CSC 180-01, Fundamentals of Computing
Fall 2024
Eastern Connecticut State University

Instructor: Dr. Garrett Dancik
                         dancikg@easternct.edu
                         (860) 465-4587
                         Science Building, Rm 257

Office Hours:

>   MWF: 11 – 12:00 PM
>   MW: 1 – 2:00 PM, or by appointment

Office hours can be virtual (appointment required) or in person. It is not necessary to sign up for in-person office hours, but those who do will be given priority. Sign up at
https://outlook.office365.com/owa/calendar/DrGarrettDancik@myeasternct.onmicrosoft.com/bookings/

Course information:
Title: Fundamentals of Computing
Day/Time: MWF 2:00 – 2:50 AM (Science Rm 135)
Section: 01
Credit: 3 hours

Course Materials:

1. Course notes and class website: https://gdancik.github.io
2. Additional course material: https://easternct.blackboard.com/
3. Software (see course website for installation information):
   a. Visual Studio Code (https://code.visualstudio.com/), Python, and the Jupyter Notebook extension
   b. CircuitVerse (https://circuitverse.org/)
4. Piazza (https://piazza.com) will be used for online discussion. A mobile app is available from the App store (iPhone/iPad) or Google Play (Android devices)
5. Optional Textbook: *Invitation to Computer Science*, 8th Edition, by G. Schneider and J. Gersting, Cengage Learning, 2019, ISBN 978-1337561914, https://faculty.cengage.com/titles/9781337561914

Course Description
This course provides an introduction to the fundamental principles of computing from hardware to software to computational thinking. Students will acquire the foundational knowledge and skills essential to advance their studies in computer science. The focus will be on the big ideas in computing: creativity, abstraction, data and information, algorithms, programming, the internet, and global impact. Students will learn to apply established computational thinking practices.

Learning Outcomes
Upon completion of the course, students are expected to:
1. Identify impacts of computing
2. Explain how data or information is represented for computational use
3. Explain how logic gates are used through the process of abstraction in computing modeling and organization
4. Describe and compare algorithms for efficiency using Big-O notation
5. Create a computational artifact with a practical intent through programming
6. Select appropriate programming techniques and algorithms to creatively solve problems
7. Collaborate and communicate with another student in solving a computational problem

Online discussion: We will use Piazza (https://piazza.com) as an online discussion and question and answer forum in this course. A link to our Piazza page is available from Blackboard. Piazza allows for students to post and answer questions, anonymously if desired. The class benefits by seeing questions asked by other students (who often have the same questions as you) and by contributing answers. As the instructor, I will answer questions and can endorse correct student answers as well. For these reasons, all non-personal (e.g., not grade-related) questions should be posted to Piazza rather than e-mailed to me. Questions regarding homework assignments should be posted to Piazza. Questions about homeworks must be specific and may contain no more than *several* lines of code. Note that posts not meeting these criteria will be deleted and the poster penalized if warranted. Some assignments may require participation using Piazza.

Grading

Labs / Exercises	40%
Exam I	20%
Exam II	20%
Exam III	20%

Assignment Policy: We will devote some class time to completion of assignments. All assignments are due at the beginning of the class on the due date unless specified otherwise. However, a 48-hour grace period is allowed for one eligible assignment of your choice. In this case, you may turn in an assignment up to 48 hours late with no penalty. No assignment will be accepted after the grace period without prior approval. Late assignments will also not be accepted if you have already used your grace period. However, the lowest assignment grade (among eligible assignments) will be dropped. If

you know ahead of time that you will be missing class or that you will not be able to complete an assignment on time, please talk to me and if appropriate, additional arrangements will be made. The grace period can be applied to any assignment, unless the assignment specifically states otherwise. The grace period cannot be used for exams. Only one grace period can be used for each student.

Exam Policy: Make-up exams will only be given if you have a valid reason for missing the due date. If you know ahead of time that you will miss an exam, please talk to me before the exam to make arrangements for taking it. Missing **two** or **more** exams without official excuses will result in your dismissal from the course with a grade of **F**.

Grading Scale
93-100: **A**   90-92: **A-**
 87-89: **B+**   83-86: **B**   80-82: **B-**
 77-79: **C+**   73-76: **C**   70-72: **C-**
 6 5-69: **D+**   60-64: **D**   59 and below: **F**

Academic Honesty
You are encouraged to discuss projects and exercises with one another unless specified otherwise. However, copying answers from another student (unless otherwise specified) is *cheating* and this will not be tolerated. A student found cheating will automatically receive a grade of "F" on the assignment and will be reported to the department head with further potential consequences. In addition, students are responsible for familiarizing themselves with the University's numerous policies and procedures contained in the University Catalog and Student Handbook. The Code of Conduct policies and the Policy on Academic Misconduct are of special significance, since cheating, plagiarism, and personal misconduct are strictly prohibited and carry severe penalties. Students should read and understand Eastern's Academic Misconduct Policy, which can be found in the student handbook: *www.easternct.edu/academic-misconduct*. All violations will be handled under the procedures established in this policy.

Classroom civility and safety
In general, follow the Golden Rule and treat others with respect and the way you want to be treated. In addition, students are expected to adhere to current health and safety protocols as regularly updated on Easternct.edu. Any student who fails to follow safety protocols during class will be referred to the Office of Student Conduct for disciplinary review. In response to state or university restrictions, the professor may deem it necessary to revise assignments and due dates articulated here.

Special Accommodations
Eastern Connecticut State University is committed to following the requirements of the Americans with Disabilities Act and Section 504 of the Rehabilitation Act. If you are a student with a disability (or think you may have a disability), and require adaptations or accommodations, or assistance evacuating a building in the case of an emergency, please contact the Office of AccessAbility Services (OAS) at 860-465-0189 to discuss your

request further. Any student registered with the OAS should contact the instructor as soon as possible for assistance with classroom accommodations. Please note that accommodations are not retroactive, and must be communicated through a Letter of Accommodation which is drafted by the OAS.

*Tentative course schedule

Week	Week of	Topic		Recommended Reading
1	8/26/2024	Introduction to Computer Science, Algorithms, and Programming		Chapters 1 - 2
2	9/2/2024	*Labor Day – No Class Monday*	Problem Solving with Programming - Variables, I/O, and expressions	-
3	9/9/2024	Problem Solving with Programming – Intro to Control Statements (if..else..)		-
4	9/16/2024	Problem Solving with Programming – More Control Statements (loops)		-
5	9/23/2024	**Review / Exam I**		-
6	9/30/2024	Machine Representation of Data (Bits, Bytes, Binary, Octal, Hexadecimal, 1's and 2's complements)		Chapter 4
7	10/7/2024	Boolean Logic and gates (AND, OR, NOT)		Chapter 4
8	10/14/2024	Combinational Logic - Adders		Chapter 4
9	10/21/2024	Combinational Logic - Decoder and Multiplexer		Chapter 4
10	10/28/2024	Sequential Logic and Flip-Flops		
11	11/4/2024	Basic computer organization (Von Newman Architecture)	**Review / Exam II**	Chapter 5
12	11/11/2024	Algorithms and complexity (Big-O Notation)		Chapter 3
13	11/18/2024	Analysis of Algorithms (Linear and Binary Search)		Chapter 3
14	11/25/2024	Analysis of Algorithms (Sorting Algorithms)	*Thanksgiving Recess – No Class Friday*	Chapter 3
15	12/2/2024	Ethics and Social Issues in Computing, Review		Chapter 17
	12/11/2024	**Exam III (2 – 4:00 PM)**		

*This is a tentative schedule and is subject to change