Computer Science Department
cs.salemstate.edu
Fall, 2022

Syllabus

CSC 110 Software Design and Programming **4.0 credits**

Instructor	**Dr. Fatema Nafa**
Email	fnafa@salemstate.edu
Office Hours	**Tuesday- Thursday** 02:00 PM – 03:00 PM via **ZOOM** & **by appointment**
Time	**WEDNESDAY - FRIDAY 8:00AM – 9:15AM**
Place	**MH 206**
Final Exam Thursday, December 15 8:00AM -11:00AM	

Course Description:

This course introduces a set of fundamental design principles and problem-solving techniques for computer algorithms development and their implementation as programs. Problem solutions are developed with the help of an appropriate modeling language and then coded in an object-oriented programming language. (Consult the Computer Science Department for the languages and tools currently in use.) Topics such as problem specification, object-oriented analysis and design, standard data types, control structures, methods and parameter passing, and design for reuse are presented through a study of specific example problems and solutions. Style, documentation, solution robustness, and conformance with specifications are emphasized throughout. Three lecture hours and three hours of scheduled laboratory per week plus extensive programming work outside of class.

Prerequisites: High school algebra I & II, plus experience with a window-based operating system and the use of email and a word processor.

Course Goals:

The purpose of this course is to develop students' understanding of a coherent set of tools and techniques for creating computer solutions to simple problems in data manipulation. Upon completion of the course, a student should be able to do the following:

- **CG01:** analyze a problem statement for completeness and clarity;
- **CG02:** use the methodology of object-oriented design to develop class designs (data descriptions and methods) for a problem solution;
- **CG03:** convert this solution into source code in the designated high-level programming language in accordance with a well-defined set of style rules;
- **CG04:** debug and test the program;
- **CG05:** provide clear documentation for the result.

Course Objectives:

Upon successful completion of this course, the student will have:

- **CO01:** demonstrated knowledge of the syntax elements of an object-oriented programming language;
- **CO02:** gained experience in analyzing problem statements for completeness and consistency;
- **CO03:** practiced standard techniques of problem analysis;

CO04: applied the fundamentals of object-oriented design methodology;
CO05: learned and utilized simple techniques for validation and verification of programs;
CO06: created full documentation for several completed projects.

Student Outcome vs. Course Objectives matrix

SO	CO01	CO02	CO03	CO04	CO05	CO06
SO-1	✓	✓	✓	✓	✓	✓
SO-2	✓	✓	✓	✓	✓	✓
SO-3						
SO-4						
SO-5						
SO-6	✓	✓	✓	✓	✓	✓

Notes:

SO-1: Analyze a complex computing problem and to apply principles of computing and other relevant disciplines to identify solutions.
SO-2: Design, implement and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline.
SO-3: Communicate effectively in a variety of professional contexts.
SO-4: Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles.
SO-5: Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline. Apply computer science theory and software development fundamentals to produce computing-based solutions.
SO-6: Apply computer science theory and software development fundamentals to produce computing-based solutions.

Course Topics:

A detailed topics list and a general course bibliography can be found on the Computer Science Department website at https://api.salemstate.edu/uploads/24df1ba8add148e38b8fa5d02ad9f890.pdf **Format and Procedures:**
This course includes **lectures, labs, homework, quizzes**, and **exam** (**Final**).

- **Class Participation and Labs:** Lectures will be given via **Zoom** twice a week. There is a laboratory associated with each lecture. The Lab will complement the lecture and support the application of materials learned. **Attendance and participation are required**. Lectures will be followed by lab exercise that assists in the learning process. The last 20 minutes of each lecture will be a review of what have learned from the lecture. These "labs" will immediately apply material from the lecture and serve as an introduction to the other programming assignments.
- **Written Assignments:** At the end of each week, we will have a problem set or a programming assignment. Students must work individually on these assignments.
- **Quizzes:** Quizzes will be given **in the lecture time**. Students must work individually on these quizzes.
- **Exam:** Exam is (**online via Zoom**). There will be two midterms and one final (comprehensive) examinations. The final will be held on **(Thursday, December 15)**. **Please do not arrange any other activities on the posted exam date.**

Class Policies

- Student **attendance is MANDATORY**, and student participation is encouraged to facilitate the learning process. **Missing three classes is subjected to be reported**
- Students are expected to join Zoom every class and to be on time. Missing class **more than three times** without a legitimate excuse will be officially acknowledged in an email to you and your advisor. Regardless of the reasons for your absences, the first three will be considered "excused," and every absence thereafter **will not be excused**. Moreover, I will also **subtract 3 points** from your course grade for **each absence** after the third one. If you must miss class for a legitimate reason, please notify me in advance, if possible.
- Students are **responsible for all materials presented in class**, examinations, and other announcements. No excuses of any nature will be construed as relieving you from the responsibility for completion of the work assigned.
- The lecture is the student's responsibility if the class is missed; it is in the student's best interest to get the notes from a fellow student. The instructor does not have slides or lecture notes to hand out.
- **No late submissions** will be accepted, and no extensions will be granted except for a family or medical emergency. We will be using the online **Canvas** assignment submission system. You can continue to resubmit your files as many times as you would like up until the deadline, so please feel free to **upload early and often**. If you submit an assignment even one minute past the deadline, then the assignment will be marked as late.
- The assignments will be posted on **Canvas** in the "**Assignments**" section. Each assignment will include instructions, a due date, and a link for electronic submission.
- Any form of dishonesty or cheating is not tolerated. While all students are encouraged to openly discuss and ask questions, the **final work to be submitted must be the student's own**.
- There will be a series of written assignments from the textbook and other sources: *question-answering and/or short essay-writing.* Reading will be a part of the written assignments. Please note that in addition to these (**written**) assignments, there will be (**programming**) projects. There is a deadline for each assignment, and a penalty will be imposed for late submissions.
- **Make-ups** are only allowed under **extraordinary circumstances**. Students must provide a satisfactory reason (as determined by the instructor) along with **proper documentation**.
- I strongly encourage study groups, but I require that each student hand in his/her answers in his/her own words - if two answers are highly similar to each other, neither will receive credit.
- All assignments must be submitted at **Canvas**.
- **No submission will be accepted after the final examination**.
- Please **mute** the sound on **phones, laptops**, and other **electronic devices**.

Grading Procedures:

Students' final grades will be determined using the following grading weights:

Class Participations	**5%**
Labs	**25%**
Programming Assignments	**25%**
Quizzes	**15%**
Examination	**30%**

Grading Criteria:

SCORE	GRADE	SCORE	GRADE
93-100	**A**	73-76	**C**
90-92	**A-**	70-72	**C-**
87-89	**B+**	67-69	**D+**
83-86	**B**	63-66	**D**
80-82	**B-**	60-62	**D-**
77-79	**C+**	0-59	**F**

Tentative Schedule (Subject to Change as Per Instructor's Discretion)

Week	Date	The topic for the Lecture
Week$_{1,2}$	09/07	**Module 1:** • Class Introduction and Syllabus, • Introduction to Programming Terminology • Input / Output • Elementary Programming
Week$_{3,4}$	09/	**Module 2:** • Arithmetic • Decision Making, • Equality, • Relation Operation,
Week$_{4,5}$	10/	**Module 3**: • Mathematical Function and Strings • Control Statements. • Conditionals and Loops.
First Midterm Exam		
Week$_{6,7}$	10/	**Module 4:** • Classes, • Objects, • Methods and String.
Week$_{8,9}$	11/	**Module 5:** • Classes, • Objects, • Methods and String.
Week$_{10,11}$	11/	**Module 6:** • Arrays and • Array Lists
Week$_{12,13}$	12/	
	Final Exam Thursday, December 15 8:00AM -11:00AM	

Important Notes:

- All students are expected to be familiar with the academic regulations, including those regarding Academic Integrity, for Salem State University as published in the college catalog. In addition, each student is responsible for completing all course requirements and for keeping up with all that goes on in the course (whether or not the student is present).

- Students must comply with the **COVID -19** Health and Safety Protocols for the 2020-2021 Academic Year. This includes wearing masks in class and on campus in public spaces, practicing physical distancing where possible, including in-class, engaging in a daily symptom check, notifying Counseling and Health Services at 978-542-6413 if they have any symptoms associated with **COVID-19**, and not coming to campus or to an in-person class if they have any of the symptoms related to **COVID-19** until cleared by the Student Life Wellness Area. Students who have documented disabilities that may prevent them from complying with these policies are required to contact the Disability Services office.
- **Students must comply with any Covid-19 Health and Safety Protocols for the 2022-2023 Academic Year. Students should** review the information found at https://www.salemstate.edu/covid19.

- Students are responsible for **notifying faculty** if they need to be absent due to illness or isolation. If students have concerns about their health, please contact counseling and health services at 978 542 6413 or 978 542 3240

- In the event of a university declared a critical emergency, Salem State University reserves the right to alter this course plan. Students should refer to Salem State for further information and updates. The course attendance policy stays in effect until there is a university declared a critical emergency. In the event of an emergency, please refer to the alternative educational plans for this course located IN **CANVAS**. Students should review the plans and gather all required materials before an emergency is declared.

- Salem State University is committed to providing equal access to the educational experience for all students in compliance with Section 504 of The Rehabilitation Act and The Americans with Disabilities Act and to providing all reasonable academic accommodations, aids, and adjustments. Any student who has a documented disability requiring accommodation, aid, or adjustment should speak with the instructor immediately. Students with Disabilities who have not previously done so should provide documentation to and schedule an appointment with the Office for Students with Disabilities and obtain appropriate services

- In the event of a university declared critical emergency, Salem State University reserves the right to alter this course plan. Students should refer to salemstate.edu for further information and updates. The course attendance policy stays in effect until there is a university declared a critical emergency. In the event of an emergency, please refer to the alternative educational plans for this course located at Canvas (https://elearning.salemstate.edu/). Students should review the plans and gather all required materials before an emergency is declared.

Note:

Please remember that if, for any reason, you decide to drop this course, you **MUST** do so officially through the **Registrar's office**. The last day to withdraw from a course this semester is **September 13.**

Note: This syllabus represents the intended structure of the course for the semester. If changes are necessary, students will be notified in writing and via all regular class communication mechanisms (class discussion, emails, and/or the course link at **Canvas** (https://elearning.salemstate.edu).