**INFORMATION TECHNOLOGY EDUCATION**

**COP2535.0M1 SYLLABUS**

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| **Course Title and Number: COP2535, Data Structures** | | **Instructor: Charles Carter** |
| **Year and Term: Spring, 2023** | **Course Credits: 3** | **Office Location: Online** |
| **Office Phone: 706-662-6351** | **Office Hours: TBA** | **Class Location: Online** |
| **Meeting Time/Days: Online** | | **Email Address: charles.carter1@sfcollege.edu** |
| Web Page Address: N/A | | Fax Number: N/A |

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| **Course Description** | This course will focus on the design and analysis of data structures and the use of algorithms. Through the introduction of the most widely used data structures employed in solving commonly encountered problems, such as linked lists, binary trees, queues, and stacks, students will learn different ways to organize data for easy access and efficient manipulation. Algorithms to solve classic problems, such as searching, sorting, hashing, and graph algorithms, will also be presented. This course assumes the student has a basic understanding of object-oriented programming in the C++ or Java programming language. |
| **Prerequisites** | COP2552 with minimum grade of C |
| Course Objectives Reflecting Expected Student Learning Outcomes | Understand the goals of software design  Describe and utilize an ADT  Use unsorted lists to implement utility routines  Use sorted lists using an array-based implementation  Understand and implement stack operations  Demonstrate the effect of queue operations  Implement linked lists as an array of records  Demonstrate how a binary tree can be represented in an array  Implement a heap in a nonlinked tree representation in an array  Compare the efficiency of the sorting and searching algorithms |
| Grading | **Course Requirements:**  Attendance is required. Regular attendance will be critical to success in this course. It will help guide you toward the successful completion of your projects.  Class sessions will include lectures, presentations, and discussions as well as hands-on exercises. When the instructor asks for your attention, discontinue working on the computer. No one may work on the computer during lectures, presentations, and discussions unless instructed to do so.  You will be asked to complete training for each topic. They are called **Content-Based Assessments** in the Grade Calculation section below. These trainings may include viewing Audio/Video files, completing simulated trainings, and/or completion of projects from the textbook. All projects both training and homework, must be turned in on the date and time specified by your individual section instructor. **Check your Canvas calendar for the due dates**. Each project must be submitted using the method specified by your instructor for that project. If you cannot find due dates or the method of submission for a project, please check with your instructor via Canvas.  Students who need reasonable accommodation should contact the instructor or call the Disability Resources Center at 352-395-4400.  **Policies on Missed Exams and Late Work:**  **Late projects are not accepted, and no extensions are given for any reason. Therefore, you must make sure to start your projects early**. If you are working on projects at home, it is your responsibility to maintain your computer. Computers as well as humans are not perfect, and excuses such as "the computer was not working" or "I lost my Internet connection" are not acceptable. You can always use one of the computers in the Testing Center/Big Open Lab provided on the second floor of building N, at the Northwest Campus of SFC. Requirements cannot be waived due to problems with your hardware, software, or Internet connection. Check the lab hours of operation now, before you need them. Alternate labs at Santa Fe include the Business Lab found in Building C on the Northwest Campus, and the computer labs at each of the off-campus locations.  Projects must be organized and submitted following the specified format. Methods other than those specified by your instructor are not acceptable. The lowest homework grade will be dropped. **There are no make-up homework projects.**  All exams will be announced in advance. No exam grade will be dropped. Makeup exams will only be considered under special circumstances, such as illness, work related emergencies, judicial procedures, military service, or official school functions. **Documentation must be provided** on letterhead with the signature of a physician, supervisor, or other appropriate official. If possible, you should inform the instructor ahead of time. You must contact the instructor and provide the documentation no later than one week after the absence.  There is a hands-on final for this course. You are required to take the exam. The final is given only during finals week. Students will take the final exam at the time specified for their section. Your section instructor will post the final exam day and time on the Canvas course calendar. Do not make any travel plans during this time. There are absolutely no early final exams for any reason.  **Grading Scale and Standards:**   |  |  | | --- | --- | | **Grade Calculation** | | |  |  | | Content-Based Assessments (training) | 20% | | Projects (homework) | 35% | | Attendance/Participation | 10% | | Exams | 25% | | Final Exam | 10% |  |  |  |  |  | | --- | --- | --- | --- | | **Grade Scale** | | | | | 90 | - | 100 | A | | 87 | - | 89 | B+ | | 80 | - | 86 | B | | 77 | - | 79 | C+ | | 70 | - | 76 | C | | 67 | - | 69 | D+ | | 60 | - | 66 | D | | 0 | - | 59 | F |   Grading will be based on objective standards as well as such subjective criteria as overall impression, thoroughness, attention to detail, and extra effort. Completing the minimum requirements does not guarantee an A grade for this course. Excellent grades are reserved for outstanding work. Also, it is your instructor's prerogative not to accept sloppy or incomplete projects.  **Withdrawals and Incompletes**  If you fall behind in the course, you should strongly consider withdrawing. However, you should discuss this option with the instructor prior to deciding. Check the Important Dates section for the last day to withdraw and receive a W as a grade.  An Incomplete grade will be given only in situations where a student has successfully completed nearly all the semester coursework and has experienced an emergency situation at the end of the term. The circumstances must be documented, and the student must contact the instructor prior to final exam week to agree on incomplete terms, and deadlines. |
| Text(s) | **Required Text:**  Starting Out with C++ Early Objects, by Gaddis, Walters, and Muganda, 10th Edition, ISBN: 978-0-13-523500-3  Mastering Algorithms with C, Kyle Loudon, ISBN 978-1-56592-453-6. This book is an old book and it’s possible to find PDF copies online.  Access to O'Reilly (Links to an external site.) (Library Login (Links to an external site.) is available through having an Alachua County Library card) (Links to an external site.). |
| **Required**  **Course Materials** | One storage device (USB drive) for saving your work is required.  A second storage device (USB drive) **for backing up your work** is strongly recommended. |
| **Recommended**  **Course Materials** | Visual Studio 2022 Community Edition |
| **Term Calendar**  *(****Tentative:*** *The instructor reserves the right to alter dates of presentations and exams/projects.)* | **Topics to be Covered:**  See separate handout |
| **Classroom Etiquette** | Unauthorized modification of the system setup of Santa Fe's computer teaching labs is a violation of the Student Conduct Code, Article III, Proscribed Conduct.  College regulations specify that food and drink cannot be used in classrooms. This includes our computer labs. Please always adhere to this policy.  Learning should be fun, and we want you to enjoy class in an atmosphere that is suitable for a college course. Arrive on time and inform your instructor if you need to leave early. Communicate in an appropriate manner in the classroom and on-line. Reading E-mail, playing games, sleeping, chatting, text messaging, or engaging in other activities not related to the course content during lectures and presentations are not acceptable.  If your class period includes lab time, do not think that class is over, and you can leave when the lab time begins. Take full advantage of this period as well as the help and experience of your instructor. |
| **Agreement to Syllabus** | This syllabus is a contract between you and your instructor. Both of you will be expected to abide by its policies. It is your right as a student to challenge any future circumstances in this course that you believe to be a violation of this contract. |
| **List of Important Dates** | See Academic Calendar. Classes begin January 9, 2023. |

**INFORMATION TECHNOLOGY EDUCATION**

**Policies and Guidelines**

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| **Cell Phone Use Policy**  Given the disruptive potential posed by cell phones, students are required to keep cell phones off during class lectures. Use of cell phones during lab exercises are permissible, but please consider those around you |
| **\*Children in the Classroom**  Children represent a disruptive element for the classroom. They also increase the risk of accidents occurring in the lab. For those reasons, children should not be brought to either the classroom or the laboratory. |
| **\*Academic Honesty: Plagiarism and Cheating**  Academic honesty is expected, and the instructor reserves the right to respond to cheating, plagiarizing, or other forms of unethical behavior with penalties up to and including removal from the class and/or failure in the course. The instructor also reserves the right to make necessary adjustments to the syllabus. |
| **\*Academic Ethics and Confidentiality**  It is the responsibility of everyone engaged in the learning experience to respect the rights and feelings of their fellow learners. Information gathered in the classroom and from on-line discussions and exercises is to be considered confidential. At the same time, students must recognize that the instructor and the College cannot guarantee the confidentiality of what the student may choose to disclose. Students must use their own discretion when engaging in classroom discussion. |
| **\*Classroom Behavior**  Instructors have the responsibility to set and maintain standards of classroom behavior appropriate to the discipline and method of teaching. Students may not engage in any activity which the instructor deems disruptive or counterproductive to the goals of the class. Students are required to keep cell phones off during class lectures unless there is permission in advance from the instructor. Instructors have the right to remove offending students from class. Repetition of the offense may result in expulsion from the course. Students are expected to be courteous to others and that includes coming to class on time. |
| **\*Student Conduct**  Students must read and be familiar with the Code of Conduct as published in the Student Handbook, policies and procedures as outlined in campus publications, Santa Fe policies. For further information refer to Santa Fe Rules Manual, Student Conduct Code, Rule 7.23, Academic Dishonesty at the SFC Human Resources Policies website <http://dept.sfcollege.edu/rules/content/media/PDF/Rule_7/7_23.pdf> |
| **\*Americans with Disabilities Act (ADA)**  If you are a student with a disability: In compliance with Santa Fe College policy and equal access laws, I am available to discuss appropriate academic accommodations that you may require as a student with a disability. Requests for academic accommodations need to be made during the first week of the semester (except for unusual circumstances) so arrangements can be made. You must be registered with Disabilities Resource Center (DRC) in S-229  for disability verification and determination of reasonable academic accommodations. For more information, see <http://www.sfcollege.edu/student/drc/index.php?section=faculty_resources/rights_responsibilities> |
| **\*Commitment to Equal Access and Equal Opportunity** Santa Fe College (SF) is committed to maintaining a work and educational environment that embraces diversity and where no member of the college community is excluded from participation in, denied the benefits of, or subject to discrimination in any college program or activity based on: their race, ethnicity, national origin, color, religion, age, disability, sex, pregnancy status, gender identity, sexual orientation, marital status, genetic information, political opinions or affiliations, or veteran status. This commitment applies to employees, volunteers, students, and, to the extent possible, to third parties, applicants for admission, applicants for employment, and the general public.  Inquiries regarding non-discrimination policies or concerns about discrimination or harassment, including concerns about sexual harassment or sexual violence under Title IX, should be directed to SF’s Equity Officer and Title IX Coordinator, 3000 NW 83rd Street, R-Annex, Room 113, Gainesville, Florida 32606, 352-395-5950, [equity.officer@sfcollege.edu](mailto:equity.officer@sfcollege.edu). |
| **\*Student Rights & Responsibilities**  The purpose of this document is to provide students with a general overview of both their rights and responsibilities as members of the Santa Fe College community. For a complete list of students’ rights and responsibilities go to: <http://www.sfcollege.edu/studentaffairs/index.php?section=policies/student_rights> |
| **\*Counseling Center** Santa Fe College recognizes that there may be times, as a college student, when personal stressors interfere with your academic performance and your daily life. The Santa Fe Counseling Center supports students by addressing mental and emotional well-being, and provides FREE and confidential short-term individual, couples, group counseling, crisis intervention, outreach, and referral services. To schedule an appointment, call 352-395-5508 or email counseling@sfcollege.edu with your SFID# and a telephone number where you can be reached. Our Counseling Center is in Building R, Room 227 on the Northwest Campus. Visit https://www.sfcollege.edu/counseling to learn more about their services and resources. |