

Learning plan for our course

Dates listed subject to change.

Policies

Attendance: Your engagement and participation in class activities is important. Please try to notify your instructor in advance of any planned absences.

Collaboration: Working collaboratively with your classmates is highly encouraged. However, the work you hand in on individual assignments must be your own. Collaboration on assignments which do not permit collaboration will constitute a violation of the [CSB/SJU Policy on Academic Misconduct](#).

Reassessments: Reassessments on quizzes and exam sections are given during office hours. Request a 30-minute appointment via Outlook. Subject to review of homework. Maximum one (1) reassessment per week, or two (2) with a coupon; maximum one (1) coupon per week.

Coupons: Every student begins with four (4) coupons redeemable for additional reassessments. See grading specifications.

Extra help: Your fellow students, study groups, computer science department [TA lab hours](#) and your instructor are the best resources beyond the classroom.

Basic needs: Any student who has difficulty affording groceries or accessing sufficient food to eat every day, or who lacks a safe and stable place to live, and believes this may affect their performance in the course, is urged to contact the Dean of Students for support. Furthermore, please notify the instructor if you are comfortable doing so. This will enable them to provide any resources that they may have.

Inclusivity: Students in this class are encouraged to speak up and participate in-class and online. In this class, people of all ethnicities, genders and gender identities, religions, ages, sexual orientations, disabilities, socioeconomic backgrounds, regions, and nationalities are strongly encouraged to share their rich array of perspectives and experiences. If you feel your differences may in some way isolate you from our classroom community or if you have a specific need, please speak with me early in the semester so that we can work together to help you become an active and engaged member of our class and community.

Disability resources: If you registered with Student Accessibility Services and have been determined eligible to receive academic accommodations, I encourage you 1) email me a copy of your accommodation letter and 2) schedule a time for us to meet, in person, to discuss your needs in this course. Be advised that while I am committed to honoring approved accommodations, students are responsible for requesting them in a timely manner. [Read more](#).

	Mastery goal	Quizzes/Exams			
TUES 8/27	Course introduction				
THUR 8/29	L-1: Construct a truth table and determine the truth value of statements involving multiple... L-2: Find and symbolically represent the negation, converse, and contrapositive of a conditional... L-3: Determine if two statements are logically equivalent.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 9/3	L-4: Find and symbolically represent the negation of a quantified statement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
THUR 9/5	L-5: Use propositional variables and logical connectives to represent statements; and interpret... L-6: Determine if an argument is logically valid.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 9/10	P-1: Given a statement to be proven using a direct proof, identify the assumptions to be made...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
THUR 9/12	P-2: Given a statement to be proven using a proof by contrapositive, identify the assumptions... P-3: Given a statement to be proven using a proof by contradiction, identify the assumptions... P-4: Given a statement to be proven using a proof by cases, identify the assumptions...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 9/17	P-5: Set up a framework of assumptions and conclusions for proofs using direct proof, proof by... P-6: Given a written proof, identify the parts of the proof, including technique(s) being used in the...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
THUR 9/19	Exam 1				
TUES 9/24	S-1: Convert a set from roster notation to set-builder notation and vice-versa. S-2: Determine the powerset of a set. S-3: Determine set relationships (equality, subset, proper subset, element of).	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
THUR 9/26	S-4: Perform set operations (intersection, union, complement, difference, Cartesian product). S-5: Create and interpret Venn diagrams. S-6: Find cardinalities of sets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 10/1	NO CLASS				
THUR 10/3	F-1: Given a function, determine its domain, target and range. F-2: Give examples of injective, surjective and bijective functions. F-3: Determine whether a given function is injective, surjective or bijective.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 10/8	F-4: Compute the solution to well-known functions (floor, ceiling, exponential and logarithm). F-5: Find the inverse image of an element in the codomain of a function. F-6: Compose two functions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
THUR 10/10	R-1: Convert a relation from arrow diagram to matrix representation and vice-versa. R-2: Determine whether a given relation is reflexive, anti-reflexive, transitive, symmetric or... R-3: Classify a walk in a digraph as a trail, circuit, path or cycle.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 10/15	R-4: Apply graph power theorem to answer connectivity questions about a given digraph. R-5: Use matrix multiplication to find powers of a graph.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
THUR 10/17	G-1: Characterize the growth rate of a given functions as one of the common functions in... G-2: Prove the growth rate for a polynomial by a identifying a valid witness.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 10/22	Exam 2				
THUR 10/24	Q-1: Given either a closed-form or recursive formula for a sequence, generate several instances of... Q-2: Find closed formulas for basic examples of recursively-defined sequences. Q-3: Distinguish between an arithmetic and a geometric sequence, and find the sum of both ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 10/29	I-1: Given a statement to be proven by mathematical induction, state and then prove the base...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
THUR 10/31	I-2: Identify the predicate being used in a proof by mathematical induction and use it to set up...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 11/5	I-3: Given a proposed proof of a proposition, conduct a critical analysis of the proposition and...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
THUR 11/7	C-1: Use the sum and product rules to solve basic counting problems. C-2: Calculate combinations and permutations, and correctly apply combinations and ...	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 11/12	C-3: Use counting by complement to solve counting problems. C-4: Use the inclusion-exclusion principle to find the cardinality of a union of non-disjoint sets.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
THUR 11/14	D-1: Compute the probability of a event from a finite or countably infinite sample space.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 11/19	D-2: Use Bayes Theorem to compute the probability of an event conditioned on a second event.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
THUR 11/22	D-3: Compute the expected value of a random variable.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TUES 11/26	Exam 3				
THUR 11/28	NO CLASS				
TUES 12/3	Advanced topics				
THUR 12/5	Advanced topics				
TUES 12/10	Review, in class				
XXXX XX/XX	Final exam, XX:XX-XX:XX				

Course Resources

Course website: csbsju.instructure.com/courses/12826

Required text: Irani et al. *Discrete Mathematics*. zyBook ISBN: 978-1-5418-7616-3