理学院（数学与应用数学专业）课程简介

课程编号：1713001160

课程名称：数理方程

学分/学时：3/48

先修课程：数学分析/常微分方程

适用专业：统计学专业/数学与应用数学专业

课程性质：限选

教　　材：刘婧　主编. 数学物理方程（第一版）. 大连海事大学出版社. 2012.

主要参考书 ：

（1）谷超豪，李大潜等　主编. 数学物理方程（第一版）. 高等教育出版社. 2002.

（2）陈才生等 主编. 数学物理方程（第一版）. 科学出版社. 2008.

内容简介：　《数学物理方程》研究的主要内容是三类典型的二阶线性微分方程定解问题的求解方法，它是统计学专业、数学与应用数学专业的专业及方向课程，是一门非常实用的应用课程，在物理、化学、金融、经济、交通运输、电子信息工程等方面有广泛的应用。课程在大学三年级开设，先修课程《数学分析》和《常微分方程》。课程涉及的主要内容包括：三类典型二阶线性偏微分方程定解问题的导出；用行波法，分离变量法，傅立叶变换法求解上述定解问题。

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Course Description

School of Science Faculty

Course Code：1713001160

Course Name：Mathematics Physics Equation

Credit/Hours：3/48

Textbooks：

Jing Liu, Mathematics Physics Equation (the First Version), Dalian Maritime University Press, 2012.

Reference Books：

（1） Chaohao Gu, Daqian Li, Mathematics Physics Equation (the First Version), Higher Education Press, 2002.

（2） Caisheng Chen, Mathematics Physics Equation (the First Version), Science Press, 2008.

Course Description： The major content of Mathematics Physics Equation is how to find the definite solution of three kinds of typical second order linear differential equation. Mathematics Physics Equation is the core course of Statistics as well as Mathematics and Applied Mathematics. It is also a practical course which can be applied in several subjects such as Physics, Chemistry, Finance, Economy, Transportation, Electronic Information Engineering, and etc. Mathematics Physics Equation is provided for juniors with the prerequisites of Mathematical Analysis and Mathematics Physics Equation. The main topics in the course include: how to derive problems for determining solution of three kinds of typical second order linear differential equation; how to solve the problems for determining solution by travelling-wave method, separation of variables and Fourier transform.