



CSCI 2170: Computer Science II

INSTRUCTOR INFORMATION

Instructor: Dr. Cen Li
E-mail: Cen.Li@mtsu.edu
URL: <http://www.cs.mtsu.edu/~cen>

COURSE INFORMATION

Description

Course topics: C++ language basics, function, parameter passing, one dimensional and two-dimensional array, searching and sorting, struct, recursion, pointer, dynamic memory allocation, linked list, stack, queue, Object Oriented Programming using C++ class, templates, and software engineering principles.

Objectives

To continue developing effective software engineering habits while improving programming and problem-solving skills. Learn abstraction, design, implementation, testing, and object-oriented programming using C++.

Topics Covered

- Apply top-down decomposition to write C++ program with appropriate user defined functions and parameters
- Understand and be able to apply recursion to solve simple problems
- Write object-oriented programs using abstract data structures and data encapsulation (Learn to use C++ class in designing and implementing application programs.)
- Pointers and Dynamic memory allocation
- Design and implement simple structures such as Lists(array based implementation and pointer based implementation), Stacks, and Queues as C++ class (Operations covered include traverse, search, insert, and delete elements)
- Be able to program using C++ containers (list, stack, queue) defined in standard template library
- Produce effective and efficient programs to solve simple practical problems by choosing the most appropriate data structures, and then use appropriate design, debugging, and testing techniques
- Recognize the need for, and can program in a consistent and well accepted coding style.

Prerequisites and Co-requisites

CSCI 1170 (grade C or above) or equivalent.

COURSE MATERIALS

Required Textbooks

Tony Gaddis, [*Starting Out with C++ from Control Structures to Objects*](#) (9th Edition), 2018.

Closed and Open Labs

(a) Closed labs:

Purpose: Closed labs are designed to help reinforce lectures or introduce new material. Two one-hour lab periods have been set aside each day in which a closed lab will be completed under the supervision of the lab instructor. Closed labs give you the opportunity to ask in depth questions to the lab instructor.

Submission and Due dates: For all the closed labs to be submitted electronically, the labs are **due by 6:00 pm of the same day**. The labs will be graded on a 100 points basis.

You are encouraged to start the lab before the lab time, and if you encounter difficulties/problems, ask the lab instructors during the lab time.

(b) Open labs:

Open labs are designed for the students to solve problems without teacher supervision. **Each lab will have an assigned due date. The program is due by the due date. If the program is not turned in by the due date, it is considered late. A penalty of **20** points will be deducted if a program is turned in after the due date, and before the deadline. After the deadline, no more program can be electronically submitted.**

Programs are graded based upon design, correctness, documentation, style, efficiency and adherence to requirements. You must design, write, implement, and debug your own programs. You may discuss with others about high-level details of program design and implementation. However, the following are not allowed and will be treated as cheating:

- Show to or acquire from other students any material related to assignments such as source code and documentation, no matter with intention or not, no matter in which form these materials are presented.
- Help or seek help from other students to debug your programs. However, you may get help from the lab assistants and the instructor.
- Copy, or refer to source code from the internet, other students' homework or other source (excludes textbook or materials provided by instructor), no matter with citation or not.

Academic Integrity/Misconduct

All work for this class is to be done on an individual basis.

All source code must be original. ***If it is determined that a student has collaborated on an open lab assignment with others, the first offense will result in a grade of zero for the assignment/test, and the second offense will result in a grade "F" for the class.***

Class Attendance:

Attendance is required and absences do not excuse one from class responsibilities. If for some unavoidable reason you must miss class, you should obtain the class notes, handouts, and assignments from the classmates or from the course web page.

Exams:

Two tests will be given. Tests are 100 points each. All tests will contain questions related to lecture material, closed labs, and open labs. No makeup test is given.

Each test contain programming problems, where you are required to solve one or more problems by coding and debugging the programs during the exam time. It is important that you complete the closed and open labs to fully master the programming techniques.

There is no makeup tests, unless you have informed me about the special circumstance that prevents you from taking the test during the designated test time.

ASSESSMENT AND GRADING

Grading Procedure

Your grade in this class will be calculated based on

- 40% Tests
- 20% Closed labs
- 40% Programming Assignments, i.e., Open labs

In addition, points will be added/subtracted according to the class attendance record.

Grading Scale

Letter grades will be **assigned** according to the following scale:

| | |
|----|-----------------------------------|
| A | average $\geq 90\%$ |
| B+ | $88\% \leq \text{average} < 90\%$ |
| B | $82\% \leq \text{average} < 88\%$ |
| B- | $80\% \leq \text{average} < 82\%$ |
| C+ | $78\% \leq \text{average} < 80\%$ |
| C | $72\% \leq \text{average} < 78\%$ |
| C- | $70\% \leq \text{average} < 72\%$ |
| D+ | $68\% \leq \text{average} < 70\%$ |
| D | $62\% \leq \text{average} < 68\%$ |
| D- | $60\% \leq \text{average} < 62\%$ |
| F | average $< 60\%$ |

Class Participation

Student participation is required in all aspects of the course. Please adhere to the following:

- adhere to all due dates and deadlines as listed in your course calendar;
- utilize the ask the class discussion board when you have questions about course content
- communicate with the instructor as a learning resource;
- check the course homepage for important announcements from the instructor.

Academic Integrity/Misconduct

Please review the information on [Academic Integrity and Misconduct](#). The instructor will be submitting materials to an online service (Turnitin.com) which will review the work for plagiarism. Students should also review the report generated for each assignment and self-check for plagiarism. Information on how to cite work correctly is provided within the course modules or through the [University Writing Center](#). You may read more about how to avoid plagiarism from the [Office of the University Provost](#).

Plagiarism, cheating, and other forms of academic dishonesty are prohibited. Such conduct includes, but is not limited to:

- Submitting as one's own work, themes, reports, drawings, laboratory notes, computer programs, or other projects prepared by another person
- Knowingly assisting another student in obtaining or using unauthorized materials
- Submitting assignments previously used in other courses where you received credit for the work
- Improperly crediting or lack of crediting an original author's work

Students guilty of academic misconduct are immediately responsible to the instructor of the class. In addition to other possible disciplinary sanctions (including expulsion from the university), which may be imposed through the regular institutional procedures as a result of academic misconduct, the instructor has the authority to assign an "F" or zero for an activity or to assign an "F" for the course. Students guilty of plagiarism will be immediately reported to the Vice Provost for Academic Affairs.