

**CMPS 191: PROGRAMMING TECHNIQUES AND ALGORITHM DEVELOPMENT II
SPRING 2024**

2017 - 2020 Catalog Data: CMPS 191. PROGRAMMING TECHNIQUES AND ALGORITHM DEVELOPMENT II (Credit, 3 Hours). The second course in the two-course sequence for Computer Science majors and minors improving analysis and design skills is the primary intent of this course. Emphasis is placed on problem analysis and design of systems, algorithm design, and efficient coding techniques to optimize overall programming execution. Advanced techniques utilizing the language introduced in CMPS 190. **Prerequisite: CMPS 190.** (Credit, 3 hours) (Lecture, 3 hours).

Credit Hours: 3
Instructor: Dr. Davoud Arasteh, Professor
Office Location: Room 416, Pinchback Hall
Office Phone: (225) 771-3727
Office Hours: MWF 11-12, TR 10-11, 1-2
E-mail: davoud_arasteh@subr.edu
Textbook: Tony Gaddis, Starting Out with C++ (with My Programming Lab), 10th edition, Pearson. ISBN: 9780136581949

This course addresses: Program Educational Objectives, PEO 1, PEO 2, PEO 3, PEO 4
Program ABET Outcomes, Outcome 1, Outcome 2, Outcome 6

Target: 70% will perform at the level of performance in achieving ABET Outcomes 1, 2, and 6.

Program Educational Objectives: The Educational Objectives of the computer Science Program are to produce graduates who:

PEO 1: Successfully enter the competitive job market or pursue advanced study;

PEO 2: Are proficient in identifying, formulating, and solving a wide range of computing problems;

PEO 3: Are capable of working collaboratively, and communicating effectively with team members, constituents, and the public;

PEO 4: Uphold professional and ethical responsibilities, and contribute to society through active engagement.

Program ABET Outcomes: Graduates of the program will have the ability to:

Outcome 1: Analyze a complex computing problem and apply principles of computing and other relevant disciplines to identify solutions; [PEO 1, PEO 2]

Outcome 2: Design, implement, and evaluate a computing-based solution to meet a given set of computing requirements in the context of the program's discipline; [PEO 1, PEO 3]

Outcome 3: Communicate effectively in a variety of professional contexts; [PEO 1, PEO 3]

Outcome 4: Recognize professional responsibilities and make informed judgments in computing practice based on legal and ethical principles; [PEO 1, PEO 4]

Outcome 5: Function effectively as a member or leader of a team engaged in activities appropriate to the program's discipline; [PEO 1, PEO 3]

Outcome 6: Apply computer science theory and software development fundamentals to produce computing-based solutions; [PEO 1, PEO 2]

Course Objectives: Students should be able to:

Course Objective 1. Develop foundational skills for future computer science courses.

Course Objective 2. Develop problem-solving skills and software development tools

Course Objective 3. Gain knowledge of syntax and semantics of the C++ programming language,

Course Objective 4. Design and implement the algorithms of small-scale projects.

Course Learning Outcomes [CLO]: Upon successful completion of the course, students will be able to:

CLO 1. Demonstrate the ability to use foundational skills for future computer science courses by reviewing and practicing algorithm design and program implementation concepts. [ABET 1] [Course Objective 1]

CLO 2. Demonstrate the ability to use problem-solving skills and software design tools by formulating solutions and program implementation. [ABET 2] [Course Objective 2]

CLO 3. Demonstrate the ability to use syntax and semantics of the C++ programming language by writing, compiling, debugging, and running the programs. [ABET 1, 2, 6] [Course Objective 3]

CLO 4. Demonstrate the ability to design and implement small-scale programming projects by designing the algorithms, implementing and compiling the code, and testing the program's results. [ABET 1, 2, 6] [Course Objective 4]

Course Educational Strategies:

1. Provide clear lectures and discussions of appropriate programming concepts.
2. Provide students with the opportunity to learn course material through reading, discussion, and program assignments.
3. Allow students to demonstrate mastery of the course concepts through submitted exercises such as exams, quizzes, and project assignments.
4. Provide students with the opportunity to learn more about various branches of computer science through the application of object-oriented programming to real-world problems.

Course Weekly Content:

Week	Topic
1	Orientation and Introductions
2-3	Review of programming concepts from CMPS 190
4-5	Arrays
6-7	Sorting, searching algorithms, and Algorithm Analysis
8-9	Pointers
10-11	Classes and Object-Oriented Programming
12	C-Strings and String Class
13-14	Advanced File and I/O Operations
15	Analysis of Algorithms Complexity in C++
	Final

Administrative Information and Requirements

The student is expected to:

1. Read assignments to prepare for scheduled discussions of the material
2. Access online course materials to obtain assignments and related materials
3. Attend all classes to ensure that expectations are understood, and give feedback to monitor and assess progress
4. Complete each graded activity at the scheduled time
6. Demonstrate knowledge of the subject through exams (midterm and final), quizzes, and programming projects.

COURSE RULES AND PROCEDURES

Exam policy: Exams will emphasize concepts developed in the course. Exams will be closed-book and note unless stated otherwise. Students will not be able to pause the exams. There must be no sharing of any materials during exams. Communicating with one another is not permitted while taking an exam. If there are questions, they should be directed to the instructor.

Attendance policy and class participation: Students are expected to be present and on time and participate in class (whether virtual or in-person attendance) from the beginning through the end of the class period. Though attendance is strongly encouraged, merely attending classes does not guarantee a passing grade. It is every student's responsibility to make sure that he/she signs the roll during class.

Makeup test or exam: No makeup test or exam will be given except in the case of an emergency such as the student being sick, or he/she is unable to come to class due to some unforeseen event. An official proof **MUST** be presented to the instructor and the student is required to take the makeup test/exam as soon he/she returns to class in the following class session. Failure to comply will result in a grade of zero (0) for the test/exam.

Use of electronic devices while in class: Students are not allowed to use the computers for other purposes unrelated to the course content during the lectures unless authorized by the instructor of this course for the purpose of the course. Please turn off (or place on silent) your cellular phones before the lecture starts. The Hybrid classes will be through Microsoft Teams. Make sure to mute your microphone during the remote delivery of the lectures.

Academic honesty and plagiarism: Please review the Southern University – Baton Rouge Student Handbook for information regarding the university's academic conduct policy and what constitutes plagiarism. Academic dishonesty and plagiarism will **NOT** be tolerated. The remote attendees must especially stick to these guidelines.

Assignment policy: Students are **NOT** allowed to share their assignments or to communicate during tests or exams. No late assignments will be accepted and no make-up for assignments and quizzes.

Grading Distribution:

Grade will be determined by the normalized average on all points gathered from following activities:

Programming Assignments (100 points each)
Chapter quizzes (100 points each)
Exams (200 points each)
Final Exam (200)

Grading Scale: A=90 - 100, B=80 - 89, C=70 – 79, D=60 – 69, F= Below 60

MOODLE ACCESS – Southern University and A&M College at Baton Rouge will use Moodle extensively in this course. Moodle is a learning management system designed to help teachers and students communicate effectively online. The course syllabus and class materials (e.g., handouts, PowerPoint slides, journal articles, assignments, readings, etc.) will be placed on Moodle. The student should check Moodle DAILY for all assignments submitted via Moodle. If the student has problems with his Moodle account, he/she should contact Ms. Chrisena Williams-Brown in the Division of Information Technology via email at chrisena_williams@subr.edu or via phone at (225) 771-5017.

WEEL-BEING OF STUDENTS

Being successful in this course depends on many factors, including your personal well-being. As a student you may experience a range of stressors that can cause barriers to learning and impact your overall health. Some of these may include anxiety, stress, and depression, past traumas, grief/loss, and poor relationships to cite a few. You are a priority and SUBR faculty, staff, and administrators are waiting to assist you during your academic journey to success. Please reach out to me if you are experiencing any type of difficulty that may hinder your success in this course. In addition, the University Counseling Center (UCC) offers CONFIDENTIAL in-person counseling/therapy for numerous concerns of enrolled students and their significant partners. To learn more about your Counseling Center (CC) visit www.subr.edu/counselingcenter or e-mail them at counselingcenter@subr.edu. You can also follow them @SUBR_Counselingcenter.

STUDENT LEARNING AND LICENSURE

Watermark Student Learning & Licensure (SLL) has replaced Live Text (\$98 fee included on your billing statement for first-time and transfer students). Semester tuition and fees must be paid for student access. Visit here for Student Learning & Licensure FAQs: <https://www.subr.edu/page/student-learning-licensure-faqs>.

For SLL assistance, please contact:

Chrisena Williams-Brown, MBA/TM
Associate Director of Planning and Assessment
Office of Strategic Planning, Policy, and Institutional Effectiveness
Room 208 Augustus Blanks Hall
Email: chrisena.williams@sus.edu
Office Phone: 225-771-2274

INSTITUTIONAL POLICIES

ACADEMIC DISHONESTY – Southern University and A&M College's *Student Code of Conduct* (Code 1.1) identifies academic dishonesty as any deliberate attempt to gain an unfair advantage in academic work. Examples of academic dishonesty include cheating, falsification of information, fraud, plagiarism, unauthorized access to academic records, providing information, material, or other assistance with the knowledge that such assistance could be used in violation of the *Student Code of Conduct* or other University policies, or providing false information in connection with any inquiry regarding academic dishonesty.

[Academic Dishonesty Policy](#) - link to PDF [Report Academic Dishonesty](#) - link to PDF

ACADEMIC GRIEVANCES – Southern University and A&M College students may seek redress in academic decisions when they believe the decision is unfair or ungrounded. The academic grievance procedure provides prompt and equitable resolutions to student academic grievances. Classroom-related matters should be subjected to these procedures only when the grievance cannot be settled in the ordinary course of immediate post-class discussion. Academic grievances are not handled by the Office of the Dean of Students.

[Student Academic Grievance Procedures](#) - link to PDF

ADA COMPLIANCE – Southern University Baton Rouge is committed to providing reasonable accommodations for students with documented disabilities in compliance with the Americans with Disabilities Act (ADA). Students may request accommodations by registering with the Coordinator for Disability Services. It is important to do this early each semester because ADA accommodations are not retroactive. Upon completion of the application, the Coordinator will be responsible for forwarding the letter of accommodation to the student's professors. Accommodations will begin upon acknowledgment that the professor has received the letter of accommodations. All discussions with the faculty/student/Coordinator will remain confidential.

Contact Information

The Office of Disability Services is in Office # 246, A. C. Blanks Hall, in the center of the campus.

Southern University Office of Disability Services

Jada J. Netters, Coordinator P.O. Box 11298 Baton Rouge, LA 70813 Phone: (225) 771-3546 (V/TTDD)

Email: ods@subr.edu Website: www.subr.edu/ods

The Office of Disability Services (ODS), under the auspices of the University Counseling Center, assists students in meeting their unique academic/educational, personal, vocational, and social needs that would otherwise prove to be an obstacle to educational pursuits. The Office of Disability Services (ODS) provides confidential services to those students who, in this post-secondary setting, **must request and provide the necessary documentation to verify a special needs request**. Diagnostic educational evaluations/examinations are not conducted through ODS. Academic accommodations are made based on a student's documented disabilities.

Disruption of the Academic Process—The University's Student Code of Conduct (Codes 1.6 and 2.2) broadly defines disruption/obstruction as any major/minor action which obstructs, or attempts to obstruct, an official University function, such as teaching, research, administration, or other campus activity.

[Disruption Policy](#) - link to PDF [Report Classroom Disruption](#) - link to PDF

Southern University Statement of Non-Discrimination—In compliance with Title IX of the Education Amendments of 1972, Title VI and VII of the Civil Rights Act of 1964, Section 504 of the Rehabilitation Act of 1973, and other federal, state, and local laws, Southern University and A&M College forbids discriminating or harassing conduct that is based on an individual's race, color, religion, sex, ethnicity, national origin or ancestry, age, physical or mental disability, sexual orientation, gender identity, gender expression, genetic information, veteran or military status, membership in Uniformed Services, and all other categories protected by applicable state and federal laws. This commitment applies but is not limited to decisions made concerning hiring and promotion, the administration of educational programs and policies, scholarship and loan programs, and athletic or other College administered programs. Discriminatory acts of any kind are strictly forbidden.

Any member of the Southern University and A&M College community has the right to raise concerns or make a complaint regarding discrimination without fear of retaliation. All inquiries regarding the application of this statement and related policies may be referred to:

Cedric Upshaw, Title IX Coordinator, at (225) 771-5565.

Complaints may also be made via email at titleix@subr.edu or by visiting www.subr.edu/titleix.

Standards for Satisfactory Academic Progress—The Higher Education Act of 1965 as amended and final regulations set by the United States Department of Education (34CFR668.16) require that institutions of higher education establish reasonable standards of Satisfactory Academic Progress (SAP) as a condition of continuing eligibility for federal aid programs. Financial aid recipients are expected to make reasonable progress as a condition of receiving and continuing to receive student financial aid. Student progress is assessed according to both qualitative and quantitative measures. The University has developed this policy to provide a framework for monitoring and determining a student's Satisfactory Academic Progress by Federal and Institutional requirements. This policy applies to all new, transfer, re-entry, re-admit with transfer work, and continuing students at Southern University.

For additional information, please visit www.subr.edu/cusa

Student Email Policy—Email is a universal service that has greatly enhanced communication both internally within the Southern University and A&M College community and externally to users, including prospective students, alumni, and the public at large. The purpose of the University's general email policy is to describe the appropriate use of University email facilities, associated responsibilities, and rights of all users of University email facilities and official Southern University and A&M College email accounts. This student email policy is a supplement to the University's general email policy.

[Student Email Policy](#) - link to PDF

Tobacco-Free Campus Policy—The Southern University System (SUS) maintains a 100% Tobacco-Free Policy. Smoking and tobacco use of any kind will be prohibited on all SUS campuses and/or other properties owned and/or leased locations/premises; all internal and external areas, parking garages, and parking lots; all entrances and exits; and in all SUS owned and/or leased vehicles. Students may not smoke in their own or others' vehicles when the vehicles are parked on SUS properties. This policy will be in place at all Southern University and A&M College-sponsored events-both on our premises and external locations hosting such events, including non-University hours, and will further apply to all faculty, staff, students, and visitors. [SUBR Tobacco Free Policy](#) - link to PDF