Boston University Metropolitan College

MET CS634
Agile Software Development

This course provides students with a comprehensive overview of the principles, processes, and practices of agile software development. Students learn techniques for initiating, planning and executing on software development projects using agile methodologies. Students will obtain practical knowledge of agile development frameworks and be able to distinguish between agile and traditional project management methodologies.

Students will learn how to apply agile tools and techniques in the software development lifecycle from project ideation to deployment, including establishing an agile team environment, roles and responsibilities, communication and reporting methods, and embracing change.

We also leverage the guidelines outlined by the Project Management Institute for agile project development as a framework in this course.

Learning Objectives

Upon successful completion of this course, you will be able to:

1. Demonstrate an understanding of agile development philosophies and methodologies
    - Define agile development and the principles behind the Agile Manifesto
    - The difference between agile methodologies, such as Scrum, Extreme Programming (XP), and Lean Software Development
    - An understanding of when to use agile methodologies and how to tailor agile processes for specific scenarios

2. Demonstrate applied knowledge of agile tools and techniques, such as:
    - Agile analysis and design
    - Methods for agile planning, monitoring, and adapting

- Estimating agile projects
- Test-driven development
- The product life cycle

3. Tools and techniques of agile development, such as:
   - Value-based prioritization
   - Cost estimation and risk management
   - Project communication and reporting methods
   - Motivation theory and team building
   - Conflict management
   - Quality management

4. Understand advanced and emerging topics in the domain of software development management.
   - Project planning, adaptation and monitoring both in theory and in practice.

5. Apply agile software development concepts by working on an agile team.
   - Students will create a real-world web-based project working in small teams, and in a collaborative manner using remote collaboration tools.
   - Each team will produce a virtual "information radiator" for the above project.
   - Students will produce a high-quality research abstract paper to encourage original thinking in this field.
   - Students will also participate in discussions on current topics pertaining to case studies, research abstracts and Web project technology. Using skills developed in this and other computer science courses and previous work experience, students will develop an appreciation of the many skills required to deliver high-quality products in an adaptive environment.

6. Develop strong virtual teamwork and virtual communication skills.

Outline

- Calendar Tool - You may 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 announcements, discussions, and emails in the course.
- Readings - Each module has both textbook readings and online lectures. Your professor may suggest additional readings during the running of the course.
- Discussion - There are threaded discussions for each module. 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.
- Assignment - There are individual and group assignments that are due throughout the course.

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Module 1 – Introduction to Agile Software Development

- Introduction to Agile Software Development
- Project Delivery Frameworks
- Organizational Framework for Product Initiation and Visioning

Module 2 – Managing the Product Backlog and Multi-Level Planning

- Managing the Product Backlog and Multi-Level Planning
- Requirements and User Stories

Module 3 – Sprint Execution

- Scrum Framework Overview
- Sprint Execution

Module 4 – Agile Leadership & Quality Management

- Agile Quality Management
- Setting Up an Agile Environment
- Agile Leadership

Module 5 – Advanced Agile

- Scaling Agile
- Lean Principles and Value Stream Mapping

Module 6 – Agile in the Enterprise

- Agile in the Enterprise

Module 7 – 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
Jim Hannon

Computer Science Department Metropolitan College
Boston University
808 Commonwealth Ave, Room 250
Boston, MA 02215

Office Hours: Email me to arrange a time to meet online. I will also be happy to meet with you if are here

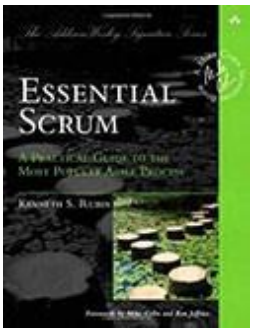
in the Boston area. Office

Phone: 508-333-6002

Email: jhannon@bu,edu

Materials

Required Texts



Rubin, K. (2013). Essential Scrum: A Practical Guide to the Most Popular Agile Process. Upper Saddle River, NJ: Addison-Wesley. ISBN-10: 0137043295 • ISBN-13: 978-0137043293

Shore, J. & Warden, S. (2008). The Art of Agile Development. Sebastopol, CA: O'Reilly Media. ISBN-10: 0596527675 • ISBN-13: 978-0596527679

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Supplementary Reading

Additional readings and tools will be identified during the term.

As Boston University students you have full access to the BU Library—even if you do not live in Boston. 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 include:

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.

Other resources available through library proxy server: http://proquest.safaribooksonline.com/

Note

A limited number of people can access one book simultaneously, so it may be advisable to invest in a trial subscription to Safari. You can get one month free and then pay $19 a month if you find the service useful.

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Study Guide

Module 1 Study Guide and Deliverables

Readings:

Required:

- Module 1 course notes
- Rubin, Chapter 3, Agile Principles
- Shore & Warden, Vision, pg. 202–207
- Takeuchi, H. & Nonaka, I. (1986). The New New Product Development Game. Harvard Business Review, Jan-Feb 1986, pp. 137–146

Recommended:

- Rubin, Chapter 17, Envisioning
- Shore & Warden, Chapter 8, Planning

Discussions: Discussion 1 postings end at 6:00 AM ET

Assessments: Quiz 1 due July 15 at 6:00 AM ET

Assignments: Assignment 1 due at 6:00 AM ET

Module 2 Study Guide and Deliverables

Readings:

Required:

- Module 2 course notes
- Rubin, Chapter 6, Product Backlog
- Rubin, Chapter 5, Requirements and User Stories
- Rubin, Chapter 7, Estimation and Velocity

Recommended:

- Rubin, Chapters 9–13
- Rubin, Chapter 15, Multi-Level Planning
- Cohn, M. (2004). User Stories Applied: For Agile Software Development. Boston, MA: Pearson Education

Discussions: Discussion 2 postings end at 6:00 AM ET

Assignments: Assignment 2 due at 6:00 AM ET

Group Assignments: Group Assignment 2 due at 6:00 AM ET

Module 3 Study Guide and Deliverables

Readings:

Required:

- Module 3 course notes
- Rubin, Chapter 20, Sprint Execution
- Shore & Warden, Coding Standards, pp. 133–137
- Shore & Warden, Chapter 7, Releasing
- Shore & Warden, Chapter 9, Developing

Recommended:

- Rubin, Chapter 8, Technical Debt
- Shore & Warden, Chapter 15, Seek Technical Excellence
- Shore & Warden, Test-Driven Development, pp. 289–309
- Shore & Warden, Ten Minute Build, pp. 177–183
- Shore & Warden, Continuous Integration, pp. 183–191

Discussions: Discussion 3 postings end at 6:00 AM ET

Assessments: Quiz 2 due at 6:00 AM ET **Assignments:** Assignment 3 due at 6:00 AM ET **Group Assignments:** Group Assignment 3 due at 6:00 AM ET

Module 4 Study Guide and Deliverables

Readings:

Required:

- Module 4 course notes
- Druskat, V. & Wolff, S. (2001). Building the Emotional Intelligence of Groups. Harvard Business Review, March 2001

Recommended:

- Rubin, Chapter 13, Managers

Discussions: Discussion 4 postings end at 6:00 AM ET

Group Assignments: Group Assignment 4 due at 6:00 AM ET

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Module 5 Study Guide and Deliverables

Readings:

Required:

- Module 5 course notes
- Rubin, Chapter 12, Scrum Team Structures
- Fowler, M. (2006). Using an Agile Software Process with Offshore Development.

Recommended:

- Womack, J. & Jones, D. (1996). Beyond Toyota: How to Root Out Waste and Pursue

Perfection. Harvard Business Review, Sept-Oct 1996

- Leffingwell, D. (n.d.). Value Streams.

Discussions:	Discussion 5 postings end at 6:00 AM ET
Assessments:	Quiz 3 due at 6:00 AM ET
Group Assignment:	Group Assignment 5 due at 6:00 AM ET

Module 6 Study Guide and Deliverables

Readings:

Required:

- Module 6 course notes
- Heusser, M. (2013). Has Agile Gone Mainstream?. CIO Magazine.

Recommended:

- Cohn, M. (2010). The Roles of the Project Management Office in Scrum.

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Discussions: Discussion 6 postings end at 6:00 AM ET

Group Assignments: Group Assignment 6 (to be scheduled)

Final Exam Details

The exam is a three-hour closed-book test consisting of essay questions. It will only be accessible during the final exam period. You can access it from either the Assessments section of the course or from the Final Exam module on the home page. Your proctor will enter the password to start the exam.

You will receive a technical support hotline number before the start of the exam. Please bring this number with you to the exam.

Grading

The course will be conducted by means of a sequence of lectures throughout the term. The class will explore agile software delivery topics through a series a combination of group and individual assignments, quizzes and a final exam. There are two major assignments: team Web Development Project and an individual research paper. Students will be able to demonstrate their understanding of agile software delivery through these assignments. In the final module of the course there is a proctored comprehensive final exam.

Grading Policy

All students will be expected to demonstrate knowledge of agile software delivery and relevant techniques. To obtain an exceptional grade you have to exceed expectations in your projects, quizzes and assignments.

Grading Distribution

Deliverable		Percentage
Three quizzes		10
Graded discussions and	class participation	15
	Product vision statement	5
Individual assignments	VersionOne lab	5
	Research paper	10
Group assignment		30
Final exam		25

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Grade Structure

The following grade structure will be applied to your assignments.

A 4.0
A− 3.7
B+ 3.3
B 3.0
B− 2.7
C+ 2.3
C 2.0
Fail 0

Assignments, Exams and Discussions

Participation
Students will be participating in weekly online discussions that will be graded on an ongoing basis. Participation in onsite classes will be incorporated into the grade as well.

Research Abstract
This is a graduate course and since almost all of you are experienced IT practitioners you are expected to produce a quality research paper on a topic determined by your professor.

Individual Assignments
Students will individually complete two assignments in addition to the research abstract, including a project lab using an agile project management tool (such as VersionOne), and a product vision statement.

Agile Software Delivery Project
Students will be delivering an agile software project in small teams of three to four students. It will provide hands-on experience with the various topics covered in this course. Students will be required to submit a series of team deliverables throughout the course. This maybe a individual exercise based off the size of the coruse

Proctored Final Exam
The final exam will test your knowledge of the agile process. The professor will review key topics in the course so that you are prepared for the final exam.

Expectations
Many learning activities require sharing your assignments and opinions with your classmates. It is, therefore, very important that you, as well as your classmates, submit your assignments on a timely basis. Timely submission by all will result in each of you being able to evaluate and respond each other's feedback. Due dates will be posted in advance of the course.

Delays

If, for any reason, you are unable to meet any assignment deadline, contact your professor in advance. All times mentioned in the course (unless otherwise specified) are in Eastern Time. All assignments must be completed and must be turned in by their due dates and due times. Extensions may be granted, though only under mitigating circumstances.

Academic Conduct Policy

For the full text of the academic conduct code, please go to http://www.bu.edu/met/for-students/met-policies-procedures-resources/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.

C. 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.

D. 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.

E. 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.

F. Unauthorized communication during examinations. Any unauthorized communication may be considered prima facie evidence of cheating.

G. 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).

H. 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.

I. Theft or destruction of examinations or papers after submission.

J. Submitting the same work in more than one course without the consent of instructors.

K. 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.

L. 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.

M. Failure to sit in a specifically assigned seat during examinations.

N. Conduct in a professional field assignment that violates the policies and regulations of the host school or agency.

O. 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.

P. Attempting improperly to influence the award of any credit, grade, or honor.

Q. Intentionally making false statements to the Academic Conduct Committee or intentionally presenting false information to the Committee.

R. Failure to comply with the sanctions imposed under the authority of this code.

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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 local 617-353-4357 or Web

Check your open tickets using BU's ticketing system.