

Department of Mathematics and Computer Science Adelphi University

CSC 175

Intermediate Computer Programming

Sections 002 (Lecture), 020 (Lab)

Spring Semester 2020

Lecture: T Th 10:50 AM - 12:05 PM, LIB 101 (first floor of Swirbul Library)

Lab: T Th 3:05 PM - 4:20 PM, Gallagher lab (second floor of Swirbul Library)

Dr. David Chays

OFFICE HOURS: Tuesday 1:30 - 2:00 PM, 4:20 – 5:20 PM, Wed. 12:00 - 1:00 PM,
Thursday 4:30 PM - 6:30 PM and by appointment.

OFFICE: Science room 406

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PHONE: 516-877-4479

SYLLABUS

COURSE DESCRIPTION AND PURPOSE:

Students explore object-oriented programming principles and techniques for solving problems. Students study class relationships (composition, inheritance, polymorphism, data-abstraction), file processing, exception handling, recursion, use of built-in language specific data structures. Students develop software-engineering skills and habits; develop a variety of applications that require storing, processing, sorting and searching data collections.

To receive credit for this course, you must be registered for both the lecture and lab sections.

This is the second course for majors in Computer Science (CS) or Computer Management & Information Systems (CMIS). This is a 4-credit course, meeting for 2.5 hours of lecture and 2.5 hours of lab every week; you should therefore budget an additional 5 hours per week for homework assignments. Learning to program takes a significant amount of time and practice. Furthermore, since the topics are cumulative and each new topic builds on previous ones, this course requires a continuous effort throughout the semester.

GEN ED LEARNING GOALS/DISTRIBUTION REQUIREMENTS:

Quantitative reasoning

COURSE LEARNING GOALS:

Students will:

- create, navigate through, and update objects inside collections.
- understand and implement the principles of Object Oriented Programming (OOP): encapsulation, abstraction, inheritance and polymorphism.
- apply standard programming conventions to create readable code that would be easy to maintain.
- code test cases and use unit testing tools and be introduced to test driven development techniques.
- read and write to files.
- trace code with exception handling; create, throw and catch exceptions.
- solve written problems by designing objects and algorithms and then implementing those designs.
- use primitive arrays plus at least two language specific data structures; read and trace algorithms that work with these data structures.
- construct and update multi-dimensional arrays.
- trace recursive calls and write programs with recursive methods.
- program using an integrated development environment to carry out a design-code-test-debug cycle.
- exercise step-wise refinement to build algorithms.
- create and understand small UML class diagrams.
- develop software involving several classes that interact together.

Note: all programming code must be written in accordance with the syntax rules of the language, which is Java for this course.

COURSE PREREQUISITES:

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STUDENT ACCESS OFFICE (SAO):

If you have a disability that may significantly impact your ability to carry out assigned coursework, please contact the Student Access Office (SAO) located in Post Hall 107 at 516-877-3806 or send an email to sao@adelphi.edu. The staff will review your concerns and determine, with you, appropriate and necessary accommodations. Please allow for a reasonable time frame for requesting ASL Interpreters or Transcription Services.

STUDENT COUNSELING CENTER (SCC):

The Student Counseling Center (SCC) provides confidential and professional mental health counseling services, resources, and referrals to support the academic and personal

success, health, and well-being of Adelphi students without additional charge. Counselors are available to help students cope with a variety of stressors and personal issues that may interfere with their academic and personal experiences. The Center also supports students who may be feeling suicidal or in crisis. To schedule an appointment, please call (516) 877-3646, email scc@adelphi.edu or stop by the SCC. If you need immediate assistance, walk-in services are available during the fall and spring semesters Monday-Thursday, 8:30am-7:00pm; Friday 8:30am-4:00pm. Additional information can also be found by visiting <https://scc.adelphi.edu>.

Need support when the SCC is not available? For 24/7 emergency counseling, referral, or assistance, please contact:

Long Island Crisis Center (516) 679-1111

National Suicide Prevention Lifeline (800) 273-TALK (8255)

Crisis Text Line: Text 741741

Adelphi Office of Public Safety:

Off campus: (516) 877-3511

On campus: Extension 5 on any campus phone

911 (for immediate health-related emergency)

LEARNING AND WRITING CENTERS (LWC):

The **Learning and Writing Centers** assist students in all disciplines to become more effective and confident writers and scholars. Peer tutors are available for free for students of all levels. Appointments are recommended, and can be reserved online at

<https://adelphi.mywconline.com/index.php>, accessible through our E-campus service tab.

The most timely information for students is available through the LWC Instagram

account: https://www.instagram.com/au_lwc/ . More information is available on

[Youtube](#).

If you are interested in learning more about the services available at the **Learning and Writing Centers**, visit <https://writing.adelphi.edu/> or <https://learning.adelphi.edu>. Call 516.877.3200 or stop by our locations any time.

HONOR CODE STATEMENT:

Students enrolled in this course are expected to abide by the Adelphi University Honor Code. The purpose of the Honor Code is to protect the academic integrity of the University by encouraging consistent ethical behavior in assigned coursework by students. Following is excerpted from the Student Honor Code:

The Code of Academic Honesty

The code of academic honesty prohibits behavior, which can broadly be described as lying, cheating, or stealing. Violations of the code of academic honesty will include, but are not limited to, the following:

1. Fabricating data or citations
2. Collaborating in areas not approved by the professor
3. Unauthorized multiple submission of one's own work
4. Sabotage of others' work, including library vandalism or manipulation
5. Plagiarism
6. The creation of unfair advantage
7. The facilitation of dishonesty
8. Tampering with or falsifying records
9. Cheating
10. Other forms of academic dishonesty

STUDENT COURSE EVALUATIONS:

During the last two weeks of the class, you will receive notification, via email and eCampus, that the course evaluation is available for your input electronically. Availability will end at the start of the final examination period. Your feedback is valuable and I encourage you to respond. Please be assured that your responses are anonymous and the results will not be available to the instructor until after the end of the semester and therefore after course grades have been submitted.

COURSE OR MATERIALS FEES:

Save your work at the end of lab, on a flash drive and/or online, e.g. Google drive.

ASSIGNMENTS/COURSEWORK:

Homeworks are to be done individually unless specified otherwise, and are due at the start of the class on the due date. Late penalties will be assessed and will depend on how late an assignment is, the difficulty of the assignment and individual circumstances. Homework assignments will be posted on the assignments link of the course webpage.

COURSE MATERIALS:

The course materials will be accessible via Moodle. Check it often, as all course materials will be posted there, including slides, examples, assignments, labs, tutoring schedule, announcements and information about other resources.

TEXTS:

Required: Data Abstraction and Problem Solving with JAVA - Walls and Mirrors, by Frank M. Carrano and Janet J. Prichard, Addison Wesley, 3rd ed.

GRADING/EVALUATION:

Your average, calculated according to the grading key (see below), will be translated to a letter grade according to logical breaks in the distribution (>91 = A, 90-91 = A-, 88-89 = B+, 82-87 = B, 80-81 = B-, 78-79 = C+, 72-77 = C, 70-71 = C-, 68-69 = D+, 62-67 = D, 60-61 = D-, 0-59 = F). A grade of A+ is earned for consistent, exceptional work.

Grading Key:

Assignments	20%
Lab Grade	10%
Project	10%
Quizzes	10%
Classroom behavior, participation, helping classmates appropriately (as discussed)	5%
Midterm Exam	20%
Final Exam	25%

LABS

On the tutoring link, I will post the tutor's comments regarding the importance of the lab. In the lab, you may work in teams of two (pair programming, as discussed in class). The lab grade will be based on your active participation in the lab. Active participation means showing up, working on the exercises (and not other unrelated activities such as web surfing, e-mail, games, etc) and demonstrating progress. Progress should be demonstrated incrementally, i.e. show me your work as you complete it, not all at once. A lab exercise submitted more than 2 weeks after it was assigned will not be accepted.

ATTENDANCE POLICY:

Only students who are registered for courses, and whose name appears on the Official Class Roster may attend courses at the University. Adelphi students make a commitment to be active participants in their educational program; class attendance is an integral part of this commitment.

Since the material in this course is cumulative, it is easy to fall behind if you do not attend regularly. In past semesters, students who attended regularly and actively participated performed much better on exams than those who did not. Attendance will be taken at the beginning of lecture and at the beginning of lab; after five unexcused absences, your grade will be lowered by one-third of a grade (e. g., A to A- or A- or B+) and after seven by one full grade (e.g., A to B). Three unexcused latenesses count as one

absence. You are also responsible for anything covered in class (including course material, assignments, and relevant announcements) *whether or not you are here*. Absence from quizzes, the midterm and the final exam will be excused only for a good and **well-documented** reason. The decision to allow a make-up exam will be made in accordance with the policies of Adelphi University.

COURSE TOPICS – TENTATIVE OUTLINE

The order of topic coverage will generally follow the chapters in the required textbook, with supplementary material added, as noted below:

- Review of Java Fundamentals
- Principles of Programming
- Data Abstraction: The Walls
- Recursion: The Mirrors
- Recursion as a Problem Solving Technique
- Linked Lists
- Stacks
- Queues
- Class Relationships
- Algorithm Efficiency and Sorting
- Trees
- Additional topics TBA

NOTE ON FINAL EXAMS: All students must take the final exam at the announced time based on the [university's final exam schedule](#).

By taking the course and by attending Adelphi University, you agree to these conditions. Please see me at any time with questions.

A copy of this syllabus will be posted on Moodle.
Any changes will be announced and posted.