MONTGOMERY COLLEGE: Course Syllabus

Computer Science and Information & Interactive Technologies CMSC110: Computer Concepts, section: 202720-22741, Prof. J. Joy, Fall, 2026 Starts Wednesday, October 28, 2026; ends Sunday, December 20, 2026

This class does NOT have a meeting time. It is completely asynchronous.

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.
Questions: If you have a personal question please use the email above or course mail. If you have a general question that is of interest to the whole class, such as clarification of an assignment, please use Questions in the discussion area of Blackboard.

Office Hours: **Online with Zoom**: https://zoom.us/j/4497759354

Office Hours for Spring and Fall: Monday 11am to 12 noon, Thursday 3pm to 5pm. No appointment necessary for these office hours.
Please be aware that you are sharing these office hours with other students and classes.
When you type in your name, please type your course and section after so that I know which class you belong to.

Office Hours during MC Holidays, Winter, and Summer sessions are by appointment only.

By appointment only: If you need to see me, please send me 2 or 3 blocks of time you could meet and I will get back to you with a time that works for both of us.

In addition, I occasionally have optional class "Zoom coffee breaks" that are at varying times each week. These are entirely optional and informal opportunities to say hello to me and some of your classmates or to ask questions.

Your Montgomery College e-mail account is the official means of communication for the college. **I may not receive emails sent from outside addresses.** 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

Study of programming language hierarchy, elements of a software system, and program implementation. Exposure to hardware concepts including number systems, data representation, central processor, storage, input/output, and system configurations. An introduction to the scope, significance, history, and social implications of data processing. There is no detailed study or implementation of any specific programming

language. *Assessment Level(s):* ELAI 990, *ENGL 101/ENGL 101A, MATH 050 , READ 120. Three hours each week.*

Formerly CS 110. 3 semester hours

III. Student Learning Outcomes

Upon course completion, a student will be able to:

- Describe computer systems and their functions.
- Define various types of software, including operating system, utility programs, and application software.
- Use the data representation, operating systems, and utility programs.
- Use number systems and convert from one number system to another. • Identify and compare several programming languages currently in use.
- Use the Internet as a tool for research, for identifying and verifying information.
- Use AI as a tool for research, for brainstorming, answering questions, and providing information that you will verify.
- Use business applications such as word processing, spreadsheets, presentation software and database.
- Differentiate among various types of computer careers, certifications, and job responsibilities.
- Describe the scope, significance and history of computing.
- Describe social implications of computing, including computer security, ethics and privacy issues.

Accessibility: This section uses links to resources. There is a combination of videos, text and other materials. All videos have either closed captions or a text version available. Montgomery College accessibility statement: http://cms.montgomerycollege.edu/edu/Department.aspx?id=53990

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 comfortable with email attachments, troubleshooting an Internet connection, and downloading software. Online courses require extreme self-discipline. One must log on 3-5 times per week and be prepared to read and follow through on assignments and instructions. Students must plan to spend 4-6 hours per week preparing and submitting assignments. Initially, a great deal of time is spent becoming familiar with Blackboard and dealing with technical problems. Technology is unreliable. The plan to submit homework at the last moment can be defeated with a busy or down server.

Each week you will learn a new topic. You will share your thoughts, and what you have learned in the discussion area in Blackboard. You will also have a chance to read what your classmates think about the topic and get new ideas from them. You will test your understanding of the new material through quizzes. Finally, you will ***apply*** what you have learned by creating a project that uses the skills you have learned in the first weeks to research and create the projects.

IV. Required materials

There is NO required text for this class. We will use online materials and tutorials that are available for **free** on the internet.

V. Grading

Grades are earned, not given. Students may be asked to explain their work orally on Zoom.
Course grades will be based upon the following:

- **Projects**: There will be 9 assignments (projects or papers.) All required files must be submitted in Blackboard to receive credit.
- All assignments must be uploaded to your course assignment page in Blackboard with all files needed to grade the assignment to receive credit.
- You are expected to use AI responsibly for assignments and list it as a resource.
- All assignments, discussions and quizzes will be due at the end of the week, postmarked by midnight.
- I usually grade assignments within 2 days once submitted. If I ask for corrections, they must be resubmitted within 1 week of the due date. The last project may not be resubmitted. At that point in the semester, you should be used to using the checklist.
- You will not be able to submit assignments or corrections 1 week after the due date.
- Do not email the assignment for "pre-grading". Submit it for a grade, then correct any errors and resubmit within 1 week of the due date. Any assignments not submitted within 1 week of the due date will receive 0.
- **Discussion**: There will be 12 discussions in Blackboard. You will be required to give an initial response by Wednesday, and you must respond to at least two other students regarding their initial postings by Sunday night. Responses must be substantive, relevant and constructive. Responses must be at least 25 words long using standard academic English. The 2 lowest discussion grades for the semester are dropped, therefore I do not reopen discussions if you miss one.
- I grade the initial post in discussions, then I grade again after the discussion is closed to check for interactions with classmates.
- **Quizzes**: There will be 12 quizzes in Blackboard. Each of these quizzes or activities is 1% of the grade. You may take each quiz 3 times. Only the highest score is counted. You are expected to take the quiz for the first time by Wednesday midnight, and the remaining two chances must be completed by Sunday midnight. The 2 lowest quiz grades for the semester are dropped, therefore I do not reopen quizzes if you miss one.
- All assignments will be due on Sunday night, postmarked by midnight.

The relative weights of these assignments (after dropping the 2 lowest quizzes and discussions) are:

Assignment	Percent of Grade
9 projects or papers	80%
10 Discussion questions	10%
10 Quizzes	10%

A=100-90% B= 89-80% C=79-70% D=69-60% F=60%-below

Please note that Blackboard has a column "Unweighted total" Disregard this column!
The grade is calculated as shown above.
The column labeled "Complete" shows your grade so far. At the end of the semester, this is your final grade.

This is an Online course. Active participation in the Online activities and completion of all homework and Online assignments is required in order to pass this course.

Due Dates: All due dates are in Blackboard. You can check the calendar in Blackboard.
Participation: Students must participate in the Blackboard discussion every week. **If you miss 2 weeks in a row without contacting me, you are subject to being dropped from the class.**
Audit Policy: If you are auditing, you are welcome to participate in the Blackboard discussions and take all quizzes and submit programs, but it is not required.

VI. 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/, Additional Montgomery College policies

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VII. Support

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.

Netiquette: Etiquette rules for the discussion board.
The discussions are an important part of online classes. Each week you will share ideas with your classmates. You can learn a lot from your classmates and by sharing ideas. Your classmates come from many different cultures and backgrounds. You want to share ideas and tips, not offend. Please read http://www.zebra0.com/MC/netiquette.pdf for discussion rules.

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.
- Speakers or headphone to listen to the videos and to play the sounds you add in Alice.
- 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

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 240-567-6000 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.**

VIII. Course Resources & Technologies

Adobe Acrobat Reader, required: Download and install from https://get.adobe.com/reader/ Copyright © 2017 Adobe Systems Incorporated. *You probably already have this if you are reading the syllabus. No privacy policy available. Adobe acrobat is accessible with a screen reader.*

Lessons at Zebra0.com, required: Available at http://zebra0.com/alice

Author: Janet E. Joy; Publisher: Zebra0.com, This work is licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License

Privacy policy: http://www.zebra0.com/resources/privacy.php *All videos have closed captions.*

Blackboard, required: Copyright © 1997 - 2017. Blackboard Inc. Login to Blackboard from MyMC. Privacy policy: http://www.Blackboard.com/footer/privacy-policy.aspx Blackboard is fully accessible.

Eclipse, *optional*: Download and install from https://eclipse.org/downloads/ Copyright © 2017 The Eclipse Foundation. *If you have a problem installing Alice with the message that you need the Java JDK, install Eclipse and then retry installing Alice.* Eclipse is accessible. *Privacy police: https://eclipse.org/legal/privacy.php*

Screencast-O-Matic, recommended: Download and install or run online from https://screencast-omatic.com/ © Screencast-O-Matic, privacy policy: https://screencast-o-matic.com/privacy You may use any video recording software except Flash to create the required videos for this class. Screencast-O-Matic is a tool for creating videos. It is vision dependent.

Office Software: Projects require the use of office software (word processor, spreadsheet, presentation software, database). Students can use Microsoft Office available free through Montgomery College, or install Open Office, also free from https://www.openoffice.org/

Zoom, required: Copyright ©2017 Zoom Video Communications, Inc.
Join from PC, Mac, iOS or Android: https://zoom.us/j/4497759354 *No privacy policy available.* Eclipse is accessible.

IX. A Typical Week

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 enough time each week when you can read, study, work on a computer! In a class that meets fewer than 15 weeks, there will be several assignments, quizzes and discussions due each week. Although they are mostly due on Sunday night, you should try to spread them out over the course of the week, depending on your own work schedule. Your initial posts in the discussion, and first attempt at the quizzes are due on Wednesday.

Here is the math: Being a full-time student *(15 credits or 5 classes)* is considered a **full time job**. A full-time work week is 40 hours. Thus, one college class will requires about 8 hours per week in a 15 week semester, or 120 hours for the semester. A shorter term requires the same amount of time, assignments and effort. Use the table below to block out sufficient time for each course:

Weeks in Class	Hours per week	Hours per course
15	8	120
10	12	120
8	15	120
5	24	120
4	30	120

Start on Monday by looking in Blackboard for the week's assignments and discussion questions. Keep the discussion questions in mind as you read the chapter. Some weeks cover more than one unit or chapter.

Write your initial post to the discussion questions by Wednesday. Read the other posts and exchange ideas and thoughts with classmates during the rest of the week.

Each unit has a quiz in Blackboard, The first attempt is due on Wednesday. You have 2 more attempts until Sunday. Take the quiz again if you miss any questions.

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

You are expected to save all of your work on a USB drive or other storage device. You are responsible for completing all of the work on time even if your computer crashes.

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.
All of the learning modules are required.

Course is from Wednesday, October 28, 2026 to Sunday, December 20, 2026

Week 1 from Wednesday, October 28, 2026 to Sunday, November 1, 2026

Unit I: Introduction: Understanding Computers

Introduction to CMSC110

What is a Computer?

Goal: In this chapter, you will explore the fundamental concepts of modern computing. You will learn what a computer is, how it processes information, and how hardware, software, operating systems, cloud computing, and artificial intelligence work together to create the digital tools you use every day. By building this foundation, you will be better prepared to understand more advanced technology topics throughout the course.

Objectives:

- Define what a computer is.
- Explain the four basic functions performed by every computer.
- Distinguish between hardware and software.
- Identify the major hardware components of a computer.
- Explain the purpose of an operating system.
- Organize files and folders effectively.
- Describe cloud computing.
- Recognize how artificial intelligence fits into modern computing.

Artificial Intelligence

Goal: In this chapter, you will discover how artificial intelligence is transforming the way people learn, work, and communicate. You will explore how AI systems are trained, how they generate content, and how they are

used in everyday applications. You will also examine the opportunities and challenges of AI, including ethical considerations, bias, and responsible use.

Objectives:

- Define artificial intelligence
- Explain how AI differs from traditional computer programming
- Describe common types of AI
- Identify how AI is used in everyday life.
- Discuss the benefits and limitations of AI.
- Recognize ethical concerns surrounding AI.
- Use AI tools responsibly to improve productivity and learning.

Discussions and Quizzes due in Blackboard by midnight, Wednesday, October 28, 2026

Discussion: 1: Introductions
Discussion: 2: Experience
Quiz 1: Syllabus
Quiz 2: Artificial Intelligence

Assignments due in Blackboard by midnight, Sunday, November 1, 2026

In Blackboard: Check major and submit Academic Integrity statement
Project 1: Slide show: Computers and Me
Project 2: Paper on Artificial Intelligence

Week 2 from Monday, November 2, 2026 to Sunday, November 8, 2026

Operating Systems and File Management

Goal: In this chapter, you will learn how operating systems manage the hardware and software that make computers usable. You will explore how files and folders are organized, discover strategies for managing digital information, and understand how cloud storage makes files accessible across multiple devices. These skills will help you work more efficiently and keep your digital information organized.

Objectives:

- Define an operating system and explain its purpose.
- Identify the major functions of an operating system.
- Compare the features of common operating systems, including Microsoft Windows, macOS, Linux, Android, and iOS.

- Explain how the operating system manages hardware, software, memory, files, and user interfaces.
- Describe the difference between files, folders, and directories.
- Create, rename, move, copy, and delete files and folders.
- Explain the importance of organizing files using an effective folder structure.
- Identify common file types and file extensions.
- Describe different storage locations, including local drives, external drives, network drives, and cloud storage.
- Explain best practices for backing up and protecting important files.
- Apply file management skills to organize digital information efficiently.

Data Representation: How Computers Store Information

Goal: In this chapter, you will learn how computers represent text, numbers, images, audio, and video using digital data. You will explore binary, hexadecimal, and common methods of storing information while discovering how simple patterns of zeros and ones make modern computing possible. Understanding these concepts provides the foundation for many other areas of computer science.

Objectives:

- Explain why computers use the binary number system.
- Define the terms bit, byte, and binary digit.
- Convert simple binary numbers to decimal and decimal numbers to binary.
- Describe how text is represented using character encoding systems such as ASCII and Unicode.
- Explain how images, audio, and video are stored digitally.
- Compare units of digital storage, including bytes, kilobytes, megabytes, gigabytes, terabytes, and petabytes.
- Differentiate between data size and data transfer speed.
- Explain how data compression reduces file size.
- Describe how errors can occur during data transmission and how computers detect and correct them.
- Explain why understanding data representation is important in today's digital world.

History: How did we get here?

Goal: In this chapter, you will explore the evolution of computing from early calculating devices to today's powerful digital technologies. You will discover the people, inventions, and innovations that shaped modern computers and gain a deeper appreciation for how technological progress continues to influence society.

Objectives:

- Describe major milestones in the history of computing.
- Explain how computing evolved from mechanical devices to modern smartphones and cloud computing.

- Identify influential individuals who shaped the development of computing.
- Recognize the contributions of women and people from diverse backgrounds to computer science and technology.
- Describe the generations of computers and the technologies that defined each generation.
- Explain how advances in hardware, software, and networking changed society.
- Describe the impact of the Internet, mobile computing, cloud computing, and artificial intelligence.
- Evaluate how historical innovations continue to influence today's technology.

Discussions and Quizzes due in Blackboard by midnight, Wednesday, November 4, 2026

Discussion: 3: My Files
Discussion: 4: History
Quiz 3: OS and File Management
Quiz 4: Data Representation

Assignments due in Blackboard by midnight, Sunday, November 8, 2026

Project 3: History of Computers presentation
Last chance to resubmit:

- *In Blackboard: Check major and submit Academic Integrity statement*
- *Project 1: Slide show: Computers and Me*
- *Project 2: Paper on Artificial Intelligence*

Week 3 from Monday, November 9, 2026 to Sunday, November 15, 2026

Unit II: Hardware and Software

Computer Hardware

Goal: In this chapter, you will examine the physical components that make up a computer system. You will learn how processors, memory, storage devices, input devices, and output devices work together to process information. Understanding computer hardware will help you make informed decisions about purchasing, maintaining, and upgrading technology.

Objectives:

- Identify the major components of a computer system.
- Explain the functions of the CPU, memory, storage devices, and motherboard.
- Distinguish between input, output, storage, and processing devices.
- Compare different types of computer memory and storage.

- Describe the purpose of expansion cards and peripheral devices.
- Explain how computer components work together to process information.
- Evaluate hardware specifications when purchasing a computer.
- Recognize current trends in computer hardware.

Computer Software

Goal: In this chapter, you will explore the different types of software that enable computers to perform useful tasks. You will learn the differences between system software and application software, discover how software is developed and distributed, and examine how software improves productivity, creativity, communication, and entertainment.

Objectives:

- Differentiate between hardware and software.
- Explain the role of system software and application software.
- Describe the functions of an operating system.
- Identify common types of application software and their uses.
- Distinguish between desktop, web-based, and mobile applications.
- Explain how software is installed, updated, and removed.
- Compare commercial, open-source, freeware, and subscription software.
- Describe the importance of software licensing, updates, and security.
- Recognize emerging trends such as cloud software and AI-powered applications.

Cloud: Storage and Computing

Goal: In this chapter, you will discover how cloud computing has transformed the way individuals and organizations store data, run applications, and collaborate with others. You will learn how cloud services provide flexibility, accessibility, and scalability while considering the benefits and challenges of storing information online.

Objectives:

- Define cloud computing and cloud storage.
- Explain how cloud services differ from local computing.
- Identify the advantages and disadvantages of cloud computing.
- Describe common cloud service models, including Software as a Service (SaaS), Platform as a Service (PaaS), and Infrastructure as a Service (IaaS).
- Compare public, private, and hybrid clouds.
- Recognize common cloud storage services and collaboration tools.

- Explain how cloud computing supports artificial intelligence and modern applications.
- Apply best practices for securely using cloud services.

Discussions and Quizzes due in Blackboard by midnight, Wednesday, November 11, 2026

Discussion: 5: The Cloud
Quiz 5: Hardware
Quiz 6: Software
Quiz 7: Cloud Computing

Assignments due in Blackboard by midnight, Sunday, November 15, 2026

Project 4: Diagram
Project 5: Spreadsheet for Computer System Budget
Last chance to resubmit:

- *Project 3: History of Computers presentation*

Week 4 from Monday, November 16, 2026 to Sunday, November 22, 2026

Networks and the Internet

Goal: In this chapter, you will discover how computers communicate with one another to share information and resources across homes, schools, businesses, and around the world. You will learn how networks and the Internet work, explore common networking technologies, and understand how data travels from one device to another. By the end of this chapter, you will have a solid foundation for understanding the connected world in which we live and work.

Objectives:

- Explain the purpose of computer networks.
- Differentiate between LANs, WANs, and the Internet.
- Identify common networking devices, including routers, switches, and modems.
- Describe how data travels across the Internet using packets.
- Explain the purpose of IP addresses and domain names.
- Compare wired and wireless networking technologies.
- Describe cloud computing and online collaboration tools.
- Identify common Internet services, including the World Wide Web, email, streaming, and file sharing.
- Recognize common network security practices.

- Explain how emerging networking technologies continue to change the way people communicate and work.

Web Technologies

Goal: In this chapter, you will explore the technologies that power the modern web. You will learn how websites are created and delivered, how web browsers and servers communicate, and how web applications support communication, commerce, education, and entertainment. Understanding these technologies will help you become a more informed and effective user of the Internet.

Objectives:

- Explain the difference between the Internet and the World Wide Web.
- Describe how web browsers, web servers, URLs, and hyperlinks work together.
- Identify the major parts of a web address.
- >Explain the roles of HTML, CSS, and JavaScript.
- Create a simple web page using basic HTML elements.>
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- Add headings, paragraphs, lists, links, and images to a page.
- Organize files and folders for a small website.
- Evaluate a web page for usability and accessibility.
- Publish or submit a simple web page.

Discussions and Quizzes due in Blackboard by midnight, Wednesday, November 18, 2026

Discussion: 6: Web
Quiz 8: Networks and the Internet
Quiz 9: Web Technologies

Assignments due in Blackboard by midnight, Sunday, November 22, 2026

Project 6: Web Technologies
Last chance to resubmit:

- *Project 4: Diagram*
- *Project 5: Spreadsheet for Computer System Budget*

Week 5 from Monday, November 23, 2026 to Sunday, November 29, 2026

Digital Accessibility and Inclusive Design

Goal: In this chapter, you will discover how technology can be designed to be accessible to everyone, including people with disabilities. You will explore the principles of inclusive design, learn about assistive technologies, and understand why accessibility benefits all users. These concepts will help you recognize the importance of creating technology that is both usable and equitable.

Objectives:

- Define digital accessibility and explain why it is important.
- Distinguish between accessibility, usability, and universal design.
- Identify common barriers people encounter when using technology.
- Describe how assistive technologies help people access digital information.
- Apply basic accessibility guidelines when creating digital documents, presentations, spreadsheets, websites, and multimedia.
- Explain the importance of alternative text, captions, color contrast, and keyboard navigation.
- Recognize legal and ethical responsibilities related to accessibility.
- Evaluate digital content for common accessibility issues.> **Unit III: Using Technology Effectively & Responsibly**

Information Literacy, Recognizing misinformation

Goal: In this chapter, you will develop the skills needed to evaluate information critically in today's digital world. You will learn how to identify reliable sources, recognize misinformation and disinformation, and use evidence to make informed decisions. These skills are essential for academic success, professional growth, and responsible citizenship.

Objectives:

- Define information literacy and explain why it is important.
- Distinguish between misinformation, disinformation, and malinformation.
- Evaluate the credibility of online sources.
- Recognize common characteristics of misinformation and online scams.
- Explain how search engines, algorithms, and social media influence the information people see.
- Identify the role of artificial intelligence in creating and detecting digital content.
- Apply fact-checking strategies using multiple reliable sources.

- Make informed decisions based on credible information.

Discussions and Quizzes due in Blackboard by midnight, Wednesday, November 25, 2026

Discussion: 7: *AI*

Week 6 from Monday, November 30, 2026 to Sunday, December 6, 2026

Data and Big Data

Goal: In this chapter, you will explore how data is collected, stored, analyzed, and used to support decisionmaking. You will examine the growing role of big data in business, healthcare, education, and science while considering the opportunities, challenges, and ethical issues associated with collecting and analyzing large amounts of information.

Objectives:

- Define data and explain why it is valuable.
- Differentiate between structured and unstructured data.
- Explain how information is created from raw data.
- Describe the characteristics of big data.
- Identify common sources of data collection.
- Explain how organizations analyze data to make decisions.
- Discuss the benefits and challenges of big data.
- Recognize the importance of data privacy, security, and ethical data use.

Discussions and Quizzes due in Blackboard by midnight, Wednesday, December 2, 2026

Discussion: 8: Big Data
Quiz 10: Big Data

Assignments due in Blackboard by midnight, Sunday, December 6, 2026

Project 7: Big Data Project
Last chance to resubmit:

- *Project 6: Web Technologies*

Week 7 from Monday, December 7, 2026 to Sunday, December 13, 2026

Free Speech

Goal: In this chapter, you will examine how digital technologies have transformed communication and public discourse. You will explore the principles of free expression, consider the responsibilities that accompany online communication, and discuss the challenges of balancing free speech with safety, privacy, and respect in digital communities.

Objectives:

- Explain the meaning and importance of free speech in a democratic society.
- Describe how digital technologies have transformed communication.
- Distinguish between government restrictions on speech and the content policies of private online platforms.
- Explain the role of social media, blogs, podcasts, and online video in public communication.
- Recognize the responsibilities that accompany freedom of expression in digital environments.
- Evaluate ethical issues involving online speech, misinformation, and respectful communication.

Cybersecurity & Privacy

Goal: In this chapter, you will learn how to protect your personal information and digital devices from online threats. You will explore common cybersecurity risks, discover strategies for staying safe online, and understand the importance of privacy in an increasingly connected world. These skills will help you become a more confident and responsible technology user.

Objectives:

- Explain the importance of cybersecurity and digital privacy.
- Differentiate between cybersecurity, information security, and privacy.
- Identify common cyber threats such as malware, phishing, ransomware, and identity theft.
- Describe best practices for creating and managing strong passwords.
- Explain the purpose of multi-factor authentication (MFA).
- Recognize safe browsing and email practices.
- Describe how encryption protects information.
- Explain how organizations collect and use personal data.
- Apply practical strategies for protecting personal information online.

Computer Ethics & Social Issues

Goal: In this chapter, you will explore the ethical questions that arise as technology becomes more deeply integrated into society. You will examine issues such as intellectual property, digital equity, environmental sustainability, and the social impact of emerging technologies. By considering multiple perspectives, you will develop the critical thinking skills needed to make informed and ethical decisions about technology.

Objectives:

- Define computer ethics and explain its importance.
- Identify ethical issues related to the use of computers and digital technologies.
- Explain the concepts of privacy, intellectual property, and digital ownership.
- Distinguish between legal and ethical behavior.
- Recognize ethical issues involving artificial intelligence and emerging technologies.
- Describe the impact of technology on employment, education, and society.
- Apply ethical decision-making to common technology scenarios.
- Demonstrate responsible digital citizenship.

Discussions and Quizzes due in Blackboard by midnight, Wednesday, December 9, 2026

Discussion: 9: Security
Discussion: 10: Ethics
Quiz 11: Data and Security

Week 8 from Monday, December 14, 2026 to Sunday, December 20, 2026

Unit IV: Looking Forward: Careers & Technology

Programming Concepts: Alice

Goal: In this chapter, you will be introduced to the fundamental concepts of computer programming using Alice, a visual programming environment. You will learn how programs are created using objects, events, methods, variables, and control structures while developing logical thinking and problem-solving skills. Understanding these concepts will give you insight into how software is created and prepare you for future programming experiences.

Objectives:

- Explain what a computer program is.
- Describe the steps used to solve problems computationally.
- Explain the purpose of algorithms.

- Differentiate between pseudocode, flowcharts, and programming languages.
- Describe variables, data types, and basic operations.
- Explain how decisions and repetition control program execution.
- Recognize the importance of testing, debugging, and documentation.
- Describe how AI is changing software development.
- Create a simple program in Alice

Technology Careers

Goal: In this chapter, you will explore the wide variety of careers available in the technology field. You will learn about different career paths, the education and skills they require, and the opportunities available across many industries. Whether you plan to work directly in technology or use technology in another profession, this chapter will help you prepare for lifelong learning and career success.

Objectives:

- Describe the wide variety of careers available in information technology.
- Explain the responsibilities of common technology professionals.
- Compare technical and nontechnical roles in IT.
- Identify the education, certifications, and skills needed for different technology careers.
- Explain the importance of communication, teamwork, ethics, and lifelong learning in technology professions.
- Explore career paths that align with their interests and strengths.

Emerging Technology

Goal: In this chapter, you will explore the technologies that are shaping the future of society, including advances in artificial intelligence, robotics, connected devices, and immersive technologies. You will consider how innovation continues to transform the way we live and work while reflecting on the importance of adaptability, ethical decision-making, and lifelong learning in an ever-changing technological world.

Objectives:

- Describe several emerging technologies that are transforming society and the workplace.
- Explain how artificial intelligence, connected devices, extended reality, robotics, and quantum computing are being used today.
- Discuss how emerging technologies affect education, healthcare, business, communication, and everyday life.
- Identify ethical, privacy, security, accessibility, and environmental issues associated with emerging technologies.>

- Explain the importance of digital literacy, critical thinking, and lifelong learning in a rapidly changing technological world.
- Evaluate both the opportunities and challenges that emerging technologies present for individuals and society.

Discussions and Quizzes due in Blackboard by midnight, Wednesday, December 16, 2026

Discussion: 11: Programming
Discussion: 12: Tech Careers
Quiz 12: Programming

Assignments due in Blackboard by midnight, Sunday, December 20, 2026

Project 8: Alice program
Project 9: Video on Trends
Last chance to resubmit:

- *Project 7: Big Data Project*

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