

SE 430 Object-Oriented Modeling

Instructor

Luai Mahmud, Adjunct Faculty
College of Computing & Digital Media, DePaul University
Office: CDM 522
Email: lmahmud@depaul.edu
Office hours: TBD

Course Information

SE 430 Section 201/210
Class time: Tuesday, 5:45-9:00 PM
Room: Lewis 1105
Campus: Loop
Course homepage: <https://d2l.depaul.edu/>

Course Summary

This course presents the vocabulary, tools, and techniques needed to model and solve complex, real-world software engineering problems in an object-oriented manner, using the most effective elements of widely-used software development processes. We discuss the distinctions among various software development processes, focusing on lean/agile and plan-driven processes (and combinations of these) and noting when each is appropriate for use. In addition, the course covers the essential concepts and notation of the Unified Modeling Language (UML), the standard notation for object-oriented analysis and design.

The course consists of:

- Lectures;
- Individual and team coursework assignments;
- Two online quizzes; and
- An online final exam.

Students focus on a common domain area throughout all team assignments, perform object-oriented analysis on various aspects of that domain, and develop object-oriented design solutions suited to these various aspects of the domain.

Learning Objectives (LO)

1. Students will demonstrate understanding of the vocabulary and concepts of object-oriented modeling. (LO1)
2. Students will implement the essential elements of the Unified Process and a hybrid iterative/incremental adaptive software development process in a series of team project activities and artifacts. (LO2)
3. Students will create a product overview document in a team project. (LO3)
4. Students will create a use-case model in a team project. (LO4)
5. Students will perform domain modeling in a team project and document their results. (LO5)
6. Students will create a use-case realization and corresponding design diagrams in a team project. (LO6)

Required Texts

- Arlow, Jim and Neustadt, Ila (2005). *UML 2 and the Unified Process, Second Edition: Practical Object-Oriented Analysis and Design*. Addison-Wesley, ISBN 0-321-32127-8.
- Deemer, Pete, Benefield, Gabrielle, Larman, Craig, and Vodde, Bas (2012). *The Scrum Primer: A Lightweight Guide to the Theory and Practice of Scrum, Version 2.0*. Download available free at <http://www.scrumprimer.org/>.

Prerequisites

The following course is listed as a prerequisite.

- **CSC 403 Data Structures II**

Familiarity with an object-oriented programming language such as Java, C++, C#, or Smalltalk is needed only to understand in-class, practical code examples. Please contact the instructor if you have any questions or concerns about the prerequisite requirement.

Class Format

Class meetings involve a combination of lecture, discussions, individual and team assignments, quizzes, and a final exam. Some class-time activities may be included, if time permits.

Evaluation & Grading

Coursework includes the following components:

Coursework	Grade Proportion
Participation	10%
Individual Assignment	10%
Team Assignments	30%
Team Participation	10%
Quizzes	20%
Final Exam	20%
Total	100%

Weekly participation. In-class students are expected to attend every class session; OL students are expected to view the COL recording of the class as soon as possible, usually within 2-3 days of the in-class meeting. All students must post at least one substantive comment, relevant to the class topics and activities for the week, to the online participation forum. A substantive comment is one that further explores a topic covered in class or one posted by another student. A “thank you” or “that’s interesting” does not constitute a substantive comment, nor does simply posting a URL without a substantive discussion of its relevance. **Participation forums are not reopened after the due date.** (LO1)

Individual Assignment. The individual assignment acts as a foundation exercise for the rest of the coursework, particularly the team assignments. (LO1, LO3)

Team Assignments/Team Participation. These are done as part of a team consisting of three or four students. Team assignments consist of practical exercises in performing various requirements and object-oriented modeling activities. Each team must complete a team working agreement. All students on each team are expected to contribute equally to every assignment. If a student does not contribute their fair portion to an assignment, that student's grade on the assignment is reduced. At the completion of each assignment, students must complete an online peer review of their teammates. The review is used, if necessary, to adjust a student's grade on the assignment, and in determining each student's final team assignment participation grade component. **Peer reviews are not reopened after the due date and no time extensions are granted for peer views.** (LO1-LO6)

Quizzes. Quizzes provide the student with the opportunity to test her or his basic comprehension of course material. Each quiz is available online in D2L for several days, so that the student may take the quiz at a convenient time. **Quizzes are not reopened after the due date and no time extensions are granted for quizzes.** (LO1, LO2)

Final exam. The comprehensive final exam tests comprehension of vocabulary, concepts, and the practical elements of object-oriented modeling. The final exam is delivered online via D2L during the regular final exam week for the quarter. **No time extensions are granted for final exam.** (LO1, LO2)

Time Budget. Students should allow approximately 3-4 hours of work outside of class for each scheduled hour of class; this works out to 10-12 hours each week (on average) for most students. Team meetings and project collaboration may increase the amount of time required.

Grading Scale. Final letter grades will be given based on the following minimum percent of total points earned:

If the final numeric grade is less than:	and greater than or equal to:	the final letter grade is:
-	93	A
93	90	A-
90	87	B+
87	83	B
83	80	B-
80	77	C+
77	73	C
73	70	C-
70	67	D+
67	60	D
60	0	F

Grade Responsibility. Every effort is made to provide the student with the resources and support needed to succeed in the course. Grades are assigned fairly and impartially based on the coursework submitted by the student, without regard to external circumstances such as GPA goals or employer tuition reimbursement minimum grade requirements. It is the student's responsibility to earn his or her final grade. Please do not ask for a grade which you do not earn.

In-Class and Online Sections. Every effort is made to accommodate and be inclusive of online students. Since the final exam is online, online students do not need to make proctoring arrangements for the exam. Adequate time is given to complete all assignments, so all students must submit assignments by the same day and time.

Student Support & Communication. Support for both in-class and online students is provided through weekly office hours dedicated to the course and through online question-and-answer discussion forums on D2L. Students in the Chicago area may come to the instructor's posted office hours. Online students may call during these posted office hours; however, it is recommended that such calls be scheduled in advance in order to ensure a place in the queue. Online discussion forums are available to all students and should be used for posting general coursework questions and comments. The instructor makes every effort to respond to postings within 24 hours. However, due to schedule issues, it occasionally may take longer to receive an instructor response. Email should be used only for personal issues or for student-specific coursework questions. Make all questions clear and specific.

Please include the course number and section (e.g., SE 430 - OL) in the email

***Subject:* field, and include your full name in the *body* of the email.**

Note: The instructor does not preview homework assignments. However, the instructor does answer specific questions about assignments.

Class Schedule (readings only—tentative). **

Presentation material and assignments are revised for each course offering. The assignment, quiz, and final exam schedule in the D2L Checklist represents the definitive class schedule for all coursework and will be updated as the quarter progresses.

Week 1	
Tue Jun 12	Course Logistics Introduction Object-Oriented Fundamentals <i>Reading: Arlow & Neustadt Preface; Ch. 7.2; 7.4 (Introduction only)</i>
Week 2	
Tue Jun 19	Process <i>Reading: Arlow & Neustadt Ch's 1 & 2; Scrum Primer (all)</i>
Week 3	
Tue Jun 26	Establishing Requirements <i>Reading: Arlow & Neustadt Ch's 3 & 14</i>
Week 4	
Tue Jul 3	Usage Modeling: Use Case Model <i>Reading: Arlow & Neustadt Ch's 4 & 5</i>
Week 5	
Tue Jul 10	Structural Modeling: Domain Model <i>Reading: Arlow & Neustadt Ch's 6-9</i>
Week 6	
Tue Jul 17	Architecture to Design <i>Reading: Ch. 19</i>
Week 7	
Tue Jul 24	Use Case Realizations I <i>Reading: Arlow & Neustadt Ch's 12 & 13</i>
Week 8	
Tue Jul 31	Use Case Realizations II <i>Reading: Arlow & Neustadt Ch. 20</i>
Week 9	
	Last class meeting
Tue Aug 7	Use Case Realizations III

Reading: Arlow & Neustadt Ch. 20

Week 10 Final exams week—no class meeting

Tue Aug 14 ► **Due:** Final Exam (see D2L Checklist for online availability)

Final grades will be posted ASAP but no later than 11:59 PM on Aug 26.

**** The instructor reserves the right to (and will most likely) modify the syllabus at any time during the quarter.**

Policies & Expectations

*An asterisk ** following a heading indicates an instructor-specific policy*

Guidelines for Class Behavior

- Be on time.
- Take an active role in class discussions and activities.
- Be a respectful participant by keeping phones in silent mode.
- ***Please keep eyes up (and off your electronic devices) when attention should be paid to the group discussion or presentation. It is unprofessional and disrespectful to the instructor and other students to be surfing the internet, chatting, or checking social media.***
- Practice professionalism in your communications (face-to-face, emails, etc.) with the professor and fellow students.

Attitude

A professional and academic attitude is expected throughout this course. Measurable examples of non-academic or unprofessional attitude include but are not limited to: talking to others when the instructor is speaking, mocking another's opinion, cell phones ringing, emailing, texting, or using the internet whether on a phone, tablet, or computer. If any issues arise a student may be asked to leave the classroom. The professor will work with the Dean of Students Office to navigate such student issues.

Team Management and Behavior*

Teamwork is an integral part of this course. The primary purpose of teams in this course is to provide diverse perspectives and skills for the coursework, *not* to reduce the amount of work done by individual students. Whenever possible, all team members should attempt every element of the coursework, then the team as whole should combine the individual efforts into the final product for submission. This gives all students experience in every element of the coursework, and provides a richer and more coherent final product.

Since team sizes are small, teams are encouraged to use a consensus approach to decision making:

- Discuss and weigh the pros and cons of each decision option;
- Work toward the options that have the most benefit for the project;
- When it is clear which option is most suitable, work with its opponents to help them accept it—persuade, do not dictate.

Consensus takes more time than majority rule by vote, but reduces team friction and generally is more effective for small teams.

It is expected that all members of a team participate fully and equally in all team planning efforts, meetings, decisions, and coursework. To encourage and assess this participation, the course utilizes a confidential online Peer Review system. The following team member participation criteria are evaluated in the Peer Review:

Initiative: Was the individual a leader in organizing the project effort or did the individual take initial actions to successfully get the project started?

Reliability: Did the individual attend required meetings, promptly answer email, and provide materials when they were due?

Amount of work: Did the individual contribute an average (expected) amount of work, contribute more work than other team members, or contribute less work than others?

Quality of work: Did the individual contribute work that required little additional editing or few corrections?

Support of learning: Did team members learn from the individual, possibly through informed discussion or constructive feedback? Did the person contribute to a supportive environment where thoughts and ideas were welcomed?

Students receive credit for completing each Peer Review. However, if you rate everyone a 25 or a 0, your evaluations will not be counted and you will not receive credit for the peer review—the instructor expects thoughtful evaluations.

For the results of Peer Reviews that are applied toward coursework grades, the following grade adjustment policy applies:

The average of the scores you receive from your team members acts as a multiplier for the relevant coursework. The scores you give to yourself are not included in the average. The following gives the resulting percentage of the coursework element grade you receive based on your average Peer Review score from your team members:

- Average score of 15 to 25 points: 100% of coursework element grade (no reduction)
- Average score of 11 to 14 points: 90% of coursework element grade (10% reduction)
- Average score of 6 to 10 points: 80% of coursework element grade (20% reduction)
- Average score of 1 to 5 points: 70% of coursework element grade (30% reduction)
- Average score of 0 points will be investigated (variable reduction, up to 100%)

Students who have their grades reduced as a result of the Peer Review process receive an explanatory email from the instructor shortly after the unreduced assignment grade is posted.

Teams that have significant participation, behavioral, or other difficulties with a team member first should attempt to resolve the problems with the problematic team member causing the difficulties. **BE EXPLICIT WITH THE PROBLEMATIC TEAM MEMBER:** *let the problematic team member know that there is a problem and work with them to resolve the problem.* Do not simply make vague or oblique statements or suggestions. If the team member refuses input or persists in failing to participate, exhibiting inappropriate behavior, or causing other disruptive conditions, the team should contact the instructor via email—copying all other team members except the problematic member—rather than wait to raise the issue via the Peer Review process. The team should provide the instructor with a clear description of the issue(s), evidence supporting their issue claims (such as emails or samples of the problematic team member's contributions), and a suggested action by the instructor. In most cases, the instructor will attempt to resolve the issue with the least amount of disruption to the team. Most problematic team members will receive one written email warning from the instructor. After the warning, if the disruptive behavior persists and the team feels it is warranted, it may request that the instructor remove the team member from the team. In exceptional behavioral situations or under tight time constraints, the instructor may remove the problematic team member immediately, without an email warning. Removal from a team is at the instructor's discretion. A removed student must complete in full all remaining team assignments individually and incurs a 20% grade penalty on all remaining team assignments.

Civil Discourse

DePaul University is a community that thrives on open discourse that challenges students, both intellectually and personally, to be [Socially Responsible Leaders](#). It is the expectation that all dialogue in this course is civil and respectful of the dignity of each student. Any instances of disrespect or hostility can jeopardize a student's ability to be successful in the course. The professor will partner with the Dean of Students Office to assist in managing such issues.

Exceptional Circumstances*

Every effort is made to accommodate students who encounter exceptional personal circumstances during the quarter. Students who experience unanticipated personal, work, health, or family emergencies should notify the instructor by email or phone as soon as possible after the emergency with a brief explanation of the circumstances and any anticipated impact these might have on coursework. Students who have anticipated exceptional circumstances such as secular or religious holiday observances, medical treatment, or travel should notify the instructor as early as possible of these circumstances and any anticipated impact these might have on coursework. In both unanticipated and anticipated cases, a suitable plan for dealing with the coursework impact is agreed upon by the student and instructor. In some cases, suitable documentation of the exceptional circumstances may be requested by the instructor.

Formal University Policy: Excused Absence

In order to petition for an excused absence, students who miss class due to illness or significant personal circumstances should complete the Absence Notification process through the Dean of Students office. The form can be accessed at <http://studentaffairs.depaul.edu/dos/academicprocesses.html>. Students must submit supporting documentation alongside the form. The professor reserves the sole right whether to offer an excused absence and/or academic accommodations for an excused absence.

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. CDM policy requires the student to initiate the request for incomplete grade before the end of the term in which the course is taken. Prior to submitting the incomplete request, the student must discuss the circumstances with the instructor. Students may initiate the incomplete request process in MyCDM.

- All incomplete requests must be approved by the instructor of the course and a CDM Associate Dean. Only exceptional cases will receive such approval.
- If approved, students are required to complete all remaining course requirement independently in consultation with the instructor by the deadline indicated on the incomplete request form.
- By default, an incomplete grade will automatically change to a grade of 'F' after two quarters have elapsed (excluding summer) unless another grade is recorded by the instructor.
- An incomplete grade does NOT grant the student permission to attend the same course in a future quarter.

Withdrawal

Students who withdraw from the course do so by using the Campus Connection system (<http://campusconnect.depaul.edu>). Withdrawals processed via this system are effective the day on which they are made. Simply ceasing to attend, or notifying the instructor, or nonpayment of tuition, does not constitute an official withdrawal from class and will result in academic as well as financial penalty.

Instructor Request: Withdrawal*

Because of the small size of this class and the strong inter-dependency among team members and teams, please notify me and, if you choose, your other team members, as soon as possible after any decision to withdraw from the course. This will allow me to make appropriate adjustments to teams to accommodate the loss of a team member.

Retroactive Withdrawal

This policy exists to assist students for whom extenuating circumstances prevented them from meeting the withdrawal deadline. During their college career students may be allowed one medical/personal administrative withdrawal and one college office administrative withdrawal, each for one or more courses in a single term. Repeated requests will not be considered. Submitting an appeal for retroactive withdrawal does not guarantee approval.

College office appeals for CDM students must be submitted online via MyCDM. The deadlines for submitting appeals are as follows:

- Autumn Quarter: Last day of the last final exam of the subsequent winter quarter
- Winter Quarter: Last day of the last final exam of the subsequent spring quarter
- Spring Quarter: Last day of the last final exam of the subsequent autumn quarter
- Summer Terms: Last day of the last final exam of the subsequent autumn quarter

Coursework Grade Review Requests*

Every effort is made to grade in a fair and consistent manner. Should a disagreement arise about a coursework grade, the student may submit a grade review request in writing to the instructor. The request must be submitted within 48 hours after the assignment grade has been posted. The request must include the student's argument for a different grade evaluation, based on verifiable evidence presented by the student. The instructor handles grade review requests and responds to the student with a review decision as soon as possible.

Academic Integrity Policy and Plagiarism*

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

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 grade of '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.

Instructor Policy Extensions: Academic Integrity Policy and Plagiarism*

All assignment submissions to D2L are subjected to automated plagiarism analysis using *Turnitin*. Originality analysis results are visible to the student.

Students must complete a short *Academic Integrity Awareness Quiz* before submitting their first assignment. If you have any questions about what constitutes an academic integrity violation or what its consequences might be, please be sure to have these questions answered before submitting your first assignment.

Resources for Students with Disabilities

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential.

To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter (preferably within the first week of class), and make sure that you have contacted the Center for Students with Disabilities (CSD) at:

Student Center, LPC, Suite #370
 Phone number: (773)325.1677
 Fax: (773)325.3720
 TTY: (773)325.7296

Online Instructor Evaluation

Instructor and course evaluations provide valuable feedback that can improve teaching and learning. The greater the level of participation, the more useful the results. As students, you are in the unique position to view the instructor over time. Your comments about what works and what doesn't can help faculty build on the elements of the course that are strong and improve those that are weak. Isolated comments from students and instructors' peers may also be helpful, but evaluation results based on high response rates may be statistically reliable (believable). As you experience this course and material, think about how your learning is impacted. Your honest opinions about your experience in and commitment to the course and your learning may help improve some components of the course for the next group of students. Positive comments also show the department chairs and college deans the commitment of instructors to the university and teaching evaluation results are one component used in annual performance reviews (including salary raises and promotion/tenure). The evaluation of the instructor and course provides you an opportunity to make your voice heard on an important issue—the quality of teaching at DePaul. Don't miss this opportunity to provide feedback!

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 under *News* in D2L and sent via email.