MET CS 200 Syllabus

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Course Description

This module is also available as a concatenated page, suitable for printing or saving as a PDF for offline viewing.

MET CS200
Introduction to Computer Information Systems

This course introduces information technology concepts and terminology and foundational mathematics. It also develops analytic and logical thinking and prepares students to take graduate-level courses in information technology and computer information systems. The course starts with the fundamentals of computing systems, including hardware and software, and then addresses the processes for designing and building computing systems, including systems analysis and project management. Relational database technology is introduced including SQL and database design concepts. Computer networks, including their components, types, design and management are explained. And lastly, students are introduced to software development and receive a thorough introduction to the Java programming language. The course reviews the mathematics upon which computing systems are founded including number systems, set theory, algebra, and functions.

Technical Note

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

Learning Objectives

The course is designed to prepare students without a technical background in information technology to succeed in graduate courses in the Master of Science in Computer Information Systems (MSCIS) and Master of Science in Telecommunications (MSTC) programs. Students often ask how completion of the course relates to acceptance into these graduate programs. The department policy is as follows:

> "In making the decision regarding matriculating a student, the Admissions Committee considers the student's prior academic record and any relevant experience. The Admissions Committee may require some applicants to take CS 200 to better prepare for graduate study in information technology before making

> a final matriculation decision. For students who complete CS 200 the Committee also considers each student's performance in each of the areas of CS 200, such as computer systems, systems analysis, mathematics, databases, computer networks, and programming. If a student has demonstrated that they are ready for graduate study in *each* of these areas, as demonstrated by a combination of prior coursework, professional experience, and their performance in CS 200, then the Admissions Committee will matriculate them into the MSCIS program. Simply passing CS 200 does not assure matriculation, though excellent performance in all areas of CS 200 will earn an applicant matriculation into the program."

For students coming from other programs, this course is a technically-oriented introductory survey of Information Technology.

Course Objectives

This course will enable you to:

- Understand the major hardware components of a modern computing system and their functions and interactions
- Understand how programs are executed, including the instruction execution cycle and the role of interrupts
- Understand the role of systems and applications software
- Understand the systems analysis and design process
- Understand the basic concepts of databases and database management systems, including the relational model and the basics of SQL
- Understand network architecture, both hardware and software, and be familiar with the basics of network security and management
- Understand how algorithms are developed and implemented in higher level languages
- Be able to design, write, and debug Java programs that use sequence, selection and repetition statements, methods, primitive data types, arrays, and that do I/O
- Understand object oriented concepts including classes, objects and inheritance
- Be able to solve mathematical problems that involve factoring algebraic expressions, operations with algebraic fractions and radicals, operations on sets, linear and quadratic functions

Course Organization

This course is 15 weeks long: 14 weeks of content and 1 week for the final exam. The 14 weeks of content is divided into 7 modules, each two weeks long. Each module includes one major information technology topic and two math topics. Each module consists of:

- reading assignments
- online content
- review questions
- two graded information technology assignments

- two ungraded math assignments
- one graded information technology quiz
- one extra credit information technology related discussion question in a discussion board
- two graded math quizzes.

The study guide, which precedes each module, lists specific due dates. Assignments and quizzes are due at 6am ET each Tuesday. Review questions and math assignments are optional, but strongly encouraged. The review questions are very similar to the quiz questions. Review questions may be answered as many times as you like, while quizzes are timed and may be taken only once. Math assignment solutions are provided in videos. Solutions for information technology assignments and quizzes will be provided after they are graded.

You will see "blocks" of content in the online material that are labeled "Advanced Content." We have found that some students like additional material beyond what is formally part of the course. Hence, we are in the process of adding such content. You are not responsible for advanced content on the quizzes, assignments, or final exam.

Course Outline

Module 1 — Fundamentals of Computer Systems

- Computer Systems
  - Hardware Systems
  - Processing Unit
  - Flow of Control
  - Memory
  - Input/Output
  - Software Systems
  - Operating Systems
  - Systems Analysis and Design
- Math
  - Properties of Numbers
  - Operations on Numbers
  - Algebraic Expressions

Module 2 — Databases

- Databases
  - Databases
  - Relational Database Management Systems
  - Introduction to Structured Query Language (SQL)
  - Programming for Databases
  - The Database Life Cycle
  - Jobs in the Database Field

- Math
    - Even and Odd Numbers
    - Factoring Algebraic Expressions

Module 3 — Data Communications and Networks

- Data Communications
    - Components of a network
    - Network standards
    - Network layers
    - Types of networks
    - Network security and management
- Math
    - Operations on Algebraic Fractions
    - Inverses
    - Roots
    - Radicals

Module 4 — Basics of Software Development using Java

- Basics of Software Development
    - Overview of Programming Language Systems
    - Installing the Java platform, Standard Edition (Java SE)
    - Installing an Integrated Development Environment (Eclipse)
    - Creating Java Projects
    - Executing Java Programs
    - Debugging Java Programs
    - Variables and Data Types
    - Strings
    - Promotions and Casting
    - Input/output
- Math
    - Arithmetic Expressions Sets

Module 5 — Basics of Java

- Java
    - Conditional statement
    - Repetition Structures
- Math
    - Graphing a Function
    - Deriving the Equation of a Line
    - Intersection of Line with the Axis

Module 6 — Programming in Java

- Java
  - Methods
  - Scope of Variables
  - Recursion
  - Arrays
- Math
  - Quadratic Equations
  - Inequalities Methods

Module 7 – Introduction to Object Oriented Programming

- Classes versus Objects
- Building a Class
- Writing a "Driver" Program
- Constructors
- "Printing" an Object
- Class Inheritance

Final Exam

The final exam is a three-hour, closed-book (no access to any information online or otherwise), no calculator allowed exam consisting of a combination of multiple answer (choose all that apply) and multiple choice (choose one) questions. It is a comprehensive exam which covers both the math and IT content from the course.

The exam is only accessible during the final exam period. You will make an appointment during the final exam period with an online exam proctor who will check your identity and ensure exam rules are followed during the exam. You will access the exam from either the Assessments section of the course or from the Final Exam module on the home page. Your proctor will enter the password to start the exam. More information about the proctoring service and appointment setup will be emailed to you during the last 4 weeks of the course.

Instructor

Cindy C. Bragg
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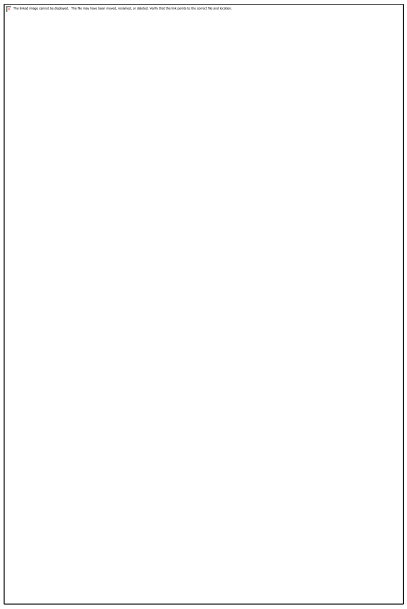
Office hours by appointment only



Cindy Bragg holds a master's degree from Boston University in Computer Information Systems with a concentration in Database Management and Business Intelligence. Her undergraduate degree is in Mathematics from the University of Kentucky. She also teaches full-time at Eastern Kentucky University in Richmond, KY in the Computer Science Department. At EKU, she is currently teaching a variety of topics including both Java and Python and coordinates the INF program for the department. Prior to her time at EKU, she was a full-time Lecturer at Northern Kentucky University near Cincinnati, OH. Her course topics at NKU included Database Management Systems, SQL, PL/SQL, Java, Python, Software Engineering, Android, HTML, and CSS. Since 1998, she has developed and taught computer courses for several departments at the Bluegrass Community and Technical College (formerly The Lexington Community College) in Lexington, KY. Her courses over the years have covered a wide range of topics including introduction to computers, Microsoft Office applications, graphic design, database design, SQL, and PL/SQL in Oracle. When time allows, she also enjoys teaching computer related workshops for local companies who are providing professional development for their employees. Before joining the faculty at the community college, she worked for several Fortune 500 companies as well as an e-commerce startup company.

Additional Course Developers

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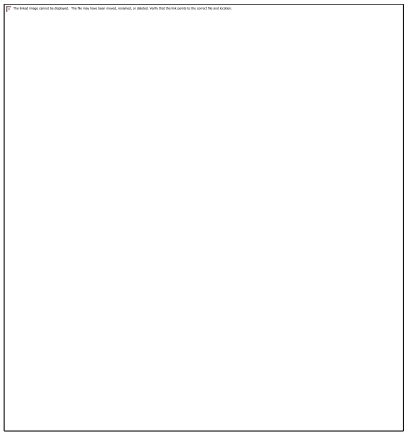

Dr. Bruce Tis is a tenured, full-time faculty member at Simmons College in Boston with appointments in the College of Arts and Sciences and the Graduate School of Library and Information Science. He is an Associate Professor of Computer Science and chaired the Computer Science department at Simmons for 10 years. He received his Ph.D. in Computer Engineering from Boston University, where he has been teaching part time for 28 years in the areas of computer networks, operating systems, security, and Java programming. He has done research in the area of distributed operating systems. Dr. Tis is also interested in computer science education and has published papers on curriculum design and pedagogy, and has conducted workshops on computer security.

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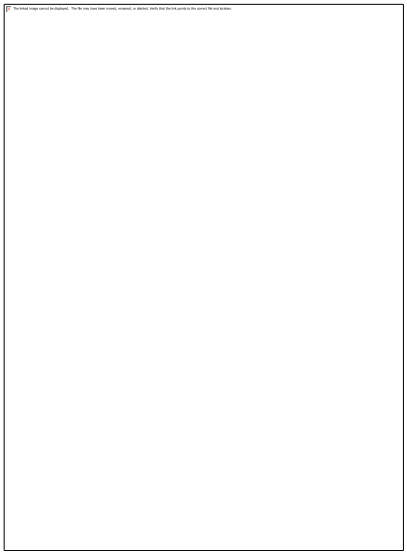

Dr. Anatoly Temkin has been a BU faculty member since 1989. He has taught numerous graduate and undergraduate courses from the math and computer science curricula. He is currently a professor and a graduate student advisor in the Boston University Metropolitan College.

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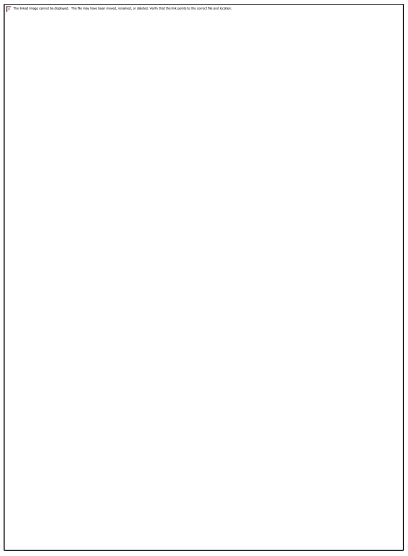


Steve Isenberg has received a BS and MS degree in Computer Science/Math from Michigan State University. He has taken a number of courses from Boston University and has been teaching and/or facilitating classes at Boston University since 2006.

Study Guide

This course starts on a **Tuesday**. The modules in this course run from **Tuesday to Monday** and are **two weeks in length** each.

The following material is collected here for your convenience. The study guides can also be accessed at the beginning of each weekly lecture.

Live Classroom Sessions

- There will be synchronous Live Classroom sessions scheduled each week starting from the first week of the course.

These sessions will be archived for further viewing. In order to participate in these discussions or to access the archived sessions, you will need to go to the Live Classrooms/Offices links.

Module 1 Study Guide and Deliverables
(May 6 to May 19)

Readings:

- Online - Fundamentals of Computer Systems
- Online - Systems Analysis and Design
- Online - Math 1 & Math 2

- *Schaum's outline of college algebra* chapters 1 & 2

Discussions:

- Introduce Yourself in Discussions. Postings end **Tuesday, May 20 at 6:00 AM ET**,
- Module 1 Discussion Question postings end **Tuesday, May 20 at 6:00 AM ET**, in the Module 1 Discussion Question Board under the Class Discussions

Assignments:

- Assignment 1 due **Tuesday, May 13 at 6:00 AM ET** to TurnItIn
- Assignment 2 due **Tuesday, May 20 at 6:00 AM ET**

Assessments:

- Crediting Sources Quiz due **Tuesday, May 13 at 6:00 AM ET**
- Math Quiz 1 due **Tuesday, May 13 at 6:00 AM ET**
- Math Quiz 2 due **Tuesday, May 20 at 6:00 AM ET**
- Module 1 Quiz due **Tuesday, May 20 at 6:00 AM ET**

Live Classrooms:

- **Tuesday, May 6 from 8:00 to 9:15 PM ET**
- **Tuesday, May 13 from 8:00 to 9:15 PM ET**

Module 2 Study Guide and Deliverables
(May 20 to June 2)

Readings:

- Online - Data and Databases
- Online - Math 3 & Math 4
- *Schaum's outline of college algebra* chapters 3 & 5

Discussions:

- Module 2 Discussion Question postings end **Tuesday, June 3 at 6:00 AM ET**

Assignments:

- Assignment 3 due **Tuesday, May 27 at 6:00 AM ET**
- Assignment 4 due **Tuesday, June 3 at 6:00 AM ET**

Assessments:

- Math Quiz 3 due **Tuesday, May 27 at 6:00 AM ET**
- Math Quiz 4 due **Tuesday, June 3 at 6:00 AM ET**
- Module 2 Quiz due **Tuesday, June 3 at 6:00 AM ET**

Live Classrooms:

- **Tuesday, May 20 from 8:00 to 9:15 PM ET**
- **Tuesday, May 27 from 8:00 to 9:15 PM ET**

Module 3 Study Guide and Deliverables
(June 3 to June 16)

Readings:

- Online - Data Communications and Networks
- Online - Math 5 & Math 6
- *Schaum's outline of college algebra* chapters 6–8

Discussions:

- Module 3 Discussion Question postings end **Tuesday, June 17 at 6:00 AM ET**

Assignments:

- Assignment 5 due **Tuesday, June 10 at 6:00 AM ET** to TurnItIn
- Assignment 6 due **Tuesday, June 17 at 6:00 AM ET** to TurnItIn

Assessments:

- Math Quiz 5 due **Tuesday, June 10 at 6:00 AM ET**
- Math Quiz 6 due **Tuesday, June 17 at 6:00 AM ET**
- Module 3 Quiz due **Tuesday, June 17 at 6:00 AM ET**

Live Classrooms:

- **Tuesday, June 3 from 8:00 to 9:15 PM ET**
- **Tuesday, June 10 from 8:00 to 9:15 PM ET**

Module 4 Study Guide and Deliverables
(June 17 to June 30)

Readings:

- Online - Basics of Software Development using Java
- Online - Math 7 & Math 8
- *Schaum's outline of college algebra* chapters 12 & 13
- zyBooks Module 4 Part 1 & Part 2– all sections not marked optional

Discussions:

- Module 4 Discussion Question 4 postings end **Tuesday, July 1 at 6:00 AM ET**

Assignments:

- Assignment 7 due **Tuesday, June 24 at 6:00 AM ET**
- Assignment 8 due **Tuesday, July 1 at 6:00 AM ET**

Assessments:

- Math Quiz 7 due **Tuesday, June 24 at 6:00 AM ET**
- Math Quiz 8 due **Tuesday, July 1 at 6:00 AM ET**
- Module 4 Quiz due **Tuesday, July 1 at 6:00 AM ET**

Live Classrooms:

- **Wednesday, June 18 from 8:00 to 9:15 PM ET**
- **Tuesday, June 24 from 8:00 to 9:15 PM ET**

Module 5 Study Guide and Deliverables
(July 1 to July 14)

Readings:

- Online - Basics of Java
- Online - Math 9 & Math 10
- *Schaum's outline of college algebra* chapter 14
- zyBooks Module 5 Part 1 & Part 2– all sections not marked optional

Discussions:

- Module 5 Discussion Question postings end **Tuesday, July 15 at 6:00 AM ET**

Assignments:

- Assignment 9 due **Tuesday, July 8 at 6:00 AM ET**
- Assignment 10 due **Tuesday, July 15 at 6:00 AM ET**

Assessments:

- Math Quiz 9 due **Tuesday, July 8 at 6:00 AM ET**
- Math Quiz 10 due **Tuesday, July 15 at 6:00 AM ET**
- Module 5 Quiz due **Tuesday, July 15 at 6:00 AM ET**

Live Classrooms:

- **Tuesday, July 1 from 8:00 to 9:15 PM ET**
- **Tuesday, July 8 from 8:00 to 9:15 PM ET**

Module 6 Study Guide and Deliverables
(July 15 to July 28)

Readings:

- Online - Programming in Java
- Online - Math 11 & Math 12
- *Schaum's outline of college algebra* chapters 16 & 19
- zyBooks Module 6 Part 1, Part 2, & Part 3—all sections not marked optional

Discussions:

- Module 6 Discussion Question postings end **Tuesday, July 29 at 6:00 AM ET**

Assignments:

- Assignment 11 due **Tuesday, July 22 at 6:00 AM ET**
- Assignment 12 due **Tuesday, July 29 at 6:00 AM ET**

Assessments:

- Math Quiz 11 due **Tuesday, July 22 at 6:00 AM ET**
- Math Quiz 12 due **Tuesday, July 29 at 6:00 AM ET**
- Module 6 Quiz due **Tuesday, July 29 at 6:00 AM ET**

Live Classrooms:

- **Tuesday, July 15 from 8:00 to 9:15 PM ET**
- **Thursday, July 22 from 8:00 to 9:15 PM ET**

Module 7 Study Guide and Deliverables
(July 29 to August 11)

Readings:

- Online - Introduction to Object Oriented Programming
- zyBooks Module 7 Part 1 & Part 2– all sections not marked optional

Assignments:

- Assignment 13 due **Tuesday, August 5 at 6:00 AM ET**
- Assignment 14 due **Tuesday, August 12 at 6:00 AM ET**

Assessments:

- Module 7 Quiz due **Tuesday, August 12 at 6:00 AM ET**

Course Evaluation:

Please complete the course evaluation once you receive an email or Blackboard notification indicating the evaluation is open. Your feedback is important to MET, as it helps us make improvements to the program and the course for future students.

Live Classrooms:

- **Tuesday, July 29 from 8:00 to 9:15 PM ET**
- **Tuesday, August 5 from 8:00 to 9:15 PM ET**

Final Exam Details

The Final Exam is a proctored exam available from **Wednesday, August 13 at 6:00 AM ET to Saturday, August 16 at 11:59 PM ET**. The exam is only accessible during the final exam period. You can access it from the Assessments section of the course.

The Computer Science department requires that all final exams be administered using an online proctoring service that you will access via your course in Blackboard. In order to take the exam, you are required to have a working webcam and computer that meets the proctoring system requirements. A detailed list of those requirements can be found on the How to Schedule page. 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.

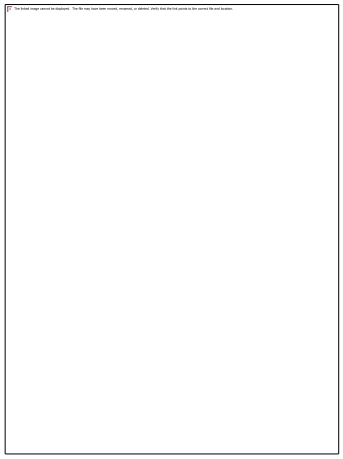
Final Exam Duration: **3 hours**

This is a **closed book/closed notes exam**. You cannot bring any materials to the exam. You cannot access any web-based content other than the course exam during the three-hour period.

You can take the exam only once. The exam features **multiple-answer and multiple-choice questions.**

Resources

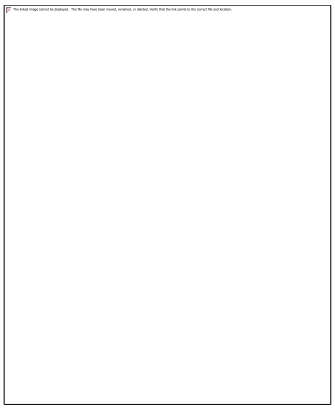
Required Books



Spiegel, M. R., & Moyer, R. E. (2018). *Schaum's outline of college algebra* (5th Edition). New York: McGraw-Hill Companies, Inc.
ISBN 9781260120769.

A list of errata for this book

This eTextbook can be purchased from Barnes and Noble at Boston University.



Programming in Java with zyLabs

You may purchase online at www.zybooks.com. **The code for purchasing the book will be distributed after the semester starts**. Make sure you pick your correct group number and facilitator as your section when you register for the book. (Note: You will know your group number and facilitator name after logging into the course for the first time. Thus, you cannot purchase this book until after the course starts. We will not use this textbook until Week 7 of the course, so you will have plenty of time to get it setup.)

Required Software

You will be implementing a relational database using the MySQL relational database management system. You will use a distribution of MySQL called XAMPP which includes an apache web server, php, phpMyAdmin, and MySQL in the form of MariaDB. MariaDB is a carbon-copy version of MySQL that is maintained by one of the original writers of MySQL. For all practical purposes, it is identical to MySQL. The XAMPP software runs on a Mac, UNIX or Windows machine and is freely available at Apache Friends.

You will be writing Java programs in this course and using latest version of the open source JDK 17 from the AdoptOpenJDK website. Instructions for downloading and installing this software can be found in module 4.

To facilitate the program development process, we will be using the newest version of Eclipse integrated development environment (IDE). This is an industrial-strength IDE used to develop large systems based on Java. Eclipse is also used in MET CS520. Instructions for downloading and installing this software can be found in module 4.

Both the JDK and Eclipse have versions that run under Windows, OS X, and Linux..

General Software

We prefer if you submit all assignments in Microsoft Word (*.doc or *.docx) format. If you can't submit your work in a Word format, please make sure you submit your documents as a PDF. To download Office 365 (for free!) go to: Microsoft Office for Boston University Students

You might also find a drawing program, such as Microsoft Azure Dev Tools for Teaching, useful in drawing diagrams required in some assignments but hand drawn diagrams are acceptable. Microsoft Azure Dev Tools for Teaching is available free to you from the Microsoft Imagine program discussed in a later section of this syllabus.

Live Classroom

In this class we will use a Live Classroom which is accessible through your browser. You will need headphones to hear audio, and if you want to talk directly to me you will need a microphone as well. However, most students use the chat feature and interact with me via their keyboard.

There will be an IT Live Classroom session every week. These sessions will be recorded and archived to allow you to access them whenever convenient for you if you can't attend live. Live Classroom sessions provide you with an opportunity to talk with me and ask questions. Live Classroom sessions always start off with important announcements for the week. I will then review the more challenging parts of the material and provide additional background material you might find helpful in understanding the module material. The live classroom will be presented using slides, the electronic whiteboard and shared desktop. I will also use the Live Classrooms to demonstrate program design, implementation and debugging. The Live Classroom supports chat, voice conferencing over telephone or internet, and a variety of visual interaction facilities, including PowerPoint slides and even video if we choose to use it.

I look forward to talking with you, discussing the material, and answering your questions during live classroom so I hope you make it a priority to attend live on Zoom each week.

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

You will find links to the class recordings by Thursday morning each week. We do have to wait for Zoom to send an email saying the recording is ready before we can post it in the course. Thanks ahead of time for your patience with this!

Live Classroom Instructions and Procedures

Complete instructions and procedures, as well as description of features and tools, for Live Classroom are available in the Help section of the left-hand navigation panel.

Math Class Recordings

We have a series of twelve recordings that discuss the math material and answer student questions. These recordings have important support material for the math topics covered in this course.

Each week, another of the twelve recordings will be available in Math Class Recordings, and by the 12th week all will be available. The last two weeks of the course have no new Math material. If you have questions about any of the math topics, problems, or quizzes, these recordings should answer them. You are also encouraged to contact your facilitator for help.

Live Offices

This course includes a "Live Office" scheduled by each facilitator and one for the professor. Live Offices are similar to Live Classroom, except for a few minor configuration differences. Live Offices are a good way for facilitators and students to go over their assignments or other course material, because it supports convenient document or web sharing and voice. If you plan to take advantage of Live Office sessions, I recommend that you purchase a headset designed to plug into the audio jacks or USB port on your computer. This will give you the ability to talk directly with your facilitator. These headsets are available from many vendors. The price ranges from $10 for a basic but serviceable model up to $50 for a professional model. You may alternatively telephone into the Live Classroom as you would to a conference call. If you are in a quiet room, you can probably join the Live Office and communicate with the facilitator using the microphone intrinsic to your computer.

If you would like to make an appointment with your facilitator in the live office at another time, please contact your facilitator directly to arrange a convenient time. Please keep in mind that most facilitators work full-time in industry so evening hours and the weekend are usually the best times for appointments.

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 Collections to access eBooks and eJournals directly.

If you have questions about library resources, go to Ask a Librarian: Help & FAQs to email the library or use the live-chat feature.

To locate course eReserves, go to 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 services by Tutor.com are available to BU online students for the duration of their eligible online course. Tutor.com is a web-based service that provides an online writing lab and access to on-demand and scheduled tutoring sessions for writing, math, business, coding languages, and other subjects. Students can submit a question to a tutor, submit a paper for feedback about writing and grammar, or schedule a live session with a tutor.

You can log in directly to Tutor.com from Blackboard Online Campus by clicking the link in the left-hand navigation menu within your online course. All activity in the Tutor.com classroom is recorded for learner review and quality control. Transcripts will be available afterward in My Account under My Locker in your Tutor.com account.

Please Note

Tutor.com services 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 Tutor.com account.

Course Grading Information

The course is organized into seven learning modules, each two weeks long. All seven modules consist of one or two major information technology related topics and the first six modules also contain a mathematics component. Each module generally includes:

- two sets of review questions (one set IT related, the other math related)
- two graded math quizzes (only the first 6 modules)
- one graded IT quiz
- two graded IT assignments

- an optional math assignment which is not graded, however solutions are available online (only the first 6 modules)
- an optional extra credit discussion question in each module.

Grading Percentages	
Math Quizzes	20
IT Module Quizzes	20
Assignments	30
Final exam	30

There is an optional extra credit discussion question in each module. Participation in all discussions is worth a maximum of 3% towards your final grade. The discussion questions are accessible on the Class Discussion page in online campus course page.

Math quizzes are averaged based on total points since each quiz has a different number of questions. Each math question is worth 10 points. Your total math quiz points earned will be divided by the total points possible.

Letter grades will be assigned based on numeric average ranges according to the following:

Grade	**Approximate Numeric Grade Range**	**Grade Points**
A	95–100	4.0
A-	91–94.99	3.7
B+	87–90.99	3.3
B	83–86.99	3.0
B-	80–82.99	2.7
C+	76–79.99	2.3
C	72–75.99	2.0
C-	68–71.99	1.7
D	60–67.99	1.0
Fail	<60	0

Late Policy

While this course is online, it is not self-paced. It has been our experience that if a student gets behind in completing the material he or she will have great difficulty catching up, and sometimes never does. For these reasons, it is important that you complete the assignments and quizzes on time each week. Solutions to the assignments and answers to the quiz questions will be provided each week approximately 48 hours after the deadline.

To encourage timely submissions of assignments, as well as to be fair to everyone, there is a 10-point deduction for assignments submitted up to 24 hours late, and a 20-point deduction for

assignments submitted 24–48 hours late. No assignments will be accepted 48 hours after the deadline.

Late quizzes are not accepted. Once the deadline on a weekly quiz is reached, the quiz is automatically made unavailable. Extending the deadline for a quiz is rarely done so be sure to complete quizzes in a timely fashion. If you have an extenuating circumstance (such as a death in the family or an unexpected hospital visit or serious illness), contact your facilitator quickly and he or she will work with the instructor to consider granting an exception to this policy. Work demands or just forgetting to take a quiz is not a valid extenuating circumstance since you have a full week to schedule time in your schedule to take the quiz. Timely communication with your facilitator is essential if you have an extenuating circumstance affecting the submission of your work. Ideally, you should communicate with the facilitator before the due date passes.

No assignments or quizzes will be accepted for any reason once the solution has been released!

Please note late work is not accepted for week 14 deliverables for any reason due to the opening of the final exam the day after the Week 14 due date.

Quiz Instructions

Accessing the Quiz

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

Review Questions

- The review questions are for practice.
- The review questions are similar to the ones which will appear in quizzes.
- Your results on the review questions will not affect your grade.
- Unlike the quizzes, you may try the review questions as often as you would like.
- You are not required to take the review questions, although we strongly encourage you to do so.

Quiz Details

- You can access the quiz details from the assessments menu.
- The questions are either multiple answer (choose all that apply) or multiple choice (choose one).
- All questions are randomized including the order in which they appear as well as the order of the choices in multiple choice questions.
- 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 45 minutes for the module (IT) quizzes and 60 minutes for the math quizzes. You should have enough time so that you aren't rushed.
- You can take each graded quiz only once.
- You may not pause the quiz and return to it later.
- You will be able to continue to save answers to questions after the time has expired, but any late answers will be time stamped and marked as late. This will allow us to grade your quiz fairly in the event that technical difficulties occur while you take your quiz.

Saving Answers

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

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

Other Questions

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

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.

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

888-243-4596 or local 617-353-4357 or Web

Check your open tickets using BU's ticketing system.

Final Exam Overview

This is a comprehensive exam. There will be questions from each week's subject matter.

How do I access the exam?

You will not have access to the exam until you are in a proctored setting. The Final Exam is password protected and will appear in a separate section on your home page.

Note

A page instructing how to schedule your proctored final exam will be visible by week 12 of this course.

How much time will I have?

You will have three hours to complete the exam. Also note:

- You can take this exam only once.
- You may not pause the exam and return to it later.
- When the allotted time ends, any questions saved after that time will be marked late, but you will be allowed to continue, just as in the quizzes. Let your proctor and facilitator know if you need to use this overtime feature because of technical difficulties.

What should I bring? What may I refer to during the exam?

- Do not bring any course materials. It is a closed-book exam. Personal electronic devices may not be used.
- You may not access any information online during the exam.
- No calculators will be allowed.
- You will not have access to the course (online lecture notes) during the exam.

What is the format of the exam?

- The final exam contains multiple choice and multiple answer questions.
- All questions are randomized.
- The exam questions will display one at a time on your screen.
- You may skip over questions and revisit them in any order.

What is the procedure for answering exam questions?

The final exam procedure is the same as the weekly quizzes:

- 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.

What if I have a comment to make about a particular exam question?

There is a short answer area at the end of the exam; it appears as an exam question, but there are no points for this item. Use this as a place to provide feedback about the exam as a whole or to comment upon a particular question. Be sure to include the question title so that the facilitator will know the exact item you are referring to.

Your facilitator will examine your comments, in order to decide whether a grade adjustment or other action should be taken.

Questions

If you have any questions about the exam please feel free to contact your facilitator or Instructor in advance. During the exam, report any concerns or questions to your proctor first.

If you encounter technical difficulties that interfere with your ability to complete the exam on time, be sure to tell your proctor and your facilitator promptly.

Good Luck!

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 BU Virtual. 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, Michelle Younger. Michelle administers the academic aspects of the program, including admissions and registration. You can ask her questions about the program, registration, course offerings, graduation, or any other program-related topic. She can be reached at metcsol@bu.edu or (617) 353-2566.

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

Professor Guanglan Zhang, Computer Science Department Chairman. You can reach Professor Zhang at guanglan@bu.edu or at 617-358-5688.

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 Zhang, 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

BU Virtual 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 MyBU Student Portal, 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: System requirements for Windows, macOS
- Two-factor authentication service for BU applications: Duo Security

Downloads

- Recommended web browsers: Mozilla Firefox or Google Chrome
- Synchronous live classroom sessions (Zoom): Zoom download center
- Courses with proctored exams: Desktop or laptop computer with Google Chrome or Microsoft Edge
- Two-factor authentication service for BU applications (Duo Security): optional Duo Mobile download for iOS or Duo Mobile download for Android

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 a link in the left-hand course navigation OR in the Assessments section. This link will not appear until scheduling opens. The BU Virtual

Assessment Administrator will notify you when it is time to schedule your exam. Details on the 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.

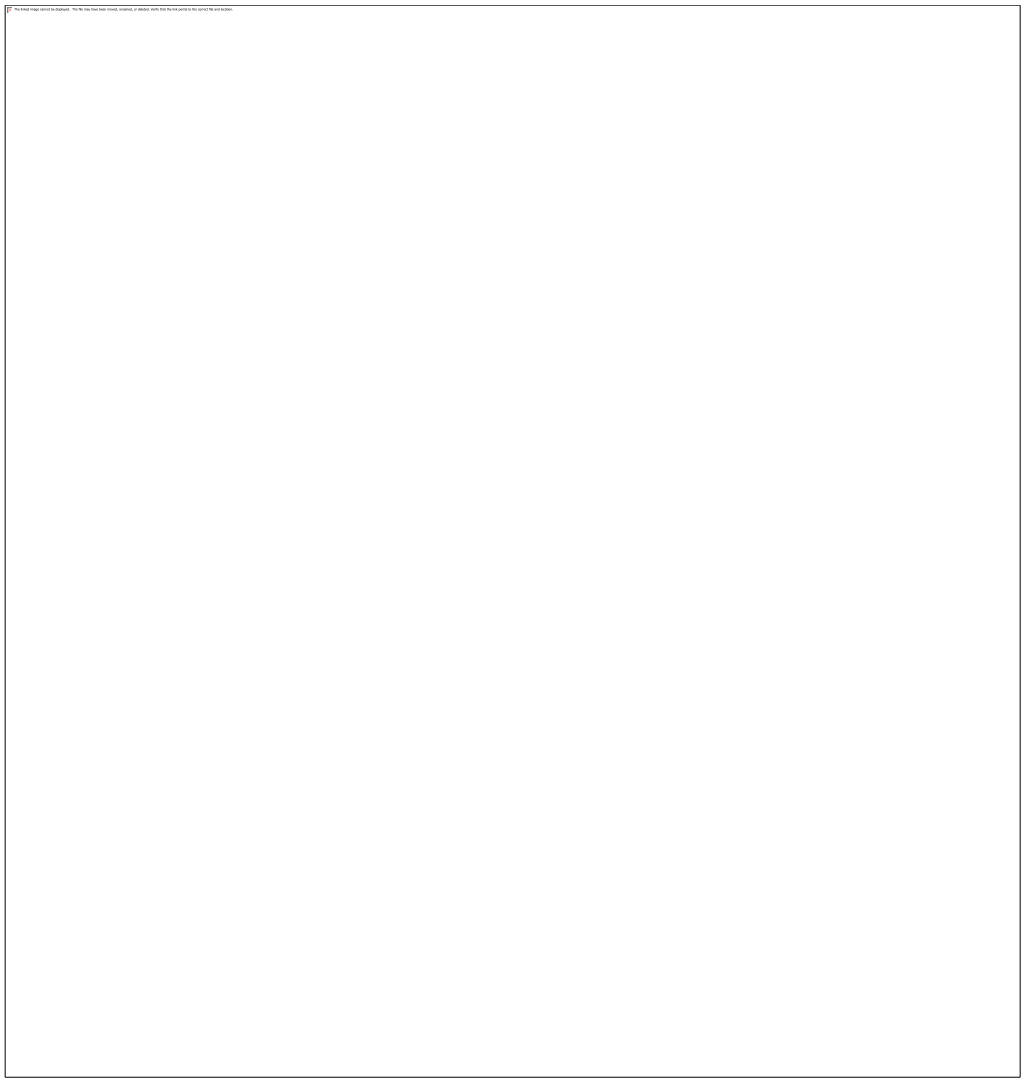
Navigating Courses

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

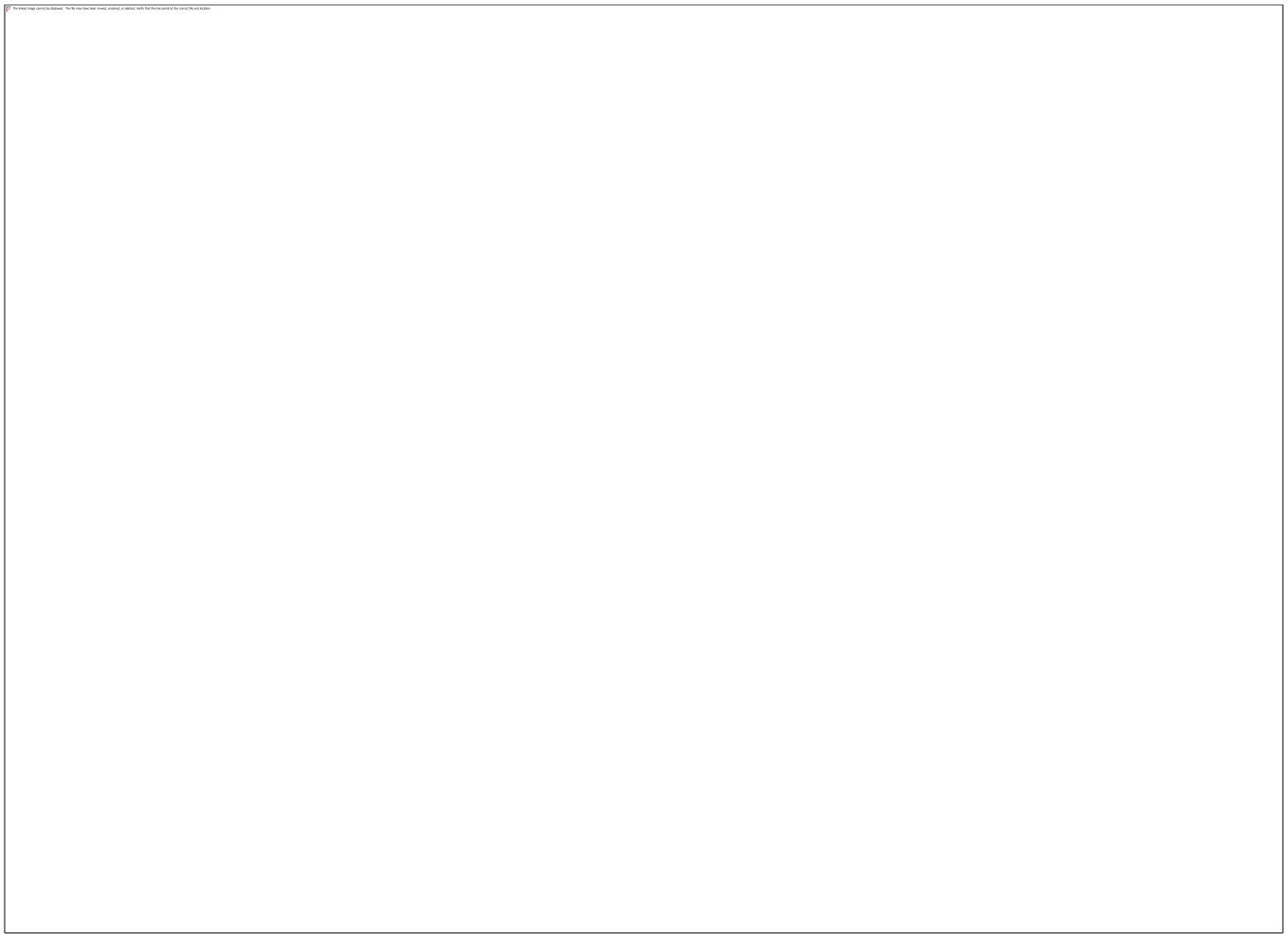
The Blackboard navigation tools—shown in the images below—allow you to show and hide both the Course Menu and the Table of Contents which can free up space when moving through weekly lecture material.

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:


The linked image cannot be displayed. The file may have been moved, renamed, or deleted. Verify that the link points to the correct file and location.