**Math 120A Suggested Syllabus**

(Based on 29 lectures)

**Text:** *Introduction to Group Theory Learning by Doing*

*by Neil Donaldson, Michael Hehmann, Alessandra Pantano*

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| **Lecture** | **Section** | **Topic** |
| 1 | 1 | Introduction and examples |
| 2 | 2 | Binary Operations |
| 3 | 2 | Continued |
| 4 | 3 | Isomorphisms of Binary Structures |
| 5 | 3 | Continued |
| 6 | 4 | Groups |
| 7 | 4 | Continued |
| 8 | 4 | Continued |
| 9 | 5 | Subgroups |
| 10 | 5 | Continued |
| 11 | 6 | Cyclic Groups |
| 12 | 6 | Continued |
| 13 | 8 | Permutation Groups |
| 14 | 8, 9 | Permutation Groups, Orbits, Cycles |
| 15 | 9 | Transpositions and the Alternation Group |
| 16 |  | Review |
| 17 |  | **Midterm** |
| 18 | 10 | Cosets and Lagrange’s Theorem |
| 19 | 10 | Continued |
| 20 | 11 | Direct Products (*Optional*- Fundamental Theorem of Finitely Generated Abelian Groups) |
| 21 | 11 | Continued |
| 22 | 13 | Homomorphisms |
| 23 | 13 | Continued |
| 24 | 14 | Factor Groups |
| 25 | 14 | Continued |
| 26 | 15 | Factor Group Computations |
| 27 | 15 | Continued |
| 28 | 34 | First Isomorphism Theorem (*Optional*) |
| 29 |  | Review |