CSE316 : Fundamentals of Software Development

Syllabus

Term: Spring 2026
Instructor: *Tony Mione*
Course Meeting Times / Location: *Mon & Wed, 9:00-10:20 AM – B204*
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Office Hours:
    Mon: 10:30 – 12:00 Noon
    Tue: 10:30 AM - 12:00 Noon
    Wed: 11:00 – 12:00 Noon, 2:00 – 3:00 PM
    (or by appointment) [B425]

Course Homepage:
https://www3.cs.stonybrook.edu/~amione/CSE316_Course/index.html

Brigthspace: https://mycourses.stonybrook.edu/d2l/home/2483636

Recommended Texts:
- *Freeman, Eric, Robson, Elisabeth, Bates, Bert, and Sierra, Kathy,* "Head First Design Patterns", O'Reilly Media Inc, 2014. ISBN: 978-0-596-00712-6.
- *Accomazzo, Anthony, Lerner, Ari, Murray, Nate, Allsopp, Clay, Guttman, David, McGuinnis, Tyler*, "Fullstack React: The Complete Guide to ReactJS and Friends", Fullstack.io, 2020, ISBN: 978-0991344628
- *Hallie, Lydia, Osmani, Addy*, "Learning Patterns: Patterns for building powerful web apps with Vanilla Javascript and React", patterns.dev, 2022.
- *Other readings as specified*

Course Organization

This course is an introduction to systematic design, development and testing of software systems, including event-driven and Web programming, information management, software design and development fundamentals, and the application of these skills to the construction of large robust programs. Includes weekly assignments and projects, which provide students with experience in the practice of design and programming.

Course Objectives/Outcomes

Upon completion of the course, students are expected to possess:

- An ability to use event-driven programming in the construction of Web software.
- An ability to create a logical database design and implement it as a physical schema for a software application.
- An ability to apply algorithmic and software design/development principles to build large programs.
- An ability to design and implement a software testing plan.
- An ability to apply security principles to develop robust programs.

Prerequisites

- C or higher in CSE 216 or CSE 260 or CSE 307; CSE major
- CSE major

Grades and Evaluation

Your grade in the course will be based on the following work:

Attendance/Participation – 5% [25 points] – Based on attendance at class.
Assignments - 40% [200 points] - Programming assignments (4) which will provide practice in various development skills and software engineering practices. These assignments are to be completed individually.
Project – 30% [150points] A development project that will help students practice and demonstrate comprehensive skills learned during the semester.
Midterm Exam – 10% [50 points] – a midterm exam to check understanding of the concepts presented in readings, lecture slides and demonstrations.
Final Exam – 15% [75 points] - A cumulative final exam will provide questions that will cover the key concepts taught during the entire semester.

Final Grade Calculation

The final grade is based on the accumulated points from all exams, assignments, and the semester project (with the entire class comprised of 500 points). Letter grades are given on the following scale:

Letter	Minimum Percentage	Minimum 'points'
A	93	465
A-	90	450
B+	87	435
B	83	415
B-	80	400
C+	77	385
C	73	365
C-	70	350
D+	67	335
D	60	300

Attendance

The range of topics covered in this course is extensive, and due to the limited lecture time, these topics are covered in an intensive manner. MOE guidelines also dictate that missing more than 20% of the classes in a course requires issuing an 'F' for the class. Therefore, attendance at all classes are *mandatory* in order to keep up, perform well, and receive a passing grade

- Attendance will be taken during each lecture session.
- A sheet is passed around that must be signed
  - ○ ONLY Sign for yourself! Signing for anyone else is fraud and is a breach of academic integrity. If caught it will be reported!
  - ○ **Make sure you sign the sheet during class! I cannot mark you present based on an email after class saying "I was at class and forgot to sign. Please mark me present."**
- *If a student has over 20% unexcused absences, the final course grade will be an F. ← This is an MOE (Ministry of Education) rule. I cannot alter this requirement!*

Note also that 5% of the course grade is based on attendance. So missing even 5 classes (not enough to fail the course), will lose perhaps 1% of grade which could be the difference between the grade you want and what you earn.

Re-grading

Requests for a review or regrade on an assignment, project, or test must be made within 1 calendar week of receiving the grade with feedback.

Important note: On assignments and/or the project: Regrading will ONLY be considered in cases where I may have run the code incorrectly. Upon correcting the code, if functionality is shown to work, the grade will be adjusted. I will NOT regrade on the basis of the assignment being 'vague' or failing to state a specific behavior. I will try to make the specifications as precise as possible but if something seems ambiguous, you should ask in class, in person during office hours, or by email. If there is enough confusion, I will announce more specific guidelines to the class either in person or by email.

Course Schedule

Following is a tentative schedule for the class topics:

Week/Day	Lecture Topics	Readings	Tests/Vids/Assgn
W1: 3/4	Course Overview / Web Overview Web Application Structure		Full Stack Javascript Web Developer Roadmap 2025
W2: 3/9	Web Technologies - HTML/CSS	HTML Tutorial (and Reference) CSS Tutorial (and reference) CSS Layout Tutorial	HTML Tut Vid A1G CSS Tut Vid
W2: 3/11	Javascript	Javascript Tutorial	JS Tut Vid
W3: 3/16	Javascript		
W3: 3/18	The DOM, JQuery, JSON	How Web Apps Work: Browser, HTML, and CSS (Optional) JQuery Tutorial	JQuery Tut Vid [1st of 4] DOM Tut Vid [1st of 4]
W4: 3/23	Bootstrap		Bootstrap Video Tutorial A1D
W4: 3/25	Typescript		Typescript tutorial A2G
W5: 3/30	React.js	React Tutorial	React Video Tutorial [Mosh] React Tutorial Video
W5: 4/1	React.js		
W6: 4/6	Software Process, Requirements	Good Requirements	
W6: 4/8	Version Control – Github		Git Video Tutorial
W7: 4/13	CI/CD / Docker Intro		
W7: 4/15	NodeJS and Express	Understanding JavaScript Promises	Node.js Tut Vid A2D A3G
W8: 4/20	API Design		Proj Given
4/22	Midterm		
W9: 4/27	Information Mgmt/Relational Model		
4/29	Database Design/Normalization		Proj Proposal Due
W10: 5/4	SQL / Using SQL from Javascript	SQL tutorial [W3 Schools] SQL tutorial Query Documents Tutorial	SQL Beginner Course MySQL w/Node.js Tutorial
5/6	Software Design, UML, Overview of Design Patterns		A3D A4G
W11: 5/11	Software Testing : Unit Testing/Integration Testing / CI_CD		Project Req/Test Plan Due
5/13	Intro to Web Security		
W12: 5/18	Web Security – Authentication and Authorization	Sign-in form best practices Sign-up form best practices 13 best practices for user accounts	JWT Authentication Tutorial - Node.js
5/20	JSONWeb Tokens, Certificates		A4D
W13: 5/25	NoSQL/MongoDB/GraphQL	Using Database with Mongoose Tutorial 6 Rules of Thumb for MongoDB Schema Design	Guide to NoSQL MongoDB
5/27	Design Patterns : Creational Patterns	Freeman: Chap 1, 4, 5	
W14: 6/1	Design Patterns : Structural Patterns	Freeman: Chap 3, 4, 7	Proj Final Code Due
6/3	Design Patterns : Behavioral Patterns	Freeman: Chap 6, 8, 9, 10	
6/5			
W15: 6/8	Final Exam Review		
6/15	Final Exam [9:00-11:30]		

Academic Dishonesty

You may *discuss* the homework assignments with anyone you like, however each students' *assignment (including coding)* which they submit must be their own work, and **only** their own work. **Any evidence that source code or solutions have been copied, shared, or transmitted *in any way* (this includes using source code downloaded from the Internet (i.e. Chegg), source code written by an AI like ChatGPT, or code written by other students in previous semesters!) will be regarded as evidence of academic dishonesty and will be reported to the administration.**

For additional information, see the **Academic Integrity Statement** section below.

Guidelines for Assignments

Except for the Term Project, all assignment submissions are based on individual work. However, discussion of an assignment's requirements or technical aspects *at a high level* is okay. When doing this, you must work only with others whose understanding of the material is approximately equal to yours. In this situation, working together to find a good approach for solving a programming problem is cooperation; *HOWEVER, listening while someone dictates a coding solution is cheating*. You must limit collaboration to a high-level discussion of solution strategies, and stop short of actually writing down a group answer. Anything that you hand in, whether it is a written problem or a computer program, must be written in your own words. If you base your solution on any other written solution, you are cheating.

Guidelines for the Term Project

The term project will be developed by teams of 2 students so, obviously, it is okay to work together and share code within your team for the final project.

Guidelines for Taking Exams

When taking an exam, you must work completely independently of everyone else. Any collaboration here, of course, is cheating. All examinations will be closed-notes and closed-book. No electronic devices of any kind will be permitted to be used during exams. All cell phones must be silenced or turned off during exams. You will be allowed one (1) sheet of notes, both sides (8.5 x 11 or A4). **Any additional note sheets found will be confiscated and you may be reported to academic administration for a violation of academic integrity which could cause you to fail the course.**

Be advised that any evidence of academic dishonesty will be treated with utmost seriousness. *We do not distinguish between cheaters who copy others' work and cheaters who allow their work to be copied.*

If you cheat, you will be given an F on the assignment. Any incidence of cheating will be reported to Academic Affairs. If you have any questions about what constitutes cheating, please ask.

Wellness & Support Statement

SUNY Korea values student well-being, including mental health, and recognizes that a variety of factors can impact emotional wellness and academic success including stress, anxiety, depression, substance use, sexual violence, family or relationship concerns, and political conflict. If you experience challenges or wellness concerns that affect your ability to be successful in class, you are encouraged to reach out for help from the Counseling Center via counseling@sunykorea.ac.kr when you need it.

In the event of a short-term absence from class, students are encouraged to communicate immediately and work directly with instructors. However, if a student is struggling with an extended absence due a hospitalization, family illness or death, they are encouraged to reach out to the Student Support Team.

Students with Disabilities

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, Academic Building A208, 032-626-1198, or at sas@sunykorea.ac.kr. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.
Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and the Student Accessibility Support Center.

Academic Integrity Statement

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Faculty is required to report any suspected instances of academic dishonesty to Academic Affairs (academicaffairs@sunykorea.ac.kr). For more comprehensive information on academic integrity, including categories of academic dishonesty please refer to the academic judiciary website at http://www.stonybrook.edu/commcms/academic_integrity/index.html

Critical Incident Management

Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to Student Affairs (student@sunykorea.ac.kr) any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.

Understand When You May Drop This Course

If you need to drop or withdraw from the course, it is your responsibility to be aware of the tuition liability deadlines listed on the registrar's Academic Calendar. Before making the decision to drop/withdraw, please contact me or your department advisor.

For the detailed information about course drop, please refer to the University's policies:
- Undergraduate Course Load and Course Withdrawal Policy
- Graduate Course Changes Policy

Incomplete Policy

Under emergency/special circumstances, students may petition for an incomplete grade.
Circumstances must be documented and significant enough to merit an incomplete. If you need to request an incomplete for this course, contact me for approval as far in advance as possible.
You should also read the University's policies that apply to you:

Undergraduate Catalog - Grading and the Grading System
Graduate Catalog - Grading Policies

Course Materials and Copyright Statement

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