

# Schedule & Notes

	Topic	Assignment [due]
<b>class1</b> Fri Sep 6	<ul style="list-style-type: none"><li>• Welcome to CS1800 (admin)</li><li>• Effective math mindsets</li><li>• Numbers in different bases (binary, hex, decimal)</li></ul> <a href="#">📄 sec2</a> <a href="#">📄 sec3</a> <a href="#">📄 sec4</a> <a href="#">📄 sec5</a>	
<b>class2</b> Tue Sep 10	<ul style="list-style-type: none"><li>• Converting between bases (Euclid's Division)</li><li>• Operating in other bases</li><li>• Modular arithmetic</li></ul> <a href="#">📄 sec2</a> <a href="#">📄 sec3</a> <a href="#">📄 sec4</a> <a href="#">📄 sec5</a>	
<b>recitation1</b>	<a href="#">recitation1</a> Don't forget the gradescope quiz, with each recitation, too!	
<b>class3</b> Fri Sep 13	<ul style="list-style-type: none"><li>• Two's complement (expressing negative values)</li><li>• Overflow</li><li>• Floating point (if time)</li></ul> <a href="#">📄 sec2</a> <a href="#">📄 sec3</a> <a href="#">📄 sec4</a> <a href="#">📄 sec5</a>	<a href="#">hw1: number representation</a> [Sep 20]
<b>class4</b> Tue Sep 17	<ul style="list-style-type: none"><li>• Logic statements &amp; predicates</li><li>• Logic Operators (and, or, not)</li><li>• Truth tables</li></ul> <a href="#">📄 sec2</a> <a href="#">📄 sec3</a> <a href="#">📄 sec4</a> <a href="#">📄 sec5</a>	
<b>recitation2</b>	<a href="#">recitation2</a>	
<b>class5</b> Fri Sep 20	<ul style="list-style-type: none"><li>• Conditionals (Inverse, converse, contrapositive)</li><li>• Bi-conditionals</li><li>• Universal &amp; Existential Quantifiers</li></ul> <a href="#">📄 sec2</a> <a href="#">📄 sec3</a> <a href="#">📄 sec4</a> <a href="#">📄 sec5</a>	<a href="#">hw2: logic</a> [Sep 27]

<b>class6</b> Tue Sep 24	<ul style="list-style-type: none"> <li>Sets (subsets, empty set, powersets)</li> <li>Set builder notation</li> <li>Set operations (union, intersection, complement, difference)</li> </ul> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a>	
<b>recitation3</b>	<a href="#">recitation3</a>	
<b>class7</b> Fri Sep 27	<ul style="list-style-type: none"> <li>Computer Representation of sets</li> <li>Negation (DeMorgan's Laws)</li> <li>set algebra &amp; logic algebra (very similar!)</li> <li>Logic (digital) circuits</li> </ul> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a> <a href="#">↓ logic_set_identities.pdf</a>	<a href="#">hw3: sets, algebra &amp; circuits</a> [Oct 4]
<b>class8</b> Tue Oct 1	<ul style="list-style-type: none"> <li>Principle of inclusion / exclusion (PIE 2 &amp; 3 set)</li> <li>Pigeonhole principle</li> </ul> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a>	
<b>recitation4</b>	<a href="#">recitation4</a>	
<b>class9</b> Fri Oct 4	<ul style="list-style-type: none"> <li>Sum rule (really its PIE)</li> <li>Product rule</li> <li>Permutations</li> </ul> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a>	<a href="#">hw4: counting</a> [Oct 11] Includes class10 late submit before solutions released Oct 13 @ 12:01am (exam study)
<b>class10</b> Tue Oct 8	<ul style="list-style-type: none"> <li>Over-counting (combinations &amp; repetitions)</li> <li>Counting partitions (stars &amp; bars)</li> <li>Counting moves: complement, simplify (ignore or "glue"), leftover principle, partition</li> </ul> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a>	
<b>recitation5</b>	<a href="#">recitation5</a>	
Fri Oct 11	In Class Review Exam 1 <a href="#">↓ practice_exam: (solution)</a> <a href="#">↓ practice_count_extra (solution)</a> (all solutions available 5:05pm Oct 11) <a href="#">counting review video (26 min)</a>	
Tue Oct 15	Exam 1 <a href="#">see also</a> covers: class 1-10	
	-no recitation this week-	

<b>class11</b> Fri Oct 18	<ul style="list-style-type: none"> <li>• Probability (random variable, outcome, distribution)</li> <li>• Computing prob of event from equal prob outcomes</li> <li>• Expectation</li> <li>• Variance</li> </ul> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a>	
<b>class12</b> Tue Oct 22	<ul style="list-style-type: none"> <li>• Joint probability</li> <li>• Marginalization</li> <li>• Conditional probability</li> <li>• Independence</li> <li>• Bayes Rule</li> </ul> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a>	
<b>recitation6</b>	<a href="#">recitation6</a>	
<b>class13</b> Fri Oct 25	Parametric Distributions: <ul style="list-style-type: none"> <li>• Uniform / Binomial / Poisson</li> </ul> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a>	<a href="#">hw5: Probability</a> [Nov 1]
<b>class14</b> Tue Oct 29	<ul style="list-style-type: none"> <li>• Graphs (notation &amp; types)</li> <li>• Computer representation (adjacency matrix or list)</li> <li>• Graph equivalence (isomorphism)</li> </ul> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a>	
<b>recitation7</b>	<a href="#">recitation7</a>	
<b>class15</b> Fri Nov 1	Graph Algorithms: <ul style="list-style-type: none"> <li>• Breadth First Search (BFS)</li> <li>• Depth First Search (DFS)</li> <li>• Dijkstra's (shortest path between nodes)</li> </ul> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a> <a href="#">↓ Dijkstra Example</a> <a href="#">BFS/DFS Stack/Queue extra video (10 mins)</a>	<a href="#">hw6: Graphs</a> [Nov 8]
<b>class16</b> Tue Nov 5	Proof by Induction (day 1 of 2) <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a> <a href="#">↓ induction_gseries_rubric</a>	
<b>recitation8</b>	<a href="#">recitation8</a>	
<b>class17</b> Fri Nov 8	Proof by Induction (day 2 of 2) <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a>	<a href="#">hw7: Induction</a> [Nov 15]
<b>class18</b> Tue Nov 12	<ul style="list-style-type: none"> <li>• Sequences &amp; series: arithmetic, geometric &amp; quadratic</li> </ul> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a>	
<b>recitation9</b>	<a href="#">exam2 review (no quiz)</a>	

Fri Nov 15	<p>Exam2  <a href="#">see also</a>  Covers: class 11-17  <a href="#">↓ exam2_practice</a>  <a href="#">↓ exam2_practice_sol</a> (don't peek before you attempt yourself!)</p>	
<b>class19</b> Tue Nov 19	<p>Function growth:</p> <ul style="list-style-type: none"> <li>Proving big-O (Omega &amp; Theta)</li> <li>Given function, identify its growth class</li> </ul> <p> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a> </p>	<a href="#">hw8: Function growth, sequence &amp; series</a> [Nov 26]
<b>recitation10</b>	<a href="#">recitation10</a>	
<b>class20</b> Fri Nov 22	<ul style="list-style-type: none"> <li>Search algorithms: unordered linear &amp; binary</li> <li>Sort Algorithms: insertion &amp; merge</li> <li>Quantifying compute time</li> </ul> <p> <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a> </p>	<a href="#">hw9: Algorithms</a> [Dec 3] HW9 shorter than others
<b>class21</b> Tue Nov 26	<p>Review: Log Operation  Solve Recurrence Relation via substitution  <a href="#">↓ sec2</a> <a href="#">↓ sec3</a> <a href="#">↓ sec4</a> <a href="#">↓ sec5</a>  <a href="#">↓ merge.gif</a> <a href="#">↓ merge_sort.gif</a></p>	
	-no recitation this week (Enjoy the break!)-	
Tue Dec 3	<p>"exam3" shorter than others, <a href="#">see also</a>  <a href="#">exam3_practice</a>  Covers: class 18-21</p>	
	-no recitation beyond Dec 3-	