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 570

Biomedical Sciences and Health IT

This course is designed for IT professionals, and those training to be IT professionals, who are preparing for careers in healthcare-related IT (Health Informatics). This course provides a high-level introduction into basic concepts and terminologies of biomedicine and provide insights into the structure and organization of the American healthcare system and how it is intertwined with IT. The course introduces medical terminology, human anatomy and physiology, disease processes, diagnostic modalities, and treatments used to manage some common diseases. IT case studies demonstrate the key roles of health informatics and how IT tools and resources help medical professionals integrate multiple sources of information to make diagnostic and therapeutic decisions.

In each session, the students will first be introduced to biological function, pathology, laboratory medicine, diagnostic imaging and therapeutic interventions covering specific medical specialties. On this basis, the students will gain an understanding as to the types of information being gathered and what is important to the clinical professionals. The second part of each module will consist of a case study demonstrating the overlap of biology, medicine, and health informatics. Throughout the modules, the students will also be introduced to various aspects of American healthcare system and healthcare IT.

To reinforce the lecture and case study material, we anticipate inviting one to two guest lecturers to share their first-hand experience with students. Student activities include participation in class lectures, assignments, discussions, graded quizzes, and exercises (self-assessment, not graded).

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.

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

Course Learning Outcomes

By successfully completing this course you will:

- Identify the anatomy, physiology, and pathophysiology of human body systems
- Identify common diagnostic methods, treatments, and medical procedures
- Describe the IT needs of healthcare providers as they diagnose and treat common diseases
- Describe IT systems needed to support modern diagnostic imaging
- Explain medical decision making in the diagnosis and treatment of human organ system disease
- Transfer information from various sources to the centralized electronic health record
- Explain the basic delivery, financial and legal aspects of the American healthcare system

Prerequisites

None

Course Structure

Weekly Lessons

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 1–6 will have two lectures, one case study, and a discussion topic.

Calendar Tool—You can add your own events there. However, please be aware that you may not find all of the important dates for the course listed there. You will stay current by checking on announcements, discussions, and emails in the course.

Readings—In this course there are both textbook readings and online lessons. Your professor may suggest additional readings during the running of the course.

Discussion —There may be threaded discussions throughout the course. These discussions are moderated by your instructor. Postings for each discussion should be completed by the assigned due dates. There are also

general discussions boards, which are not graded, for you to use to discuss any issues with your classmates.

Assignments—There are assignments that are due throughout the courses. Please check the calendar for due dates.

Assessments/Quizzes—If there are quizzes they too will be listed in the course calendar. Be sure to check it to ensure that you complete them before the due date. Quizzes may be a combination of True/False and multiple choice questions.

Live Classrooms—Please see the Study Guide and/or Calendar for the dates and times of live classroom sessions.

Module 1 - Introduction to Biomedicine and the Role of IT

- Lecture One: Introduction to Biomedical Science
- Lecture Two: Introduction to Laboratory Medicine

Learning Objectives:

- The human body is made of systems and systems are made of organs that are interdependent. This interdependency is very finely balanced and requires constant data sampling of its environment and numerous feedback mechanisms.
- How things go wrong— genotype and phenotype polymorphism, stem cells and differentiation, developmental problems, the effects of aging, infectious disease, and cancer.
- The basis of measuring what is wrong when things go wrong—laboratory medicine, data generation and imaging enabling arrival at a diagnosis.
- The basics of health informatics
- The basics of healthcare system and the structure of the U.S. healthcare system
- The problems of and future challenges to the U.S. healthcare system

Module 2 - How we are structured: The Muscular, Skeletal, Skin, and Digestive Systems

- Lecture Three: Muscular, Skeletal, and Integumentary Systems
- Lecture Four: The Digestive System

Learning Objectives:

- General understanding of the structural organization of the human body and the functionality of the digestive system.
- Exploration of diagnostic methods and imaging procedures to identify disorders.
- The role of IT in data and image analysis, transfer and presentation.
- The Health Insurance Portability and Accountability Act of 1996 (HIPAA)

Module 3 - Energy, Energy Distribution and Product Disposal: the Cardiovascular and Respiratory Systems

- Lecture Five: The Cardiovascular System
- Lecture Six: The Pulmonary System

Learning Objectives:

- Basic understanding of the structure, function and interdependency of the heart and the lung functions.
- Basic comprehension of the multiple cardiovascular and respiratory regulatory checkpoints and how aberrations in a single functionality can cascade to generate a complex pathology.
- Appreciation of imaging techniques and therapeutic options available for diagnosing and treatment of cardiovascular and respiratory problems.
- The role and limitation of paper records
- Some considerations when implementing an IT system to replace paper forms
- Basics of Health Information Systems

Module 4 - The Nervous System and Immunity

- Lecture Seven: The Nervous System
- Lecture Eight: The Immune System

Learning Objectives:

- Recognition and understanding of the basic structure and functionality of the nervous system.
- An understanding of the pathophysiology of the nervous system together with common diagnostic methods and treatments
- An understanding of the development of the various cells of the blood, their relation to immunity, and to the established lymphoid structures including the lymphatics, lymph nodes, spleen, tonsils and thymus. The integration of the immune system with the barriers to the outside world: the skin, gut and respiratory epithelial lining.
- An understanding of the immune response to infection
- An understanding of the pathophysiology of the immune system together with common diagnostic methods and treatments
- Basic understanding of patient-facing software applications, such as personal health record

Module 5 - Renal, Urinary and Reproductive Systems, and Cancer

- Lecture Nine: The Renal and Urinary Systems
- Lecture Ten: Cancer

<u>Learning Objectives:</u>

- The structure, function and basic physiology of the renal and urinary systems
- Have a basic appreciation of the means to measure and image functions and pathologies of these systems
- An understanding of therapies available and possible medical interventions
- Understand the basics of how tumors arise: disposition and multi-step insults to the cell
- Identify common diagnostic methods, treatments, and procedures associated with these disorders
- Imaging techniques to aid differentiation of normal tissue from neoplastic tissue
- Various possible human errors in healthcare delivery process

Module 6 - The Endocrine System

- Lecture Eleven: The Endocrine System in control of reproduction and development
- Lecture Twelve: The Endocrine System in control of normal physiology

<u>Learning Objectives:</u>

- Recognition of the fundamental importance of endocrine messaging to every stage of human development, subsequent homeostasis and reproduction.
- An appreciation of cascading errors of varying severity depending upon the level at which an endocrine pathway is disturbed.
- Diagnostic assays to assess endocrine malfunctions; integration of physical changes and biochemical parameters to conclude a differential diagnosis
- Therapeutic options and measures of success

Module 7 - 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 your grades or the course. This is also a time when we enter into a dialogue where we endeavor to learn from you how we can modify the course so that it better meets your needs.

<u>Instructor</u>

Derin Keskin, PhD

dbk1@bu.edu

Office hours by appointment

Dr. Derin Keskin received a Ph.D from Medical college of Georgia for Doctoral work in Immunology. He also holds a medical degree. Dr Keskin is a Research Scientist at the Broad Institute of Harvard and MIT, where he conducts cancer vaccine research. He has authored 50 peer-reviewed scientific journal publications. He also has multiple patents. He is an part-time Instructor at Harvard Medical School and Boston University. In Harvard Medical School, Dr. Keskin tutors first year medical students in Anatomy, Physiology, Pathology, Microbiology and Infectious diseases.

Health Informatics Area Faculty Coordinator

Guanglan Zhang, Ph.D

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Office hours by appointment

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 Assistant Professor in Computer Science at Boston University Metropolitan College, where she teaches Health Informatics subjects and is a member of the 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 40 peer-reviewed scientific journal publications and developed dozens of biomedical specialist databases and computational systems.

Resources

Required textbook
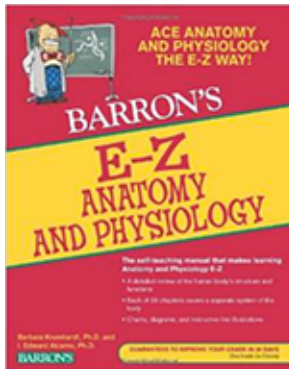
Edward Alcamo, Barbara Krumhardt. (2009) E-Z Anatomy and Physiology (Barron's E-Z Series). Barron's Educational Series. ISBN-13: 978-0764144684 (please note, ISBNs for print and digital versions may differ).

This textbook is available for purchase in digital format only (ISBN: 9781438082394) through Barnes & Noble at Boston University. An e-book is also available through Vitalsource.com.

Note: Please note, if your course has an open book exam and you have purchased an electronic version of your textbook, you will be allowed to use it. **It must be accessed from the computer on which you are taking your exam.**

Recommended Textbooks

medical terminology
Jane Rice (2021). Medical Terminology for Health Care Professionals (10th ed.). Pearson. ISBN 9780135745144 (please note, ISBNs for print and digital versions may differ).

This textbook is available for purchase in digital format only (ISBN: 9780135745151) through Barnes & Noble at Boston University. An e-book is also available through Vitalsource.com and Amazon. Access to Pearson MyLab, which comes with some versions of this text, is not required.

Trotter, F. and Uhlman, D. (2011). Hacking healthcare: A guide to standards, workflows, and meaningful use. O'Reilly Media. ISBN 9781449305024.

This textbook can be purchased in print or digital format through Barnes & Noble at Boston University.

Other Materials

- Understanding Medical Words: A Tutorial from the National Library of Medicine
- Bernstam EV, Smith JW, Johnson TR. What is biomedical informatics? Journal of Biomedical Informatics 43 (2010) 104–110. (Available through PubMed).
- Davis K, Schoen C, Stremikis K. Mirror, Mirror on the Wall How the Performance of the U.S. Health Care System Compares Internationally, 2010 Update. Commonwealth Fund.
- Haux R. Health information systems—past, present, future. International Journal of Medical Informatics (2006) 75, 268-281. (Available through BU library).
- Reichertz P, Health information systems—past, present, future. International Journal of Medical Informatics (2006) 75, 282–299. (Available through BU library).
- Wager, K.A., Lee, F.W., and Glaser, J.P. (2017). Health Care Information Systems: A practical approach for health care management, 4th edition. Jossey-Bass. (This is the required textbook for CS781 Advanced Health Informatics)

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 <u>Online Library Resources</u> 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 <u>http://www.bu.edu/library</u>. 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 <u>Collections</u> to access eBooks and eJournals directly.
>
> If you have questions about library resources, go to <u>Ask a Librarian: Help & FAQs</u> to email the library or use the live-chat feature.
>
> To locate course eReserves, go to <u>Reserves</u>.

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**.

Please allow 3-4 hours each week to attend every Live Classroom session. The sessions will be recorded and you can review them at a later time at your convenience. E-mail your facilitator/Instructor if you have any questions.

Module 1 Study Guide and Deliverables

Readings:	**Lecture Topics:** Lecture 01: Introduction to Biomedical Science Lecture 02: Introduction to Laboratory Medicine **Recommended Reading** (Trotter and Uhlman, 2011) Chapter 2 An anatomy of medical practice. United States Department of Labor, Bureau of Labor Statistics, Occupational Outlook Handbook, Healthcare Occupations CRS Report for Congress, Government spending on Health Care, Benefits and Programs: A Data Brief; Jennifer Jenson; June 16, 2008 The Structure and Funding of the U.S. Health Care System OECD Health Statistics 2014 - How Does the United States Compare OECD Health Statistics 2015 - How Does the United States Compare 2014 update, mirror, mirror on the wall: how the performance of the U.S. Health Care System compares internationally. The Commonwealth Fund
Discussions:	Discussion 1 postings end Tuesday, September 12 at 6:00 PM ET
Assignments:	Assignment 1 due Tuesday, September 12 at 6:00 PM ET
Assessments:	Graded Quiz 1 due Tuesday, September 19 at 6:00 PM ET
Live Classroom:	• Wednesday, September 6 from 7:00-8:30 pm ET • Friday, September 8 from 7:00-8:30 pm ET

Module 2 Study Guide and Deliverables

Readings:

Lecture Topics:

Lecture 03: Muscular, Skeletal, and Integumentary Systems

Lecture 04: The Digestive System

Case Studies:

CS570 M1 CS01 Drolet pdf

Scoliosis NY CaseStudy pdf

Scoliosis MGH Boston MA pdf

Scoliosis qa pdf

Weiss Scoliosis 2008 pdf

Course textbook: (Alcamo and Krumhardt, 2010)

Chapter 5: The Integumentary System

Chapter 6: Bones and Joints

Chapter 7: The Skeletal System

Chapter 8: Muscle Tissues

Chapter 9: The Muscles

Chapter 18: The Digestive System

Chapter 19: Metabolism and Nutrition

Recommended Reading: (Trotter and Uhlman, 2011)

Chapter 1 Introduction

Chapter 12 HIPAA: the far-reaching healthcare regulation

Additional material:

Understanding Health Information Privacy

HIPAA Business Associates: That was then, this is now

Exercises:

Grevitt 1997 pdf; Hoang Kim 2011

Discussions: Discussion 2 postings end Tuesday, September 19 at 6:00 PM ET

Assignments: Assignment 2 due Tuesday, September 19 at 6:00 PM ET

Assessments: Graded Quiz 2 due Tuesday, September 26 at 6:00 PM ET

Live Classroom:
- Wednesday, September 13 from 7:00-8:30 pm ET
- Friday, September 15 from 7:00-8:30 pm ET

Module 3 Study Guide and Deliverables

Readings:	**Lecture Topics:**
Lecture 05: The Cardiovascular System
Lecture 06: The Pulmonary System

Case Studies:

CS570 M3 CS01 McCormack pdf
Science Daily 2011 pdf
Carr Chest 2012 pdf

Course textbook: (Alcamo and Krumhardt, 2010)
Chapter 15: The Cardiovascular System
Chapter 17: The Respiratory System

Recommended Reading: (Trotter and Uhlman, 2011)
Chapter 4: The bandwidth of paper.

Additional material:
Preventable adverse drug events and their causes and contributing factors: the analysis of register data. Jylhä V, Saranto K, Bates DW.. Int J Qual Health Care. 2011 Apr;23(2):187-97. (Jylha IJQHC pdf).

Voluntary electronic reporting of laboratory errors: an analysis of 37,532 laboratory event reports from 30 health care organizations. Snydman LK, Harubin B, Kumar S, Chen J, Lopez RE, Salem DN. Am J Med Qual. 2012 Mar-Apr;27(2):147-53. (Snydman AJMQ pdf) (BU library material)

Role of computerized physician order entry systems in facilitating medication errors. Koppel R, Metlay JP, Cohen A, Abaluck B, Localio AR, Kimmel SE, Strom BL. JAMA. 2005 Mar 9;293(10):1197-203. (Koppel JAMA 2005 pdf)

National study on the frequency, types, causes, and consequences of voluntarily reported emergency department medication errors. Pham JC, Story JL, Hicks RW, Shore AD, Morlock LL, Cheung DS, Kelen GD, Pronovost PJ. J Emerg Med. 2011 May;40(5):485-92. (Pham JEmMed 2011 pdf) (BU library material) |
Discussions:	Discussion 3 postings end Tuesday, September 26 at 6:00 PM ET
Assignments:	Assignment 3 due Tuesday, September 26 at 6:00 PM ET
Assessments:	Graded Quiz 3 due Tuesday, October 3 at 6:00 PM ET
Live Classroom:	- Wednesday, September 20 from 7:00-8:30 pm ET
- Friday, September 22 from 7:00-8:30 pm ET

Module 4 Study Guide and Deliverables

Readings:

Lecture Topics:

Lecture 07: The Nervous System

Lecture 08: The Immune System

Case Study:

D1 Case Study Chapter 11 pdf

Course textbook: (Alcamo and Krumhardt, 2010)

Chapter 10: Nervous Tissue

Chapter 11: Nervous system Organization

Chapter 12: The Special Senses

Chapter 14: The Blood

Chapter 16: The Lymphatic and Immune Systems

Recommended Reading: (Trotter and Uhlman, 2011)

Chapter 6 Patient-facing software

Health Informatics:

R1 Inst Med reportbrief pdf

R2 nationalqualitystrategy 032011 pdf

R3 EightSuccessStories 092810 pdf

Nervous system:

L3 SC570 04 Maranhao Filho ArqNeuro 2009 pdf

Immune system: NIH Immune System Research

Assignment:

A1 Todays Hospitalist Diagnostic imaging stroke

A2 telestroke care

Telestroke Networks Can be Cost-Effective for Hospitals

Exercises:

E1 Vaccines Vac Gen How Vaccines Prevent Disease pdf

E2 CDC Influenza Vaccine Safety pdf

E3 wer8730 vaccine safety pdf

E4 Thiomersal controversy pdf

Discussions: Discussion 4 postings end Tuesday, October 3 at 6:00 PM ET

Assignments: Assignment 4 due Tuesday, October 3 at 6:00 PM ET

Assessments: Graded Quiz 4 due Tuesday, October 10 at 6:00 PM ET

Live Classroom:
- Wednesday, September 27 from 7:00-8:30 pm ET
- Friday, September 29 from 7:00-8:30 pm ET

Module 5 Study Guide and Deliverables

Readings:
Lecture Topics:

Lecture 09: The Renal, Urinary, and Reproductive Systems

Lecture 10: Cancer

Case study:

D1 Case Study Amata Chapter 06 pdf

Course textbook: (Alcamo and Krumhardt, 2010)

Chapter 20: The Urinary System

Chapter 21: Fluid, Electrolyte, and Acid/Base Balance

Recommended Reading:(Trotter and Uhlman, 2011)

Chapter 7 Human Errors

Health informatics and drug adverse reactions:

Lecture material;

L3 Adler JPtSaf 1208 2 pdf

L4 Classen HealthAff 2011 pdf

L5 Goldman Adverse Event Reporting 1996 pdf

L6 Kass RIA1 2001 pdf

NIH What is Cancer?

NIH About Cancer

Discussions: Discussion 5 postings end Tuesday, October 10 at 6:00 PM ET

Assignments: Assignment 5 due Tuesday, October 10 at 6:00 PM ET

Assessments: Graded Quiz 5 due Tuesday, October 17 at 6:00 PM ET

Live Classroom:
- Wednesday, October 4 from 7:00-8:30 pm ET
- Friday, October 6 from 7:00-8:30 pm ET

Module 6 Study Guide and Deliverables

Readings:
Course textbook: (Alcamo and Krumhardt, 2010)

recommended but not compulsory

Chapter 7: The Endocrine System;

Chapter 11: The Reproductive Organs;

Chapter 12: Reproduction, Development and Birth.

Recommended Reading(Trotter and Uhlman, 2011)

Chapter 9 A selective history of EHR technology

Hiller-Sturmhöfel S, Bartke A. The Endocrine System: An Overview. Alcohol Health
and Research World. Vol. 22, No. 3, 1998

MedlinePlus Endocrine System

Lecture 44 Christian Bartley (cbartley@nvcc.edu) Biology 101 & 102 - Class Notes
- PowerPoint Presentation

Discussions: No discussions this week

Assignments: No assignments this week

Assessments: No quizzes this week

Course
Evaluation:

Course Evaluation opens on Monday, October 16, at 10:00 AM ET and closes on
Sunday, October 22, 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.

Live Classroom:
- Wednesday, October 11 from 7:00-8:30 pm ET
- Friday, October 13 from 7:00-8:30 pm ET

Final Exam Details

The Final Exam is a proctored exam available from **October 18 at 6:00 AM ET to October 21 at
11:59 PM ET**. The exam is only accessible during the final exam period. You can access it from the
Assessments section of the course.

The Computer Science department requires that all final exams be administered using an online
proctoring service 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.

Final Exam Duration: **3 hours**

This is an **open book/open notes exam**. All electronic materials are allowed, but you may not search the internet during the exam.

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

Grading Structure

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

The course material is grouped in six modules. The seventh module represents the week of the Final Examination. The first module contains two lectures and one case study. The materials covered in the first module will be used as reference in modules 2-6. Each of the Modules 2-6 will have one lecture, one case study, and discussion topics.

Reading materials—First module will have a selection of reading materials that will be referred to throughout the course. Modules 2–6 reading materials will involve one case study (from Einbinder) and one chapter (from Rice).

Hands-on Exercises—Set of exercises that need to be completed by students and submitted to instructors. They will be graded Pass/Fail.

Self-assessment Quizzes—There are 5 self-assessment quizzes that cover topics from the biomedical sciences related to the course material. SAQ will not be graded, but they are very important for understanding the assignment topics. Also, selected question from SAQs will be assessed on the final exam.

Graded Quizzes—There are four self-assessment quizzes that cover topics from the lecture materials.

Assignments—This course will have five graded assignments for modules 1–5.

Discussions—There may be threaded discussions for each individual module. These discussions are moderated by your instructor. Postings for each discussion should be completed by the assigned due dates. There are also general discussions boards, which are not graded, for you to use to discuss any issues with your classmates.

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

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

Assignments	30%

Graded Quizzes	25%
Weekly Discussions	10% (participation)
Final Exam	35%

Letter Grade

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

A	94–100
A−	90–93
B+	86–89
B	81–85
B−	76–80
C+	71–75
C	66–70
C−	61–65
D	56–60
F	0–55

Course Policies

1. Attendance & Absences: Students are required to attend classes every week.

2. Assignment completion & late work:

   a. All assignments have to be submitted by the due dates. Each 24 hours of delay will result in 10% penalty.

   b. Graded Discussions 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.

   c. Quizzes 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.

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

> Please note that this syllabus and course structure is subject to change, in which case
> announcements will be communicated to students.

Discussion Grading Rubric

Please check the calendar to find out the due dates for each posting in a graded discussion period. They are moderated by your facilitator and are graded.

You may be allowed to continue to post after that time but it will not be monitored and those additional postings will not count toward your discussion grade. You're certainly welcome to continue a discussion past the grading period, but that additional posted material will not affect your discussion grade. The discussion grading rubric below is the guide we use to evaluate your discussion contributions.

You will receive a grade and feedback for each of the chapter threads. There are also general discussions boards, which are not graded, for you to use to discuss any topics with your classmates and facilitators.

Please refer to the discussion rubric and netiquette pages before you participate.

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	Often responds thoughtfully, in a way that frequently keeps discussions	Continually responds thoughtfully in a way that consistently keeps

			discussions going	going and provides help	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

Assignment Grading Rubric

Please refer to the discussion rubric and netiquette pages before you participate.

Criteria	65–69	70–79	80–89	90–94	95–100
Thoroughness & Coverage	Hardly covers any of the major relevant issues	Covers some of the major relevant issues	Reasonable coverage of the major relevant areas	Thorough coverage of almost all of the major relevant issues	Exceptionally thorough coverage of all major relevant issues
Depth, Understanding & Insight	Lack of understanding of, or lack of insight into material	Some understanding of material	Good overall understanding of material	Very good overall understanding of material, with some real depth	Excellent, deep understanding of material and its inter-relationships

Relevance & Significance	Focus is off topic or on insubstantial or secondary issues	Only some of the content is meaningful and on topic	Most or all of the content is reasonably meaningful and on-topic		
Persuasiveness & Clarity	Disorganized or hard-to-understand presentation	Some parts of the presentation are disorganized or hard to understand	Generally organized and clear	Exceptionally clear, organized and persuasive presentation of ideas	
Creativity & Innovativeness	Little significant or reasonably backed creative or innovative points-of-view or ideas	Few creative and innovative ideas or points-of-view that are reasonable & are backed by some analysis		Very good creative, and innovative ideas or points-of-view that are perceptive & are backed by strong analysis	Outstanding, creative, and innovative ideas or points-of-view that are perceptive & are backed by very strong analysis
Utilization of Source Materials	No useful references, or weak references with incorrect details or applicability	Weak use of source material and/or some details or applicability is incorrect	Some good references applied usefully	References indicate strong research used well	References indicate exceptional research used persuasively

If you have thoughtful questions about your instructor's evaluation, please discuss them with him or her in an academic manner. This can be an excellent opportunity to learn. If it is necessary for me to re-grade an assignment, I independently grade the entire assignment—not parts—using the criteria above.

Quiz Instructions

Accessing the Quiz

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

Quiz Details

- All questions are 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.
- You will have 60 minutes to complete the quiz. You should have enough time so that you aren't rushed.
- You can take each graded quiz only once.
- You may not pause the quiz and return to it later.
- You will be able to continue to save answers to questions after the time has expired, but any late answers will be time stamped and marked as late. This will allow us to grade your quiz fairly in the event that technical difficulties occur while you take your quiz.

Saving Answers

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

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

The Quiz Comment Questions

There is one short answer question at the end of each quiz and the final exam. This *comment question* appears as a quiz question, but there are no points for this item. Use this as a place to provide feedback about the quiz as

a whole or to comment upon a particular quiz question, the way that you might write comments in the margins of a paper quiz. Be sure to reference the question number, because question order is randomized. Your facilitator will examine your comments and determine whether a grade adjustment or other action is appropriate.

Other Questions

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

Boston University Metropolitan College