CS 2020 Fall 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	MTWRF 1:30-2:30pm
	OR by appointment
E-mail	rdyer@bgsu.edu
Office	HAYES 244
Phone	(419) 372–3469

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.
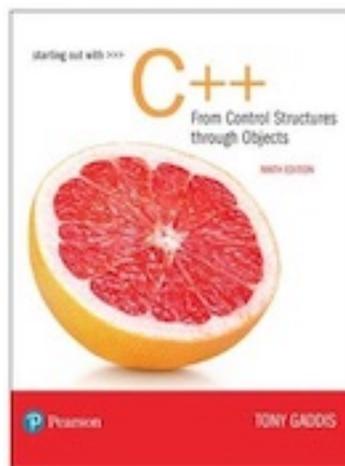

Figure 1: Book

"*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	150	150
Midterm Exams (2)	100	200
Quizzes *(10)*	5	50
Programming Assignments *(5)*	20	100
Labs *(7)*	10	70
Activities *(15)*	2	30
Total		**600**

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
540 - 600	90 - 100%	A
480 - 539	80 - 89%	B
420 - 479	70 - 79%	C
360 - 419	60 - 69%	D
0 - 359	below 60%	F

Assessments

Activities

Some class time will be spent doing individual and/or small group activities. The goal is to give students hands-on experience with the material while I and other students are available to help clarify concepts students 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. It is vital that students show up for class having read the assigned material and ready to work!

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 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 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 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

Roughly each week 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.

Exams

Exams consist of a variety of question types, including multiple choice, true/false, short answer, short programming questions, and interpreting code. There are 2 midterm exams that cover approximately 1/3 the course concepts and one final exam that is comprehensive and covers all course concepts. Exams are all completed on Canvas and **must be taken in Hayes 020**.

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!

Plickers

Each student will be assigned their own Plickers card. Plickers cards are 3D barcodes, and depending on the orientation of the card (4 possible sides can face up) you are able to respond to questions with answers A, B, C, or D. This allows quick, interactive feedback from the class. I also use these to quickly record attendance near the start of each class.

BGLinux

We will use BGLinux, a mainframe computer on campus, to type in, debug and run our C++ programming assignments. It can be accessed from any lab computer on campus or from a personal/home computer using PuTTY with Windows (PC) or Terminal on a Mac.

Other documentation about BGLinux (getting a BGLinux account, using editors on BGLinux, etc.) are available at https://www.bgsu.edu/arts-and-sciences/computer-science/cs-documentation.html

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	Day	Date	Topics
1	M	Aug 26	Introduction
	W	Aug 28	Review - Ch. 7 Arrays
	F	Aug 30	*Hayes 020* - Lab 1 - BGLinux
2	~~M~~	~~Sep 2~~	~~No class - Holiday~~
	W	Sep 4	Review - Ch. 8 Searching and Sorting
	F	Sep 6	*Hayes 020* - Lab 2 - Ch 7/8
3	M	Sep 9	Ch. 11 - Structured Data
	W	Sep 11	Ch. 11 - Structured Data
	F	Sep 13	*Hayes 020* - Lab 3 - Structures
4	M	Sep 16	Ch. 9 - Pointers
	W	Sep 18	Ch. 9 - Pointers
	F	Sep 20	*Hayes 020* - Lab 4 - Pointers
5	M	Sep 23	Review - Ch. 20 Recursion
	W	Sep 25	Exam Review
	F	Sep 27	*Hayes 020* - **Exam 1**
6	M	Sep 30	Ch. 18 - Linked Lists
	W	Oct 2	Ch. 18 - Linked Lists
	F	Oct 4	*Hayes 020* - Lab 5 - Linked Lists
7	M	Oct 7	Ch. 18 - Linked Lists
	W	Oct 9	Ch. 18 - Linked Lists
	F	Oct 11	*Hayes 020* - Lab 6 - Linked Lists
8	M	Oct 14	Ch. 12 - Advanced File Operations
	W	Oct 16	Ch. 12 - Advanced File Operations
	F	Oct 18	*Hayes 020* - Lab 7 - Advanced Files
9	M	Oct 21	Ch. 13 - Classes
	W	Oct 23	Ch. 13 - Classes
	F	Oct 25	*Hayes 020* - Lab 8 - Classes
10	M	Oct 28	Ch. 13 - Classes
	W	Oct 30	Ch. 13 - Classes
	F	Nov 1	Ch. 14 - Composition, Friends
11	M	Nov 4	Ch. 14 - Operator Overloading
	W	Nov 6	Ch. 14 - Operator Overloading
	F	Nov 8	**no lecture** - Lab 9 - complete outside class
12	~~M~~	~~Nov 11~~	~~No class - Holiday~~
	W	Nov 13	*Hayes 020* - Lab 10 - Operator Overloading
	F	Nov 15	*Hayes 020* - **Exam 2**
13	M	Nov 18	Ch. 14 - Aggregation
	W	Nov 20	Ch. 15 - Inheritance
	F	Nov 22	*Hayes 020* - Lab 11 - Inheritance
14	M	Nov 25	Ch. 15 - Inheritance
	~~W~~	~~Nov 27~~	~~No class - Holiday~~
	~~F~~	~~Nov 29~~	~~No class - Holiday~~
15	M	Dec 2	Ch. 15 - Polymorphism
	W	Dec 4	Ch. 15 - Polymorphism
	F	Dec 6	*Hayes 020* - Lab 12 - Polymorphism
16	T	Dec 10	11:30a-2p, Hayes 020, Final Exam