

Syllabus

This is a single, concatenated file, suitable for printing or saving as a PDF for offline viewing. Please note that some animations or images may not work.

Course Description

This [module](#) is also available as a concatenated page, suitable for printing or saving as a PDF for offline viewing.

MET CS581

Electronic Health Records

Electronic Health Records (EHRs) are application systems that automate the activities of healthcare clinicians including physicians, nurses, physician assistants, and healthcare administrative staff. Use of EHRs dramatically increased over the last ten years due to the systems' benefits, federal government programs to deploy EHRs, and changes in healthcare reimbursement models that necessitate use of EHRs. This increased use of EHRs has many challenges including complex data, high security requirements, integration to multiple application systems, a distributed user base, and broad impact on how these users work. This course will focus on real-world use and deployment of EHRs through readings, hands-on labs, projects and case studies.

Technical Notes

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.

This course requires you to access files such as word documents, PDFs, and/or media files. These files may open in your browser or be downloaded as files, depending on the settings of your browser.

Learning Objectives

Upon successful completion of this course you will:

- Learn the functionality of EHRs and other health information systems through lectures, readings and hands-on labs
- Learn the technical infrastructure required for EHRs including virtualization, cloud architecture, and security

- Understand how EHRs change healthcare delivery workflows and how to manage that change
- Learn best-practices for deploying and using EHRs including project management, budget, and system selection
- Learn about governmental regulation of EHRs
- Collect a set of tools to use in EHR and other enterprise system deployment programs
- Present results of your work in a "real-world" fashion including presentations and written assignments
- Be introduced to the applied, "real-world" deployment of enterprise application systems in general
- Practice independent, analytical thinking about the challenges of deploying EHRs and how to address them

Course Outline

Module 1 - Introduction to Electronic Health Records

- Lecture 1 - Introduction to Electronic Health Records
- Lecture 2 - Healthcare Workflow and Business Process Re-engineering

Module 2 - EHR Functionality and Government Regulation

- Lecture 3 - EHR and Hospital Information System Functionality
- Lecture 4 - Federal Government EHR Regulations

Module 3 - EHR Technical Infrastructure

- Lecture 5 - EHR Technical Infrastructure Design
- Lecture 6 - EHR Infrastructure Performance Requirements

Module 4 - EHR Security and Interoperability

- Lecture 7 - EHR Security and HIPAA
- Lecture 8 - Interoperability and Health Information Exchanges

Module 5 - EHR Deployment

- Lecture 9 - EHR Deployment Project Management
- Lecture 10 - EHR System Selection

Module 6 - EHR Financial Impact and Related Systems

- Lecture 11 - EHR Deployment Project Budgets and the Benefits of an EHR
- Lecture 12 - Beyond EHRs – Population Health, Personal Health Records (PHR), mHealth, and More

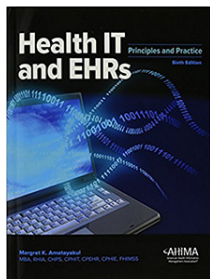
Module 7 - Prepare for and take the final exam

You will prepare for and take the 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 the time for a dialog in which we hope to learn from you how we can modify the course so that it better meets your needs.

Course Materials

Required Book



Amatayakul, M. K. (2013). *Electronic Health Records: A Practical Guide for Professionals and Organizations* (6th ed.). Chicago: American Health Information Management Association. ISBN 9781584265290.

This book can be purchased from [Barnes and Noble at Boston University](#).

Online Materials

The course makes extensive use of online reading material. URLs will be provided for those readings. Since the course covers a very dynamic topic, the professor tries to provide at least one recent reading each week.

Personal Computer Software

The course uses online materials and software. In addition quizzes will be done online as part of the class' homework using the course Blackboard site (see below). For the classroom version of the course, to facilitate in-class exercises, you should plan to bring a computer to all classes. If that is a problem, please let me know as soon as possible.

Assignments will need to be completed using Microsoft Office tools—Word, Excel, PowerPoint, and optionally Visio. You will also need access to a project management software. For the latter you should use either Microsoft Project or the freeware product [GanttProject](#). Here is a [CNET review](#) of the product.

BU MET College is a member of [Microsoft Imagine](#), which allows faculty, graduate and undergraduate students currently enrolled in MET courses to obtain certain Microsoft products free of charge.

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:

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All of the videos in the series are available on the [Online Library Resources](#) 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>. 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> to access eBooks and eJournals directly.

If you have questions about library resources, go to <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>.

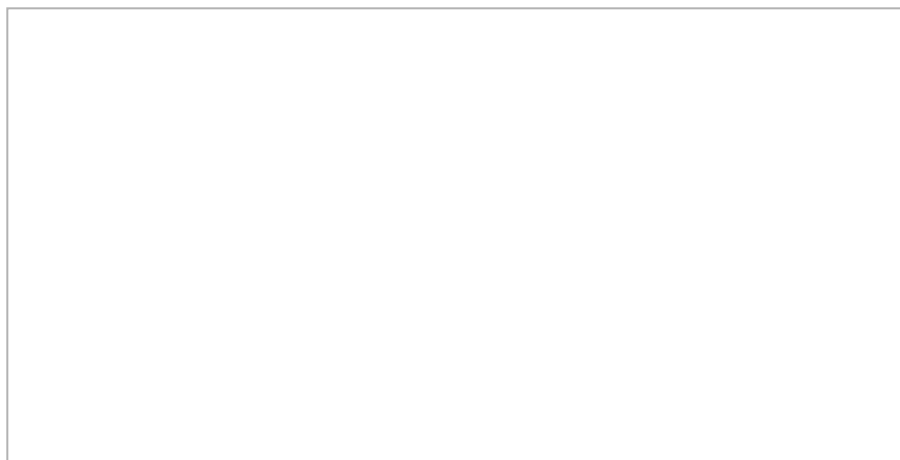
Please note that you are not to post attachments of the required or other readings in the water cooler or other areas of the course, as it is an infringement on copyright laws and department policy. All students have access to the library system and will need to develop research skills that include how 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](#)

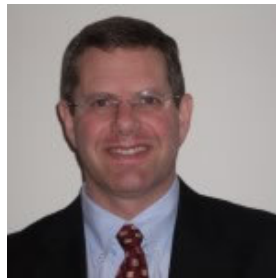
Please Note

SMARTHINKING may be used only for current Boston University online courses and career services. Use of this service for purposes other than current coursework or career services may result in deactivation of your SMARTHINKING account.

Instructor

Michael Levinger

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Michael Levinger is an adjunct faculty member of Boston University's MET College. He created CS581 in 2009 and has been teaching the course ever since. Michael is an information technology and healthcare IT senior executive and multi-time entrepreneur specializing in the successful creation, deployment and use of mission-critical software including Electronic Health Records and Health Information Technology. Mike is the Chief Operating Officer of Primaris Healthcare Business Solutions, a consulting and services company specializing in improving healthcare quality including through the use of healthcare information systems like electronic health records. Mike is an advisor

to the University of Missouri Medical School Healthcare Management and Informatics Department and an active member of several healthcare industry organizations. Previously, Mike was President and CEO of a Massachusetts-based electronic health record consulting and systems integration company. Under Mike's leadership, the company helped numerous physician practices and healthcare delivery organizations deploy EHRs.

Study Guide

Live Classroom Sessions

In the online version of the course, the instructor does two "live classrooms" each week. These interactive sessions allow students to engage with both the instructor and other students and get additional information and detail about the course materials.

Live Classrooms will be held on the following schedule:

- Thursday at 9 PM ET. – Review current week's material: discussion of key points, best approaches to assignment, examples, etc. The first Thursday Live Classroom will be on Thursday, January 25, 2018. Module 1 material will be covered during the Live Classroom on Saturday, January 20, 2018.
- Saturday at Noon ET. – Presentation and/or discussion on key points related to that week's work based on student requests/feedback, articles the professor sees, or "special lectures". The first Saturday Live Classroom will be on Saturday, January 20, 2018.

Students who make exceptional contributions to their classmates' learning in the Live Classroom sessions can earn extra credit.

In order to participate in these sessions, you will need to go to the Live Classrooms/Offices links.

Live Classrooms can be accessed off the course Blackboard site. In addition they are recorded and available on the site within a day or two after the session is held.

Weekly Office Hours

Once a week, one of the facilitators will be available to answer questions about that week's material, assignment, discussion question and quiz. This session is a free format session. Students can join for one, some, or all weeks.

Weekly Office Hours will be held Fridays at 9 PM ET starting Friday, January 19, 2018 through Friday, February 23, 2018.

Module 1 Study Guide and Deliverables

- Readings:**
- Amatayakul, Chapters 1, 5
 - [ONC Workflow Tools](#)
 - [HIMSS Davies Award Winner Virginia Women's Health Center Application](#)
 - [Review - AHRQ Toolkit on Workflow Assessment and Re-design](#)
 - Optional – [More Detail on Business Process Re-engineering](#)
 - Recent article – will be posted in the discussion forum

Assignments: Assignment 1 due Tuesday, January 23 at 6:00 AM ET

Assessments: Quiz 1 due Tuesday, January 23 at 6:00 AM ET

Discussions: For grading consideration, all posts to this discussion topic must be made prior to January 23 at 6:00 AM ET. Any posts after this date/time will not be included in the grading process.

Module 2 Study Guide and Deliverables

- Readings:**
- Amatayakul, Chapters 14 and 15, optional Chapter 16
 - [Overview of MACRA/MIPS quality program](#)
 - Review more specific information on [the Advancing Care Information component of MIPS](#)

- Recent article – will be posted in the discussion forum

Assignments: Assignment 2 due Tuesday, January 30 at 6:00 AM ET

Assessments: Quiz 2 due Tuesday, January 30 at 6:00 AM ET

Discussions: For grading consideration, all posts to this discussion topic must be made prior to January 30 at 6:00 AM ET. Any posts after this date/time will not be included in the grading process.

Module 3 Study Guide and Deliverables

- Readings:**
- OPTIONAL: If you do not have a technical background or if you want a refresher on technology, review Amatayakul, Chapter 11 pp. 325-344
 - Amatayakul, Chapter 11 pp. 344-356
 - [CIO Article on Beth Israel Network Outage](#)
 - [CIO Magazine Tutorial on Service Level Agreements](#)
 - Optional: [Wikipedia Article on Enterprise Architecture](#)
 - Optional: [VMWare on Healthcare Architectures](#)
 - Recent article – will be posted in the discussion forum

Assignments: Assignment 3 due Tuesday, February 6 at 6:00 AM ET.

Assignment 3 is a presentation which students will be asked to submit by the

due date but which they will NOT be asked to present.

Assessments: Quiz 3 due Tuesday, February 6 at 6:00 AM ET

Discussions: For grading consideration, all posts to this discussion topic must be made prior to February 6 at 6:00 AM ET. Any posts after this date/time will not be included in the grading process.

Module 4 Study Guide and Deliverables

Readings: Security

- Amatayakul, Chapter 12
- [John Halamka Interview on HIT Security](#)
- Review [ONC material on EHR Privacy and Security](#)
- Recent article – will be posted in the discussion forum

Interoperability

- Amatayakul, Chapter 13, Chapter 10 pp. 281-304
- Recent article – will be posted in the discussion forum

Assignments: Assignment 4 due Tuesday, February 13 at 6:00 AM ET

Assessments: Quiz 4 due Tuesday, February 13 at 6:00 AM ET

Discussions: For grading consideration, all posts to this discussion topic must be made prior to February 13 at 6:00 AM ET. Any posts after this date/time will not be included in the grading process.

Module 5 Study Guide and Deliverables

- Readings:**
- Amatayakul, Chapters 7, Chapter 8 pp 236-247, Chapter 9, Optional Chapter 6 and Chapter 8 pp 213-235
 - Review [Office of the National Coordinator \(ONC\) EHR Implementation project management structure](#)
 - Review [Johns Hopkins Vendor Policies](#)
 - Review [Office of the National Coordinator \(ONC\) EHR selection resources](#)
 - Recent article – will be posted in the discussion forum

Assignments: Assignment 5 due Tuesday, February 20 at 6:00 AM ET

Assessments: Quiz 5 due Tuesday, February 20 at 6:00 AM ET

Discussions: For grading consideration, all posts to this discussion topic must be made prior to February 20 at 6:00 AM ET. Any posts after this date/time will not be included in the grading process.

Module 6 Study Guide and Deliverables

- Readings:**
- Amatayakul, Chapters 17, 20
 - [Recent Study on whether EHRs are "worth the costs"](#)
 - Review [John Halamka Beth Israel Deaconess Medical Center Operating Budget](#)

- Review [HealthcareITNews](#) site for up-to-date articles on technologies used with an EHR
- Recent article – will be posted in the discussion forum

Course Project: Course project due Tuesday, February 27 at 6:00 AM ET. The course project is a presentation which students will be asked to submit by the due date and then to present online to their facilitator following submission. The professor and facilitators will provide details on how and when the online presentations will occur. If you expect any schedule difficulties doing your presentation, please contact your facilitator as soon as possible.

Discussions: For grading consideration, all posts to this discussion topic must be made prior to February 27 at 6:00 AM ET. Any posts after this date/time will not be included in the grading process.

Final Exam Details

The final exam is a proctored exam available from **February 28 at 6:00 a.m. ET to March 3 at 11:59 p.m. ET**. The Computer Science department requires that all final exams be proctored.

The exam is a three-hour closed book/closed notes exam consisting of a combination of multiple-choice, multiple-response, matching, short answer and short essay questions. It will only be accessible during the final exam period. You can access it from the Assessments section of the course. Your proctor will enter the password to start the exam.

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

Course Grading Information

The course is organized as a sequence of six main modules, plus a seventh module for the final exam. The modules are covered over six weeks in the online version of the course and over fourteen weeks in the classroom and blended course version. Each of the six main modules includes assigned textbook readings; assigned readings from government and healthcare articles and websites; and online or classroom lectures in text, graphic, and video formats. Each of the first five modules includes an online discussion, a graded homework assignment, and a graded quiz. The sixth module has an online discussion and a course project. In the classroom version of the course, the online discussion is replaced with in-class discussions and exercises.

The course uses readings from both the textbook and online sources. When a reading assignment says "Review" you are expected to only review and skim the material, understanding what topics it covers and knowing it is available as a reference. You are NOT expected to read the full site or document in depth.

Grading Policy

All students are expected to demonstrate an understanding of the class materials. To obtain an exceptional grade you have to exceed expectations in your assignments, quizzes, final exam, discussions and course term project.

Grade Weighting

There are multiple graded items (online or classroom discussions, online or classroom exercises, five assignments, five quizzes, course term project, and a 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 and facilitators compute the weighted scores, using the weighting below. They examine not only the overall weighted score, but also each student's scores in each of the areas, and the trend of scores in each of these areas. The professor in conjunction with the facilitators then determines a letter grade for each student. The professor then sends a spreadsheet containing all graded items for all students, and the proposed letter grades, to facilitators, requesting final review and comment. After 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 system is sometimes termed "out of 100." Rarely a student may so exceed our expectations that they earn more than 100.

Grading Structure and Distribution

The following table summarizes the four 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.

Overall Grading	
Assignments	25%

Discussions & Exercises	20%
Quizzes	20%
Final Exam	25%
Course Term Project	10%

Assignments

The course has five homework assignments plus a course term project. 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. Students receive one "pass" for no deduction for a one week delay with approval from your facilitator. Assignments submitted late near the end of the term may not be graded, because our facilitators are very busy grading term projects, resulting in a zero score 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 that your facilitator provided to help you. Your professor authorizes the facilitators to re-grade based on resubmissions. Whether a particular resubmission should be re-graded is up to the judgment of the facilitator. Resubmissions are intended to help struggling students who are stuck, and resubmissions are not intended for routine use.

Participation: Class Discussions & Class Contributions

Twenty percent of your grade is based on your class or online contributions. This grade is derived from your participation in discussions and exercises and your presentation of both homework materials and other topics. This is an important part of the learning process. Your participation grade is based on your involvement and mastery of the material and how well you contribute to your classmates' learning experience and understanding of the material.

To facilitate class discussions in the classroom or blended version of the course, all students participating virtually are required to have a headset (or a microphone and earbuds or speakers) so they can participate verbally in the discussions. Good headsets can be purchased for under \$15.

Quizzes

There are five graded quizzes. Quizzes consist of a combination of choose multiple, multiple choice, matching, and short written answer questions. Quizzes are taken online on your own time using the course Blackboard site. They will be available for approximately one week up to the due date to complete the quiz. Students will have one opportunity to take the quiz at a time of their choosing during that week. The results for your quiz will be released as soon as possible after the quiz due date. When the quiz results are released, you will be able to see the questions and your answers. Since students have a week to take quizzes, they should be completed by the due date. Quizzes may be taken after the results have been released, with the pre-approval of your facilitator or the professor. Scores for quizzes completed late without extenuating circumstances will be penalized ten percent.

The Final Exam

The final exam consists of a combination of choose multiple, multiple choice, matching, short written answer, and short essay questions. The format of the questions is very similar to those in the quizzes. You will have three (3) hours to complete the final exam which has shown to be plenty of time. Per BU MET policy, for online courses, the final exam must be taken using an online proctor at the scheduled time unless there are extenuating circumstances. If you have extenuating circumstances, please contact the professor as soon as possible.

Grading Structure

- Homework Assignments & Course Term Project
 - Each homework assignment and the course term project have a set of "learning topics" with a weighting for each topic. Each topic will be scored on a zero to 100% basis and a grade for the homework will be determined based on the weighted average.
 - Assignments should be submitted on time
 - 10% point reduction for each week that homework is late
 - Students receive one "pass" for no deduction for a one week delay with approval of their facilitator.
- Quizzes
 - Choose multiple, multiple choice, and matching questions will be graded based on getting the correct answer. Deductions are taken for wrong answers but you cannot get a negative score on a question.
 - Each question requiring a written answer will have a set of "learning topics" being tested for with a weighting for each topic. Each topic will be scored on a zero to 100% basis and a grade for the written answer will be determined based on the weighted average.
 - Quizzes should be completed during the week they are available online up to the quiz deadline.
- Final Exam
 - Choose multiple, multiple choice, and matching questions will be graded based on getting the correct answer. Deductions are taken for wrong answers but you cannot get a negative score on a question.
 - Each question requiring a written answer will have a set of "learning topics" being tested for with a weighting for each topic. Each topic will be scored on a zero to 100% basis and a grade for the written answer will be determined based on the weighted average.
 - Final exam questions will also have a weighting factor since some written questions are longer and more in-depth than others.
- Class exercises and online discussions

- Will be graded qualitatively per the rubric below.

Your assignments, course term project, discussions, quizzes, 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
A	95–100
A–	90 < 95
B+	85 < 90
B	80 < 85
B–	75 < 80
C+	70 < 75
C	65 < 70
C–	60 < 65
D	55 < 60
F	< 55

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.

The percentage ranges above are approximate. Your letter grade is determined by the facilitators and the 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, course 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. While there is no fixed absolute number of grades in any one level it is important to note that high grades reflect an excellence in the understanding of class material and organization of thought. In addition, an important aspect of any class is the shared thoughts and insights of the class members. Grades will also reflect an individual's contributions to the class.

Minimal preparation is reading the material, and being able to summarize what it is about, what the major issues are, and some recommendations.

Superior preparation involves being able to (i) summarize the situation or problem presented by the material; (ii) recommend solutions; (iii) support your recommendation with data, relevant details, and analyses; and (iv) discuss innovative solutions, or why obvious solutions might be discounted.

Off-Syllabus Work—The course topic is part of a very dynamic industry. As such, there is much material that is not covered in the class. Students are encouraged to read and consider related material and issues that are beyond those defined in the syllabus to include in their work and in class discussions.

Timeliness

Because of the fast pace of this course, strict following of assessment and assignment deadlines is crucial. No work will be accepted after the deadlines unless there are approved mitigating circumstances which includes the one late assignment submission "pass" described elsewhere. In case of an emergency, students are required to contact their facilitators (or the professor if there are no facilitators) BEFORE the deadline and discuss their situation. In the case of serious or emergency situations, or if, for any reason, you are unable to meet any deadline, contact your Course Facilitator (or the professor if there are no facilitators).

Discussion Grading Rubric

In the online version of the course, graded discussion periods are held Day 1 of each module until 6:00 AM ET on Day 1 of the following module. Discussions are the way we "participate" in the online class. So it's important that you post thoughtful messages that move the conversation forward in some way. "Yeah, I agree," and "Me, too" are not acceptable postings and will not earn any points. Your participation in discussions can earn you points for each discussion. After the due date for the discussion, you will be graded on your overall participation in that discussion thread. Late posts are welcome for their intellectual value but will not be considered in your grade. The discussion grading rubric below is the guide we use to evaluate your discussion contributions.

Your posts should show that you have read the material in the online site, readings and your group's posts and have applied all of that to the question at hand. You should do more than merely spit back what the readings say; you should engage with the material by analyzing and interpreting it. Your posts should be grammatically clear enough not to present anyone with a problem in understanding your point. It's not a formal writing forum, but it's not Facebook either.

To earn full points:

- Initial postings are completed early in the week. Early postings will earn you one "bonus" point.

- Follow up posts (generally more than the minimum of one per discussion) are timely
- Content is complete, on-point, thoughtful and offers new ideas
- Supporting detail is abundant and appropriate (that is, references from the pieces read and/or other sources)
- Content often encourages further discussion on the topic or follows up on others' thoughts
- Postings are characterized by originality, engagement and relevance to the topic
- Postings demonstrate an understanding of the material assigned and familiarity with the ideas of the students partner and group members (in other words, it's obvious that you've read and understood both the required reading and what your peers have written in their postings)

Classroom discussions and exercises serve the same goals for the classroom and blended versions of the course and are graded similarly.

The following chart represents the rubric employed for grading the threaded discussion entries and in-class discussions in the blended course version:

Points	Skills
9–10	Demonstrates excellence in grasping key concepts; critiques work of others; stimulates discussion; provides sample citations for support of opinions; readily offers new interpretations of discussion material. Ideas are expressed clearly, concisely; uses appropriate vocabulary.
7–8	Shows evidence of understanding most major concepts; will offer an occasional divergent viewpoint or challenge; shows some skill in support for opinions. Some signs of disorganization with expression; transition wording may be faulty.
5–6	Has mostly shallow grasp of the material; rarely takes a stand on issues; offers inadequate levels of support. Poor language use; garbles much of the message; only an occasional idea surfaces clearly; expression seems disjointed; overuse of the simple sentence and a redundancy with words and commentary; paragraphs often appear unrelated to each other. This student requires constant prompting for contributions.
1–4	A minimal posting of material. Shows no significant understanding of material. Language is mostly incoherent. Does not respond readily to prompting.

Credits: GRADING RUBRIC FOR THREADED DISCUSSIONS

From John F. Bauer, "Assessing Student Work from Chat Rooms and Bulletin Boards."

New Directions for Teaching and Learning 91 (Fall 2002): 35.

In the classroom version of the course, online discussions are replaced by classroom discussions and exercises. A similar approach is applied to grading of classroom participation.

Assignment, Quiz and Final Exam Short and long Answer, and Course Project Grading Rubric

Course assignments are designed to help the students use the course materials in a "real-world" fashion. Therefore the assignments are similar to the types of materials that would be needed if the student were managing an electronic health record deployment project at a healthcare provider. As a result, the assignments require a mix of submission types including PowerPoint presentations, Excel worksheets, memos, and essay-type answers. The course term project builds on the assignments by asking students to summarize, integrate and present material from the assignments.

We are as objective as we can be in grading these materials. The assignments, course project, short-answer, and short essay questions in the quizzes and final exam, have specific learning objectives that reflect key parts of the materials. Grading will be based on evaluation of the learning topics plus overall clarity and quality of the presentation. Each learning topic will have an assigned point weight and will be evaluated in four areas which have approximately equal weight plus clarity and quality of the work, which will have ten points. This approach is shown in the following table.

Criteria	Grading (1 to 100 Scale)				
	65–69	70–79	80–89	90–94	95–100
Understanding and depth of coverage of the material	Lack of coverage or understanding of major relevant issues of the material	Some understanding or coverage of major relevant material	Good overall understanding and coverage of major relevant material	Very good overall understanding and coverage of major relevant material, with some real additional depth	Excellent, deep understanding and coverage of material both major and additional depth and its inter-relationships
Application of the material to address specific problem(s)	Little demonstration of how to use the material	Some demonstration of how to use the material	Good overall demonstration of how to use the material	Very good overall understanding of using the material effectively	Excellent, deep understanding of using the material in a highly effective manner
Creativity & Innovativeness using the materials	Little significant or reasonably backed	Few creative and innovative ideas or points-of-view that are reasonable & are backed by some analysis.		Very good creative and innovative ideas or points-of-view	Outstanding creative and innovative ideas or points-of-view that

	creative or innovative points-of-view or ideas		that are perceptive & are backed by strong analysis	are perceptive & are backed by very strong analysis
Specific Details	Grading: Each specific item will have a defined point value, typically from 2 to 3 points.			
Clarity and quality of the material	Grading: Up to 10 Points			

If you have thoughtful questions about your facilitator's evaluation, please discuss them with him or her in an academic manner. This can be an excellent opportunity to learn. If it is necessary for the instructor to re-grade an assignment, I independently grade the entire assignment—not parts—using the criteria above. My grade would replace the facilitator's.

Quiz Instructions

Accessing the Quiz

There are five graded quizzes. Quizzes consist of a combination of choose multiple, multiple choice, matching and short written answer questions. Quizzes are taken online on your own time using the course Blackboard site. They will be available for approximately one week up to the due date to complete the quiz. Students will have one opportunity to take the quiz at a time of their choosing during that week. The results for your quiz will be released by the end of the following Sunday after the quiz due date. When the quiz results are released, you will be able to see the questions and your answers. Since students have a week to take quizzes, they should be completed by the due date. Quizzes may be taken after the results have been released, with the professor's or a facilitator's permission. Grade deductions for late quizzes are as described above.

Quiz Details

- The questions are either multiple-choice, multiple-answer, True/False, or short answer.
- All questions are randomized within the quiz.
- 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 75 minutes to complete the quiz.
- You can take each 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.

Comments on the Quiz

Please remember that these questions are formatted and asked in a certain way for a reason. Questions may not always have the perfect answer and you are advised against always looking for the perfect answer. You should be looking for the best answer in the list.

There will be a short answer area at the end of the quiz; it 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 item. Be sure to reference the question number. Your facilitator will examine your comments in order to decide whether a grade adjustment or other action should be taken.

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 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.

IT Help Center Support	
Email	ithelp@bu.edu Please use "BB Learn Question" in the subject line
Web	http://www.bu.edu/tech/web/course-sites/blackboard-learn/
Phone	(888) 243-4596

Academic Conduct Policy

Please visit Metropolitan College's website for the full text of the department's [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 Edition*. Copyright 1963, Holt, Rinehart and Winston.

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**.

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 Imagine for Academic Institutions

Metropolitan College is a member of Microsoft Imagine for Academic Institutions (formerly DreamSpark), 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.

FAQ and basic information are at: <http://www.bu.edu/metit/hw-and-sw/msdn-academic-alliance-software-center/>.

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.

Your Senior Faculty and Student Support Administrator, Jennifer 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 Online Campus 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 through

Online Campus email 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 Computer Science Department Online Program Coordinator, Peter Mirza. Peter 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 or (617) 353-2566.

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

Andrew Gorlin, Academic Advisor. Reviews requests for transfer credits and waivers. Advises students on which courses to take to meet their career goals. You can reach Andrew at asgorlin@bu.edu, or (617)-353-2566.

Professor Anatoly Temkin, Computer Science Department Chairman. You can reach Professor Temkin at temkin@bu.edu or at 617-353-2566.

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

Professor Tanya Zlateva, Metropolitan College Dean 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](#) at (617) 353-3658 or at 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.](#)

[Withdraw or drop your course.](#)

- 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.

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](#) for announcements.

Boston University technical support is available via email (ithelp@bu.edu), the [support form](#), 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](#). 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:

IT Help Center Support
888-243-4596 or 617-353-4357 or Web
Check your open tickets using BU's ticketing system .

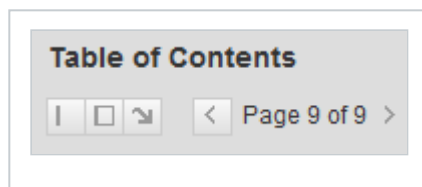
Navigating Courses

For best results when navigating courses, it is recommended that you use the Mozilla [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:



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:



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](#)
- Check your browser settings with Blackboard's [Connection Test](#)
- Download most recent version of [Adobe Flash Player](#)
- Download most recent version of [Adobe Acrobat Reader](#)

How to Clear Your Browser Cache

The IT Help Center recommends that you periodically [clear your browser 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](#), which contains a list of some of the most common tasks in Blackboard Learn.

Boston University Metropolitan College