

## COSC220 Computer Science II

- **Instructor:** Dr. Sang-Eon Park
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  - **Office:** Conway Hall Room 205 (TETC 205)
  - **Homepage:** <http://faculty.salisbury.edu/~sexpark>
  - **Office Hour:**
    - Tue, Thu.: 11:00 A.M. ~ 1:00 P.M.
    - Wed.: 12:00 P.M. ~ 2:00 P.M.
- **Prerequisite:** COSC 120 and MATH 210 with grades of C or better. MATH 210 may be taken concurrently
- **Lecture:**
  - TETC 129 Tues. Thur. 8:00 A.M. ~ 9:15 A.M.
  - TETC 156 Tues. Thur. 9:30 A.M. ~ 10:45 A.M.

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## COSC220 Computer Science II

- **Lab:**
  - HS 143: Wed. 8:00 A.M. ~ 9:40 A.M.
  - HS 143: Wed. 10:00 A.M. ~ 11:40 A.M.
- **Description:** Learn how to build ADT (abstract data types) with classes, how to program with classes in C++. Discuss data structures such as linked lists, stacks, queues, binary search tree, heap and so on. Discuss existing algorithms such as searching, sorting, shortest path, minimum spanning tree and so on. Discuss how to analyze algorithms.
- **References:**

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- **References**
  - Starting out with C++ from control structure through objects 9<sup>th</sup> Edition, by Tony Gaddis, Pearson 2018
  - Starting out with C++ from control structure to objects 10<sup>th</sup> Edition, by Tony Gaddis, Pearson 2022



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## COSC220 Computer Science II

- **Topics**
  - COSC120 Reviews
  - Pointers & Arrays
    - Review of pointers, passing pointers as parameters, relations between pointer and array name, dynamic memory allocation, array of pointer types,...
  - Implementing class
    - Creating classes: private, protected, public members, constructors, destructor, overloading function and operators, templates, inheritance, polymorphism
  - Algorithms
    - Searching (linear, binary) and sorting (insertion, selection, bubble, shell, merge, quick, radix sort) algorithms with arrays

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- **Topics continue**
  - Data Structures and Implementation
    - Discuss implementation of vector, stack, queue,
    - Linked list using pointer-based array and/or linked lists
    - Heap with priority Queue.
    - Binary Search Tree
  - How to use Standard Template Library (STL)
    - Vector, Stack, Queue, Map, Set and so on
  - Introduction to Algorithm Analysis
    - Introduce asymptotic notations (big-O, big-Ω, big-Θ) and basic related theorems, perform runtime analysis on searching and sorting algorithm
  - Graph Algorithms –shortest path, MST,...

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- **Grade:**
  - Test 1 - 20 %, Test 2 - 20 %, Final - 30 % Lab&Project/Mini-test - 15%/15%.
  - Your final grade will be based on the standard formula
    - **A:**  $90 \leq \text{Total\_Average\_score}$
    - **B:**  $80 \leq \text{Total\_Average\_score} < 90$
    - **C:**  $70 \leq \text{Total\_Average\_score} < 80$
    - **D:**  $60 \leq \text{Total\_Average\_score} < 70$
    - **F:**  $\text{Total\_Average\_score} < 60$

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### Lab policy:

- Lab material will be provided at the beginning of each lab class.
- Each student is required to attend a lab session each week and start working on new lab.
- Each lab must be done by the beginning of the next lab class. Each student must send by email to [newcosc220@gmail.com](mailto:newcosc220@gmail.com) one day before the lab class day. Instructor will check students works during the lab hour. Each student must be ready to show his/her works.
- Students are expected to work independently on each lab. Copying code is strictly prohibited. Copying code from another student or any other source (e.g., a web site) is considered plagiarism and will be prosecuted under the Code of Student Conduct at Salisbury University. If two students have identical or similar work, both will be given a failing grade.
- Late lab work will not be accepted.

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- **Exam Policy:** There will be an announcement at least one week before each exam. And also, it will be posted on my web page. There will be no make-ups or rescheduling of exams for individual cases (except emergency cases with evidence).
- **Attendance:**
  - Each student is expected to be present each lecture and lab. Attendance will be checked for each class.
  - If a student misses lectures more than 4 times (2 weeks) without any reason with evidence, he/she will lose 3% from the total average score.
  - If a class must be missed, however, students are responsible for all material, assignments, and announcements made during class.
- **No laptop and Smart phone during Lecture:** Student cannot use laptop and smartphone during a lecture without special permission.