

# COURSE CALENDAR

MON.	TUES.	WED.	THURS.	FRI.
<b>Jan. 16 2023</b> <div>Martin Luther King Jr. Day</div>	17	18 <div>Motivation</div> <ul style="list-style-type: none"> <li>Syllabus</li> <li>19c. – 20c. revolution</li> </ul>	19	20 <div>Prerequisite Survey</div> <div>Motivation</div> <ul style="list-style-type: none"> <li>Argumentation</li> <li>Truth values</li> </ul>
23 <div>Propositional Logic</div> <ul style="list-style-type: none"> <li>Propositions</li> <li>Connectives</li> <li>Truth tables</li> </ul>	24	25 <div>Propositional Logic</div> <ul style="list-style-type: none"> <li>Sufficiency</li> <li>Necessity</li> <li>Boolean algebras</li> </ul>	26 <div>Recitation</div>	27 <div>Problem Set 1</div> <div>Propositional Logic</div> <ul style="list-style-type: none"> <li>Equivalence proofs</li> <li>Boolean theorems</li> </ul>
30 <div>First-Order Logic</div> <ul style="list-style-type: none"> <li>Predicates</li> <li>Quantifiers</li> </ul>	31	<b>Feb. 1 2023</b> <div>First-Order Logic</div> <ul style="list-style-type: none"> <li>Rules of inference</li> <li>Proofs</li> </ul>	2 <div>Recitation</div>	3 <div>First-Order Logic</div> <ul style="list-style-type: none"> <li>Validity of arguments</li> <li>Church's Theorem</li> </ul>
6 <div>Problem Set 2</div> <div>ZF Set Theory</div> <ul style="list-style-type: none"> <li>Well-formed formulæ</li> <li>What is a set?</li> <li>Why set theory?</li> </ul>	7	8 <div>ZF Set Theory</div> <ul style="list-style-type: none"> <li>Ax. Existence</li> <li>Ax. Extensionality</li> <li>Ax. Pairing</li> <li>Ax. Union</li> </ul>	9 <div>Recitation</div>	10 <div>Problem Set 3</div> <div>ZF Set Theory</div> <ul style="list-style-type: none"> <li>Ax. Separation</li> <li>Ax. Power Set</li> <li>Ax. Regularity</li> <li>Ax. Infinity</li> <li>v. Neumann ordinals</li> </ul>
13 <div>Induction</div> <ul style="list-style-type: none"> <li><math>\mathbb{Z}</math>, <math>\mathbb{Q}</math>, and <math>\mathbb{R}</math></li> <li>Arithmetic on <math>\mathbb{N}</math></li> <li>L.E.P. of <math>\mathbb{N}</math></li> </ul>	14	15 <div>Induction</div> <ul style="list-style-type: none"> <li>Weak induction</li> <li>Strong induction</li> </ul>	16 <div>Recitation</div>	17 <div>Problem Set 4</div> <div>Recurrences</div> <ul style="list-style-type: none"> <li>Recursion</li> <li>Recurrence relations</li> </ul>
20 <div>Recurrences</div> <ul style="list-style-type: none"> <li>Algorithms</li> </ul>	21	22 <div>Asymp. Analysis</div> <ul style="list-style-type: none"> <li>More algorithms</li> <li>Big-<math>\mathcal{O}</math></li> <li>Big-<math>\Omega</math></li> <li><math>\preceq</math>-ordering</li> </ul>	23 <div>Recitation</div>	24 <div>Midterm 1</div>
27 <div>Functions</div> <ul style="list-style-type: none"> <li>Injections</li> <li>Surjections</li> <li>Bijections</li> </ul>	28	<b>Mar. 1 2023</b> <div>Functions</div> <ul style="list-style-type: none"> <li>Monomorphisms</li> <li>Epimorphisms</li> <li>Isomorphisms</li> </ul>	2 <div>Recitation</div>	3 <div>Problem Set 5</div> <div>Functions</div> <ul style="list-style-type: none"> <li>Schröder-Bernstein</li> <li>Permutations</li> </ul>

MON.	TUES.	WED.	THURS.	FRI.
6 <div>Cardinality</div> <ul style="list-style-type: none"> <li>• Finite sets</li> <li>• Countable sets</li> <li>• Ax. Choice</li> </ul>	7	8 <div>Cardinality</div> <ul style="list-style-type: none"> <li>• Some theorems</li> </ul>	9 <div>Recitation</div>	10 <div>Problem Set 6</div> <div>Cardinality</div> <ul style="list-style-type: none"> <li>• Uncountable sets</li> </ul>
13 <div>Spring Break</div> <div>Midterm Grades Due</div>	14 <div>Spring Break</div>	15 <div>Spring Break</div>	16 <div>Spring Break</div>	17 <div>Spring Break</div>
20 <div>Cardinality</div> <ul style="list-style-type: none"> <li>• Strings</li> <li>• Sequences</li> </ul>	21	22 <div>Relations</div> <ul style="list-style-type: none"> <li>• Properties</li> <li>• Preorders</li> <li>• Partial orders</li> </ul>	23 <div>Recitation</div>	24 <div>Problem Set 7</div> <div>Relations</div> <ul style="list-style-type: none"> <li>• Equiv. Relations</li> </ul>
27 <div>Number Theory</div>	28	29 <div>Number Theory</div>	30 <div>Recitation</div>	31 <div>Problem Set 8</div> <div>Number Theory</div>
<i>Apr. 3 2023</i> <div>Number Theory</div>	4	5 <div>Number Theory</div>	6 <div>Recitation</div> <div>Problem Set 9</div>	7 <div>Easter Holiday</div>
10 <div>Easter Holiday</div>	11	12 <div>???</div>	13 <div>Recitation</div>	14 <div>Midterm 2</div>
17 <div>Graph Theory</div>	18	19 <div>Graph Theory</div>	20 <div>Recitation</div>	21 <div>Problem Set 10</div> <div>Graph Theory</div>
24 <div>Graph Theory</div>	25	26 <div>Graph Theory</div>	27 <div>Recitation</div>	28 <div>Problem Set 11</div> <div>Graph Theory</div>

MON.	TUES.	WED.	THURS.	FRI.
<div>May. 1 2023</div> <div>???</div>	2	<div>3</div> <div>Review</div>	<div>4</div> <div>Reading Days</div>	<div>5</div> <div>Reading Days</div>
8	9	<div>10</div> <div>Final Exam 4:15pm – 6:15pm</div>	11	12
<div>15</div> <div>Final Grades Due</div>	16	17	18	19