

SWE 619 Object-Oriented Software Specification and Construction Syllabus

Spring 2017 Section 001/P01

Instructor Information

Instructor

Adjunct Professor: James Baldo Jr. jbaldo@gmu.edu

Email

Office Location & Hours

Available by appointment

Course Assistant Information

Course Assistant

[TBD]

Email

[TBD]

Office Location & Hours

Available by appointment

General Information

Description

To give the students a solid understanding of modern software construction. To prepare students to construct sequential and concurrent programs. To encourage the construction of software systems of high quality. In-depth study of software construction in a modern language including control structuring and packaging. Concepts such as information hiding, data abstraction, and object-based and object-oriented software construction are discussed and illustrated. This course is part of the core of the SWE program and utilizes the Java Programming Language.

Expectations and Goals

Goals include acquiring knowledge and experience about software specifications and constructions based on the principals and concepts covered in the course textbooks and additional content provided by the instructor. The Java programming language is used as the platform for exploring the principals and concepts covered in the course. Emphasis on program specification is reinforced through several programming assignments and quizzes.

Scheduled Meeting Times

Section 001/P01: Tuesday 7:20 pm - 10:00 pm; Innovation Hall 134

Course Materials

Required Materials

Students will have accounts on Blackboard and will be able to download lecture slide files, take quizzes, submit assignments, collaborate, and access additional course content.

Required Text

Barbara Liskov with John Guttag. *Program Development in Java*. Addison Wesley, 2001, ISBN 0-201-65768-

6. Required.

[Direct Safari Link](#)

[General Safari Link \(off campus\)](#)

Joshua Bloch. *Effective Java*. Second Edition. Addison Wesley, 2008, ISBN 0-321-35668-3. **Required.**

*Note that this is the **SECOND** edition.*

[Direct Safari Link](#)

[General Safari Link \(off campus\)](#)

Some assignments may require programming techniques not covered in the two required texts. I will provide pointers to online material at the appropriate time. **Required.**

Online Java documentation is available from [Oracle](#). **Recommended**

Attendance

Attendance is mandatory. Class is scheduled during the semester every Tuesday during the Spring 2017 Semester (except for Spring Break) from 7:20 PM to 10:00 PM. Attendance is monitored.

Course Requirements and Grading

The course grade is based on assignments, quizzes, and one 3 hour comprehensive final examination. All required coursework must be completed by the stated due dates and times. Late assignments will not be accepted, no make-up for missed quizzes, and no make-up test will be given for the final examination.

- Assignments and Quizzes: 55%
- Final Exam: 45%

All required coursework for this class is to be performed independently. Please read the information about GMU and CS Department Academic Integrity and Honor Code Policies at

<http://cs.gmu.edu/wiki/pmwiki.php/HonorCode/HomePage>.

These policies will be strictly enforced.

If you have a documented learning disability or other condition that may affect academic performance you should:

1) Make sure this documentation is on file with the Office of Disability Services (SUB I, Rm. 4205; 993-2474; <http://ods.gmu.edu/>) to determine the accommodations you need; and

2) Talk with me to discuss your accommodation needs no later than the first lecture.

Important Dates

First day of class: 24 January 2017

Last day to drop without Tuition Penalty: 30 January 2017

Last day to drop without Tuition 33% Tuition Penalty: 13 February 2017

Final Drop Deadline with 67% Tuition Penalty: 24 February 2017

Last class: 30 April 2015

Final Examination: 7 May 2015, 7:30 pm - 10:15 pm

Tentative List of Topics:

All lecture slides are available for download on the Blackboard SWE619 Course Page.

All assignments descriptions will be made available on the Blackboard SWE619 Course Page.

All assignments are submitted on via the Blackboard SWE619 Course Page.

All quizzes are available and taken on the Blackboard SWE619 Course Page.

Course Schedule

Date	Topic	Reading	Assignment	Quiz
24 Jan	Course Overview Procedural Abstraction	619 Review, Liskov 1, Liskov 2-3	None	None
31 Jan	Exceptions	Liskov 4, Bloch 9	Assignment 1	Quiz 1
7 Feb	Data Abstraction JUnit	Liskov 5.1-5.4, JUnit	Assignment 2	Quiz 2
14 Feb	Reasoning About Data Abstraction	Liskov 5.5-5.10	Assignment 3	Quiz 3
21 Feb	Iteration Abstraction Method Guidelines	Liskov 6, Bloch 7	Assignment 4	Quiz 4
28 Feb	Type Abstraction Enums and Annotations	Liskov 7, Bloch 6	Assignment 5	Quiz 5
7 Mar	Polymorphic Abstraction	Liskov 8	Assignment 6	Quiz 6
14 Mar	Spring Break	No Class, Assignment, or Quiz		
21 Mar	Concurrency	Bloch 10	Assignment 7	Quiz 7
28 Mar	Generics	Bloch 5	Assignment 8	Quiz 8
4 Apr	Specification Checking Temporal Logic	Slides from Kansas State University Foundations Temporal Logic Patterns	Assignment 9	Quiz 9
11 Apr	Common Java Contracts, Classes and Interfaces, Java Doc	Bloch 3, Bloch 4, Java Doc	Assignment 10	Quiz 10
18 Apr	Object Initialization General Programming Testing	Bloch 2, Bloch 8, Model Drive Test Design, Test Driven Development	Assignment 11	Quiz 11
25 Apr	Design Patterns	Liskov 15	Assignment 12	Quiz12
2 May	Specifications, Security, Course Wrap Up	Liskov 9 Java Secure Coding 619 Review Slides	No Assignment	No Quiz

Exam Schedule

Date	Subject
16 May	Final Examination