SSW555/CS555 Agile Methods for Software Development

Spring 2023

Lecture: Tuesday 12:30pm-3pm live Zoom https://stevens.zoom.us/j/99308753722,
or Thursday 6:30-9pm live Zoom https://stevens.zoom.us/j/91663723267,
or video recording

Instructor:

- Dr. Zhongyuan Yu
  - Email: zyu7@stevens.edu
  - Office: Babbio 537
  - Office Hours: Tuesday 11am-12pm on Zoom or by appointment
  - grader: TBD

Course Overview:

In software problem areas that require exploratory development efforts, those with complex requirements and high levels of change, agile software development practices are highly effective when deployed in a collaborative, people-centered organizational culture. This course examines agile methods, including Extreme Programming (XP), Scrum, Lean, Crystal, and Feature-Driven Development to understand how rapid realization of software occurs most effectively. The ability of agile development teams to rapidly develop high quality, customer-valued software is examined and contrasted with teams following more traditional methodologies that emphasize planning and documentation. Students will learn agile development principles and techniques covering the entire software development process from problem conception through development, testing and deployment, and will be able to effectively participate in and manage agile software developments as a result of their successfully completing this course. Case studies and software development projects are used throughout.

After successful completion of this course, students will be able to:

- describe several agile methods for software development
- describe the origins and motivations of the Agile Manifesto
- practice pair programming
- perform test-first development with a unit testing framework
- create and critique user stories for system requirements
- refactor code and tests to meet changing needs
- develop and monitor project backlogs
- measure and monitor velocity of development

- compare plan-driven versus agile methods
- construct tailored agile processes that best fit the technical and market demands of a modern software project

Prerequisites:

It would be desirable that students are comfortable with scripting language such as *Python*.

Textbooks:

There is no official textbook for this course. Weekly reading assignment will be published throughout the semester.

Evaluation:

Weekly lectures, quizzes, and a team project form the core of the course. Students will be expected to participate in weekly lectures and complete weekly reading assignments, quizzes, along with a group development project. A final examination is administered to insure student mastery of the subject matter.

The evaluation will be based on following criteria & weights:

- **Quizzes (30%):** There will be after-class quizzes as needed. Written homework should be finished individually, discussions with peers or instructor is allowed, but copying or any other type of cheating is strictly prohibited.
- **Project and Presentation (40%):** The course project is to give the students hands-on experience on solving real world problems. The course projects will be developed over the course of the semester. Group work is required, 5-7 team members are expected.
- **Final Exam (20%):** Student will work independently on take-home final exam.
- **Bi-Weekly Social Media Discussion (10%)**
- **Participation and Bonus points (+)**

Students are expected to abide by the Stevens Honor Code in submitting assignments and projects.

Grade	Percentage
A	94-100
A-	90-93.9
B+	87-89.9
B	83-86.9
B-	80-82.9
C+	77-79.9
C	70-76.9
F	< 70

If you are straddling two grades, your class participation and occasional bonus points (or lack of it) will determine which way your grade will go. Even if you answer questions incorrectly (hopefully not TOO often), your participation is noted and counts as engagement.

Notes:

(1) Partial credit will be assigned for late submission **(<1 day: 5% deduction; <3 days: 10% deduction; < a week, 30% deduction)**. The students are advised to get in touch with the instructor with any doubts / clarification regarding any assignment well before the submission deadline. **The lowest quiz grade will be dropped for final homework calculation.** All assigned problems are to be done individually. However, you may **reference** someone else on the assignment if you went to him or her for assistance or use online sources. PLEASE DO NOT SHARE your solutions directly. Solutions will be gone over in class.

(2) Late Homework and Make-up Exams: Late homework and project submission will be provided to the student if there is a situation of unavoidable emergency. This requires a written excuse. If you **do not submit** homework/quiz/exam**, or submit late with no explanation in advance**, you will receive **zero after ONE week** for the corresponding submission.

Tentative Schedule (subject to change)

Week	Date	Additional Comments	Assignments Due	Topic	Reading(s)	Project
0	Thursday, January 12, 2023			Orientation		
1	Thursday, January 19, 2023			Course Overview		
	Thursday, January 26, 2023		2/1/23	XP	[Boehm2002][RUP2003]	
2	Thursday, February 2, 2023		2/8/23	User Story	[Ambler 2004][Grenning 2002]	
3	Thursday, February 9, 2023			Project Release		Preparation for project
4	Thursday, February 16, 2023		2/22/23	Scrum	[Schwaber 2013]	Group formation Due
5	Thursday, February 23, 2023		3/1/23	Testing	[Gamma 1998]	Start of Sprint 1
6	Thursday, March 2, 2023		3/8/23	Pair Programming	[Williams 2001]	
7	Thursday, March 9, 2023			Refactoring	[Fowler 1999] Chapter 2 -3	Start of Sprint 2
8	Thursday, March 16, 2023	Spring Recess; No Classes				
9	Thursday, March 23, 2023		3/29/23	Lean	[Poppendieck 2012]	
10	Thursday, March 30, 2023		4/5/23	Crystal	[Wikiversity on Crystal]	Start of Sprint 3
11	Thursday, April 6, 2023		4/12/23	Feature-Driven Development (FDD)	[Palmer 2013]	
12	Thursday, April 13, 2023		4/19/23	DSDM	[Clifton2003]	Start of Sprint 4
13	Thursday, April 20, 2023		4/26/23	Scaled Agile Framework (SAF)	[Leffingwell 2009]	
14	Thursday, April 27, 2023			Zoom Project Presentation		End of Project
15	Thursday, May 4, 2023		5/8/22	Final Exam		

Academic Integrity:

Undergraduate Honor System

Enrollment into the undergraduate class of Stevens Institute of Technology signifies a student's commitment to the Honor System. Accordingly, the provisions of the Stevens Honor System apply to all undergraduate students in coursework and Honor Board proceedings. It is the responsibility of each student to become acquainted with and to uphold the ideals set forth in the Honor System Constitution. More information about the Honor System including the constitution, bylaws, investigative procedures, and the penalty matrix can be found online at http://web.stevens.edu/honor/ .

The following pledge shall be written in full and signed by every student on all submitted work (including, but not limited to, homework, projects, lab reports, code, quizzes and exams) that is assigned by the course instructor. No work shall be graded unless the pledge is written in full and signed.

"*I pledge my honor that I have abided by the Stevens Honor System.*"

Reporting Honor System Violations

Students who believe a violation of the Honor System has been committed should report it within ten business days of the suspected violation. Students have the option to remain anonymous and can report violations online at www.stevens.edu/honor (Links to an external site.).

Graduate Student Code of Academic Integrity

All Stevens graduate students promise to be fully truthful and avoid dishonesty, fraud, misrepresentation, and deceit of any type in relation to their academic work. A student's submission of work for academic credit indicates that the work is the student's own. All outside assistance must be acknowledged. Any student who violates this code or who knowingly assists another student in violating this code shall be subject to discipline.

All graduate students are bound by the Graduate Student Code of Academic Integrity by enrollment in graduate coursework at Stevens. It is the responsibility of each graduate student to understand and adhere to the Graduate Student Code of Academic Integrity. More information including types of violations, the process for handling perceived violations, and types of sanctions can be found at www.stevens.edu/provost/graduate-academics (Links to an external site.).

Special Provisions for Undergraduate Students in 500-level Courses

The general provisions of the Stevens Honor System do not apply fully to graduate courses, 500 level or otherwise. Any student who wishes to report an undergraduate for a violation in a 500-level course shall submit the report to the Honor Board following the protocol for undergraduate courses, and an investigation will be conducted following the same process for an appeal on false accusation described in Section 8.04 of the Bylaws of the Honor System. Any student who wishes to report a graduate student may submit the report to the Dean of Graduate Academics or to the Honor Board, who will refer the report to the Dean. The Honor Board Chairman will give the Dean of Graduate Academics weekly updates on the progress of any casework relating to 500-level courses. For more information about the scope, penalties, and procedures pertaining to undergraduate students in 500-level courses, see Section 9 of the Bylaws of the Honor System (Links to an external site.) document, located on the Honor Board website.

Learning Accommodations:

Stevens Institute of Technology is dedicated to providing appropriate accommodations to students with documented disabilities. The Office of Disability Services (ODS) works with undergraduate and graduate students with learning disabilities, attention deficit-hyperactivity disorders, physical disabilities, sensory impairments, psychiatric disorders, and other such disabilities in order to help students achieve their academic and personal potential. They facilitate equal access to the educational programs and opportunities offered at Stevens and coordinate reasonable accommodations for eligible students. These services are designed to encourage independence and self-advocacy with support from the ODS staff. The ODS staff will facilitate the provision of accommodations on a case-by-case basis.

Disability Services Confidentiality Policy

Student Disability Files are kept separate from academic files and are stored in a secure location within the Office of Disability Services. The Family Educational Rights Privacy Act (FERPA, 20 U.S.C. 1232g; 34CFR, Part 99) regulates the disclosure of disability documentation and records maintained by Stevens Disability Services. According to this act, prior written consent by the student is required before our Disability Services office may release disability documentation or records to anyone. An exception is made in unusual circumstances, such as the case of health and safety emergencies.

For more information about Disability Services and the process to receive accommodations, visit https://www.stevens.edu/office-disability-services. If you have any questions please contact: Phillip Gehman, the Director of Disability Services Coordinator at Stevens Institute of Technology at pgehman@stevens.edu or by phone (201) 216-3748.

Inclusivity:

Name and Pronoun Usage

As this course includes group work and in-class discussion, it is vitally important for us to create an educational environment of inclusion and mutual respect. This includes the ability for all students to have their chosen gender pronoun(s) and chosen name affirmed. If the class roster does not align with your name and/or pronouns, please inform the instructor of the necessary changes.

Inclusion Statement

Stevens Institute of Technology believes that diversity and inclusiveness are essential to excellence in academic discourse and innovation. In this class, the perspective of people of all races, ethnicities, gender expressions and gender identities, religions, sexual orientations, disabilities, socioeconomic backgrounds, and nationalities will be respected and viewed as a resource and benefit throughout the semester. Suggestions to further diversify class materials and assignments are encouraged. If any course meetings conflict with your religious events, please do not hesitate to reach out to your instructor to make alternative arrangements.

You are expected to treat your instructor and all other participants in the course with courtesy and respect. Disrespectful conduct and harassing statements will not be tolerated and may result in disciplinary actions.