Here is an approximate lecture schedule.

CSE 150 Lectures

Lectures 1 and 2:

- Course introduction and objectives
- How to be an A student
- Motivating problems for course
- Puzzles motivating course (e.g., blue-eyed/brown-eyed puzzle, professor salary problem)

Lectures 3 and 4:
- Symbolic logic (truth tables, propositions, predicates)
- Quantifiers (universal and existential, order of quantifiers)
- Puzzles

Lectures 5 and 6:
- Sets (subsets, powersets, set constructor notation)
- union/intersection/set difference, k-tuples, cross product, empty set)
- Relations
- Functions and binary relations
- Puzzles

Lectures 7 and 8:
- Properties of binary relations (transitive, symmetric, reflexive, closures)
- Functions (bijective, surjective, injective)
- Puzzles

Lectures 9-11:
- Cardinality of sets (finite, countably infinite, uncountable)
- How to prove that a set is countable
- How to prove that a set is uncountable via diagonalization
- Puzzles

Lectures 12-15:
- How to write and structure proofs
- Proving implications
- Why reasoning backwards doesn't work
- Proofs by contradiction
- Induction
- Strong induction
- Summing common series
- Recursion
- Solving recurrences
- The satisfiability problem
- Other advanced topics
- Puzzles

Lectures 16-17:
- Introduction to graphs
- Types of graphs

- Eulerian and Hamiltonian tours
- Puzzles

Lectures 18–22
- Introduction to counting
- Bijection, sum, product, and generalized product rules
- Counting one thing by counting another
- Pigeonhole principle and generalizations.
- "Bookkeeper" rule and "stars and bars"
- "Choose" notation
- Approximations of choose notation
- Binomial theorem
- Inclusion–exclusion
- Puzzles

Lectures 23–27
- Introduction to probability
- Monty Hall problem
- Definitions: sample spaces and events
- Strange dice
- Conditional probability and Bayes theorem
- Disjoint events versus independent events
- Random variables
- Expectation
- Linearity of expectation
- Coupon collector problem
- Applications: disparate impact/discrimination/medical testing
- Puzzles