CMPS 378   Software Engineering
Fall 2023   E206 Thurman (MWF 3.00–3.50)

Instructor:	Dr. N. Gwee
Office:	E109 Thurman
E-Mail:	nigel.gwee@sus.edu
Office Hours:	MWF 2–3 pm, 4–5 pm; Tu 1–3 pm. Please email me for an appointment.
Text:	Stephen R. Schach, *Object-Oriented and Classical Software Engineering*. 8th edition. ISBN 978-0-07-337618-9.

Course Description: Introduction to the principles of software engineering. The course includes discussion on life-cycle models, software system design and implementation, and testing with verification and validation. Various design and implementation methodologies will be examined and contrasted, including classical and object-oriented approaches. The course will be project-driven and students will work on a team project and fulfill various roles during the course of the project.

Prerequisite: Credit in CMPS 300 (Programming Languages). All students must have a LiveText account.

This course addresses Program Educational Objectives 1, 2, 3, and 4; Program ABET Outcomes 1–6.

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 an ability to:

Outcome 1: Analyze a complex computing problem and to 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:
1. Create and understand specifications for software projects.
2. Design using standard tools, and implement the designs in a high level programming language.
3. Work in software teams, and communicate their ideas effectively to other members. Professional deportment should be shown at all times.

Course Learning Outcomes [CLO]: Upon completion of this course, students will be able to:
1. Apply requirements analysis techniques. [ABET 1] [Course Objective 1]
2. Apply modular- and user interface design techniques. [ABET 2] [Course Objective 2]
3. Organize and execute software projects. [ABET 1, 2, 6]] [Course Objective 2]
4. Implement and verify software design using a high level programming language (C++ or Java). [ABET 1, 2, 6] [Course Objective 2]
5. Practice inter-personal and project management skills in a team development environment. [ABET 3, 4, 5] [Course Objective 3]
6. Assimilate and apply ideas discussed in current literature. [ABET 6] [Course Objective 3]
7. Communicate developmental ideas through project presentations. [ABET 3] [Course Objective 3]
8. Complete a comprehensive software engineering project, emphasizing requirements and design, but including implementation and verification. [ABET 1, 2, 6] [Course Objectives 1, 2, 3]

Target: 80% will perform at the level of performance 1-2 in achieving ABET Outcomes 1–6.

Grading:

Attendance	20%
Assignments	10%
Project	10%
Midterm	20%
Final	40%

90 – 100%	A
80 – 89%	B
70 – 79%	C
60 – 69%	D
below 60%	F

Administrative Information and Requirements:

Missed exams and assignments turned in late earn 0 points. Any questions concerning grading of exams and assignments must be resolved with the instructor within a week following the return of the graded item.

All students are expected to adhere strictly to the highest standards of academic integrity. All infractions will be dealt with severely. Please refer to the academic dishonesty policy at http://www.cmps.subr.edu/academicdishonesty.htm.

Topics and Weekly Content:

Introduction to the Software Life Cycle
        W1–2 Scope of software engineering
        W3–4 The software process
        W5–6 Software life-cycle models
        W7–8 Technical terms and software development tools
        W9–10 Testing—Verification and Validation
        W11–12 Object-oriented programming
        W13–14 Reusability, portability, and interoperability

W15 Management planning
The Phases of the Software Life Cycle
        W1–3 Requirements
        W4–6 Specifications
        W7–9 Object-oriented analysis
        W7–8 Design
        W10–12 Implementation
        W13–14 Integration
        W 15 Maintenance

Administrative Policies:

Please turn OFF all cell phones and other communication devices when class and exams are in session. No recording devices of any kind are allowed.

Inappropriate and/or disruptive behavior will be reported to the Office of Student Life for disciplinary review as per the Code of Student Conduct.

LIVETEXT SUBSCRIPTION – Southern University and A&M College-Baton Rouge has entered into partnership with LiveText, Inc. to provide online academic resources for student collaboration and learning outcomes assessment. Therefore, all students enrolled in this course are required to purchase a subscription from LiveText, Inc. through the Southern University Bookstore. LiveText, Inc. provides students with the electronic tools and services needed to serve them in their courses and in their career or academic pursuits beyond graduation. LiveText is a dynamic tool that will enable you to:

    -- Create electronic portfolios for storing and displaying coursework for use anytime and anyplace.
    -- Share your resumés, professional portfolios and virtually any projects that can be photographed, video recorded, and uploaded to prospective employers and others who need or want to know about your accomplishments.
    -- Engage in discussion boards with other students, exchange feedback, and create study groups and other types of social networks.
    -- Complete assignments in key/required courses where LiveText has been embedded (without LiveText, you will not be able to complete these assignments).
    -- Create a complete record of your academic career that is malleable and easily accessible.
    -- Engage in developing a results-driven culture of assessment at Southern University.
    -- Participate in a process that will allow for data-driven curricular improvements that foster improved student learning and performance.

MOODLE ACCESS – Southern University and A&M College at Baton Rouge will used Moodle extensively in this course. Moodle is a learning management system designed to help teachers and students communicate effectively online. The course syllabus, 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.

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, and unauthorized access to academic records, providing information, material, or other assistance with 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 American 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 accommodations to the students' professors. Accommodations will begin upon acknowledgement 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 with respect to 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 in accordance with 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 at 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