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.

Description

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

MET CS 677

Data Science With Python

At the present time, there is a growing need for specialists with background in Python who can apply data science methods to practical problems at their workplace. Working in data science requires an understanding of many interdisciplinary concepts, involves data mining and application of various methods.

The course is designed to fill this need. Students will learn major Python tools and techniques for data science and machine learning. There are weekly assignments projects on topics covered in class. These assignments will help students build necessary statistical, visualization and other data science skills for effective use of data science in a variety of applications including finance, text processing, time series analysis and recommendation systems. In addition, students will choose a topic in data science for a final project.

In the course, in order to help students learn and practice, the following teaching approaches are implemented:

1. many simple examples
2. extensive visualization
3. Python code implementations

The course can be taken by students with not exclusively computer science backgrounds who have basic knowledge of Python.

Prerequisites: MET CS 521 or equivalent.

Learning Objectives

By successfully completing this course, you will be able to:

1. Use different features of Python and Numeric Python.
2. Design and develop applications using pandas and graphics, data scaling, error analysis, IRIS dataset.
3. Design and develop applications with logistic regression and nearest neighbor classification.
4. Design and develop applications with linear models and regression.
5. Design and develop applications using decision trees, random forests, and naive bayesian.
6. Design and develop applications using support vector machines and *k*-means clustering.

Instructor

Joshua Enxing

Computer Science Department

Metropolitan College

Boston University

Email: jenxing@bu.edu

Joshua Enxing has been involved with teaching in the MET CS department since 2012 when he was an undergraduate at Boston University. Currently, in the Metropolitan College he teaches CS677 and facilitates CS546 and CS566, while teaching various math and computer science courses at other Boston-area universities. He has worked in many different positions in the technical field, among them are software developer, data scientist, and statistical programmer. During his time at Tufts University, he served as Vice President and then President of the Tufts Chapter of SIAM (Society of Industrial and Applied Mathematics). In conjunction with colleagues at Tufts University, he was part of NSF-funded research dealing with novel methods for diffuse optical tomography image reconstruction. Current areas of research include nonparametric statistics, machine learning, and data science.

Course Developer: Eugene Pinsky, Ph.D

Computer Science Department
Metropolitan College
Boston University
1010 Commonwealth Avenue, Room 327
Email: epinsky@bu.edu

Dr. Eugene Pinsky received his B.A. in Mathematics from Harvard University and his Ph.D. in Computer Science from Columbia University. He has taught extensively both in academia and industry. His research interests are in performance analysis and computational algorithms in data science and machine learning with emphasis

on computational finance and programmatic advertising.

Materials

Required Book
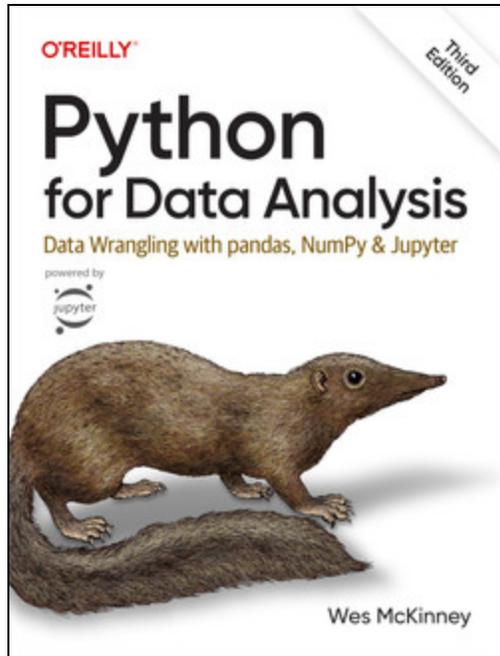
McKinney, W. (2022)

***Python for Data Analysis: Data Wrangling with Pandas, NumPy, and IPython* (3rd edition)**

Publisher: O'Reilly Media.

ISBN-13: 978-1098104030

ISBN-10: 109810403X

This book can be purchased from <u>Barnes and Noble at Boston University</u>. An e-book is available at Vitalsource.com or through Amazon. If you already have the second edition, you can use the second edition for the course.

Note: The book will be referred in the Study Guide as "McKinney book".

Recommended Books

Fandango, A. (2017)

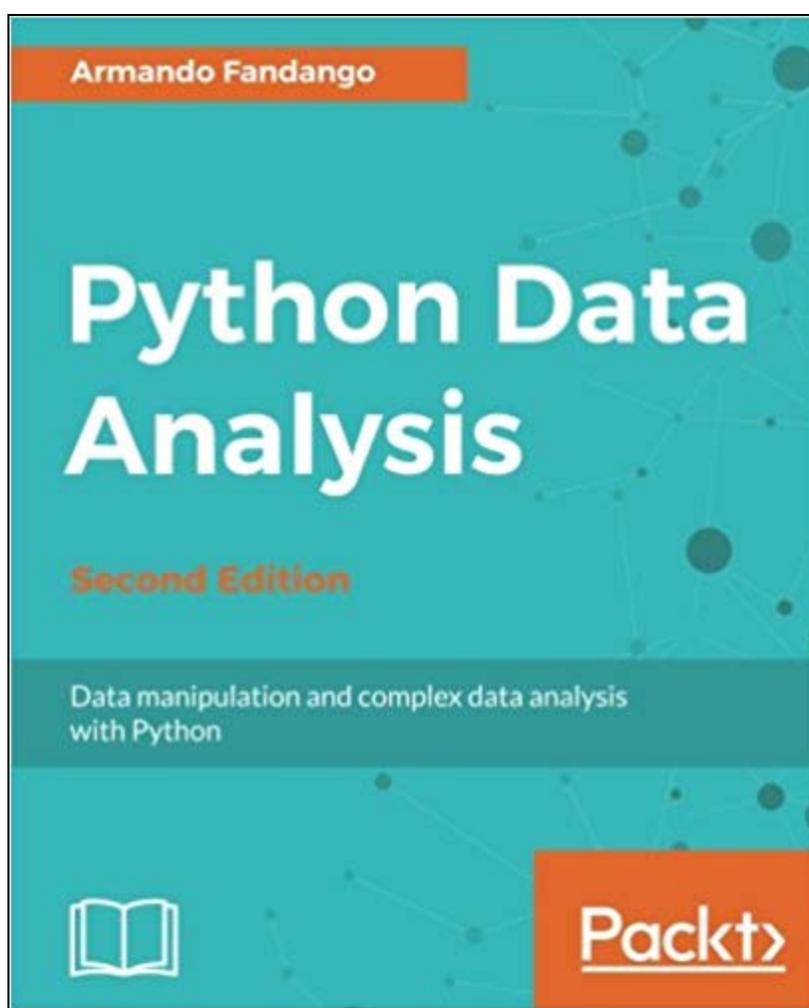***Python Data Analysis* (2nd edition)**

Publisher: Packt Publishing.

ISBN-13: 978-1787127487

ISBN-10: 1787127486

The book is NOT required for the course. It's an optional reference that may be handy for your learning.

This book can be purchased from Barnes and Noble at Boston University. An e-book is available at Vitalsource.com or through Amazon.

VanderPlas, J. (2022)
***Python Data Science Handbook: Essential Tools for Working with Data*** (2nd edition)
Publisher: O'Reilly Media.

ISBN-13: 978-1098121228
ISBN-10: 1098121228

The book is NOT required for the course. It's an optional reference that may be handy for your learning. The first edition is fine to use as well.

This book can be purchased from Barnes and Noble at Boston University. An e-book is available at Vitalsource.com or through Amazon.
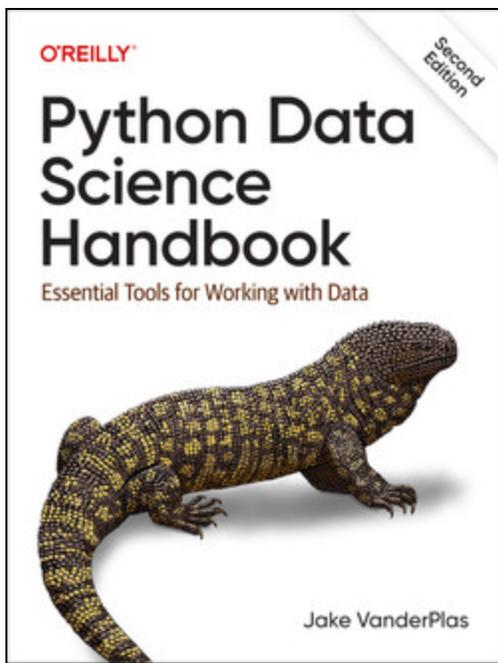
Deisenroth, M. P., Faisal, A. A., & Ong. C. S. (2020)

Mathematics for Machine Learning

Publisher: Cambridge University Press.

ISBN-13: 978-1108455145

ISBN-10: 110845514X

The book is NOT required for the course. It's an optional reference that may be handy for your learning.

[A free ebook and resources are available from the authors](). This book can be purchased from [Barnes and Noble at Boston University]().
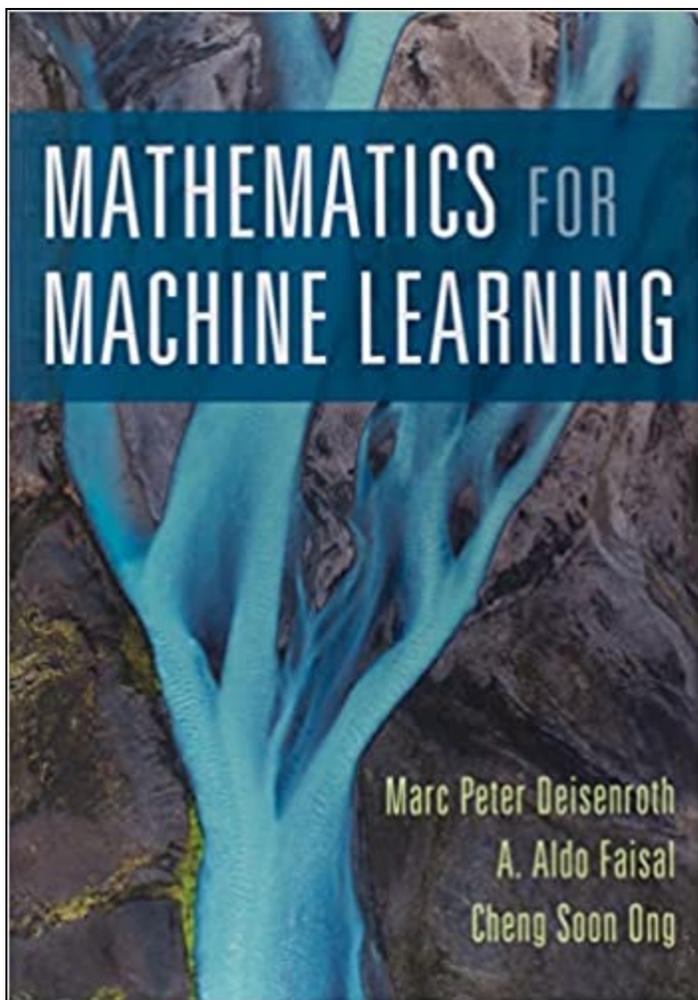
Additional Materials and Tutorials

- [Python Tutorials](#)
- Numeric Python:
    - [Numpy Tutorial](#)
    - [NumPy Quickstart Tutorial](#)
- Scientific Python & Plotting:
    - [One Document to Learn Numerics, Science, and Data with Python](#)
    - [Pyplot tutorial](#)
    - [Matplotlib Tutorial – A Complete Guide to Python Plot w/ Examples](#)
- Pandas:

- - Python Pandas – Timedelta
  - Pandas Tutorial: Data analysis with Python: Part 1
  - Pandas Tutorial: DataFrames in Python
- Machine learning with Python:
  - Machine Learning with Python Tutorial
  - Scikit-learn Tutorial: Machine Learning in Python
- List of tutorials:
  - Machine Learning in Practice

Boston University Library Information

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

met_ode_library_14_sp1_00_intro video cannot be displayed here

All of the videos in the series are available on the Online Library Resources page, which is also accessible from the Campus Bookmarks section of your Online Campus Dashboard. Please feel free to make use of them.

As Boston University students, you have full access to the BU Library. From any computer, you can gain access to anything at the library that is electronically formatted. To connect to the library, use the link http://www.bu.edu/library. You may use the library's content whether you are connected through your online course or

not, by confirming your status as a BU community member using your Kerberos password.

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

> Go to [Collections](#) to access eBooks and eJournals directly.
>
> If you have questions about library resources, go to [Ask A Librarian](#) 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.

Study Guide

Module 1 Study Guide and Deliverables

March 12 – March 18

Theme and Topics: Review of Python, Numeric Python (Numpy), and Numpy Slicing and Indexing

Required Reading:
- McKinney book, Chapters 1 & 2
- Module 1 online notes

Assessments: Quiz 1:

- Available Friday, March 15 at 6:00 AM ET
- Due on Tuesday, March 19 at 6:00 PM ET

Go to "Assessments" on the left-hand course menu to take the Quiz.

Assignments: Assignment 1 due Tuesday, March 19 at 6:00 PM ET

Go to "Assignments" on the left-hand course menu to turn in the assignment.

Live Classrooms: Join the live classroom and the facilitator's live office hour session at "Live Classroom/Offices" on the left-hand course menu > "Live Classroom" > Launch Meeting.

- Tuesday, March 12, 7:00 – 8:30 PM ET
- Thursday, March 14, 7:00 – 8:30 PM ET
- Facilitator live session: TBD

Module 2 Study Guide and Deliverables

March 19 – March 25

Theme and Topics: Pandas, Matplotlib & Seaborn, Error Analysis, Model Selection Trade-offs

Required Reading:	• McKinney book, Chapters 4, 5, & 8 • Module 2 online notes

Assessments:	Quiz 2:
	
	    • Available Friday, March 22 at 6:00 AM ET
	    • Due on Tuesday, March 26 at 6:00 PM ET
	
	Go to "Assessments" on the left-hand course menu to take the Quiz.

Assignments:	• Assignment 2 due Tuesday, March 26 at 6:00 PM ET • Final project topic for approval due Tuesday, March 26 at 6:00 PM ET. Go to "Assignments" on the left-hand course menu to turn in the assignment and project topic/proposal.

Live Classrooms:	Join the live classroom and the facilitator's live office hour session at "Live Classroom/Offices" on the left-hand course menu > "Live Classroom" > Launch Meeting.
	
	    • Tuesday, March 19, 7:00 – 8:30 PM ET
	    • Thursday, March 21, 7:00 – 8:30 PM ET
	    • Facilitator live session: TBD

Module 3 Study Guide and Deliverables

March 25 – April 1

Theme and Topics:	• Supervised learning and decision boundaries • Logistic regression and nearest neighbor classifiers • Parameter estimation with gradient descent
Required Reading:	Module 3 online notes
Assessments:	Quiz 3:

- Available Friday, March 29 at 6:00 AM ET
- Due on Tuesday, April 2 at 6:00 PM ET

Assignments:
- Assignment 3 due Tuesday, April 2 at 6:00 PM ET

Live Classrooms: Join the live classroom and the facilitator's live office hour session at "Live Classroom/Offices" > "Live Classroom" > Launch Meeting.

- Tuesday, March 26, 7:00 – 8:30 PM ET
- Thursday, March 28, 7:00 – 8:30 PM ET
- Facilitator live session: TBD

Module 4 Study Guide and Deliverables

April 2 – April 8

Theme and Topics:
- Linear and polynomial models for prediction
- Linear regression and classification
- Parameter estimation

Required Reading: Module 4 online notes

Assessments: Quiz 4:

- Available Friday, April 5 at 6:00 AM ET
- Due on Tuesday, April 9 at 6:00 PM ET

Assignments: Assignment 4 due Tuesday, April 9 at 6:00 PM ET

Live Classrooms:
- Tuesday, April 2, 7:00 – 8:30 PM ET
- Thursday, April 4, 7:00 – 8:30 PM ET
- Facilitator live session: TBD

Module 5 Study Guide and Deliverables

April 9 – April 15

Theme and Topics:
- Bayes rule and Naïve Bayesian Classification
- Decision trees
- Ensemble learning with random forest classifiers

Required Reading:
Module 5 online notes

Assessments:
Quiz 5:

- Available Friday, April 12 at 6:00 AM ET
- Due on Tuesday, April 16 at 6:00 PM ET

Assignments:
Assignment 5 due Tuesday, April 16 at 6:00 PM ET

Live Classrooms:
- Tuesday, April 9, 7:00 – 8:30 PM ET
- Thursday, April 11, 7:00 – 8:30 PM ET
- Facilitator live session: TBD

Module 6 Study Guide and Deliverables

April 16 – April 22

Theme and Topics:
- Large-margin classification and kernels
- Support Vector Machines
- Unsupervised learning
- *k*-means and other clustering methods

Required Reading:
Module 6 online notes

Assessments:
Quiz 6:

- Available Friday, April 19 at 6:00 AM ET

- Due on Tuesday, April 23 at 6:00 PM ET

Assignments: Assignment 6 due Tuesday, April 23 at 6:00 PM ET

Final Project: Final project due Thursday, April 25 at 6:00 PM ET

Where to submit:

- Presentation: The "Media Gallery" section in the left-hand course menu.
  - How to record a video and share at the "Media Gallery" section? Check out the direction to use Kaltura to capture and post or submit video.
- The summary, source file(s), and instructions how to run your code: The "Assignments" section in the left-hand course menu.

Live Classrooms:
- Tuesday, April 16, 7:00 – 8:30 PM ET
- Thursday, April 18, 7:00 – 8:30 PM ET
- Facilitator live session: TBD

Course Evaluation: Course Evaluation opens on **Monday, April 22, at 10:00 AM ET** and closes on **Sunday, April 28, at 11:59 PM ET**.

Please complete the course evaluation. 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, April 24 at 6:00 AM ET to Saturday, April 27 at 11:59 PM ET**.

The Computer Science department requires that all final exams be administered using an online proctoring service called Examity that you will access via your course in Blackboard. In order to take the exam, you are required to have a working webcam and computer that meets Examity's system requirements. A detailed list of those requirements can be found on the How to Schedule page ("Proctored Final Exam Information" module at the course home page). Additional information 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 close book/notes and is accessible only during the final exam period. You can access it from the Assessments section of the course. Your proctor will enter the password to start the exam.

Final Exam Duration: 3 hours.

The exam features multiple-choice questions.

Course Expectations and Grading Information

The course is divided into modules, each of which begins on a Tuesday and ends on the following Monday.

Course Grade Breakdown

The grade for the course is determined by the following:

Graded Items	Percentage of Grade
Assignments (every module)	35%
Quizzes (every module)	20%
Final Project • Note: Final project topics—submit for approval by the end of Module 3	15%
Final Exam (Module 7)	30%
TOTAL	**100%**

Graded Items

There are four components to your grades:

1. **Assignments**

   There will be six assignments, one per every module. The purpose of assignments is to help students apply what have learned in the module to application problems.

   > **Due time:** At the end of each module (check the Study Guide for the specific due date).
   >
   > **Where to complete:** The "Assignments" section in the left-hand course menu.

2. **Quizzes**

   There will be six quizzes, one per every module. The purpose of quizzes is to help students practice and keep current with the course material.

   > **Due time:** At the end of each module (check the Study Guide for the specific due date).
   >
   > **Where to complete:** The "Assessments" section in the left-hand course menu.

3. **Final Project**

   The Final Project direction will be available to you at the beginning of Module 3, at the "Assignments" section in the left-hand course menu.

   > **Due time:**
   > - At the end of Module 3: submit the project topic for approval.
   > - At the end of Module 6: final version submission. Please check the Study Guide for the specific due date.
   >
   > **Where to submit:**
   > - Presentation: The "Media Gallery" section in the left-hand course menu.
   >   - How to record a video and share at the "Media Gallery" section? Check out the direction to <u>use Kaltura to capture and post or submit video</u>.
   > - The summary, source file(s), and instructions how to run your code: The "Assignments" section in the left-hand course menu.

4. **Final Exam**

   There will be a proctored Final Exam in this course. Detailed instructions regarding your proctored exam will be forthcoming from the Assessment Administrator. You will be responsible for scheduling your own appointment.

   > **Due time:** Module 7 (check the Study Guide for the specific due date).
   >
   > **Where to complete:** The "Assessments" section in the left-hand course menu.

Rubrics

Final Project Rubric

The final project is graded according to the rubric below and is averaged using the following guidelines: A+ = 97, A = 95, A- = 90, B+ = 87, B = 85, B- = 80 etc. When a paper is considered outstanding, a score of up to 100 can be given.

Criteria	D	C	B	A
Correctness	No justification of correctness	Tests, comments, and explanations mostly correct	Tests, comments, and explanations justify correctness; honored all instructions	Tests, comments, and explanations justify correctness extremely well; complete and thorough; honored all instructions
Clarity	Unclear	Explained; somewhat clear	Every class, class relationship, and method clearly specified; well commented; clear; little redundant code	Every class, class relationship, and method precisely specified; thoroughly commented; entirely clear; negligible redundant code
Understanding	Minor understanding evidenced	Satisfactory understanding evidenced	Evidence of good understanding throughout	Evidence throughout of entirely thorough understanding

An A grade at Boston University is reserved for excellent work. If you are given and A, you are to be congratulated. The university officially designates good work as deserving of a B and we reward good work with a B accordingly. It is our obligation to tell you, as far as we can, what would improve your work. (That can sometimes be hard if you receive an A, of course.) If you don't see such feedback, please remind your instructor about it. Grades are an excellent motivator, but they are only means to an end rather than ends in themselves. The average grade in graduate courses is usually expected to be a B+. If the course average turns out to be less than this at the end of the term, and the class performance is not less than average, I am able to elevate some grades that fall on borderlines.

Ungraded Items:

- **Ungraded Discussion Forums:** There are ungraded discussion forums throughout the course. You are encouraged to share your knowledge and learn from your peers. Discussions forums are provided for your benefit. Some discussion forums involve the teaching team members; others are among students.

- **Live Classroom Sessions:** Live Classroom sessions will be offered during this course in Modules 1 through 6. In each module, students have a Live Classroom session with the instructor and another Live Classroom (or problem-solving session) with the facilitator. Days/times will be posted in the Study Guide and the "Announcements" area.
  - Your participation, while not mandatory, will be valuable to you and the class. To participate in the Live Classroom discussion, you will need to go to the "Live Classroom/Offices" area.
  - Live Classroom sessions will be recorded and archived for further viewing. You can go to the "Live Classroom Recordings" area to view the recordings.

Expectations

We recognize that emergencies occur in professional and personal lives. If one occurs that prevents your completion of homework by a deadline, please make this plain to your facilitator. This must be done in advance of the deadline (unless the emergency makes this impossible, of course), and should be accompanied by particulars that back it up. Additional documentation may be requested. **Otherwise, late work is accepted with 50% penalty.**

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

Who's Who: Roles and Responsibilities

You will meet many BU people in this course and program. Some of these people you will meet online, and some you will communicate with by email and telephone. There are many people behind the scenes, too, including instructional designers, faculty who assist with course preparation, and video and animation specialists.

People in Your Online Course in Addition to Your Fellow Students

Your Facilitator. Our classes are divided into small groups, and each group has its own facilitator. We carefully select and train our facilitators for their expertise in the subject matter and their excellence in teaching. Your facilitator is responsible for stimulating discussions in pedagogically useful areas, for answering your questions, and for grading homework assignments, discussions, term projects, and any manually graded quiz or final-exam questions. If you ask your facilitator a question by email, you should get a response within 24 hours, and usually faster. If you need a question answered urgently, post your question to one of the urgent help topics, where everyone can see it and answer it.

Your Professor. The professor for your course has primary responsibility for the course. If you have any questions that your facilitator doesn't answer quickly and to your satisfaction, then send your professor an email in the course, with a cc to your facilitator so that your facilitator is aware of your question and your professor's response.

Your Senior Faculty and Student Support Administrator, Jeff Behn. Jeff is here to ensure you have a positive online experience. You will receive emails and announcements from him throughout the semester. Jeff represents Boston University's university services and works for BU Virtual. He prepares students for milestones such as course launch, final exams, and course evaluations. He is a resource to both students and faculty. For example, he can direct your university questions and concerns to the appropriate party. He also handles general questions regarding Online Campus functionality for students, faculty, and facilitators, but he does not provide tech support. He is enrolled in all classes and can be contacted within the course through Online Campus email as it is running. You can also contact him by external email at jeffbehn@bu.edu or call (617) 358-1985.

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, Annie Imperato. Annie 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.

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

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

Professor Lou T. Chitkushev, Associate Dean for Academic Affairs, Metropolitan College. Dr. Chitkushev is responsible for the academic programs of Metropolitan College. Contact Professor Chitkushev with any issues that you feel have not been addressed adequately. The customary issue-escalation sequence after your course facilitator and course faculty is Professor Temkin, and then Professor Chitkushev.

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

Disability and Access Services

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

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

Netiquette

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](#)
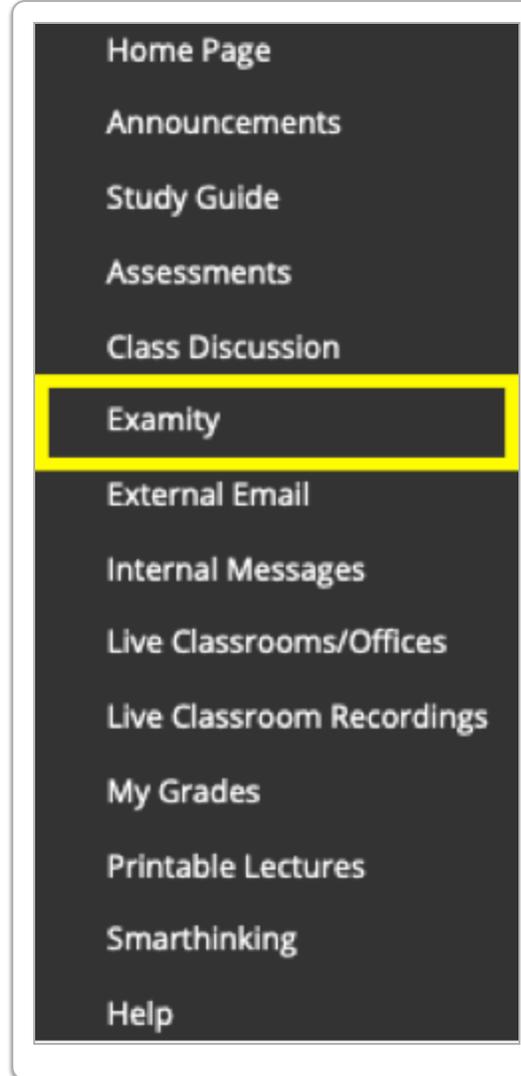
Recommended Hardware

- 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.
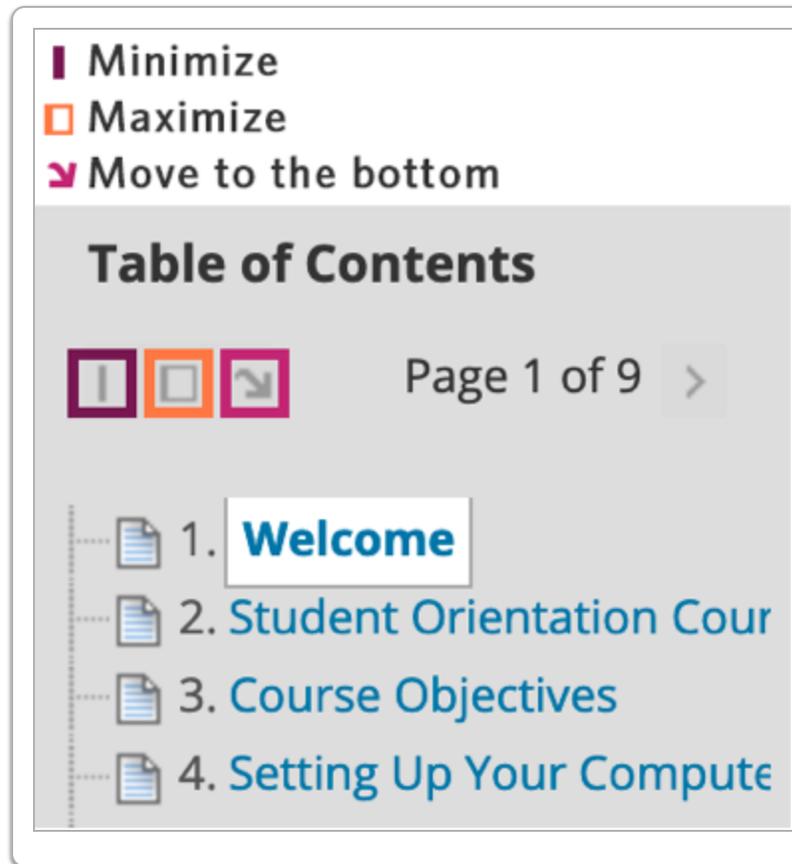
Home Page

Announcements

Study Guide

Assessments

Class Discussion

Examity

External Email

Internal Messages

Live Classrooms/Offices

Live Classroom Recordings

My Grades

Printable Lectures

Smarthinking

Help

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

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Boston University Metropolitan College