

DISCRETE MATH SYLLABUS

| Week Zero | Week One | Week Two |
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| <p>Day 0: discussion of "discrete" why "0" should/shouldn't be a number activity: counting anagrams, subsets</p> | <p>Day 5: propositional calculus connectives truth tables activity: logic puzzles</p> | <p>Day 10: euler's formula ($v-e+f=2$, inductive proof) hyperdimensions (iteration processes) activity: making archimedean solids</p> |
| <p>Day 1: combinations and permutations recursive sequences activity: pascal's triangle</p> | <p>Day 6: first order logic: quantifies godel's thm (completeness, consistency) activity: converting formal syntax \leftrightarrow natural language</p> | <p>Day 11: equivalence classes modular arithmetic activity: eratosthenes prime sieve, multiplication tables activity: Conway's Life</p> |
| <p>Day 2: fibonacci numbers induction activity: towers of hanoi</p> | <p>Day 7: relations: sym, refl, trans drawing graphs activity: euler bridge tour</p> | <p>Day 12: division algorithm (and induct proof) euclidean algorithm (finding gcd and lcm) activity: magic square variations</p> |
| <p>Day 3: set operations picture proofs vs equation proofs activity: Venn diagrams</p> | <p>Day 8: peterson graph kuratowski thm: nonplanarity activity: houses and utility problem (k33 nonplanar)</p> | <p>Day 13: pythagorean triples chinese remainder thm activity: rsa codes SBE</p> |
| <p>Day 4: DeMorgan Laws (setwise and logic) linear subset chains (Development of numbers) activity: test (and go over solutions)</p> | <p>Day 9: matrix representations ramsey theory activity: four color maps (show torus). take test (and go over solutions)</p> | <p>Day 15 (morning only): final oral presentation of projects. group Q&A. Nim game</p> |