CSE 316, Fall 2023, Department of Computer Science, Stony Brook University
Fundamentals of Software Development

Instructor: Christopher Kane, christopher.kane@stonybrook.edu
Office: New Computer Science, Rm. 107
Office Hours: Monday/Wednesday: 2:30 – 4:30 PM; or by appointment – On Zoom
Class: Monday/Wednesday/Friday, 11:00 – 11:53 AM; Harriman Hall, Rm. 137

Course Description:
Introduction to systematic design, development and testing of software systems, including event-driven and Web programming, information management, databases, principles and practices for secure computing, and version control. Students apply these skills in the construction of large, robust programs.
(https://www.cs.stonybrook.edu/students/Undergraduate-Studies/courses/CSE316)

Credits: 3

Prerequisites:
- C or higher in CSE 216 or CSE 260; CSE major

Course Outcomes:
The following are the official course goals agreed upon by the faculty for this course:
- 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.

Textbooks (Optional):
- Software Engineering, 10th Edition, by Ian Sommerville, ISBN-13: 978-0133943030.
- Learning JavaScript Design Patterns, by Addy Osmani, ISBN-13: 978-1449331818.
- Fullstack React, by Anthony Accomazzo, Nate Murray, and Ari Lerner.

Course Format:
- Lectures: This course will be conducted in a live, in-person format. Lectures will also be broadcast and recorded using the Echo 360 system. Lectures will be accessible on Echo 360 through Brightspace.
- Exams: There will be two midterm exams and a cumulative final. Exams will be made available through Brightspace. Exams will be taken in-person, in the classroom, on your laptops. A remote option for completing the exams may be made available (using the Respondus Lockdown Browser and Monitor).
- Assignments: There will be 4 programming assignments. The assignments will be posted to Brightspace. The final project will be an extension of the assignments. Students will work in pairs on the assignments and project.

Technical Requirements:
Taking the class remotely imposes the following requirements:

- A reliable, broadband connection to the Internet
- A desktop or laptop computer
- Required Software:
    - Node.js
    - MongoDB
    - MySql
    - Git

  If additional software is required, they will be mentioned as part of assignments and lectures.

Course Online Resources:

- Course Homepage: https://www3.cs.stonybrook.edu/~ckane/fall2023/cse316/
- D2L Brightspace: https://brightspace.stonybrook.edu
  Brightspace will be used for most other course materials such as slides, assignments, grades, etc.
- PIAZZA: https://piazza.com/stonybrook/fall2023/cse316
  This term we will be using PIAZZA for class discussion. The system is highly catered to getting you help fast and efficiently from classmates, the TAs, and Professors. All non-personal course-related communication should be posted to the discussion board. If you have questions about assignments, technical problems that need troubleshooting, or other questions that might be of interest to other students, they must be posted to PIAZZA and not emailed to the instructor or TA. If you have any problems or feedback for the developers, email team@piazza.com.

Course Announcements: Course announcements will be posted to Brightspace. You are expected to be aware of all announcements.

Course Outline:
The following topics will be covered in the lectures:

- The Principles of Software Engineering
    - Software Development Lifecycle
    - SDLC Models
    - Software Processes
- Front-end Web Development
    - HTML/CSS
    - JavaScript and React
- Server-side Development using Node.js
- Data Management using:
    - NoSQL databases (e.g., MongoDB)
    - SQL databases (e.g., MySQL)
- Software Design using UML and design patterns.

A more detailed schedule of lectures, readings, assignments, and exams will be posted to the course homepage.

Final Exam: Wednesday, December 13th, 2023, 5:30 PM – 8:00 PM

Grade Distribution:

- Programming Assignments: 40%
- Midterm Exams: 15%
- Final Exam: 20%
- Final Project: 25%

Course Grade Cutoffs:

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A  [93 – 100], A- [90 – 93), B+ [87 – 90),  B  [83 – 87),
B- [80 – 83), C+ [77 – 80),  C  [73 – 77), C- [70 – 73),
D+ [67 – 70),  D  [63 – 67), F  [0 – 63)
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Course Policies:

- Attendance is expected and highly encouraged.
- Students are responsible for all missed work, regardless of the reason for the absence. It is also the absent student's responsibility to obtain all missed notes or materials.
- Students are expected to work independently (or in established pairs). Offering and accepting solutions from others is an act of plagiarism, which is a serious offense, and all involved parties will be penalized according to the Academic Honesty Policy. Discussion amongst students is encouraged, but when in doubt, direct your questions to the professor or TA.
- Assignments must be turned in on the day they are due. Students are urged to plan ahead to avoid problems such as congestion or failure of computer facilities at the last minute. If your assignment is incomplete or is not working by the due date, turn in whatever you have.
- **Grading Issues:** All issues with grading must be emailed to the relevant TA/Grader or Instructor within 1 week of the return of the graded assignment or exam. Any requests/concerns after this date will not be considered. The email must include a detailed explanation of the specific grading issues and reason/correction. We believe students often learn by investigating and understanding their mistakes. Therefore, it is the responsibility of the student to determine the issues, not the grader/instructor/TA.
- Exams are closed book, closed notes.
- **Makeup exams will be given only for reasons outlined in the Undergraduate Bulletin, or at the discretion of the instructor.** Please inform the instructor as soon as you know or suspect you will not be able to attend the exam as scheduled.

Etiquette:

PIAZZA: PIAZZA is a forum for additional learning and assistance. It is not the place for cyber-bullying, memes, grade complaints, concerns/comments/criticisms about the course, or in general, anything unrelated to the course material. Improper behavior will result in the deactivation of PIAZZA and reporting of the individual's behavior to the University Office of Community Standards.

Students are expected to use the PIAZZA forum for all non-personal, course-related communication. If you have questions about assignments, technical problems that need

troubleshooting, or other questions that might be of interest to other students, they should be posted to PIAZZA and not emailed to the instructor or TA.

Email: Almost all questions concerning the course should be posted to PIAZZA. The following list gives exceptions for which students should email me directly:

- If you cannot come to office hours and need to set up an appointment to meet at another time; in this case, you must include your availability for the upcoming week.
- Making arrangements for disability accommodations.
- To discuss private, personal matters that are impacting your coursework, such as physical or mental illness, death in the family, etc.
- Questions about the grading or evaluation of your assignments and exams.
- If the instructor asks you to email them something relating to a previous conversation.

When emailing, please use the following guidelines to ensure a timely response:

- Use your official Stony Brook (@stonybrook.edu) email account.
- Use a descriptive subject line that includes "CSE 316", identifies the item you are emailing about, and a brief description of the topic of your email.
- E.g., "CSE 316: A1 Submission error", "CSE 316: A2 Blackboard Grade"
- Begin with a proper greeting, "Hello Prof. Kane,"
- Please be direct and concise in explaining the issue.
- End with a proper salutation that includes your full name, netid, and SBU ID number.

Student Accessibility Support Center Statement
If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact the Student Accessibility Support Center, Stony Brook Union Suite 107, (631) 632-6748, or at sasc@stonybrook.edu. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

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 the Academic Judiciary. Faculty in the Health Sciences Center (School of Health Professions, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. 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 the Office of Student Conduct and Community Standards any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures. Further

information about most academic matters can be found in the Undergraduate Bulletin, the Undergraduate Class Schedule, and the Faculty-Employee Handbook.