

MONTGOMERY COLLEGE: Course Syllabus
Computer Science and Information & Interactive Technologies CMSC226:
Object Oriented Programming, Prof. J. Joy, Spring 2019

I. Contact Information: Professor J. Joy

Email: Janet.Joy@montgomerycollege.edu (*This is the preferred way to contact me.*) I usually answer my email first thing in the morning and again in the evening. (*It depends on my schedule.*) On weekends it may be less often. Please be aware that if you tell me about any kind of Title 9 violations against you, I am required to report it to the college.



Office Hours: Office in SC 438.

Tuesday: 3:00pm-5:00pm in SC 438

Thursday: 9:00am-11:00am in SC 438

Online with Zoom: Wednesday: 9:30am-10:30am and 5:00pm-6:00pm, *or by appointment*

My office hours and other class materials are available at www.zebra0.com/MC

Your Montgomery College e-mail account is the official means of communication for the college. Blackboard will use this email address to send reminders about overdue projects and other announcements. It is recommended that you check this account routinely. To check your e-mail, log into your MyMC online account and locate the e-mail icon in the upper right hand corner of the page. You can forward your MC email to your other email. Announcements sent from Blackboard may have "Do not respond" as the subject. Please take a look to see if it is important!

II. General Course Information: Credit Hours: 3 semester hours

This course introduces students to C++ syntax and various programming techniques such as decisions, loops, arrays, pointers, functions, and file processing. Covers object-oriented concepts such as data abstraction, classes, objects, overloading, and inheritance. Students complete required computer lab assignments. PREREQUISITE: A grade of C or better in CMSC 140 or consent of department. Three hours each week. Formerly CS 226.

This is an online course via Blackboard. All of the course work occurs online. Active participation in the online activities and completion of all homework and online assignments is required in order to pass this course. Log onto the course at least three times per week and demonstrate presence through posting and interaction. You will use a standard C++ compiler to do Projects and submit them in Blackboard.

Course Outcomes: Upon completion of the course, the student will be able to:

1. Create applications using Microsoft Visual C++ .Net or other development environments.
2. Apply C++ programming concepts such as templates, pointers, and objects.
3. Apply object-oriented programming constructs such as classes, operator overloading, inheritance, virtual functions polymorphism, and recursion.
4. Create and execute a project that incorporates multiple files.

Accessibility: If you think you need an accommodation for a disability, please let me know at your earliest convenience. Some aspects of this course, the assignments, the in-class activities, and the way the course is usually taught may be modified to facilitate your participation and progress. As soon as you make me aware of your needs, we can work with the Services for Students with Disabilities (SSD) office to help us determine appropriate academic accommodations.

Preparedness: This is a fully online class. To succeed in this course you should be confident working with a computer, accessing information via the Internet, and using email as a primary means of communication. You should be able to copy and paste. Know how to open multiple windows simultaneously on the computer. Know how to search for information using a search engine, such as Google. You should be comfortable with email attachments, troubleshooting an Internet connection, and downloading and installing software.

III. Student Learning Outcomes: By the end of this course you will be able to:

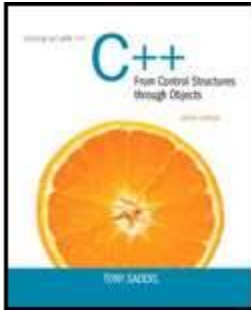
By the end of this course you will be able to:	You will demonstrate this objective through:
1. Create applications using Microsoft Visual C++ or other development environments.	This is demonstrated in all programming projects, progressing from simple to more complex.
2. Apply C++ programming concepts such as templates, pointers, and objects.	Each week you will learn new features. You will test your understanding through quizzes. Then you will apply what you have learned by writing programs that use these core features and the ones you have learned previously.
3. Apply object-oriented programming constructs such as classes, operator overloading, inheritance, virtual functions, polymorphism, and recursion.	You will demonstrate this by writing programs that use classes and you will also create classes.
4. Create and execute a project that incorporates multiple files	As your programs get larger, you will combine several files to create larger projects.

Note: *This course assumes that you already know C++. If it has been awhile since you have programmed in C++ you may need to review some topics. I will start by introducing a Rectangle class and Date class that I wrote. You will make minor changes to these classes, before moving to designing and creating classes. My goal is for you to become familiar with **using** a class before you write your own classes.*

IV. Required materials: Textbook:

Starting OUT with C++: from control structures through objects

Tony Gaddis, 9th Edition ISBN13: 978-0-13-449837*9
(It is OK to use an earlier edition. Page numbers may differ.)



<http://www.pearsonhighered.com/gaddis/>

Textbook and other materials may be purchased through the bookstore

V. Recommended materials:

You should have a computer with reliable Internet access. There are many videos with sound, so speakers are desirable. However, all of the videos have closed captions and/or a text file. You may also want a flash drive to save your work and a notebook to organize your notes and printouts.

VI. Required Technologies

You will need [Adobe Acrobat](#) reader for the syllabus and other materials.

VII. Grading

Grades are earned, not given.

Course grades will be based upon the following:

Final Examination	20%
Midterm Examination	20%
Weekly Quizzes	10%
Programming Projects	40%
Discussions	10%
Total:	100%

Exams: There will be 2 exams. Each exam counts 20 points. The exams will be taken in one of the MC assessment centers. Please contact me for arrangements if you are not in Maryland.

Exams are 40% of the grade.

Quizzes: Each chapter has a quiz or other online activity that must be done through Blackboard. Each quiz is only available for 1 week. **Quizzes are 10% of grade.**

Discussion: The first week, and each chapter have discussion questions that must be done in Blackboard. Your comments in Blackboard should use standard American English and be professional in attitude. Please use the editing tools to insert pictures and create links (rather than just URLs.) Please show courtesy and respect for your classmates, even if you disagree with their point of view. You can also use the discussion to ask questions.

Some of your questions will be answered by your classmates, others I will answer. **Discussion is 10% of grade.**

Projects: There will be 10 programming projects due throughout the semester. Projects will not be accepted late except for documented emergencies.

Projects are 36% of the grade

Due Dates: All projects, discussions, and quizzes are due on Sunday night, postmarked by 11:59 pm. This effectively ends one week so that you are ready for the next week.

Letter grade: A=90..100 points; B=80..89; C=70..79; D=60..69; F=<60

Participation: Students must participate by joining the discussion, taking quizzes and submitting assignments in Blackboard every week. If you are not able to participate, you must notify me or withdraw from the class. I do not automatically drop students for non-participation, that is your responsibility.

Audit Policy: If you are auditing, you are welcome to participate in the Blackboard discussions and take all exams and activities, but it is not required.

VIII. Class Policies

Important Student Information Link

In addition to course requirements and objectives that are in this syllabus, Montgomery College has information on its web site (see link below) to assist you in having a successful experience both inside and outside of the classroom. It is important that you read and understand this information. The link below provides information and other resources to areas that pertain to the following: student behavior (student code of conduct), student e-mail, the tobacco free policy, withdraw and refund dates, disability support services, veteran services, how to access information on delayed openings and closings, how to register for the Montgomery College alert System, and finally, how closings and delays can impact your classes. If you have any questions please bring them to your professor. As rules and regulations change they will be updated and you will be able to access them through the link. If any student would like a written copy of these policies and procedures, the professor would be happy to provide them. By registering for this class and staying in this class, you are indicating that you acknowledge and accept these policies.

<http://cms.montgomerycollege.edu/mcsyllabus/>

VII Resources

Computer problems: As a computer student, you are expected to anticipate potential computer problems. Save often! Keep backups! Allow plenty of time to complete the assignment! Computer problems are not an excuse for submitting an assignment late! I can provide help if you send me a clear explanation of the problem, plus any relevant source files or screen shots.

Technical Requirements & Technical Support: You will need the following to participate online:

- Regular use of a computer with Internet access and a web browser such as Firefox, Chrome, or Internet Explorer. Expect to spend several hours online each week.
- A web browser such as Firefox, Chrome, or Internet Explorer.
- See prepare yourself: <http://cms.montgomerycollege.edu/distance/prepare/>
- It is highly recommend that you have internet access at home, however, there are computer labs <http://cms.montgomerycollege.edu/oit/InTech.aspx?id=60795>

For technical assistance with college supported resources, call the Montgomery College IT Service Desk at 240-567-7222 or [://cms.montgomerycollege.edu/EDU/Department2.aspx?id=9356](http://cms.montgomerycollege.edu/EDU/Department2.aspx?id=9356)

Blackboard Help Desk: The **HELP** link on the left hand course menu links to the **MC Blackboard Online Support Center:**

- Call the Support Center at 240_567_7222 or ☐ Chat with a service representative, or ☐ Submit a ticket.

Note: Click the **My Support** link at the top of the Blackboard Online Support Center screen to view a history of your correspondence with the Blackboard Support Center.

System Downtime: The Office of Information Technology conducts computer network maintenance on Sunday morning from 12:01 AM to 6:00 AM each week. During this time you may be not be able to access My MC to login to Blackboard. Do not rely on this time to submit course work.

Distance Learning Support: For all general distance education related questions, contact the Office of Distance Education and Learning Technologies at 240-5676000 or dl@montgomerycollege.edu.

For all Blackboard and MyMC related questions and issues, contact the IT Service Desk at 240-567-7222

or ITServiceDesk@montgomerycollege.edu or [Blackboard Online Support Center](#).

Class Schedule and Important Dates

In order to provide the best possible learning experiences, these dates may change. Please refer to the resources in Blackboard for any announcements or changes.

This class officially starts on Monday, February 4, 2019.

Unit 1: Introduction

This unit should be completed between Monday, February 4, 2019 and Sunday, February 10, 2019.

In this unit, you will learn all of the skills necessary to succeed in this course: read the syllabus, introduce yourself to your classmates, and learn about grading and class policies. In this unit you will examine a simple Rectangle class and use it as a model to create a Cube class.

Study and Learn:

- [Course Introduction](#)
- [The Rectangle Class](#)



Due in Blackboard by Midnight, Sunday, February 10, 2019:

- Discussion: Introductions
- Quiz: Syllabus
- Quiz: Classes Terminology
- Discussion: Rectangle Class
- [Project: The Cube Class](#)



Unit 2: Arrays and Vectors

This unit should be completed between Monday, February 11, 2019 and Sunday, February 17, 2019.

In this unit you will review arrays.

Study and Learn:

- [Arrays tutorial](#)
- Read Chapter 7: Arrays and Vectors



Due in Blackboard by Midnight, Sunday, February 17, 2019:

- Quiz: Arrays and Vectors
- Discussion: Arrays and Vectors



Unit 3: Searching and Sorting Arrays

This unit should be completed between Monday, February 18, 2019 and Sunday, February 24, 2019.

During this week you will learn several algorithms for searching and sorting arrays.

Study and Learn:

- [Sorting tutorial](#)
- [Search tutorial](#)
- Read Chapter 8: Searching and Sorting Arrays



Due in Blackboard by Midnight, Sunday, February 24, 2019:

- Discussion: Searching and Sorting
- Quiz: Searching and sorting
- [Project: Holidays](#)

Unit 4: Pointers and Strings

This unit should be completed between Monday, February 25, 2019 and Sunday, March 3, 2019.

During this unit you will learn to use pointers During this unit you will learn to use the string class.

Study and Learn:

- Read Chapter 9: Pointers
- [Strings tutorial](#)
- Read Chapter 10: Characters, C-Strings, and String Class



Due in Blackboard by Midnight, Sunday, March 3, 2019:

- Quiz: pointers
- Discussion: Pointers
- Quiz: Strings
- [Project: Strings](#)



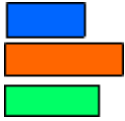
Unit 5: Midterm Exam

This unit should be completed between Monday, March 4, 2019 and Sunday, March 10, 2019.

You must take the Exam in one of the MC assessment centers.

Spring Break is from March 11-17.

Nothing is due during that time.



Unit 6: Structured Data

This unit should be completed between Monday, March 11, 2019 and Sunday, March 17, 2019.

In this unit, you will learn to define and use structures.

Study and Learn:

- [Structures tutorial](#)
- Read Chapter 11: Structured Data



Due in Blackboard by Midnight, Sunday, March 17, 2019:

- Quiz: Structures
- Discussion: Structures



Unit 7: File Operations

This unit should be completed between Monday, March 18, 2019 and Sunday, March 24, 2019.

In this unit, you will learn about reading and writing files.

Study and Learn:

- [Files tutorial](#)
- Read Chapter 12: Advanced File Operations



Due in Blackboard by Midnight, Sunday, March 24, 2019:

- Quiz: Files
- [Project: Birthdays](#)



Unit 8: Recursion

This unit should be completed between Monday, March 25, 2019 and Sunday, March 31, 2019.

In this unit you will learn about recursion: functions that call themselves.

Study and Learn:

- [Recursion](#)

- Chapter 19 Recursion (topics 19.1-19.4)



Due in Blackboard by Midnight, Sunday, March 31, 2019:

- Quiz: Recursion
- Discussion: Recursion



Unit 9: Creating Classes

This unit should be completed between Monday, April 1, 2019 and Sunday, April 7, 2019.

You have already seen the rectangle class and modified it to create the Cube class. Here, you will create a class on your own.

Study and Learn:

- [Classes](#)
- Read Chapter 13 Introduction to Creating Classes



Due in Blackboard by Midnight, Sunday, April 7, 2019:

- Quiz: Classes
- Discussion: Classes
- [Project: Fraction Class](#)

Unit 10: More about Classes

This unit should be completed between Monday, April 8, 2019 and Sunday, April 14, 2019.

During this unit you will look at a Date class that is more complex than the previous classes you have looked at.

Study and Learn:

- [The Date Class](#)
- Read Chapter 14: More about Classes



Due in Blackboard by Midnight, Sunday, April 14, 2019:

- Quiz: More classes
- Discussion: More classes
- [Project: Add to Date Class](#)



Unit 11: Inheritance, Polymorphism, and Virtual Functions

This unit should be completed between Monday, April 15, 2019 and Sunday, April 21, 2019.

During this unit you will learn to use some powerful new tools. You will use inheritance to create a Box class out of the Cube class you created previously.

Study and Learn:

- Read Chapter 15 Inheritance, Polymorphism, and Virtual Functions



Due in Blackboard by Midnight, Sunday, April 21, 2019:

- Quiz: Inheritance, Polymorphism, and Virtual Functions
- Discussion: Inheritance
- [Project: A Box Class](#)

Unit 12: Linked Lists and Stacks

This unit should be completed between Monday, April 22, 2019 and Sunday, April 28, 2019.

The linked list is the first of the Abstract Data Types (ADT) which you will study. A stack is a last in, first out (LIFO) list.

Study and Learn:

- [Linked List tutorial](#)
- Read Chapter 17: Linked Lists
- [Stack tutorial](#)
- Read Chapter 18: Stacks



Due in Blackboard by Midnight, Sunday, April 28, 2019:

- Quiz: Linked List
- Discussion: Linked List
- Quiz: Stacks
- Discussion: Stacks
- [Project: Stacks](#)



Unit 13: Binary Trees

This unit should be completed between Monday, April 29, 2019 and Sunday, May 5, 2019.

A binary tree is arranged with each node having a pointer to the left for node that come before it and a pointer to the right for those that come after it. A tree is almost always processed recursively,

Study and Learn:

- [Trees tutorial](#)
- Read Chapter 20: Binary Trees



Due in Blackboard by Midnight, Sunday, May 5, 2019:

- Quiz: Trees
- Discussion: Trees
- [Project: Binary Tree](#)



Unit 14: Final Exam

This unit should be completed between Monday, May 6, 2019 and Sunday, May 12, 2019.

You must take the Final Exam in one of the MC assessment centers.

A Typical Week in CMSC226

An online class requires quite a bit of self motivation. All of the projects and activities are due on Sunday night, so that we end one week on Sunday and begin the next week on Monday.

When you make out your schedule for the week, be sure to block out at least 9 hours when you can read and work on a computer!

Start on Monday by looking in Blackboard for the weeks assignments and discussion questions. Keep the discussion questions in mind as you read the chapter.

Write your response to the discussion question early in the week so that there is time to exchange ideas and thoughts with classmates.

Each week there is a quiz in Blackboard that is due by Sunday. Usually you can take the quiz again if you miss any questions. Obviously, if you wait until Sunday night to take the quiz, there isn't much opportunity to take it over. Take the quiz early in the week so that you can repeat it if necessary.

Check into the discussion board in Blackboard periodically to ask questions, answer questions, and respond to your classmates.