

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	海洋沉积学 Marine Sedimentology				
2.	授课院系 Originating Department	海洋科学与工程系 Department of Science and Engineering				
3.	课程编号 Course Code	OCE404				
4.	课程学分 Credit Value	3				
5.	课程类别 Course Type	专业选修课 Major Elective 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)	徐景平, 海洋科学与工程系, 15376791963, xujp@sustech.edu.cn Jingping Xu/Department of Ocean Science and Engineering				
9.	实验员/助教、所属学系、联系方式 Tutor/TA(s), Contact	无 NA				
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	48				48

12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	OCE201 海洋科学导论 Introduction to Oceanography OCE306 海洋地质学 Marine Geology
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.	

教学大纲及教学日历 SYLLABUS

15. 教学目标 **Course Objectives**

本课程较全面、系统地介绍海洋沉积学的基本理论、研究方法和应用实例，重点讲解海洋沉积学的主要研究进展，尤其是陆架边缘海、深海沉积学的研究进展，包括新的观测手段、研究方法和理论。通过本课程学习，学生将较全面掌握海洋沉积学的基本理论与研究方法，了解学科发展的国际前沿动态，为相关学科课程学习和开展科学研究打好基础。

This course covers the fundamentals of marine sedimentology: theories, lab and field techniques, as well as applications. Emphasis will be given to continental shelf and deep-sea sedimentary environments. Students are required to understand those theories and techniques, be aware of new developments and frontier studies in the international communities.

16. 预达学习成果 **Learning Outcomes**

本课程在高年级开设，要求学生掌握海洋沉积学的基本理论和工作方法，也是一门双语教学的课程，要求学生阅读一定量的中英文文献资料。课程内有观测仪器的使用、野外布放和数据处理等实验与实践内容，与理论学习紧密结合，拓展研究能力。

This course is designed for upper classes (mostly seniors) and will be taught in English and Chinese. By the end of the semester, students are expected to fully understand the theories and practices of marine sedimentological researches.

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. 绪论（3学时）

Introduction (3 credit hours)

海洋沉积学的定义、研究意义、研究方法、发展简史、发展趋势、国际和国内重大研究计划

Definition of marine sedimentology, significance of research, research method, the developing history, development trend, international and domestic major research programs.

2. 海洋学基础（3学时）

Oceanography basics (3 credit hours)

海洋概况、温度、盐度、密度及分布、潮汐与潮流、波浪、海流、风暴潮

Overview of ocean, temperature, salinity, and density distribution, tide and tidal current, wave, ocean current, storm surge.

3. 海岸地貌与海岸类型（3学时）

Coastal morphology and coastlines (3 credit hours)

大陆边缘、海岸地貌、海岸类型与演化

Continental margin, coastal landform, coast type and evolution.

4. 近岸带沉积（河口湾）（3 学时）

Estuarine sedimentation (3 credit hours)

河口湾及其分类、水动力要素、河口环流、粘土质点的动力行为、动力作用的分带性、生物作用、沉积特征、钱塘江河口湾

Estuary type and classification, hydrodynamic factors, estuarine circulation, dynamic of clay particles, the zonality of hydrodynamic, biological action, sedimentary characteristics, the Qiantang Estuary.

5. 近岸带沉积（三角洲）（3 学时）

Deltaic sedimentation (3 credit hours)

三角洲定义、分类、三角洲形成的基本条件、影响三角洲发育的主要因素、三角洲的发育过程、三角洲的沉积特征（河控、浪控和潮控）、三角洲与油气关系

The definition and classification of delta, the basic conditions for delta evolution, the main factors affecting the evolution of delta, the evolution of delta, the sedimentary characteristics of delta (river-dominated delta, river-dominated delta, and tide-dominated delta), the relationship between delta, and oil, gas.

6. 近岸带沉积（海滩）（3 学时）

Beach sedimentation (3 credit hours)

海滩剖面、波浪作用和海滩动力分带、海滩沉积特征、平衡剖面、海滩层序

Profiles of beach, wave action and beach dynamic zoning, sedimentary characteristics of beach, equilibrium beach profile, sequence of beach sediment.

7. 近岸带沉积（潮坪）（3 学时）

Tidal flats (3 credit hours)

搬运沉积过程、沉积构造、沉积特征、潮坪沉积的鉴别特征、中国的现代潮坪沉积

Transportation-deposition process, sedimentary tectonics, sedimentary characteristics, identification of tidal flat deposition, modern tidal flat deposition in China.

8. 近岸带沉积（沙坝-泻湖）；测验 1（4 学时）

Bars and lagoons; Exam 1 (4 credit hours)

沙坝沉积特征、潮道-潮汐三角洲沉积特征、泻湖沉积特征、沙坝-泻湖沉积层序、沙坝-泻湖沉积体系与油气关系

Sedimentary characteristics of sand bars, tidal channel, tidal delta depositional features, lagoon sedimentary features, sand - lagoon sedimentary sequence, the relationship between the sedimentary system of the sandbar - lagoon and oil, gas.

9. 大陆架沉积（碎屑沉积）（3 学时）

Clastic continental shelves (3 credit hours)

地形地貌特征、陆架沉积类型、控制陆架沉积作用的因素、陆架的类型、陆架碎屑沉积、浅海陆架相与油气的关系

Topographic features, continental shelf sedimentation type, the factors controlling the sedimentation of continental shelf, type of continental shelf, clastic sediment on continental shelf, the relationship between shallow sea shelf and oil, gas.

10. 大陆架沉积（碳酸盐沉积）（3 学时）

Carbonate continental shelves (3 credit hours)

碳酸盐岩沉积的基本特点、矿物成分、结构组分、碳酸盐岩构造、碳酸盐沉积模式、生物礁和生物礁相、碳酸盐岩沉积与油气的关系

The basic characteristics of carbonate deposition, mineral composition, structural constituent, carbonate structure, carbonate deposition patterns, organic reef and reef facies, the relationship between carbonate deposition and oil, gas.

11. 大陆架沉积（东海陆架沉积）（3 学时）

East China Sea shelf (3 credit hours)

东海陆架的研究意义、东海陆架概况、沉积物类型及分布、东海陆架沉积过程、东海陆架沉积环境分区、现代沉积作用强度分区

The research significance of the East China Sea shelf, Overview of the East China Sea shelf, sediment type and distribution, sedimentation process of the East China Sea shelf, division of East China Sea shelf sedimentary environment, division of modern sedimentary intensity.

12. 陆坡-陆隆沉积（沉积过程及沉积特征）（3 学时）

Continental slopes and rises – sedimentation processes (3 credit hours)

地貌特征、沉积作用的影响因素、沉积物的输运、沉积物特征

Geomorphic characteristics, the influence factors of sedimentation, sediment transport, sediment characteristics.

13. 陆坡-陆隆沉积（陆坡-深海扇-边缘海盆）；测验 2（5 学时）

Continental slopes, deep sea fans and basins; Exam 2 (5 credit hours)

海底峡谷沉积、陆坡沉积、深海扇沉积、边缘海盆沉积、冲绳海槽沉积

Submarine canyon sedimentation, continental slope sedimentation, deep-sea fan sedimentation, marginal basin sedimentation, the Okinawa trough sedimentation.

14. 大洋沉积（3 学时）

Pelagic sedimentation (3 credit hours)

地貌特征、大洋沉积物的分类、大洋沉积物来源、陆源大洋沉积物、生物源沉积、自生化学沉积、大洋沉积物的分布规律

Geomorphic characteristics, classification of pelagic sediment, source of pelagic sediment, terrigenous sediment, biogenic deposit sediment, autogenous chemical deposition, distribution rules of pelagic sediment.

15. 热液沉积和冷泉沉积 (3 学时)
Hydrothermal vents and cold seeps (3 credit hours)
热液沉积、冷泉沉积
Hydrothermal sediment, cold seeps sediment.

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

1. 王琦、朱而勤, 海洋沉积学, 科学出版社, 1989
2. Nittrouer, C.A., et al., Continental Margin Sedimentation, Oxford: Blackwell Publishing, 2007.
3. Stow, D.A.V., et al., Deep-Water Contourite Systems: Modern Drifts and Ancient Series, Seismic and Sedimentary Characteristics. London: The Geological Society Publishing, 2002.

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				
课堂表现 Class Performance				
小测验 Quiz		20		
课程项目 Projects				
平时作业 Assignments		20		
期中考试 Mid-Term Test		20		
期末考试 Final Exam		40		
期末报告 Final Presentation				
其它 (可根据需要 改写以上评估方 式) Others (The above may be modified as necessary)				

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



南方科技大学
SOUTHERN UNIVERSITY OF SCIENCE AND TECHNOLOGY

海洋科学与工程系本科教学委员会

Department of Ocean Science and Engineering Undergraduate Committee

