



NORTHWEST
MISSOURI STATE UNIVERSITY
MARYVILLE | KANSAS CITY

School of Computer Science and Information Systems
44-542: Object Oriented Programming (3 hours)
Fall 2020

Instructor: Dr. Ajay Bandi

Email: ajay@nwmissouri.edu

Office hours: Office hours: M (10:00 AM- 11:00 AM & 2:00 PM – 4:40 PM)

TR (9:20 AM- 11:00 AM)

Students may Zoom to meet in office hours

Office: CH 2250

Prerequisites: Graduate standing and an undergraduate course in data structures with a grade of C or better; no previous experience with object-oriented programming is necessary.

Textbook and supplementary materials: No textbook is required; all the materials will be posted in Northwest Online.

Course description: Provides fast-paced coverage of object-oriented programming and data structures. Students will gain extensive programming experience.

Learning Outcomes:

| Student learning outcomes | Assessment Methods |
|---|--|
| 1.An ability to use current techniques, skills, and tools necessary for computing practice. | Scores on quizzes, class participation, weekly labs and written exams. |
| 2.An ability to design, implement, and evaluate a computer-based system, process, component, or program to meet desired needs | Scores on weekly labs and written exams. |

In addition, after successfully completing this course student will be able to

- Apply mathematical foundations, algorithmic principles, and computer science theory in the modeling and design of computer-based systems in a way that demonstrates comprehension of the tradeoffs involved in design choices
- Analyze a problem, and identify and define the computing requirements appropriate to its solution
- Design, implement, test, and debug Java programs that incorporate
 - objects and classes
 - control structures, exceptions, enumerated types, and input and output
 - inheritance, polymorphism, interfaces, abstract classes,
 - data structures, including use and implementation of arrays, arraylists.

Instructional methods: Instructional methods include publishing recorded videos lectures, recorded practical demonstration, classroom practice, class projects, individual projects, and

interactive question and answer sessions.

Graded course requirements:

| Category | Points |
|-----------------------|----------------|
| 2 Written Exams @ 100 | 200 |
| Weekly labs | 100 |
| Miscellaneous | 0-30 |
| Total Points | 300-330 |

Grading scale:

| Graduate Credit (44-542) | |
|--------------------------|-------|
| Percent Range | Grade |
| 90-100% | A |
| >= 80% and < 90% | B |
| >= 70% and < 80% | C |
| >= 60% and < 70% | D |
| below 60% | F |

Tentative Course outline:

| Week | Day | Date | Topics |
|------|-------|---------|---|
| 1 | R | Jan. 14 | Course orientation, Introduction to Java Java and NetBeans installation |
| 2 | T | Jan. 19 | Objects and Classes |
| | R | Jan. 21 | Objects and Classes |
| | R Lab | Jan. 21 | Lab 01: Objects lab |
| 3 | T | Jan.26 | Constructors |
| | R | Jan. 28 | Primitive types, Scanner |
| | R Lab | Jan. 28 | Lab 02: Classes lab |
| 4 | T | Feb. 2 | Conditions |
| | R | Feb. 4 | Selections |
| | R Lab | Feb. 4 | Lab 03 : Conditions & Selections Lab |
| 5 | T | Feb. 9 | Repetition |
| | R | Feb. 11 | Repetition |
| | R Lab | Feb. 11 | Lab 04: Control Structures lab |
| 6 | T | Feb. 16 | File input and output |
| | R | Feb. 18 | Written Exam 1 |
| | R Lab | Feb. 18 | No Lab |
| 7 | T | Feb. 23 | Arrays |

| Week | Day | Date | Topics |
|------------|------------|---------|--|
| | R | Feb. 25 | Array Lists |
| | R Lab | Feb. 25 | Lab 05: Arrays, Array List and Scanner lab |
| 8 | T | Mar. 2 | Debugging |
| | R | Mar. 4 | Testing |
| | R Lab | Mar. 4 | Lab 06: JUnit lab |
| 9 | T | Mar. 9 | Annotations, Main method, UML |
| | R | Mar. 11 | Enumerated Types |
| | R Lab | Mar. 11 | Lab 07: Enumerated Types |
| 10 | T | Mar. 16 | Inheritance |
| | R | Mar. 18 | Polymorphism |
| | R Lab | Mar. 18 | Lab 08: Inheritance and Polymorphism |
| 11 | T | Mar. 23 | Abstract classes |
| | R | Mar. 25 | Abstract classes |
| | R Lab | Mar. 25 | No Lab |
| 12 | T | Mar. 30 | Interfaces |
| | R | Apr. 1 | Default Methods |
| | R Lab | Apr. 1 | Lab 09: Abstract Classes and Interfaces |
| 13 | T | Apr. 6 | Casting |
| | R | Apr. 8 | Exceptions |
| | R Lab | Apr. 8 | Lab 09: Casting and Exceptions |
| 14 | T | Apr. 13 | Sorting |
| | R | Apr. 15 | Equals and Hashcode |
| 15 | T | Apr. 20 | Recursion |
| | | Apr.26 | Preparation Week |
| 16 | T | Apr. 27 | No class |
| | R | Apr. 29 | No class |
| | R Lab | Apr. 29 | No lab |
| Final exam | Section 01 | May. 6 | 4:10 PM to 6:10 PM |
| | Section 02 | May. 5 | 11:50 AM to 1:50 PM |

Disclaimer: Course schedule is subject to change and you will be responsible for abiding by any such changes. Your instructor will notify you of any changes.

Academic Calendar: <http://www.nwmissouri.edu/academics/calendar.htm>

Final Exam Schedule: <http://www.nwmissouri.edu/registrar/finals.htm>

Attendance: Students are responsible for interacting with the Northwest Online course site on a regular basis and meeting all deadlines.

<https://www.nwmissouri.edu/policies/academics/Attendance.pdf>

Late Submission Policy for lab assignments: Each assigned, graded activity will have a due date posted and are expected to be completed by due date. All the submissions must be submitted through Northwest Online. Any submission up to 24 hours after the due date will be considered as a late submission. The score for late submissions will have 10% of the maximum score deducted from the actual points.

Quizzes and In-class Activities: There may sometimes be short quizzes or in class activities in class or in Zoom, usually worth two points or less. These quizzes or activities will not always be announced in advance. They will usually be given at any point of the class time. If you arrive late or miss a quiz or an activity due to an unexcused absence, you will receive a grade of zero on the quiz or activity. Different sections may have quizzes or activities on different days.

Arriving late for class: Students are expected to be on time for each class period either Zoom or in-person.

Exam policies: Dates for all exams will appear on the course website under the weekly modules. If you must miss an exam, it is your responsibility to notify the instructor prior to the exam.

Make-ups for written exams will be given only for valid and verifiable reasons. Valid reasons include illness, family emergencies, and university-sponsored trips. Written documentation with suitable verification must be supplied before a make-up will be allowed.

All exams are closed book, closed notes, unless explicitly noted in writing by the instructor.

No calculators, cell phones, or other electronic devices can be used during exams or quizzes unless explicitly allowed by the instructor.

Final exams: If an emergency occurs that prevents the administration of a course scheduled final examination, the final course grades will be calculated based on the work in the course completed to that point in time and the faculty member's considered judgment. Final exams will not be rescheduled, and a grade of "I" will not be given as a result of an institutional cancellation of a final examination. This final exam policy does not apply to online courses. Final exam schedule can be available at <https://www.nwmissouri.edu/registrar/finals.htm>

Administrative drop: An instructor may request the Office of the Registrar delete a student from a course roster if the student has not met the prerequisite for the course as stated in the catalog, or as a result of non-attendance in the course.

Course Communication Policy: In this course, we will use Canvas communication system or email the instructor at ajay@nwmissouri.edu and teaching assistant s536973@nwmissouri.edu

Professionalism: Students are expected to behave in a professional manner in their dealings with each other, the teaching assistant, and the instructor. E-mails should be politely written, use proper grammar, and follow the rules of capitalization.

Academic integrity policy: The students, faculty, and staff at Northwest endeavor to sustain an environment that values honesty in academic work, that acknowledges the authorized aid provided by and intellectual contributions of others, and that enables equitable student

evaluation. Please refer to Northwest Missouri State University's Academic Integrity Policy at <http://www.nwmissouri.edu/policies/academics/Academic-Integrity.pdf>

Learning or Living Accommodations Request Process: Northwest Missouri State University complies with Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990 [ADA] and the ADA Amendments Act of 2008 [ADAAA]. If a student has a documented disability that qualifies under the ADA/ADAAA and requests accommodations, they should review the [Accessibility and Accommodations](https://www.nwmissouri.edu/titleixequity/accessibility/index.htm) webpage at <https://www.nwmissouri.edu/titleixequity/accessibility/index.htm> for guidance, including the accommodations application and supporting documentation requirements. Contact ada@nwmissouri.edu or 660.562.1873 for further assistance. For the university policy on disability accommodation refer to <http://www.nwmissouri.edu/policies/student/Disability-Accommodation.pdf>

Non-discrimination and anti-harassment policy: Northwest Missouri State University is committed to maintaining an environment for all faculty, staff, students, and third parties that is free of illegal discrimination and harassment. Please refer to the Non-Discrimination and Anti-Harassment Policy at <https://www.nwmissouri.edu/policies/student/Title-VI-Non-Discrimination-and-Anti-Harassment.pdf>

Family Educational Rights and Privacy Act (FERPA) policy: Family Educational Rights and Privacy Act of 1974, as amended (commonly known as the Buckley Amendment), is a federal law which provides that colleges and universities will maintain the confidentiality of student education records. Please refer to the Family Educational Rights and Privacy Act (FERPA) Policy at <http://www.nwmissouri.edu/policies/academics/Family-Educational-Rights-and-Privacy-Act.pdf>

COVID-19 Classroom Mitigation: Northwest is committed to the health and safety of the University community and has therefore adopted COVID-19 mitigation policies. Every student must wear a face covering (such as a cloth facemask, bandana, scarf, neck gaiter, or medical mask) over their nose and mouth at all times in all academic building spaces, including classrooms (unless directed not to by the instructor), offices, hallways, and restrooms. Face shields may be worn in addition to, but not in place of, a face covering. Students without face coverings will not be allowed in the classroom until they comply with expectations. Students must also follow directions regarding entries, exits and furniture, and maintain at least 6 feet of social distancing whenever possible. Northwest further asks all students to practice good hygiene and not enter academic buildings or attend face-to-face classes when they feel sick or have been instructed to quarantine/isolate; students who miss class should communicate with their instructors. Students who do not comply with these requirements will be subject to standard disciplinary procedures according to the Northwest Student Code of Conduct (i.e. verbal and written warnings followed by a hearing, if necessary). We thank you for doing your part to maintain our learning environment and to protect the health of fellow Bearcats.

Change in Course Delivery: It is our goal as a University to continue all courses as planned on campus. However, due to unforeseeable impacts of COVID-19, faculty and students must be prepared to move all courses to a remote/online learning format anytime during the semester,

either permanently or for a short term. The type of format (synchronous or asynchronous) will be at the discretion of each faculty member. The University and faculty will communicate with students in the event such action is deemed necessary to preserve the health and safety of students and employees.