

Agile Software Development

Harvard Summer School - CSCI S-71

Syllabus - Summer I - 2020 - Draft

Updates to This Syllabus

For the latest updates to the course syllabus, visit the course website: agilesoftwaredevelopment.org.

About This Course

This course is an immersive experience in Agile software development. We study both the technical and cultural/social aspects of Agile, including:

- pair and mob programming,
- high-performance teams with the Core Protocols,
- test-driven development,
- behavior-driven development,
- continuous delivery,
- clean code,
- refactoring,
- extreme programming,
- Scrum,
- Kanban, and
- Agile project management.

Students must have a laptop computer suitable for software development and bring it to on-campus class sessions.

By the end of this course, you will understand Agile software development so thoroughly that you'll be able to be an effective leader or member of a great software product development team.

The summer semester is an on-campus face-to-face experience. We meet Monday-Thursday at 3:15-6:15 pm ET for three weeks beginning in late June.

Course Staff

Richard Kasperowski

Instructor

Richard Kasperowski is an author, teacher, speaker, and coach focused on team building and high-performance teams. Richard is the author of two books: *High-Performance Teams: The Foundations* and *The Core Protocols: A Guide to Greatness*. He leads clients in building and maintaining high-performance teams that get great results using the Core Protocols, Agile, and Open Space Technology. Richard created and teaches the course Agile Software Development at Harvard University, and he co-

teaches the Spark! fellowship at Boston University. To contact Richard, email richard@kasperowski.com.

Agile Values

This course is aligned with values and principles the topic of the course, Agile software development, as described in the [Agile manifesto](#). In this course, we value

- Individuals and interactions, so we encourage class participation, and we have group homework assignments and a group final project.
- Working software, so we learn and practice Agile technical skills, and the final project is a real piece of working software.
- Customer collaboration, so the final project is oriented around a real stakeholder.
- Responding to change, so we'll revise the course backlog, homework assignments, and final project to make sure we achieve the best learning outcomes.

Reading Materials

There is no required reading for this course. Instead, there is a set of recommended reading materials. See the [course backlog](#) for details—each backlog item has its own recommended reading list. The recommended readings will enhance your knowledge of the course material. We trust that you are intrinsically motivated to learn, practice, and embody the course material, and that you'll read as much as possible to maximize your learning.

Class Dates and Location

The summer semester is an on-campus face-to-face experience. We meet Monday-Thursday at 3:15-6:15 pm at [53 Church Street](#), room 203. Class dates are:

- Week 1: June 22, 23, 24, 25
- Week 2: June 29, 30; July 1, 2
- Week 3: July 6, 7, 8, 9

Communication

We want communication to be open and transparent, so most course communication takes place in [our Slack group](#). To join the Slack group, [ask Richard for an invitation](#).

Accessibility

The Summer School is committed to providing an accessible academic community. The Accessibility Office offers a variety of accommodations and services to students with documented disabilities. Please visit <http://www.summer.harvard.edu/resources-policies/accessibility-services> for more information.

Academic Integrity

You are responsible for understanding [Harvard Summer School policies on academic integrity](#) and how to use sources responsibly. Not knowing the rules, misunderstanding the rules, running out of time, submitting the wrong draft, or being overwhelmed with multiple demands are not acceptable excuses. To support your learning about academic citation rules, please visit the [Resources to Support Academic Integrity](#) where you will find links to the Harvard Guide to Using Sources and two free online 15-minute

tutorials to test your knowledge of academic citation policy. The tutorials are anonymous open-learning tools.

Course Backlog

One way we align with Agile values is by using a course backlog—a learning backlog—rather than a traditional syllabus. Our course backlog is the list of topics we plan to cover throughout the semester. Each backlog item includes a short description, a list of activities, a suggested reading list, and the date on which we forecast we'll cover the backlog item. The order of topics and dates may change—we'll adjust the backlog throughout the semester to ensure we're covering the right topics at the right time.

View the most up-to-date version of the course backlog at <https://agilesoftwarecourse.org/backlog>. Here is a view of the initial course backlog:

Topic	Forecast date
Introduction to the course	June 22
Introduction to Agile	June 22
Scrum	June 23
Product inception	June 24
Agile requirements	June 24
Definition of Done, Definition of Ready	June 25
Estimating	June 25
Agile forecasting and project management	June 29
Sprint Planning	June 29
Agile technical skills: Pair Programming	June 29
TDD with Mob Programming	June 30
Continuous Integration, Continuous Delivery, and DevOps	July 1
Clean code, refactoring, and legacy code with Mob Programming	July 2
High-performance teams: Core Protocols for psychological safety and EI	July 6
Behavior Driven Development (BDD) and Acceptance Test-Driven Development (A-TDD)	July 7
Retrospectives	July 8
Agile at large scale	July 8
Introducing and sustaining Agile in your organization	July 8

Topic	Forecast date
Final project presentation	July 9
Wrap up	July 9
Ask me anything	July 9

Homework & Grading

During the first half of the semester, we'll learn enough about Agile to be able to apply it to real software product development. Homework assignments are short on-line quizzes and programming problems designed to guide your learning.

During the second half of the semester, you'll put your learning into practice. You'll form Agile product development teams. Your team will design, implement, and deliver a real software product together. You'll traverse all the steps of the Agile product development lifespan, from team formation and product inception all the way to iteratively delivering and improving working versions of your product.

Your final grade for the semester will consist of:

- Class participation: undergrad 20%, grad 10%
- Homework: undergrad 50%, grad 50%
- Final project: undergrad 30%, grad 40%

A letter grade will be given in accordance with the School's grading policy (see <https://www.extension.harvard.edu/grades>).

To view your grade, visit the course Canvas site. (Grades on Canvas are accurate for graduate students. Undergrads, you'll have to compute your grade based on these percentages.)

Class participation: For full credit, you'll attend and actively participate in all online and on-campus class sessions. Active participation includes a video and audio presence during virtual sessions, contributing ideas during discussions, asking questions, and sharing what you know with students and course staff.

Homework: Homework assignments are due before the next class. To view and submit your homework assignments, visit the course Canvas site. For full credit, you'll return your homework when it's due. Your responses to written prompts will be complete and accurate. Your programming solutions will be well crafted source code and executable artifacts created using Pair or Mob Programming, Test Driven Development, and other Agile software development skills.

Final project: You'll work in teams to design, implement, and deliver a full software product. For full credit, your team will show incremental progress throughout the semester, use all the Agile software development skills shared in class, and deliver the product and share it with students, course staff, and outside stakeholders on the final night of class.

All homework assignments and grades are available in Canvas.