地理科学专业培养方案

专业名称与代码（楷体小四）：地理科学　070501

专业培养目标（楷体小四）：

本专业培养的学生应掌握普通地质学、自然地理学、人文地理学和地理信息科学与技术的基础知识、基本理论、分析方法和应用技能；具备通过野外综合考察、社会调查、实验分析等获取第一手科学资料和地理数据的能力；能够分析、归纳、整理相关数据，掌握一定的数理统计分析和计算机技术，具有定量分析研究地理问题的能力；具有遥感、卫星定位导航、地理信息系统的应用或开发能力，掌握资料调查与收集、文献检索及运用现代技术获取相关信息的基本方法；具备一定的自主设计实验和开展野外调查的能力；具有较强的科学探索精神和接受新知识、新理论和新技术的能力，以及良好的合作精神和团队意识。培养能够在教学科研单位、政府相关部门、企事业单位从事全球变化、环境保护、资源开发与利用、灾害监测与管理、国土资源调查与管理、旅游规划、城乡规划、区域发展、地理信息技术开发与应用、国防建设等与地理科学有关的基础教育、科学研究、应用及管理的专门人才。

专业毕业要求：

1. **基础知识**：具有扎实的数理化、外语、地球科学基础和计算机技能；掌握一门外语，具备听、说、读、写及对外交流的能力，达到能独立获取信息的水平；具有计算机软、硬件的基础知识，掌握一门以上计算机语言的编程技术。

2. **问题分析**：掌握自然地理、人文地理、资源环境管理、资源开发与利用等方面的观测、分析和应用技术，具有较熟练的遥感和地信技术的应用能力，掌握资料查询、文献检索与运用现代信息技术获得相关信息的基本方法，具有实验设计、操作、分析、归纳、整理能力与学术交流的能力。

3. **设计/开发解决方案**：通过区域地理要素的调查，深入分析区域资源环境与区域发展的关系，综合考虑社会、健康、安全、法律、文化以及环境等因素，设计出区域可持续发展的科学规划方案。

4. **研究**：结合自然地理、人文地理和资源环境科学相关基础知识对地理现象进行描述、观测，基于观测统计数据和计量地理学分析方法，对数据变化规律进行统计分析，从而揭示地理现象的演化规律，结合相关文献资料进行总结归纳。

5. **使用现代工具**：综合运用地图编绘的基本知识进行地图绘制；判读遥感影像并进行图像处理；应用 ArcGIS 等软件对地图进行输入、编辑、空间分析及输出等的处理能力。

6. **专业与社会**：具备利用自然地理学、人文地理学、自然资源开发利用、环境规划与管理、环境质量评价的基本原理和知识对资源环境、资源开发等做出评价、规划

以及管理的应用能力。

7. **专业与可持续发展：**能够综合运用地理科学知识，研究全球环境变化、社会可持续发展等问题，并理解环境和可持续发展的关系；

8. **职业规范：**熟悉国家环境保护、自然资源合理利用、可持续发展和知识产权等相关政策和法规、最新进展与动态等。

9. **个人和团队：**接受良好的科学思维和科学方法的基本训练，具有创新意识及协同攻关的能力。

10. **管理与沟通：**具有较强的调查能力、口语与书面表达能力、自主学习能力、自我发展能力、环境适应能力与组织管理能力。

11. **专业实践：**具备一定的管理和经济决策方面的基本知识，并能够在专业实践中灵活运用；

12. **终身学习：**结合课程学习和专业知识进展变化，注重培养自主学习和终身学习意识，提高自身对社会发展的适应能力。

毕业要求实现及途径：

序号	毕　业　要　求	实现途径（教学过程）
1	具有坚实的数学、物理、化学、外语和计算机基础；	①课堂教学：高等数学、线性代数、概率统计、大学物理、环境地球化学、测量学、计算科学基础、计算机高级语言、数据库与空间数据库； ②课外学习：大学物理实习、测量教学实习、计算机高级语言课程设计 C++；
2	熟练掌握地理科学的基本原理、技能和工作方法；	①课堂教学：地理学导论、普通地质学、矿物岩石学、地层古生物学、自然地理学、地貌学与第四纪地质学、气象学与气候学、水文地理学、生态地理学、人文地理、经济地理、区域分析与规划、地理信息系统原理、地图学等课程； ②课外学习：北戴河地理认知实习、秭归综合地理实习、周口店地学实习；
3	应用地理相关知识设计工作方案；	①课堂教学：地图学、区域分析与规划学、计量地理学、地理建模方法等； ②课外学习：创新创业课程、课外竞赛；
4	具有对地理及相关信息的收集处理、成果解释和应用的初步能力；	①课堂教学：计量地理学、地理建模方法、地理信息系统原理、地图学、遥感图像处理、数据库结构等； ②课外学习：空间数据处理与分析、测量教学实习等；
5	掌握和运用 RS 和 GIS 技术；	①课堂教学：遥感概论、地理信息系统原理、GNSS 原理与应用等； ②课外学习：空间数据处理与分析实习；
6	具有从事全球变化研究，资源规划、环境保护和灾害防治等方面工作的能力；	①课堂教学：全球变化、自然资源学、经济地理、自然灾害学、地理信息系统原理； ②课外学习：北戴河地理认知实习、秭归综合地理实习、周口店地学实习；

7	具有从事区域可持续发展等方面工作的能力；	①课堂教学：中国地理、世界地理、资源环境经济学、景观地貌与公园规划、国土空间规划、区域分析与规划学、旅游地理学、交通地理学、人口地理学； ②课外学习：区域地理与空间规划实习、科研报告；
8	具备良好的职业道德；	①课堂教学：思想道德修养与法律基础等； ②课外学习：专业竞赛、参加会议
9	具备良好团队合作意识；	①课堂教学：社会调查、学科竞赛； ②课外学习：北戴河地理认知实习、秭归综合地理实习、周口店地学实习、小组讨论等；
10	具有良好的科学素养、心理素质、综合能力及一定的管理能力；	①课堂教学：马克思主义基本原理概论、毛泽东思想和中国特色社会主义理论体系概论、形势与政策、体育、军事训练等； ②课外学习：北戴河地理认知实习、秭归综合地理实习、周口店地学实习等；
11	具有一定的决策能力；	①课堂教学：专业课程学习等； ②课外学习：北戴河地理认知实习、秭归综合地理实习、周口店地学实习等；
12	确立终身学习意识。	①课堂教学：人文素养、专业课程思政教育； ②课外学习：生产实习等；

主干学科：地理学。

专业核心课程：自然地理学、地貌学与第四纪地质学、人文地理学、经济地理学、遥感概论、地理信息系统原理、生态地理学、土壤学、全球变化等。

主要专业实验：土壤学、遥感应用技术实验、地理信息系统技术实验。

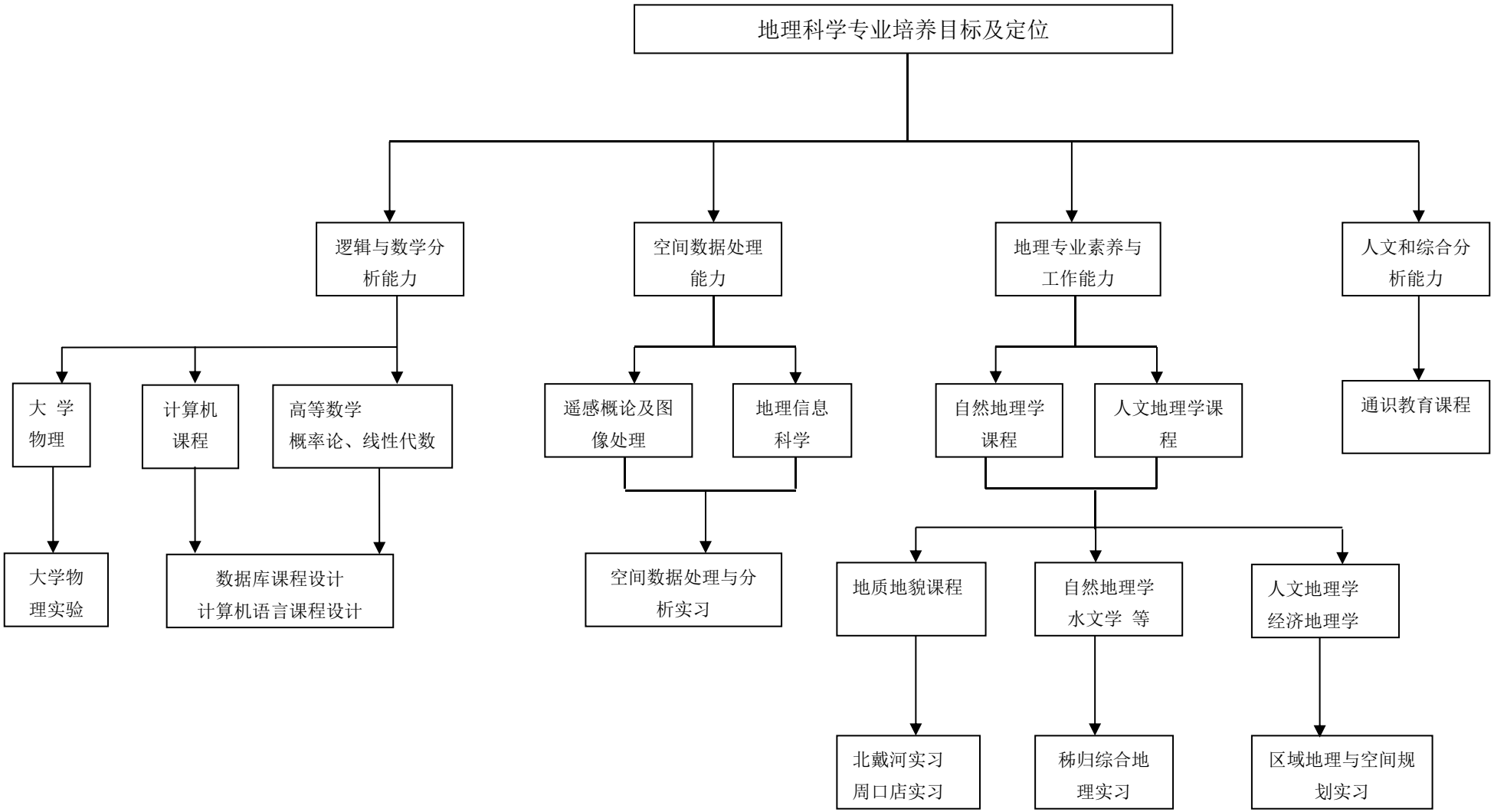
主要实践性教学环节：包括野外教学实习（北戴河地理认知实习、周口地质地貌实习和秭归综合地理实习）、空间数据处理与分析实习、毕业生产实习、毕业论文撰写等，一般安排 43 周左右。

毕业学分要求： 172 学分。

学制与学位：四年，理学学士。

本专业学生可以辅修的其他专业：地理信息科学。

相近专业：自然地理与资源环境、人文地理与城乡规划


地理科学专业培养目标及定位
逻辑与数学分析能力
空间数据处理能力
地理专业素养与工作能力
人文和综合分析能力
大 学物理
计算机课程
高等数学概率论、线性代数
遥感概论及图像处理
地理信息科学
自然地理学课程
人文地理学课程
通识教育课程
大学物理实验
数据库课程设计
计算机语言课程设计
空间数据处理与分析实习
地质地貌课程
自然地理学水文学 等
人文地理学经济地理学
北戴河实习
周口店实习
秭归综合地理实习
区域地理与空间规划实习

Program for Geographical Science

Specialty and Code: Geographical Science 070501

Education Objective: Graduates in this major should master the basic knowledge, fundamental theory, analytical methods and application skills for Physical Geology, Physical Geography, Human Geography, Geographic Information Science and Technology. They should have the ability to acquire the first-hand scientific data and geophysical dataset by field investigation, social investigation, experimental analysis, etc. They should be able to analyze, summarize and manage related data, master the mathematical statistical analysis and computer technology, and have the ability to quantitatively analyze the geographical issues. They should have the ability of application and/or development capability in remote sensing, satellite positioning and navigation, geographic information systems, and master the basic methodology of data survey and collection, literature retrieval and modern technology to obtain relevant information. They should have the basic ability to design the experiments and carry out the field investigations independently. They should have strong spirit and ability to explore science and accept new knowledge, new theories and technologies, and have a good teamwork spirit and team awareness. The objective of this major is to cultivate the professional personnel for the education and research institution, government related department, governmental organizations and private enterprises in the fields of basic education, scientific research, application and management that related to geographical science, such as global change, environmental protection, resource development and utilization, disaster monitoring and management, land resource survey and management, tourism planning, urban and rural planning, regional development, development and application of geographic information technology, national defense, etc.

Graduation Requirements:

1. **Basic knowledge**: The graduates should have solidly fundamental knowledge of mathematics, physics, chemistry, foreign language, earth science and skills of computer, master a foreign language, being able to listen, speak, read, write and communicate with others and achieving the level of independent access to information, and acquire fundamental knowledge of computer software and hardware, mastering the programing technology of more than one computer language.
2. **Problems analysis**: The graduates are supposed to master observation, analysis and application techniques of physical geography, human geography, resource and environmental management, and resources development and utilization, with proficient application skills of remote sensing and geographic information technology. They should grasp basic methods of data query, literature retrieval, and information acquisition using modern information technology, and have the ability of experimental design, operation, analysis, consolidation, reorganization and academic communication.
3. **Solution design/development**: The graduates should have the ability to design scientific plan for regional sustainable development by the investigation of regional geographic

elements, in-depth analysis of the relationship between regional resource and environment and regional development, and comprehensive consideration of social, health, safety, legal, cultural and environmental factors.

4. **Research**: The graduates should be able to describe and observe natural geographical phenomena with related fundamental knowledge of physical geography, human geography, natural resource and environmental science, and statistically analyze the law of data change, based on observational statistics and quantitative geography analysis methods, thus revealing the evolution law of geographic phenomena, and summarizing with related literatures.

5. **The use of modern tools**: The graduates should have the ability to draw maps by comprehensive use of basic knowledge of map compilation, interpret and process remote sensing images, and process maps by input, edit, spatial analysis and output using ArcGIS and other software.

6. **Major and Society:** Graduates should have basic principles and knowledge of physical geography, natural resource development and utilization, environmental planning and management, environmental quality assessment, and be able to evaluate, program, and manage the resources and environment.

7. Professional Practice: Have certain basic knowledge of engineering management and economic decision making, be able to make use of them flexibly in the professional practice of engineering.

8. Professional Criterion: Graduates should be familiar with the policies, regulations, latest progress and developments which are related to the national environmental protection, rational application of natural resources, sustainable development and intellectual property rights.

9. Individuals and Teams: The graduates should be cultivated with teamwork awareness and innovative spirit in the course of practice teaching and field internship group.

10. Management and Communication: Graduates should have an international perspective, accepting a good professional basic education and professional English training. Therefore, they should have the comprehensive abilities of listening, speaking, reading and writing, and have the basic quality and ability to participate in international academic meetings.

11. Major and Sustainable development: Graduates are able to comprehensively apply knowledge of geographical science, to study engineering, global environmental change, social sustainable development, and understand the relationship between these engineering activities and the environment and sustainable development.

12. Life-long learning: Graduates should improve themselves' ability to adapt the social development combing with the changes in course learning and professional knowledge and focusing on cultivating self-learning and lifelong learning.

Graduation requirements and ways to achieve：

No.	Graduation requirements	Ways to achieve（teaching process）
1	To be equipped with fundamental knowledge and theories of mathematics, physics and chemistry, English, and computer science.	**①Classroom Teaching:** Advanced Mathematics，Linear Algebra，Probability and Statistics， College Physics， Environmental geochemistry, Surveying, Fundamentals of Computational Science, Computer High-level Language Programming. **②Out-of-class Learning:** Physics Experiments, Surveying Teaching Practice, Projects of High-level programming language
2	To learn and be familiar with the fundamental theories and technologies in geography science and quaternary geology.	**①Classroom Teaching:** Introduction to Geography, Physical Geography, Mineralogy and Petrology, Stratigraphy and Palaeontology, Geomorphology and Quaternary Geology, Meteorology and Climatology, Hydrology, Ecological Geography, Human Geography, Economic Geography, Regional Analysis and Planning, Principles of Geographic Information Systems, Cartograph； **②Out-of-class Learning:** Beidaihe Primary Field Training, Zigui Geographic Field Training, Zhoukoudian Primary Field Training.
3	To design working plan based on the knowledge of geography.	**①Classroom Teaching:** Cartograph, Regional Analysis and Planning, Quantitative Geography, Geographic Modelling Methods and etc. **Out-of-class Learning:** Innovative and Entrepreneurial Training Courses, Contest；
4	To be capable of gathering information, explaining the results and its applications.	**①Classroom Teaching:** Quantitative Geography, Geographic Modelling Methods, Principles of Geographic Information System, Cartograph, Remote Sensing Imagine Processing, Database Structure and etc. **Out-of-class Learning:** Spatial Data Process

No.	Graduation requirements	Ways to achieve（teaching process）
		and Analysis, Surveying Teaching Practice；
5	To grasp RS and GIS techniques.	**①Classroom Teaching:** Introduction to Remote Sensing, Principles of Geographic Information System, Principle and Application of GNSS. **②Out-of-class Learning:** Spatial Data Processing and Analysis Practice；
6	To build up the potential of working in the areas of global change study, resources planning, environmental protection, geo-hazard prevention and control.	**①Classroom Teaching:** Global Change, Natural Resources, Economic Geography, Natural Disaster, Principles of Geographic Information System. **②Out-of-class Learning:** Beidaihe Primary Field Training, Zigui Geographic Field Training, Zhoukoudian Primary Field Training.
7	To build up the potential of working on regional sustainable development.	**①Classroom Teaching:** Geography of China, Geography of the World, Economics of Resources and Environment, Landscapes and Landscape Planning, Territorial and Landscape Planning, Tourism Geography, Geography of Communication, Population Geography. **②Out-of-class Learning:** Human and Economic Geography, Scientific Reports.
8	Good professional ethics	**①Classroom Teaching:** Social Investigation, Contest. **②Out-of-class Learning:** Contest, Conferences.
9	Good sense of teamwork	**①Classroom Teaching:** Humanistic literacy, Ideological and Political Education in Professional Courses. **②Out-of-class Learning:** Beidaihe Primary Field Training, Zigui Geographic Field Training, Zhoukoudian Primary Field Training.
10	To be highly qualified in science,	**①Classroom Teaching:** Principles of

No.	Graduation requirements	Ways to achieve（teaching process）
	have a good management capacity, and be both physically and mentally healthy.	Marxism, Introduction to Mao Tse-tung Thought and the Theoretical System of Socialism with Chinese Characteristics, Situation and Policy, Physical Education, Military Training. **②Out-of-class Learning:** Beidaihe Primary Field Training, Zigui Geographic Field Training, Zhoukoudian Primary Field Training.
11	Basic decision making skills	**①Classroom Teaching:** Study of Professional Courses. **②Out-of-class Learning:** Beidaihe Primary Field Training, Zigui Geographic Field Training, Zhoukoudian Primary Field Training.
12	The awareness of lifelong learning	**①Classroom Teaching:** Ideological and Political Education in Professional Courses, Humanistic literacy. **②Out-of-class Learning:** Production Practice.

Major Disciplines: Geography.

Main Courses: Physical Geography, Geomorphology & Quaternary Geology, Human Geography, Introduction to Environmental Science, Introduction to Remote Sensing, Geographic Information System, Ecological Geography, Physical Geology, Structural Geology, Pedology, Global Change, etc.

Lab Experiments: Soil Chemistry, experiment of remote sense applications, experiment of GIS techniques etc.

Practical Work: Primary geological field training (Beidaihe and Zhoukoudian); Geographic and geological field training (Zigui, South China), Spatial Data Processing and analysis Practice, Practice for graduation and thesis writing, about 43 weeks in total.

Requirements for Graduation Credits: 172

Duration& Degree Granted: Four years，Bachelor of Science

Recommended minor: Geographic Information Science

Related Specialties: Physical Geography and Resource Environment, Human Geography and Urban-Rural Planning

地理科学专业课程教学计划表

Course Descriptions of Geographical Science

课程类别 Classi-fication		课程编号 Code	课程名称 Course Name	学分 Crs	课内总学时 Hrs	学时分类 Class Hours					先修课程 Prerequisite courses	学期学分分配 Semester Credits							
						课内学时		课外学时				一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
						讲课 Lec.	课内实验 Lab	实验/科研实践 Lab/Res.	研讨 Dis	素质拓展 Exp									
通识教育课 Liberal Education Courses	必修 Compulsory	11706200	马克思主义基本原理概论 Principles of Marxism	3	48	48						3							
		11706500	毛泽东思想和中国特色社会主义理论体系概论 Introduction to Mao Tse-tung Thought and the Theoretical System of Socialism with Chinese Characteristics	4	64	64									4				
		11711800	中国近现代史纲要 The Essentials of Modern Chinese History	2	32	32								2					
		12005200	思想道德修养与法律基础 Morality Education and Fundamentals of Law	3	48	48						3							
		12005300	形势与政策 Situation and Policy	2	32	32						每学期平均分配							
		113076*0	体育 Physical Education	4	144	144						1	1	1	1				
		109234*0	大学英语 College English	9	144	144				48		3	3	3					
		14300300	军事理论 Military Theory	2	36	36						2							
	选修 Elective	70100300	地球科学概论 Introduction to Earth Sciences	1.5	24	24		8											
		70400600	生态学概论 Introduction to Ecology	1.5	24	24													
		包括地球科学概论、生态学概论两门必修课程总计 12 学分，含创新创业选修课学分，跨学科选修课不低于 4 学分		9	144														
		小计 Sum		**41**	**740**	**596**		**8**		**48**		**12**	**4**	**6**	**5**				
大类平台课 Platform Courses		21717600	地理学导论 Introduction to Geography	1	16	16						1							
		212127*1	高等数学 A Advanced Mathematics A	11.5	184	184						5.5	6						
		21212801	线性代数 A Linear Algebra A	3.5	56	56						3.5							
		212130*3	大学物理 C College Physics C	6	96	96							3.5	2.5					
		21216902	物理实验 B Physics Experiments B	1.5	48	4	44						1.5						

课程类别 Classi-fication	课程编号 Code	课程名称 Course Name	学分 Crs	课内总学时 Hrs	学时分类 Class Hours					先修课程 Prerequisite courses	学期学分分配 Semester Credits							
					课内学时		课外学时											
					讲课 Lec.	课内实验 Lab	实验/科研实践 Lab/Res.	研讨 Dis	素质拓展 Exp		一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
	21931100	计算机高级语言程序设计(C++) Programming of Advanced Computer Language (C++)	2	32	32		16					2						
	21130900	数据库与空间数据库 Database and Spatial Database	3	48	48		16						3					
	21930800	数据结构 Data Structure	3	48	40	8	8						3					
	21213501	概率论与数理统计 A Probability and Statistics A	3.5	56	56								3.5					
	小计 Sum		**35**	**584**	**532**	**52**	**40**				**10**	**13**	**12**					
学科基础课 Disciplinary Fundamental Courses	20119600	普通地质学 Introduction to Earth Sciences	2.5	40	40		8				2.5							
	20130600	自然地理学 Physical Geography	2.5	40	32	8						2.5						
	20105700	人文地理学 Human Geography	2.5	40	32	8						2.5						
	21130701	地理信息系统原理 A Principle of Geographic Information System A	2.5	40	24	16			8				2.5					
	小计 Sum		**10**	**160**	**128**	**32**	**8**		**8**		**2.5**	**5**	**2.5**					
专业主干课 Main Specialty Courses	21129000	遥感概论 Introduction to Remote Sensing	3	48	40	8								3				
	20115100	地貌学与第四纪地质学 Geomorphology and Quaternary Geology	3	48	48									3				
	21130401	测量学 A Surveying A	2	32	32		16								2			
	21142600	生态地理学 Ecological Geography	2.5	40	32	8								2.5				
	21142700	经济地理学 Economic Geography	3	48	48										3			
	21142800	气象学与气候学 Meteorology and Climatology	2.5	40	40											2.5		
	小计 Sum		**16**	**256**	**240**	**16**	**16**							**8.5**	**5**	**2.5**		
专业选修课 Specialty Elective Courses		从选修课中选满 22 学分	22	352														
合计 Sub-total			**124**	**2092**	**1496**	**100**	**72**		**56**		**24.5**	**22**	**20.5**	**13.5**	**5**	**2.5**		

课程类别 Classi-fication	课程编号 Code	课程名称 Course Name	学分 Crs	课内总学时 Hrs	学时分类 Class Hours					先修课程 Prerequisite courses	学期学分分配 Semester Credits							
					课内学时		课外学时				一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
					讲课 Lec.	课内实验 Lab	实验/科研实践 Lab/Res.	研讨 Dis	素质拓展 Exp									
实践环节 Practical Work	44300400	军事训练 Military Training	2	2 周							2							
	41931200	计算机高级语言课程设计 (C++) Projects of Advanced Programming Language (C++)	2	2 周								2						
	41131100	北戴河地理认知实习 Primary Field Training	2	2 周						普通地质学		2						
	41131000	数据库课程设计 Projects of Database	2	2 周									2					
	41142900	秭归综合地理实习 Zigui Geographic Field Training	4	4 周										4				
	41120901	测量教学实习 A Surveying Teaching Practice A	1	1 周											1			
	411143000	区域地理与空间规划实习 Human and Economic Geography	4	4 周												4		
	41143100	空间数据处理与分析 Spatial Data Process and Analysis	5	5 周												5		
	41143200	周口店地学实习 Primary Field Training	3	3 周						矿物岩石学 构造地质学 地层古生物						3		
	41143300	毕业生产实习 Practice for Graduation	10	10 周													10	
	41132600	毕业论文 Thesis Writing for Graduation	8	8 周														8
	小计 Sum		**43**	**43 周**							**2**	**4**	**2**	**4**	**1**	**12**	**10**	**8**
创新创业自主学习 Freedom study	ZZ35000S	社会调查 Social Investigation	2															
		其他(学科竞赛、发明创造、科研报告) Others (Contest, Invention, Innovation and Research Presentation)	3															
	小计 Sum		**5**															
总计 Total		*总学分大于各学期之和的学分由学生自由选择，不确定学期*	**172**	**2092 +43 周**	**1696**	**100**	**72**		**56**		**26.5**	**26**	**22.5**	**17.5**	**6**	**14.5**	**10**	**8**
可开出专业选修课列表 Specialty Elective Courses	21130500	计算科学基础 Fundamentals of Computational Science	2	32	32						2							
	21135000	地图学 Cartography	2.5	40	32	8	12									2.5		
	21143400	水文地理学 Hydrology	2.5	40	40									2.5				

课程类别 Classi-fication	课程编号 Code	课程名称 Course Name	学分 Crs	课内总学时 Hrs	学时分类 Class Hours					先修课程 Prerequisite courses	学期学分分配 Semester Credits							
					课内学时		课外学时											
					讲课 Lec.	课内实验 Lab	实验/科研实践 Lab/Res.	研讨 Dis	素质拓展 Exp		一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
	21143500	土壤地理学 Pedology	2.5	40	36	4								2.5				
	21143600	自然灾害学 Natural Disaster	2	32	32									2				
	20113100	矿物岩石学 A Mineralogy and Petrology A	3	48	10	38									3			
	20119800	构造地质学 B Structural Geology B	2	32	32		16								2			
	21143700	计量地理学 Quantitative Geography	2	32	24	8										2		
	20109100	环境地球化学 Geochemistry	2	32	20	12										2		
	20118300	地层及古生物学 Stratigraphy and Palaeontology	3	48	36	12										3		
	21134700	遥感图像处理 Remote Sensing Image Processing	2	32	20	12										2		
	21143800	全球变化 Global Change	2.5	40	32	8									2.5			
	21135202	GNSS 原理及其应用 B Principle and Application of GNSS B	2	32	32											2		
	21134201	空间统计与分析 A Spatial Statistics and Analysis A	2	32	24	8	8							2				
	21143900	自然资源学 Natural Resources	2.5	40	40									2.5				
	20113200	区域分析与规划学 Regional Analysis and Planning	2	32	32									2				
	21144000	人口地理学 Population Geography	2	32	32									2				
	21144100	国土空间规划 Territorial Spatial Planning	2.5	40	40									2.5				
	21144200	景观地貌与公园规划 Landscapes and Landscape Planning	2	32	32										2			
	21144300	资源环境经济学 Economics of Resources and Environment	2	32	32										2			
	20100800	城市地理学 Urban Geography	2	32	32										2			
	21123000	地理建模方法 Geographic Modelling Methods	2.5	40	24	16										2.5		
	21144400	中国地理 Geography of China	2	32	32											2		
	21144500	世界地理 Geography of the World	2	32	32											2		
	21144600	交通地理学 Geography of Communication	2	32	32												2	
	20113300	旅游地理学 Tourism Geography	2.5	40	40												2.5	

注：全英课程须在课程名称后打*标出，通识教育选修课学分未列入具体学期，学院须根据学校创新创业自主学习学分认定一览表制订实施细则。

地理科学专业课程分类统计

课程类别 / 统计	通识教育课程 Liberal Education Courses		大类平台课+学科基础课 Plateform & Disciplinary Fundamental Courses	专业主干课 Main Specialty Courses	专业选修课 Specialty Elective Courses	实践环节 Practical Work	创新创业自主学习 Freedom Study	学时总计 Total Hour	学分总计 Total Credits
	必修	选修							
学时/学分	548/29	192/12	744/45	256/16	352/22	43 周	5	2092+43 周	172
学分所占比例	23.5%		26.5%	9.4%	12.9%	24.7%	3.0%		100%

附：

学校与企事业单位联合培养阶段实施方案（黑体三号）

（方案可包含而不限于以下内容）

培养目标（楷体小四）：主要介绍联合培养阶段的目标设定等。

培训重点（楷体小四）：主要从知识和技能、分析和研究能力、过程和方法等方面介绍。

培训阶段（楷体小四）：主要介绍联合培养阶段基础训练、生产实训等阶段实施情况。

课程及学分设置（楷体小四）： 主要介绍联合培养阶段的课程及学分如何设置。

考核标准及成绩评定（楷体小四）：主要介绍联合培养阶段的考核标准及方法。

工作、生活及安全保障管理（楷体小四）：主要介绍联合培养阶段学生的相关管理要求。

地理科学专业辅修课程教学计划表

Course Descriptions of Geographical Science（Minor）

	课程编号 Code	课程名称 Course Name	学分 Crs	课内总学时 Hrs	学时分类 Class Hours					先修课程 Prerequisite courses	学期学分分配 Semester Credits							
					课内学时		课外学时											
					讲课 Lec.	课内实验 Lab	实验/科研实践 Lab/Res.	研讨 Dis	素质拓展 Exp		一 1st	二 2nd	三 3rd	四 4th	五 5th	六 6th	七 7th	八 8th
课程类别 Classi-fication	20130600	自然地理学 Physical Geography	2.5	40	32	8								2.5				
	20105700	人文地理学 Human Geography	2.5	40	32	8								2.5				
	21130701	地理信息系统原理 A Principles of Geographic Information Systems A	2.5	40	24	16			8				2.5					
	21143500	土壤地理学 Pedology	2.5	40	36	4										2.5		
	小计 Sum		**10**	**160**	**124**	**36**			**8**				**2.5**	**5**		**2.5**		
专业主干课 Main Specialty Courses	21129000	遥感概论 Introduction to Remote Sensing	3	48	40	8										3		
	20115100	地貌学与第四纪地质学 Geomorphology and Quaternary Geology	3	48	48											3		
	21142600	生态地理学 Ecological Geography	2.5	40	32	8								2.5				
	21142700	经济地理学 Economic Geography	3	48	48										3			
	小计 Sum		**11.5**	**184**	**168**	**16**								**2.5**	**3**	**6**		
总计 Total			**21.5**	**344**	**292**	**52**			**8**				**2.5**	**7.5**	**3**	**8.5**		

地理科学辅修专业课程分类统计

课程类别 / 统计	学科基础课 Disciplinary Fundamental Courses	专业主干课 Main Specialty Courses	实践环节 Practical Work	学时总计 Total Hour	学分总计 Total Credits
学时/学分	160/10	184/11.5		344	21.5
学分所占比例	46.5%	53.5%		100%	100%