理学院（数学与应用数学专业）课程简介

课程编号：1713001020

课程名称：解析几何

学分/学时：2.5/40

先修课程：

适用专业：数学类专业

课程性质：必修

教　　　材：邱维声编著．《解析几何》．北京大学出版社, 2017

主要参考书 ：廖华奎，王宝富编著．《解析几何教程》．科学出版社, 2017 年

内容简介：《解析几何》是数学系本科一年级的一门重要的基础课。为数学分析和高等代数以及以后要学习的课程，如微分几何、力学等提供基本的数学理论及数学方法。它的思想方法和几何直观性可为许多抽象的、高维的数学物理问题提供模型和背景。本课程主要讲欧式几何和仿射几何，是用解析的方法解决几何的问题，主要方法有：坐标法、向量法、坐标变换法、点变换法。用坐标法和向量法讨论空间中的直线和平面，以及常见曲面；用坐标变换法讨论二次曲线和二次曲面；点的变换法包括正交变换和仿射变换。可以用它们研究图形的性质。

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Course Description

School of Science Faculty

Course Code：1713001020

Course Name：ANALYTIC GEOMETRY

Credit/Hours：2.5/40

Textbooks： Qiu Weisheng. 《ANALYTIC GEOMETRY》. Press of Peking University, 2017

Reference Books： Liao Huakui, Wang Baofu. 《ANALYTIC GEOMETRY TUTORIAL》. Science Press, 2017

Course Description：ANALYTIC GEOMETRY is an important foundational course for the first year undergraduates majoring in Mathematics. It provides fundamental mathematical theories and methods for the succeeding courses such as MATHEMATICAL ANALYSIS, ADVANCED ALGEBRA, DIFFERENTIAL GEOMETRY and MECHANICS etc.. Its mathematical ideas and objectiveness geometrically consist of the model and background of abstractive multidimensional Mathematics and Physics problems. What the course focuses is how to solve the problems in Geometry by Analytic, Algebraic methods which include the methods by coordinates, by variables, coordinate transformations and point transformations. Straight lines, planes in space and common surface are investigated by coordinates and variables; quadratic curves and quadratic surfaces are concerned by coordinate transformations and point transformations; the concepts of perpendicular transformation and projective transformation are introduced by point transformation, which are used to study a geometrical graph.