

NORTHWESTERN CONNECTICUT COMMUNITY COLLEGE

COURSE SYLLABUS

Course Title: Introduction to Logic and Programming

Course #: CSC* 104

Course Description: 4 Credits. Study of computer programming and logic as applied to real world problems with solutions designed and implemented in the C programming language. Topics include set theory, Boolean algebra, truth tables, logic to program translation, basic algorithm development, generic selection and repetition, data types and memory variables, and the use of common programming tools.

Pre-requisite/Co-requisite: None

Goals: Students are expected to

- Understand basic concepts of set theory for decision making
- Create graphical flow diagrams to represent program code
- Use one or more programming environments
- Understand and apply basic C programming data types, expressions, and control structures such as sequence, selection and iteration
- Understand and apply simple data structures such as arrays in software development
- Apply problem-solving and C language skills to develop working C programs

Outcomes: Upon successful completion of this course students will be able to:

- 1) Demonstrate an understanding of basic computing terms and components
 - a) Identify basic functions of the computer
 - b) Identify basic components of the computer
 - c) Describe how algorithms are designed
 - d) Describe the use of memory
- 2) Demonstrate the concepts used in programming
 - a) Demonstrate the evaluation of expressions
 - b) Describe how operators are used and how operations are performed
 - c) Demonstrate the use of sentinels including
 - d) Counters
 - e) Flags
 - f) Accumulators
 - g) Describe the iterative process of using loops
 - h) Explain how Input and Output are accomplished
 - i) Explain the types of errors that occur and how they are handled
 - j) Explain how comments are used
- 3) Demonstrate the use of sets to evaluate and reduce expressions
 - a) Explain basic set concepts
 - b) Explain the Universal set
 - c) Explain Empty sets
 - d) Demonstrate set union
 - e) Demonstrate set intersection
 - f) Demonstrate set complement
 - g) Demonstrate Boolean set properties
 - h) Explain the use of subsets

- 4) Demonstrate the use of Venn Diagrams
 - a) Explain the use of Single Variable Venn Diagrams
 - b) Explain the use of 2 Variable Venn Diagrams
 - c) Explain the use of 3 Variable Venn Diagrams
 - d) Explain the problems with graphical representation beyond 3 variables
 - e) Demonstrate set reduction basics
 - f) Explain n Variable Representation
 - g) Demonstrate set reduction through mapping

- 5) Demonstrate the use of connectives to develop complex expressions
 - a) Explain the use of Conjunction
 - b) Explain the use of Disjunction including
 - c) Inclusive Disjunction
 - d) Exclusive Disjunction
 - e) Explain the use of Negation

- 6) Demonstrate the use of Truth Tables
 - a) Explain the concept and use of Equivalence
 - b) Explain the concept and use of Tautologies and Contradictions
 - c) Demonstrate the relationship of Truth Tables to Flowcharts
 - d) Demonstrate the use of flowcharts in programming

- 7) Demonstrate the use of Decision Tables
 - a) Explain determining outcomes
 - b) Identify Conditions and Alternatives
 - c) Identify Decision Table structure

- 8) Demonstrate expression representation through Natural Language Translation
 - a) Identify connectives in sentence structure

- 9) Demonstrate the use of logic in problem solving
 - a) Identify the use of logic in database problems
 - b) Identify the use of logic in game theory

College Policies

Plagiarism: Plagiarism and Academic Dishonesty are not tolerated at Northwestern Connecticut Community College. Violators of this policy will be subject to sanctions ranging from failure of the assignment (receiving a zero), failing the course, being removed/expelled from the program and/or the College. Please refer to your “Student Handbook” under “Policy on Student Rights,” the Section entitled “Student Discipline,” or the College catalog for additional information.

Americans with Disabilities Act (ADA): The College will make reasonable accommodations for persons with documented learning, physical, or psychiatric disabilities. Students should notify Dr. Christine Woodcock, the Counselor for Students with Disabilities. She is located at Green Woods Hall, in the Center for Student Development. Her phone number is 860-738-6318 and her email is cwoodcock@nwcc.edu.

School Cancellations: If snowy or icy driving conditions cause the postponement or cancellation of classes, announcements will be made on local radio and television stations and posted on the College's website at www.nwcc.edu. Students may also call the College directly at **(860) 738-6464** to hear a recorded message concerning any inclement weather closings. Students are urged to exercise their own judgment if road conditions in their localities are hazardous.

Use of Electronic Devices: Some course content as presented in Blackboard Learn is not fully supported on mobile devices at this time. While mobile devices provide convenient access to check in and read information about your courses, they should not be used to perform work such as taking tests, quizzes, completing assignments, or submitting substantive discussion posts.

Sexual Assault and Intimate Partner Violence Resource Team: NCCC is committed to creating a community that is safe and supportive of people of all gender and sexual identities. This pertains to the entire campus community, whether on ground or virtual, students, faculty, or staff.

Sexual assault and intimate partner violence is an affront to our national conscience, and one we cannot ignore. It is our hope that no one within our campus community will become a victim of these crimes. However, if it occurs, NCCC has created the SART Team - Sexual Assault and Intimate Partner Violence Resource Team - to meet the victim's needs.

SART is a campus and community based team that is fully trained to provide trauma-informed compassionate service and referrals for comprehensive care. The team works in partnership with The Susan B. Anthony Project to extend services 24 hours a day, 7 days a week throughout the year.

The NCCC team members are:

Ruth Gonzalez, Ph.D.	860-738-6315	Green Woods Hall Room 207
Susan Berg	860-738-6342	Green Woods Hall Room 223
Kathleen Chapman	860-738-6344	Green Woods Hall Room 110
Michael Emanuel	860-738-6389	Founders Hall Annex Room 308
Seth Kershner	860-738-6481	Library
Jane O'Grady	860-738-6393	Founders Hall Annex Room 212
Robin Orloski	860-738-6416	Business Office Room 201
Patricia Bouffard, Ex-Officio	860-738-6319	Founders Hall Room 103
Savannah Schmitt	Student Representative	

At NCCC we care about our students, staff and faculty and their well-being. It is our intention to facilitate the resources needed to help achieve both physical and emotional health.