

SWE 619 Course Syllabus

OO Software Specification and Construction

Fall 2022

Professor:	Wes Masri
Office:	Nguyen Engineering Building 4709
Email:	wmasri@gmu.edu
Class Meeting:	Monday 4:30pm – 7:10pm – Horizon 1014
Format:	In-person.
Prerequisite:	SWE Foundation Courses or equivalent. Knowledge of Java is a must
Office Hours:	Tuesday 12:00pm – 2:00pm
GTA	Sajed Jalil – sjalil@gmu.edu
GTA Office hours:	Thursday 2:00pm – 4:00pm

(Acknowledgment: this syllabus was mainly designed by Prof. Paul Ammann)

Course 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. This section of 619 uses Java.

Course Materials

- Joshua Bloch. *Effective Java. Third Edition*. Addison-Wesley Professional, 2017, ISBN 978-0-13-468599-1. **Required**.
[Direct Safari Link](#)
[General Safari Link \(off campus\)](#)
- Barbara Liskov with John Guttag. *Program Development in Java*. Addison Wesley, 2001, ISBN 0-201-65768-6. **Required**.
[Direct Safari Link](#)
[General Safari Link \(off campus\)](#)
- Note that you can access the Java 8 APIs at the [Oracle](#) site.

Note on the course materials: We'll start with Liskov. Don't worry about the publication date; Liskov's book ages remarkably well. We're interested in contracts, mutability, data abstraction, and type abstraction. Bloch is concerned about the same things, but explores them in more detail

and in more up-to-date Java. Bloch also corrects some important points that weren't well understood when Liskov's text came out.

Weekly schedule

This class is a group-based, in-person offering. That means you need to be present in class at class time. You will also need to meet with your group outside of class. Although your group is free to meet in person, most groups will probably find it more convenient to meet online.

Each week will cover a small number of related technical issues or “topic”. Each topic will follow roughly the same sequence of preparation, group-based in-class exercises, group-based homework and (possibly) presentation, group-based reading reflections, and individual quizzes. The breakdown is:

- Complete assigned readings and watch relevant videos, if any. There is no formal submission for this activity.
- Complete and submit a reading reflection. This is a formal opportunity for each group to reflect on the reading.
- In-person Class Meeting:
 - The instructor summarizes the reading reflections.
 - Lectures/discussions on the day's topic, followed by in-class group-based exercises.
 - Break
 - Lectures/discussions on the day's topic, followed by in-class group-based exercises.
 - Wrap up
- Homework - due the following week.
 - Group-based.
 - Solutions may be briefly discussed prior to the quiz. Typically a randomly selected group presents, but occasionally, the instructor does the presentation.
- Beginning of class:
 - The homework related to the topic of the prior week is discussed.
 - Assessment via quiz - takes place right after discussing the homework solution.

Grading

- Group Functioning/Peer-Evaluation (group-based): 10%
- Weekly Reading Reflections (group-based): 10%
- Weekly Homework Assignments (group-based): 15%
- Weekly Quizzes (individual): 40%
- Final exam (individual): 25%

Each of these grade components is discussed below.

Group Functioning

Every student needs to be part of a group. I would prefer that groups stay stable throughout the semester, but if there is a good rationale to reconfigure a group or two, we'll do that.

Group size: 2 to 4 students.

Group creation mechanism: As a default, we'll drop students into groups at random. If you are happy with your random group, great! If you prefer a different group, during the first week you will have the option to re-group. If your group dwindles to just yourself, you'll need to join another group.

At the end of the semester, each individual will provide an assessment of the rest of their group (peer evaluation). This assessment will determine the "Group Functioning" part of the grade.

Groups can communicate internally through any mechanism they choose: zoom, discord, google docs, whatever.

Reading Reflections

Each week, each **group** must complete a "reading reflection" due by **8:00am Saturday morning**. I will review these assessments before class, compile the overall responses, and use them to tune the in-class activities. Reading reflections must be turned in on [Blackboard](#). These reflections are part of the learning process rather than the assessment process. That is, they don't assess whether you have achieved mastery of the new material, rather they check whether you have done the necessary preparation.

Important: There are no make-ups for reading reflections.

Important: Only one submission per **group**. Please! Everyone in the group gets the same credit.

Important: Every reading reflection submission must include a statement of who contributed to the reflection. Submissions that do not include such a statement will not be graded.

Homework Assignments

There are weekly **group** homework assignments, posted and to be submitted via [Blackboard](#).

Because of the way in which this class is taught, it is important to stay on pace. Homework assignments are due before class. Late submissions are not accepted except in truly exceptional circumstances.

Important: Each group should be prepared to present their homework solution in class.

Important: Only one submission per **group**. Please! Everyone in the group gets the same credit.

Important: Every homework submission must include a statement of who did what. Homeworks that do not include such a statement will not be graded.

Weekly Quizzes

- Each quiz happens during the first 10 to 15 minutes of class. If you're late, you miss the quiz.
- I will be forthcoming and concrete about the content for each quiz. I'll do this in the form of "Quiz Guides" posted to the course schedule. That is, you shouldn't be surprised by any of the questions. Often, they will be closely related to the prior week's homework.

Quiz Make-up Policy:

- No make-ups are allowed. However, the two quizzes with the lowest grade will be dropped (which might include missed quizzes).

Final Exam

There will be an in-person final exam at the time specified by the university's final exam schedule.

Class Attendance

I place great emphasis on peer learning and interactive engagement. [Here's why](#). I have structured the class to leverage group interactions to the largest extent possible for the purpose of maximizing learning gain throughout the semester.

Bottome line: It's important to be in class, and it's important to work with your group.

In-Class Exercises

I plan in-class exercises for every class. These are group activities. If possible, you should complete these exercises with your designated group. Some of these exercises need a Java development environment (installing the JDK might suffice). Very often, the in-class exercises will be closely related to an upcoming homework assignment.

In-class exercises are not collected or graded. If you have questions about the in-class exercises, post your questions to Piazza.

Email

Please note that questions of general interest should not be emailed to me. Post on Piazza instead.

Virginia Privacy Laws

The state of Virginia now has laws that require the University (including me) not to disclose student email addresses, phone numbers, and addresses. This will impact communications in this class as follows:

- Communicating via email with groups of students is problematic. (Bcc is a partial but not very good, solution.) As far as I have been able to determine, Piazza does not make student emails visible to other students, even though instructors can see email addresses. Hence, this is another reason to favor the Piazza forum.
- **You** can choose to disclose your email whenever and wherever you wish. That's up to you.

Piazza

We'll use [Piazza](#) for discussions. I will add students who are enrolled on Patriot Web to the Piazza page for this class. (Self sign-up is disabled; we've had problems with that in the past.)

I find anonymous discussions unhelpful in this class; here learning is predicated on interactions. Plus, part of your education is to learn to stand behind your questions and ideas. That's how employees function in the working world. Piazza allows partial, but not complete, control of anonymous posts. Should someone post anonymously, I will ask the poster to change the visibility and ask the class not to respond to the anonymous version.

Honor Code

As with all GMU courses, SWE 619 is governed by the [GMU Honor Code](#).

In this course, every quiz carries with it an implicit statement that it is the sole work of the author. The final exam carries with it an explicit statement that it is the sole work of the author.

Further, all group submissions require a statement of participation from each member of the group. **"Guest" listing on a reading reflection or a homework submission is an honor violation for the entire group.** If a student doesn't contribute to a submission from his or her group, the statement of contribution must say that.

Learning Disabilities

Students with learning disabilities (or other conditions documented with GMU Office of Disability Services) who need academic accommodations should see me and contact the [Disability Resource Center](#) (DRC) at (703)993-2474. I am more than happy to assist you, but all academic accommodations must be arranged through the DRC.

Contact note:

I will use BB's "Announcement" feature to contact you. If you want to schedule an appointment, contact me by email.