Ordinary Differential Equations
Fall 2023 tentative schedule

The following (preliminary) schedule serves as a guideline for the sections covered in the lecture. Homework assignments are **not** included below, you have to check Brightspace for the latest updates and to keep up with the deadlines!

Math UA 262 Section 005 Schedule

Week	Date	Topic
1	Wed, Sep 6th	Introduction and first-order ODEs (§1.1, 1.2)
2	Mon, Sep 11th	Separation of variables (§1.2, 1.4)
	Wed, Sep 13th	Exact equations (§1.9)
3	Mon, Sep 18th	Existence and Uniqueness; Picard iteration (§1.10)
	Wed, Sep 20th	Numerical Approximation; Euler methods (§1.13)
4	Mon, Sep 25th	Improved Euler, Runge-Kutta method (§1.13, 1.15, 1.16)
	Wed, Sep 27th	Second order linear equations (§2.1)
5	Mon, Oct 2nd	Constant coefficients: homogeneous equations (§2.2)
	Wed, Oct 4th	Constant coefficients: nonhomogeneous equations, series solutions (§2.3, 2.4)
6	Mon, Oct 9th	— *Fall Break (no class)* —
	Wed, Oct 11th	Series solutions, Singular points (§2.8, 2.8.1)
7	Mon, Oct 16th	Method of Frobenius, special functions (§2.8.2, 2.8.3)
	Wed, Oct 18th	Systems of equations (review of linear algebra) (§3.1–3.7)
8	Mon, Oct 23rd	**Midterm Exam**
	Wed, Oct 25th	Linear ODE systems: Eigenvalues and eigenvectors (§3.8)
9	Mon, Oct 30th	Complex & Equal roots (§3.9, 3.10)
	Wed, Nov 1st	Matrix solutions (§3.11, 3.12)
10	Mon, Nov 6th	Stability of linear systems (§4.1, 4.2)
	Wed, Nov 8th	Stability of equilibrium solutions, Lyapunov's second method (§4.3 [B], 9.6 [BDM])
11	Mon, Nov 13th	Phase plane analysis, (§4.4)
	Wed, Nov 15th	Phase portrait of linear systems (§4.7)
12	Mon, Nov 20th	Laplace transforms (§2.9)
	Wed, Nov 22nd	— *Fall Break (no class)* —
13	Mon, Nov 27th	Laplace transforms (§2.10)
	Wed, Nov 29th	Properties of Laplace transforms, discontinuous forcing (§2.10, 2.11)
14	Mon, Dec 4th	Intro to PDEs: Heat equation (§5.2)
	Wed, Dec 6th	Fourier series (§5.4)
15	Mon, Dec 11th	Boundary value problems, Hermitian operators (§5.1, 6.3)
	Wed, Dec 13th	*Last Class* (Review)