

# SE 350: Object-Oriented Software Development

## Sections 501/510 - Winter Quarter 21-22

Last Revised – Jan 3, 2022

### Course Information

**Meeting time:** Wednesday 5:45PM - 9:00PM

**Location:** CDM 224 at Loop Campus and Online Async

**Homepage:** <https://d2l.depaul.edu>

**Prerequisites:** CSC 301

### Instructor Information

**Instructor:** Paul Duszak

**Email:** [pduszak@depaul.edu](mailto:pduszak@depaul.edu)

**Office Location:** N/A

**Office Hours:** Via Zoom - Tuesday 5:15-6:45pm, please schedule a BlueStar appointment

### Course Description

Principles, techniques and tools of object-oriented modeling, design, implementation, and testing of large-scale software systems. Topics include design patterns, application frameworks, architectural design, and the applications in the software development process to improve the extensibility, maintainability, and reliability of software systems.

- Java will be used for in-class examples, assignments, and exams
- Some experience programming in Java similar programming language is required. This is not an introductory Java course. You should be comfortable implementing simple data structures.

### Course Communication

Please use Discord for course related communication. This mode of communication enables students to assist each other and also allows me to follow up quicker. For general course and homework related inquiries, please post in a public channel. For anything you're not comfortable asking publicly, feel free to reach out via direct message or email.

While I respond ASAP, please allow for up to 24 hours to receive a response.

**An invite to the Discord server along with instructions to joining our class channel will be included in the Welcome message on D2L.**

### Course Grading

- 50% - Homework & projects
- 25% - Midterm Exam (via D2L)
- 25% - Final Exam (via D2L)
- 10% - Optional Bonus Project

### Course Grading Scale

A	93-100	C+	77-79
A-	90-92	C	73-76
B+	87-89	C-	70-72
B	83-86	D+	67-69
B-	80-82	D	60-66

### Course Drop Dates

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



## Learning Outcomes

- **Object-Oriented Design Principles:** You will have a deeper understanding of object oriented concepts and how to use them, and will be able to design and develop software applications using object-oriented design principles.
- **Visual Modeling:** You will be able to model a software solution visually using UML sequence and class diagrams.
- **Design Patterns:** You will be able to design and implement an executable solution to a given problem in a programming language using the most suitable set of common software and architectural design patterns.
- **Object-Oriented Programming Paradigm Principles:** You will be able to effectively translate design patterns and object-oriented design principles into an object-oriented programming language.
- **Implementation:** You will be able to apply advanced object-oriented programming language features/capabilities to design and implement a given software application using best practices. You will be proficient with incremental/iterative development, refactoring, and writing higher-quality code.

## Tenative Course Schedule

Week	Activity	Topics
Week 1		<ul style="list-style-type: none"><li>• Course Introduction</li><li>• Introduction to OO</li><li>• UML Diagrams</li><li>• OO Principles<ul style="list-style-type: none"><li>○ Abstraction</li><li>○ Separation</li><li>○ Encapsulation</li><li>○ Information Hiding</li><li>○ Inheritance</li><li>○ Polymorphism</li><li>○ Composition</li><li>○ Interface</li><li>○ Interface Polymorphism</li><li>○ Delegation</li></ul></li><li>• Design with Exceptions</li><li>• Foundations of OO Design<ul style="list-style-type: none"><li>○ SOLID Principles<ul style="list-style-type: none"><li>▪ Single Responsibility</li><li>▪ Open-Closed</li><li>▪ Liskov Substitution</li><li>▪ Interface Segregation</li><li>▪ Dependency Inversion</li></ul></li></ul></li><li>• Design Patterns<ul style="list-style-type: none"><li>○ Creational</li><li>○ Structural</li><li>○ Behavioral</li></ul></li><li>• Anti-patterns Refactoring</li><li>• OO Design JUnit OO</li><li>• Design &amp; Development Topics</li></ul>
Week 2		
Week 3	Assignment 1	
Week 4	Assignment 2	
Week 5	Midterm Exam	
Week 6		
Week 7	Assignment 3	
Week 8		
Week 9	Assignment 4	
Week 10	Final Review	



## **Course Policies**

### **Changes to Syllabus**

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

### **Respect for Diversity & 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.

### **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.

### **Academic Integrity and Plagiarism**

This course will be subject to the university's academic integrity policy. All students are expected to abide by the University's Academic Integrity Policy which prohibits cheating and other misconduct in student coursework. Publicly sharing or posting online any prior or current materials from this course (including exam questions or answers), is considered to be providing unauthorized assistance prohibited by the policy. Both students who share/post and students who access or use such materials are considered to be cheating under the Policy and will be subject to sanctions for violations of Academic Integrity.

More information can be found at: <https://resources.depaul.edu/teaching-commons/teaching/academic-integrity/Pages/default.aspx>.

### *Posting work on online sites, such as Hero*

All students are expected to abide by the University's Academic Integrity Policy which prohibits cheating and other misconduct in student coursework. Publicly sharing or posting online any prior or current materials from this course (including exam questions or answers), is considered to be providing unauthorized assistance prohibited by the policy. Both students who share/post and students who access or use such materials are considered to be cheating under the Policy and will be subject to sanctions for violations of Academic Integrity.



## **Course Policies (continued)**

### **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>

### **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](mailto: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 office hours (online sections only)**

Faculty should be accessible to students using Zoom, Skype or other similar platforms for the duration of the office hours. Faculty must be accessible on the designated platform for the duration of the office hours.

