more. If you are having difficulties gaining access, please consult the instructions below.

Connect to eResources

Boston University’s Office of Information Technology and the Library offer an option for remote access to Boston University’s online library resources.

Previously remote students had to use what was called the ‘ezproxy’ library portal; the new access (still referred to as 'ezproxy') allows all BU students a seamless connection to the BU Library’s electronic resources through the link: www.bu.edu/library

If you are having difficulties gaining access you may want to go to www.bu.edu/library/research/connecting.html. From this page you can access material directly using the links near the top of the page, where you will see the note, "eResources include databases, ejournals, and ebooks." Additional information about the ezportal system is also available in the links lower on the page, under the heading "authentication as a BU community member."

If you have any questions, please submit them using the following:

- For questions regarding connecting to the library, use the linked form: www.bu.edu/library/ask.
- For questions regarding the use of resources, contact the librarians at ask@bu.edu.

Accommodation of Special Needs

In accordance with University policy, I make every effort to accommodate unique and special needs of students with respect to speech, hearing, vision, seating, or other disabilities. Please notify Disability Support Services as soon as possible of requested accommodations.

File: MSDN Academic Alliance Software Center

MSDN Academic Alliance Software Center

MET College is a member of the Microsoft Developer Network Academic Alliance (MSDNAA), which allows faculty, graduate and undergraduate students currently enrolled in MET courses to obtain certain Microsoft products free of charge.

You can obtain many types of Microsoft software free of charge from the MSDNAA Program. By the first day of class your instructor will submit your BU email address to Microsoft to enroll you in the program for the current semester. You will receive an email from the MSDNAA E-Academy License Management System (ELMS) from the address: 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. The email will provide you with a username and password, and direct you to the MSDNAA site:

URL: http://msdn04.e-academy.com/elms/Storefront/Storefront.aspx?campus=bu_mccs,

FAQ and basic information are at: http://csmet.bu.edu/AASC/index.htm

If you do not receive your email by the second day of class, first check your junk email folder and then please send an email explaining that you did not receive your MSDNAA credentials for this course. Include your name and bu.edu email address in the email and send it to MSDNAA@bu.edu.

General software you may be required to use in this course include word processing, spreadsheet, and presentation software, such as the Word, Excel, and PowerPoint applications in Microsoft Office. If you use Microsoft Word 2007, please use the *Save As* feature to save your documents in the earlier Microsoft Word 2003 (.doc) format for posting in the class, rather than the XML-based (.docx) MSWord 2007 format, so that your classmates who do not have MSWord 2007 can read them without installing the converter.

File: Course Grading Information

Course Grading Information

Course Structure

The course is organized as a sequence of six main weekly modules, plus a seventh module for the proctored final exam. Each of the six main modules includes assigned textbook readings and online lectures in text, graphic, and video formats. Students have an opportunity each week to participate in synchronous Live Classroom and Live Office sessions where students interact with their faculty in real time; these live sessions are recorded for students who can't make the live sessions. Each of the first six modules includes graded homework assignments, graded discussions, a review quiz and a graded quiz. There is a term project which helps students integrate everything that they learn in the course, and apply that learning to the development of a significant database system. You may either develop a database for a DVD rental company, following a requirements specification provided, or define your own term project

that includes comparable learning areas, with approval. During each week of the course you will implement the aspects of the term project that are based on the database technology that you are studying that week.

Grading Policy

All students are expected to demonstrate an understanding of database technology and the ability to use and develop databases. To obtain an exceptional grade you have to exceed expectations in your assignments, quizzes, term project, final exam and discussions.

Grade Weighting

There are a total of 32 graded items (6 discussions, 18 assignments, 6 quizzes, 1 term project and 1 final exam). Course letter grades are determined in a three-phase process designed to accurately determine how well each student has demonstrated that they understand and can use the subject matter of the course. The process begins when the professor computes the weighted scores, using the weighting below. Your professor examines not only the overall weighted score, but also student's scores in each of the five areas, and the trend of scores in each of these areas. The professor then determines a letter grade for each student. The professor pays particular attention to the final exam score. He often reviews entire final exams to get a better understanding of how well each student understands each area. The professor then sends a spreadsheet containing all graded items for all students, and the proposed letter grades, to our facilitators, requesting review and comment. When the professor receives feedback from the facilitators he finalizes the grades and uploads them to the University Information System, where students can see their grades via the Student Link.

All graded items are graded as a percentage of the maximum anticipated score; this traditional American grading is sometimes termed "out of 100." Rarely a student may so exceed our expectations that they earn more than 100.

The following table summarizes the five kinds of graded items and the default percentage of grades determined by each of these kinds of graded items. Each of these graded items is explained below.

Deliverable	Weight
Assignments	20%
Discussions	5%
Quizzes	20%
Term Project	25%
Final Exam	30%

Assignments

In each of the first five weekly modules you will have homework assignments. Feel free to do additional exercises of your own design and submit them to your facilitator for feedback. If you wish you can ask your facilitator or professor for additional exercises tailored to your background and educational needs.

If for any reason you are unable to meet any assignment deadline, contact your facilitator, preferably in advance. Extensions may be granted under mitigating circumstances. Scores for assignments submitted late without extenuating circumstances will be penalized ten percent. Assignments submitted late near the end of the term may not be graded, because our facilitators are very busy grading term projects,

resulting in zero scores for those assignments.

If you are stuck, and just can't complete part of an assignment, then submit what you can complete to your facilitator, asking for help. Your facilitator may then choose to provide you with guidance in the areas where you are stuck, and return the partial assignment to you for further work and resubmission. Your facilitator will deduct from your score on the resubmission for any portion of the solution which your facilitator provided to help you. Your professor authorizes our facilitators to regrade based on resubmissions. Whether a particular resubmission should be regraded is up to the judgment of the facilitator. Resubmissions may not be graded near the end of the term, when facilitators are very busy grading the term projects. Resubmissions are intended to help struggling students who are stuck, and resubmissions are not intended for routine use.

Participation: Discussions and Class Contributions

Five percent of your grade is based on your class contributions. This grade is derived from your participation in the moderated discussions in each module. This is an important part of the learning process. Your discussion grade is based on how well your discussion postings contribute to your classmates' learning experience and understanding of the material. Thus a good leading learning question posting can be worth more than a good answer. Students who do exceptionally well in helping their classmates will occasionally receive bonus class contribution points .

Quizzes

There is a review quiz in each of the first six modules. These review quizzes are primarily to help you prepare you for the graded quizzes. When you finish a review quiz you will see the questions, your answer, the correct answers and tutorial material for each question. The review quizzes do not count in your grade. You can take the review quizzes at any time, as many times as you wish.

There is one graded quiz in each of the first six modules. The results for your quiz will be released as soon as possible after the quiz closes. When the quizzes are released you will be able to see the questions, your answers, the correct answers, and tutorial material, just as in the review quizzes. Your professor releases the quiz results. Quizzes may be taken after the results have been released, with permission, but the scores on late quizzes do not count on your grade.

The Final Exam

The final exam consists of a combination of fifty multiple choice, choose multiple, and true/false questions. You will have three hours to complete the final exam; there should be plenty of time. The final exam is configured so that if you run out of time you will be notified, but you will still be permitted to continue taking the final. This feature is intended to permit you to complete the final in spite of technical difficulties. Vista records the time for your submission of each question, so we can grade you fairly even though there are technical or other difficulties. The questions on the final exam will be very similar to those on your graded quizzes, except that the final exam has fifty questions, compared to the twenty on the quizzes. Your final exam will be proctored, either at an ACT testing center, using remote proctoring, at BU or with a special proctoring arrangement. Your final exam will be offered in the last week of the course. The final exam will be released in the same way that the quizzes are released. You will be able to see the questions, your answers, the correct answers, and tutorial material for each question.

The Term Project

In your term project you will design and implement a database schema and SQL requests that populate

and perform operations on the database. The default term project is the database for the routine operations of an online DVD rental business. If you would like to design and implement a database for a different business or activity you may do so, with approval from your facilitator and professor, who will help you. You will find detailed instructions for the term project in a module on the course home page. You will also find term project discussion questions and a guide to help you prepare for and stay on track with the project. (Preview the Weekly Term Project Activities page.)

Grading Structure

Your assignments, discussions, quizzes, term project, and final exam will be graded on a percentage basis. The following table summarizes typical correspondence of percentage grades and letter grades for individual graded items. The process and criteria for determining course letter grades is more complex than computing the weighted average grade and looking up the letter grade in the table below.

Letter Grade	Approximate percentage grade range	Grade Points
A	96–100	4.0
A-	91–95	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

Note that C is the lowest grade that satisfies degree requirements in graduate courses and that you need to maintain a grade point average of 3.0 or better to graduate. For more information, see the MSCIS Academic Policies online manual.

The percentage ranges above are approximate. Your letter grade is determined by your professor as the best overall measure of how well you have demonstrated that you understand the material, taking into separate consideration your performance in the quizzes, assignments, term project, discussions and final exam. Additional grading criteria include any substantial difference in your performance on the proctored final exam and the general trend of your scores over the term. The actual grade ranges will be adjusted to reflect the difficulty of graded items.

Timeliness

Many learning activities require sharing your assignments and opinions with your classmates. It is very important that you, as well as your classmates, submit your assignments on a timely basis.

File: Important Message on Final Exams

Dear Boston University Computer Science Online Students,

As part of our ongoing efforts to maintain the reputation and integrity of our online MSCIS degree program, the Computer Science Department at Boston University's Metropolitan College requires that each of the online courses offered include a proctored final examination.

By requiring proctored finals, we are ensuring excellence and fairness, as well as consistency of our program. Most of the online final exams are administered at specific testing centers, but other arrangements are also available. Detailed information regarding scheduling will be provided approximately two weeks into the course via email. This early notification is being given so that you will have enough time to plan accordingly to take the exam.

We know that you recognize the value of your Boston University degree and fully support the efforts of the University to maintain the highest possible standards in our online degree program. Thank you for your participation and support of this important academic differentiator of our online programs.

Regards,
Professor Lou Chitkushev, Ph.D.
Chairman, Computer Science Department
Boston University Metropolitan College

File: Quiz Instructions

Quiz Instructions

Accessing the Quiz

You will have access to the quiz at the beginning of the module. However you should not access the quiz until you have completed all learning activities for the module and are prepared to meet the objectives for that module.

Quiz Details

- Quizzes normally have twenty questions, but the number and type of questions may vary from quiz to quiz. You can access the quiz details from the assessments menu.
- The questions are either choose multiple, multiple choice (choose one), or True/False.
- All questions are randomized.
- The points for each question are shown.
- The quiz questions will display one at a time on your screen.
- You may skip over questions and revisit them in any order.
- You will have 90 minutes to complete the quiz. You should have enough time so that you aren't rushed.
- You can take each graded quiz only once.
- You may not pause the quiz and return to it later.
- You will be able to continue to save answers to questions after the time has expired, but any late answers will be time stamped and marked as late. This will allow us to grade your quiz fairly in the

event that technical difficulties occur while you take your quiz.

Saving Your Answers in Vista

- To answer a question, select your response from the options below the question.
- When you have completed your response, click **Save** at the bottom of the page.
- You can go back and edit previous responses that you saved.
- If you have typed something and then try to go to the next question without saving, Vista will prompt you to save the question.
- You will see question number buttons on the right-hand side of your screen; use these to move easily from question to question at any time.
- When you have completed all answers, click the **Finish** button.
- You will be asked to confirm that you are ready to submit the completed quiz. You can then **Cancel** or go ahead to submit by clicking **Okay**.
- You will see a confirmation message telling you that your quiz is submitted.

The Quiz Comment Questions

There is one short answer question at the end of each quiz and the final exam. This *comment question* appears as a quiz question, but there are no points for this item. Use this as a place to provide feedback about the quiz as a whole or to comment upon a particular quiz question, the way that you might write comments in the margins of a paper quiz. Be sure to reference the alphanumeric question identifier as well as the question number, because question order is randomized. Your facilitator will examine your comments and determine whether a grade adjustment or other action is appropriate.

If a technical issue of any kind arises during the exam, complete the exam, answering the remaining questions, and then contact your facilitator or instructor immediately.

Other Questions

If you have any questions about the quiz please feel free to contact your facilitator.

Technical Support

Assistance to resolve technical problems is available from Vista Support, and is restricted primarily to problems associated with the functionality of the Learning Management System.

The Contact Information for Vista Support is:

Website www.bu.edu/help/vista
Phone (888) 243-4596

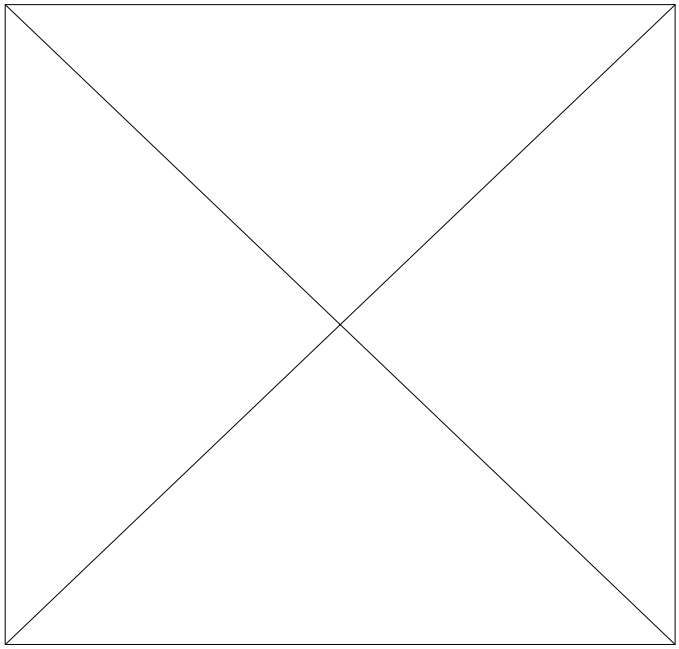
File: Final Exam Information

Final Exam Information

The Final Exam is a proctored exam available from **February 26 at 9:00 AM ET to March 2 at 11:59 PM ET**. The Computer Science department requires that all exams be proctored.

The exam is a 3 hour, closed-book exam consisting of a combination of 50 choose multiple, multiple choice (choose one), and True/False questions. The exam is only accessible during the final exam period. You will access it from either the Assessments section of the course or from the Final Exam module on the home page. Your proctor will enter the password to start the exam.

Video Remarks from Professor Schudy



Access to the online course material, including the lectures, discussions, and chat feature, ends on February 26 at 9:00 AM ET and will be unavailable until March 3. Please plan accordingly.

Format

- You will have 3 hours to complete the final exam. There is a clock in the upper right corner of the screen keeping time for the exam.
- There are 50 questions.
- This is a **closed book/closed notes exam**. You cannot bring any materials into the exam. You cannot access any web based content other than the course exam during the three hour period.
- You can take the exam only once.
- Each question will be delivered one at a time.
- You can revisit the questions and change your answers as many times as you want before submitting the exam.

Saving Your Answers in Vista

- To answer a question, select your response from the options below the question.
- When you have completed your response, click **Save** at the bottom of the page.
- You can go back and edit previous responses that you saved.
- If you have typed something and then try to go to the next question without saving, Vista will prompt you to save the question.
- You will see question number buttons on the right-hand side of your screen; use these to move easily from question to question at any time.
- When you have completed all answers, click the **Finish** button.
- You will be asked to confirm that you are ready to submit the completed exam. You can then **Cancel** or go ahead to submit by clicking **Okay**.
- You will see a confirmation message telling you that your exam is submitted.

If a technical issue of any kind arises during the exam causing you to go over the allotted time, finish answering all the questions in the assessment and then contact your facilitator and instructor immediately. You can submit questions after the time has expired although they may not count toward your grade.

Opening the Exam

Go to the Assessments Menu or the Final Exam Module on your course home page to access the exam. Your proctor will enter the required password to start the exam.

Technical Support

Student Services will provide you with a technical support hotline number before the start of the exam. Please bring this number with you to the exam.

File: Academic Conduct Policy

Academic Conduct Policy

For the full text of the academic conduct code, please go to
http://www.bu.edu/met/metropolitan_college_people/student/resources/conduct/code.html

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.”

{The paragraphs above are from H. Martin and R. Ohmann, The Logic and Rhetoric of Exposition, Revised Edition. Copyright 1963, Holt, Rinehart and Winston.}

Academic Conduct Code

I. **Philosophy of Discipline**
The objective of Metropolitan College in enforcing academic rules is to promote the kind of community atmosphere in which learning can best take place. This atmosphere can be maintained

only so long as every student believes that his or her academic competence is being judged fairly and that he or she will not be put at a disadvantage because of the dishonesty of someone else. Penalties imposed should be carefully determined so as to be no more or no less than required to maintain the desired atmosphere. In defining violation of this code the intent is to protect the integrity of the educational process.

II. **Academic Misconduct**

Academic misconduct is conduct by which a student misrepresents his or her academic accomplishments or impedes other students' chances of being judged fairly for their academic work. Knowingly allowing others to represent your work as theirs is as serious an offense as submitting another's work as your own.

III. **Violations of this Code**

Violations of this code are acts that constitute an attempt to be dishonest or deceptive in the performance of academic work in or out of the classroom. To alter academic records, or to collaborate with another student or students is an act of academic misconduct. Violations include but are not limited to:

A. Cheating on examinations. Any attempt by a student to alter his or her performance on an examination in violation of that examination's stated or commonly understood ground rules.

B. Plagiarism. Any attempt by a student to represent the work of another as his or her own. Plagiarism includes each of the following: copying the answers of another student on an examination, copying or substantially restating the work of another person or persons in any oral or written work without citing the appropriate source, and collaboration with someone else in an academic endeavor without acknowledging his or her contribution (see above for a more detailed definition of plagiarism).

C. Misrepresentation or falsification of data presented for surveys, experiments, etc.

D. Theft of an examination. Stealing or otherwise discovering and/or making known to others the contents of an examination that has not yet been administered.

E. Unauthorized conversation is not allowed during examinations. Any unauthorized conversation may be considered prima facie evidence of cheating.

F. Knowingly allowing another student to represent your work as his or her own.

G. Forgery, alteration, or knowing misuse of graded examinations, grade lists, or official University records or documents, including but not limited to transcripts, letters of recommendation, degree certificates, alteration of examinations or other work after submission.

H. Theft or destruction of examinations or papers after submission including purposefully altering possible poor performance.

I. Submitting the same work in more than one course without the consent of the instructors involved.

J. Altering or destroying another student's work or records, altering records of any kind, removing materials from libraries or offices without consent, or in any way interfering with the work of others so as to impede their academic performance.

K. Failure to comply with the sanctions imposed under the authority of this code.

File: Who's Who: Roles and Responsibilities

Who's Who: Roles and Responsibilities

You will meet many BU people in this course and program. Some of these people you will meet online, and some you will communicate with by email and telephone. There are many people behind the scenes too, including instructional designers, faculty who assist with course preparation, and video and animation specialists.

People in your online course in addition to your fellow students

Your Facilitator. Our classes are divided into small groups, and each group has its own facilitator. We carefully select and train our facilitators for their expertise in the subject matter and their excellence in teaching. Your facilitator is responsible for stimulating discussions in pedagogically useful areas, for answering your questions, and for grading exercises, discussions, term projects, and any manually graded quiz or final exam questions. If you ask your facilitator a question by email, you should get a response within 24 hours, and usually faster.

Your Professor. The professor for your course has primary responsibility for the course. If you have any questions that your facilitator doesn't answer quickly and to your satisfaction, then send your professor an email in the course, with a cc to your facilitator so that your facilitator is aware of your question and your professor's response.

Your Manager of Student Services, Jen Sullivan. Jen is here to ensure you have a positive online experience. You will receive emails and announcements from Jen throughout the semester. Jen represents Boston University's university services and works for the Office of Distance Education. She prepares students for milestones such as course launch, final exams, and course evaluations. She is a resource to both students and faculty. For example, Jen can direct your university questions and concerns to the appropriate party. She also handles general questions regarding Vista functionality for students, faculty, and facilitators, but she does not provide tech support. She is enrolled in all classes and can be contacted within the course as it is running. You can also contact her by external email at jensul@bu.edu or call toll free at 1-888-524-2200.

People not in your online course

Although you will not normally encounter the following people in your online course, they are central to the program. You may receive emails or phone calls from them, and you should feel free to contact them.

Your Academic Advisor, Professor Anatoly Temkin. Dr. Temkin is the academic advisor for both on-campus and online students. Professor Temkin advises students on appropriate courses and programs. He also makes decisions on petitions for course waivers and transfer of credits for courses taken at other institutions. You can reach Professor Temkin at temkin@bu.edu or at (617) 358-2566.

Your Online Coordinator, Chris Hutchison-Jones. Chris administers the academic aspects of the program, including admissions and registration. You can ask Chris questions about the program, registration, course offerings, graduation, or any other program-related topic. Chris can be reached at

crhj@bu.edu or (617) 353-2565.

Your Computer Science Department Program Coordinator, Camille Kardoose. Camille is responsible for administering most aspects of the Computer Science Department, and she can help you with most matters. You can reach Camille at cgkardoo@bu.edu or (617) 353-2566.

Your Online Faculty Coordinator, Robert Schudy. Professor Schudy is responsible for the MSCIS online program. Feel free to contact Dr. Schudy at rschudy@bu.edu or (617)358-0009.

Professor Lubomir T. Chitkushev, PhD Chairman, Computer Science Department, Boston University Metropolitan College. Dr. Chitkushev is responsible for the Computer Science Department as a whole, including the MSCIS program. Contact Professor Chitkushev with any issues that you feel have not been addressed adequately. The customary issue escalation sequence after your course facilitator and course faculty is Professor Schudy and/or Professor Temkin, and then Professor Chitkushev.

Professor Tanya Zlateva, Metropolitan College Associate Dean for Academic Affairs. Dr. Zlateva is an Associate Professor in the Computer Science Department, our former chairman, and now the academic dean for the College. She is responsible for academic quality and other academic affairs throughout Metropolitan College.

File: Registration Information and Important Dates

Registration Information and Important Dates

Go to www.bu.edu/online/online_course_schedule/important_dates to view the drop dates for your course.

Go to www.bu.edu/studentlink to withdraw or to drop your course.

- If you are dropping down to zero credits for a semester you will need to contact your college or academic department.
- Non-participation in your online course does not constitute a withdrawal from the class.

*Registration fee non-refundable

File: Netiquette

Netiquette

If you've been with us in the online graduate program for a while, you're probably pretty comfortable in this environment. But for those who are new or who may just want a refresher, here are some rules for communicating online which will help us all have a pleasant and rewarding online experience:

1. **Think of your discussion posts** as though they were going to be printed in a newspaper. Thinking of your posting this way should reminds us not to write anything that might embarrass us or anyone else in the class. If you make a mistake and wish that you could take a post back just send an email to your facilitator and the Professor, who can delete even graded posts.
2. **Feelings are helpful, but avoid negativity**. Our feelings, including our angst when we don't understand something, our elation when someone else appreciates what we have written, and our

sense of satisfaction when we know that we have helped someone else, all help us learn. It's part of being human. Unfortunately another part of being human is the temptation to lash out against someone with whom we disagree. Angry words thrown at someone through the air are gone in a moment, and the apology afterwards can even help the relationship, but angry words thrown around in computer discussion threads or emails hang around forever to haunt us. Disagreement in discussions helps us gain other people's insights and perspective and is critical to learning many of the finer points, so don't hesitate to share your insights and opinions, even if they are very different than your classmates, but always be respectful, particularly in communications with others who may not agree with you.

3. **Remember the golden rule.** Imagine that you are the recipient of your post or email, and write what you would like to receive if you were in the recipient's position.
4. **Don't type in all caps**. This is impolite, like shouting in an intimate setting.
5. **Don't disrupt discussion with unrelated comments**. Wait until the discussion is over to change the topic.
6. **Use the "Water Cooler" for posts that are social or outside the discussion category.** The Water Cooler is helpful for building community, but students are not required to read Water Cooler posts. Putting your general posts in the Water Cooler helps your classmates who are pressed for time and also improves the continuity of the discussion threads.
7. **Be kind to people who may not have broadband connections.** Don't incorporate large graphics, videos or images into graded discussions unless this is necessary. Images in the "Introductions" posts help us build community, so they are encouraged, but these are not graded, so people can skip them if they need to. If you are citing something large from an outside source in a public area like a discussion forum, provide a web address or link and steer others to what you wish them to see.
8. **Think twice before posting to course-level discussions.** Different discussion topics have very different size audiences. The group discussions are visible to you, your group mates, your facilitator, your professor, and student services—about fifteen people. Course level discussions are visible to the entire class, which may include one hundred or more students, ten or more facilitators, your professor, and student services. Think of addressing an audience of 100 when you are posting to the course-level discussions.

With your participation and cooperation, we're sure to have some lively, exciting discussions in this course.

File: Course Technical Support

Course Technical Support

Technical Support

Assistance with Vista-related technical problems is provided by the Vista Support staff. To ensure the fastest possible response, please fill out the online form using the link below.

Form www.bu.edu/help/vista
Phone (888) 243-4596

Support via email and phone is available Monday through Friday from **9 AM to 5 PM** Eastern Time; additional support hours are provided during exam periods and will be posted on the Vista home page.

In addition, answers to many common questions and solutions to most problems are found in our

database of Frequently Asked Questions.

If you are having issues uploading a document to Vista, please consult the following link prior to contacting Tech Support: How to Upload a File

After-hours Support

Vista use and setup issues can be obtained by contacting Blackboard Support at **(800) 806-7396.** Contact Vista Support staff for assistance with technical problems that relate directly to the Vista system.

Examples include:

- Problems viewing or listening to sound or video files.
- Problems accessing Vista's internal email.
- Problems viewing or posting comments in the Vista
- Problems attaching or uploading files within Vista

Web Resources

To view certain media elements in this course you will need to have several browser plug-ins such as Shockwave, Flash, and Adobe Acrobat on your computer. See your Course Resources page for specific software requirements for use in this course.

To ensure you are using the most recent version of each plug-in you require click the hyperlink below for a description of technology requirements necessary to complete this course. Technology Requirements

Browser Plug-Ins

To view certain media elements in this course you will need to have several browser plug-ins such as Java, RealPlayer, Shockwave, Flash, and Adobe Acrobat on your computer. Use the links in the Syllabus Course Resources page for specific software requirements for use in this course and to download and install the appropriate software application.

Print