常微分方程课程介绍

一、中文简介：

常微分方程是数学专业的主要基础课，也是自然科学和各类技术科学必不可少的有力工具。主要介绍：通过一阶微分方程的求解，了解线性与非线性方程解的一些特征性质，以及一些非线性现象。重点介绍微分方程解的基本理论，包括解的局部适定性，解的延拓等，系统介绍线性微分方程（组）的解的结构以及各种求解方法， 初步介绍非线性系统的定性理论以及稳定性理论，还可以介绍一些非线性现象如分支、混沌等。

二、英文简介：

"Ordinary differential equations" is among the main basic courses for Major in Mathematics, and a fundamental tool in science and technology. Topics covered include: By solving the first order differential equations , the students can understanding the distinction between linear and nonlinear phenomena and the basic characteristic properties of them,. We will introduce the basic theory of the solutions, including local and global well posedness, and extensions of solutions, etc. Study of the structure of the solutions for the linear system of differential equations and higher order linear differential equations, and various methods of solving linear differential equations.Briefly introduction to the qualitative theory of nonlinear system and stability. In addition, time permitted, we may introduce some nonlinear phenomena, such as bifurcation and chaos.