

Math 357: Undergrad Abstract Algebra II
Remote "Flipped Classroom" Format, see Syllabus for details
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[Final Version]

Lecture #	Date	Algebraic Structure/ Broad Topic	Sub-topic	Section(s) of Goodman edition 2.6	Section(s) of Dummit-Foote 3rd edition (used primarily for field & Galois theory material)	Homework and Due Dates Exam Dates
1	M 1/25/2021	Quick Review of Structures Rings	Logistics of Course (P)Review of Algebraic Structures Hierarchy of Commutative Rings	Own Notes		
2	W 1/27/2021	Rings	UFDs	6.6 (skipping ascending chain condition)	9.3	HW #0 due (not for credit)
3	F 1/29/2021	Rings	UFDs	6.6 (skipping ascending chain condition)	9.3	
4	M 2/1/2021	Rings	Irreducibility	6.8	9.4	
5	W 2/3/2021	Modules	Introduction to Modules	8.1	10.1	HW #1 due
6	F 2/5/2021	Modules	Submodules and Morphisms of Modules	8.1	10.1, 10.2	
7	M 2/8/2021	Modules	More on Morphisms of Modules, Quotient Modules, Isomorphism Theorems for Modules	8.2	10.1	
8	W 2/10/2021	Modules	Direct Sums of Modules, Generation, Free Modules	8.1	10.3	HW #2 due
9	F 2/12/2021	Modules Group Rep Theory	Language of Representation Theory Introduction to Group Representation Theory	(Instructor Notes)	(Instructor Notes) 18.1	
10	M 2/15/2021	(Winter storm)				
11	F 2/19/2021	(Winter storm)				
12	M 2/22/2021	Group Rep Theory	Subrepresentations Irreducibility	(Instructor Notes)	(Instructor Notes) 18.1	
13	W 2/24/2021	Group Rep Theory	Complete Reducibility	(Instructor Notes)	(Instructor Notes) 18.1	HW #3 due
14	F 2/26/2021	Group Rep Theory	G-homomorphisms, Schur's Lemma Beginning of Character Theory	(Instructor Notes)	18.2, 18.3	
15	W 3/3/2021	Group Rep Theory	Highlights of Character Theory	(Instructor Notes)	18.3	HW #4 due
16	F 3/5/2021	Fields	Field Extensions	7.3	13.1	
17	M 3/8/2021	Fields	Field Extensions	7.3	13.1	
18	W 3/10/2021	Fields	Algebraic Extensions	7.3	13.2	HW #5 due
19	F 3/12/2021	Fields	Algebraic Extensions	7.3	13.2	
20	M 3/15/2021	Fields	Composite Field Extensions Splitting Fields	7.3, 9.1 7.4, 7.5	13.2 13.4	
21	W 3/17/2021	Fields	Splitting Fields	7.4, 7.5	13.4	HW #6 due
22	F 3/19/2021					Midterm (through March 12th material)
23	M 3/22/2021	Fields	Cyclotomic Extensions	10.4	13.4, 13.6	
24	W 3/24/2021	Fields	Algebraic Closure	—	13.4	HW #7 due
25	M 3/29/2021	Fields	Separable Polynomials Separable Field Extensions	9.3	13.5	
26	W 3/31/2021	Fields	Polynomials and Fields over \mathbb{F}_p	9.3	13.5	HW #8 due
27	F 4/2/2021	Fields	Finite Fields and Simple Extensions	9.3	13.5	
28	M 4/5/2021	Galois theory	Automorphism Groups and Fixed Fields	9.4	14.1	
29	W 4/7/2021	Galois theory	Galois Groups and Galois Extensions, Examples	9.4	14.1	HW #9 due
30	F 4/9/2021	Galois theory	Galois Groups and Galois Extensions, Examples	9.4	14.1	
31	M 4/12/2021	Galois theory	Characterization of Galois Extensions	9.5	14.2	
32	W 4/14/2021	Galois theory	Fundamental Theorem of Galois theory	9.5	14.2	HW #10 due
33	F 4/16/2021	Galois theory	Fundamental Theorem of Galois theory	9.5	14.2	
34	M 4/19/2021	Galois theory	Galois theory of Finite Fields	—	14.3	
35	W 4/21/2021	Galois theory	Galois Theory of Composite Fields	—	14.4	HW #11 due
36	F 4/23/2021	(Review day)	Q&A			
37	M 4/26/2021	Solvability of Polynomial Equations [Bonus material]	Solvability by Radicals	10.1, 10.2, 10.6	14.7 (See also notes and scan from Hungerford)	
38	W 4/28/2021	Solvability of Polynomial Equations [Bonus material]	Solvability by Radicals	10.1, 10.2, 10.6	14.7 (See also notes and scan from Hungerford)	HW #12 due
39	F 4/30/2021	Solvability of Polynomial Equations [Bonus material]	Solvability by Radicals	10.1, 10.2, 10.6	14.7 (See also notes and scan from Hungerford)	
Study Days	Sa 5/1/2021 -T 5/4/2021					Bonus HW due on 5/4/2021
Final Exam	M 5/10/2021 7:00pm - 10:00pm					Final Exam (through April 21st material)