

Course Information for **Math 222** (Discrete Mathematics)

Instructor: Leah Howard

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Feel free to email me any time with questions, or catch me before or after class.

Course Website: www.leahhoward.com

OPTIONAL Resource:

Discrete Mathematics & its Applications (6th edition) by Kenneth H. Rosen

Calculator: Any scientific calculator

Evaluation

In-Class Tests (2) 17.5% each

Assignments (3) 5% each

Final Exam 50%

We will have a 2-hour in-class final exam on the last day of class.

Final Exam Policy for all Engineering Bridge Courses

In order to pass the course, you must have a final exam mark of 50% or better. A final exam mark of less than 50% (regardless of term mark) will result in a final grade of F.

Letter Grade:

Your final mark is translated into a letter grade using the following scale:

[90%,100%] A+ [85%,90%) A [80%,85%) A-

[77%,80%) B+ [73%,77%) B [70%,73%) B-

[65%,70%) C+ [60%,65%) C [50%,60%) D

[0%, 50%) F

Lecture Schedule

November 28-December 2

- 1.1 Logic
- 1.2 Logical Equivalence
- 1.3 Quantifiers
- 1.4 Nested Quantifiers
- 1.6 Intro to Proofs
- 1.7 Proof Strategies

December 5-9

- 2.1 & 2.2 Sets
- 2.3 One-to-One and Onto Functions; Floor and Ceiling
- 3.1 Algorithms
- 3.2 The Growth of Functions
- 3.3 Complexity of Algorithms; Merge Sort
- 3.4 & 3.5 Modular Arithmetic, The Division Algorithm, GCD and LCM

January 2-6

- 3.6 Base b Representation, Euclidean Algorithm (**HW1 due**)
- 4.1 Mathematical Induction
- 4.1 Continued
- 4.3 & 4.4 Recursive Algorithms: Fibonacci Numbers, Generating Trees

Test 1 (HW1 and Test 1 Cover Ch.1 & Ch.2)

- 5.2 Pigeonhole Principle

January 9-13

5.4 The Binomial Theorem, Binomial Identities **(HW2 due)**

5.5 Selection with Repetition

7.1 Recurrence Relations

7.2 Solving Recurrence Relations

Test 2 (HW2 and Test 2 Cover Ch.3 & Ch.4)

7.5 Inclusion-Exclusion and the Sieve of Eratosthenes

January 16-20

9.1-2&10.1 Complete and Bipartite Graphs, Trees, The Degree Theorem **(HW3 due)**

9.6 Dijkstra's Algorithm **(HW3 Covers Ch.5 & Ch.7)**

Review (2 hours)

Final Exam (2 hours)

Online Topics

Notes, examples and exercises will be provided on the course website.

Topic 1: 1.5 The Rules of Inference & Valid Arguments (Read this after 1.4)

Topic 2: 3.7 RSA Encryption and Decryption (Read this after 3.6)

Topic 3: 9.5, 9.7, 10.4 & 10.5 More on Graph Theory (Read this after 9.6)