

CIS 335
Object-Oriented Programming
Using Java

8-week Session (Online)

ADULT DEGREE PROGRAM

Dr. Andrew Hoppe

Computer Information Systems
CIS 335 Object-Oriented Programming Using Java

Professor Information:

Name: Dr. Andrew Hoppe
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Biographical Note: Teaching Assistant, University of Warsaw/Poland, 1978-1986. Teaching Assistant, Technical University of Munich/Germany, 1981-82. Ph.D., University of Warsaw/Poland, 1986. Assistant Professor, Department of Computer Science, Louisiana State University, 1987-1992. Currently, retired at International Business Machines. Teaches IT classes at NCWC, University of Maryland University College, EdX.org. Over twenty-five years of academic experience in CIS (20 years with NCWC ADP). Over twenty years of industrial software development experience.

Course Description:

This course introduces the third generation object-oriented programming language. Topics include problem solving using the object-oriented language, using variables and constants to store information, creating and using functions, using selection structure statements, creating and initializing arrays, creating and manipulating sequential access files, and other related topics.

Credit Hours: 3

Prerequisites: CIS 211 grade C- or higher.

Class Organization: This is an online class, and students are expected to read the textbook chapters, absorb and comprehend class the material, submit lab assignments, participate in weekly forum discussions with classmates, and take online tests.

The class material is technical, so you need to pay attention to detail, follow the rules specific to the given topic, and use strict logic. All submissions (assignments and tests) will be online, using the my.ncwc coursework submission mechanism.

The instructor is available through e-mail to answer student's questions.

Class Website: see the class link at your <http://my.ncwc.edu> page.

Links on the left:

- **Attendance:** attendance record
- **Colaboration:**
 - **Forums:** Weekly discussion topics
 - **Coursemates:** Registered students and instructor email
- **Coursework:** Weekly programming lab assignments, Midterm & Final online exams
- **Gradebook :** your grades

- **Main Page:**
 - **About this course:** General course information
 - **Announcements:** Weekly announcements
 - **Handouts:** Class files

Required Textbook:

Java Illuminated An Active Learning Approach (Fifth Edition), by Julie Anderson and Herve Franceschi, Jones & Bartlett Learning, ISBN: 978-1-284-14099-6 (available at NCWC College Bookstore).

Software Installation for home PC: Eclipse Integrated Development Environment. Free, download **Eclipse IDE for Java Developers** for your operating system from <https://www.eclipse.org/downloads/packages/>. The Windows download is just a zip archive, unzip it to some folder on your machine.

There are also online Java IDEs, like <https://www.codiva.io/> or <https://www.jdoodle.com/online-java-compiler-ide/> . They can be used for short programs. Read the docs to figure out how they work.

Course Objectives

By the end of this course, students will:

1. Demonstrate the ability to use OO language code structures and keywords
2. Analyze, plane, build, code, test, debug, and document an OO language application
3. Create either a flowchart or pseudo-code in the planning process of an application
4. Demonstrate the ability to differentiate between source code and object code
5. Declare variables, literal constants, and named constants
6. Use assignment statements to store data in variables
7. Demonstrate the ability to use functions
8. Demonstrate the ability to pass information to a function within code
9. Interpret the scope of a variable
10. Demonstrate the ability to use a Void function
11. Demonstrate the ability to use Value-returning function
12. Send output to a file
13. Demonstrate the ability to use the logical operators Not, And, Or
14. Demonstrate the ability to effectively use selection structures within code
15. Initialize and update counters and accumulators
16. Create For and Do-While repetition structures
17. Design, declare, implement, instantiate and use classes.

Class Assignments and Grading

Programming Labs: There will be a programming lab project assigned at most classes (one of the Short Programs or Programming Projects at the end of each chapter of the textbook). The assignment details will be posted in the Class Coursework section for this class on my.ncwc.edu.

Solutions to lab assignments will have to be submitted via my.ncwc.edu coursework submission feature. Programming Labs support all course objectives (see Class Schedule).

Late lab programs will not be accepted, unless other arrangements have been made in advance. No work that is overdue by more than 2 weeks will be accepted.

Midterm and Final Tests will be composed of multiple choice questions and short programs to be written in the Java language. The tests will verify your acquaintance with material covered throughout the course. Tests will be administered online on scheduled dates and will be due within allotted time slot.

The makeup tests will be only given under extraordinary circumstances, when appropriate justification is provided, and have to be arranged before the scheduled test date. Tests support all course objectives.

Forum discussions: Under Collaboration-Forums, there are weekly discussion topics available for students to submit posts to (for weeks 1-3 and 5-7). You may submit posts about any issues/questions related to the week's material or programming lab. You may also post responses to other posts.

Students are required to submit at least 2 posts for each of Weeks 1-3 and 5-7. Please make your posts original and meaningful. They don't have to be very long - just informative. Posts will be graded for quantity as well as quality. In a given week, the first post is due at the end of day Sunday, to encourage discussions. Second post is due at the end of day the following Thursday. **Forum discussions are student-led and there are no discussion prompts posted.**

Students are required to submit at least 2 posts for each of Weeks 1-3 and 5-7. Please make your posts original and meaningful. They don't have to be very long - just informative. Posts will be graded for quantity as well as quality. In a given week, the first post is due at the end of day Sunday, to encourage discussions. Second post is due at the end of day the following Thursday.

Online announcements: Watch the class website “Announcements” area for class information and announcements. Announcements contain important information about each week’s material – please read them carefully. I will be posting them twice a week for most weeks.

Class Attendance/Absenteeism: For online courses, absenteeism is defined as failure to communicate or submit assigned work for 20% of the class. The official NCWC 20% absenteeism rule means that a student can be administratively withdrawn from the class without permission or consultation if the student misses 20% of the time period for the class in a given semester. For an 8-week course, this means that if I have had no communication or submission from you for two weeks, you will be administratively dropped from the course. If you do not communicate or submit the weekly coursework for one week (Monday – Sunday), then you will be considered absent for that week. Any exceptions must be approved by the instructor prior to the absence. I will be taking, recording, and submitting your attendance throughout the course.

IMPORTANT – NEW WEEK1 ATTENDANCE PROCESS – In accordance with the new attendance policy in effect this year, you will need to attend the class in the first week of the class by **Wednesday** of that week, by posting to the **mandatory “Introduction Forum – for Attendance Purposes”** forum topic. Students are required to post to this forum (for example, a short personal introduction note) by the end of day on Wednesday in the first week of the class. I am required to submit Week 1 attendance by Friday, 9am. Week 1 attendance is used by the administration to determine “no-shows” and allows the administration to determine who will be dropped from the class.

Instructor Availability: Communication with the instructor outside of class time will be via e-mail. E-mails will be sent **only** to my.ncwc.edu addresses. If you have problems with your e-mail, you should notify the IS department immediately.

Disability Statement: NC Wesleyan College seeks to fully comply with the Americans with Disability Act (ADA) and Section 504 of the Rehabilitation Act of 1973. Students with disabilities who believe that they may need accommodations in this class are encouraged to speak privately with the instructor and contact the Counseling and Disability Services at 252-985-5369 or 252-985-5178 as soon as possible to coordinate and implement accommodations in a timely fashion. Counseling and Disability Services is located in the Hardee's Building on the Rocky

Mount campus. Students requesting accommodations must contact the Counseling and Disability Services Office who will determine the appropriate accommodations.

Academic Dishonesty: All turned-in work is supposed to represent the individual effort of the undersigned student. If you copy an assignment or post, or cheat on a test, you will receive an automatic zero on that work and your offense will be reported.

E-Mail: Communication with the instructor outside of class time will be via e-mail. E-mails will be sent **only** to my.ncwc.edu addresses. If you have problems with your e-mail, you should notify the IS department immediately.

Grades: Grades will be periodically posted on the class website.

Final grades will be awarded according to the following formula:

Programming Labs	40% of the grade
Midterm Exam	23%
Final Exam	25%
Discussion Posts	12%

The grading schedule is below.

100 - 89.5 - A
89.4 - 79.5 - B
79.4 - 69.5 - C
69.4 - 59.5 - D
Below 59.5 - F

Borderline grades may be modified by a plus, or a minus.

Recommended Supplemental Reading:

- *Learning Java, Fourth Edition* by Patrick Niemeyer, Jonathan Knudsen, OReilly Media, May 2013
- <https://www.oracle.com/technetwork/java> home of Java

Class Schedule

Week 1

Reading: Textbook Chapters 1, 2 – Introduction to Programming and the Java Language; Programming Building Blocks – Java Basics

Topics:

- Review of problem solving process using computers
- Review of programming language concepts and data representation
- Getting started with Eclipse, running the first Java program
- Data types, variables, constants
- Expressions and arithmetic operators

Lab 1 - Supports Class Objectives #1, 2, 3, 4

Week 2

Reading: Textbook Chapter 3 – OO Programming, Part 1: Using Classes;

Topics:

- Java class basics – constructors, methods, object references, statics, packages
- Using Java library classes
- Using the String and Math classes
- Using Scanner classes for input
- Using NumberFormat and Random classes

Lab 2 - Supports Class Objectives #5 through 12

Week 3

Reading: Textbook Chapters 5 – Flow of Control, Part 1: Selection

Topics:

- Forming conditions
- if/then/else statements – simple, nested; switch statement

Lab 3 - Supports Class Objectives #13, 14

Week 4

- Review of Week 1-3 Material
- Midterm Written Test

Week 5

Reading: Textbook Chapter 6 – Flow of Control, Part 2: Looping

Topics:

- Event controlled loops – `while`, `do/while`
- Count-controlled loops - `for`

- Looping techniques

Lab 4 - Supports Class Objectives #15, 16

Week 6

Reading: Textbook Chapter 7 – OO Programming, Part 2: User –Defined Classes

Topics:

- Defining, declaring and instantiating classes
- Writing class constructors and methods
- `this`, `toString`, `equals` methods

Lab 5 - Supports Class Objectives #17

Week 7

Reading: Textbook Chapter 8.1-8.3, 8.5, and 9.7 – Single-dimensional arrays, The ArrayList class

Topics:

- Declaring, instantiating, accessing single-dimensional arrays
- Aggregate array operations
- Declaring, instantiating, using the ArrayList class

Lab 6 - Supports Class Objectives # 1-17

Week 8

Topics:

- Review of Week 4-6 Material
- Midterm Final Test