

Syllabus

SE 450 - Object Oriented Software Development

College of Computing and Digital Media
DePaul University

Summer (10 weeks) Quarter 2021 (June 17 – August 19)
On-Line Learning: <http://d2l.depaul.edu/>

Instructor: Dan Walker
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Office Hours: (Discord session, Zoom or phone)
Tuesdays, 6 to 7:30 PM
Fridays, 1 to 2:30 PM
Other times can be arranged

Course Description

We will study object-oriented design and implementation. Among the topics of the course are:

- Principles of object-oriented programming languages.
- Principles of object-oriented design.
- UML class, object, and sequence diagrams.
- Design Patterns.
- Source control.
- Testing methodologies.

Java and UML will be used for source code examples, the project, and the exams.

Prerequisites

You *must* have the following:

- CSC403 (Data Structures II) or equivalent courses on data structures (linked lists, stacks and queues, trees, graphs priority queues, hash tables).
You should have written some *code* in this class. You should be happy *implementing* simple linked lists, stacks, queues, and trees. You should be happy *using* all of the above, plus priority queues and hash tables.
- Some experience programming in Java or another C-like language. This course is *not* an introduction to Java.

If you do not have CSC403, drop now.

Useful, but optional:

- CSC 447 Programming Languages (machine models and basic language principles)
- SE 430 Object-Oriented Modeling (OO analysis and the UML)
- SE 433 Software Testing
- CSC 406/407 or 373/374 Systems (language implementation/multi-threading)

Textbook

There are no required books for this class. You might find the following useful resources however:

1. **Head First Design Patterns** [Amazon, AddAll]
by Eric Freeman, Elisabeth Freeman, Kathy Sierra, Bert Bates (O'Reilly, 1995)
ADD intro to DP.
Online companion to the book: <http://www.oreilly.com/catalog/hfdesignpat/>
2. **Design Patterns Explained: A New Perspective on Object-Oriented Design (2e)** [Amazon, AddAll]
by Alan Shalloway, James R. Trott (Addison-Wesley, 2004)
Online companion to the book:
<https://portal.netobjectives.com/pages/books/design-patterns-explained/>
3. **Design Patterns** [Amazon, AddAll]
by Erich Gamma, Richard Helm, Ralph Johnson, John Vlissides
(Addison-Wesley, 1995) Online companion to the book:
<http://hillside.net/elements-of-reusable-object-oriented-software-book>

Type of Instruction

There is a weekly lecture with demonstrations of various design implementations and plenty of time for questions. That said, there will be plenty of occasions where you need to work through how the java APIs work without my guidance. As graduate students, a very high level of self sufficiency is expected.

On the other hand, if something isn't clear, you need to ask questions.

You also need to experiment with the examples given in class. Each week's demos will be available for download before the start of the lecture, so you can even experiment during class.

Given this is a split sync/async class, asking questions online reaches the most people. More on that later

Schedule

Week	Topic / Deadline
1	6/17 - Introduction, basics
2	6/24 - SOLID principles, Project introduction
	6/25 - last day to drop with no penalty
3	7/1 - Objects as functions & creational patterns
4	7/ 8 - Objects as functions & creational patterns
5	7/15 - Observer pattern, midterm is take-home
6	7/22 - Sprint 3 requirements
7	7/29 - Null Objects Proxies
	8/1 - Last day to withdraw
8	8/5 - architectural patterns, structural patterns
9	8/12 - Subclassing and Template method
10	8/19 - TBD, project + report due

Required Software

Successful participation in this course requires the following software:

1. Java - see "SE 450 - Getting Started" for details (D2L)
2. IntelliJ IDEA - also see the getting started guide
3. Discord - can be used in the browser or install the app. Detail in the getting started doc.

Communication

We will use a mix of tools to communicate and keep in touch with each other:

- **Discord** – We can use this tool for general discussions and questions of general interest, for group communications using channels and for direct person to person messages.
- **Zoom** – For live presentations and real-time discussions, although, this may be handled by Discord as well.
- **D2L** – Will contain assignment descriptions, submission folders and grades. It may also be used for brief quizzes or even perhaps the final.

- **Email** – Of course you can email me if you are more comfortable with that but please keep in mind that direct Discord messages are also private and will probably get answered faster. My email address is dwalke30@depaul.edu.

Grading

- Quizzes 20%
- Project check-ins 20%
- Project (and report) 40%
- Midterm exam 20%
- Late policy
 - Late assignments will not be accepted.

Grading scale

A :	total ≥ 93	C+:	$80 > \text{total} \geq 77$
A-:	$93 > \text{total} \geq 90$	C :	$77 > \text{total} \geq 73$
B+:	$90 > \text{total} \geq 87$	C-:	$73 > \text{total} \geq 70$
B :	$87 > \text{total} \geq 83$	D+:	$70 > \text{total} \geq 67$
B-:	$83 > \text{total} \geq 80$	D :	$67 > \text{total} \geq 63$
		D-:	$63 > \text{total} \geq 60$
		F :	total < 60

Project check-ins will be graded pass/fail. You will get 5/5 points if you turn it in and all required implementations are working or have a good faith effort. You will get 0/5 if you don't turn it in **or requirements are only partially completed**. There are no late check-ins accepted.

There will be no make-up exams or extra credit assignments. If you are active on Discord and your grade is within 1% of a higher grade, I will bump it up. If there is an extreme emergency and you must miss a deadline, you must notify me in advance and provide documented evidence of the emergency.

All assignments must be submitted through the online system. *Email submissions will not be accepted.*

Program submissions will be assessed on whether they achieve the set task *and* the quality of the code. **If the code does not compile, it will receive a 0.**

Changes to Syllabus

This syllabus is subject to change as necessary during the quarter. If a change occurs, it will be thoroughly addressed during class, posted on Discord, under Announcements in D2L and sent via email.

Respect for Diversity and Inclusion at DePaul University as aligned with our Vincentian Values

At DePaul, our mission calls us to explore “what must be done” in order to respect the inherent dignity and identity of each human person. We value diversity because it is part of our history, our traditions

and our future. We see diversity as an asset and a strength that adds to the richness of classroom learning. In my course, I strive to include diverse authors, perspectives and teaching pedagogies. I also encourage open dialogue and spaces for students to express their unique identities and perspectives. I am open to having difficult conversations and I will strive to create an inclusive classroom that values all perspectives. If at any time, the classroom experience does not live up to this expectation, please feel free to contact me via email or during office hours.

Academic Integrity Policy

This course will be subject to the academic integrity policy passed by faculty. More information can be found at <http://academicintegrity.depaul.edu/>

Plagiarism

The university and school policy on plagiarism can be summarized as follows: Students in this course should be aware of the strong sanctions that can be imposed against someone guilty of plagiarism. If proven, a charge of plagiarism could result in an automatic F in the course and possible expulsion. The strongest of sanctions will be imposed on anyone who submits as his/her own work any assignment which has been prepared by someone else. If you have any questions or doubts about what plagiarism entails or how to properly acknowledge source materials be sure to consult the instructor.

Academic Policies

All students are required to manage their class schedules each term in accordance with the deadlines for enrolling and withdrawing as indicated in the University Academic Calendar.

Information on enrollment, withdrawal, grading and incompletes can be found at:

<http://www.cdm.depaul.edu/Current%20Students/Pages/PoliciesandProcedures.aspx>

Incomplete Grades

An incomplete grade is a special, temporary grade that may be assigned by an instructor when unforeseeable circumstances prevent a student from completing course requirements by the end of the term and when otherwise the student had a record of satisfactory progress in the course. All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptions cases will receive such approval. Information about the Incomplete Grades policy can be found at

<http://www.cdm.depaul.edu/Current%20Students/Pages/Grading-Policies.aspx>

Preferred Name & Gender Pronouns

Professional courtesy and sensitivity are especially important with respect to individuals and topics dealing with differences of race, culture, religion, politics, sexual orientation, gender, gender variance, and nationalities. I will gladly honor your request to address you by an alternate name or gender pronoun. Please advise me of this preference early in the quarter so that I may make appropriate changes to my records. Please also note that students may choose to identify within the University community with a preferred first name that differs from their legal name and may also update their gender. The preferred first name will appear in University related systems and documents except where the use of the legal name is necessitated or required by University business or legal need. For more information and instructions on how to do so, please see the Student Preferred Name and Gender Policy at

<http://policies.depaul.edu/policy/policy.aspx?pid=332>

Drop dates

See <https://academics.depaul.edu/calendar/Pages/default.aspx>

Students with Disabilities

Students seeking disability-related accommodations are required to register with DePaul's Center for Students with Disabilities (CSD) enabling them to access accommodations and support services to assist with their success. There are two office locations:

- Loop Campus (312) 362-8002
- Lincoln Park Campus (773) 325-1677
- Email: csd@depaul.edu

Students who register with the Center for Students with Disabilities are also invited to contact Dr. Gregory Moorhead, Director of the Center, privately to discuss how he may assist in

facilitating the accommodations to be used in a course. This is best done early in the term. The conversation will remain confidential to the extent possible.

Please see <https://offices.depaul.edu/student-affairs/about/departments/Pages/csd.aspx> for Services and Contact Information.

Online Course Evaluations

Evaluations are a way for students to provide valuable feedback regarding their instructor and the course. Detailed feedback will enable the instructor to continuously tailor teaching methods and course content to meet the learning goals of the course and the academic needs of the students. They are a requirement of the course and are key to continue to provide you with the highest quality of teaching. The evaluations are anonymous; the instructor and administration do not track who entered what responses. A program is used to check if the student completed the evaluations, but the evaluation is completely separate from the student's identity. Since 100% participation is our goal, students are sent periodic reminders over three weeks. Students do not receive reminders once they complete the evaluation. Please see <https://resources.depaul.edu/teaching-commons/teaching/Pages/online-teaching-evaluations.aspx> for additional information.