

## Course **Syllabus**

What you will learn in this course

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### **Computing for College and Careers 1a: Introduction**

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Technology has made an impact on nearly all facets of our lives, and it will continue to make an impact on yours as you make your way into college and career! In this course, you are going to pull back the veil on what goes into some of the technology we use every day. You will investigate computer hardware and software and learn what goes into building a computer while exploring programs and applications, you'll study the history of the internet and how to use its capabilities even more effectively, and you'll also dive deep into email and some of today's most powerful processing tools. Get ready to really know the technology you have at your fingertips so you can continue to make it work for you!

### **Unit 1: Introducing IT**

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Did you know that the information technology industry is worth trillions of dollars globally, and that there are more than 12 million IT jobs in the United States?<sup>[1]</sup> This is a huge industry that

will continue to grow in the future, and you have the opportunity to come along for the ride! We will be exploring the various ways that IT has affected our lives. From its history, to its impact on business, to its effect on society and us as individuals, we have a lot of ground to cover, so let's jump right in.

## What will you learn in this unit?

1. Discuss the history of technology
2. Explain how information technology is used in business
3. Describe the effects of technology on society and personal lifestyles
4. Classify technology into various IT segments

<b>UNIT 1 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 1 Critical Thinking Questions	Homework
Unit 1 Activity 1	Homework
Unit 1 Activity 2	Homework
Unit 1 Activity 3	Homework
Unit 1 Activity 4	Homework
Unit 1 Discussion 1	Discussion
Unit 1 Discussion 2	Discussion
Unit 1 Quiz	Quiz

## Unit 2: Hardware

Have you ever wondered what goes on inside of a computer? How do all of the pieces fit together to actually accomplish things? Let's find out. From understanding how a computer uses the binary number system, to learning about the different hardware parts, you'll get an inside view of how it all works. You'll also learn the stages of how to build a computer, as well as what peripherals are and how to use them. So fasten your seat belts and get ready to learn about hardware!

## What will you learn in this unit?

1. Discuss binary concepts and how the computer represents data
2. Identify the main hardware components of a computer system and how they function together
3. Describe the stages of building a computer
4. Explain the need for peripherals and how they are used
5. Apply troubleshooting principles to a variety of computer issues

<b>UNIT 2 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 2 Critical Thinking Questions	Homework
Unit 2 Activity 1	Homework
Unit 2 Activity 2	Homework
Unit 2 Activity 3	Homework
Unit 2 Activity 4	Homework
Unit 2 Discussion 1	Discussion
Unit 2 Discussion 2	Discussion
Unit 2 Quiz	Quiz

## Unit 3: Software

Even the best hardware is incomplete without software. Some people even say that software runs the world! Let's explore the exciting world of software by distinguishing between its different categories and uses. We'll look at file- management techniques, apply some basic troubleshooting steps, and begin to understand the types of maintenance that computers need. Get ready, because the world of software is anything but soft!

## What will you learn in this unit?

1. Compare and contrast the appropriate use of specialized software
2. Distinguish between system software and application hardware and their uses
3. Perform proper file management techniques

4. Explain the use of systems management tools
5. Identify and troubleshoot common software problems

<b>UNIT 3 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 3 Critical Thinking Questions	Homework
Unit 3 Activity 1	Homework
Unit 3 Activity 2	Homework
Unit 3 Discussion 1	Discussion
Unit 3 Discussion 2	Discussion
Unit 3 Quiz	Quiz

## Unit 4: Using the Internet

We all use it, but what exactly is the internet? Is it different from the web? What kinds of things can we use the internet and web for? And most importantly, how do we stay safe on the web? Let's answer all of these questions as we investigate the ins and outs of our online world. We'll think about the history of the internet, what goes on behind the browser you use, how to search for information effectively, and how to maintain privacy and security. Think you know the internet? Think again!

### What will you learn in this unit?

1. Describe the history of the internet and how it works
2. Explain the domain name system and IP addresses
3. Apply effective internet search strategies
4. Discuss online security threats and what can be done to mitigate them

<b>UNIT 4 Assignments</b>	
<b>Assignment</b>	<b>Type</b>



Unit 4 Critical Thinking Questions	Homework
Unit 4 Activity 1	Homework
Unit 4 Activity 2	Homework
Unit 4 Discussion 1	Discussion
Unit 4 Discussion 2	Discussion
Unit 4 Quiz	Quiz

## Computing for College and Careers 1a Midterm Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the **first** half of the course (Note: You will be able to open this exam only one time.)

<b>MIDTERM Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Midterm Exam	Exam
Midterm Discussion	Discussion

## Unit 5: Email

Did you know that email is the most popular form of online communication? Even though many prefer more instant forms of communication, email is a powerhouse of the business and education industries and has transformed the way that the world interacts. So let's get some hands-on experience with the most popular webmail client in the world: Gmail. You'll learn basic and advanced features and acquire some communication tips and tricks along the way. Get ready to send some emails!

### What will you learn in this unit?

1. Explain the difference among email clients, servers, and webmail
2. Identify the components of an email and how to send emails
3. Use an address book to organize email contacts
4. Employ effective verbal and nonverbal communication skills

<b>UNIT 5 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 5 Critical Thinking Questions	Homework
Unit 5 Activity 1	Homework
Unit 5 Activity 2	Homework
Unit 5 Activity 3	Homework
Unit 5 Discussion 1	Discussion
Unit 5 Discussion 2	Discussion
Unit 5 Quiz	Quiz

## **Unit 6: Word Processing Software**

Most schools and businesses would not be able to survive without word processing software. It can be used to organize text, images, and charts in a way that is aesthetically pleasing. Whether it's business reports, technical manuals, brochures, or business cards, word processing software can do a little bit of everything. Let's start our discussion of these powerful tools by comparing and contrasting a variety of application software. Then we will dive into the nitty gritty of Microsoft Word, the most popular word processor in use today. Get ready to learn some practical and applicable skills!

### **What will you learn in this unit?**

1. Compare and contrast a variety of familiar software applications
2. Explore more advanced software programs for workplace use
3. Identify and apply terminology associated with word processing software
4. Use advanced word processing tools
5. Create professional documents using a word processor

<b>UNIT 6 Assignments</b>	
<b>Assignment</b>	<b>Type</b>

Unit 6 Critical Thinking Questions	Homework
Unit 6 Activity 1	Homework
Unit 6 Activity 2	Homework
Unit 6 Activity 3	Homework
Unit 6 Discussion 1	Discussion
Unit 6 Discussion 2	Discussion
Unit 6 Quiz	Quiz

## Unit 7: Spreadsheets and Databases

Did you know that more than 500 million tweets are created every day? And there are more than 720,000 hours of new YouTube videos added daily. <sup>[2]</sup> That's a lot of data, and it all has to be stored somewhere. That's where databases come in. These days, almost every company uses databases because they are organized, powerful, and efficient. Spreadsheets are also powerhouse files that help businesses and individuals organize data. There are so many cool features to be explored in spreadsheets and databases, so let's get to it!

### What will you learn in this unit?

1. Define spreadsheet terminology
2. Perform mathematical calculations in spreadsheets
3. Use advanced spreadsheet features such as lookup tables and custom functions
4. Create a relational database and explain the purpose of fields/records

<b>UNIT 7 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 7 Critical Thinking Questions	Homework
Unit 7 Activity 1	Homework
Unit 7 Activity 2	Homework
Unit 7 Activity 3	Homework
Unit 7 Discussion 1	Discussion

Unit 7 Discussion 2	Discussion
Unit 7 Quiz	Quiz

## Unit 8: Presentation Software

The business and education worlds have been transformed by the advent of presentation software. Microsoft PowerPoint is the leader of the pack when it comes to presentation software, with millions of PowerPoint presentations created every single day. Get ready to learn some basic and advanced PowerPoint skills, as well as how to put together a multimedia presentation. And rumor has it that you'll get to create your very own karaoke slideshow!

### What will you learn in this unit?

1. Define the function and basic terminology of presentation software
2. Describe the components of multimedia that enhance presentations
3. Create a self-running presentation with audio, images, and animation
4. Collaborate with team members to create a multimedia business presentation

<b>UNIT 8 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 8 Critical Thinking Questions	Homework
Unit 8 Activity 1	Homework
Unit 8 Activity 2	Homework
Unit 8 Activity 3	Homework
Unit 8 Discussion 1	Discussion
Unit 8 Discussion 2	Discussion
Unit 8 Quiz	Quiz

## Computing for College and Careers 1a Final Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the **second** half of the course (Note: You will be able to open this exam only one time.)

<b>FINAL Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Final Exam	Exam
Final Exam Discussion	Discussion

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1. <https://www.cyberstates.org/> ↩
  2. <https://theconversation.com/the-worlds-data-explained-how-much-were-producing-and-where-its-all-stored-159964> ↩

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## Course **Syllabus**

What you will learn in this course

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### **Computing for College and Careers 1b: Refining Your Interests**

You have looked at the building blocks of some technologies you use on a daily basis, and now it's time to dig even deeper to see how it can help determine your future! In this course, you'll analyze modern websites, learn design elements and principles, and even create your very own website. You'll learn to write algorithms, use common web languages, and explore some of the basics of AI all while becoming a good digital citizen. Lastly, you'll explore various careers in computing, learn about industry certifications, and see how a resume and portfolio can help you. Let's look to the future!

#### **Unit 1: Web Design**

Websites have become great tools for communicating with customers, buying goods and services, connecting with loved ones across the world, and distributing information and news. With the millions of websites in the world today, is it possible to make a website that is truly

inspiring and stands out among the crowd? Spoiler alert—yes, it’s possible! It just takes a little practice to learn how. We’ll also analyze some effective features of modern websites, learn design elements and principles, and even create your very own website.

## What will you learn in this unit?

1. Describe the purpose of different types of websites
2. Identify the various elements of a website
3. Investigate and analyze web design elements
4. Explain how design principles can be applied to websites
5. Design, create, and publish an original website

<b>UNIT 1 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 1 Critical Thinking Questions	Homework
Unit 1 Activity 1	Homework
Unit 1 Activity 2	Homework
Unit 1 Discussion 1	Discussion
Unit 1 Discussion 2	Discussion
Unit 1 Quiz	Quiz

## Unit 2: Programming Basics

Do you know what language a computer speaks? It’s not English, Spanish, French, or Mandarin. It’s quite simple actually—it only uses 0’s and 1’s. Imagine only being able to communicate with 0’s and 1’s! That wouldn’t work out so well for humans, so we have developed other programming languages that allow us to communicate with computers through a translator. Are you ready to learn the language of computers and understand how software is written? Let’s go!

## What will you learn in this unit?

1. Explain the purpose of programming
2. Compare and contrast generations and types of programming languages
3. Describe the stages in the software development life cycle

4. Discuss the role of problem solving and creativity in scientific studies and programming

<b>UNIT 2 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 2 Critical Thinking Questions	Homework
Unit 2 Activity 1	Homework
Unit 2 Activity 2	Homework
Unit 2 Discussion 1	Discussion
Unit 2 Discussion 2	Discussion
Unit 2 Quiz	Quiz

## **Unit 3: Programming in Practice**

From its humble beginnings in the 1950s, to practically running the world today, code has become an essential part of our lives. We use objects every day that are programmed, and algorithms play a foundational role in making the programs work. Many people do not understand what algorithms actually are, but you'll soon be fully prepared to comprehend, interpret, and write algorithms of your own. We'll apply our new skills by designing and developing a dino run game, using the popular web languages HTML, CSS, and JavaScript. It's going to be dino-mite!

### **What will you learn in this unit?**

1. Discuss the pros and cons of algorithms
2. Differentiate among the control structures of algorithms
3. Create a simple computer program
4. Execute a simple computer program
5. Document a simple computer program

<b>UNIT 3 Assignments</b>	
<b>Assignment</b>	<b>Type</b>



Unit 3 Critical Thinking Questions	Homework
Unit 3 Activity 1	Homework
Unit 3 Activity 2	Homework
Unit 3 Activity 3	Homework
Unit 3 Discussion 1	Discussion
Unit 3 Discussion 2	Discussion
Unit 3 Quiz	Quiz

## Unit 4: Networking

What does the word “network” mean to you? Maybe you have a network of friends, or perhaps you envision a way to meet new people by sharing information about yourself. The word network has been around for hundreds of years, but in the early 1800s, network began to mean a “complex, interlocking system,” and that is an apt description for today’s computer networks. <sup>[1]</sup> But don’t worry—we’ll break down the complexities and learn some cool information about networks. We’re going to peel back the layers on what exactly the internet is and how networks function. Let’s surf the net!

### What will you learn in this unit?

1. Discuss the origin and evolution of networks
2. Compare and contrast types of networks such as client-server and peer-to-peer
3. Explain how network hardware and software functions
4. Describe each layer of the OSI model
5. Identify and troubleshoot common network problems

<b>UNIT 4 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 4 Critical Thinking Questions	Homework
Unit 4 Activity 1	Homework
Unit 4 Activity 2	Homework

Unit 4 Discussion 1	Discussion
Unit 4 Discussion 2	Discussion
Unit 4 Quiz	Quiz

## Computing for College and Careers 1b Midterm Exam

- Review information acquired and mastered from this course up to this point.
- Take a course exam based on material from the **first** half of the course (Note: You will be able to open this exam only one time.)

<b>MIDTERM Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Midterm Exam	Exam
Midterm Discussion	Discussion

## Unit 5: Trends in IT

The future of IT has never looked brighter! There are some fascinating innovations here and around the corner that will not only make our lives easier but also more sustainable. From artificial intelligence that will continue to be integrated into our devices to the increased use of robotics in a variety of industries, get ready to see machines become more autonomous. Blockchain technology has the ability to revolutionize our personal and professional lives, not just through cryptocurrency, but also through money transfer, voting, and securing personal information. And clean tech is looking to stop and even reverse climate change. How will you be a part of this bright future?

### What will you learn in this unit?

1. Explain the advantages and disadvantages of artificial intelligence
2. Describe how robotics are used in various industries
3. Consider applications of cryptocurrency and blockchain technology
4. Analyze the impact of technology trends on the environment

<b>UNIT 5 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 5 Critical Thinking Questions	Homework
Unit 5 Activity 1	Homework
Unit 5 Activity 2	Homework
Unit 5 Discussion 1	Discussion
Unit 5 Discussion 2	Discussion
Unit 5 Quiz	Quiz

## **Unit 6: Legal and Ethical Issues**

Our conscience kicks in and tells us that certain actions are wrong. But is everything that is wrong also against the law? How do we tell the difference between unethical and illegal actions, especially in our digital world that seems to have so many issues that fall into a grey area? You'll learn all this and more as we discover the legal and ethical issues within computing. From protecting intellectual property to avoiding plagiarism to preventing piracy, you'll become familiar with a variety of issues. You will also learn what is involved with being a good digital citizen who respects, educates, and protects. Let's get started!

### **What will you learn in this unit?**

1. Examine legal and ethical issues related to computers and the internet
2. Differentiate among types of intellectual property and the laws that protect them
3. Avoid plagiarism by citing sources correctly
4. Explain how to become a good digital citizen

<b>UNIT 6 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 6 Critical Thinking Questions	Homework
Unit 6 Activity 1	Homework
Unit 6 Activity 2	Homework

Unit 6 Discussion 1	Discussion
Unit 6 Discussion 2	Discussion
Unit 6 Quiz	Quiz

## Unit 7: Follow the Leader

The world always needs good leaders. But are leaders born or made? Is there hope for someone who doesn't identify as a natural-born leader to be effective in a position of leadership? How do different organizations use leadership and structure to achieve their goals? You probably have learned about leadership skills in the past, but we're going to dive into how we can develop these leadership skills to become an effective project manager. After this unit, you'll be prepared to put your leadership skills into action!

### What will you learn in this unit?

1. Demonstrate leadership skills
2. Use collaboration skills and function as part of a team
3. Evaluate organizational structures and cultures
4. Apply project management skills such as planning, time management, and scheduling
5. Execute, monitor, and close a project effectively

<b>UNIT 7 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 7 Critical Thinking Questions	Homework
Unit 7 Activity 1	Homework
Unit 7 Activity 2	Homework
Unit 7 Discussion 1	Discussion
Unit 7 Discussion 2	Discussion
Unit 7 Quiz	Quiz

## Unit 8: Look to the Future

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Do you dream about developing the next big video game? Is your passion cutting-edge web development? Or maybe you enjoy managing and supporting networks. Who knows—you may even be eyeing a non-tech field, too! Whatever you are thinking about for the future, whether it's college, vocational training, or going straight into the workforce, you'll learn some tips and strategies for how to get there. We'll explore various careers in computing, take a self-assessment to see where your personality might thrive, learn about industry certifications, and see how a resume and portfolio can help you. The future is on its way!

### What will you learn in this unit?

1. Complete a self-assessment to identify potential careers
2. Research careers and identify the education, skills, and experience required
3. Investigate computing certifications and their requirements
4. Describe how resumes and portfolios can help the job search process
5. Find important information within a job posting to determine whether it is a good fit

<b>UNIT 8 Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Unit 8 Critical Thinking Questions	Homework
Unit 8 Activity 1	Homework
Unit 8 Activity 2	Homework
Unit 8 Activity 3	Homework
Unit 8 Discussion 1	Discussion
Unit 8 Discussion 2	Discussion
Unit 8 Quiz	Quiz

### Computing for College and Careers 1b Final Exam

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- Review information acquired and mastered from this course up to this point.
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<b>FINAL Assignments</b>	
<b>Assignment</b>	<b>Type</b>
Final Exam	Exam
Final Exam Discussion	Discussion

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1. [https://www.etymonline.com/word/network#:~:text=network%20\(n.\),%2C%20canals%2C%20and%20railways](https://www.etymonline.com/word/network#:~:text=network%20(n.),%2C%20canals%2C%20and%20railways) ↵

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