SWE 619 Object-Oriented Software Specification and Construction Syllabus
Spring 2017 Section 001/P01

Instructor Information

Instructor
Adjunct Professor: James Baldo Jr.
Email: jbaldo@gmu.edu
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
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](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/](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 via the Blackboard SWE619 Course Page.

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

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

<table>
<thead>
<tr>
<th>Date</th>
<th>Subject</th>
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<tr>
<td>16 May</td>
<td>Final Examination</td>
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