Math 522 Number Theory

Spring 2024 Calendar

January 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
21	22 Start of the semester	23 First Day of Class Introductions and Expectations	24	25 Review of Rings, Ideals, and Fields	26	27
28	29	30 Chapter 1.1: Unique Factorization in **Z**	31 Homework 0 Due			

February 2024

◀ Jan 2024   Mar 2024 ▶

Sun	Mon	Tue	Wed	Thu	Fri	Sat
				1 Section 1.2: Unique Factorization in k[x]	**2**	**3**
4	**5**	**6** Section 1.2: Unique Factorization in k[x]	**7** Homework 1 Due	**8** Sections 1.3 and 1.4: Unique Factorization in a PID and The Rings **Z**[i] and **Z**[ω] Ian: Euclidean domains	**9**	**10**
11	**12**	**13** Sections 1.3 and 1.4: Unique Factorization in a PID and The Rings **Z**[i] and **Z**[ω]	**14**	**15** Sections 1.3 and 1.4: Unique Factorization in a PID and The Rings **Z**[i] and **Z**[ω] SMIMIC Talk	**16**	**17**
18	**19**	**20** Sections 2.1 and 2.2: The Infinitude of the Primes and Some Arithmetic Functions (Euler's φ function) Max: Euler's proof of the infinitude of the primes.	**21** Homework 2 Due	**22** Section 2.3: $\sum \frac{1}{p}$ Diverges Congruences in **Z** ax congruent to b modulo m Section 3.4: Sunzi's Remainder Theorem SMIMIC Talk	**23**	**24**
25	**26**	**27** Midterm 1 Section 3.4: Sunzi's Remainder Theorem	**28**	**29** Congruences in **Z** Section 3.4: The Chinese Remainder Theorem Finish up Chapter 3, Start Chapter 4 Gustavo: Solutions to ax=b modulo m SMIMIC Talk		

March 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
					1	**2**
3	**4**	**5** Section 4.1 Primitive Roots in U($\mathbf{Z}$/n$\mathbf{Z}$) Section 4.2: n^{th} Power Residues	**6** Homework 3 Due	**7** Section 4.2: n^{th} Power Residues Quadratic Reciprocity Dylan: Chapter 4, Section 2.	**8**	**9**
10	**11**	**12** Quadratic Reciprocity	**13**	**14** Intro to Galois Theory: Field Extensions and Authomorphisms SMIMIC Talk	**15**	**16**
17 Spring Break!	**18** Spring Break!	**19** Spring Break!	**20** Spring Break!	**21** Spring Break!	**22** Spring Break!	**23** Spring Break!
24 Homework 4 Due	**25**	**26** Galois Theory, Quadratics and Cyclotomics	**27**	**28** Section 12.1: Algebraic Preliminaries SMIMIC Talk	**29**	**30**

April 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
Mar. 31	**1** Cesar Chavez Day	**2** Midterm 2	**3**	**4** Section 12.2: Finiteness of the Class Number, Unique Factorization SMIMIC Talk	**5**	**6**
7	**8**	**9** Section 12.3: Ramification and Degree Abigail: Dedekind Zeta Functions	**10** Homework 5 Due	**11** Section 13.1: Quadratic Number Fields	**12**	**13**
14	**15**	**16** Section 13.2: Cyclotomic Number Fields	**17**	**18** Section 13.3: Quadratic Reciprocity Revisited	**19**	**20**
21	**22**	**23** Reid Lecture	**24** Homework 6 Due	**25** Kummer's Attack on Fermat's Last Theorem	**26**	**27**
28	**29**	**30** Kummer's Attack on Fermat's Last Theorem				

May 2024

Sun	Mon	Tue	Wed	Thu	Fri	Sat
			1	**2** Buffer and Student Presentations SMIMIC Talk	**3**	**4**
5	**6**	**7** Buffer and Student Presentations **Vistas into Modern Number Theory and Arithmetic Geometry**	**8** Homework 7 Due	**9** Last Day of Class **Vistas into Modern Number Theory and Arithmetic Geometry**	**10**	**11**
12	**13**	**14**	**15** Final Exam 6:15pm to 8:15pm in Commons 206	**16**	**17**	**18**