**Math 13 Suggested Syllabus**

**Text:** <https://www.math.uci.edu/~ndonalds/math13/notes.pdf>

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| **Lecture** | **Section** | **Topic(s)** |
| 1 | 1 | Introduction |
| 2 | 2.1 | Propositions |
| 3 | 2.1 | Propositions |
| 4 | 2.2 | Methods of proof |
| 5 | 2.2 | Methods of proof |
| 6 | 2.3 | Quantifiers |
| 7 | 3.1 | Remainders and Congruences |
| 8 | 3.2 | Greatest Common Divisors and the Euclidean Algorithm |
| 9 | 4.1, 4.2 | Set Notations and Describing a Set; Subsets |
| 10 | 4 4.3 | Unions and Intersections |
| 11 | 4.4 | Introduction to Functions |
| 12 | 4.4 | Introduction to Functions; Review |
| 13 |  | **Midterm** |
| 14 | 5.1 | Proof by Induction |
| 15 | 5.2 | Well Ordering and the Principle of Mathematical Induction |
| 16 | 5.3, 5.4 | Recurrence Relations and Sequences; Strong Induction |
| 17 | 5.4, 6.1 | Strong Induction; Cartesian Products |
| 18 | 6.2 | Power Sets |
| 19 | 6.3 | Indexed Collections of Sets |
| 20 | 6.3 | Indexed Collections of Sets |
| 21 | 6.3 | Indexed Collections of Sets |
| 22 | 7.1, 7.2 | Relations; Functions Revisited |
| 23 | 7.2, 7.3 | Functions Revisited; Equivalence Relations |
| 24 | 7.4, 7.5 | Partitions; Well-Definition, Rings and Congruence |
| 25 | 7.5, 7.6 | Well-Definition, Rings and Congruence; Functions and Partitions |
| 26 | 8.1, 8.2 | **Cantor’s Notion of Cardinality;** Countably Infinite Sets; |
| 27 | 8.2, 8.3 | Countably Infinite Sets; Uncountability |
| 28 | 8.4 | More Advanced Ideas |
| 29 | Review |  |