

## 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 <b>Course Title</b>	遥感原理 <b>Principles of Remote Sensing</b>		
2.	授课院系 <b>Originating Department</b>	环境科学与工程学院 School of Environmental Science and Engineering		
3.	课程编号 <b>Course Code</b>	ESE329		
4.	课程学分 <b>Credit Value</b>	3		
5.	课程类别 <b>Course Type</b>	专业选修课 Major Elective Course		
6.	授课学期 <b>Semester</b>	春季 Spring		
7.	授课语言 <b>Teaching Language</b>	中文 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） <b>Instructor(s), Affiliation &amp; Contact (For team teaching, please list all instructors)</b>	<b>教师 Name</b>	<b>学系 Dep.</b>	<b>联系方式 Phone</b>
		冯炼 Feng Lian	环境科学与工程学院 School of Environmental Science and Engineering	13627131508
9.	实验员/助教、所属学系、联系方式 <b>Tutor/TA(s), Contact</b>	待公布 To be announced		
10.	选课人数限额(可不填) <b>Maximum Enrolment (Optional)</b>			

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	48	0	0	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 , 大学物理 General Physics, 地球科学概论 Introduction to Geological Science				
13. 后续课程、其它学习规划 Courses for which this course is a pre-requisite	无 N/A				
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

遥感具有动态、多时相采集空间信息的能力，可实现全球范围的多层次、多视角、多领域数据获取，目前已经成为获取地球资源与环境信息的重要手段。通过本课程学习，使学生了解遥感技术的产生、发展与应用情况；掌握遥感物理基础、遥感成像机理和影像解译原理；掌握遥感图像获取、处理与应用方法。

After successful completion of this course students are expected to be able to:

- 1) Understand the generation, development and applications of remote sensing technology;
- 2) Understand the physics of remote sensing, principles of remote sensing imaging and image interpretation;
- 3) Understand how to acquire and process remote sensing images and how to make use of remotely sensed information for different application purposes.

#### 16. 预达学习成果 Learning Outcomes

使学生掌握遥感技术在资源、环境、农业、海洋等学科领域应用的理论特点与应用方法。

Enable students to understand the theoretical characteristics and application methods of remote sensing technology in different applications, such as resources, environment, agriculture, ocean, among many others.

#### 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.)**

第一章 遥感绪论/ Overview of remote sensing 总计 2 学时

第二章 电磁辐射与地物波谱特征/Electromagnetic spectrum and feature spectrum characteristics 总计 6 学时

1) 电磁辐射/ Electromagnetic radiation 2 学时

2) 地物光谱特征/Spectrum of typical surface features 4 学时

第三章 遥感成像原理与遥感图像特征/Principles of remote sensing imaging and features of remote sensing images 总计 6 学时

1) 遥感平台及成像基本原理/Platforms and imaging principles 4 学时

2) 遥感图像的基本特征/Features of remote sensing images 2 学时

第四章 遥感图像处理/Remote sensing image processing 总计 16 学时

1) 遥感图像预处理/Image preprocessing 4 学时

2) 辐射定标及大气校正/Radiometric calibration and atmospheric correction 4 学时

3) 遥感影像增强/Image enhancement 4 学时

4) 多源信息复合/Data fusion 4 学时

第五章 遥感图像目视解译与制图/Visual interpretation and mapping of remote sensing image 总计 6 学时

1) 遥感图像解译的基本要素/Key features for image visual interpretation 2 学时

2) 遥感图像目视解译方法及制图/Methods of visual interpretation and mapping 4 学时

第六章 遥感图像计算机解译/Computer interpretation of remote sensing image 总计 8 学时

1) 遥感图像分类原理/Principles of image classification 4 学时

2) 监督与非监督分类/Supervised and unsupervised classifications 4 学时

第七章 遥感应用/Applications of Remote sensing 总计 4 学时

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

1. 梅安新等, 遥感导论, 高等教育出版社
2. 孙家柄, 遥感原理与应用, 武汉大学出版, 第三版
3. 赵英时等, 遥感应用分析原理与方法, 科学出版
4. Jensen, John R. (2006) Remote Sensing of the Environment: An Earth Resources Perspective, Hall and Prentice, New Jersey, 2nd ed.

#### 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		10%		
课堂表现 Class Performance		5%		
小测验 Quiz				
课程项目 Projects		10%		
平时作业 Assignments		10%		
期中考试 Mid-Term Test				
期末考试 Final Exam		50%		
期末报告 Final Presentation		15%		
其它（可根据需要 改写以上评估方式） Others (The above may be modified as necessary)				

University  
and

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

