MATH 271, Calendar

Fall 2020

Monday	Tuesday	Wednesday	Friday
Aug 24th **1** First day. Syllabus and course material. Review Chapter 1.	25th **2** Complex numbers. Chapter 3 Sections 1, 2.	26th **3** Geometry of $\mathbb{C}$ and polar coordinates. Chapter 3 Sections 3, 4.	28th **4** **Homework 0 due.** Polar coordinates and periodicity. Chapter 3 Sections 4, 5.
31st **5** Intro to ODEs. Chapter 4 Section 1, 2.	Sep 1st **6** General and particular solutions. Separable ODEs. Chapter 4 Sections 3, 4.	2nd **7** Changing variables and qualitative analysis. Chapter 4 Section 5, 6.	4th **8** **Quiz 1. Homework 1 due.**
7th Labor Day	8th **9** First order linear equations and integrating factor. Chapter 4 Section 7.	9th **10** Chemical kinetics. Chapter 4 Section 8.	11th **11** **Homework 2 due.** Second order ODEs and initial value problems. Chapter 4 Section 9
14th **12** Cont.Chapter 4 Section 9.	15th **13** Damped and driven oscillation. Chapter 4 Section 9.	16th **14** Boundary value problems. Chapter 5 Section 1.	18th **15** **Quiz 2**
21st **16** **Homework 3 due.** Understanding the Schrödinger equation. Chapter 5 Section 2.	22nd **17** More on the Schrödinger equation. Chapter 5 Section 2.	23rd **18** **Oral Exam 1**	25th **19** **Oral Exam 1**

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28th **20** Sequences and series. Chapter 6 Section 1, 2.	29th **21** Series and convergence. Chapter 6 Section 2.	30th **22** Power series and radius of convergence. Chapter 7 Section 1.	Oct 2nd **23** Cont. Chapter 7 Section 1. **Homework 4 due.**
5th **24** Integration and differentiation with power series. Chapter 7 Section 2.	6th **25** Taylor series. Chapter 7 Section 3.	7th **26** Approximation with Taylor series and Morse potential. Chapter 7 Section 4.	9th **27** **Quiz 3. Homework 5 due.**
12th **28** Series solutions to ODEs. Chapter 7 Section 5.	13th **29** Cont.	14th **30** Special polynomials. Chapter 7 Section 6.	16th **31** Quantum harmonic oscillator.
19th **32** **Homework 6 due.** Cont.	20th **33** Open	21st **34** **Oral Exam 2**	23rd **35** **Oral Exam 2**
26th **36** SNOW DAY. Vectors and vector spaces. Chapter 8 Sections 1, 2.	27th **37** Algebra of vector spaces. Chapter 8 Section 3, 4.	28th **38** Inner and cross products. Chapter 8 Section 5.	30th **39** Linear transformations and matrices. Chapter 9 Section 1.
Nov 2nd **40** Cont. **Homework 7 due.**	3rd **41** Matrix algebra. Chapter 9 Section 2.	4th **42** Systems of inhomogeneous linear equations. Chapter 9 Section 3, 4.	6th **43** **Homework 8 due.** Systems of homogeneous equations, nullspace. Chapter 9 Section 3, 4.
9th **44** Linear independence, span, and bases. Chapter 9 Section 5.	10th **45** Determinants, traces, and their properties. Chapter 9 Section 6.	11th **46** Cont.	13th **47** **Quiz 4. Homework 9 due.**

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16th **48** Inverse and similar matrices. Chapter 9 Section 7.	17th **49** Eigen-problem. Chapter 9 Section 8.	18th **50** Diagonalization and Hermitian matrices. Chapter 9 Section 9.	20th **51** **Homework 10 due.** Cont.
23rd Fall Break	24th Fall Break	25th Fall Break	27th Fall Break
30th **52** Groups and symmetries. Chapter 9 Section 10.	Dec 1st **53** Applications to chemistry.	2nd **54** Cont.	4th **55** **Quiz 5.** **Homework 11 due.**
7th **56** **Oral Exam 3**	8th **57** **Oral Exam 3**	9th **58** Project	11th **59** Project