UMass Boston CS 410
Homework 2
Posted Thursday, March 26, 2026
Due Sunday, April 5, 2026 at 11:59 pm

To submit your homework, prepare one PDF file called `hw2.pdf` — the filename must be exactly `hw2.pdf`, otherwise it will not be collected. Upload the file to the `cs410` folder linked to your home directory on the CS Linux server.

To check that your hw2.pdf is uploaded correctly, login and type: "cd /home/¡your username¿/cs410/" and then "ls -l" to observe the file names and sizes in your course directory. Be sure your file is in your course directory specifically, not in a subdirectory.

If you have trouble with uploading, email `operator@cs.umb.edu` for help and copy your instructor. Upload an early draft and check it. If the script does not find your hw2.pdf, you will receive a zero.

The questions in this homework are based on the reading in Essential Scrum (ES) by Kenneth S. Rubin and the readings in Pro Git by Scott Chaucon and Ben Straub. You have been assigned Chapters 2-11 and 19-20 in ES. You have been assigned Chapters 1-6 in Pro Git.

For this homework, we use the work you have done for Celtic Knot (CK). This includes work on your personal part. It also includes work your did with your team for the integrations of a group of parts. We also use two figures. The first is a creative diagram of sprinting. It is from the video ScrumEsssentialsInLessThan10Minutes by the Scrum Alliance. The second is Figure 11.6 T-Shaped Skills from ES.

In many cases, a one-sentence answer will be sufficient to convey your information. Please write carefully and creatively.

1 ES Ch5, Requirements and User Stories, Applied to Celtic Knot, 30 points total

See Essential Scrum, Chapter 5 for the agile concept of requirements that follows the Scrum approach. In Chapter 5, we learn how to write a user story as a requirement. See the card in Figure 5.2. See the levels of abstraction in Figure 5.5. Also consider the non-functional requirements section.

1.1 Your CK part, 3 user story cards, 3 points each

Looking back at your work for Celtic Knot, write 3 user story cards for your personal part that you coded.

1.2 Your team's CK integration, 3 user story cards, 3 points each

Write 3 user story cards for your team's integration that might (or might not) have included your part.

1.3 Directory middlegit - your code, 3 points

Make an additional git directory in your course directory. Name it middlegit. Add your code for your part to middlegit. List the file name here.

1.4 Directory middlegit - your team's code, 3 points

Add a second file that contains one of your artifacts for Celtic Knot to middelgit. Most likely, this is a test that you performed to examine the quality of how you met one of the user story requirements discussed above. List the file name here. State what the artifact is.

1.5 What was difficult, 3 points

Most of you mentioned that communication with others on your team was the most difficult part of your work for cs410. In doing Celtic Knot, you already had some experience working on a team of agile developers. Describe what was most difficult for you in doing the Celtic Knot project.

1.6 What you learned, 3 points

Summarize what you learned about agile development while doing Celtic Knot.

2 Getting a software project to Done or DoneDone, 42 points total

Consider the Definition-of-Done Checklist on page 74 in ES and the text describing it. Also, take a look at the Glossary items "definition of done", "definition of read" and "development team". Each day, as I explained, the end of class marks what has been done. As the class moves on, more of the items in this checklist will be used to establish what has been done.

2.1 What did you team build for Celtic Knot? 6 points

Since any project starts with an idea, there is always variability in what is considered done. The result is most likely an implementation that relates to the idea in some way. Recall the questions you asked me when I held up the picture of Celtic Knot and said that you were to build a simulation of it. In 1-3 sentences, describe the simulation of Celtic Knot that your team built. Be sure to mention color, shapes and lines.

2.2 Working on your part, 2 sentences, 3 points each

Now select the part that you built. Describe what you did first. Then describe what you did to finish your part.

2.3 Working on the integration, 2 sentences, 3 points each

Now consider the integration that your team built. Describe what you did first. Then describe what you did to finish the integration.

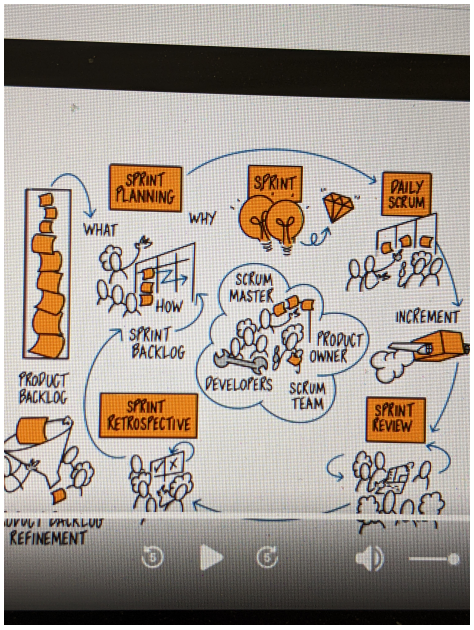

Figure 1: One picture from video ScrumEssentialsInUnder10Minutes: A lively drawing of the scrum method with sprints.

2.4 Did you build a "simulation" of CK? Give answer and explain in 3 sentences, 2 points each

The only requirement you were given was: "Build a simulation of Celtic Knot."

Do you agree that what you built can be considered a simulation of Celtic Knot? Give your opinion. Then explain your answer in 3 sentences.

2.5 Conducting the retrospective for each sprint, three comments, 3 sentences each, 2 points each sentence, 18 points total

The video (posted on the class website) explains the Essentials of Scrum in Less than 10 Minutes. Here is a figure that illustrates the agile process. Notice that the circular process of each sprint runs through the words: "what?", "why?" and "how?". Please look carefully at the figure.

Now imagine your worked on CK for three sprints. First sprint, your work on your part. Second sprint, the first round of integration. Third sprint, the final activity of integration.

After each sprint, we do review and retrospective. For review, we look at what got done enough to be considered done. For retrospective, we look at how the team could have accomplished it better or faster or more to the satisfaction of each team member.

Write 3 sentences for each of your (imagined) retrospectives. Each time, answer these 3 questions: (1) What change would make the sprint process work better? (2) How would you say it to your team in the sprint meeting? (3) How could the instructor help with this?

3 Ch11 Development Team, p202 Figure 11.6 T-Shaped Skills, 20 points

The figure below is from Ch11 in ES. It summarizes how skills develop while doing agile software development.

3.1 Describe what makes up the "T" in Figure 11.6, identify two labels, 4 points each

Notice the two labels on the "T". List the horizontal label. List the vertical label. We use this figure to explain the new skills we acquire.

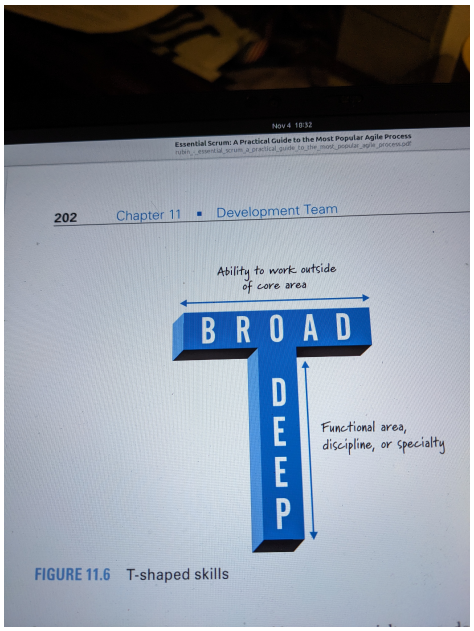

Figure 2: Figure 11.6 from Essential Scrum: T-Shaped Skills.

3.2 Identify your deep skills, list 3, 2 points each

You probably already had a good number of deep skills when you started cs410. Taking a course in something could give you introductory skills or deepen your existing skills. List three deep skills that you have and use as a software developer.

3.3 Identify your broad skills, list 3, 2 points each

You likely discovered that some skills that you knew about were more important than you realized. Consider broad skills you had when you started cs410 and broad skills you discovered you needed, so you built them. List 3 broad skills that you have and use as a software developer.