

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	水文学原理与应用 Hydrology: Principles and Applications
2.	授课院系 Originating Department	环境科学与工程学院 School of Environmental Science and Engineering
3.	课程编号 Course Code	ESE307
4.	课程学分 Credit Value	3
5.	课程类别 Course Type	专业核心课 Major Core Courses
6.	授课学期 Semester	春季 Spring
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)	郑一，环境科学与工程学院，18618126436（手机） Yi Zheng, School of Environmental Science and Engineering, 18618126436 (mobile)
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	习题/辅导/讨论	实验/实习	其它(请具体注明)	总学时
	Lectures	Tutorials	Lab/Practical	Other (Please specify)	Total
学时数 Credit Hours	40	6	2	0	48

12. 先修课程、其它学习要求 Pre-requisites or Other Academic Requirements	先修课/Pre-requisites: 高等数学 Calculus
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	水资源评价与管理/ Evaluation and Management of Water Resources
14. 其它要求修读本课程的学系 Cross-listing Dept.	无 N/A

教学大纲及教学日历 SYLLABUS

15. 教学目标 Course Objectives

本课程的教学目标是使学生:

- 1) 掌握水文学的基础理论和基本研究方法
- 2) 熟悉水资源的基本规律
- 3) 了解水文学在水资源开发、利用和保护中的应用

The course is design to help students: 1) master fundamental theories and research methodology of hydrology; 2) learn the principles of water resources; and 3) be acquainted with typical applications of hydrology in water resources exploitation, utilization and conservation.

16. 预达学习成果 Learning Outcomes

通课程学习, 学生能掌握水文学的基础理论和基本研究方法, 熟悉水资源的基本规律, 并了解水文学在水资源开发、利用和保护中的应用。同时, 这门课程将为学生进一步学习地下水水文学、流域生态修复等方面的课程打好必要的知识基础。

The above-mentioned course objectives are achieved. A solid basis for advanced courses such as Groundwater Hydrology and Watershed Ecological Restoration can be laid.

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.)

绪论 (2 学时) /Introduction (2 class hours)

第一部分 水文学和水资源的基础知识 (5 学时) /Part I: Fundamental knowledge of hydrology and water resources (5 class hours in total)

第一讲、地球上水的性质和分布 (3 学时) /Lecture 1: Water on the earth (3 class hours)

第二讲、全球能量收支与流通 (1 学时) /Lecture 2: Global energy budget and circulation (1 class hour)

第三讲、水文循环原理 (1 学时) /Lecture 2: Principles of hydrologic cycle (1 class hour)

第二部分 陆地水文过程 (19 学时) /Part II: Terrestrial hydrological processes (19 class hours in total)

第四讲、降水 (2 学时) /Lecture 4: Precipitations (2 class hours)

第五讲、土壤水与下渗过程 (2 学时) /Lecture 5: Soil water and infiltration (2 class hours)

第六讲、蒸散发 (3 学时) /Lecture 6: Evapotranspiration (3 class hours)

第七讲、地下水 (2 学时) /Lecture 7: Groundwater (2 class hours)

第八讲、流域产流与汇流 (4 学时) /Lecture 8: Rainfall-runoff processes (4 class hours)

第九讲、水文信息采集与处理 (3 学时) /Lecture 9: Collection and analysis of hydrological data (3 class hours)

第十讲、水文模拟 (3 学时) /Lecture 10: Hydrological modeling (3 class hours)

第三部分 工程与管理应用 (12 学时) Part III: Application in engineering and management (12 class hours in total)

第十一讲、水文统计方法 (3 学时) /Lecture 11: Hydrological statistics (3 class hours)

第十二讲、设计年径流分析 (2 学时) /Lecture 12: Design annual runoff analysis (2 class hours)

第十三讲、设计洪水的计算与分析 (3 学时) /Lecture 13: Design flood analysis (3 class hours)

第十四讲、水资源评价与管理 (2 学时) /Lecture 14: Water resources assessment and management (2 class hours)

第十五讲、水环境模拟与管理 (2 学时) /Lecture 15: Water quality modeling and management (2 class hours)

另有 10 学时用于学生演讲、讨论和现场参观, 总计 48 学时。

The remaining 10 class hours are used for student presentation, in-class discussion and field trip. The total number of class hours is 48.

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

主要参考教材/Major textbooks:

1) Physical Hydrology (3rd Ed.), S. Lawrence Dingman, Prentice Hall, 2014

2) 《水文学原理》，芮孝芳 著，高等教育出版社，2013

Principles of Hydrology, Xiaofang Rui, Higher Education Press, 2013

3) 《工程水文学》，詹道江，徐向阳，陈元芳 编，中国水利水电出版社，2010（第四版）

Engineering Hydrology, Daojiang Zhan, Xiangyang Xu, and Yuanfang Chen, China WaterPower Press, 2010 (4th edition)

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	The entire semester	5%		
课堂表现 Class Performance	The entire semester	5%		
小测验 Quiz				
课程项目 Projects	After midterm	30%		Group project
平时作业 Assignments		20%		
期中考试 Mid-Term Test				
期末考试 Final Exam	Final week	40%		In-class, close-book exam
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

