CPS 310 Computer Science II: Data Structures

Instructor Information

- Instructor: Michael Curry
- Email: currym6@newpaltz.edu
- Office Hours: M 12:30 - 2:30 PM & T 9:45 AM - 10:45 AM
- Office Hours Location: Science Hall 245

Course Information

- Prerequisites: B- or above in CPS 210
- Credits: 4

Section 1 & 2

- Lecture Location: LC 108
- Lecture Hours: MR 9:30 AM - 10:45 AM
- Lab Hours & Location:
    - Section 1: M 2:00 - 4:50 PM, CSB 021
        - TA: Stiviyan Dragiev: dragievs1@newpaltz.edu
    - Section 2: R 2:00 - 4:50 PM, CSB 021
        - TA: Stiviyan Dragiev: dragievs1@newpaltz.edu

Section 3 & 4

- Lecture Location: HUM 310
- Lecture Hours: TF 12:30 PM - 1:45 PM
- Lab Hours & Location:
    - Section 3: W 11:00 AM - 1:50 PM, HUM 301
        - TA: Stiviyan Dragiev: dragievs1@newpaltz.edu
    - Section 4: W 2:00 - 4:50 PM, HUM 301
        - TA: Stiviyan Dragiev: dragievs1@newpaltz.edu

Course Description

Advanced programming and techniques for organizing and operating upon data. Lists, stacks, queues, and trees. Sequential and linked storage allocations. Data structures in language processors. Includes supervised programming laboratory..

Objectives

- Implement and use classes and objects in Java.
- Implement and use inheritance and polymorphism in Java.
- Implement and use interfaces in Java.
- Implement and use data structures such as linked lists, stacks, queues, and trees.

- Implement and use algorithms for searching and sorting.
- Implement and use recursion.

SLO (Student Learning Objectives)

Critical Thinking and Reasoning (CTR) LEVEL 1
Students will:

- clearly articulate an issue or problem;
- identify, analyze, and evaluate ideas, data, and arguments as they occur in their own or others' work;
- acknowledge limitations such as perspective and bias; and
- develop well-reasoned (logical) arguments to form judgments and/or draw conclusions.

Information Literacy (IL) LEVEL 1
Students will:

- locate information effectively using tools appropriate to their need and discipline;
- evaluate information with an awareness of authority, validity, and bias; and
- demonstrate an understanding of the ethical dimensions of information use, creation, and dissemination.

Textbook

The textbook below is not required, I will provide PDFs of the books on Brightspace. However, if you would like to purchase a physical copy here is the information.

Introduction to JAVA Programming, Comprehensive Version, 10th edition by Y. Daniel Liang (On Brightspace)

Evaluation & Grading

Progress in the course will be reflected in lab, quiz and exam grades covering the subject areas of the course. Attendance in classes is expected. All exams and quizzes will be taken via paper.

- Lab: 15%
- Project: 10%
- Test 1: 25%
- Test 2: 25%
- Final Exam: 25%
  Final Exam Schedule

Grade	Percentage Range
A	100 – 93
A-	92.9 – 90
B+	89.9 – 87.5

Grade	Percentage Range
B	87.4 – 82.6
B-	82.5 – 80
C+	79.9 – 77.5
C	77.4 – 72.6
C-	72.5 – 70
D+	69.9 – 67.5
D	67.4 – 62.6
D-	62.5 – 60
F	Below 60

Labs

Attendance in lab is mandatory. You should bring a laptop to every lab session. If you are unable to bring one, a few computers are available in the back of the room.

Labs will include problem sets as well as a semester long project. The project will have milestones that must be completed by the end of each lab. At the end of each session, you will submit your work to your TA for grading.

If you miss a lab, you will receive a 0 for that day. If you have a valid excuse (illness, family emergency, etc.), contact your TA as soon as possible to arrange a way to make up the work.

Course Schedule

Week	Topic
1	Review from CS1 & Recursion
2	Recursive Tracking & Classes
3	Classes & Packages
4	Inheritance
5	**Test 1**
6	Abstract Classes & Interfaces
7	GUI & Exceptions
8	Searching & Sorting Algorithms
9	Array List & Linked Lists
10	Stacks & Queues

Week	Topic
11	**Test 2**
12	Binary Trees
13	Trees continued
14	Heap
15	**Project Due**

AI and Code Generation Policy

The purpose of this class is to build your own coding skills and understanding of computer science concepts. If you rely on AI or code generation tools to do the work for you, you are only cheating yourself. One day, when you apply for a job or pursue further study, the ability to think and code independently will matter far more than what a tool can generate.

These tools are here to stay, but they should be used as assistants, not as leaders. Once you understand the output, you will be able to create larger and more complex programs on your own. Unless explicitly permitted, all submitted work must be your own.

SUPPLEMENTAL INSTRUCTION

Supplemental Instruction is a peer-led study group facilitated by a student that has taken and done well in the class previously and received additional training in study skills and group facilitation.

Your SI Leader, Devin Perez, facilitates two sessions per week based off of the material presented in class. Students that attend can ask questions, work through problems, review class material and work with other students in the class. Sessions are open to all students.

Session times and locations can be found by going to my.newpaltz.edu and then to the Center for Student Success tab. Signing up early is encouraged but walk-ins are also welcome.

CAMPUS-WIDE POLICY STATEMENTS

- **Academic integrity policy statement:** Students are expected to maintain the highest standards of honesty in their college work. Cheating, forgery, and plagiarism ar serious offenses, and students found guilty of any form of academic dishonesty are subject to disciplinary action. New Paltz's policy on academic integrity is found at www.newpaltz.edu/ugc/policies/policies_integrity.html, and several excellent resources to help with avoiding plagiarism are available on the Sojourner Truth Library's website: lib.newpaltz.edu/assistance/plag.html.
- **Reasonable accommodation of individuals with disabilities statement:** Students needing classroom and/or testing accommodations related to a disability should contact the Disability Resource Center (Student Union, Room 210, 845-257-3020) as close as possible to the beginning of the semester. The DRC will then provide students' instructors with an Accommodation Memo verifying the need for accommodations. Specific questions about services and accommodations may

be directed to Deanna Knapp, Assistant Director (knappd@newpaltz.edu) or Jean Vizvary, Director (vizvaryj@newpaltz.edu).

- **Veteran & Military Services statement:** New Paltz's Office of Veteran & Military Services (OVMS) is committed to serving the needs of veterans, service members and their dependents during their transition from military life to student life. Student veterans, service members or their dependents who need assistance while attending SUNY New Paltz may refer to www.newpaltz.edu/veterans; call 845-257-3120 or e-mail np-vms@newpaltz.edu; or stop by the Student Union, Room 100 South.
- **Computer and network policies statement:** Users of New Paltz's computer resources and network facilities are required to comply with the institutional policies outlined in the Acceptable Uses and Privacy Policy, available at www.newpaltz.edu/itpolicy/.
- **Identity verification policy statement for online courses:** New Paltz's Online Identity Verification Policy is designed to verify that students enrolled in our online courses and/or programs are the ones who take the courses, complete the programs, and receive the academic credit. See www.newpaltz.edu/ugc/policies/policies_onlineverification.html for the complete policy.

STUDENT EVALUATION OF INSTRUCTION

You are responsible for completing the Student Evaluation of Instruction (SEI) for this course and for all your courses with an enrollment of five (5) or more students. I value your feedback and use it to improve my teaching and planning.