



TEACHER NAME: ZACH BRYKALIUK

COURSE DESCRIPTION: This course builds on the programming concepts introduced in Computer Science 20S and focuses on developing stronger problem-solving and programming skills. You will learn to write programs using C# and the console environment, with an emphasis on writing clear, organized, and efficient code. Topics include variables and data types, decision making, loops, arrays, functions, return values, and object-oriented programming with classes.

RESOURCES: VISUAL STUDIO (2022 RECOMMENDED)

PRE-REQUISITES: 20S COMPUTER SCIENCE

SPECIFIC LEARNING OUTCOMES

Unit	Learning Outcomes	Estimated Timeline
01 Console Programming	- Write and execute C# programs using the console environment. - Use variables, data types, constants, and operators to store and manipulate information. - Obtain and validate user input, including converting input into appropriate data types. - Use decision-making structures such as if, else if, else, and logical operators to control program flow. - Apply functions and return values to organize code, solve problems efficiently, and reduce repeated code.	~ 3 weeks
02 Loops	- Explain the purpose of loops and identify situations where repetition can be used to solve a problem. - Use while, do-while, and for loops to repeat sections of code. - Use conditions and counters to control how and when a loop executes. - Use loops to process user input and perform repetitive calculations or tasks. - Identify and troubleshoot common loop errors, including infinite loops and incorrect loop conditions.	~ 6 weeks
03 Arrays	- Explain the purpose of arrays and identify situations where arrays are useful for storing related data. - Create and initialize arrays using appropriate data types and sizes. - Access and modify individual elements of an array using indexes. - Use loops to process arrays, including searching, displaying, and performing calculations on stored data. - Apply arrays to solve programming problems involving collections of related information.	~ 6 weeks

04 Classes	• Explain the purpose of classes and objects in object-oriented programming. • Create classes with appropriate fields, properties, and methods. • Create and use objects based on a class. • Use constructors and methods to initialize and work with objects. • Apply object-oriented programming concepts to organize and solve programming problems.	~ 6 weeks
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GENERAL LEARNING OUTCOMES:

- Students will demonstrate Digital Citizenship .
- Students will demonstrate effective communication skills in listening, speaking, reading, writing, viewing, and representing.
- Students will demonstrate appropriate problem-solving skills while seeking solutions to technological challenges.
- Students will develop the abilities to use, manage, and understand information and communication technologies by exploring programming languages and computer-controlled devices.
- Students will problem-solve by testing and debugging projects.
- Students will use independent research skills to solve problems.

ASSESSMENT PLAN

Category	Weight
Projects	30%
Tests	30%
Quizzes	15%
Final Exam	25%

PHONE / ELECTRONICS POLICY

Phones and other electronics are not to be used for anything outside of education purposes.

LATE POLICY

Late assessments will be marked as a zero (NHIO) until work is completed and submitted.

INTEGRITY POLICY

All code submitted for this course must be your own original work. Copying code from online resources or fellow classmates without proper acknowledgment is considered academic dishonesty.

POLICY ENFORCEMENT

Any assessment found to contain stolen or copied code will receive a grade of 0 with no opportunity for resubmission.

Collaboration is encouraged for learning purposes, but direct sharing or copying of code is strictly prohibited.

AI USE

AI tools, including ChatGPT and other generative AI programs, may be used to support learning beyond the content taught in this course. For example, you may use AI to explore programming concepts, languages, or techniques that have not yet been covered in class.

However, AI should not be used to complete, generate, or substantially modify your course assignments, projects, or assessments. Your submitted work should demonstrate your own understanding and programming skills.