

# Math 218 — Differential equations for engineers

Fall 2024

Instructor: Alex Cowan  
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Location: MWF 12:30–1:20, Monday Wednesday in E6 2024, Friday in DWE 2529  
Tutorials: Wednesday 11:30–12:20 in PHY 145  
Office hours: Monday 1:45–2:45 in MC 6467, and by appointment  
Website: <https://www.math.uwaterloo.ca/~a2cowan/odes2024f>  
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## Resources

Accessibility services: <https://uwaterloo.ca/accessability-services/>  
Health services: <https://uwaterloo.ca/students/health-and-well-being>

## Course description

First order equations, second order linear equations with constant coefficients, the Laplace transform method, systems of linear differential equations, and series solutions. Applications in engineering are emphasized.

## Prerequisites

One of MATH 118, 119, 128, 138, 148, SYDE 112; Engineering or Earth Science students only.  
Antireq: AMATH 250, 251, 350, 351, CIVE 222, ENVE 223, MATH 211/ECE 205, 228, MATH 212N/NE 217, ME 203, SYDE 211

## Textbook

We will follow the MATH 218 course notes *Differential Equations for Engineers* by J. Wainwright and J. West: [https://www.math.uwaterloo.ca/~a2cowan/odes2024f/wainwright\\_west.pdf](https://www.math.uwaterloo.ca/~a2cowan/odes2024f/wainwright_west.pdf).

## Grading

Your final grade will be calculated using the option most beneficial for you among the following:

Assignments: 20%  
Midterm 1: 20% or 7%  
Midterm 2: 20% or 7%  
Final: The rest (40% or 53% or 66%)

Assignments will be given roughly every week, and the worst grade will be ignored. Collaboration is strongly encouraged, but anything you submit has to be something you wrote yourself and in your own words. Late assignments won't be accepted.

## **Exams**

Midterm 1 will be in class on October 11th.

Midterm 2 will be in class on November 13th.

The date, time, and location for the final is TBA by the university.

## **Academic Dishonesty**

If you're struggling with the material or have a problem about an upcoming exam, please discuss it with me instead of resorting to cheating.