Course Calendar

Current as of March 30, 2023.

- Preorders
- Partial orders
- Equiv. Relations

Mon.	Tues.	Wed.	Thurs.	Fri.
Jan. 16 2023 Martin Luther King Jr. Day	17	18 Motivation • Syllabus • 19c. – 20c. revolution	19	20 Prerequisite Survey Motivation • Argumentation • Truth values
23 Propositional Logic • Propositions • Connectives • Truth tables	24	25 Propositional Logic • Sufficiency • Necessity • Boolean algebras	26 Recitation	27 Problem Set 1 Propositional Logic • Equivalence proofs • Boolean theorems
30 First-Order Logic • Predicates • Quantifiers	31	***Feb. 1 2023*** First-Order Logic • Rules of inference • Proofs	2 Recitation	3 First-Order Logic • Validity of arguments • Church's Theorem
6 Problem Set 2 ZF Set Theory • Well-formed formulæ • What is a set? • Why set theory?	7	8 ZF Set Theory • Ax. Existence • Ax. Extensionality • Ax. Pairing • Ax. Union	9 Recitation	10 ZF Set Theory • Unions of sets • Ax. Separation
13 Set Theory • Ax. Regularity • Ax. Power Set • The empty set	14	15 Problem Set 3 Set Theory • v. Neumann ordinals • Ax. Infinity • Arithmetic	16 Recitation	17 Induction • $\mathbb{Z}$, $\mathbb{Q}$, and $\mathbb{R}$ • L.E.P. of $\mathbb{N}$ • Weak induction
20 Induction • Weak induction • Strong induction	21	22 Complexity • Fibonacci Sequence • Recurrence relations	23 Recitation	24 Problem Set 4 Complexity • Solving recurrences • Searching algorithms
27 Complexity • Solving recurrences • Sorting algorithms	28	***Mar. 1 2023*** Problem Set 5 Complexity • What is a function?	2 Recitation	3 Midterm 1

Mon.	Tues.	Wed.	Thurs.	Fri.
6 Complexity • Landau notation	7	8 Complexity • Big-$\mathcal{O}$ examples	9 Recitation	10 Complexity • Big-$\mathcal{O}$ examples
13 Spring Break Midterm Grades Due	14 Spring Break	15 Spring Break	16 Spring Break	17 Spring Break
20 Cardinality • Injections • Surjections • Bijections	21	22 Cardinality • Cardinality • Examples • Hilbert's Hotel	23 Recitation	24 Cardinality • Examples • Proof of $\lvert\mathbb{N}\rvert = \lvert\mathbb{Z}\rvert$
27 Cardinality • Proof of $\lvert\mathbb{N}\rvert = \lvert\mathbb{Q}\rvert$	28	29 Problem Set 6 Cardinality • Strings & Sequences • Finite Sets • Countable Sets	30 Recitation	31 Cardinality • Cantor's Diag. Arg. • Cantor's Theorem
Apr. 3 2023 Number Theory	4	5 Number Theory	6 Recitation	7 Easter Holiday Problem Set 7
10 Easter Holiday	11	12 ???	13 Recitation	14 Problem Set 8 ???
17 Graph Theory	18	19 Graph Theory	20 Recitation	21 Midterm 2
24 Problem Set 9 Graph Theory	25	26 Graph Theory	27 Recitation	28 Graph Theory

Mon.	Tues.	Wed.	Thurs.	Fri.
May. 1 2023 Problem Set 10 ???	2	3 Review	4 Reading Days	5 Reading Days
8	9	10 Final Exam 4:15pm – 6:15pm	11	12
15 Final Grades Due	16	17	18	19