

理学院（数学与应用数学专业）课程简介

课程编号：1713001200

课程名称：微分几何

学分/学时：2.5/40

先修课程：数学分析/高等代数/解析几何/常微分方程

适用专业：数学与应用数学专业

课程性质：必修

教材：梅向明、黄敬之编著.《微分几何》（第四版）.高等教育出版社, 2014 年

主要参考书：苏步青等编著.《微分几何》（修订版）.高等教育出版社, 2016 年

陈维桓编著.《微分几何》.北京大学出版社, 2016 年

徐森林等编著.《微分几何》.中国科技大学出版社, 2013 年

姜国英、黄宣国编著.《微分几何一百例》.高等教育出版社, 2014 年

内容简介：《微分几何》是数学与应用数学专业四年级的一门重要基础课，它是运用微积分的理论研究空间的几何性质的数学分支学科。经典微分几何主要研究三维欧氏空间中的曲线和曲面，而现代微分几何与拓扑学、广义相对论、李群、微分方程、动力系统等息息相关。本课程包括曲线论和曲面论两方面的内容，主要以向量分析为工具，介绍三维欧氏空间中的曲线和曲面的局部理论，同时会介绍平面曲线的一些整体性质。

Course Description

School of Science Faculty

Course Code: 1713001200

Course Name: Differential Geometry

Credit/Hours: 2.5/40

Textbooks : Xiangming Mei, Jingzhi Huang, Differential Geometry (The Forth Version). Higher Education Press, 2014

Reference Books : Buchin Su, Differential Geometry (Revised Edition). Higher Education Press, 2016

Weihuan Chen, Differential Geometry. Peking University Press, 2016

Senlin Xu, Differential Geometry. Press of University of Science and Technology of China, 2013

Guoying Jiang, Xuanguo Huang, One Hundred Examples of Differential Geometry. Higher Education Press, 2014

Course Description : Differential Geometry is an important basic course for the senior of Mathematics and Applied Mathematics major; it is a branch of mathematics that uses calculus to research the geometric properties of the space. The classical differential geometry mainly studies the curves and surfaces in the 3-dimensional Euclidean space, and the modern differential geometry is closely related to topology, general relativity, Lie group, differential equation, dynamical system. This course includes two aspects of curve theory and surface theory. Based on vector analysis, this course introduces the local theory of curve and surface in the 3-dimensional Euclidean space, and introduces some global properties of plane curve.