Northeastern College of Engineering

Northeastern University

College of Engineering

Spring 2023

Course Number: CSYE 6200 – Concepts of Object-Oriented Design

Instructor Name: Prof. Chen-Hsiang (Jones) Yu, Ph.D.
Teaching Assistant Names:
  Jayanth Vakkalagadda (TA of Section 4)
  Sai Chand Ghanta (TA of Section 4)

  Pranav Rajavelu Sivakumar (TA of Section 5)
  Ashwin Kumar Sridhar (TA of Section 5)

Class Schedule:
  Section 04: (CRN: 38558)
    Lecture (T): 11:45 am – 1:25 pm, Snell Engineering Center 168
    Lecture (R, online): 2:50 pm – 4:30 pm
      https://northeastern.zoom.us/j/93777365143?pwd=dFRJV2lnWXo4Q2ZqSWVHSFhGU2dDZz09

  Section 05: (CRN: 38559)
    Lecture (T): 3:25 pm – 5:05 pm, Snell Engineering Center 108
    Lecture (F, online): 3:25 pm – 5:05 pm
      https://northeastern.zoom.us/j/98469638051?pwd=eG9kVncrWWluNlUzQVRkSEVLeVBsQT09

Office Hours:
  Jones Yu (instructor):
    2 pm – 3:00 pm, Tuesday
    https://northeastern.zoom.us/j/99917765600?pwd=THdIQkEyOFFjNGJlYjE5YkhBNVhEUT09

    5:10 pm – 6:10 pm, Friday
    https://northeastern.zoom.us/j/99200527288?pwd=eHAwanJLaGlNcE1iWE9zTDFxL2xCUT09

  Jayanth Vakkalagadda (TA):
    4 pm – 5 pm, Monday
    https://northeastern.zoom.us/j/91331343847?pwd=aEpzb0VYc3JMOTRhYmZmQytHTG41Zz09

  Ashwin Kumar Sridhar (TA):
    5 pm - 6 pm, Tuesday
    https://northeastern.zoom.us/j/92083267530?pwd=dWZIL1NERGdVdmtvd2RkT1FiVDd3dz09

  Pranav Rajavelu Sivakumar (TA):
    5 pm – 6 pm, Wednesday
    https://northeastern.zoom.us/j/98782513845?pwd=YlU3S0FVMThkQS9JeCtEc0o2cmg5UT09

  Sai Chand Ghanta (TA):
    12 pm - 1 pm, Thursday
    https://northeastern.zoom.us/j/94729423219?pwd=V243ZkpzNDhYV2oxS3h6UHd0QlJ1dz09

Email address:
  Jones Yu (instructor): jones.yu@northeastern.edu

Credit Hours: 4

COURSE DESCRIPTION:
This course is an advanced introduction to Object-Oriented Design. It focuses on Object-Oriented Programing (OOP). Topics include, but not limited to, abstraction and encapsulation, classes and methods, objects and references, overloading, inheritance, polymorphism, abstract classes and interfaces, console/file input/output, dynamic data structures, generics, and GUI applications. We will use Java as the programming language to practice all learned knowledge.

COURSE PREQUISITIES/COREQUISITES:
- N/A

REQUIRED TEXTBOOK(S):
- Liang, Y. Daniel. *Introduction to Java Programming, Comprehensive Version*, 12th edition, Pearson, 2019. (ISBN-13: 978-01346520238)

SUPPLEMENTAL MATERIALS:
- N/A

COURSE WEBSITES:
- Section 04: https://northeastern.instructure.com/courses/136963
- Section 05: https://northeastern.instructure.com/courses/136966

COURSE LEARNING OUTCOMES:
At the completion of this course, the student should be able to:
- Describe the differences between traditional programming and object-oriented programming
- Explain concepts related to object-oriented programming, including classes, objects, methods, inheritance, polymorphism, interfaces, overloading vs. overriding, and encapsulation
- Develop and analyze programs that make use of abstract data types (e.g., lists, stacks)
- Design and implement applications with a GUI interface

INSTRUCTIONAL METHODOLOGIES:
This course will combine traditional lecturing with hands-on assignments that reinforce the lecture material. In particular, lectures will focus on concepts and ideas while the assignments will provide concrete experience and skills. Students will also have a final project, which allows them to apply what they learned from the lectures to interesting topics.

GRADING POLICY:
There will be 3 assignments required to submit during the course. These lab assignments will test the student's ability to write and test complete programs from start to finish. Each lab assignment will include a detailed description of the problem and expectations for successful completion. The details will be defined in each lab assignment.

There is a midterm exam in this class, but there will be no final exam. Instead, students will work in teams to complete the final project that incorporates programming constructs and elements from throughout the semester. Each team can have 4 members. Each team will present their complete final project to the class at the end of the semester.

Specifically, student grades are based upon the following criteria:

Attendance & Participation	Weekly	5%
Lab Assignments	Three assignments	30%
Midterm Exam	Middle of the semester	25%
Final Project Presentation and Demo	Last two weeks of the semester	15%
Final Project Submission	Last week of the semester	25%

MAKE-UP POLICY:

All assignments have a specific due date and time. Submissions will be accepted after the deadline with **varied penalty.** The penalty will be:

20% off penalty (< one day)
30% off penalty (< two days)
40% off penalty (< three days)
50% off penalty (if more than three days)

For example, an on-time submission might receive a grade of 90 points. The same assignment submitted after the deadline and less than one day would receive 72 points (90*0.8).

Students who miss scheduled exams will not, as a matter of course, be able to make up those exams. If there is a legitimate reason why a student will not be able to complete an assignment on time or not be present for an exam, then they should contact the instructor beforehand. Under extreme circumstances, as decided on a case-by-case basis by the instructor, students may be allowed to make up assignments or exams without first informing the instructor.

GRADING SYSTEM:

Grade	Weight	Numerical Definition	Definition
A A-	4.000 3.667	93-100 90-92	Student learning and accomplishment far exceeds published objectives for the course/test/assignment and student work is distinguished consistently by its high level of competency and/or innovation.
B+ B B-	3.333 3.000 2.667	87-89 83-86 80-82	Student learning and accomplishment meets all published objectives for the course/test/assignment and student work demonstrates the expected level of understanding and application of concepts introduced.
C+ C C-	2.333 2.000 1.667	77-79 73-76 70-72	Student learning and accomplishment based on the published objectives for the course/test/assignment were met with minimum passing achievement.
F	0.000	0-69	Student learning and accomplishment based on the published objectives for the course/test/assignment were not sufficiently addressed or met.

https://registrar.northeastern.edu/article/university-grading-system/

ATTENDANCE POLICY:

Attendance is an important element for success in class. It is required, unless you are unable to make it due to illness or other urgent or emergent reasons. Contact me via email before the class time for allowed absence, unless you are unable to. Here is the section from the student handbook: Students will not be penalized for excused absences, with the understanding that students may need to make up for the academic commitment from which they were excused. Reasons for an excused absence include religious, medical issues, jury duty, bereavement, and military service. See the course catalog and other applicable policies for the full attendance and excusal policy.

ACADEMIC INTEGRITY:

A commitment to the principles of academic integrity is essential to the mission of Northeastern University. The promotion of independent and original scholarship ensures that students derive the most from their educational experience and their pursuit of knowledge. Academic dishonesty violates the most fundamental values of an intellectual community and undermines the achievements of the entire University.

As members of the academic community, students must become familiar with their rights and responsibilities. In each course, they are responsible for knowing the requirements and restrictions regarding research and writing, examinations of whatever kind, collaborative work, the use of study aids, the appropriateness of assistance, and other issues. Students are responsible for learning the conventions of documentation and acknowledgment of sources in their fields. Northeastern University expects students to complete all examinations, tests, papers, creative projects, and assignments of any kind according to the highest ethical standards, as set forth either explicitly or

implicitly in this Code or by the direction of instructors. Go to http://www.northeastern.edu/osccr/academic-integrity-policy/ to access the full academic integrity policy.

UNIVERSITY HEALTH AND COUNSELING

As a student enrolled in this course, you are fully responsible for assignments, work, and course materials as outlined in this syllabus and in the classroom. Over the course of the semester if you experience any health issues, please contact UHCS. For more information, visit https://www.northeastern.edu/uhcs.

STUDENT ACCOMMODATIONS:

Northeastern University and the Disability Resource Center (DRC) are committed to providing disability services that enable students who qualify under Section 504 of the Rehabilitation Act and the Americans with Disabilities Act Amendments Act (ADAAA) to participate fully in the activities of the university. To receive accommodations through the DRC, students must provide appropriate documentation that demonstrates a current substantially limiting disability. For more information, visit http://www.northeastern.edu/drc/getting-started-with-the-drc/.

LIBRARY SERVICES

The Northeastern University Library is at the hub of campus intellectual life. Resources include over 900,000 print volumes, 206,500 e-books, and 70,225 electronic journals. For more information and for education specific resources, visit https://library.northeastern.edu.

24/7 CANVAS TECHNICAL HELP

For immediate technical support for Canvas, call 617-373-4357 or email help@northeastern.edu
Canvas Faculty Resources: https://canvas.northeastern.edu/faculty-resources/
Canvas Student Resources: https://canvas.northeastern.edu/student-resources/
For assistance with my Northeastern e-mail, and basic technical support:
Visit ITS at https://its.northeastern.edu
Email: help@northeastern.edu
ITS Customer Service Desk: 617-373-4357

DIVERSITY AND INCLUSION:

Northeastern University is committed to equal opportunity, affirmative action, diversity and social justice while building a climate of inclusion on and beyond campus. In the classroom, members of the University community work to cultivate an inclusive environment that denounces discrimination through innovation, collaboration and an awareness of global perspectives on social justice. It is my intention that students from all backgrounds and perspectives will be well served by this course, and that the diversity that students bring to this class will be viewed as an asset. I welcome individuals of all ages, backgrounds, beliefs, ethnicities, genders, gender identities, gender expressions, national origins, religious affiliations, sexual orientations, socioeconomic background, family education level, ability – and other visible and nonvisible differences. All members of this class are expected to contribute to a respectful, welcoming and inclusive environment for every other member of the class. Your suggestions are encouraged and appreciated. Please visit http://www.northeastern.edu/oidi/ for complete information on Diversity and Inclusion.

TITLE IX:

Title IX of the Education Amendments of 1972 protects individuals from sex or gender-based discrimination, including discrimination based on gender-identity, in educational programs and activities that receive federal financial assistance. Northeastern's Title IX Policy prohibits Prohibited Offenses, which are defined as sexual harassment, sexual assault, relationship or domestic violence, and stalking. The Title IX Policy applies to the entire community, including male, female, transgender students, faculty and staff. In case of an emergency, please call 911. Please visit https://www.northeastern.edu/ouec for a complete list of reporting options and resources both on- and off-campus.

SYLLABUS OUTLINE:

The following schedule is tentative and subject to change (including topics and assignments).

Week	Topic	Reading	Assignments/Notes
1	Fundamentals of Programming	Chapters 1 - 8	
2	Fundamentals of Programming	Chapters 1 - 8	
3	Object Oriented Programming	Chapters 9 - 10	Assignment 1 Due
4	Object Oriented Programming	Chapters 9 - 10	
5	Inheritance and Polymorphism	Chapters 11 - 12	Assignment 2 Due
6	GUI Basics	Chapter 14	
7	Midterm Exam Review		Midterm Exam
8	Abstract Classes, Interfaces	Chapter 13	
9	Event-Driven Programming	Chapter 15	Assignment 3 Due
10	Generics, Advanced GUI Programming	Chapter 19, Chapter 15 - 16	
11	Lists, Stacks, Queues	Chapter 20	
12	Recursion	Chapter 18	
13	Final Project Presentation and Demo		
14	Final Project Presentation and Demo		Final Project Submission Duo
15	Final Exam Week		