

**MATH 340 SYLLABUS
SUMMER 2025**

Course:	Math 340.001 (4 credits) 9:30 - 11:30am Nutrien 163 16 June 2025 - 8 August 2025
Instructor:	Jacob Cleveland
Email:	jacob.cleveland@colostate.edu
Department Coordinator:	Dr. Phil Kopel
Department Coordinator Email:	philip.kopel@colostate.edu
Office Hours:	MTW 11:30 am to 12:30 pm in the Calculus Center
Prerequisites:	Math 255 or Math 261
Description:	First and second order equations, Laplace transforms, linear algebra, eigenvalues, first order systems of equations, numerical techniques.
Textbook: (optional)	Elementary Differential Equations and Boundary Value Problems W. Boyce, R. Dippima, D. Meade Wiley, 11th ed.
Important Dates:	June 16: Term begins June 19: Juneteenth Holiday (no class) June 24: Last day to register/drop a course July 4: Independence Day Holiday (no class) July 29: Withdraw deadline August 3: Repeat Repair deadline August 10: Term ends August 12: Grades due by 2pm August 13: Grades available in RAMweb
Course Materials:	Everything should be available through Canvas.
Grade:	WeBWork $\times 8$ (lowest score dropped) - 20% Quizzes $\times 4$ (lowest score dropped) - 15% Midterm 1 - 15% Midterm 2 - 15% Midterm 3 - 15% Cumulative Final - 20%
Grading Scale:	A: $\geq 90\%$ B: $80\% - 89\%$ C: $70\% - 79\%$ D: $60\% - 69\%$ F: $< 60\%$

Pacing Disclaimer: This course, lasting 8 weeks, will cover the same material that is normally spread out over 16 weeks in a semester. Therefore this course will be fast paced so attendance should be your top priority. If you find yourself falling behind, feel free to reach out to me or seek out other resources as soon as possible.

Course/Canvas Layout: This course will utilize two primary pages on canvas; the Modules page and the Assignments page.

Modules: Lectures will be posted on the Modules page of Canvas. Each week of material will be under a title of “Week X - Summer 2025”.

Assignments: 8 WeBWorK assignments will be linked through Canvas on the Assignments page. Use your login and complete the assignment before the lock date. All webwork assignments are available at the beginning of the term and close at 11:59 M.T. on the date listed on the schedule. Your lowest WeBWorK score will be dropped.

Quizzes: There will be four quizzes on the dates indicated on the schedule. Your lowest quiz score will be dropped.

Exams: There will be three Midterms (27 June 2025, 11 July 2025, and 25 July 2025) and a cumulative Final Exam (8 August 2025).

Grading note: If you believe there is a mistake in the grading or entering of grades, please make me aware as soon as possible.

Course Outline:

- First-Order ODEs
 - Identification/Classification
 - Solution verification
 - Solving linear, separable, exact, and Bernoulli equations
 - Substitutions
 - Modeling Problems
- Second-Order ODEs
 - Linear equations
 - The Wronskian
 - Constant coefficients
 - Undetermined coefficients
 - Variation of Parameters
- Linear Algebra
 - Matrices
 - Eigenvalues and eigenvectors
 - Systems of ODEs
- Laplace Transform
 - Common transformations
 - Inverse Laplace transform
 - Solutions using Laplace
- Dynamical Systems
 - Predator/Prey model
 - Lorenz system

Week of	Monday	Tuesday	Wednesday	Thursday	Friday
6/16/25	Introductions, First Order Equations	Linear Equations	Separable Equations HW1 Due	No Class	Exact Equations Quiz 1
6/23/25	Bernoulli Equations	Substitutions	Modeling Problems HW2 Due	Review	Exam 1
6/30/25	Homogeneous Second Order Equations	Homogeneous Second Order Equations	Reduction of Order HW3 Due	The Wronskian Quiz 2	No Class
7/7/25	Nonhomogeneous Second Order Equations	Undetermined Coefficients	Variation of Parameters HW4 Due	Review	Exam 2
7/14/25	Matrices	Eigenvalues and Eigenvectors	Homogeneous Systems HW5 Due	Homogeneous Systems	Generalized Eigenvalues Quiz 3
7/21/25	Phase Planes	Nonhomogeneous Systems	Nonhomogeneous Systems HW6 Due	Review	Exam 3
7/28/25	Laplace Transforms	Inverse Laplace Tranforms	Solutions via Laplace Transforms HW7 Due	Solutions via Laplace Transforms	Quiz 4
8/4/25	Dynamical Systems	Predator Prey Model	Lorenz System HW8 Due	Review	Final Exam

Policies: The Department of Mathematics has a set of policies which cover topics ranging from cell phones to alternate exams. These are available at this link and it is your responsibility to read them. Written documentation for university events or events beyond your control are required in advance for makeups. Documentation (e.g. memo from the SDC) is required to use accommodations.

Equity and Inclusion Statement: Colorado State University embraces the diversity of students, faculty, and staff, honors the inherent dignity of each individual, and welcomes their unique perspectives, behaviors, and worldviews. In this course, people of all races, religions, national origins, sexual orientations, ethnicities, genders and gender identities, cognitive, physical, and behavioral abilities, socioeconomic backgrounds, regions, immigrant statuses, military or veteran statuses, size and/or shapes are strongly encouraged to share their rich array of perspectives and experiences. Course content and campus discussions are intended to heighten your awareness to each other's individual and intersecting identities.

Mental Health and Wellness: CSU is a community that cares. You are not alone. CSU Health Network Counseling Services has trained professionals who can help. Your student fees provide access to a wide range of support services. Call Counseling Services at (970) 491-6053, and they will work together with you to find out which services are right for you. CSU counseling services Student mental health and well-being resources If you are concerned about a friend or peer, use Tell Someone by calling (970)491-1350 or visitng

this link to share your concerns with a professional who can discreetly connect the distressed individual with the proper resources. Rams Take Care of Rams. Reach out and ask for help if you or someone you know is having a difficult time.

Changes to the Syllabus: Some of the information on the syllabus and pacing guide, such as the exact order of topics covered, is tentative and potentially subject to change. Changes to the grading scheme are very unlikely to occur but if this becomes necessary due to circumstances outside of our control, the changes will work out in your favor.