

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

Health Information Systems

Health Information Systems (HIS) are comprehensive application systems that automate the activities of healthcare delivery including clinical care using electronic health records (EHRs), coordination of care across providers, telehealth, management of the business of healthcare such as revenue cycle management, and population health management. The course covers the functionality of these systems, the underlying information technology they require and their successful operations. It addresses challenges in this rapidly changing field such as complex data, security, interoperability, mobile technology, and distributed users. The course emphasizes applied use of health information systems through case studies, current articles, and exercises.

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 Health Information Systems/Electronic Health Records (HIS/EHRs) through lectures, readings and hands-on labs
- Learn the technical infrastructure required for HIS/EHRs including virtualization, cloud architecture, and security
- Understand how HIS/EHRs change healthcare delivery workflows and how to manage that change

- Learn best-practices for deploying and using HIS/EHRs including project management, budget, and system selection
- Learn about governmental regulation of EHRs
- Collect a set of tools to use in HIS/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 HIS/EHRs and how to address them

Course Outline

Module	Module Title	Lectures
1	Introduction to HIS and EHRs & Healthcare Workflow and Process Re-engineering	1. Introduction to Health Information Systems (HIS) and Electronic Health Records (EHR) 2. Healthcare Workflow & Business Process Re-engineering
2	HIS/EHR Clinical Functionality & EHR Regulation	3. HIS/EHR Clinical Functionality 4. Federal EHR Regulations & Certification
3	HIS Business Functionality & HIT Beyond HIS/EHRs	5. Population Health Functionality 6. Revenue Cycle Functionality 7. HIT Beyond HIS/EHRs
4	Infrastructure & Security	8. Infrastructure Design 9. Infrastructure Performance Requirements 10. Security & HIPAA
5	Interoperability	11. Interoperability Requirements & Methods 12. Interoperability Standards
6	Deployment	13. Project Management 14. System Selection 15. Financial Costs and Benefits

7	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](#). It is also available from the publisher in both hardcopy and e-book formats at <https://my.ahima.org/store/>.

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 completed online using the course Blackboard site (see below).

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 preferably you should use either Microsoft Project or the freeware product [GanttProject](#). Here is a [CNET review of GanttProject](#). If you need a cloud-based project management tool, please contact the professor.

BU participates in several programs that make Microsoft Software available at reduced cost or even free. Students should look at the [Microsoft Office for Students Distribution](#) page for further information.

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 video cannot be displayed here

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.

Smarthinking Tutoring Overview



[YouTube](#)

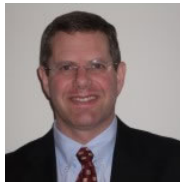
Please Note

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

mlevinge@bu.edu



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. Currently, Mike is responsible for the technology for innovative consumer-oriented medical devices and other Internet of Things (IoT) connected devices. Mike was 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. 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. Mike is a former advisor to the University of Missouri Medical School Healthcare Management and Informatics Department and an active member of several healthcare industry organizations.

Study Guide

This course starts on a **Thursday**. The modules in this course run from **Thursday to Wednesday**.

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.

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:

- Saturday at 12:00 PM (noon) ET – Review current week's material: discussion of key points, best approaches to assignment, examples, etc. The first Saturday Live Classroom will be on Saturday, January 15.
- Tuesday at 8:30 PM ET. – Presentation and/or discussion on key topics related to that week's work based on student requests/feedback, articles the professor sees, or "special lectures". The first Tuesday Live Classroom will be on Tuesday, January 18.
- The Professor will do a course review and answer questions in preparation for the final exam two different times (covering the same material). The first course review will be on Wednesday, February 23 at 8:30 PM ET and the second on Saturday, February 26 at 12:00 PM (noon) ET.

Live Classroom participation is optional, but 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, the facilitator 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 8:30 PM ET starting Friday, January 14 through Friday, February 25.

Module 1 Study Guide and Deliverables

Readings:

- Amatayakul, Chapters 1, 5

- [Updated HIMSS Davies Award Winner Virginia Women's Health Center Application](#)
- Review - [ONC Workflow Tools](#)
- 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 Thursday, January 20 at 6:00 AM ET

Assessments: Quiz 1 due Thursday, January 20 at 6:00 AM ET

Discussions: For grading consideration, all posts to this discussion topic must be made prior to January 20 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
- Review [Overview of Quality Payment Program \(QPP\)](#)
- Specific information on [Promoting Interoperability component of MIPS](#)
- Recent article – will be posted in the discussion forum

Assignments: Assignment 2 due Thursday, January 27 at 6:00 AM ET

Assessments: Quiz 2 due Thursday, January 27 at 6:00 AM ET

Discussions: For grading consideration, all posts to this discussion topic must be made prior to January 27 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:

- Amatayakul, Chapters 19 and 20; Optional: Chapter 17
- Review [ONC Playbook on Population Health](#)

- Recent article – will be posted in the discussion forum

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

Assignment 3 is a presentation which students will be asked to submit by the due date but which students will NOT be asked to present.

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

Discussions: For grading consideration, all posts to this discussion topic must be made prior to February 3 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

- OPTIONAL: If you do not have a technical background or if you want a refresher on technology, review Amatayakul, Chapter 11 (pp. 325-344) and Chapter 10 (pp. 304-318)
- Amatayakul, Chapter 12
- [CIO Magazine Article on Beth Israel Network Outage](#)
- Download and watch: [Interview of Erin Osbourne CIO](#)
- [CIO Magazine Tutorial on Service Level Agreements](#)
- Optional: [VMWare on Healthcare Data Management](#)
- Recent article – will be posted in the discussion forum

Assignments: Assignment 4 due Thursday, February 10 at 6:00 AM ET

Assessments: Quiz 4 due Thursday, February 10 at 6:00 AM ET

Discussions: For grading consideration, all posts to this discussion topic must be made prior to February 10 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, Chapter 13, Chapter 10 pp. 281-304
 - Review: [HIMSS Interoperability Overview](#)
 - Recent article – will be posted in the discussion forum
- Assignments:** Assignment 5 due Thursday, February 17 at 6:00 AM ET
- Assessments:** Quiz 5 due Thursday, February 17 at 6:00 AM ET
- Discussions:** For grading consideration, all posts to this discussion topic must be made prior to February 17 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, Chapter 7, Chapter 8 pp 236-247, Chapter 9, Optional Chapter 6 and Optional Chapter 8 pp 213-235
 - Download and watch: [Interview of Craig Antilock, PMO](#)
 - Review [Office of the National Coordinator \(ONC\) EHR Implementation Playbook](#)
 - Review [Stanford Healthcare Vendor Policies](#)
 - Review [John Halamka Beth Israel Deaconess Medical Center Operating Budget](#)
 - Recent article – will be posted in the discussion forum

Assignments: No Assignment 6.

The **Course Project** is due Thursday, February 24 at 6:00 AM ET. The course project is a presentation which students are asked to submit by the due date and to present online to their facilitator and/or the instructor between Thursday, February 24 and Monday, February 28, or at another time be arrangement with your facilitator. 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.

Assessments: No quiz for Module 6.

Discussions: For grading consideration, all posts to this discussion topic must be made prior to February 24 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 **Friday, February 25 at 6:00 AM ET to Monday, February 28 at 11:59 PM ET**. The Computer Science department requires that all final exams be administered using an online proctoring service called Examity that you will access via your course in Blackboard. Detailed instructions regarding your proctored exam will be forthcoming from the Assessment Administrator. You will be responsible for scheduling your own appointment within the defined exam window.

The Final Exam will be **closed book/closed notes** and is accessible only 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.

Final Exam duration: **three hours**

The exam consists of approximately **35-38** total questions (combination of multiple choice, multiple answer, matching, short answer, and short essay).

Course Grading Information

Please check the **Study Guide** in the syllabus for Live Classroom dates and specific due dates for assignments and assessments.

There are multiple graded items (online or classroom discussions, online or classroom exercises, five assignments, five quizzes, the course term project, and a final exam). Course letter grades are determined in a multi-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 based on assignments, the course project, quizzes, online or classroom discussions and final exam grades, using the weighting below. Then the professor in conjunction with the facilitators reviews each student's overall weighted score, scores in each of the areas, the trend of scores in each of these areas, and student's participation in Live Classrooms or regular classroom (depending on which version of the course). Based on that review, the professor in conjunction with the facilitators then determines a letter grade for each student. Lastly, the professor finalizes the grades and uploads them to the University Information System, where students can see their grades via the Student Link.

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

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	20%
Course Term Project	15%

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 or the professor. 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 or the professor. 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 and as part of optional Live Classrooms in the online 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.

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

There will be a proctored Final Exam in this course using a proctor service called Examity. Detailed instructions regarding your proctored exam will be forthcoming from the Assessment Administrator. You will be responsible for scheduling your own appointment. You will have three hours to complete it; there should be plenty of time. 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.

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.

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 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 course materials and other students (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 and blended 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 Written 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 HIS or EHR deployment project at a healthcare provider. As a result, the assignments require a mix of submission types including PowerPoint presentations, Excel worksheets, memos, memos, and written 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 creative or innovative points-of-view or ideas	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 that are perceptive & are backed by strong analysis	Outstanding creative and innovative ideas or points-of-view that 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. This can be an excellent opportunity to learn. If it is necessary for the instructor to re-grade an assignment, the professor independently grades the entire assignment—not parts—using the criteria above. His 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 normally 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, matching, 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 90 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 professor 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 a perfect answer and you are advised against always looking for the perfect answer. You should be looking for the best answer(s) 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 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 a quiz please feel free to contact your facilitator or the instructor.

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	617-353-4357

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.

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 Azure Dev Tools for Teaching

Microsoft Azure Dev Tools for Teaching is 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 [Microsoft Azure Dev Tools for Teaching](#) (You may have to enter your personal BU login credentials to access this page.)

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 Lead 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 (617) 358-1978.

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 Crosta. 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 and Access Services

In accordance with University policy, every effort will be made to accommodate students with respect to speech, hearing, vision, or other disabilities. Any student who may need an accommodation for a documented disability should contact [Disability and Access Services](#) at 617-353-3658 or at access@bu.edu for review and approval of accommodation requests.

Once a student receives their accommodation letter, they must send it to their instructor and/or facilitator each semester. They must also send a copy to their Faculty & Student Support Administrator, who may need to update the course settings to ensure accommodations are in place. Accommodations cannot be implemented if the student does not send their letter.

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 an 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 point them out privately and 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.
- Online courses will open to students in Blackboard on the first day of the term.
- Online courses close to students three weeks after the last day of the term. Please plan to download and save any assignments or material you'd like to keep by that date.

Technical Support

Help Desk

Boston University IT Help Desk can be reached via email (ithelp@bu.edu), phone (617-353-4357) or by filling out the [support form](#) on their website. For IT Help Desk hours of operation, visit the [contact page](#). If you are contacting IT outside of business hours, you will receive a response the following day. Visit the BU Information Services & Technology (IS&T) [news page](#) for announcements and system-wide alerts.

Technology Requirements and Resources

To successfully view all content in your course, it is important that your computer setup meets the necessary minimum technical requirements. Certain courses with specific functionality or educational tools may require additional technical requirements, these details can be found on the Course Resources or Materials page in the Syllabus.

System Requirements

- Access to reliable, high-speed internet: Check your [internet connection speeds](#)
- Learning Management System (Blackboard): [System Requirements](#)
- Synchronous live classroom sessions (Zoom): [System requirements for Windows, macOS, and Linux](#)
- Courses with proctored exams (Examity): [System requirements for Windows, macOS](#)

Downloads

- Recommended web browsers: [Mozilla Firefox](#) or [Google Chrome](#)
- Synchronous live classroom sessions (Zoom): [Zoom download center](#)
- Courses with proctored exams (Examity): Desktop or laptop computer with [Google Chrome](#) or [Microsoft Edge](#)

Recommended Hardware

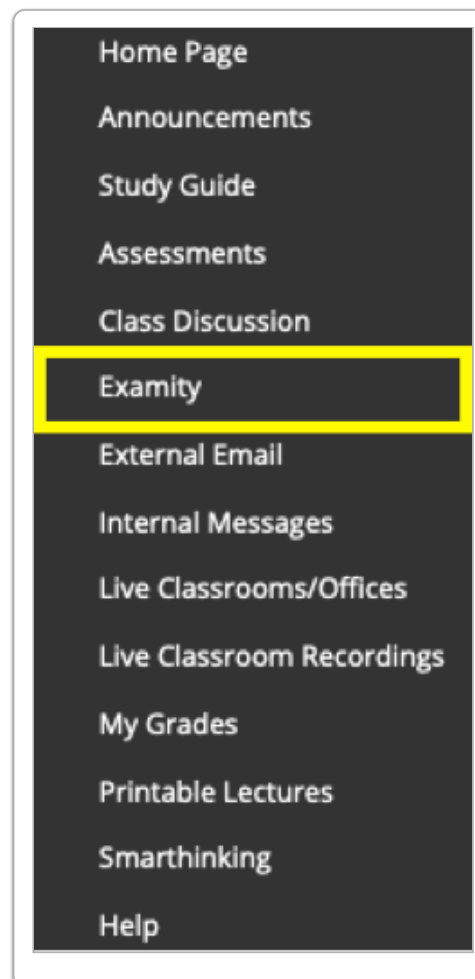
- Desktop or laptop computer recommended for best experience, some course functionality including proctored exams are not compatible with phones or tablets
- Headset with built-in microphone for high quality audio during live classroom sessions
- Webcam (required for proctored exams)
- Working computer speakers (required for proctored exams)

Clearing Your Browser Cache

It is recommended that users periodically [clear their browser cache](#) to ensure they are viewing the most current course content. Completing this step often resolves login issues and problems viewing course materials.

Proctored Exams

Courses with proctored exams will have an Examity link in the left-hand course navigation. This link will not appear until scheduling opens. The ODE Assessment Administrator will notify you when it is time to schedule your exam. Details on Examity's technical requirements and how to schedule your exam are in the Proctored Exam Information module on the course homepage. The Assessment Administrator can be reached at pexams@bu.edu. Examity support is available 24/7 via phone (855-392-6489), email (support@examity.com), or 'live chat' when logged in to the Examity dashboard.



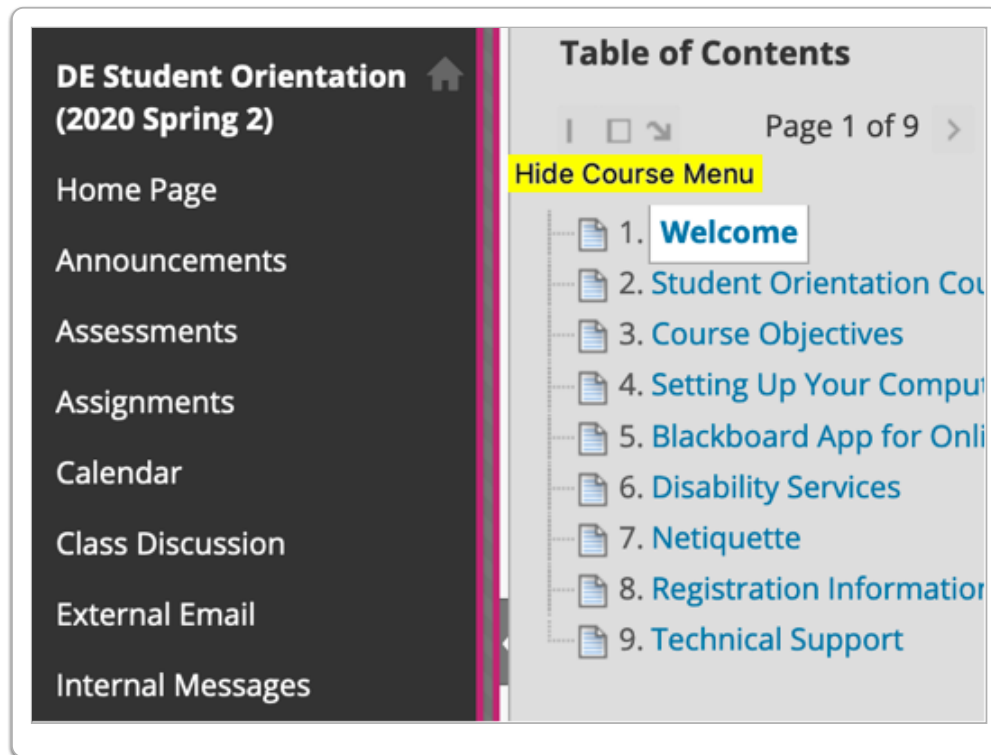
Navigating Courses

While navigating through your courses it's important to note that all hyperlinks will open in a new browser window.

The Blackboard navigation tools, as shown in the images below; allow you to show and hide both the Course Menu and the Table of Contents which can free up space when moving through weekly lecture material.

The Table of Contents may contain folders that 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.

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







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

- Minimize
- Maximize
- ↗ Move to the bottom

Table of Contents



Page 1 of 9 >

.....		1. Welcome
.....		2. Student Orientation Cour
.....		3. Course Objectives
.....		4. Setting Up Your Compute