

CMPSC 280
Principles of Software Development
Fall 2015

Examination 1 Study Guide
Delivered: Tuesday, September 22, 2015
Examination: Thursday, October 1, 2015, 11:00 am

Introduction

This course will have its first examination on Thursday, October 1, 2015 from 11:00 to 12:15 pm. The examination will be “closed notes” and “closed book” and it will cover the following content. Please review the “Course Schedule” on the Web site for the course to see the content and slides that we have covered in the first module. You may post questions about this material to Slack.

- Chapters One through Three in SETP (i.e., introduction to the software engineering lifecycle)
- Chapters One through Three in MMM (i.e., challenges and solutions in software engineering)
- Your class notes, class activities, lecture slides, and the first four laboratory assignments
- Knowledge of the basic commands necessary for using `git` and Bitbucket; basic understanding of the Markdown syntax and the use of associated command-line tools such as `pandoc`

The examination will include a mix of questions that will require you to draw and/or comment on a diagram, write a short answer, explain and/or write a source code segment, or give and comment on a list of concepts or points. The emphasis will be on the following list of illustrative topics:

- The state-of-the-art and the key challenges within the field of software engineering, with a focus on the steps of problem solving and the meaning of terms like “defect” and “quality”.
- The phases of the software development lifecycle and the ways in which different software process models (e.g., the spiral model or the V model) connect and interpret these phases.
- The key strengths and weaknesses of the different software development process models (e.g., one drawback of the waterfall model is its focus on documents and its lack of explicit iteration).
- Key terms such as “verification” and “validation” and “incremental” and “iterative”.
- How to use activity graphs to track progress and plan a software development project. Additionally, an understanding of the ways in which managers will estimate the deadlines for completing a software system (e.g., using data mining algorithms to predict project characteristics such as anticipated costs and the likelihood of an on-time completion).
- The roles that members of a software team may play and the ways in which individual personalities and characteristics may equip certain people to work on specific tasks.
- How different types of software engineering tasks exhibit different relationships between the time-to-completion and the number of workers assigned to finish the task.
- Lessons learned from working in a team to specify, design, implement, test, document, and release a programming systems product during our laboratory sessions.

Minimal partial credit may be awarded for the questions that require a student to write a short answer. You are strongly encouraged to write short, precise, and correct responses to all of the questions. When you are taking the examination, you should do so as a “point maximizer” who first responds to the questions that you are most likely to answer correctly for full points. Please keep the time limitation in mind as you are absolutely required to submit the examination at the end of the class period unless you have written permission for extra time from a member of the Learning Commons. Students who do not submit their examination on time will have their overall point total reduced. Please see the course instructor if you have questions about any of these policies.

Review the Honor Code

Students are required to fully adhere to the Honor Code during the completion of this examination. More details about the Allegheny College Honor Code are provided on the syllabus. Students are strongly encouraged to carefully review the full statement of the Honor Code before taking this test.

The following provides you with a review of Honor Code statement from the course syllabus:

The Academic Honor Program that governs the entire academic program at Allegheny College is described in the Allegheny Academic Bulletin. The Honor Program applies to all work that is submitted for academic credit or to meet non-credit requirements for graduation at Allegheny College. This includes all work assigned for this class (e.g., examinations, laboratory assignments, and the final project). All students who have enrolled in the College will work under the Honor Program. Each student who has matriculated at the College has acknowledged the following pledge:

I hereby recognize and pledge to fulfill my responsibilities, as defined in the Honor Code, and to maintain the integrity of both myself and the College community as a whole.

Strategies for Studying

As you study for this examination, you are encouraged to form study groups with individuals who were previously a member of one of your software development teams during a laboratory session. You can collaborate with these individuals to ensure that you understand all of the key concepts mentioned on this study guide. Additionally, students are encouraged to create a Slack channel that can host questions and answers that arise as you are studying for the test. Even though the course instructor will try to, whenever possible, answer review questions that students post in this channel, you are strongly encouraged to answer the questions posted by your colleagues as this will also help you to ensure that you fully understand the material.

When studying for the test, don't forget that the Web site for our course contains mobile-ready slides that will provide you with an overview of the key concepts that we discussed in the first module. You can use the color scheme in the slides to notice points where we, for instance, completed an in-class activity, discussed a key point, or made reference to additional details available in the SETP and MMM textbooks. Finally, students are strongly encouraged to schedule a meeting during the course instructor's office hours so that we can resolve any of your questions about the material and ensure that you have the knowledge and skills necessary for doing well on this examination. Remember, while the test is taken individually, your review for it can be done collaboratively!