

Course Instructor

Instructor: Suely Oliveira
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Office Hours: Tu 9:30-11:00 am (Zoom)
Th 9:30-11:00 am (Zoom)

Asynchronous Online Class (resources)

--Course site: [Iowa Courses Online \(ICON\)](#)
--Recorded material, posted on ICON, on Mondays
--Teacher Q/A on Th 9:30-11:00 am on Zoom
--Weekly quizzes posted on Thursdays on ICON
--Zybook: book code is posted on ICON
--Piazza: for TA questions

Academic Course Home

[College of Liberal Arts and Sciences](#)
DEO: Alberto Segre
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Prerequisites

CS:1210 with a minimum grade of C- or ENGR:2730 with a minimum grade of C-

Course Description and Goal

Design, implementation, and application of data structures (e.g., linked lists, stacks, queues, hash tables, trees); complexity analysis; recursion; introduction to object-oriented programming concepts; abstract data types and their realization using generic interfaces and classes; software design patterns (e.g., iterators, comparators).

Topics and Schedule (tentative plan)

- Week 1: Java basics, Java x Python
- Week 2: Loops, arrays, methods, recursive algorithms
- Week 3: Classes and subclasses, interfaces and abstract classes
- Week 4: Generic methods and classes, comparators
- Week 5: Analysis of recursive and non-recursive algorithms
- Week 6: Iterators & Midterm I
- Week 7: Linked Lists
- Week 8: Stacks and Queues
- Week 9: Priority Queues and Heaps
- Week 10: Maps and Hashtables
- Week 11: Graph algorithms and data structures
- Week 12: Binary Search Trees
- Week 13: Balanced Search Trees
- Week 14: Balanced Search Trees & Midterm II
- Week 15: Review/Help with Final PA

Required Textbook/Media

Zybooks – For Homeworks

ICON – For lectures (videos and text), Programming Assignments (Pas) and grades

Zoom meeting IDs will be posted on ICON, for Q/A and office hours

Assessment

20% Midterm 1, 20% Midterm 2, 10% quizzes 30% Programming Assignments(6) and 10% Homeworks, 10% Final-PA. Plus/minus (+/-) grades will be used. Curving only done for final letter grade (may help or not)

Objectives

After finishing this course students should be proficient in Java and Data Structures for various applications.

Collaboration policy

Students **can discuss the homeworks, quizzes and PA's with each other**, but they **can not share complete codes or answers with each other**. No consulting with people outside the class is allowed. For the **two take-home midterms**, we expect **individual work without consulting or talking to anyone**.

Course Policies

- **Communications:** You will need to check ICON and zybooks every week. On ICON look at announcements, and syllabus (on the left side), which will show a copy of this syllabus and also all the midterm, quizzes, and PA due dates. On Zybook you will find the homeworks due dates (to be submitted on zybook).
- **Due Dates and Missed Deadlines:** In some cases, late programming will be accepted up to 2 days late if justified, and with a 10% late penalty per day. Due dates for Zybook homeworks can not be extended. Quizzes and midterms are take-home with extra time included, so no extensions are allowed. Please **plan ahead**. If a student foresees any problems with the deadlines and midterms dates posted on ICON, he or she should talk to the instructor in the beginning of the semester.
- **Attendance:** Since this offering is **asynchronous**, the expectation is that you read and/or listen to the videos to be posted on ICON, **between the day they are posted(Mondays) and the Questions/Answers (Q/A) meeting on zoom on Thursdays (9:30-11:00am)**. **If you have no questions, you do not need to attend the Q/A meetings**. The Q/A meetings are optional and similar to office hours.
- **Discussions:** in addition to the teacher and TA's office hours, we plan weekly Discussions Folders on ICON. The TA's will be responsible for answering and maintaining these folders.

College and University Policies

Absences and Attendance

Students are responsible for attending class and for contributing to the learning environment of a course. Students are also responsible for knowing their course absence policies, which will vary by instructor. All absence policies, however, must uphold the UI policy related to student illness, mandatory religious obligations, including Holy Day obligations, unavoidable circumstances, or University authorized activities (<https://clas.uiowa.edu/students/handbook/attendance-absences>). Students may use the CLAS absence form to aid communication with the instructor who will decide if the absence is excused or unexcused. The form is located on ICON within the top banner under "Student Tools."

Academic Integrity

All undergraduates enrolled in courses offered by CLAS have, in essence, agreed to the College's [Code of Academic Honesty](#). Misconduct is reported to the College, resulting in suspension or other sanctions, with sanctions communicated with the student through UI email. Visit this page for information: (<https://clas.uiowa.edu/students/handbook/academic-fraud-honor-code>).

Accommodations for Disabilities

UI is committed to an educational experience that is accessible to all students. A student may request academic accommodations for a disability (such as mental health, attention, learning, vision, and physical or health-related condition) by registering with Student Disability Services (SDS). The student is then responsible

for discussing specific accommodations with the instructor. More information is at <https://sds.studentlife.uiowa.edu/>.

Administrative Home of the Course

The College of Liberal Arts and Sciences (CLAS) is the administrative home of this course and governs its add/drop deadlines, the second-grade-only option, and related policies. Other colleges may have different policies. CLAS policies may be found here: <https://clas.uiowa.edu/students/handbook>.

Classroom Expectations

Students are expected to comply with University policies regarding appropriate classroom behavior as outlined in the [Code of Student Life](#). This includes the policies and procedures that all students have agreed to regarding the Steps Forward for Fall 2020 in response to the COVID-19 pandemic. Particularly, all students are required to wear a face cover when in a UI building, including a classroom. In addition, the density of seats in classrooms has been reduced. In some instances, this will allow 6 feet or more of distance while other cases, it may be less. Regardless, wearing face coverings and maintaining as much distance as is possible are vital to slowing the spread of COVID-19. In the event that a student disrupts the classroom environment through their failure to comply with the reasonable directive of an instructor or the University, the instructor has the authority to ask that the student immediately leave the space for the remainder of the class period. Additionally, the instructor is asked to report the incident to the [Office of Student Accountability](#) for the possibility of additional follow-up. Students who need a temporary alternative learning arrangement related to COVID-19 expectations should contact [Student Disability Services](#) (<https://sds.studentlife.uiowa.edu/fall-2020/covid-19-temporary-learning-arrangements/>; +1 319 335-1462).

Communication and the Required Use of UI Email

Students are responsible for official correspondences sent to the UI email address (uiowa.edu) and must use this address for all communication within UI ([Operations Manual, III.15.2](#)).

Complaints

Students with a complaint about an academic issue should first visit with the instructor or course supervisor and then with the Chair of the department or program offering the course; students may next bring the issue to the College of Liberal Arts and Sciences; see this page for more information: <https://clas.uiowa.edu/students/handbook/student-rights-responsibilities>.

Final Examination Policies

The final exam schedule is announced around the fifth week of classes; students are responsible for knowing the date, time, and place of a final exam. Students should not make travel plans until knowing this information. No exams of any kind are allowed the week before finals with a few exceptions made for particular types of courses such as labs or off-cycle courses: <https://registrar.uiowa.edu/final-examination-scheduling-policies>.

Nondiscrimination in the Classroom

The University of Iowa is committed to making the classroom a respectful and inclusive space for people of all gender, sexual, racial, religious, and other identities. Toward this goal, students are invited in MyUI to optionally share the names and pronouns they would like their instructors and advisors to use to address them. The University of Iowa prohibits discrimination and harassment against individuals on the basis of race, class, gender, sexual orientation, national origin, and other identity categories set forth in the University's Human Rights policy. For more information, contact the Office of Equal Opportunity and Diversity (<https://diversity.uiowa.edu/eod>; +1 319 335-0705 or diversity.uiowa.edu)

Sexual Harassment

Sexual harassment subverts the mission of the University and threatens the well-being of students, faculty, and staff. All members of the UI community must uphold the UI mission and contribute to a safe environment that enhances learning. Incidents of sexual harassment must be reported immediately. For assistance, please see <https://osmrc.uiowa.edu/>.