CSE 215-01, Fall 2023, Department of Computer Science, Stony Brook University
Foundations of Computer Science

Instructor: Christopher Kane, christopher.kane@stonybrook.edu
Office: New Computer Science, Rm. 107
Office Hours: Thursday, 4:00 – 6:00 PM, Friday, 3:30 to 5:00 PM; or by appointment
Class: Monday/Friday, 1:00 – 2:20 PM; Light Engineering, Rm. 102

Course Description:
Introduction to the logical and mathematical foundations of computer science. Topics include functions, relations, and sets; recursion; elementary logic; and mathematical induction and other proof techniques.
(https://www.cs.stonybrook.edu/students/Undergraduate-Studies/courses/CSE215)

Credits: 4; **Pre-requisite:** AMS 151 or MAT 125 or MAT 131

Course Outcomes:
The following are the official course goals agreed upon by the faculty for this course:
- An ability to define and use discrete structures such as functions and sets.
- To understand recursion as a computing paradigm.
- An ability to use logic and basic proof techniques, such as mathematical induction.
- An ability to verify if a mathematical argument is valid (i.e., logical) and sound (i.e., truthful)
- An ability to verify the correctness of proofs of some existing theorems and prove some new theorems
- An ability to use mathematical concepts such as sequences, functions, relations, and sets in computing

Textbook:
- *Discrete Mathematics: Introduction to Mathematical Reasoning* (Brief Edition), 1e, Susanna S. Epp, Cengage Learning, 2011. ISBN: 978-0495826170. (https://www.amazon.com/Discrete-Mathematics-Introduction-Mathematical-Reasoning/dp/0495826170)

Course Format:
This course will be conducted in a live, in-person (hybrid) format.
- Lectures will also be recorded and broadcast from the classroom using the Echo 360 system. Recordings of the lectures will be made available through Blackboard to assist students who miss lecture for technical or other reasons.
- Exams will be conducted in-person during class-time.
- Assignments will be submitted through Blackboard as usual.

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

Final Exam: Monday, May 15th, 2023, 2:15 PM – 5:00 PM

Technical Requirements (when attending remotely):
- A reliable, broadband connection to the Internet
- A desktop or laptop computer
- A webcam
- A microphone
- Zoom, 5.01+ (students should be regularly checking for updates to their Zoom client)

Course Resources:
- Course Homepage: https://www3.cs.stonybrook.edu/~ckane/spring2023/cse215
- Blackboard: https://blackboard.stonybrook.edu
  Blackboard will be used for most other course materials such as slides, assignments, grades, etc. These sites must be monitored and read regularly.
- PIAZZA: https://piazza.com/stonybrook/spring2023/cse21501
  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 Outline:
The following topics will be covered in the lectures:
- Propositional Logic
- Predicate Logic (First-Order Logic)
- Proof Techniques
- Sequences (Recursion and Mathematical Induction)
- Sets
- Functions
- Relations

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

Grade Distribution:
- Homework: 25%
- Midterm Exams: 45%
- Final Exam: 30%

Homeworks:
Homework will be posted on Blackboard. Homework must be written on plain sheets of paper, scanned using a good scan app, and a single scanned PDF must be submitted on Blackboard (digital variants, such as writing homework in Latex or using iPad/tablets to write out homework solutions are also acceptable). Late submissions will not be graded. Regrade requests deadline is 1 week after getting the homework results on Blackboard. Each student is assigned a TA. The regrade requests must be made only to the assigned TA.

Extra Credit:
There will be extra credit programming assignments, in Python and DistAlgo, associated with each of the homeworks starting with Homework 02. Points earned on the extra credit assignments are added to your pool of homework points. Points earned through the extra credit assignments cannot add more than 3% percentage points to your course score.

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. 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 and your learning. Improper behavior will result in the deactivation of PIAZZA and reporting of the individual's behavior to University Office of Community Standards.
Therefore, 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 must 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.
- 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 215", identifies the item you are emailing about, and a brief description of the topic of your email.
- E.g., "CSE 215: HW1 Submission error", "CSE 215: HW2 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 University 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.