INFO 7245 Agile Software Development

Course Information

Course Title: Agile Software Development
Course Number: INFO 7245-03
Term and Year: Spring 2025
Credit Hour: 4
CRN: 34602
Class Date and Time: Wed 3pm-6pm PST
Course Format: Seattle Traditional

Instructor Information

Full Name: David Fannin
Email Address: d.fannin@northeastern.edu
Office Hours: Wednesday 1-2pm via MS Teams (see Canvas for link)

Instructor Biography

David is a senior software engineering executive from the Cloud, Infrastructure and Big Data domains, with extensive experience in creating, building and managing software development teams, and leading product development efforts. He has held key engineering roles in Silicon Valley companies such as Amazon Web Services, Yahoo, Cisco, Juniper Networks and several startups that you've never heard of. David started his career as a Member of Technical Staff at AT&T Bell Laboratories in New Jersey. In these roles, he has spearheaded major software engineering initiatives, optimized software delivery processes, and transformed teams by driving revitalized software release processes, improving software quality and introducing innovative new integration and deployment processes, including Agile Software Development. David holds a Master's degree in Computer Science and a Bachelor's degree in Engineering, both from California Polytechnic State University , San Luis Obispo.

Teaching/Instructional Assistant Information

Full Name: TBD
Email Address: TBD

Course Background
Course Prerequisites
INFO 5100 with a minimum grade of B- or INFO 5100 with a minimum grade of B- or CSYE 6200 with a minimum grade of B-

Course Description
The Agile Software Development course is a comprehensive and advanced-level program designed to equip Masters degree-level students in Information Systems with the essential knowledge and skills to succeed in the dynamic and rapidly evolving world of software development. The course emphasizes the principles, practices, and methodologies of Agile software development, which have become indispensable in today's technology-driven organizations.
Offers students an opportunity to achieve a high level of practical understanding of software development life cycle (SDLC) with emphasis on agile and adaptive incremental methodologies. Examines techniques for the management and evolution of software systems, including project planning from requirements gathering, analysis, estimation, and releasing using a hands-on approach to implement agile methodologies. Also covers maintainability, including software risk analysis, project retrospectives, and process models such as capability maturity model, configuration management, and their practical implementation.
By the end of the course, students will be well-prepared to lead Agile software development initiatives, effectively manage Agile projects, and contribute to the success of software development teams in a wide range of organizations. The course will empower graduates to drive innovation and adaptability in the ever-changing landscape of Information Systems. Students who successfully meet requirements will be awarded a *Scrum Master Certificate*.

Standard Learning Outcomes
Learning outcomes common to all College of Engineering Graduate programs:

1. *An ability to identify, formulate, and solve complex engineering problems.*
2. *An ability to explain and apply engineering design principles, as appropriate to the program's educational objectives.*
3. *An ability to produce solutions that meet specified end-user needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.*

The Information Systems Program accepts students of different engineering backgrounds with minimum programming skills and produces first class Information Systems engineers that operate at the intersection of real-world complexity, software development, and IT management. Graduating students will be able to construct end-to-end advanced software applications that meet business needs.

Specific Learning Outcomes for the Information Systems program:

1. *Create a strong technical foundation through diverse, high-level courses*
2. *Built crucial interpersonal skills needed to succeed in any industry*
3. *Foster a deep level of applied learning through project-based case studies*

Required Tools and Course Textbooks

Textbook (required): *The Art of Agile Development 2nd Edition* by James Shore and Shane Warden. [ISBN 978-1-4920-8069-5]. Please make sure you acquire the "2nd Edition", as it is a major update/rewrite of the 1st Edition done in 2007.

Learning Outcomes for Agile Systems Development course:

- Explore the key principles and philosophies of modern software engineering methodologies, including Agile, Scrum, Kanban and Extreme Programming (XP).
- Understand the core principles of Agile development, including customer collaboration, response to change, iterative development and continuous improvement.
- Demonstrate the ability to manage and participate effectively in a software development lifecycle process using agile/scrum methodologies, including topics such as standups, sprint planning, retrospectives and backlog grooming.
- Understand practices for performing level of effort estimates and planning under Agile.
- Explore Strategies for executing system architecture and design in Agile
- Understand the use and scope of Agile software development tools.
- Address the strategies for quality assurance and testing in Agile development lifecycle, including automated testing and continuous integration (CI).
- Explore methods for scaling Agile practices to large and complex projects, such as Scrum of Scrums, Large Scale Scrum (LeSS) and SAFe (Scaled Agile Framework).
- Review the challenges and strategies for adopting Agile practices and leading organizational transformations.

Course Details

Course Activities

1. Homework Assignments - Each week, assignments will be provided to the class for the following week, usually reading assignments from the textbook or other sources.
2. Quizzes and In-Class Discussion Groups - Quizzes will periodically be given at the end of each class that covers the previously discussed course material. The quizzes will be a combination of multiple choice and short answer questions. In-Class team discussions will also be held where the teams will be given a discussion topic to discuss, and the team will document their answers.
3. Midterm and Final Exam - Midterm and Final exams will be held at the midpoint and end of the class, respectively . These exams will be a combination of multiple choice, short answer and case study questions, and will cover the previous course material, including assigned readings.
4. Scrum Team Project - The project allows students to experience the full Scrum process in action over multiple sprints and highlights key agile principles through a set of hands-on exercises. The class will be organized into multiple scrum teams and

given a product idea. They will use the Agile/Scrum process over multiple in-class sprint sessions to create a product design and solution (No coding required), which they will then present to the class, along with key learnings and a description of the process used.

Course Schedule

Week	Date (Wed)	Topic/Activities	Type
Week 1	1/8	Introductions Course and Syllabus Overview Module 1: Software Development Lifecycle and Agile	Lecture
Week 2	1/15	Module 2: Agile Principles and Frameworks	Lecture
Week 3	1/22	Module 3: Scrum Framework, Part 1 **In-class Discussion: Agile Principles**	Lecture + Discussion
Week 4	1/29	Module 4: Scrum Framework, Part 2 Scrum Team Introductions	Lecture + Exercise
Week 5	2/5	Module 5: Software Estimation and Planning *Scrum Project - Iteration 1*	Lecture + Exercise
Week 6	2/12	Module 6: Organizing Agile Teams and Managing Releases *Scrum Project - Iteration 2*	Lecture + Exercise
Week 7	2/19	Module 7: Software Tools for Agile Scrum *Scrum Project - Iteration 3*	Lecture + Exercise
Week 8	2/26	*Scrum Simulation - Iteration 4* ***Mid Term Exam***	Exercise + Mid-Term
	3/5	Spring Break	Break
Week 9	3/12	Module 8: System Architecture and Design in Agile *Scrum Project - Iteration 5 (Finalize Report and Presentation)*	Lecture + Exercise
Week 10	3/19	Scrum Project - Team Presentations	Presentations

Week 11	3/26	Module 9: Testing and Quality Assurance **In-class Discussion: Testing in Agile**	Lecture + Discussion
Week 12	4/2	Module 10: Frameworks for Scaling Agile Projects	Lecture
Week 13	4/9	Module 11: Leading Agile Transformations in Organizations	Lecture
Week 14	4/16	Lecture: Special Topics in Agile Final Exam Review Awarding of Scrum Master Certification	Lecture + Review
Week 15	4/23	***Final Exam***	Final Exam

Scrum Exercise (Team Project)
In the Agile Software Development Class, you will gain a deeper understanding of Agile principles, methodologies and their practical applications in software development projects. To reinforce your learning and demonstrate your proficiency in Agile practices, you will participate in a Scrum team over multiple iterations to design a product. The output of the team will be a product design or simulated solution , and does NOT require a working solution or prototype.

Overview: Teams of 4-5 students will design a provided product over multiple simulated sprints using key Scrum events and artifacts.

Duration: 5 sprints of 1 week each with backlog grooming, sprint planning, daily standups, sprint review and a retrospective. Team will document their progress of each event.

Recommended Schedule:
Iteration 1: Team self-organizes and selects roles. Team creates user stories, and performs Backlog Grooming and Sprint Planning events.
Iteration 2: Team performs Daily Scrum, Retrospective and Sprint Review events.
Iteration 3: Team performs Daily Scrum, Retrospective and Sprint Review events.
Iteration 4: Team performs Daily Scrum, Retrospective and Sprint Review events.
Iteration 5: Team finalizes the final report, and presentation.

Roles: Each team member will take on one Scrum role - Product Owner, Scrum Master, or Developer. Roles rotate each sprint iteration.

Sprint Execution: Teams self-organize to complete stories in the sprint backlog during 1 week sprints. Daily standups are held to inspect progress. Teams demonstrate product

design features at the sprint review.

Teams will be given the opportunity to present their product and key learnings in a class session. The presentation will focus on a Product Overview, the Scrum Process and Progress, Challenges and Lessons Learned.

Grades will be assigned based on the results of their team project.

Scrum Master Certification

Students that successfully complete the Scrum Exercise and Quizzes/Midterms with a current grade of "C" or higher will be awarded an INFO 7245 ASD Scrum Master Certificate - Foundation Level (SMC-Foundational). This certification will attest to your level of achievement and competency for your knowledge and skills as a Scrum Master.

Grading

Grade Weighting

You will be graded on the following category of activities, using the percent grade weighting.

Category	***Component***	***Percent of Grade***
1	Quizzes, In-class Discussions, Assignments and Attendance	25%
2	Scrum Project Exercise	25%
3	Mid-term Exam	25%
4	Final Exam	25%
Total		100%

Grade Scale

95-100% A	87-89.9% B+	77-79.9% C+	69.9% or below F

	84-86.9% B	74-76.9% C	
90-94.9% A-	80-83.9%B-	70-73.9% C-	

There will be quizzes and in-class discussions given during the course. Missed quizzes or in-class discussion will count as zero credit, unless you receive prior written approval of the instructor.

Attendance/Late Work Policy.

Attendance Policy
In-Person Attendance is required for all class sessions, including quizzes, exams, and student presentations. Students registered in MGEN courses (INFO, CSYE, and DAMG) are allowed a **maximum of 2 absences per course, with 3 or more absences resulting in an automatic 'F' for that course.** Students are expected to inform their instructors of any absences in advance of the class; if a student is sick long-term or experiences a medical issue that prevents class attendance, it is strongly encouraged that they speak with their Academic Advisor (coe-mgen-gradadvising@northeastern.edu) to learn more about the Medical

Leave of Absence. Should a student anticipate being unable to attend 3 or more classes, they should discuss their situation with their Academic Advisor to explore other types of leave in accordance with the University's academic and global entry expectations. International students should review the Office of Global Services webpage to understand their visa compliance requirements.

Teaching Assistants (TAs) or Instructional Assistants (IAs) will be present at each class to collect student attendance.

Late Work Policy
Students must submit assignments by the deadline in the time zone noted in the syllabus. Students must communicate with me prior to the deadline if they anticipate work will be submitted late. Work submitted late without prior communication with faculty will not be graded, and will not receive credit.

Policies and Services

End-of-Course Evaluation Surveys
Your feedback regarding your educational experience in this class is particularly important to the College of Professional Studies. Your comments will make a difference in the future planning and presentation of our curriculum.

At the end of this course, please take the time to complete the evaluation survey at **https://neu.evaluationkit.com**. Your survey responses are **completely anonymous and confidential**. For courses 6 weeks in length or shorter, surveys will be open one week prior

to the end of the courses; for courses greater than 6 weeks in length, surveys will be open for two weeks. An email will be sent to your Husky Mail account notifying you when surveys are available.

Academic Integrity
A commitment to the principles of academic integrity is essential to the mission of Northeastern University. The promotion of independent and original scholarship ensures that students derive the most from their educational experience and their pursuit of knowledge. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University.

As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, examinations of whatever kind, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Students are responsible for learning the conventions of documentation and acknowledgment of sources in their fields. Northeastern University expects students to complete all examinations, tests, papers, creative projects, and assignments of any kind according to the highest ethical standards, as set forth either explicitly or implicitly in this Code or by the direction of instructors.

Go to http://www.northeastern.edu/osccr/academic-integrity-policy/ to access the full academic integrity policy

MGEN Student Feedback

Students who would like to provide the MGEN unit with anonymous feedback on this particular course, Teaching Assistants, Instructional Assistants, professors, or to provide general feedback regarding their program, may do so using this survey: https://neu.co1.qualtrics.com/jfe/form/SV_cTIAbH7ZRaaw0Ki

University Health and Counseling Services

As a student enrolled in this course, you are fully responsible for assignments, work, and course materials as outlined in this syllabus and in the classroom. Over the course of the semester if you experience any health issues, please contact UHCS.
For more information, visit https://www.northeastern.edu/uhcs.

Student Accommodations
Northeastern University and the Disability Resource Center (DRC) are committed to providing disability services that enable students who qualify under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act Amendments Act (ADAAA) to participate fully in the activities of the university. To receive accommodations through the DRC, students must provide appropriate documentation that demonstrates a current substantially limiting disability.

For more information, visit https://drc.sites.northeastern.edu.

Library Services
The Northeastern University Library is at the hub of campus intellectual life. Resources include over 900,000 print volumes, 206,500 e-books, and 70,225 electronic journals.

For more information and for education specific resources, visit https://library.northeastern.edu.

24/7 Canvas Technical Help

For immediate technical support for Canvas, call 617-373-4357 or email help@northeastern.edu
Canvas Faculty Resources: https://canvas.northeastern.edu/faculty-resources/
Canvas Student Resources: https://canvas.northeastern.edu/student-resources/
For assistance with my Northeastern email, and basic technical support:
Visit ITS at https://its.northeastern.edu
Email: help@northeastern.edu
ITS Customer Service Desk: 617-373-4357

Diversity and Inclusion
Northeastern University is committed to equal opportunity, affirmative action, diversity, and social justice while building a climate of inclusion on and beyond campus. In the classroom, members of the University community work to cultivate an inclusive environment that denounces discrimination through innovation, collaboration, and an awareness of global perspectives on social justice.
Please visit http://www.northeastern.edu/oidi/ for complete information on Diversity and Inclusion

Title IX
Title IX of the Education Amendments of 1972 protects individuals from sex or gender-based discrimination, including discrimination based on gender-identity, in educational programs and activities that receive federal financial assistance.

Northeastern's Title IX Policy prohibits Prohibited Offenses, which are defined as sexual harassment, sexual assault, relationship or domestic violence, and stalking. The Title IX Policy applies to the entire community, including male, female, transgender students, faculty, and staff.

In case of an emergency, please call 911.

*Please visit **https://www.northeastern.edu/ouec** for a complete list of reporting options and resources both on- and off-campus.*