

# MATH-234: Adv Ordinary Diff Equations I

First-order scalar equations: geometry of integral curves, symmetries and exactly soluble equations; existence, uniqueness and dependence on parameters with examples. Systems of first-order equations, Hamilton's equations and classical mechanics, completely integrable systems. Higher-order equations. Initial value problems for second order linear equations, series solutions and special functions. Boundary value problems with applications. Introduction to perturbation theory and stability.

**Credits:** 3

**Program:** Mathematics