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Course Description

MET CS669
Database Design and Implementation for Business
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, SQL Server, 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 SQL Server. Students learn the basics of database programming, and write simple stored procedures and triggers.

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 Management and Business Intelligence. 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 page icons in the top right corner of the learning modules.

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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 Transact-SQL
• 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.

Instructor

Warren Mansur

Computer Science Department
Hello,

My name is Warren Mansur, and I am your instructor. I welcome the opportunity to teach and interact with all of you. One of my goals in this course is to show you how exciting database design and implementation is, and how important it is for business today. I am passionate about teaching, and look forward to interacting with you in the many ways supported by this course.

I received my master's degree in computer science from Boston University, and my master's thesis was in the area of relational database design patterns. Since 2005, I have been heavily involved both with teaching and course development in Boston University's online MSCIS program. I have worked as an enterprise database and software architect and developer for 14 years with several organizations, including Lockheed Martin, Hewlett Packard, and the New York State Court System.

The best way to reach me outside of our many Live Classroom sessions is to email me within the course itself. If the course email is not available when you want to contact me, you can contact me at my main BU email address. I normally pick up my course and regular email many times per day.

Initial Course Developers

Dr. Robert Schudy
Dr. Schudy made significant contributions to all aspects of this course over many years. He has been practicing advanced database management in industry and teaching database classes in industry and at BU for years. His 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. He received a Ph.D. in Computer Science from the University of Rochester. He has conducted research and developed systems at Hewlett Packard Laboratories, and Bolt Beranek and Newman. He has served as chief scientist for startups and have architected designed and managed the development of many computer systems.

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 Ph.D. 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.

Study Guide

Module 1 Study Guide and Deliverables

<table>
<thead>
<tr>
<th>Concept</th>
<th>Coronel &amp; Morris, chapters 1 and 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Readings:</td>
<td></td>
</tr>
<tr>
<td>SQL Readings:</td>
<td>Coronel &amp; Morris, sections 7.1 through 7.4 of chapter 7</td>
</tr>
<tr>
<td>Assignments:</td>
<td>Concepts Assignment 1, SQL Lab 1, and Term Project Iteration 1 due Tuesday, May 17 at 6:00 AM ET</td>
</tr>
</tbody>
</table>

https://onlinecampus.bu.edu/bbcswedav/pid-4095833-dt-content-rid-13959318_1/courses/16sum1/metcs689sol/syllabus/allpages.htm
### Term Project
- Read the term project specification
- Decide if you are doing the default or student-defined term project and submit your decision in Assignment 1.3
- Quiz 1 due Tuesday, May 17 at 6:00 AM ET

## Module 2 Study Guide and Deliverables

<table>
<thead>
<tr>
<th>Concept</th>
<th>Coronel &amp; Morris, chapters 3 and 4</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Readings:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SQL Readings:</strong></td>
<td>Coronel &amp; Morris, sections 7.5 through 7.7 of chapter 7, section 8.1 of chapter 8</td>
</tr>
<tr>
<td><strong>Assignments:</strong></td>
<td>Concepts Assignment 2, SQL Lab 2, and Term Project Iteration 2 due Tuesday, May 24 at 6:00 AM ET</td>
</tr>
<tr>
<td><strong>Term Project</strong></td>
<td>Submit a conceptual entity-relationship diagram for your Term Project</td>
</tr>
<tr>
<td><strong>Milestones:</strong></td>
<td>(Assignment 2.3)</td>
</tr>
<tr>
<td><strong>Assessments:</strong></td>
<td>Quiz 2 due Tuesday, May 24 at 6:00 AM ET</td>
</tr>
</tbody>
</table>

## Module 3 Study Guide and Deliverables

<table>
<thead>
<tr>
<th>Concept</th>
<th>Coronel &amp; Morris, chapters 5 and 6</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Readings:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>SQL Readings:</strong></td>
<td>Coronel &amp; Morris, section 8.3 and 8.4 of chapter 8. Note that section 8.2 will be read in module 5</td>
</tr>
<tr>
<td><strong>Assignments:</strong></td>
<td>Concepts Assignment 3, SQL Lab 3, and Term Project Iteration 3 due Tuesday, May 31 at 6:00 AM ET</td>
</tr>
<tr>
<td><strong>Term Project</strong></td>
<td>Submit a normalized, logical entity-relationship diagram for your term project</td>
</tr>
<tr>
<td><strong>Milestones:</strong></td>
<td>database (Assignment 3.2)</td>
</tr>
<tr>
<td><strong>Assessments:</strong></td>
<td>Quiz 3 due Tuesday, May 31 at 6:00 AM ET</td>
</tr>
</tbody>
</table>

## Module 4 Study Guide and Deliverables

<table>
<thead>
<tr>
<th>Concept</th>
<th>Coronel &amp; Morris, chapters 9 and 10</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Readings:</strong></td>
<td></td>
</tr>
</tbody>
</table>
Module 5 Study Guide and Deliverables

Concept: Coronel & Morris, sections 11.1 to 11.7 of chapter 11, and chapter 12
Readings:

SQL: Coronel & Morris, section 8.2 of chapter 8
Readings:

Assignments: Concepts Assignment 5, SQL Lab 5, and Term Project Iteration 5 due Tuesday, June 14 at 6:00 AM ET

Term Project: This week you will provide the tables, data, and SQL which address an iterative subset of the situations in the Term Project description.
Milestones:

Assessments: Quiz 5 due Tuesday, June 14 at 6:00 AM ET

Module 6 Study Guide and Deliverables

Concept: Coronel & Morris, chapter 13, sections 14.1 and 14.2 of chapter 14, sections 15.1, 15.2, 15.3, 15.4, 15.5, 15.6, and 15.7.1 of chapter 15
Readings:

SQL: There are no SQL readings this week
Readings:

Assignments: There are no assignments

Term Project: Your final term project submission is due Tuesday, June 21 at 6:00 AM ET. Please be sure include all items mentioned in the "Deliverables" page in the Term Project document.
Milestones:

Assessments: Quiz 6 due Tuesday, June 21 at 6:00 AM ET
The Final Exam is a proctored exam available from June 22 at 8:00 AM ET to June 25 at 11:59 PM ET. The Computer Science department requires that all final exams be proctored.

The exam is a three-hour, closed-book exam. It will be accessible during the final exam period. You can 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.

Access to the online discussions and chat feature (but not the module contents), ends on June 21 at 8:00 AM ET and will be unavailable until June 26. Please plan accordingly.

You will receive a technical support hotline number before the start of the exam. Please bring this number with you to the exam.

Course Resources

Required Textbook


This textbook can be purchased from Barnes & Noble at Boston University (http://bu.bncollege.com/).

Required Software: Oracle or Microsoft SQL Server

You will need either Oracle or Microsoft SQL Server to complete the database assignments and the Term Project. Oracle is the default choice, so if you elect to use Microsoft SQL Server, please inform the professor at least a week before class opens, so that you can be assigned to an appropriate facilitator skilled in SQL Server. The best way for most students to access Oracle is to download it from the Oracle web site. The best way for most students to access SQL Server is to download the most recent release from Microsoft DreamSpark for Academic Institutions. Please be sure to follow the instructions in the appropriate install guide listed below, because database installs are more complex than typical application installs.

Installation
Use the links below to download a PDF with the most recent version of the detailed instructions:

- **Oracle Installation and Configuration Instructions**
  (`/documents/OracleInstallationGuideV33.pdf`)
- **Installing SQL Server** (`/documents/SQLServerInstallationGuideV4.pdf`)

**Asking for Help:** Database management systems are more deeply integrated with the operating system than ordinary applications. 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 experience difficulties installing your database, you may opt to install the Express edition of Oracle or SQL Server, because we use the core database engine in this course. Consider emailing your facilitator as well, so that he or she knows what difficulties you are experiencing. Do not put off the installation of Oracle or SQL Server, because we will need time to help you work through any difficulties that you encounter.

**Database Specific, Supplemental Books**

The following database-specific books are not required to successfully complete the course, and no assignments or quiz materials are drawn from them. However, some individuals find that the contents of these books provides them with additional assistance when using their respective database. If you opt to purchase one of these books, you would want to only purchase the one corresponding to your choice of database.


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.


Students have the option to use Microsoft SQL Server for the assignments, exercises, and term project in this class. This book explains well the SQL programming constructs used in Microsoft SQL Server. You do not have to purchase this text for the course and there are no assignments from this text. This book is listed here in case you would like additional assistance programming in SQL using Microsoft SQL Server.

**Recommended Software: Microsoft Visio Pro**

In this class we will demonstrate the use of Microsoft Visio Pro to create entity-relationship diagrams. You can obtain Visio Pro free of charge from the Microsoft DreamSpark for Academic Institutions program, to which the college subscribes. Many students use Microsoft Visio to create their diagrams, but you are not required to do so. Any capable database diagramming application will suffice. If you do not have a Windows platform, you may instead want to use [http://lucidchart.com](http://lucidchart.com), which allows you to create a free account and draw the same diagrams as in Visio.

**Supplemental Live Sessions**

In this class there will be Supplemental Live Sessions every week. Live Sessions provide you with an opportunity to listen to the course instructor or lead facilitator, and to ask questions in real-time. In many cases, the Live Sessions also provide you with step-by-step demonstrations of diagramming database designs, or writing specific kinds of SQL. The Live Sessions 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. All Live Sessions are recorded so that you will not miss a session if you are not able to attend.

I look forward to talking with you, discussing the material, and answering your questions, and encourage you to attend as many supplemental live sessions as you are able, to assist in your learning.

**Live Classroom Instructions and Procedures**

Complete instructions and procedures, as well as description of features and tools, go to the "Live Classroom/Offices" link in the left-hand menu.

**Live Offices**
This course includes a “Live Office” for each facilitator, one for the course instructor, 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. If you plan to take advantage of Live Office sessions, I recommend that you purchase a headset designed to plug into the audio jacks or USB port on your computer. This will give you the ability to talk directly with your facilitator. 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 may alternately telephone into the Live Classroom as you would to a conference call.

Boston University Library Information

Boston University has created a set of videos to help orient you to the online resources at your disposal. An introduction to the series is below:

met_ode_library_14_sp1_00_intro is displayed here

Download
(http://www.bu.edu/av/disted/training/library/downloadable/met_ode_library_14_sp1_00_intro.mp4)

All of the videos in the series are available on the Online Library Resources (https://onlinecampus.bu.edu/bbcswebdav/courses/00cwr_odeelelments/library/library_videos/ode_elements_library.html) page, which is also accessible from the Campus Bookmarks section of your Online Campus Dashboard. Please feel free to make use of them.

As Boston University students, you have full access to the BU Library. From any computer, you can gain access to anything at the library that is electronically formatted. To connect to the library, use the link http://www.bu.edu/library (http://www.bu.edu/library/). You may use 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 password.

Once in the library system, you can use the links under “Resources” and “Collections” to find databases, eJournals, and eBooks, as well as search the library by subject. Some other useful links follow:

Go to http://www.bu.edu/library/research/collections (http://www.bu.edu/library/research/collections/) to access eBooks and eJournals directly.

If you have questions about library resources, go to http://www.bu.edu/library/help/ask-a-librarian (http://www.bu.edu/library/help/ask-a-librarian) to email the library or use the live-chat feature.

To locate course eReserves, go to http://www.bu.edu/library/services/reserves
Please note that you are not to post attachments of the required or other readings in the water cooler or other areas of the course, as it is an infringement on copyright laws and department policy. All students have access to the library system and will need to develop research skills that include how to find articles through library systems and databases.

**Free Tutoring Service**

Free online tutoring with SMARTHINKING is available to BU online students for the duration of their courses. The tutors do not rewrite assignments, but instead teach students how to improve their skills in the following areas: writing, math, sciences, business, ESL, and Word/Excel/PowerPoint. You can log in directly to SMARTHINKING from Online Campus by using the link in the left-hand navigation menu of your course.

YouTube ([https://www.youtube.com/watch?v=wpvWPhstQM](https://www.youtube.com/watch?v=wpvWPhstQM))

**Please Note**

The SMARTHINKING service can be used for Boston University online class work only. Use of this service for personal purposes or for anything other than Boston University online class work will result in deactivation of your SMARTHINKING account.
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 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 you integrate everything that you learn in the course, and apply that learning to the development of a significant database system. 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.

Grade Weighting

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.

<table>
<thead>
<tr>
<th>Deliverable</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Concepts Assignments</td>
<td>15%</td>
</tr>
<tr>
<td>SQL Labs</td>
<td>15%</td>
</tr>
<tr>
<td>Quizzes</td>
<td>20%</td>
</tr>
<tr>
<td>Term Project</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>30%</td>
</tr>
</tbody>
</table>

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 you are stuck, and just can’t complete part of an assignment, send what you have completed to your facilitator via Online Campus email, asking for help. Your facilitator can then provide you with guidance in the areas where you are stuck, and return the partial assignment to you for further work. Occasionally your facilitator may opt to give you a chance to resubmit an assignment, particularly if you are struggling. The second submission will be graded fairly, and the facilitator may choose to deduct from your score any portion of the solution provided by the facilitator.

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 module quizzes. When you finish a review quiz you will see the questions, your answer, the correct answers and tutorial material for each question, as well as grading rubrics for paragraph questions and references in the text. The review quizzes do not count in your grade. You can take the review quizzes at any time, as many times as you want. 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

Your final exam will be offered in the last week of the course. You will have three hours to complete it; there should be plenty of time. Your final exam will be proctored and you may use remote proctoring to take it at home, work, or elsewhere. If you live near to BU you may take it on campus as well. The intent of the final exam is to evaluate your mastery of the course material, so that if you learn the course material well, you will do well on the final exam. Note that your overall final exam score will be released to you, but the questions and answers will not be released. This is to maintain the integrity of the final exam for concurrent and future online and on-campus runnings of this course.

The Term Project
For the term project, you will design and implement a database schema, and write SQL that uses the schema you create. Additional details in the Term Project inbox in the Assignments area of the course. Satisfactory completion of the Term Project is required to pass the course, and *failure to complete the Term Project will result in an F for the course.*

## Grading Structure

Your assignments, 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.

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Approximate percentage grade range</th>
<th>Grade Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>95–100</td>
<td>4.0</td>
</tr>
<tr>
<td>A−</td>
<td>90–94.9</td>
<td>3.7</td>
</tr>
<tr>
<td>B+</td>
<td>87–89.9</td>
<td>3.3</td>
</tr>
<tr>
<td>B</td>
<td>83–86.9</td>
<td>3.0</td>
</tr>
<tr>
<td>B−</td>
<td>80–82.9</td>
<td>2.7</td>
</tr>
<tr>
<td>C+</td>
<td>77–79.9</td>
<td>2.3</td>
</tr>
<tr>
<td>C</td>
<td>73–76.9</td>
<td>2.0</td>
</tr>
<tr>
<td>C−</td>
<td>70–72.9</td>
<td>1.7</td>
</tr>
<tr>
<td>D</td>
<td>60–69.9</td>
<td>1.0</td>
</tr>
<tr>
<td>F</td>
<td>0–59.9</td>
<td>0</td>
</tr>
</tbody>
</table>

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](http://www.bu.edu/met/for-students/met-policies-procedures-resources/grading/).

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, 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.

**Lateness**

We recognize that emergencies and unexpected but significant extensions in work hours occur in professional and personal lives. If one occurs that prevents your completion of a course item by a deadline, please make this plain to your facilitator. This must be done in advance of the deadline (unless it is an emergency that makes this impossible, of course), and should be accompanied by particulars that back it up. Additional documentation may be requested. Twenty points will otherwise be deducted for late submissions: we want to be fair to everyone in this process, including the vast majority of you who sacrifice so much to submit your homework on time in this demanding schedule.

### Concepts Assignment Grading Rubric

All assignment submissions are evaluated on the quality of the original content, and on how well the content is expressed.

Your facilitator will grade your assignment submissions with the grading rubric below. When mapping the letter grade to a corresponding number grade, your facilitator will use the following letter-to-number mappings:

<table>
<thead>
<tr>
<th>Grade</th>
<th>A+</th>
<th>A</th>
<th>A-</th>
<th>B+</th>
<th>B</th>
<th>B-</th>
<th>C+</th>
<th>C</th>
<th>C-</th>
<th>D</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Value</td>
<td>100</td>
<td>96</td>
<td>92</td>
<td>88</td>
<td>85</td>
<td>82</td>
<td>78</td>
<td>75</td>
<td>72</td>
<td>67</td>
<td>0</td>
</tr>
</tbody>
</table>

To avoid subjectivity and to maintain consistency across facilitator groups, facilitators will use only the letter to number mappings given above, and will not attempt to further distinguish the number grade. For example, if you receive an A for both criteria, then your assignment grade will be a 96, and facilitators will not attempt to distinguish between a 97, 96, or 95. If you receive an A- for both criteria, your assignment grade will be a 92, and facilitators will not attempt to distinguish between a 93, 92, or 91.
<table>
<thead>
<tr>
<th>Grade</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>The content demonstrates exceptional understanding of all relevant subject matter and its inter-relationships. All major relevant issues are thoroughly covered, and all content is very focused and on-topic. There is no known way to improve the content, and there are absolutely no technical or coverage errors present.</td>
</tr>
<tr>
<td>A</td>
<td>The content demonstrates exceptional understanding of all relevant subject matter and its inter-relationships. All major relevant issues are covered, and all content is on-topic.</td>
</tr>
<tr>
<td>A⁻</td>
<td>The content demonstrates deep understanding of all relevant subject matter and its inter-relationships. All major relevant issues are covered, and the content is at least reasonably on-topic.</td>
</tr>
<tr>
<td>B⁺</td>
<td>The content demonstrates understanding of all relevant subject matter and its inter-relationships. Almost all major relevant issues are covered, and all content is at least reasonably on-topic.</td>
</tr>
<tr>
<td>B</td>
<td>The content demonstrates understanding of most relevant subject matter and its inter-relationships. Almost all major relevant issues are covered, and all content is at least reasonably on-topic.</td>
</tr>
<tr>
<td>B⁻</td>
<td>The content demonstrates moderate understanding of much relevant subject matter and its inter-relationships. There is reasonable coverage of major relevant issues, and the content is at least reasonably on-topic.</td>
</tr>
<tr>
<td>C⁺</td>
<td>The content demonstrates some understanding of relevant subject matter and its inter-relationships. Some major relevant issues are covered, and at least some content is on-topic.</td>
</tr>
<tr>
<td>C</td>
<td>The content demonstrates understanding of a small portion of the relevant subject matter and its inter-relationships. Some major relevant issues are covered, and at least a small portion of the content is on-topic.</td>
</tr>
<tr>
<td>C⁻</td>
<td>The content demonstrates little understanding of and insight into the relevant subject matter and its inter-relationships. A small portion of the major relevant issues are covered. The focus of the content may be off</td>
</tr>
<tr>
<td>Grade</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>D</td>
<td>The content demonstrates almost no understanding of or insight into the relevant subject matter and its inter-relationships. Almost none of the major relevant issues are covered, and the content may be almost entirely off-topic.</td>
</tr>
<tr>
<td>F</td>
<td>The content demonstrates no understanding of or insight into the relevant subject matter and its inter-relationships. No major relevant issues are covered, and the content is entirely off-topic.</td>
</tr>
<tr>
<td>A+</td>
<td>The presentation of all ideas and designs is exceptionally clear and persuasive; the entire submission is exceptionally organized. There is no known way to improve the clarity or organization of the submission.</td>
</tr>
<tr>
<td>A</td>
<td>The presentation of all ideas and designs is exceptionally clear and persuasive; the entire submission is exceptionally organized. There may be at most one insignificant way to improve the clarity or organization of the submission.</td>
</tr>
<tr>
<td>A−</td>
<td>The presentation of all ideas and designs is very clear and persuasive; the entire submission is very organized.</td>
</tr>
<tr>
<td>B+</td>
<td>The presentation of all ideas and designs is clear and persuasive; the entire submission is organized.</td>
</tr>
<tr>
<td>B</td>
<td>The presentation of most ideas and designs is clear and persuasive; most of the submission is organized.</td>
</tr>
<tr>
<td>B−</td>
<td>The presentation of most ideas and designs is generally clear; most of the submission is reasonably organized.</td>
</tr>
<tr>
<td>C+</td>
<td>Some parts of the submission are hard to understand; some parts are disorganized.</td>
</tr>
<tr>
<td>C</td>
<td>About half of the submission is hard to understand; about half is disorganized.</td>
</tr>
<tr>
<td>C−</td>
<td>Most parts of the submission are hard to understand; most parts are disorganized.</td>
</tr>
<tr>
<td>Grade</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>D</td>
<td>Almost all of the submission is hard to understand and disorganized.</td>
</tr>
<tr>
<td>F</td>
<td>The entire submission is hard to understand and disorganized.</td>
</tr>
</tbody>
</table>

**Lab Grading Rubric**

Your lab submissions will be evaluated according to the rubric given below. All lab submissions are evaluated on the completeness and correctness of the results and explanations, as well as the quality of the constitution of the SQL constructs used. When mapping the letter grade to a corresponding number grade, your facilitator will use the same letter to number mappings as for assignments:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>100</td>
</tr>
<tr>
<td>A</td>
<td>96</td>
</tr>
<tr>
<td>A−</td>
<td>92</td>
</tr>
<tr>
<td>B+</td>
<td>88</td>
</tr>
<tr>
<td>B</td>
<td>85</td>
</tr>
<tr>
<td>B−</td>
<td>82</td>
</tr>
<tr>
<td>C+</td>
<td>78</td>
</tr>
<tr>
<td>C</td>
<td>75</td>
</tr>
<tr>
<td>C−</td>
<td>72</td>
</tr>
<tr>
<td>D</td>
<td>67</td>
</tr>
<tr>
<td>F</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>Qualities Demonstrated by the Lab Submission</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>The results and explanations are entirely complete and correct for all steps. There are absolutely no technical or other errors present. There is no known way to improve the logic and makeup of any of the SQL constructs.</td>
</tr>
<tr>
<td>A</td>
<td>One insignificant technical or other error is present, but otherwise the results and explanations are entirely complete and correct for all steps. Excluding the insignificant error, there is no known way to improve the makeup of any of the SQL constructs.</td>
</tr>
<tr>
<td>A−</td>
<td>One or two consequential technical or other errors are present, but otherwise the results and explanations are entirely complete and correct for all steps. Excluding the one or two errors, there is no known way to improve the</td>
</tr>
<tr>
<td>Correctness, completeness, and constitution</td>
<td>Syllabus</td>
</tr>
<tr>
<td>--------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>A few steps have significantly incomplete or incorrect results or explanations. The results and explanations are complete and correct for the remainder of the steps. The logic and makeup of most SQL constructs are sound.</strong></td>
<td>B+</td>
</tr>
<tr>
<td><strong>A few steps have significantly incomplete or incorrect results or explanations. The results and explanations are mostly complete and correct for the remainder of the steps, with the exception of a few insignificant technical or other errors. The logic and makeup of most SQL constructs are sound.</strong></td>
<td>B-</td>
</tr>
<tr>
<td><strong>About ( \frac{1}{4} ) of the steps have significantly incomplete or incorrect results or explanations. The results and explanations are complete and correct for the remainder of the steps. The logic and makeup of at least ( \frac{3}{4} ) of the SQL constructs are sound.</strong></td>
<td>C+</td>
</tr>
<tr>
<td><strong>About ( \frac{1}{4} ) of the steps have significantly incomplete or incorrect results or explanations. The results and explanations are mostly complete and correct for the remainder of the steps, with the exception of a few insignificant technical or other errors. The logic and makeup of at least ( \frac{3}{4} ) of the SQL constructs are sound.</strong></td>
<td>C</td>
</tr>
<tr>
<td><strong>About half of the steps have significantly incomplete or incorrect results or explanations. The results and explanations are complete and correct for the remainder of the steps. The logic and makeup of at least half of the SQL constructs are sound.</strong></td>
<td>C-</td>
</tr>
<tr>
<td><strong>About half of the steps have significantly incomplete or incorrect results or explanations. The results and explanations are mostly complete and correct for the remainder of the steps, with the exception of a few insignificant technical or other errors. The logic and makeup of at least half of the SQL constructs are sound.</strong></td>
<td></td>
</tr>
</tbody>
</table>
About ⅓ of the steps have significantly incomplete or incorrect results or explanations. The results and explanations are complete and correct for the remainder of the steps. The logic and makeup of at least ⅔ of the SQL constructs are sound.

All or almost all of the steps have incomplete or incorrect results or explanations. The logic and makeup of all or almost all of the SQL constructs are unsound.

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

- All six quizzes have twenty questions. 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 Answers
To answer a multiple choice question, select the appropriate choice from the list below the question.

When you have completed your response, click “Save Answer” at the top of the question.

As you proceed through the exam, you can go back and edit previous responses that you saved.

A timer is displayed above the questions tracking the remaining time available.

You will see question number buttons above questions. You will need to click on “Question Completion Status” to see the question numbers. You can use these buttons to navigate from question to question at any time.

When you have completed all answers, go to the last question of the exam and click the “Save and Submit” button.

If a technical issue of any kind arises during the quiz requiring you to go beyond the time limit, complete the quiz answering the remaining questions and then contact your facilitator or instructor immediately.

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 question number, because question order is randomized. Your facilitator will examine your comments and determine whether a grade adjustment or other action is appropriate.

Other Questions

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

Technical Support

Assistance with course-related technical problems is provided by the IS&T Help Center. To ensure the fastest possible response, please fill out the online form using the link below.
Final Exam Overview

The Computer Science department requires that all exams be proctored. The exam is a three-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.

If you have any technical problems during the exam that prevent you from continuing or completing the exam, please have your proctor call the exam hotline immediately. You will receive this important phone number from Student Services before the exam.

Note
A page instructing how to schedule your proctored final exam will be visible by the third week of this course.

Format

- You will have three hours to complete the final exam. There is a clock in the upper right corner of the screen keeping time for the exam.

metcs669_finalexam is displayed here
Download
• 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

• To answer a multiple choice question, select the appropriate choice from the list below the question.
• When you have completed your response, click “Save Answer” at the top of the question.
• As you proceed through the exam, you can go back and edit previous responses that you saved.
• A timer is displayed above the questions tracking the remaining time available.
• You will see question number buttons above questions. You will need to click on “Question Completion Status” to see the question numbers. You can use these buttons to navigate from question to question at any time.
• When you have completed all answers, go to the last question of the exam and click the “Save and Submit” button.

### 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

Assistance with course-related technical problems is provided by the IS&T Help Center. To ensure the fastest possible response, please fill out the online form using the link below.

<table>
<thead>
<tr>
<th><strong>IT Help Center Support</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Email</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
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.”

The paragraphs above are from H. Martin and R. Ohmann, The Logic and Rhetoric of Exposition, Revised
Academic Conduct Code

I. Philosophy of Discipline
The objective of Boston University in enforcing academic rules is to promote a community atmosphere in
which learning can best take place. Such an 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 someone else’s dishonesty. Penalties should be carefully determined so as to be no
more and no less than required to maintain the desired atmosphere. In defining violations 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’ opportunities of being judged fairly for their academic work. Knowingly allowing
others to represent your work as their own is as serious an offense as submitting another’s work as your own.

III. Violations of this Code
Violations of this code comprise attempts to be dishonest or deceptive in the performance of academic work
in or out of the classroom, alterations of academic records, alterations of official data on paper or electronic
resumes, or unauthorized collaboration with another student or students. Violations include, but are not limited
to:

A. Cheating on examination. 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. Representing the work of another as one’s own. Plagiarism includes but is not limited to the
following: copying the answers of another student on an examination, copying or restating the work or ideas of
another person or persons in any oral or written work (printed or electronic) without citing the appropriate
source, and collaborating with someone else in an academic endeavor without acknowledging his or her
contribution. Plagiarism can consist of acts of commission-appropriating the words or ideas of another—or
omission failing to acknowledge/document/credit the source or creator of words or ideas (see below for a
detailed definition of plagiarism). It also includes colluding with someone else in an academic endeavor
without acknowledging his or her contribution, using audio or video footage that comes from another source
(including work done by another student) without permission and acknowledgement of that source.

C. Misrepresentation or falsification of data presented for surveys, experiments, reports, etc., which includes
but is not limited to: citing authors that do not exist; citing interviews that never took place, or field work that
was not completed.

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 communication during examinations. Any unauthorized communication may be considered
prima facie evidence of cheating.

F. **Knowingly allowing another student to represent your work as his or her own.** This includes providing a copy of your paper or laboratory report to another student without the explicit permission of the instructor(s).

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

H. **Theft or destruction of examinations or papers** after submission.

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

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. **Violation of the rules governing teamwork.** Unless the instructor of a course otherwise specifically provides instructions to the contrary, the following rules apply to teamwork: 1. No team member shall intentionally restrict or inhibit another team member's access to team meetings, team work-in-progress, or other team activities without the express authorization of the instructor. 2. All team members shall be held responsible for the content of all teamwork submitted for evaluation as if each team member had individually submitted the entire work product of their team as their own work.

L. **Failure to sit in a specifically assigned seat during examinations.**

M. **Conduct in a professional field assignment that violates the policies and regulations of the host school or agency.**

N. **Conduct in violation of public law occurring outside the University that directly affects the academic and professional status of the student, after civil authorities have imposed sanctions.**

O. ** Attempting improperly to influence the award of any credit, grade, or honor.**

P. **Intentionally making false statements to the Academic Conduct Committee or intentionally presenting false information to the Committee.**

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

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**Important Message on Final Exams**

Dear Boston University Computer Science Online Student,

As part of our ongoing efforts to maintain the high academic standard of all Boston University programs, including our online MSCIS degree program, the Computer Science Department at Boston University's Metropolitan College requires that each of the online courses includes a proctored final examination.

By requiring proctored finals, we are ensuring the excellence and fairness of our program. The final exam is administered online, and the access will be available at the exam sites.

Specific information regarding final-exam scheduling will be provided approximately two weeks into the course. This early notification is being given so that you will have enough time to plan for where you will take
the final exam.

I know that you recognize the value of your Boston University degree and that you will support the efforts of the University to maintain the highest standards in our online degree program.

Thank you very much for your support with this important issue.

Regards,

Professor Lou Chitkushev, Ph.D.

Associate Dean for Academic Affairs

Boston University Metropolitan College

Microsoft DreamSpark for Academic Institutions

Metropolitan College is a member of the Microsoft DreamSpark for Academic Institutions (formerly MSDNAA), a Microsoft program that supports technical education by providing access to Microsoft software for learning, teaching, and research purposes. Our membership allows faculty and students currently enrolled in MET courses to obtain certain Microsoft products free of charge. All MET students are granted access to download the software for the duration of their study at MET College.


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 homework assignments, 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. If you need a question answered urgently, post your question to one of the urgent help topics, where everyone can see it and answer it.
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.

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 Computer Science Department Online Program Coordinator, Adam Hartsock. Adam administers the academic aspects of the program, including admissions and registration. You can ask him questions about the program, registration, course offerings, graduation, or any other program-related topic. He can be reached at metcsol@bu.edu (mailto:metcsol@bu.edu) or (617) 353-2566.

Your Computer Science Department Program Manager, Kim Richards. Kim is responsible for administering most aspects of the Computer Science Department, and she can help you with most matters. You can reach Kim at kimrich@bu.edu (mailto:kimrich@bu.edu) or (617) 353-2566.

Professor Jae Young Lee, Program Advisor. Dr. Lee reviews requests for transfer credits and waivers and advises students on which courses to take to meet their career goals. Dr. Lee can be reached at jaeylee@bu.edu (mailto:jaeylee@bu.edu) or (617) 358-5165.

Professor Robert Schudy, Director of the MSCIS Online Program. Dr. Schudy is responsible for the MSCIS online program. Feel free to contact Dr. Schudy at rschudy@bu.edu (mailto:rschudy@bu.edu) or (617) 358-0009.

Professor Anatoly Temkin, Computer Science Department Chairman. Dr. Temkin makes final decisions on petitions for transfer credits for courses taken at other institutions. You can reach Professor Temkin at temkin@bu.edu (mailto:temkin@bu.edu) or at (617) 358-2566.

Professor Lou T. Chikutushev, Associate Dean for Academic Affairs, Metropolitan College. Dr. Chikutushev is responsible for the academic programs of Metropolitan College. Contact Professor Chikutushev 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, then Professor Temkin, and then Professor Chikutushev.

Professor Tanya Zlateva, Metropolitan College Dean ad interim. Dr. Zlateva is responsible for the quality of all the academic programs at Boston University Metropolitan College.

Disability Services

In accordance with University policy, every effort will be made to accommodate unique and special needs of students with respect to speech, hearing, vision, or other disabilities. Any student who feels he or she may
need an accommodation for a documented disability should contact the Office of Disability Services (http://www.bu.edu/disability) at (617) 353-3658 or at access@bu.edu (mailto:access@bu.edu) for review and approval of accommodation requests.

# Netiquette

The Office of Distance Education has produced a netiquette guide to help you understand the potential impact of your communication style.

Before posting to any discussion forum, sending email, or participating in any course or public area, please consider the following:

## Ask Yourself...

- How would I say this in a face-to-face classroom or if writing for a newspaper, public blog, or wiki?
- How would I feel if I were the reader?
- How might my comment impact others?
- Am I being respectful?
- Is this the appropriate area or forum to post what I have to say?

## Writing

When you are writing, please follow these rules:

- **Stay polite and positive in your communications.** You can and should disagree and participate in discussions with vigor; however, when able, be constructive with your comments.
- **Proofread your comments before you post them.** Remember that your comments are permanent.
- **Pay attention to your tone.** Without the benefit of facial expressions and body language your intended tone or the meaning of the message can be misconstrued.
- **Be thoughtful and remember that classmates’ experience levels may vary.** You may want to include background information that is not obvious to all readers.
- **Stay on message.** When adding to existing messages, try to maintain the theme of the comments previously
posted. If you want to change the topic, simply start another thread rather than disrupt the current conversation.

- **When appropriate, cite sources.** When referencing the work or opinions of others, make sure to use correct citations.

## Reading

When you are reading your peers’ communication, consider the following:

- **Respect people’s privacy.** Don’t assume that information shared with you is public; your peers may not want personal information shared. Please check with them before sharing their information.
- **Be forgiving of other students’ and instructors’ mistakes.** There are many reasons for typos and misinterpretations. Be gracious and forgive other’s mistakes or privately point them out politely.
- **If a comment upsets or offends you, reread it and/or take some time before responding.**

### Important Note

Don’t hesitate to let your instructor or your faculty and student support administrator know if you feel others are inappropriately commenting in any forum.

All Boston University students are required to follow academic and behavioral conduct codes. Failure to comply with these conduct codes may result in disciplinary action.

## Registration Information and Important Dates

[View the drop dates for your course](http://www.bu.edu/online/online_course_schedule/important_dates/).

[Withdraw or drop your course](http://www.bu.edu/studentlink).

- If you are dropping down to zero credits for a semester, please contact your college or academic department.
- **Nonparticipation in your online course does not constitute a withdrawal from the class.**
- If you are unable to drop yourself on student link please contact your college or academic department.
  * The Student Services fee is nonrefundable.
**Technical Support**

**Experiencing issues with BU websites or Blackboard?**
It may be a system-wide problem. Check the BU Information Services & Technology (IS&T) news page (http://www.bu.edu/tech/news/) for announcements.

Boston University technical support is available via email (ithelp@bu.edu (mailto:ithelp@bu.edu)), the support form (http://www.bu.edu/help/tech/learn), and phone (888-243-4596). Please note that the IT Help Center has multiple locations. All locations can be reached through the previously mentioned methods. For IT Help Center hours of operation please visit their contact page (http://www.bu.edu/tech/contact/). For other times, you may still submit a support request via email, phone, or the support form, but your question won’t receive a response until the following day. If you aren’t calling, it is highly recommended that you submit your support request via the technical-support form as this provides the IS&T Help Center with the best information in order to resolve your issue as quickly as possible.

Examples of issues you might want to request support for include the following:

- Problems viewing or listening to sound or video files
- Problems accessing internal messages
- Problems viewing or posting comments
- Problems attaching or uploading files for assignments or discussions
- Problems accessing or submitting an assessment

To ensure the fastest possible response, please fill out the online form using the link below:

<table>
<thead>
<tr>
<th>IT Help Center Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>888-243-4596 or local 617-353-4357 or Web (<a href="http://www.bu.edu/help/tech/learn">http://www.bu.edu/help/tech/learn</a>)</td>
</tr>
<tr>
<td>Check your open tickets using BU’s ticketing system (<a href="http://bu.service-now.com/tech/">http://bu.service-now.com/tech/</a>).</td>
</tr>
</tbody>
</table>

**Navigating Courses**

For best results when navigating courses, it is recommended that you use the Mozilla Firefox (https://www.mozilla.org/firefox/) browser.

The Table of Contents may contain folders. These folders open and close (+ and − signs) and may conceal
some pages. To avoid missing content pages, you are advised to use the next- and previous-page buttons (and icons) in the top-right corner of the learning content.

Please also familiarize yourself with the navigation tools, as shown below; these allow you to show and hide both the Course Menu and the Table of Contents on the left. This will be helpful for freeing up screen space when moving through the weekly lecture materials.

Navigation tools for the Table of Contents are shown in the image below:

![Table of Contents](image)

Clicking on the space between the Course Menu and the Table of Contents allows you to show or hide the Course Menu on the left:

![Course Menu](image)

---

**Web Resources/Browser Plug-Ins**

To view certain media elements in this course, you will need to have several browser plug-in applications installed on your computer. See the Course Resources page in the syllabus of each individual course for other specific software requirements.

- Check your computer's compatibility by reviewing Blackboard's [System Requirements](http://www.bu.edu/tech/web/course-sites/blackboard-learn/)
- Check your browser settings with Blackboard's [Connection Test](http://www.bu.edu/tech/web/course-sites/blackboard-learn/start/connection-test/)
- Download most recent version of [Adobe Flash Player](http://get.adobe.com/flashplayer/)
- Download most recent version of [Adobe Acrobat Reader](http://get.adobe.com/reader/)

---

**How to Clear Your Browser Cache**
The IT Help Center recommends that you periodically clear your browser cache (http://www.bu.edu/tech/support/browsers/clear-cache) to ensure that you are viewing the most current content, particularly after course or system updates.

This page is also found within the "How to..." section of the online documentation (http://www.bu.edu/tech/web/course-sites/blackboard-learn/how-to/), which contains a list of some of the most common tasks in Blackboard Learn.