

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 CS 625

Business Data Communication and Networks

Computer networks dominate today's information technologies and are essential for a business to compete in the global marketplace. This course is intended to provide you with knowledge and understanding of basic concepts of data communication in business environments, as well as of computer networks and protocols. The material will be presented in the context of the internet reference model, with a particular focus on the network, transport, and application layers. Frequently used protocols are presented, which illustrate concepts and provide insight into practical networks. Examples include widely used network protocols, such as the TCP/IP suite. Those who have completed the course will have the basic knowledge of computer networks and data communications.

Course Overview

This course begins with a brief history of communications, information systems, and the internet to help the student understand the evolution of different network models and current standards. Application architectures and their relevance to specific network-based applications—such as the web, email, FTP, telnet, and IM—are presented. The physical layer is presented in the form of basic data-communications concepts over both wired and wireless transmission media. Data link-layer responsibilities are covered, including media access, error control, data link protocols, and transmission efficiency. The basic functions of the network and transport layers are explained in the context of design issues, addressing, routing, and internetworking. The TCP/IP suite of protocols is used for an in-depth example. LANs are covered in detail, including components, Ethernet, design, and performance. Wireless networks—including Wi-Fi, WiMAX, and Bluetooth—and best practices in WLAN design are then presented. Networks are covered in depth to address the needs of an enterprise backbone,

including components, architectures, virtual LANs, technologies, and best practices in design. Moving from the local-area networking environment, metropolitan and wide-area networking technologies are covered. The course then concludes with significant coverage of network security, network design, and network management

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- and 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, depending on the settings of your browser.

Course Objectives

The course will enable you to do the following:

- Understand the role of network layering, the internet-layer model, and current standards
- Understand the major application architectures and applications that follow them
- Be familiar with the different types of network circuits and media, and understand how analog/digital data is transmitted with analog/digital signals
- Understand how communication is done reliably
- Understand how messages are moved from end to end via routers
- Understand LAN and WLAN technologies, and design a LAN and a WLAN
- Understand enterprise LAN technologies, including backbones, ATM, and gigabit Ethernet
- Understand circuit-switched, dedicated-circuit, and packet-switched services
- Understand the overall design of the internet and access technologies
- Understand network security, design, and management issues

Learning Outcomes

By successfully completing this course you will be able to do the following:

- Effectively use networking terminology
- Design a small network
- Choose a networking technology suitable to solve a business problem
- Communicate successfully with networking professionals
- Apply basic network- and security-management techniques
- Evaluate new networking technologies

- Advance your knowledge of networking by taking additional courses or through self-study

Instructor

Maryan Rizinski

Computer Science Department
Metropolitan College
Boston University
1010 Commonwealth Ave, 3rd
floor
Boston, MA 02215



Maryan Rizinski received his B.Sc. degree in electrical engineering, with a major in electronics and telecommunications, in 2006; and his M.Sc. degree in electrical engineering and information technologies, with a major in wireless and mobile communications, in 2011 from the Ss. Cyril and Methodius University in Skopje in the Republic of Macedonia. His research interests are in the areas of information theory, wireless communications, and cooperative networks. Prior to starting his master's degree, he worked as an IT project expert in Macedonia's major electric-power company. Since 2011, he has been working as a support engineer in ProSyst Software GmbH, a leading provider of software middleware for the internet of things. He has been facilitating the course MET CS 625, Business Data Communications and Networking, since 2013 and has also been involved in course-development work.

Office Hours and Questions: You will have ample opportunity for questions at our many Live Classrooms. I also welcome your questions via Online Campus and standard email.

Initial Course Developer

Lou Chitkushev, Ph.D.

Computer Science Department
Boston University Metropolitan
College
1010 Commonwealth Ave., 3rd
floor
Boston, MA 02215



Professor Chitkushev is the Chairman of the Computer Science Department at Boston University's Metropolitan College, director of Information Security and Biometrics Laboratories, and the Coordinator of the Graduate program in Telecommunications.

He is co-founder and Associate Director of the Boston University Center for Reliable Information Systems and Cyber Security (RISCS), which was established to promote and coordinate research on reliable and secure computation and information assurance education by developing ideas and tools to protect critical computational infrastructure and producing a growing number of highly educated research professionals with expertise in information reliability and security.

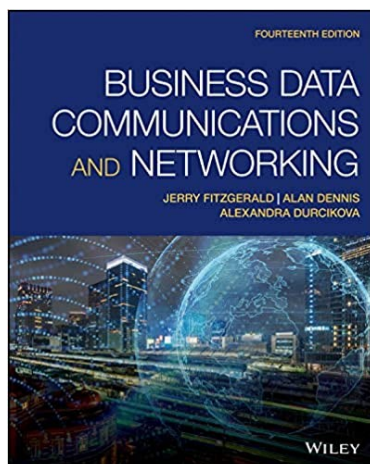
Professor Chitkushev was part of the academic team that played a crucial role in the initiatives leading to Boston University's designation as a National Center of Academic Excellence in Information Assurance Education and Research by the National Security Agency and U.S. Department of Homeland Security.

Throughout his career, Dr. Chitkushev has made scientific contributions and has lectured in the areas of data communications, advanced Internet technologies, medical informatics, and network security. He has served on a number of scientific committees and international telecom standard bodies, and has been a review panelist for the National Science Foundation.

Professor Chitkushev holds a Ph.D. in Biomedical Engineering (Bioinformatics) from Boston University, an M.S. in Biomedical Engineering from Medical College of Virginia, and an M.S. and B.S in Electronics and Telecommunications from University of Belgrade, Yugoslavia. He has extensive international industrial and academic consulting experience in the areas of telecommunications, data assurance, and biomedical informatics, with a number of leading IT corporations and government agencies.

Course Materials and Resources

Required Course Materials



FitzGerald, J., Dennis, A., & Durcikova, A. (2021). *Business data communications and networking* (14th ed.). John Wiley and Sons. ISBN: 9781119702849.

Welcome To First Day™ Delivery For Your Course

To enhance your learning experience and simplify access to the right materials for your class, your course materials have been integrated directly into your course.

Benefits of The Program

- Exclusive preferred pricing
- Guaranteed the right materials
- Single Sign-On
- Ready to go on day one
- Course materials charge will be placed on your student account
- Option to Opt-Out on the first day of class.

Accessing Your Materials

To access the required materials for your course, click on *Course Materials (Barnes & Noble)* in the left-hand menu in Blackboard. To navigate back to the course, click on the course title at the top left of your Blackboard screen.

Boston University will bill you at the discounted price as a course charge for this course. Please be advised it is NOT recommended that you Opt-Out, as these materials are required by your professor to complete the course. You can choose to Opt-Out on the first day of class, but you will be responsible for purchasing your course materials at the Opt-Out price.

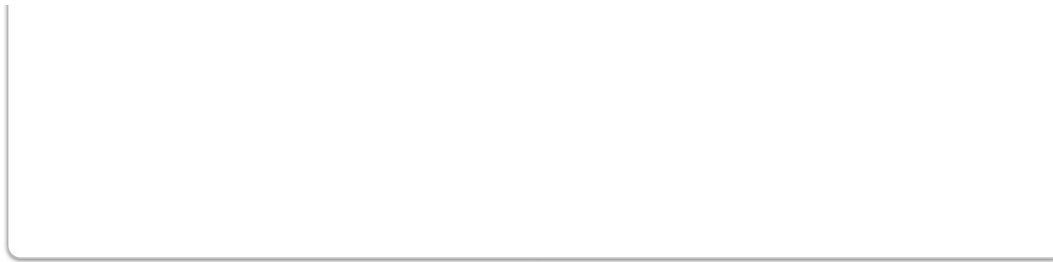
For more information and FAQs visit Barnes and Noble at Boston University [customer care page](#).

For students who opt-out an eBook may be available at [Vitalsource.com](https://www.vitalsource.com) or through Amazon. Students may also use the 13th edition.

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. Videos cannot be played from Printable Lectures. Please view media in the module.



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 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.

Study Guide

This course starts on a **Tuesday**. The modules in this course run from **Tuesday to Monday**.

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 on Saturdays (11:00 AM to 1:00 PM Eastern Time), for six weeks starting from the first week of the course. Additional sessions or schedule adjustments may be announced during 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

| | |
|-----------------|---|
| Readings: | <ul style="list-style-type: none">• Online lecture material plus the following chapters from the textbook:<ul style="list-style-type: none">◦ Chapter 1 - Introduction to Networking◦ Chapter 2 - Application Layer◦ Chapter 3 - Physical Layer |
| Assignments: | <ul style="list-style-type: none">• Concepts Assignment 1 and Lab 1 due Wednesday, January 22 at 6:00 AM ET |
| Assessments: | <ul style="list-style-type: none">• Quiz 1 due Wednesday, January 22 at 6:00 AM ET |
| Live Classroom: | <ul style="list-style-type: none">• Saturday, January 18 from 11:00 AM–1:00 PM ET |

Module 2 Study Guide and Deliverables

- Readings:
- Online lecture material plus the following chapters from the textbook:
 - Chapter 4 - Data Link Layer
 - Chapter 5 - Network and Transport Layers
- Assignments:
- Concepts Assignment 2 and Lab 2 due **Wednesday, January 29 at 6:00 AM ET**
- Assessments:
- Quiz 2 due **Wednesday, January 29 at 6:00 AM ET**
- Live Classroom:
- **Saturday, January 25 from 5:00–7:00 PM ET**

Module 3 Study Guide and Deliverables

- Readings:
- Online lecture material plus the following chapters from the textbook:
 - Chapter 6 - Network Design
 - Chapter 7 - Wired and Wireless Local Area Networks
- Assignments:
- Concepts Assignment 3 and Lab 3 due **Wednesday, February 5 at 6:00 AM ET**
- Assessments:
- Quiz 3 due **Wednesday, February 5 at 6:00 AM ET**
- Live Classroom:
- **Saturday, February 1 from 5:00–7:00 PM ET**

Module 4 Study Guide and Deliverables

- Readings:
- Online lecture material plus the following chapters from the textbook:
 - Chapter 8 - Backbone Networks
 - Chapter 9 - Wide Area Networks
- Assignments:
- Concepts Assignment 4 and Lab 4 due **Wednesday, February 12 at 6:00 AM ET**
- Assessments:
- Quiz 4 due **Wednesday, February 12 at 6:00 AM ET**
- Live Classroom:
- **Saturday, February 8 from 5:00–7:00 PM ET**

Module 5 Study Guide and Deliverables

- Readings:
- Online lecture material plus the following chapters from the textbook:
 - Chapter 10 - The Internet
 - Chapter 11 - Network Security
- Assignments:
- Concepts Assignment 5 and Lab 5 due **Wednesday, February 19 at 6:00 AM ET**
- Assessments:
- Quiz 5 due **Wednesday, February 19 at 6:00 AM ET**
- Live Classroom:
- **Saturday, February 15 from 11:00 AM–1:00 PM ET**

Module 6 Study Guide and Deliverables

- Readings:
- Online lecture material plus the following chapters from the textbook:
 - Chapter 12 - Network Management
- Assignments:
- Concepts Assignment 6 and Lab 6 due **Wednesday, February 26 at 6:00 AM ET**
- Assessments:
- Quiz 6 due **Wednesday, February 26 at 6:00 AM ET**
- Live Classroom:
- **Saturday, February 22 from 11:00 AM–1:00 PM 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..

Final Exam Details

The final exam is a proctored exam available from **Wednesday, February 26 at 6:00 AM ET to Saturday, March 1, at 11:59 PM ET**. 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. 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.

Please note that student activity during the final exam is monitored and recorded in log files. Accessing any online or other material during the final exam is a major violation of the course policy and can result in serious academic disciplinary actions.

Final Exam duration: **two hours**

The exam consists of 24 questions in total, out of which 18 are multiple-response based and 6 are essay based.

Course Grading Information

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

Course Structure

The course is organized as a sequence of six main modules, plus a seventh module for the Final Exam. Each of the six main modules includes assigned textbook readings and online lectures in text, graphic, and video formats. You have an opportunity each week to participate in supplemental, synchronous Live Classroom sessions where

you can interact with me and our lead facilitator; these live sessions are recorded in case you are unable to attend the session. Each of the six modules also includes graded concepts assignments, labs, and quizzes.

Grade Weighting

The following table summarizes the five kinds of graded items and the default percentage of your grade determined by each. These types of graded items are explained below.

| Deliverable | Weight |
|----------------------|---------------|
| Concepts Assignments | 25% |
| Labs | 25% |
| Quizzes | 20% |
| Final Exam | 30% |

Concepts Assignments

In each of the six modules, you will complete concepts assignments that will help you solidify the concepts you have read in the textbook and online lectures. If you are stuck and just can't complete part of an assignment, send what you have completed to your facilitator via Online Campus email, asking for help. Your facilitator can then provide you with guidance in the areas where you are stuck, and return the partial assignment to you for further work.

Labs

In each of the six modules, you will complete hands-on labs that will help you gain important technical skills in data communications and networking.

Quizzes

There is one review quiz in each of the six modules. These review quizzes are primarily to help you prepare you for the module quizzes. When you finish a review quiz, you will see the questions; your answer, the correct answer, and tutorial material for each question; and grading rubrics for paragraph questions and references in the text. The review quizzes do not count toward your grade. You can take the review quizzes at any time, as many times as you want.

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

Final Exam

There will be a Final Exam in this course, proctored by a service called Examity. Detailed instructions for your proctored exam are forthcoming from the Assessment Administrator. You will be responsible for scheduling your own appointment. You will have three hours to complete the exam; this should be plenty of time. The intent of the Final Exam is to evaluate your mastery of the course material; so, if you learn the course material well, you will do well on the Final Exam.

Note that your overall Final Exam score will be released to you, but the questions and answers will not be released. This is to maintain the integrity of the Final Exam for concurrent and future online and on-campus runnings of this course.

Grading Structure

Your assignments, quizzes, term project, and Final Exam will be graded on a percentage basis. The following table summarizes the typical correspondence of percentage grades and letter grades for individual graded items.

| Letter Grade | Approximate Grade Range by Percentage | Grade Points |
|--------------|--|--------------|
| A | 95.0–100.0 | 4.0 |
| A– | 90.0–94.9 | 3.7 |
| B+ | 87.0–89.9 | 3.3 |
| B | 83.0–86.9 | 3.0 |
| B– | 80.0–82.9 | 2.7 |
| C+ | 77.0–79.9 | 2.3 |
| C | 73.0–76.9 | 2.0 |
| C– | 70.0–72.9 | 1.7 |

| | | |
|---|-----------|-----|
| D | 60.0–69.9 | 1.0 |
| F | 0.0–59.9 | 0.0 |

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

The percentage ranges above are approximate. Your letter grade is determined by your professor as the best overall measure of how well you have demonstrated that you understand the material, taking into separate consideration your performance on the quizzes, assignments, term project, and Final Exam. Additional grading criteria include any substantial difference in your performance on the proctored Final Exam and the general trend of your scores over the term.

How We Help You Succeed

We on the teaching team are eager to see you learn and succeed in the course. We treat each person with respect and professionalism, work hard to give everyone a great learning experience, and strive to be fair to everyone in the course. To these ends, the following describes how we structure the course to best help you.

Getting Help

The teaching team is here to help you. We are happy to answer your questions about the course material, course administration, and course structure, as well as where to find the material for specific assignment and lab problems. We have an “Ask the Facilitators” forum, monitored by all facilitators, where you may ask questions. We have many live sessions that help explain the material and give you a chance to ask questions in real time. If you find that something is not covered in the material adequately, ask away! We are happy to help.

We do follow a policy whereby all items you submit (assignments, labs, quizzes, projects, and so on) must be authored by you. Facilitators do not provide solutions before submission. We do, however, offer live sessions with problems similar to the assignments and labs, and show you how to solve them, step by step.

Researching

We strive to provide you with many resources in the course, so that the course materials provide for the bulk of your research. These include the textbook, online lectures, live sessions, email communications, and your questions in the forum. You are free to use quality external sources as needed to fill in extra details. We do follow a policy that research materials should not include submissions from current or prior students for the same

assignment or lab. We want each person in the course to go through the healthy struggle of answering each question, for the sake of learning—not to bypass the learning process by copying from others.

Including Others' Material

While most of your work will be written in your own words, it is reasonable to include others' work where it provides benefit. While we ask that you clearly delineate between your own work and others' work through citations (such as APA-style citations), we do not expect you to cite everything you write. It is only necessary to cite information that is not common knowledge in the field, and verbatim quotes from others' material

Interacting With Your Facilitator

Your facilitator is here to help you. We carefully select facilitators based upon their academic and industry experience, as well as their ability to interact positively with students. We also continually vet facilitators based upon feedback in course evaluations. Many of our facilitators have years of experience and proven track records.

We follow a policy whereby each person in the course is assigned to a facilitator randomly, to help ensure fairness. We want to give you the best experience possible in the course; so, if—despite our efforts and process—your facilitator engages in what you see as misconduct, please let the course instructor know. While course enrollees are not able to switch facilitators upon request, your instructor will work with you to remedy the situation in other ways.

Review Of Your Submissions

Your facilitator uses a grading rubric in combination with course and field experience to thoughtfully assign each item a fair and objective grade. The grading rubric was developed by the instructor and has been vetted over time. Due to their experience, facilitators will see both areas needing improvement and areas exhibiting excellence in most submissions. You will receive feedback on both. We instruct facilitators to be respectful and kind in their words, and to accurately point out both types of area. Dialoguing about the review of your submissions is a great way to learn what worked well and what could be improved, and this is encouraged. Your facilitator is happy to further explain his or her comments and the reason for a grade determination if something is unclear.

To be fair to all, the same grading process is used for every person in every group. Facilitators are not allowed to negotiate grades individually (unless something is really off, of course).

Submission Schedule

To keep the course running smoothly for everyone, we have a schedule of when assignments, labs, quizzes, and

so on should be submitted. If you find yourself unable to complete an item by its deadline due to circumstances outside of your control, please dialogue with your facilitator about this in advance of the deadline (unless an emergency makes this impossible, of course). We may request additional documentation, but we are happy to accommodate your situation as much as we are able.

We endeavor to be both reasonable and equitable to everyone, since each person in the course sacrifices much to keep pace with this demanding schedule. If an item is submitted after its deadline without approval, the item will still be reviewed and graded; however, 5 points will be deducted from its grade per day, to a maximum of 20 points.

Life-Impacting Events

While we wish for each person enrolled in the course to enjoy a regular, uninterrupted course term, we recognize that emergencies and other life-impacting events can happen during the semester. Examples of such events are a car accident, a death in the family, and the loss of a job. We will do everything we can to support you in the course if this happens, and we do have some options. Please reach out to the teaching team as soon as you are able to explain your situation and open a dialogue about your best course options. For some situations, we may be able to offer a flexible schedule to enable you to catch up on the course deliverables. For others, we may be able to offer an incomplete grade and allow you to finish a few items after the course term is over. While we do not systematically require documentation from all situations, we may require it from some at our discretion.

Incompletes, while helpful when situations merits them, carry some disadvantages, as well—especially the fact that those who take incompletes do not have access to peers, facilitators, and live sessions in the same capacity as when the course is running. We prefer to use other options, when possible, and rely on incompletes as a last resort. If a life-impacting event occurs that affects your ability to proceed with the course, please contact us to explore your options.

Concepts Assignment-Grading Rubric

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

Your facilitator will grade your assignment submissions with the grading rubric below. Your facilitator will use the following mappings of letter grades to number grades:

| A+ | A | A- | B+ | B | B- | C+ | C | C- | D | F |
|-----|----|----|----|----|----|----|----|----|----|---|
| 100 | 96 | 92 | 88 | 85 | 82 | 78 | 75 | 72 | 67 | 0 |

To avoid subjectivity and maintain consistency among facilitator groups, facilitators will use only the letter-to-number mappings given above and will not attempt to further distinguish a number grade. For example, if you receive an A for both criteria, then your assignment grade will be a 96, and facilitators will not attempt to distinguish between a 97, a 96, and a 95. If you receive an A– for both criteria, your assignment grade will be a 92, and facilitators will not attempt to distinguish between a 93, a 92, and a 91.

| | Grade | Qualities Demonstrated in the Assignment Submission |
|--|-------|--|
| Content (70%) <i>Measures the quality of the content in the assignment</i> | A+ | The content demonstrates exceptional understanding of all relevant subject matter and its interrelationships. All major, relevant issues are thoroughly covered, and all content is very focused and on-topic. There is no known way to improve the content, and there are absolutely no technical or coverage errors present. |
| | A | The content demonstrates exceptional understanding of all relevant subject matter and its interrelationships. All major, relevant issues are thoroughly covered, and all content is very focused and on-topic. At most, one insignificant technical or coverage error may be present. |
| | A– | The content demonstrates deep understanding of all relevant subject matter and its interrelationships. All major, relevant issues are covered, and all content is on-topic. |
| | B+ | The content demonstrates understanding of all relevant subject matter and its interrelationships. Almost all major, relevant issues are covered, and the content is at least reasonably on-topic. |
| | B | The content demonstrates understanding of most relevant subject matter and its interrelationships. Almost all major, relevant issues are covered, and all content is at least reasonably on-topic. |
| | B– | The content demonstrates moderate understanding of much relevant subject matter and its interrelationships. There is reasonable coverage of major, relevant issues, and the content is at least reasonably on-topic. |
| | C+ | The content demonstrates some understanding of relevant subject matter and its interrelationships. Some major, relevant issues are covered, and at least some content is on-topic. |
| | C | The content demonstrates understanding of a small portion of the relevant subject matter and its interrelationships. Some major, relevant issues are covered, and at least a small portion of the content is on-topic. |

| | | |
|--|----|---|
| | C- | The content demonstrates little understanding of and insight into the relevant subject matter and its interrelationships. A small portion of the major, relevant issues are covered. The focus of the content may be off-topic or on insubstantial or secondary topics. |
| | D | The content demonstrates almost no understanding of or insight into the relevant subject matter and its interrelationships. Almost none of the major, relevant issues are covered, and the content may be almost entirely off-topic. |
| | F | The content demonstrates no understanding of or insight into the relevant subject matter and its interrelationships. No major, relevant issues are covered, and the content is entirely off-topic. |
| Exposition (30%) <i>Measures how well the content is expressed</i> | A+ | The presentation of all ideas and designs is exceptionally clear and persuasive; the entire submission is exceptionally organized. There is no known way to improve the clarity or organization of the submission. |
| | A | The presentation of all ideas and designs is exceptionally clear and persuasive; the entire submission is exceptionally organized. There may be, at most, one insignificant way to improve the clarity or organization of the submission. |
| | A- | The presentation of all ideas and designs is very clear and persuasive; the entire submission is highly organized. |
| | B+ | The presentation of all ideas and designs is clear and persuasive; the entire submission is organized. |
| | B | The presentation of most ideas and designs is clear and persuasive; most of the submission is organized. |
| | B- | The presentation of most ideas and designs is generally clear; most of the submission is reasonably organized. |
| | C+ | Some parts of the submission are hard to understand; some parts are disorganized. |
| | C | About half of the submission is hard to understand; about half is disorganized. |
| | C- | Most parts of the submission are hard to understand; most parts are disorganized. |

| | | |
|--|---|--|
| | D | Almost all of the submission is hard to understand and disorganized. |
| | F | The entire submission is hard to understand and disorganized. |

Lab-Grading Rubric

All lab submissions are evaluated on the correctness and completeness of the answers and answer justifications, as well as the applicability and correct implementation of the methodologies used to derive the answers.

Your facilitator will grade your assignment submissions with the grading rubric below. Your facilitator will use the following mappings of letter grades to number grades:

| | | | | | | | | | | |
|-----------|----------|-----------|-----------|----------|-----------|-----------|----------|-----------|----------|----------|
| A+ | A | A- | B+ | B | B- | C+ | C | C- | D | F |
| 100 | 96 | 92 | 88 | 85 | 82 | 78 | 75 | 72 | 67 | 0 |

To avoid subjectivity and maintain consistency among facilitator groups, facilitators will use only the letter-to-number mappings given above and will not attempt to further distinguish a number grade. For example, if you receive an A, your lab grade will be a 96, and facilitators will not attempt to distinguish between a 97, a 96, and a 95. If you receive an A-, your lab grade will be a 92, and facilitators will not attempt to distinguish between a 93, a 92, and a 91.

The table below summarizes the qualities that must be demonstrated in the lab submission to be assigned the corresponding grade.

| | Letter Grade | Qualities Demonstrated by the Lab Submission |
|--|--------------|--|
| Answers and Methodology <i>Measures the correctness and completeness of the answers and methodology used for lab steps</i> | A+ | The answers and answer justifications, where required, are entirely complete and correct for all steps. The methodologies used to derive the answers are entirely applicable to the given problems and implemented correctly for all steps. There are absolutely no technical or other errors present. |
| | A | One insignificant technical or other error is present, but otherwise, the answers and answer justifications, where required, are entirely complete and correct for all steps. Excluding the insignificant error, the methodologies used to derive the answers are entirely |

| | |
|----|---|
| | applicable to the given problems and implemented correctly for all steps. |
| A- | One or two technical or other errors are present, but otherwise, the answers and answer justifications, where required, are entirely complete and correct for all steps. Excluding the one or two errors, the methodologies used to derive the answers are entirely applicable to the given problems and implemented correctly for all steps. |
| B+ | The answers and answer justifications, where required, are complete and correct for most steps. Likewise, the methodologies used to derive the answers are applicable to the given problems and implemented correctly for most steps. |
| B | The answers are correct or almost correct for most steps. Some required answer justifications may be missing or incorrect, but most are present and correct. The methodologies used to derive the answers are applicable to the given problems and implemented correctly for most steps. |
| B- | The answers and answer justifications, where required, are complete and correct for about three-fourths of the steps. Likewise, the methodologies used to derive the answers are applicable to the given problems and implemented correctly for about three-fourths of the steps. |
| C+ | The answers are correct or almost correct for about three-fourths of the steps. Some answer justifications may be missing or incorrect. The methodologies used to derive the answers are applicable to the given problems and implemented correctly for about three-fourths of the steps. |
| C | The answers for about half of the steps are either missing or incorrect. Likewise, the methodologies used for about half of the steps are either inapplicable to the given problems or implemented incorrectly. Some required answer justifications are missing or incorrect. |

| | | |
|--|----|--|
| | C- | The answers for most of the steps are either missing or incorrect. Likewise, the methodologies used for most of the steps are either inapplicable to the given problem or implemented incorrectly. Some required answer justifications are missing or incorrect. |
| | D | The answers for almost all of the steps are either missing or incorrect. Likewise, the methodologies used for almost all of the steps are either inapplicable to the given problems or implemented incorrectly. Some required answer justifications are missing or incorrect. |
| | F | The answers for virtually all of the steps are either missing or incorrect. Likewise, the methodologies used for virtually all of the steps are either inapplicable to the given problems or implemented incorrectly. Some or all required answer justifications are missing or incorrect. |

Quiz Instructions

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. The quiz closes the second morning of the following module, at 6:00 AM ET. If you miss the deadline, contact your facilitator immediately.

Quiz Details

- You can access the quiz details from the “Assessments” menu.
- You will have **105 minutes** to complete the quiz. If you exit the quiz and reenter at a later time, the clock will still run during the time you are away from the quiz.
- Each quiz has 20 choose-multiple and multiple-choice questions.
- There is an optional 21st question (worth 0 points) for which you may provide comments. These comments will be reviewed by your facilitator and considered when he/she grades the quiz. This is an opportunity for you to let us know if you feel that a certain question or answer had some ambiguity, or you want to clarify your choice for a certain question.
- Not every student will have identical quiz questions. The quiz is generated separately for each student from a large question pool.
- The order of all questions and answers is randomized.
- The points for each question are shown.

- The quiz questions will display one at a time on your screen.
- You may skip over questions and revisit them in any order.

Also note the following:

- You can take each quiz only once.
- 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.
- Click only the radio button/check box to choose an answer. Clicking the white space around the question choice can sometimes select that choice.

How to Handle Technical Difficulties

If you experience technical issues with your quiz, sometimes you will be able to continue simply by connecting to Blackboard through a different web browser. This is because your web browser may be in a problematic state. You can use Firefox, Google Chrome, Safari, or Opera. This is an easy workaround to try that will resolve many technical quiz issues.

If using a different browser does not resolve your issue, as would be the case with an internet-connectivity problem, please complete the quiz as soon as you regain access to it, giving yourself only 75 minutes of total working time. You would do this by subtracting any time lost due to the technical issue from the quiz timer. Though the quiz timer still runs during technical issues, going over 75 minutes will not prevent you from completing the quiz. After you complete your quiz, please email your facilitator immediately, explaining the issue, and we will verify your story with the logs provided within Blackboard, which show us exactly which question was accessed and the time spent on each question. Stories that cannot be corroborated with the Blackboard logs will not be accepted.

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 "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.

Other Questions

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

Technical Support

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

| IT Help Center Support | |
|------------------------|---|
| Email | ithelp@bu.edu (Please put "BB Learn Question" in the subject line) |
| Web | http://www.bu.edu/help/tech/ |
| Phone | (888) 243-4596 |

Academic Conduct Policy

Please visit Metropolitan College's website for the full text of the department's [Academic Conduct Code](#).

A Definition of Plagiarism

"The academic counterpart of the bank embezzler and of the manufacturer who mislabels products is the plagiarist: the student or scholar who leads readers to believe that what they are reading is the original work of the writer when it is not. If it could be assumed that the distinction between plagiarism and honest use of sources is perfectly clear in everyone's mind, there would be no need for the explanation that follows; merely the warning with which this definition concludes would be enough. But it is apparent that sometimes people of goodwill draw the suspicion of guilt upon themselves (and, indeed, are guilty) simply because they are not aware of the illegitimacy of certain kinds of "borrowing" and of the procedures for correct identification of materials other than those gained through independent research and reflection."

"The spectrum is a wide one. At one end there is a word-for-word copying of another's writing without enclosing the copied passage in quotation marks and identifying it in a footnote, both of which are necessary. (This includes, of course, the copying of all or any part of another student's paper.) It hardly seems possible that anyone of college age or more could do that without clear intent to deceive. At the other end there is the almost casual slipping in of a particularly apt term which one has come across in reading and which so aptly expresses one's opinion that one is tempted to make it personal property."

"Between these poles there are degrees and degrees, but they may be roughly placed in two groups. Close to outright and blatant deceit-but more the result, perhaps, of laziness than of bad intent-is the patching together of random jottings made in the course of reading, generally without careful identification of their source, and then woven into the text, so that the result is a mosaic of other people's ideas and words, the writer's sole contribution being the cement to hold the pieces together. Indicative of more effort and, for that reason, somewhat closer to honest, though still dishonest, is the paraphrase, and abbreviated (and often skillfully prepared) restatement of someone else's analysis or conclusion, without acknowledgment that another person's text has been the basis for the recapitulation."

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

Academic Conduct Code

I. Philosophy of Discipline

The objective of Boston University in enforcing academic rules is to promote a community atmosphere in which learning can best take place. Such an atmosphere can be maintained only so long as every student believes that his or her academic competence is being judged fairly and that he or she will not be put at a disadvantage because of someone else's dishonesty. Penalties should be carefully determined so as to be no more and no less than required to maintain the desired atmosphere. In defining violations of this code, the intent is to protect the integrity of the educational process.

II. Academic Misconduct

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

III. Violations of this Code

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

- A. **Cheating on examination.** Any attempt by a student to alter his or her performance on an examination in violation of that examination's stated or commonly understood ground rules.
- B. **Plagiarism.** Representing the work of another as one's own. Plagiarism includes but is not limited to the following: copying the answers of another student on an examination, copying or restating the work or ideas of another person or persons in any oral or written work (printed or electronic) without citing the appropriate source, and collaborating with someone else in an academic endeavor without acknowledging his or her contribution. Plagiarism can consist of acts of commission-appropriating

the words or ideas of another or omission failing to acknowledge/document/credit the source or creator of words or ideas (see below for a detailed definition of plagiarism). It also includes colluding with someone else in an academic endeavor without acknowledging his or her contribution, using audio or video footage that comes from another source (including work done by another student) without permission and acknowledgement of that source.

- C. **Misrepresentation or falsification of data** presented for surveys, experiments, reports, etc., which includes but is not limited to: citing authors that do not exist; citing interviews that never took place, or field work that was not completed.
- D. **Theft of an examination.** Stealing or otherwise discovering and/or making known to others the contents of an examination that has not yet been administered.
- E. **Unauthorized communication during examinations.** Any unauthorized communication may be considered prima facie evidence of cheating.
- F. **Knowingly allowing another student to represent your work as his or her own.** This includes providing a copy of your paper or laboratory report to another student without the explicit permission of the instructor(s).
- G. **Forgery, alteration, or knowing misuse of graded examinations, quizzes, grade lists, or official records of documents,** including but not limited to transcripts from any institution, letters of recommendation, degree certificates, examinations, quizzes, or other work after submission.
- H. **Theft or destruction of examinations or papers** after submission.
 - I. **Submitting the same work in more than one course** without the consent of instructors.
- J. **Altering or destroying another student's work or records,** altering records of any kind, removing materials from libraries or offices without consent, or in any way interfering with the work of others so as to impede their academic performance.
- K. **Violation of the rules governing teamwork.** Unless the instructor of a course otherwise specifically provides instructions to the contrary, the following rules apply to teamwork: 1. No team member shall intentionally restrict or inhibit another team member's access to team meetings, team work-in-progress, or other team activities without the express authorization of the instructor. 2. All team members shall be held responsible for the content of all teamwork submitted for evaluation as if each team member had individually submitted the entire work product of their team as their own work.
- L. **Failure to sit in a specifically assigned seat during examinations.**
- M. **Conduct in a professional field assignment that violates the policies and regulations of the host school or agency.**
- N. **Conduct in violation of public law occurring outside the University that directly affects the academic and professional status of the student, after civil authorities have imposed sanctions.**
- O. **Attempting improperly to influence the award of any credit, grade, or honor.**
- P. **Intentionally making false statements to the Academic Conduct Committee or intentionally presenting false information to the Committee.**
- Q. **Failure to comply with the sanctions imposed under the authority of this code.**

Important Message on Final Exams

Dear Boston University Computer Science Online Student,

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

By requiring proctored finals, we are ensuring the excellence and fairness of our program. The final exam is administered online.

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 Faculty and Student Support Administrator, Rachel Regis. Rachel is here to ensure you have a positive online experience. You will receive emails and announcements from Rachel throughout the semester. Rachel 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, Rachel 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 bleug@bu.edu.

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 (Examity): [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 (Examity): 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

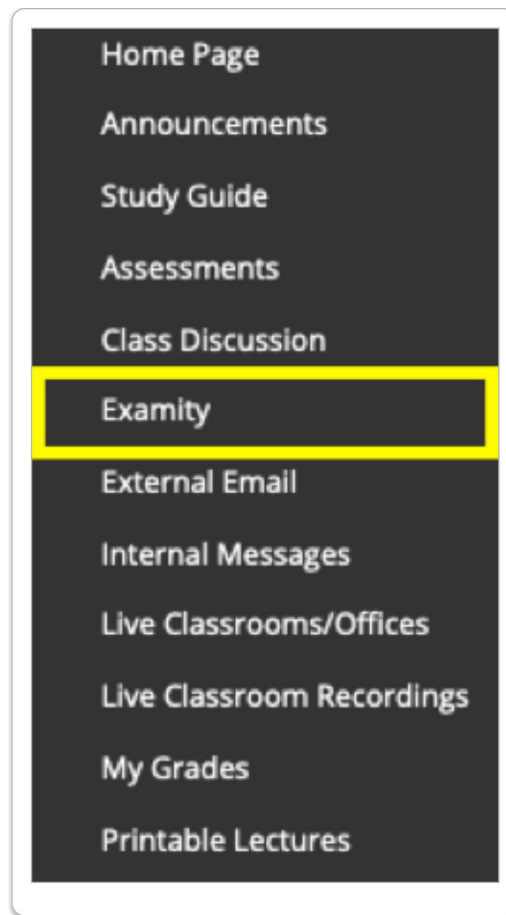
- Desktop or laptop computer recommended for best experience, some course functionality including proctored exams are not compatible with phones or tablets
- Headset with built-in microphone for high quality audio during live classroom sessions
- Webcam (required for proctored exams)
- Working computer 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 an Examity link in the left-hand course navigation. 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 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—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:

■ 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

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

DE Student Orientation 
(2020 Spring 2)

Home Page

Announcements

Assessments

Assignments

Calendar

Class Discussion

External Email

Internal Messages

Table of Contents

■ □ ↗

Page 1 of 9 >

Hide Course Menu

1. **Welcome**

2. Student Orientation Cour

3. Course Objectives

4. Setting Up Your Comput

5. Blackboard App for Onli

6. Disability Services

7. Netiquette

8. Registration Informatio

9. Technical Support

Boston University Metropolitan College