

科目：微分方程(Differential Equations)

- 參考書：1. John, F. : Partial Differential Equations, Springer-Verlag, New York, 1982, 4th ed. (Chapters 1-4, 7)
2. Birkhoff, G. and Rota, G. C. : Ordinary Differential Equations, John Wiley & Sons, New York, 1989, 4th ed. (Chapters 1-6, 10-11)

Topics :

1. Initial value problems for first order partial differential equations.
2. The three basic partial differential equations (Laplace, Wave and Heat)-methods of solving, existence and uniqueness of solutions.
3. Maximum principles for elliptic equations and parabolic equations.
4. Existence and uniqueness of solutions for initial value problems for ordinary differential equations, continuity of solution with respect to initial conditions.
5. Linear systems of ordinary differential equations.
6. Stability and phase-plane analysis.
7. Sturm-Liouville system.