Math 620: Groups, Rings, and Fields
Fall 2020
Lecture Schedule

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Below is a list of the topics we intend to cover, along with a rough schedule. Actual schedule is subject to change without notice. Last updated November 14, 2020.

Week	Topic	Chapters (H/DF)
8/24 – 8/28	Groups	7.1, 7.2 / 1.1-1.4
	Direct Products	9.1 / 5.1
8/31 – 9/4	Subgroups	7.3 / 2.1
	Homomorphisms and Isomorphisms	7.4 / 3.1
9/7	*Labor Day: No Classes*	
9/8 – 9/11	Permutation Groups	7.5 / 1.2, 1.3
9/14 – 9/18	Cosets and Quotient Groups	8.1-8.3 / 3.1, 3.2, 6.3
9/21 – 9/25	The Isomorphism Theorems	8.4 / 3.3
9/28 – 10/2	Generators and Relations	
	Automorphism Groups	
10/5 – 10/9	Basic Ring Definitions and Properties	3.1-3.3 / 7.1-7.3
10/12 – 10/16	Ideals, Homomorphisms, and Quotient Rings	6.1, 6.2 / 7.4
	Isomorphism Theorems for Rings	
10/19 – 10/23	Maximal and Prime Ideals	6.3 / 7.4
	Rings of Fractions and Localization	10.4 / 7.5
10/26 – 10/30	Polynomial Rings	4.1-4.3 / 9.1-9.3
	Unique Factorization	10.1, 10.2 / 8.3
	PIDs and Euclidean Domains	10.2 / 8.1, 8.2
11/2 – 11/6	Irreducible Polynomials	4.4 / 9.4
	Finite Fields	11.6 / 14.3
11/11	*Veteran's Day: No Classes*	
11/9 – 11/13	Catch-up Day	
11/16 – 11/20	Field Extensions	11.1-11.3 / 13.1-13.3
	Splitting Fields	11.4 / 13.4
	Algebraic Closures	11.3 / 13.4
11/23 – 11/25	Preview of Math 621 (Algebraic Topology)	
11/26 – 11/27	*Thanksgiving Break: No Classes*	
11/30 – 12/4	Category Theory	
	Universal Properties	
12/7 – 12/10	Overview of Galois Groups	12.1 / 14.1
	Overview of Category Theory	
12/11 – 12/17	**Final Exams**	