**School of Computer Science and Information Systems**

**44542-01/02/03/04 Object Oriented Programming 3 credit hours**

**Spring 2023**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Instructor:** Dr. Chandra Mouli Kotteti | | | **Email:** chandra@nwmissouri.edu | |
| **Office Hours:** | Tuesday &  Thursday | 08:00 am - 10:00 am  02:00 pm - 03:30 pm | **Office:** CH2145 | **Sections:** 02 & 04 |
| and by appointment | | **Phone:** (660) 562-1764 | |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Instructor:** Dr. Ratan Lal | | | **Email:** rlal@nwmissouri.edu | |
| **Office Hours:** | Monday | 11:50 am - 12:50 pm | **Office:** CH2205 | **Sections:** 01 & 03 |
| Tuesday &  Thursday | 11:00 am - 02:00 pm |
| and by appointment | | **Phone:** (660) 562-1588 | |

**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 exams. |
| 1. 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, and ArrayLists

**Instructional methods:** Instructional methods may include lectures, practical demonstrations, classroom practice, class projects, individual projects, and interactive question and answer sessions.

**Supplementary Materials:** Students must have access to the following at every course meeting:

* A bound notebook with pencil/pen for taking notes and submitting written content (e.g., pop quizzes.)
* Their campus-assigned laptop, in working order, with all required software.
* Free Git distributed version control system.
* Free TortoiseGit for integrating Git with Windows File Explorer.
* Free PuTTY for creating SSH public/private key pairs.
* Free GitHub and/or BitBucket educational accounts.
* Free GitHub Education Pack (as needed).
* Free Chocolatey package manager for Windows.
* Free Notepad++ text editor.
* Free NetBeans, Eclipse, IntelliJ, Visual Studio Code or other IDE as directed by the instructor.

**Graded course requirements:**

|  |  |
| --- | --- |
| **Category** | **Percent** |
| Quizzes [4-6] | 20% |
| Class participation and attendance | 10% |
| Labs | 15% |
| 2 midterm exams | 30% |
| Project | 5% |
| Final exam | 20% |
| **Total** | 100% |

If students have any questions/concerns regarding the grades for their course objectives such as assignments, quizzes, and midterm exams there will be a week time given after the grades are posted to ask the faculty about their grades and request re-evaluation. After the allotted time passed, no further requests about their grades are considered.

**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 | Topics |
| --- | --- |
| 1 | Course orientation, Introduction to Java  Java and NetBeans installation |
| 2 | Objects and Classes |
| Objects and Classes |
| Lab 01: Objects lab |
| 3 | Constructors |
| Primitive types, Scanner |
| Lab 02: Classes lab |
| 4 | Conditions |
| Selections |
| Lab 03: Conditions & Selections Lab |
| 5 | Repetition |
| Repetition |
| Lab 04: Control Structures lab |
| 6 | File input and output |
| Written Exam 1 |
| No Lab |
| 7 | Arrays |
| Array Lists |
| Lab 05: Arrays, Array List and Scanner lab |
| 8 | Debugging |
| Testing |
| Lab 06: JUnit lab |
| 9 | **Spring Break** |
| 10 | Annotations, Main method, UML |
| Enumerated Types |
| Lab 07: Enumerated Types |
| 11 | Inheritance |
| Polymorphism |
| Lab 08: Inheritance and Polymorphism |
| 12 | Abstract classes |
| Abstract classes |
| No Lab |
| 13 | Interfaces |
| Default Methods |
| Lab 09: Abstract Classes and Interfaces |
| 14 | Casting, Exceptions |
| Written Exam 2 |
| No Lab |
| 15 | Sorting |
| Equals and Hashcode |
| Lab 10: Casting and Exceptions |
| 16 | Recursion |
| Recursion |
| No lab |
| **Finals** | Monday, May 01  9:40am – 11:40am |

All labs are take-home assignments. No separate session is there for lab activity. However, students may use weekly help session to complete lab assignments.

**Note:** Course schedule is subject to change with instructor notification and students will be responsible for abiding by these changes.

**Academic Calendar**:  [*http://www.nwmissouri.edu/academics/calendar.htm*](http://www.nwmissouri.edu/academics/calendar.htm)

**Final Exam Schedule**: [*http://www.nwmissouri.edu/registrar/finals.htm*](http://www.nwmissouri.edu/registrar/finals.htm)

**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. 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. Attendance will be taken exactly when the class starts. Late arrivals get partial credit for that class’ attendance points.

**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.

**Announcements and email:** Announcements are communicated via the Announcements page on the course website and your Northwest Missouri State University (Northwest) email account. It is your responsibility to check each of these sources daily. Note that you must use your Northwest email account on the Northwest Online site. All emails in this class will be sent to your Northwest address.

**Professionalism:** Students are expected to behave in a professional manner in their dealings with each other, the class assistant, and the instructor. Emails should be politely written, use proper grammar, and follow the rules of capitalization. Emails ***must*** include the course number (44-542) and section number (01 or 02 or 03 or 04) in the subject line. For security reasons, emails that do not include an appropriate entry for the subject may be ignored.

**Attendance:** Students are expected to attend all classes as specified in the course syllabi for each course. Class participation points may be awarded to students. It is the responsibility of the student to promptly notify his or her instructor when unable to attend class. Excused absences are not counted against student’s attendance points. Please refer to the university policy on attendance at <https://www.nwmissouri.edu/policies/academics/Attendance.pdf>

**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.

**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.

**Academic Administrative withdrawal:** When it is in the best interest of Northwest Missouri State University for a student to withdraw, a student will be given a W, put on administrative hold, and given notice that they are about to be withdrawn. This action will result in removal of all credits associated with courses that have yet to be completed in the semester in question and the student will be administratively withdrawn from the University. An Administrative Withdrawal does not affect the student’s grade point average. Please refer to Northwest Missouri State University’s Academic Administrative Withdrawal Policy at:

<https://www.nwmissouri.edu/policies/academics/Adding-Dropping-Withdrawals.pdf>

**University communications:** Students are expected to use their Northwest student email account for any electronic correspondence within the university. Students are also strongly advised to check their email and CatPAWS accounts on a regular basis.

**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 webpage at [https://www.nwmissouri.edu/titleixequity/accessibility/index.htm](https://www.nwmissouri.edu/titleixequity/accessibility/index.htm%20) 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/TitleIXEquity/titlevi/>

**Family Education 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>

**Behavior and Wellness:** Northwest focuses on student success—every student, every day.

The Wellness Center, 660.562.1348, offers free counseling for students coping with depression, anxiety, alcohol or drug misuse, relationships, and other emotional, social, and academic stressors. In addition, faculty, staff, and students who are concerned with student wellbeing can report their concerns, including anonymously, to the Behavioral Intervention Team, so that the student can be offered relevant support, at this link: [Concerning Behavior Reporting Form](https://cm.maxient.com/reportingform.php?NorthwestMOStateUniv&layout_id=5). If you are concerned about the immediate safety of a student, please call the University Police, who have specialized training in intervention, at 660.562.1254.

**Final grades rounding:** In certain circumstances, “bumping up” your grade to the next level is possible.

These are the circumstances:

1. Usually, your grade rounds up to the next number using two decimal places, i.e., 79.68 rounds up to 80, but 59.46 rounds down to 59.
2. If your final grade number rounds to (59, 69, 79, 89), “bumping up” your grade only happens if ALL the following circumstances are met:
   1. You have not lost ANY attendance points.
   2. You have maintained an excellent student conduct, including but not limited to maintaining academic integrity.
   3. You have completed ANY and ALL projects / assignments. (Projects and assignments are, but not limited to quizzes, exams, critiques, in class projects, etc.).
   4. You present your “case” to your instructor as a polite request, rather than a demand.
   5. You must meet your instructor face-to-face if you have any concern regarding your final grade. Students travelling immediately after final exam make sure that you can meet your instructor in person.

These are absolutely and positively the only circumstances in which adjusting your grade possible. Raising your grade by more than one percent is NOT possible! If you email your instructor regarding this but have not met the criteria above, your message will be ignored. Final grades are usually due to the registrar by 10am on the Monday after final exams. After this date and time, grade change only happens due to a mistake on the instructor part.

**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.