

# OMS-CS 6300: Software Development Process

## Fall 2016

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### Overview and Course Objectives

This course provides an in-depth study of the process of developing software systems, including the use of software processes in actual product development, techniques used to ensure quality of the software products and maintenance tasks performed as software evolves. By the end of the course, students will understand the role of software processes in the development of software and will have experienced several types of processes, from rigid to agile. Students will also become familiar with a variety of modern technologies and development techniques and understand their connection to software processes.

### Prerequisites

Students should be familiar with the Java programming language and with basic software engineering concepts. Students are also expected to have taken an undergraduate software engineering course or have some experience in industry. Students who answer "no" to any of the following questions should refresh their knowledge of this material prior to taking this course:

- Have you taken a software engineering course before or have you had some experience working as a software engineer in a company?
- Are you familiar with basic software engineering concepts, such as requirements, software design, and software testing?
- Are you familiar with the Java language? (Knowing another object-oriented language, such as C++ or C#, **may** be enough, but please keep in mind that all assignments and projects are Java based.)
- Are you comfortable with, or even excited about, learning new technologies and working with software tools?
- Do you have enough flexibility to work with a team that meets (remotely) on a regular basis?

### Required Course Readings

There are no required readings and no required textbook. When appropriate, additional class materials will be available as instructor notes that are associated with the video lectures. Students who did not take any undergraduate software engineering course could refer to a traditional software engineering textbook, such as the books by Pressman or Sommerville, for some introductory materials.

## Schedule

Attached at the end of the document.

## Grading

There are four types of grades:

1. **Projects:** There will be multiple projects in the course, to be completed either in groups or individually. We will provide complete information about the projects on T-Square and Piazza in due time.
2. **Assignments:** There will be several individual assignments. These are smaller-scale than the group projects, but they are required and graded.
3. **Udacity quizzes:** In addition to the projects and assignments, you are required to complete all Udacity quizzes. (Please note that you are not required to get the correct answer on these quizzes on the first try. We will look only at your last submission.) Completion of these quizzes will count toward your overall course grade, so make sure to watch all the videos and complete all the quizzes in the course.
4. **Participation and collaboration:** Students are expected to participate in the online forum; that is, they are expected to read postings and (possibly) contribute to the discussion. They are also expected to suitably collaborate in the group project(s). The participation and collaboration grade is computed based on Piazza presence, membership in the class's G+ community, participation in the office hours, and peer evaluation of contributions to the group projects.

You will receive grades through T-Square. The different components will be weighted as follows (the percentages are indicative and may vary slightly during the semester):

- Individual assignments: 52%
- Projects: 35%
- Udacity quizzes: 1%
- Participation and collaboration: 12%

## Late Submission Policy

Please be sure to complete all assignments and projects by the due dates, which can be found in T-Square. For most assignments and project deliverables, students will get 50% of the grade if they turn it in within two days after the deadline (most of the deadlines will be at 11:59 AOE). After that, we won't evaluate the assignment, and the students will get 0 points for it. For fairness to all students, we make no exceptions to this rule.

## Contesting grades

You have two weeks after a given grade has been released to contest it. After that, we will consider the grade final.

## Academic Honesty

All Georgia Tech students are expected to uphold the Georgia Tech Academic Honor Code.

## Forum

We will be using Piazza for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TAs, and the Instructor. Please use Piazza for all course-related communication. This includes both public and private communication.

## Minimum Technical Requirements

Minimum requirements for optimal student experience in this course:

- Browser and connection speed: An up-to-date version of Chrome or Firefox is strongly recommended. We also support Internet Explorer 9 and the desktop versions of Internet Explorer 10 and above (not the metro versions). 2+ Mbps recommended; at minimum 0.768 Mbps download speed.
- Operating system: PC: Windows XP or higher with latest updates installed Mac: OS X 10.6 or higher with latest updates installed Linux: Any recent distribution that has the supported browsers installed

## Additional Course Information

Additional information about the course will be posted by the instructor on Piazza on or before the first day of class.

**The schedule may change slightly during the semester  
(changes will be suitably announced on Piazza)**

| Week  | Lessons and Assignments/Deliverables Due   | Starting Date   | Due Date          | Video Duration |
|---|--|---|-------------------|----------------|
| Preparatory work                                      |  |   |                   |                |
|   | Orientation  |   |                   |                |
| 1   |  |   |                   |                |
|   | <a href="#">P1L1: Intro and Overview</a>   | Mon, Aug 22, 2016   | Fri, Aug 26, 2016 | 25:58:00       |
|   | <a href="#">P1L2: Lifecycle Models</a>   | Mon, Aug 22, 2016   | Fri, Aug 26, 2016 | 23:34:00       |
|   | <i>Assignment 1: Team Matching Survey</i>  | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 2   |  |   |                   |                |
|   | <a href="#">P1L3: Integrated Development Environment</a>   | Mon, Aug 29, 2016   | Fri, Sep 2, 2016  | 16:32:00       |
|   | <a href="#">P1L4: Version Control Systems (Github) -- See also additional resources provided in the Instructor Notes</a> | Mon, Aug 29, 2016   | Fri, Sep 2, 2016  | 51:15:00       |
|   | <i>Assignment 2: Git usage</i>   | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 3   |  |   |                   |                |
| <i>Labor Day<br/>Sep 5</i>                            | <a href="#">P2L1: Requirements Engineering</a>   | Mon, Sep 5, 2016  | Fri, Sep 9, 2016  | 44:12:00       |
|   | <a href="#">External Resource: JUnit Tutorial by Lars Vogel</a>  | Mon, Sep 5, 2016  | Fri, Sep 9, 2016  | N/A            |
|   | <i>Assignment 3: Basic Java coding and JUnit testing</i>   | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 4   |  |   |                   |                |
|   | <a href="#">P2L2: Object Oriented Engineering and UML</a>  | Mon, Sep 12, 2016   | Fri, Sep 16, 2016 | 57:32:00       |
|   | <a href="#">P2L3: Android Development</a>  | Mon, Sep 12, 2016   | Fri, Sep 16, 2016 | 40:01:00       |
|   | <i>Assignment 4: Simple Android App</i>  | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 5   |  |   |                   |                |
|   | <a href="#">P3L1: Software Architecture</a>  | Mon, Sep 19, 2016   | Fri, Sep 23, 2016 | 44:23:00       |
|   | <a href="#">P3L2: Software Design</a>  | Mon, Sep 19, 2016   | Fri, Sep 23, 2016 | 37:26:00       |
|   | <i>Assignment 5: Software Design</i>   | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
|   | <i>Group Project, Deliverable 0 (add contact info)</i>   | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 6   |  |   |                   |                |
|   | <a href="#">P3L3: Design Patterns</a>  | Mon, Sep 26, 2016   | Fri, Sep 30, 2016 | 24:24:00       |
|   | <i>Group Project, Deliverable 1</i>  | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 7   |  |   |                   |                |
|   | <a href="#">P3L4: Unified Software Process</a>   | Mon, Oct 3, 2016  | Fri, Oct 7, 2016  | 34:56:00       |
|   | <i>Group Project, Deliverable 2</i>  | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 8   |  |   |                   |                |
| <i>Fall Recess<br/>Oct 10-11</i>                      | No lesson  | Mon, Oct 10, 2016   | Fri, Oct 14, 2016 | N/A            |
|   | <i>Group Project, Deliverable 3</i>  | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 9   |  |   |                   |                |
|   | <a href="#">P4L1: Testing: General Concepts</a>  | Mon, Oct 17, 2016   | Fri, Oct 21, 2016 | 24:00:00       |
|   | <i>Group Project, Deliverable 4</i>  | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 10  |  |   |                   |                |
|   | <a href="#">P4L2: Black Box Testing</a>  | Mon, Oct 24, 2016   | Fri, Oct 28, 2016 | 48:08:00       |
|   | <i>Assignment 6: Category partition</i>  | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
|   | <i>Group Project's Individual Assessments</i>  | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 11  |  |   |                   |                |
|   | <a href="#">P4L3: White Box Testing</a>  | Mon, Oct 31, 2016   | Fri, Nov 4, 2016  | 38:31:00       |
|   | <i>Assignment 7: White-Box Testing</i>   | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 12  |  |   |                   |                |
|   | <a href="#">P4L4: Agile Development Methods</a>  | Mon, Nov 7, 2016  | Fri, Nov 11, 2016 | 28:16:00       |
|   | <i>Individual Project, Deliverable 1</i>   | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 13  |  |   |                   |                |
|   | No lesson  | Mon, Nov 14, 2016   | Fri, Nov 18, 2016 | N/A            |
|   | <i>Individual Project, Deliverable 2</i>   | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 14  |  |   |                   |                |
| <i>Thanksgiving Break<br/>Nov 23-25</i>               | <a href="#">P4L5: Refactoring</a>  | Mon, Nov 21, 2016   | Fri, Nov 25, 2016 | 38:36:00       |
|   | <i>No deliverable (extra time for the Individual Project)</i>  | N/A   |                   |                |
| 15  |  |   |                   |                |
|   | No lesson  | Mon, Nov 28, 2016   | Fri, Dec 2, 2016  | N/A            |
|   | <i>Individual Project, Deliverable 3</i>   | <i>End of this week (see T-Square for the exact deadline)</i> |                   |                |
| 16  |  |   |                   |                |
| <i>Final Instructional<br/>Class Days<br/>Dec 5-6</i> | <a href="#">Reading: The Cathedral and the Bazaar</a>  | Mon, Dec 5, 2016  | Fri, Dec 9, 2016  | N/A            |
|   | <a href="#">Reading: No Silver Bullet</a>  | Mon, Dec 5, 2016  | Fri, Dec 9, 2016  | N/A            |
|   | <i>No deliverable (discuss on Piazza the two readings)</i>   | N/A   |                   |                |