# Syllabus

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## Course Description

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

**MET CS580**

**Health Informatics**

The CS580 course presents the fundamental principles, concepts, and technological elements that make up the building blocks of Health Informatics. It introduces fundamental characteristics of data, information, and knowledge in the domain, the common algorithms for health applications, and IT components in representative clinical processes. It also introduces the conceptual framework for handling the collection, storage and the optimal use of biomedical data. It introduces the concepts of population health and precision medicine and the information systems that support them. It covers basic principles of knowledge management systems in biomedicine, various aspects of Health Information Technology standards, and IT aspects of clinical process modeling. There is also a term project to access students' ability to understand and implement simple Health Informatics solutions. One guest speaker, Stephen O'Halloran, with many years of experience in health IT will share his first-hand experience with students.

## Course Overview

Health informatics is a multi-disciplinary field at the intersection of information science, computer science, and health care. Health informatics is growing at a rapid pace and will continue to grow well into the future. A brief introduction to health informatics covers the key concepts, background disciplines, historical overview, and challenges ahead. Students will be introduced to the definitions and concepts of knowledge hierarchy: data, information, knowledge and wisdom, and the building blocks of Health Informatics: algorithms, medical decision-making, and clinical process modeling. Knowledge management systems and health IT standards will be also covered. A selection of case studies will be used to illustrate the applications of the concepts and algorithms.

The assessment will consist of weekly assignments, quizzes, and discussions that will test students' familiarity with study material and understanding of the concepts addressed in the materials and case studies. A final project tests students' overall understanding of the course content and requires students to develop a specific Health Informatics solution. The final exam will be based on the material covered in the course.

This course has been designed in accordance with Master's Degree curriculum requirements within the Accreditation Standards for Health Informatics and Health Information Management educational programs.

## Course Objectives

This course will enable you to:

- Become familiar with the basic definitions, key concepts, terminology, and historical context of Health Informatics
- Understand fundamental characteristics of data, information, and knowledge in the Health Informatics domain
- Become familiar with common algorithms for health applications and IT components in representative clinical processes
- Develop understanding of population health and precision medicine
- Understand basic principles of knowledge management systems in biomedicine
- Develop understanding of various aspects of Health Information Technology standards
- Become familiar with IT aspects of clinical process modeling and health information systems

## Course Outline

This course is presented as a series of weekly modules. The course material is grouped in six modules. The seventh module represents the week of the Final Examination. Each of the Modules 1–5 will have one or two lectures, one discussion topic, one quiz, and one assignment. There is also a term project to access the students' ability to understanding and implement simple Health Informatics solutions. Module 6 will be a review session covering the key points taught in the course and student project presentations.

**Readings** - Each week there are online lessons and research paper readings. Your professor may suggest additional readings during the running of the course.

**Discussions** - There will be graded weekly discussions between you and your classmates. These discussions are moderated by facilitators and professors. Postings for each discussion should be completed by the assigned due dates. Again, check the calendar for these due dates. There are also general discussions boards, which are not graded, for you to use to discuss any issues with your classmates. Please see the Discussion module on the home page for more details.

**Assignments** - There will be weekly assignments throughout the course. Please check the Study Guide for due dates.

**Assessments** - The weekly quizzes they will be listed in the Study Guide. Be sure to check it to ensure that you complete them before the due date. Quizzes may be a combination of True/False, single/multiple choice, and short essay questions.

## Module One – **Introduction to Health Informatics & Data, Information, and Knowledge**

Lecture One:

- Introduction to health informatics and its significance
- Definitions and key concepts in health informatics
- Background disciplines, historical overview, and future challenges

Lecture Two:

- Introduction to knowledge hierarchy: Data, information, and knowledge
- The definitions of healthcare data and information
- Types of healthcare information (internal versus external data and information)
- The major purposes of maintain patient records
- The content and uses of patient records and claim content
- The common issues related to healthcare data quality
- The challenges associated with measuring and ensuring healthcare data quality
- Quality assessment including total quality management and data quality
- Introduction to biomedical research and publicly available resources

## Module Two – **The National Landscape of Healthcare IT & History of Healthcare Information System**

Lecture Three:

- The major influences shaping the health IT landscape in the US
- The roles played by the major government initiatives and private sectors in advancing health IT in the US
- The major events that have influences the adoption of health IT and systems

Lecture Four:

- History and evolution of healthcare information systems (HCIS)
- The major advances in information technology and significant federal initiatives that influenced the adoption of healthcare information systems
- The major types of administrative and clinical information systems used in healthcare
- Current issues pertaining to the use HCIS

## Module Three – Medical Algorithms & Medical Decision Making

Lecture Five:

- Various ways to describe algorithms, such as flowchart, pseudocode, and conceptual graph
- Introduction to medical algorithms
- Algorithms in computer science, such as decision tree and regression
- Calculation of measurements of classification performance—sensitivity and specificity

Lecture Six:

- Decision-making process

- Medical decision-making process (diagnosis, treatment, monitoring, prognosis)
- Informatics in clinical decision-making
- Introduction to evidence-based medicine

## Module Four – **Modeling and Simulations & Population Health and Precision Medicine**

Lecture Seven:

- Develop understanding of modeling and simulation
- Become familiar with applications of modeling and simulation in biomedicine

Lecture Eight:

- Data and information needs of health systems in managing population health
- Key health IT tools and strategies for population health management
- Concepts of precision medicine

## Module Five – **Standards in Health Informatics**

Lecture Nine:

- Introduction to standards
- The Need for Health Informatics Standards
- The role of federal initiative and legislation that that have significant impact on the adoption of healthcare information standards in the United States
- Major types of healthcare information standards and the organization that develop or approve them
- The importance of healthcare IT standards to the future of the US health care delivery system

## Module Six – **Knowledge management system & Organizing Health IT services**

Lecture Ten:

- Introduction to knowledge management
- Knowledge discovery, data mining and text mining
- Knowledge management and decision making support in biomedicine

Lecture Eleven:

- The roles, responsibilities, and major functions of the IT department in healthcare organizations
- The roles, responsibilities, and major functions of the IT leaders
- The various ways to organize IT services
- The key attributes of highly effective IT departments
- The role and major function of the data analytics department

- Developing plans for evaluating the effectiveness of the IT function
- The components of an IT strategic plan
- How to develop an IT strategic plan
- The Gartner Hype Cycle

### Module Seven - Prepare for and take the final exam

You will prepare for and take the proctored final exam.

The course will remain open two weeks, after the final exam, so that you can continue discussions and ask any questions about database technology, your grades, or the course. This is also a time when we enter into a dialog where we endeavor to learn from you how we can modify the course so that it better meets your needs.

## Instructor


### Guanglan Zhang, PhD

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

email: guanglan@bu.edu


Dr. Guanglan Zhang holds Masters degrees in Biomedical Engineering (M.Eng., Nanyang Technological University, Singapore) and Automatic Control Theory and Application (M.Eng., Northwestern Polytechnic University, China). She received a Ph.D. (Nanyang Technological University, Singapore) for doctoral work in bioinformatics. She is an Associate Professor in Computer Science at Boston University Metropolitan College, the Faculty Coordinator for Health Informatics Program, and an adjunct member of Dana-Farber Cancer Institute and Harvard Medical School. She also leads research activities in the MET Health Informatics Laboratory.

Dr. Zhang has worked in the biomedical informatics field since 1998. The most important aspects of her work include development and implementation of biomedical databases, computational simulations of laboratory experiments, development of diagnostic methods for tissue typing, and computational support for vaccine development. Computational tools that she developed are used in the study of immunology, vaccinology, infectious disease, and cancer. She has authored more than 50 peer-reviewed scientific journal publications and developed dozens of biomedical specialist databases and computational systems.

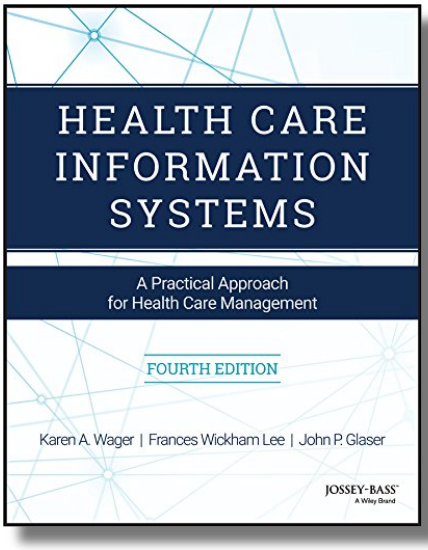
## Course Developers

**Dr. Vladimir Brusic**, M.Eng., M.App.Sci., Ph.D., M.B.A., is the initial course developer, who made significant contributions to all aspects of this course. He has worked in the biomedical informatics field since the 1980s and has been teaching health informatics classes at BU for several years. He holds Masters degrees in Biomedical Engineering (M.Eng., Belgrade, Yugoslavia), Information Technology (M.App.Sci., RMIT, Australia), and Business Administration (MBA, Rutgers, USA). He received a Ph.D. (LaTrobe, Australia) for doctoral work in bioinformatics. He is an Adjunct Professor in Computer Science at Boston University Metropolitan College, where he teaches Health Informatics subjects and is a member of the Health Informatics Laboratory. He is the dean of School of Science and Technology, Nazarbayev University and adjunct member of Harvard Medical School. Previously he was the Director of Bioinformatics at Cancer Vaccine Center, Dana-Farber Cancer Institute, and a Principal Associate in Medicine, Harvard Medical School.

**Dr. Guanglan Zhang** developed the online course material based on the content of the on-campus course in 2012. Since then, she has modified and updated the course content multiple times to keep up with the ever-changing healthcare IT environment.

# Course Materials

## Required textbook:




**Wager, K. A., Lee, F. W., & Glaser, J. P. (2017). *Health care information systems: A practical approach for health care management* -4th Edition.** Jossey-Bass.

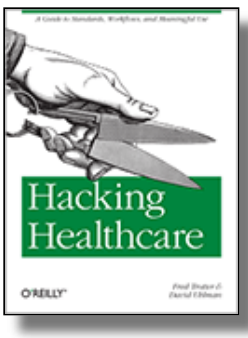
ISBN-13: 978-1119337188.
ISBN-10: 1119337186.

Note:

- This is also the required textbook for CS781.

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

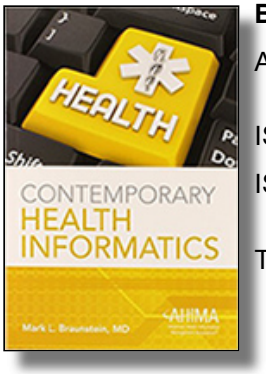
## Recommended textbook:




**Trotter, F. and Uhlman, D. (2011). *Hacking healthcare: A guide to standards, workflows, and meaningful use.***
O'Reilly Media.

ISBN-13: 978-1449305024.
ISBN-10: 1449305024.

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




**Braunstein, M. L. (2014). *Contemporary Health Informatics*.**
American Health Information Management Association.

ISBN-13: 978-1584260318.
ISBN-10: 1584260319.

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

## Boston University Library Information

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

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

As Boston University students, you have full access to the BU Library. From any computer, you can gain access to anything at the library that is electronically formatted. To connect to the library, use the link http://www.bu.edu/library. You may use the library's content whether you are connected through your online course or not, by confirming your status as a BU community member using your Kerberos password.

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

Go to http://www.bu.edu/library/research/collections to access eBooks and eJournals directly.

If you have questions about library resources, go to http://www.bu.edu/library/help/ask-a-librarian to email the library or use the live-chat feature.

To locate course eReserves, go to http://www.bu.edu/library/services/reserves.

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

## Free Tutoring Service

Free online tutoring with SMARTHINKING is available to BU online students for the duration of their courses. The tutors do not rewrite assignments, but instead teach students how to improve their skills in the following areas: writing, math, sciences, business, ESL, and Word/Excel/PowerPoint.

You can log in directly to SMARTHINKING from Online Campus by using the link in the left-hand navigation menu of your course.


YouTube

## Please Note

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

deactivation of your SMARTHINKING account.

## Study Guide

### Module 1 Study Guide and Deliverables

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|---|---|
| **Readings:** | **Required Readings:** (Wager, et al, 2017)<br>Chapter 2: Health Care Data<br><br>**Recommended readings:**<br><br>Chapter 1 The US Healthcare System (Braunstein, 2014)<br>Haux R. Medical informatics: past, present, future. Int J Med Inform. 2010, 79(9):599-610.<br><br>Fridsma DB. The scope of health informatics and the Advanced Health Informatics Certification. J Am Med Inform Assoc. 2016, 23(4):855-6. |
| **Live Classrooms:** | Tuesday, October 29 from 8:00 PM to 9:30 PM ET<br>Saturday, November 2 from 10:00 AM to 11:30 AM ET<br>Live sessions will be recorded. |
| **Office Hour:** | Friday, November 1 from 8:00 PM to 9:00 PM ET<br>It will be recorded. |
| **Discussions:** | Discussion 1 postings end November 5 at 6:00 PM ET |
| **Assignments:** | Assignment 1 due November 5 at 6:00 PM ET |
| **Assessments:** | Quiz 1 due November 5 at 6:00 PM ET |

## Module 2 Study Guide and Deliverables

| | |
|---|---|
| **Readings:** | **Required readings:** (Wager, et al, 2017)<br>Chapter 1: The National Health Information Technology landscape<br>Chapter 3: Health Care Information Systems<br>Appendix A: Overview of the Healthcare IT industry<br><br>**Recommended readings:**<br>Wetterneck, T. B., Walker, J. M., Blosky, M. A., Cartmill, R. S., Hoonakker, P., Johnson, M. A., ... & Carayon, P. (2011). Factors contributing to an increase in duplicate medication order errors after CPOE implementation. Journal of the American Medical Informatics Association, 18(6), 774-782.<br><br>Kuperman, G. J., Bobb, A., Payne, T. H., Avery, A. J., Gandhi, T. K., Burns, G., ... & Bates, D. W. (2007). Medication-related clinical decision support in computerized provider order entry systems: a review. Journal of the American Medical Informatics Association, 14(1), 29-40. |
| **Live Classrooms:** | Tuesday, November 5 from 8:00 PM to 9:30 PM ET<br>Saturday, November 9 from 10:00 AM to 11:30 AM ET<br>Live sessions will be recorded. |
| **Office Hour:** | Friday, November 8 from 8:00 PM to 9:00 PM ET<br>It will be recorded. |

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|---|---|
| **Discussions:** | Discussion 2 postings end November 12 at 6:00 PM ET |
| **Assignments:** | Assignment 2 due November 12 at 6:00 PM ET |
| **Assessments:** | Quiz 2 due November 12 at 6:00 PM ET |

## Module 3 Study Guide and Deliverables

| | |
|---|---|
| **Readings:** | **Recommended readings:**<br>Fitzmaurice, J. M., Adams, K., & Eisenberg, J. M. (2002). Three decades of research on computer applications in health care: medical informatics support at the Agency for Healthcare Research and Quality. Journal of the American Medical Informatics Association, 9(2), 144-160.<br><br>Djulbegovic, B., & Guyatt, G. H. (2017). Progress in evidence-based medicine: a quarter century on. The Lancet.<br><br>Sheridan, D. J., & Julian, D. G. (2016). Achievements and limitations of evidence-based medicine. Journal of the American College of Cardiology, 68(2), 204-213. |
| **Live Classrooms:** | Tuesday, November 12 from 8:00 PM to 9:30 PM ET<br>Saturday, November 16 from 10:00 AM to 11:30 AM ET<br>Live sessions will be recorded. |
| **Office Hour:** | Friday, November 15 from 8:00 PM to 9:00 PM ET<br>It will be recorded. |

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|---|---|
| **Discussions:** | Discussion 3 postings end November 19 at 6:00 PM ET |
| **Assignments:** | Assignment 3 due November 19 at 6:00 PM ET |
| **Assessments:** | Quiz 3 due November 19 at 6:00 PM ET |

## Module 4 Study Guide and Deliverables

| | |
|---|---|
| **Readings:** | **Required readings:** (Wager, et al, 2017)<br>Chapter 4: Information Systems to Support Population Health Management<br><br>**Recommended readings**:<br>Chapter 8 Population Health Management (Braunstein, 2014)<br><br>Kindig, D., & Stoddart, G. (2003). What is population health?. American journal of public health, 93(3), 380-383.<br>König, I. R., Fuchs, O., Hansen, G., von Mutius, E., & Kopp, M. V. (2017). What is precision medicine? European Respiratory Journal, 50(4), 1700391. |
| **Live Classrooms:** | Tuesday, November 19 from 8:00 PM to 9:30 PM ET<br>Saturday, November 23 from 10:00 AM to 11:30 AM ET<br>Live session will be recorded. |
| **Office Hour:** | Friday, November 22 from 8:00 PM to 9:00 PM ET<br>It will be recorded. |

| | |
|---|---|
| **Discussions:** | Discussion 4 postings end November 26 at 6:00 AM ET |
| **Assignments:** | Send your selected paper for your Term Project to your Professor by Thursday, November 21 at 11:59 PM ET |
| **Assessments:** | Quiz 4 due November 26 at 6:00 AM ET |

## Module 5 Study Guide and Deliverables

| | |
|---|---|
| **Readings:** | **Required readings:** (Wager, et al, 2017)<br>Chapter 11: Health Care Information System Standards<br><br>**Recommended readings:**<br>Chapter 5: Data and Interoperability Standards (Braunstein, 2014)<br>Chapter 11: Interoperability (Trotter and Uhlman, 2011)<br>Chapter 12: HIPAA: the far-reaching healthcare regulation (Trotter and Uhlman, 2011) |
| **Live Classrooms:** | Tuesday, November 26 from 8:00 PM to 9:30 PM ET<br>Saturday, November 30 from 10:00 AM to 11:30 AM ET<br>Live sessions will be recorded. |
| **Office Hour:** | Friday, November 29 from 8:00 PM to 9:00 PM ET<br>It will be recorded. |
| **Discussions:** | No discussion |
| **Assignments:** | Assignment 5 due December 3 at 6:00 PM ET |

**Assessments:** Quiz 5 due December 3 at 6:00 PM ET

## Module 6 Study Guide and Deliverables

**Readings:** **Required readings:** (Wager, et al, 2017)
Chapter 8 Organizing Information Technology Services
Chapter 12 IT Alignment and Strategic Planning

**Live Classrooms:** Tuesday, December 3 from 8:00 PM to 9:30 PM ET

Student Presentations: Saturday, December 7 from 10:00 AM to 11:30 AM ET

Live sessions will be recorded.

**Office Hour:** Friday, December 6 from 8:00 PM to 9:00 PM ET
It will be recorded.

**Assignments:** Term Project due Saturday, December 7 at 6:00 AM ET

Term Project Presentations will be scheduled for Live Classroom on Saturday, December 7.

## Final Exam Details

The Final Exam is a proctored exam available from **December 11 at 6:00 AM ET to December 14 at 11:59 PM ET**. The Computer Science department requires that all final exams be administered using an online proctoring service called Examity that you will access via your course in Blackboard. Detailed instructions regarding your proctored exam will be forthcoming from the Assessment

Administrator. You will be responsible for scheduling your own appointment within the defined exam window.

The Final Exam will be **open book/open notes** (but electronic devices, such as iPad and Kindle, are not allowed). The exam will be accessible only during the final exam period. You can access it from the Assessments Menu of the course. Your proctor will enter the password to start the exam.

Final Exam duration: **three hours**

The exam consists of 14 total questions (10 multiple choice, 3 essay, and 1 file response).

# Course Grading Information

## Course Structure

This course is presented as a series of weekly modules. The course material is grouped in six modules. Each module consists of one or two lectures. There are four discussion topics, five quizzes, and four assignments. There is also a term project to assess students' understanding and implementing simple Health Informatics solutions.

**Reading materials**—Introduced in each module.

**Assignments**—This course will have four graded assignments.

**Discussions**—There are four graded weekly discussion forums that involve posting and reviewing the answers to the discussion topics. Discussion topics are moderated by your facilitator. Each posting should be completed during the week when the material is covered. Please see the discussion module on the home page for more details.

**Term Project**—The term project will test students' overall understanding and grasp of the course content.

**Final Examination**—There will be a proctored Final Exam in this course using a proctor service called Examity. Detailed instructions regarding your proctored exam will be forthcoming from the Assessment Administrator. You will be responsible for scheduling your own appointment.

The final exam will be comprehensive and will cover material from the entire course. It will be an open-book exam consisting of questions similar to the ones in the quizzes and assignments.

## Grade Weighting

The final grade for this course will be based on the following:

| Deliverable | Weight |
| --- | --- |
| | |

| | |
|---|---|
| Quizzes | 15% |
| Discussions | 15% |
| Assignments | 20% |
| Term Project | 20% |
| Final Exam | 30% |

## Letter Grade

The final letter grade in the course will correspond approximately with the following numeric grade range:

| | |
|---|---|
| A | ≥ 94 |
| A− | ≥ 90 < 94 |
| B+ | ≥ 86 < 90 |
| B | ≥ 81 < 86 |
| B− | ≥ 76 < 81 |
| C+ | ≥ 71 < 76 |
| C | ≥ 66 < 71 |
| C− | ≥ 61 < 66 |
| D | ≥ 56 < 61 |
| F | < 56 |

## Course Policies

**Attendance & Absences**: This is an online course and students are required to access the material regularly.

**Assignment completion & late work**:

1. All assignments have to be submitted by the due dates. Each 24 hours of delay will result in 10% penalty.
2. Graded exercises need to be completed by the due date, which is one week after the beginning of the module. Each 24 hours of delay will result in 10% penalty.

**Academic Conduct Code**: http://www.bu.edu/met/for-students/met-policies-procedures-resources/academic-conduct-code/

## Discussion Grading Rubric

The discussion grading rubric below is the guide we use to evaluate your discussion contributions.

| Criteria | 65–69 | 70–79 | 80–89 | 90–94 | 95–100 |
|---|---|---|---|---|---|
| **Participation** | Very limited participation | Participation generally lacks frequency or relevance | Reasonably useful relevant participation during the discussion period | Frequently relevant and consistent participation throughout the discussion period | Continually relevant and consistent participation throughout the discussion period |
| **Community** | Mostly indifferent to discussion | Little effort to keep discussions going or provide help | Reasonable effort to respond thoughtfully, provide help, and/or keep discussions going | Often responds thoughtfully in a way that frequently keeps discussions going and provides help | Continually responds thoughtfully in a way that consistently keeps discussions going and provides help |
| **Content** | No useful, on-topic, or interesting information, ideas, or analysis | Hardly any useful, on-topic, or interesting information, ideas, or analysis | Reasonably useful, on-topic, and interesting information, ideas, and/or analysis | Frequently useful, on-topic, and interesting information, ideas, and analysis | Exceptionally useful, on-topic, and interesting information, ideas, and analysis |
| **Reflection and Synthesis** | No significant effort to clarify, summarize, or synthesize topics raised in discussions | | | Contributes to group's effort to clarify, summarize, or synthesize topics raised in discussions | Leads group's effort to clarify, summarize, or synthesize topics raised in discussions |

## Academic Conduct Policy

Please visit Metropolitan College's website for the full text of the department's *Academic Conduct Code*.

## A Definition of Plagiarism

> "The academic counterpart of the bank embezzler and of the manufacturer who mislabels products is the plagiarist: the student or scholar who leads readers to believe that what they are reading is the original work of the writer when it is not. If it could be assumed that the distinction between plagiarism and honest use of sources is perfectly clear in everyone's mind, there would be no need for the explanation that follows; merely the warning with which this definition concludes would be enough. But it is apparent that sometimes people of goodwill draw the suspicion of guilt upon themselves (and, indeed, are guilty) simply because they are not aware of the illegitimacy of certain kinds of "borrowing" and of the procedures for correct identification of materials other than those gained through independent research and reflection."
>
> "The spectrum is a wide one. At one end there is a word-for-word copying of another's writing without enclosing the copied passage in quotation marks and identifying it in a footnote, both of which are necessary. (This includes, of course, the copying of all or any part of another student's paper.) It hardly seems possible that anyone of college age or more could do that without clear intent to deceive. At the other end there is the almost casual slipping in of a particularly apt term which one has come across in reading and which so aptly expresses one's opinion that one is tempted to make it personal property."
>
> "Between these poles there are degrees and degrees, but they may be roughly placed in two groups. Close to outright and blatant deceit-but more the result, perhaps, of laziness than of bad intent-is the patching together of random jottings made in the course of reading, generally without careful identification of their source, and then woven into the text, so that the result is a mosaic of other people's ideas and words, the writer's sole contribution being the cement to hold the pieces together. Indicative of more effort and, for that reason, somewhat closer to honest, though still dishonest, is the paraphrase, and abbreviated (and often skillfully prepared) restatement of someone else's analysis or conclusion, without acknowledgment that another person's text has been the basis for the recapitulation."

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

## Academic Conduct Code

I. **Philosophy of Discipline**

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

II. **Academic Misconduct**

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

III. **Violations of this Code**

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

A. **Cheating on examination**. Any attempt by a student to alter his or her performance on an examination in violation of that examination's stated or commonly understood ground rules.
B. **Plagiarism.** Representing the work of another as one's own. Plagiarism includes but is not limited to the following: copying the answers of another student on an examination, copying or restating the work or ideas of another person or persons in any oral or written work (printed or electronic) without citing the appropriate source, and collaborating with someone else in an academic endeavor without acknowledging his or her contribution. Plagiarism can consist of acts of commission-appropriating the words or ideas of another-or omission failing to acknowledge/document/credit the source or creator of words or ideas (see below for a detailed definition of plagiarism). It also includes colluding with someone else in an academic endeavor without acknowledging his or her contribution, using audio or video footage that comes from another source (including work done by another student) without permission and acknowledgement of that source.
C. **Misrepresentation or falsification of data** presented for surveys, experiments, reports, etc., which includes but is not limited to: citing authors that do not exist; citing interviews that never took place, or field work that was not completed.
D. **Theft of an examination**. Stealing or otherwise discovering and/or making known to others the contents of an examination that has not yet been administered.
E. **Unauthorized communication during examinations**. Any unauthorized communication may be considered prima facie evidence of cheating.
F. **Knowingly allowing another student to represent your work as his or her own**. This includes providing a copy of your paper or laboratory report to another student without the explicit permission of the instructor(s).
G. **Forgery, alteration, or knowing misuse of graded examinations, quizzes, grade lists, or official records of documents**, including but not limited to transcripts from any institution, letters of recommendation, degree certificates, examinations, quizzes, or other work after submission.
H. **Theft or destruction of examinations or papers** after submission.
I. **Submitting the same work in more than one course** without the consent of instructors.
J. **Altering or destroying another student's work or records**, altering records of any kind, removing materials from libraries or offices without consent, or in any way interfering with the work of others so as to impede their academic performance.

K. **Violation of the rules governing teamwork**. Unless the instructor of a course otherwise specifically provides instructions to the contrary, the following rules apply to teamwork: 1. No team member shall intentionally restrict or inhibit another team member's access to team meetings, team work-in-progress, or other team activities without the express authorization of the instructor. 2. All team members shall be held responsible for the content of all teamwork submitted for evaluation as if each team member had individually submitted the entire work product of their team as their own work.
L. **Failure to sit in a specifically assigned seat during examinations.**
M. **Conduct in a professional field assignment that violates the policies and regulations of the host school or agency.**
N. **Conduct in violation of public law occurring outside the University that directly affects the academic and professional status of the student, after civil authorities have imposed sanctions.**
O. **Attempting improperly to influence the award of any credit, grade, or honor.**
P. **Intentionally making false statements to the Academic Conduct Committee or intentionally presenting false information to the Committee.**
Q. **Failure to comply with the sanctions imposed under the authority of this code.**

## Important Message on Final Exams

Dear Boston University Computer Science Online Student,

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

By requiring proctored finals, we are ensuring the excellence and fairness of our program. The final exam is administered online, and the access will be available at the exam sites.

Specific information regarding final-exam scheduling will be provided approximately two weeks into the course. This early notification is being given so that you will have enough time to plan for where you will take the final exam.

I know that you recognize the value of your Boston University degree and that you will support the efforts of the University to maintain the highest standards in our online degree program.

Thank you very much for your support with this important issue.

Regards,

Professor Lou Chitkushev, Ph.D.
Associate Dean for Academic Affairs
Boston University Metropolitan College

## Who's Who: Roles and Responsibilities

You will meet many BU people in this course and program. Some of these people you will meet online, and some you will communicate with by email and telephone. There are many people behind the scenes, too, including

instructional designers, faculty who assist with course preparation, and video and animation specialists.

## People in Your Online Course in Addition to Your Fellow Students

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

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

***Your Lead Faculty and Student Support Administrator, Jennifer Sullivan.*** Jen is here to ensure you have a positive online experience. You will receive emails and announcements from Jen throughout the semester. Jen represents Boston University's university services and works for the Office of Distance Education. She prepares students for milestones such as course launch, final exams, and course evaluations. She is a resource to both students and faculty. For example, Jen can direct your university questions and concerns to the appropriate party. She also handles general questions regarding Online Campus functionality for students, faculty, and facilitators, but she does not provide tech support. She is enrolled in all classes and can be contacted within the course through Online Campus email as it is running. You can also contact her by external email at jensul@bu.edu or call (617) 358-1978.

## People Not in Your Online Course

Although you will not normally encounter the following people in your online course, they are central to the program. You may receive emails or phone calls from them, and you should feel free to contact them.

***Your Computer Science Department Online Program Coordinator, Peter Mirza.*** Peter administers the academic aspects of the program, including admissions and registration. You can ask him questions about the program, registration, course offerings, graduation, or any other program-related topic. He can be reached at metcsol@bu.edu or (617) 353-2566.

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

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

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

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

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

## Disability Services

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

## Netiquette

The Office of Distance Education has produced a netiquette guide to help you understand the potential impact of your communication style.

Before posting to any discussion forum, sending email, or participating in any course or public area, please consider the following:


### Ask Yourself…

- How would I say this in a face-to-face classroom or if writing for a newspaper, public blog, or wiki?
- How would I feel if I were the reader?
- How might my comment impact others?
- Am I being respectful?
- Is this the appropriate area or forum to post what I have to say?

### Writing

When you are writing, please follow these rules:

- **Stay polite and positive in your communications.** You can and should disagree and participate in discussions with vigor; however, when able, be constructive with your comments.
- **Proofread your comments before you post them.** Remember that your comments are permanent.
- **Pay attention to your tone.** Without the benefit of facial expressions and body language, your intended tone or the meaning of the message can be misconstrued.
- **Be thoughtful and remember that classmates' experience levels may vary.** You may want to include background information that is not obvious to all readers.
- **Stay on message.** When adding to existing messages, try to maintain the theme of the comments previously posted. If you want to change the topic, simply start another thread rather than disrupt the current conversation.
- **When appropriate, cite sources.** When referencing the work or opinions of others, make sure to use correct citations.

### Reading

When you are reading your peers' communication, consider the following:

- **Respect people's privacy.** Don't assume that information shared with you is public; your peers may not want personal information shared. Please check with them before sharing their information.
- **Be forgiving of other students' and instructors' mistakes.** There are many reasons for typos and misinterpretations. Be gracious and forgive other's mistakes or privately point them out politely.
- **If a comment upsets or offends you, reread it and/or take some time before responding.**

#### Important Note

Don't hesitate to let your instructor or your faculty and student support administrator know if you feel others are inappropriately commenting in any forum.

All Boston University students are required to follow academic and behavioral conduct codes. Failure to comply with these conduct codes may result in disciplinary action.

## Registration Information and Important Dates

View the drop dates for your course.

Withdraw or drop your course.

- If you are dropping down to zero credits for a semester, please contact your college or academic department.
- **Nonparticipation in your online course does not constitute a withdrawal from the class.**

- If you are unable to drop yourself on Student Link, please contact your college or academic department.

## Technical Support

### Experiencing Issues with BU Websites or Blackboard?

It may be a system-wide problem. Check the BU Information Services & Technology (IS&T) news page for announcements.

Boston University technical support is available via email (ithelp@bu.edu), the support form, and phone (888-243-4596). Please note that the IT Help Center has multiple locations. All locations can be reached through the previously mentioned methods. For IT Help Center hours of operation, please visit their contact page. For other times, you may still submit a support request via email, phone, or the support form, but your question won't receive a response until the following day. If you aren't calling, it is highly recommended that you submit your support request via the technical-support form, as this provides the IS&T Help Center with the best information in order to resolve your issue as quickly as possible.

Examples of issues you might want to request support for include the following:

- Problems viewing or listening to sound or video files
- Problems accessing internal messages
- Problems viewing or posting comments
- Problems attaching or uploading files for assignments or discussions
- Problems accessing or submitting an assessment

To ensure the fastest possible response, please fill out the online form using the link below:

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

## Navigating Courses

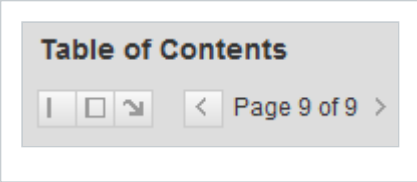
For best results when navigating courses, it is recommended that you use the Mozilla Firefox browser.

The Table of Contents may contain folders. These folders open and close (+ and − signs) and may conceal some pages. To avoid missing content pages, you are advised to use the next- and previous-page buttons (and icons) in

the top-right corner of the learning content.

Please also familiarize yourself with the navigation tools, as shown below; these allow you to show and hide both the Course Menu and the Table of Contents on the left. This will be helpful for freeing up screen space when moving through the weekly lecture materials.

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




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


## Web Resources/Browser Plug-Ins

To view certain media elements in this course, you will need to have several browser plug-in applications installed on your computer. See the Course Resources page in the syllabus of each individual course for other specific software requirements.

- Check your computer's compatibility by reviewing Blackboard's System Requirements
- Check your browser settings with Blackboard's Connection Test
- Download most recent version of Adobe Flash Player
- Download most recent version of Adobe Acrobat Reader

## How to Clear Your Browser Cache

The IT Help Center recommends that you periodically clear your browser cache to ensure that you are viewing the most current content, particularly after course or system updates.

This page is also found within the "How to…" section of the online documentation, which contains a list of some of the most common tasks in Blackboard Learn.