Last updated 4/26/04

430 Syllabus **Spring 2004**

(Note: The assignments below are listed by the day they are assigned, and are due the following class period. See the handout explaining homework assignments for more information.)

Day	Date	Sxn	Topic/Homework	Proof of the Day
1-M	1/12	0	**Sets and Relations**	
			HW 0.A: 3, 4, 7, 11, 12, 29, 30, 31, 32.	*POD 0.A: Proof of Theorem 0.22.*
1-W	1/14	0	Problems	
			HW 0.B: 13, 14, 15, 16, 17, 22, 27, 35.	*POD 0.B: Problem 18.*
1-F	1/16	1	**Introduction and Examples**	
			HW 1.A: 3, 8, 10, 12, 26, 27, 30, 34.	*POD 1.A: Use Euler's formula to show that* $\zeta^m = \cos(m\frac{2\pi}{n}) + i\sin(m\frac{2\pi}{n})$ *raised to the* n^{th} *power is* 1.
2-M	1/19	-	***Martin Luther King Day***	
2-W	1/21	1	Problems	
			HW 1.B: 16, 20, 21, 35, 37, 38.	*POD 1.B: Problem 41.*
2-F	1/23	2	**Binary Operations**	
			HW 2.A: 5, 6, 8, 9, 16, 17, 18, 24, 25.	*POD 2.A: Proof of Theorem 2.13.*
3-M	1/26	-	***Unexpected Snow Day***	
3-W	1/28	2	Problems	
			HW 2.B: 12, 13, 28, 31, 32, 35, 37.	*POD 2.B: Problem 36.*
3-F	1/30	3	**Isomorphic Binary Structures**	
			HW 3.A: 4, 6, 7, 8, 11, 20, 22.	*POD 3.A: Proof of Theorem 3.14.*
4-M	2/2	3	Problems	
			HW 3.B: 16, 17, 26, 28, 29, 30, 34.	*POD 3.B: Problem 27.*
4-W	2/4	4	**Groups**	
			HW 4.A: 1, 4, 10, 12, 14, 23, 24, 25.	*POD 4.A: Proof of Corollary 4.18.*
4-F	2/6	4	Problems	
			HW 4.B: 19, 20, 21, 28, 31, 33, 41.	*POD 4.B: Problem 34.*
5-M	2/9	5	**Subgroups**	
			HW 5.A: 2, 8, 19, 20, 26, 28, 29, 39.	*POD 5.A: Proof of Theorem 5.17.*
5-W	2/11	5	Problems	
			HW 5.B: 36, 41, 42, 45, 51, 53, 54, 55.	*POD 5.B: Problem 52.*
5-F	2/13	-	**TEST I** (Sections 0–5)	

Day	Date	Sxn	Topic/Homework	Proof of the Day
6-M	2/16	6	**Cyclic Groups**	
			HW 6.A: 2, 6, 9, 15, 16, 18, 20, 23, 28.	*POD 6.A: Proof of Theorem 6.6.*
6-W	2/18	6	Problems	
			HW 6.B: 32, 35, 36, 37, 40, 44, 45, 51.	*POD 6.B: Problem 55.*
6-F	2/20	8	**Groups of Permutations**	
			HW 8.A: 4, 7, 10, 12, 14, 15, 35, 39, 40.	*POD 8.A: Proof of Theorem 8.16.*
7-M	2/23	8	Problems	
			HW 8.B: 18, 19, 24, 27, 44, 45, 46, 53.	*POD 8.B: Problem 48.*
7-W	2/25	9	**Orbits, Cycles, and the Alternating Groups**	
			HW 9.A: 2, 6, 7, 11, 13, 17, 18, 23.	*POD 9.A: Proof of Theorem 9.20.*
7-F	2/27	9	Problems	
			HW 9.B: 24, 27ab, 30, 31, 32, 34, 35.	*POD 9.B: Problem 29.*
8-M	3/1	10	**Cosets and the Theorem of Lagrange**	
			HW 10.A: 4, 6, 7, 8, 9, 10, 11, 16, 19.	*POD 10.A: Proof of Theorem 10.10.*
8-W	3/3	10	Problems	
			HW 10.B: 24, 28, 29, 30, 32, 34, 40, 42.	*POD 10.B: Problem 26.*
8-F	3/5	7+	**Very Interesting Stuff, Including Section 7**	
			HW VIS: 1, 2, 3, 4 on the handout.	*POD VIS: None.*
9-M	3/8	-	***Spring Break***	
9-W	3/10	-	***Spring Break***	
9-F	3/12	-	***Spring Break***	
10-M	3/15	11	**Direct Products and Finitely Generated Abelian Groups**	
			HW 11.A: 2, 6, 8, 12, 13, 14, 18, 23, 24.	*POD 11.A: Proof of Theorem 11.16.*
10-W	3/17	11	Problems	
			HW 11.B: 29, 30, 31, 32, 36, 39, 44.	*POD 11.B: Problem 46.*
10-F	3/19	-	**TEST II** (Sections 6–11, and VIS)	
11-M	3/22	13	**Homomorphisms**	
			HW 13.A: 4, 8, 9, 18, 19, 21, 23, 33, 35, 36, 37, 41.	*POD 13.A: Proof of Theorem 13.18.*
11-W	3/24	13	Problems	
			HW 13.B: 28, 29, 32, 44, 45, 47, 51, 52.	*POD 13.B: Problem 46.*
11-F	3/26	14	**Factor Groups**	
			HW 14.A: 2, 7, 9, 13, 16, 20, 23, 24.	*POD 14.A: Proof of Corollary 14.5.*

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12-M	3/29	14	Problems	
			HW 14.B: 21, 22, 26, 29, 31, 40.	*POD 14.B: Problem 25.*
12-W	3/31	15	**Factor-Group Computations and Simple Groups**	
			HW 15.A: 4, 5, 7, 13, 14, 19, 20, 21.	*POD 15.A: Proof of Theorem 15.8.*
12-F	4/2	15	Problems	
			HW 15.B: 26, 27, 29, 30, 31, 32, 35.	*POD 15.B: Problem 34.*
13-M	4/5	18	**Rings and Fields**	
			HW 18.A: 6, 7, 12, 15, 19, 20, 32, 33, 44.	*POD 18.A: Proof of Theorem 18.8.*
13-W	4/7	18	Problems	
			HW 18.B: 23, 24, 27, 28, 35, 40, 42, 48.	*POD 18.B: Problem 37.*
13-F	4/9	19	**Integral Domains**	
			HW 19.A: 1, 2, 7, 10, 13, 14, 15, 16.	*POD 19.A: Proof of Theorem 19.5.*
14-M	4/12	19	Problems	
			HW 19.B: 17, 18, 20, 23, 30.	*POD 19.B: Proof of Theorem 19.9.*
14-W	4/14	21	**The Field of Quotients of an Integral Domain**	
			HW 21.A: 1, 2, 3, 4, 5, prove Lemma 21.2.	*POD 21.A: Proof of Lemma 21.3.*
14-F	4/16	21	Problems	
			HW 21.B: 6, 7, 8, 9, 10, 11, prove Lemma 21.4.	*POD 21.B: Explain Theorem 21.6 and basic idea of proof.*
15-M	4/19	22	**Rings of Polynomials**	
			HW 22.A: 4, 6, 10, 14, 18, 19, 20.	*POD 22.A: Proof of Theorem 22.4.*
15-W	4/21	22	Problems	
			HW 22.B: 21, 22, 23, 24, 25, 27, 28.	*POD 22.B: Problem 26.*
15-F	4/23	-	**TEST III** (Sections 13–15, 18–19, 21–22)	
16-M	4/26	23	**Factorization of Polynomials over a Field**	
			HW 23.A: 2, 4, 10, 11, 12, 13, 14, 19.	*POD 23.A: Proof of Corollary 23.3.*
16-W	4/28	23	Problems	
			HW 23.B: 16, 17, 25, 26, 28, 36.	*POD 23.B: Proof of Theorem 23.10.*
16-F	4/30	-	Evaluations, Final Exam Information (mandatory attendance)	

Final Exam: Monday, May 3, 10:30 am – 12:30 pm, Burruss 034