Course Description

Summary
This course describes modern methods of information system analysis and design for organizations with IT resources. It introduces the discovery process for system feasibility, describes stakeholder analysis, and covers requirements analysis. The course explains use cases and their application to requirements analysis. It covers the management of system analysis projects and risks. “Build vs. buy” trade-offs are discussed. The Unified Modeling Language for specifying object-oriented system designs is discussed. Data flow diagrams and activity models are integrated with the analysis and design coverage. The course covers most of the fundamental system architectures, as well as approaches to detailed design.

Course Objectives and Learning Goals
This course is designed to enable you to do the following

• Discriminate among types of business systems
• Explain and summarize a proposed systems analysis project
• Assess and critique the issues of working in a team
• Distinguish between system-level and low-level requirements
• Distinguish between architectural and detailed designs
• Rank the goals of good system design
• Understand UML models

By reading the lectures and completing the assignments in this course, you will be able to:

• Better predict and deal with risks
• Plan and design a project schedule
• Develop written functional and non-functional requirements
• Create written use cases and scenarios
• Integrate the use of classes in Object-Orientation
• Relate one class to another through inheritance, aggregation and association
• Create sequence diagrams and other UML diagrams
• Construct system architectures and detailed designs


**Week-by-week Topics**

Week 1 — Introduction and Process

- Types of business systems
- Participants in systems analysis
- A systems analysis example
- Introduction to system process
- Development process alternatives
- Requirements, design and quality assurance
- Configuration management

Week 2 — System Development Processes, Risk and System Design Trade-offs

- System development project management
- Formal and agile processes, their advantages and disadvantages
- Team inter-personnel issues
- Risk management
- Project scheduling
- Organizational structures
- Legacy applications
- Agile approaches
- Team Software Process

Week 3 — System and Requirements Analysis

- The meaning of “requirements”
- System-level requirements
- Detailed requirements
• Functional requirements
• Non-functional requirements
• Techniques for interviewing and documenting requirements
• Introduction to design of user interfaces
• Introduction to use cases, data flow diagrams, state transition diagrams

Week 4 — Modeling with UML
• Classes
• Class relationships
• More on use cases
• An example of using UML
• Sequence diagrams
• State models
• Activity diagrams

Week 5 — System Architectures
• Design purposes
• Software frameworks
• More on data flow diagrams
• ATAM Design and Tradeoffs
• Categorizing system architectures
• Component technology

Week 6 — Object-Oriented Designs
• Design in the Unified Development Process
• Designing against component interfaces
• Specifying classes and functions for design
• Software reuse
Weekly Activities

Each week you will need to:

• Read the online lectures
• Read recommended pages in the textbook (listed below)
• Participate in the discussion topics. This includes submitting your own comments and reading submissions from other students.
• Complete the homework assignment(s)

Dates and Deadlines

• Each week of this course starts on a ???.
• Discussions should start no later than ??? of each week.
• Discussions, written assignments, and quizzes are all due each week by ???? at 6:00 AM ET.
• University or other holidays do not affect these due dates.
Study Guide

Module 1 Study Guide and Deliverables
Course Readings: Online lectures
Whitten & Bentley, pages 5–65

Discussions: Discussion 1 postings due July 12 at 6:00 AM ET

Assignments: Assignment 1 due July 12 at 6:00 AM ET

Module 2 Study Guide and Deliverables
Course Readings: Online lectures
Whitten & Bentley, pages 67–155

Discussions: Discussion 2 postings due July 19 at 6:00 AM ET

Assignments: Assignment 2 due July 19 at 6:00 AM ET

Module 3 Study Guide and Deliverables
Course Readings: Online lectures
Whitten & Bentley, pages 206–267

Discussions: Discussion 3 postings due July 26 at 6:00 AM ET

Assignments: Assignment 3 due July 26 at 6:00 AM ET

Module 4 Study Guide and Deliverables
Course Readings: Online lectures
Whitten & Bentley, pages 315–411

Discussions: Discussion 4 postings due August 2 at 6:00 AM ET

Assignments: Assignment 4 due August 2 at 6:00 AM ET

Module 5 Study Guide and Deliverables
Course Readings: Online lectures
Whitten & Bentley, pages 445–515

Discussions: Discussion 5 postings due August 9 at 6:00 AM ET

Assignments: Assignment 5 due August 9 at 6:00 AM ET

Module 6 Study Guide and Deliverables
Course Readings: Online lectures
Whitten & Bentley, pages 646–679

Discussions: Discussion 6 postings due August 16 at 6:00 AM ET

Assignments: Assignment 6 due August 16 at 6:00 AM ET

Module 7 Study Guide and Deliverables
Assignments: Final Exam At-Home Assignment due August 19 at 11:59 PM ET

Assessments: The final exam opens August 19 at 9:00 AM ET and closes August 23 at 11:59 PM ET
Important: Final Exam

You will be responsible for setting up your own appointment with an ACT testing center or an independent proctor. This exam will be three hours in length and will cover material from the entire course. Further information about the testing centers will be forthcoming from the exam coordinator.

Final Exam Details

The Final Exam is a proctored exam available from ....

Instructor Biography - Dr. Eric Braude

Office Hours

Office Location:
Boston University, Metropolitan College
808 Commonwealth Avenue, room 250
Boston, MA 02215
E-Mail: Use email through Vista to contact Prof. Braude at any time.

Biography

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File: Who's Who: Roles and Responsibilities
Who’s Who: Roles and Responsibilities

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People in your Online Course in Addition to your Fellow Students

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People not in your Online Course

...

Course Resources

Required Course Textbook

Systems Analysis and Design Methods
by Jeffrey L. Whitten, Lonnie D. Bentley
Hardcover: 768 pages
Publisher: McGraw-Hill/Irwin; 7th edition

Textbook Notes

- Make very sure that you are getting the 7th edition.
- The textbook for this course can be purchased from Barnes & Noble at Boston University.
- McGraw-Hill/Irwin provides an online learning center associated with this text. It does not replace the textbook. Your assignments for this course will be based on the printed version of the textbook. However, you might find it useful to review the case studies, practice quizzes and PowerPoint presentations available for each chapter of the textbook.

Supplemental Material

- You will find a section with supplemental material on the CS 682 Vista course homepage.

Other Resources
• For definitions and terms, and for pointing you to references, Wikipedia can sometimes be useful. However, remember that information at Wikipedia is erratically curated, and entries have been manipulated by a variety of people for a variety of reasons. You are free to use Wikipedia as a starting point and as a source of pointers to higher-quality information, but avoid citing Wikipedia (or similar sources that have not been reviewed professionally for veracity) as authorities.

• The UML specifications are at www.omg.org/technology/documents/formal.uml.htm (but you will find them very dense and formal indeed).

• We will use Visio in this course for UML. However, you are free to use other tools if you wish.

**Boston University Library Resources**

As Boston University students, you have full access to the BU libraries online resources. Previously known as the 'ezproxy' library portal, the new access for all BU students lets you connect to the BU Library's electronic resources seamlessly. Use the link www.bu.edu/library/. You may use the library's content regardless of whether you are logged into Vista or not. Outside of Vista, you will be prompted to confirm your status as a BU community member with your Kerberos login.

Using the links on the right side of the library's home page, you can find articles, eJournals, and eBooks. You can easily search the libraries content by subject. In addition, through the "Reference Shelf," you will have access to dictionaries, encyclopedias, handbooks, and more. If you are having difficulties gaining access, please follow the instructions below.

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**Connect to eResources**

Boston University’s Office of Information Technology and the Library.....

**Accommodation of Special Needs**

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**MSDNAA and Visio Tool**

In this class you will use Visio Professional to create UML diagrams (you may use another tool if you wish). You can obtain Visio Professional and many other types of Microsoft software free of charge from the Microsoft Developer Network Academic Alliance (MSDNAA) Program, to which the College subscribes. By the first day of class your email address will be submitted to Microsoft and you will be sent an email from the MSDNAA E-Academy License Management System (ELMS) from the address: elms_support@e-academy.com.

Some spam filters may direct this email to a junk email folder, so you may want to check your junk email folder or add the address above to your contacts or other white list. The email will provide you with a username and password, and direct you to the MSDNAA site:


FAQ and basic information are at: http://csmet.bu.edu/AASC/
If you do not receive your email by the end of the first week, check your junk email folder and then please send an email explaining that you did not receive your MSDNAA credentials for this course, plus your name and bu.edu email address to MSDNAA@bu.edu.

General software you may be required to use in this course include word processing, spreadsheet, and presentation software, such as the Word, Excel, and PowerPoint applications in Microsoft Office. If you use Microsoft Word 2007, please use the Save As feature to save your documents in the earlier Microsoft Word 2003 (.doc) format for posting in the class, rather than the XML-based (.docx) MSWord 2007 format, so that your classmates who do not have MSWord 2007 can read them without installing the converter.

**Evaluation of Students and Grading**

Absorbing and creating IT perspectives will be expected of all students in the class. To attain excellence ("A" work), you will be expected to develop your own analyses and comparisons.

**Basis for Grades**

There are three components to your grades.

1. **Weekly Assignments**

   Most of the content of the course will be explored through weekly assignments that study actual cases or encourage you to extrapolate from your own organizations and experiences. These are counted equally.

2. **Discussions**

   You will learn a great deal by interacting with the other students in the class, and your grade is dependent on this activity to some extent.

3. **Final**

   There will be a three-hour final exam which is similar in overall style to the homework's. This provides you the opportunity to show what you have learned from the material, the discussions, and from doing the homework.

**Grade Computations**

The course grade will be computed from the following:

- Weekly Assignments 50%
- Discussions 20%
- Proctored Final Exam 30%

**Evaluation Criteria and Grading Rubric**

To clarify the qualities we consider most important for your professional and academic growth, we have provided you (see below) with evaluation criteria for every assignment in advance. To enable
you to assess your grade standing throughout the course, your facilitator will give your submissions a letter grade on each criterion. The letter grades are the same as those used by the University (A, A-, B+, etc.), with a few refinements. We use the standard letter grades so that you know where you stand at all times. For the purposes of computation and averaging, letter grades can be treated as numbers using the University’s system, augmented as follows.

A = 4.0; A- = 3.7; AB = 3.5; B+ = 3.3; B = 3.0; B- = 2.7; etc.

To obtain an "A" for the course, you need to score 3.85 or higher; to obtain an "A-", 3.7 or higher; "B+", 3.3 or higher, etc.

An "A" grade at Boston University is reserved for excellent work. If you are given an A, you are to be especially 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 facilitator 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+(3.3). 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. Grades are evaluations of work at a particular time: they are not student labels.

Grading Criteria for Homework

Unless otherwise specified, homework will be evaluated according to the following criteria.

<table>
<thead>
<tr>
<th>Clarity</th>
<th>D</th>
<th>C-</th>
<th>C+</th>
<th>B-</th>
<th>B+</th>
<th>A</th>
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<tr>
<td></td>
<td>Disorganized or hard-to-understand</td>
<td>Satisfactory but some parts of the submission are disorganized or hard to understand</td>
<td>Generally organized and clear</td>
<td>Very clear, organized and persuasive presentation of ideas and designs</td>
<td>Exceptionally clear, organized and persuasive presentation of ideas and designs</td>
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<tr>
<td>Technical Soundness</td>
<td>Little understanding of, or insight into material technically</td>
<td>Some understanding of material technically</td>
<td>Overall understanding of much material technically</td>
<td>Very good overall understanding of technical material, with some real depth</td>
<td>Excellent, deep understanding of technical material and its inter-relationships</td>
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<tr>
<td>Thoroughness &amp; Coverage</td>
<td>Hardly covers any of the major relevant issues</td>
<td>Covers some of the major relevant issues</td>
<td>Reasonable coverage of the major relevant areas</td>
<td>Thorough coverage of almost all of the major relevant issues</td>
<td>Exceptionally thorough coverage of all major relevant issues</td>
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<tr>
<td>Relevance</td>
<td>Mostly unfocused</td>
<td>Focus is off topic or on insubstantial or secondary issues</td>
<td>Only some of the content is meaningful and on topic</td>
<td>Most or all of the content is reasonably meaningful and on-topic</td>
<td>All of the content is reasonably meaningful and on-topic</td>
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<tr>
<td>Utilization of resources</td>
<td>No useful use of notes, text(s), or Web with incorrect details or applicability</td>
<td>Some useful use of notes, text(s), or Web with mostly correct details or applicability</td>
<td>Fairly good use of notes, text(s), or Web with correct details or applicability</td>
<td>Very good use of notes, text(s), or Web with correct details or applicability</td>
<td>Excellent use of notes, text(s), or Web with entirely correct details or applicability</td>
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Discussion Participation

The discussions focus only on the lecture material and associated readings in the textbook for that week and on relating them to real life. This is an incentive for everyone to read and think about the lecture notes, and to discuss the same set of issues, each in his or her own way. Each contribution should number and name the specific lecture section or textbook reading page numbers that it references.
Here are guidelines to the kind of material to post:

- Clarify the cited section
- Respond with substance to a posting on the cited section (It’s also good to provide feedback, compliments, or just “I agree” even though non-substantive posts are not related to your grade)
- Relate the lecture material and the textbook
- Relate the cited section or textbook reading page(s) to an experience of yours
- Relate the cited section or textbook reading page(s) to a reported incident
- Ask your classmates an insightful question about the cited section

The criteria for participation in the weekly discussions are as follows.

(i) Relevance

This concerns the degree to which your postings are relevant to the stated topic for the module. “A” work consists of postings which all refer to and are entirely relevant to the week’s module material. (This criterion should be a straightforward way for you to keep your discussion grade in reasonable territory.)

(ii) Proportion of substantive contributions.

This is the percentage of your on-line contributions that have significant content: 80% would be a good fraction (=B); 95% is definitely excellent (=A). This criterion implies that “more is not necessarily better.” For example, 8 substantial contributions out of 10 will score higher on this criterion than 79 contributions out of 100 with mixed substance – even though you have said more in the latter case. In computing this, we will ignore postings that are obviously not intended to contain content. For example, it’s a good thing to complement another student on a useful post and a simple complement does not affect this grade.

Extensive quoted material that can be read from the Internet will fare poorly in this category since it is not the student’s contribution.

(iii) Usefulness of your week's contributions for the rest of your group.

This evaluates how useful and penetrating the totality of your comments and questions are for the rest of the group. “A” work will result from a significant set of comments and questions that are very useful to your fellow students, and which show that you are developing excellent insight into the subject at hand. This criterion encourages you to be participatory (e.g., by responding to good questions or points posed by others).

Contribute at an even rate of substantive postings throughout the week. Contributions concentrated at the end of the week are far less useful to your classmates because they have little time to absorb and respond.

Long posts are also far less likely to be read by your fellow students and will thus fare poorly in this criterion.

Lateness

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. No credit
will otherwise be granted for late homework: we want to be fair to everyone in this process, including the vast majority of you who sacrifice so much to submit your homework on time in this demanding schedule.

**Important Message on Final Exams**

Dr. Lou Chitkushev  
Chair Computer Science Department  
Metropolitan College  
Boston University

**Academic Conduct Policy**

**Registration Information and Important Dates**

**Netiquette**

**Technical Support**