地图学与地理信息系统（070503）

学科门类：理学（07）一级学科：地理学（0705）

一、专业描述

河海大学2000年开始招收地理信息系统（GIS）本科生，2003年起开始招收地图学与地理信息系统专业硕士生，迄今本专业已毕业研究生200余人。本学科拥有一支优秀的教师队伍。现有教学科研人员24人，其中教授4人、副教授10人，80%以上的教师拥有博士学位。河海大学地图学与地理信息系统学科以地理信息系统技术与应用研究为重点，以数字流域与地理信息系统集成建模研究为特色，着重研究地理信息认知、空间分析与专业建模、遥感机理与定量反演，为全球变化、区域资源环境、数字流域以及防灾减灾等重大问题决策提供辅助决策和技术支撑。近年来，本学科教师主持和参与了国家自然科学基金以及国家973计划、863计划、国家支撑计划等多项科研项目，经费充足。研究生就业主要面向规划、国土、水利、交通、电力、能源等国民经济各部门，部分研究生可从事资源环境、区域可持续发展、全球变化研究工作。

二、培养目标

本学科着重培养具有较高地理学素养的地理信息系统理论与应用技术方面的高层次人才，能够胜任教学、科研或大型地理信息应用项目的设计、开发和管理工作。要求具有数学、地理学及计算机应用方面的理论知识；具有扎实的地理信息系统、遥感、地图学及“3S”技术等方面的技术能力；能够进行学术交流，掌握本学科的理论与技术前沿动态；能够进行大型GIS应用系统和遥感信息工程的开发与研究，具有解决实际问题的能力。

三、研究方向

1、GIS 空间分析与建模（GIS-based Spatial Analysis and Modeling）

2、GIS 设计、开发与应用（GIS Design, Development and Applications）

3、遥感信息机理与定量方法（Qualitative Remote Sensing and its Mechanism）

4、遥感信息工程（Remote Sensing Information Engineering）

5、数字流域、数字海洋（Digital Watershed and Digital Ocean）

四、申请条件

1、已在我国认可的海内外高校或学术机构获得本科学位者。

2、能够用英语进行课程学习、阅读文献和进行学术写作，能够用英语进行日常交流。

五、培养年限

学术型硕士学制为 3 年，实行弹性学制，学习年限最短不低于 2 年，最长不超过 5 年。

六、学分要求和课程设置

本专业硕士留学研究生课程总学分为 28 学分，其中学位课程为 19 学分，非学位课程为 9 学分。另设教学环节。具体开设课程见附表。

Cartography and Geographical Information System（070503）

Discipline: Science（07）

First-Class Discipline: Geography（0705）

1. Discipline Description

Hohai University began recruiting Geographic Information system (GIS) undergraduate in 2000. It started enrolling Master majoring in this discipline in 2013. Master students were enrolled with the first-class discipline of Geography since 2007. So far, more than 240 graduate students have graduated from this specialty, which has 24 teaching and research staff totally, including 4 professors and 10 associate professors. More than 80% teachers have doctoral degrees. The disciplines of Cartography and Geographical Information System in Hohai University focuses on the GIS technology and application research, taking the digital watershed and GIS integrated modeling as the significant research field and laying stress on the research of geographic information cognition, spatial analysis and professional modeling, remote sensing mechanism and quantitative inversion. These researches can provide auxiliary decision-making and technical support for major issues such as global change, regional resource environment, digital watershed and disaster prevention and mitigation. In recent years, these teachers have presided over and participated in the National Natural Science Foundation and the National 973 and 863 projects, national support plan and other major projects, a number of research results obtained provincial and ministerial level scientific awards. This specialty can support the preferable scientific research condition, which has a close research cooperation and the personnel exchanges with State Key Lab of Hydrology-Water Resources and Hydraulic Engineering, National Engineering Research Center for high efficiency utilization of water resources and engineering safety and other national research platform in university. Most Masters can find jobs in the field of planning, land, water conservancy, transportation, electricity, energy and other national economy departments, some graduate students can engage in resource environment, regional sustainable development, global change research.

2. Program Description

This specialty emphasizes on cultivating high level talents of geographic information

system theory and application technology with high geography literacy, who are capable of teaching and scientific research or designing, developing, and managing large geographic Information application project. Students of this major should master theoretical knowledge of mathematics, geography and computer applications and command solid technical capacity of GIS, RS, Cartography and "3S" technology. They should also be able to carry out academic exchanges, grasp the theoretical and technological frontiers of the subject and have the capacity for developing and investigating large GIS application system, remote sensing information engineering and solving practical problems.

3. Research Directions

- GIS-based Spatial Analysis and Modeling
- GIS Design, Development and Applications
- Qualitative Remote Sensing and its Mechanism
- Remote Sensing Information Engineering
- Digital Watershed and Digital Ocean

4. Application Requirements

(1) You have received the bachelor degree from the domestic and overseas universities or academic institutions accredited by the Ministry of Education.

(2) You have the ability to read and write academic papers and communicate in English.

5. Educational System and Duration

The master program is 3 years; the duration is minimum 2 years and no more than 5 years.

6. Credits and Courses

A master student must take at least 28 credits of courses, including 19 credits of required course of the degree and 9 credits of Non-required course of the degree.

地图学与地理信息系统全英文留学硕士研究生课程设置

Courses for Master Students of Cartography and Geographical Information System

课程类别 Categories		课程编号 Course No	课程名称 Course Name	学时 Hours	学分 Credits	开课学期 Term	备注 Note
学位课 19 学分 Required course of the degree 19 Credits	公共课程 General Courses	2015LXS01	*汉语 I Chinese Language I	32	2	秋 fall	必修 RequiredCourse
		2015LXS02	汉语 II Chinese Language II	32	2	春 spring	
		2015LXS03	*中国概况 Introduction to China	32	2	秋 fall	
	专业基础课程 Major BasicCourses	2015JC03	数值分析 Numerical Analysis	48	3	秋 fall	必修 RequiredCourse
		2015JC11	最优化方法 Optimization Methods	32	2	秋 fall	
	专业课程 Major Courses	2017DX01	高级遥感 Advanced Remote Sensing	32	2	春 spring	选修 8 学分 8 Credits at least
		2015DX03	GIS 空间分析 GIS and Spatial Analysis	32	2	春 spring	
		2015DX01	现代大地测量学 Modern Geodesy	32	2	春 spring	
		2017DX02	数字高程模型 Digital Elevation Model	32	2	春 spring	
		2015DX06	遥感科学与进展 Frontiers of Remote Sensing Science	32	2	春 spring	
		2017DX03	区域发展规划 Regional Development Planning	32	2	秋 fall	
非学位课程 9 学分 Non-required course of the degree 9 Credits		2015LXS05	*跨学科选修 Interdisciplinary Elective	32	2		必修课 RequiredCourse
		2015LXS06	*综合素质课 Comprehensive Quality	16	1		
		2017DX04	全球导航卫星系统原理及应用 Global Navigation Satellite System Principle and Application	32	2	秋 fall	选修 6 学分 6Credits at least
		2015DX07	环境大地测量学 Environmental Geodesy	32	2	秋 fall	
		2017DX05	高光谱遥感 Hyperspectral Remote Sensing	32	2	春 spring	
		2017DX06	微波遥感 Microwave Remote Sensing	32	2	春 spring	
		2017DX07	水文遥感 Hydrologic Remote Sensing	32	2	春 spring	
教学环节 Academic Activities		学术活动 Seminar and Conferences					必修 Required Course
		科学研究 Scientific Research					
		文献阅读与综述 Literature Reading and Reviewing					