

**San José State University**  
**Department of Mathematics and Statistics**  
**Math 42 Section 5    Discrete Mathematics**  
**Fall 2018**

**Course and Contact Information**

**Instructor:** H. K. Ng

**Office Location:** MacQuarrie Hall 317

**Telephone:** (408) 924-5138

**Email:** ho-kuen.ng@sjsu.edu  
Grades will **NOT** be discussed in e-mail communications.

**Office Hours:** Tu        7:00 – 7:25, 8:45 – 9:00, 10:20 – 10:50  
Th        7:00 – 7:25, 8:45 – 9:00, 10:20 – 1:30  
The office hours from 8:45 to 9:00 are in Clark Hall 111.  
The other office hours are in MacQuarrie Hall 317.

**Class Days/Time/Classroom:** TuTh    7:30 – 8:45                      Clark Hall 111

**Prerequisites:** Math 19 with a grade of C or better, or eligibility for Math 30 or 30P or 30PL.

**Required Text**

Discrete Mathematics with Applications, 4th edition, Epp, Cengage  
Selected topics in Chapters 2 – 9  
Additional topics if time permits

**Catalog Description**

Sets, logic, methods of proof including mathematical induction, functions, relations, elementary combinatorics, probability, Boolean algebras. 3 units.

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in University Policy S12-3 at [www.sjsu.edu/senate/docs/S12-3.pdf](http://www.sjsu.edu/senate/docs/S12-3.pdf).

## Student Learning Outcomes

1. State the converse, inverse, contrapositive and negation of a conditional statement, including quantified statements
2. Construct truth tables and interpret the results to determine whether a compound statement is a tautology, contradiction or neither, whether two logical statements are equivalent, and whether an argument form is valid or invalid
3. Recognize standard valid and invalid argument forms
4. Apply valid argument forms to arrive at a valid conclusion based on given premises
5. Construct counterexamples to disprove a statement
6. Write direct proofs, proofs involving division into cases, proofs involving the contrapositive, and proofs by contradiction to prove statements involving elementary number theory
7. Write induction proofs to prove appropriate mathematical statements
8. Find complements, unions, intersections and differences of sets
9. Prove set identities
10. Identify relations and functions
11. Determine whether a function is one-to-one and onto
12. Determine whether a relation is reflexive, symmetric and transitive
13. Apply the multiplication principle, inclusion-exclusion rule, permutations and combinations to solve combinatorics problems
14. Apply counting techniques to determine the probability of events

## Course Requirements

Quizzes	September 11, September 25, October 30, November 29 (subject to change)
Midterms	October 9, November 13 (subject to change)
Final	December 18 (Tuesday) 7:15 – 9:30

There are **no make-up quizzes, midterms, or final**. If you cannot be present on the above dates, you should not enroll in this section of Math 42.

## Grading

Grading	Homework	10% (drop two lowest)
(Tentative)	4 Quizzes	15% (drop lowest)
	2 Midterms	40%
	Final	35%

**(No late or make-up work; no extra credit)**

Lowest totals to receive the grades of A/B/C/D are 88/75/60/50 respectively. These letter grades may be further modified by + and –. The instructor reserves the right to adjust the course grades after considering the actual distribution of the class.

## Classroom Protocol

Read the information at <http://www.sjsu.edu/math/courses/greensheet/>.  
Cell phone use is strongly discouraged.

## University Policies

Read the information at <http://www.sjsu.edu/math/courses/greensheet/>.