The following is a list of topics we have covered over the course of the semester.

1. Basic Logic
   (a) propositions, connectives, and logical equivalence
   (b) predicates and quantifiers
   (c) rules of inference and natural deduction
2. Naïve Set Theory
   (a) basic operations: union, intersection, set difference, Cartesian product
   (b) subsets and set equality
3. Basic Number Theory
   (a) divisibility, its basic properties, and modular arithmetic
   (b) greatest common divisors and Euclid's Algorithm
   (c) prime numbers and the Fundamental Theorem of Arithmetic
4. RSA Cryptography
5. Mathematical Induction and Recursion
6. Enumeration
   (a) Sum Principle, Product Principle, Correspondence Principle, and Inclusion-Exclusion
   (b) binomial coefficients and the Binomial Theorem
   (c) the Pigeonhole Principle
7. Functions and Relations
   (a) functions: injective, surjective, and bijective
   (b) relations: reflexive, symmetric, antisymmetric, and transitive
   (c) equivalence relations
8. Graph Theory
   (a) the Handshake Lemma
   (b) subgraphs, connection, and coloring
   (c) Eulerian and Hamiltonian cycles
9. Trees
   (a) characterizations involving acyclicity and connectedness
   (b) spanning trees
   (c) the Prüfer code
10. Models of Computation
    (a) finite state machines, deterministic/nondeterministic finite state automata
    (b) language recognition and finite state automata