CS 2020 Summer 2019 – Intermediate Programming

Introduction to object-oriented programming techniques. Constructors, destructors, operator overloading. Inheritance and polymorphism. Elementary data structures including linked lists. Dynamic storage allocation concepts.

Prerequisites   Corequisite of MATH 1260 or MATH 1280 or MATH 1300 or higher and grade of C or better in CS 2010

Contact Information

Instructor	Dr. Robert Dyer
Office Hours	MWF 12-2pm
	OR by appointment
E-mail	rdyer@bgsu.edu
Office	HAYES 244
Phone	(419) 372–3469

Note that office hours are both physical and virtual. This means I am physically in my office (for those near BGSU main campus) as well as available via the Chat feature in Canvas. For virtual meetings, we may need to utilize WebEX/Skype/etc to have you share your screen with me.

I am also available via the Chat feature in Canvas by appointment.

NOTE: The quickest way to reach me is **always via e-mail**. When contacting me via email, if your question is regarding code **always attach the code to the email** and a screenshot of any errors you had.

Textbook   The textbook is required for this course. This is the same textbook used in CS 2010.
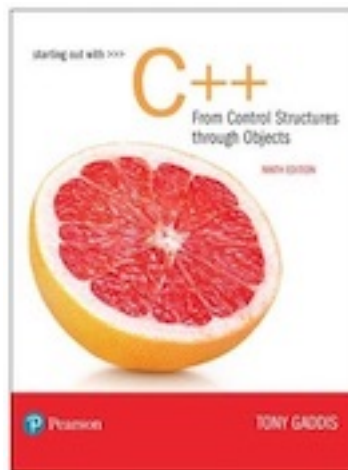

Figure 1: Book

"*Starting Out with C++ From Control Structures through Objects*", 9th Edition, Tony Gaddis, Pearson.

The 8th edition may also be acceptable, but will vary slightly and chapter numbers may differ.

Outcomes for the course   After successfully completing CS 2020, students will be able to say:

- I can understand and can implement search and sorting algorithms
- I can implement programs using arrays and linked lists
- I can use dynamic memory techniques in implementing programming design
- I can use fundamental object-oriented programming techniques, including encapsulation, inheritance, polymorphism, and virtual functions

Grading

The final grade will be composed of the following weights. (The instructor reserves the right to make changes at any time.)

Assessments

Item	Points Each	Total
Final Exam	100	100
Quizzes *(5)*	20	100
Programming Assignments *(4)*	50	200
Labs *(5)*	15	75
Activities *(5)*	5	25
Total		**500**

Note that there are more quizzes, assignments, labs, and activities than are graded. I will keep only the *highest* in each category, dropping your lowest several grades. However, you must attempt all assessments as any assessment you fail to turn in will *not be dropped.*

Grading Scale

Point Range	Percentage	Grade
450 - 500	90 - 100%	A
400 - 449	80 - 89%	B
350 - 399	70 - 79%	C
300 - 349	60 - 69%	D
0 - 299	below 60%	F

Assessments

Activities

The goal is to give students hands-on experience with the material while I and other students are available via the discussion board to help clarify concepts you may be struggling with. Although these activities are graded, the grade is based on attempting to complete the problem and not necessarily on solving it. Simply give a best effort and submit what you have, and you can earn full points.

For activities, students are encouraged to ask questions on the discussion board and to answer other student questions. Try to avoid giving the solution, as the goal of the activity is for each student to find the solution on their own.

Labs

Labs are basically short programming assignments to help you understand the concepts we are learning. To receive credit for your labs, they must be submitted on Canvas by the due time. **There are no late submissions allowed.** Partial credit will be given for any completed portion of the lab, so be sure to submit on time even if you are not finished with the lab!

For labs, students are encouraged to ask questions on the discussion board and to answer other student questions. Try to avoid giving the solution, as the goal of the activity is for each student to find the solution on their own.

Programming Assignments

There will be several programming assignments. To receive credit for your assignments, they must be submitted on Canvas by the due time. **There are no late submissions allowed.** Partial credit will be given for any completed portion of the assignment, so be sure to submit on time even if you are not finished with the assigment!

Assignments must be completed 100% on your own. Students **are not allowed to discuss assignments** with each other. Any questions must be directed to me, via a private manner (email is best).

Quizzes

Each chapter contains a short quiz. Quizzes are done individually and are based on the material for that chapter and all material prior to that chapter. Solutions will automatically unlock after the due date.

All quizzes (except Quiz 0) will use the Lockdown Browser. You must install this browser on your machine. To take a quiz, you run the Lockdown Browser (not Chrome or Firefox!), go to the quiz in Canvas, and start it. You are not allowed to exit the browser until your quiz is completed.

Exam

There is only one exam this session on the last day of the course. The exam consists of a variety of question types, including multiple choice, true/false, short answer, short programming questions, and interpreting code. No solutions will post after the due date.

Technology

Canvas

The syllabus, all assignments, and due dates are posted on Canvas. Your grades will also be available on Canvas throughout the semester. Canvas is the main entry point for this course - everything you need to do is linked and organized from the Canvas course. Always start there!

Microsoft Visual Studio 2019

For this course, you must use personal computers (PCs) running **Windows** (Mac is not supported, unfortunately). For a programming environment, we will use Visual Studio 2019, programming in C++ for Console Apps for all lab and programming assignments.

You may also use the Dell computers in campus labs. Not all labs have Visual Studio installed - see this list (https://services.bgsu.edu/labsoftware/displaySoftware.htm?softwareId=260) for more information. Also note the summer hours for labs (https://www.bgsu.edu/its/about/hours.html)!

You are also free to use your own **Windows** (Mac is not supported, unfortunately) computer/laptop. If you choose to do so, you can obtain and install a free copy of Microsoft Visual Studio 2019 Community here: https://visualstudio.microsoft.com/downloads/ Be sure to include support for C++ during the installation process!

Course Policies

Withdrawal Deadline

Friday, November 15, 2019. University policy states that after this date, anybody withdrawing from the course will have the grade automatically turn into a F.

Office Hours and Help

Please check your Canvas course site, Canvas messages, and your BGSU email regularly. [You may have your Canvas messages forwarded to your BGSU/other email, and have your BGSU email forwarded to another favorite email address, if necessary, but do check it (multiple times) daily.] I forward my own Canvas messages to my BGSU email and check my BGSU email multiple times everyday (with rare exceptions). I check BGSU email more often than I access Canvas, so if you need to contact me urgently, use both Canvas and BGSU email, if necessary multiple times. I will do my best to accommodate you ASAP, even if outside my posted office hours and without appointment. In general, if you need to see me in my office outside of my regular office hours, please make an appointment.

Attendance

Students are expected to attend each class and be on time. For in person courses, I take attendance at the start of each lecture. For online courses, I check Canvas history to see what each student viewed and how often.

I typically use good attendance as a factor when considering final grades. I reserve the right to penalize students up to 1% of their final grade, per absence, for more than 3 un-excused absences.

Make-up policy

If you cannot take an exam/assessment as scheduled, you (or an authorized person, only in case you are unable to do so) must contact me ahead of time with the reason. Note however that any make-up assessment normally done in groups will count 100% toward your score (there will be no averaging with the team's score). Make-ups are considered typically for health emergencies only.

Academic honesty

All coursework for this class is expected to be YOUR OWN work. The penalty for copying someone's work (including current classmates, students from a previous offering of the course, or postings found on the web) or knowingly allowing someone to copy your work is **REMOVAL FROM THE COURSE AND GRADE OF WF**. The offense is also reported to the dean of your college. Turnitin and Moss, plagiarism detection tools, will be used in this course. I will follow the Department's policies and the University's code of academic conduct as defined in the BGSU Student Handbook. For details refer to:

1. Department of Computer Science Academic Honesty Policy
2. BGSU Code of Academic Conduct
3. The Academic Charter, section B-I.G

Disability Policy

In accordance with the University policy, students with disabilities must verify their eligibility through the Office of Disability Services, 38 College Park Office Building, 419–372–8495 (https://www.bgsu.edu/disability-services.html). Contact me as soon as possible this semester to arrange any accommodations needed to assist with your success in this course.

Religious Holidays

It is the policy of the University to make every reasonable effort allowing students to observe their religious holidays without academic penalty. In such cases, it is the obligation of the student to provide the instructor

with reasonable notice of the dates of religious holidays on which he or she will be absent. Absence from classes or examinations for religious reasons does not relieve the student of responsibility for completing required work missed. Following the necessary notification, the student should consult with the instructor to determine what appropriate alternative opportunity will be provided, allowing the student to fully complete his or her academic responsibilities (The Academic Charter, section B–I.F–4.b).

Classroom Environment, Language, and Behavior Expectations

In order to promote an inclusive and constructive learning environment, demeaning, marginalizing, and otherwise negative language and behavior will not be tolerated in the classroom. Respect and courtesy toward the instructor, classmates, and classroom guests are expected. Language and behaviors that are disruptive, abusive, or harassing may result in disciplinary action as specified by the Student Code of Conduct.

Title IX

Bowling Green State University (BGSU) is committed to providing a safe learning environment for all students that is free of all forms of discrimination and harassment. Sexual misconduct and relationship violence in any form are antithetical to the university's mission and core values, violate university policies, and may also violate federal and state law. Faculty members are considered "Mandatory Reporters" and are required to report incidents of sexual misconduct and relationship violence to the Title IX Coordinator. If you or someone you know has been impacted by sexual harassment, sexual assault, dating or domestic violence, or stalking, please visit www.bgsu.edu/TitleIX to access information about university support and resources.

Tentative Course Schedule

Week	Topics/Readings
1	Introduction
	Arrays - Ch. 7
	Searching and Sorting - Ch. 8
	Recursion - Ch. 20
2	Structured Data - Ch. 11
	Pointers - Ch. 9
3	Linked Lists - Ch. 18
4	Advanced File Operations - Ch. 12
	Classes - Ch. 13
5	Composition, Friends - Ch. 14
	Operator Overloading - Ch. 14
	Aggregation - Ch. 14
6	Polymorphism, Virtual Functions - Ch. 15
	Final exam Friday August 16