

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	微积分（下）（Multivariable Calculus）
2.	授课院系 Originating Department	数学系（Department of Mathematics）
3.	课程编号 Course Code	MA128
4.	课程学分 Credit Value	4
5.	课程类别 Course Type	通识必修课程 General Education (GE) required Courses
6.	授课学期 Semester	春季 Spring
7.	授课语言 Teaching Language	英文 English / 中英双语 English & Chinese
8.	授课教师、所属学系、联系方式 Instructor(s), Affiliation & Contact (For team teaching, please list all instructors)	王融等 (Rong Wang, et al.) 数学系 Department of Mathematics wangr3@sustech.edu.cn
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	待公布 To be announced
10.	选课人数限额(可不填) Maximum Enrolment (Optional)	

11. 授课方式 Delivery Method	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
学时数 Credit Hours	64	32	0	0	96
12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	微积分(上) (Single-variable Calculus)				
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	常微分方程 Ordinary Differential Equations				
14. 其它要求修读本课程的学系 Cross-listing Dept.					

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

本课程的对象是将来选择化学、医学、生物等对数学要求相对低一点的专业学生。本课程强调多变量微积分的基本概念、性质以及计算微分和积分的基本技巧，培养学生使用微积分的思想去解决其它科学领域的的能力。本课程主要包括：一阶线性常微分方程、数列和函数的级数、偏导数、多重积分以及曲线和曲面积分。

In this course, we emphasize intuitive and conceptual understanding of the theory of multivariable Calculus, computation skills, and nurture the mentality and the ability to use Calculus to solve problems in other scientific disciplines. The course will cover first order linear ordinary differential equations, series, partial derivatives, multiple integrals on regions in Euclidean space, line integrals and surface integrals.

16. 预达学习成果 Learning Outcomes

通过本课程的学习，使学生掌握多变量微积分的基本概念、基本理论和基本运算技能，为学生进一步学习以后的各门专业课奠定必要的数学基础。

By learning multivariable Calculus, students will understand the basic concepts and theorems, and obtain the basic calculation skill. It will lay the necessary mathematical foundation for further study of every fundamental course and major course in future.

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、常微分方程（6 小时）
 - 2、无穷级数（12 小时）
 - 3、空间解析几何（12 小时）
 - 4、偏导数（12 小时）
 - 5、多重积分（10 小时）
 - 6、曲线和曲面积分（4 小时）
- 1、 Ordinary Differential Equations (6 hours)
 - 2、 Infinite Series (12 hours)
 - 3、 Analytic Geometry of Space (12 hours)
 - 4、 Partial Derivatives (12 hours)
 - 5、 Multiple Integrals (10 hours)
 - 6、 Line and Surface Integrals (4 hours)

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

教材：Calculus: Early Transcendentals, International Metric Edition, 第 7 版, James Stewart, 高等教育出版社, 2014

Textbook: Calculus: Early Transcendentals, International Metric Edition, 7th edition, James Stewart, Higher Education press, 2014.

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		10		
课程项目 Projects		0		
平时作业 Assignments		15		
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

