

课程详述

COURSE SPECIFICATION

以下课程信息可能根据实际授课需要或在课程检讨之后产生变动。如对课程有任何疑问，请联系授课教师。

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	课程名称 Course Title	数学分析III (H) Mathematical Analysis III (H)
2.	授课院系 Originating Department	数学系 Department of Mathematics
3.	课程编号 Course Code	MA231
4.	课程学分 Credit Value	5
5.	课程类别 Course Type	专业核心课 Major Core Courses
6.	授课学期 Semester	秋季 Fall
7.	授课语言 Teaching Language	中英双语 English & Chinese
8.	授课教师、所属学系、联系方式 (如属团队授课, 请列明其他授课教师) Instructor(s), Affiliation & Contact (For team teaching, please list all instructors)	马富明, 数学系 慧园 3 栋 411 Ma Fuming, Department of Mathematics Block 3, Room 411, Wisdom Valley maf@m.sustech.edu.cn
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	
10.	选课人数限额(可不填) Maximum Enrolment	

(Optional)

11. 授课方式

Delivery Method

学时数

Credit Hours

讲授 Lectures	习题/辅导/讨论 Tutorials	实验/实习 Lab/Practical	其它(请具体注明) Other (Please specify)	总学时 Total
64		32		96

12. 先修课程、其它学习要求
Pre-requisites or Other
Academic Requirements

13. 后续课程、其它学习规划
Courses for which this
course is a pre-requisite

14. 其它要求修读本课程的学系
Cross-listing Dept.

数学分析 II (H) , 数学分析 II (MA102a) Mathematical Analysis II(H) (MA122) , Mathematical Analysis II (MA102a)

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

本课程为主修数学的学生奠定坚实的分析理论基础，培养严谨的逻辑推理和数学思维能力。内容涵盖数项级数、函数列与函数项级数、反常积分、傅立叶积分、场的数学理论和含参变量积分。

This course aims at providing math majored students with solid foundation in the theory of analysis, cultivating their ability of rigorous logical reasoning and mathematical thinking. It covers series, sequences and series of functions, improper integrals, Fourier analysis, fields, and integrals with parameters.

16. 预达学习成果 Learning Outcomes

学生应理解函数序列和级数的几种收敛性，并能运用恰当的判别法确定序列、级数和含参数的积分的收敛和傅氏分析与场论的基本概念，以及熟练掌握相关内容的运算和证明技巧。

Students are expected to understand several kinds of convergences of sequences and series of functions, and use proper criteria to determine the convergence of sequences, series and integrals with parameters, and basic concepts of Fourier analysis, fields theory. They should also master the calculation and proof techniques of the related subjects.

17. 课程内容及教学日历 (如授课语言以英文为主，则课程内容介绍可以用英文；如团队教学或模块教学，教学日历须注明主讲人)

Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

1. 级数 (12 学时)
The Series (12 hours)
2. 函数序列与函数项级数 (12 学时)
Sequence of functions and series (12 hours)
3. 反常积分 (8 学时)
Improper integral (8 hours)
4. Fourier 级数与 Fourier 分析初步 (12 学时)
Fourier series and introduction of Fourier analysis (12 hours)
5. 场的理论 (12 学时)
Theory of fields (12 hours)
6. 含参变量积分 (8 学时)
Integral with parametric variables (8 hours)

18. 教材及其它参考资料 Textbook and Supplementary Readings

教材 Textbook:

数学分析教程 (上下册), 常庚哲, 史济怀, 中国科学技术大学出版社, 第三版, 2013

其他参考资料 Supplementary Readings:

Mathematical Analysis (I,II), Zorich, 世界图书, 第 1 版, 2010.

课程评估 ASSESSMENT

19. 评估形式 Type of Assessment	评估时间 Time	占考试总成绩百分比 % of final score	违纪处罚 Penalty	备注 Notes
出勤 Attendance		5		
课堂表现 Class Performance		0		
小测验 Quiz		15		
课程项目 Projects		0		
平时作业 Assignments		10		



期中考试 Mid-Term Test	30		
期末考试 Final Exam	40		
期末报告 Final Presentation	0		
其它（可根据需要 改写以上评估方式） Others (The above may be modified as necessary)	0		

20. 记分方式 GRADING SYSTEM

- A. 十三级等级制 Letter Grading
 B. 二级记分制（通过/不通过） Pass/Fail Grading

课程审批 REVIEW AND APPROVAL

21. 本课程设置已经过以下责任人/委员会审议通过

This Course has been approved by the following person or committee of authority

