**地理信息科学专业人才培养方案**

# 一、培养目标

专业培育具备地理学基础知识，掌握地理信息系统的基础理论、基本知识和基本技能，接受严格的科学思维训练和良好的专业技能训练，熟悉空间数据获取、空间数据处理、空间数据管理、空间分析与应用主要技术方法，能在科研、教学、企事业单位和政府部门从事地理信息科学的研究、教学、开发或应用的高素质复合型科技专门人才。

# 二、毕业要求

本专业学生主要学习并掌握地理信息科学专业的基本理论、基本知识和技能。毕业生应具有以下方面的知识和能力：

1 思想品德

热爱社会主义祖国，拥护中国共产党领导；愿为社会主义现代化建设服务，为人民服务，为国家富强、民族昌盛而奋斗的志向和责任感；具有敬业爱岗、艰苦奋斗、热爱劳动、遵纪守法、团结合作的品质；具有良好的思想品德、社会公德和职业道德。

2 基础知识

2.1熟练掌握地理信息科学及其相关学科的基本理论和知识；

2.2具有一定的数据采集、编辑、建库和分析的能力；

2.3具备文档撰写、图表绘制等基础应用软件操作能力；

2.4具有文献检索与资料查阅能力，了解地理信息相关产业及技术发展动态。

3 研发能力

3.1 掌握GIS软件系统设计与开发的相关知识；

3.2 具备一定水平的GIS系统设计和开发能力；

3.3 掌握地理信息系统三维建模与分析能力；

3.4 具备地理信息相关项目的组织和实施能力。

4 创新能力

具有开阔的学术视野，了解地理信息与遥感领域研究发展前沿，能熟练运用地理信息、遥感与卫星定位系统技术解决地理学中的信息采集、分析处理和决策支持问题。

5 协作能力

具有团队合作与沟通能力，能够领导或参加一个团队，通过沟通来解决实际问题。

# 三、主干学科

地理学、计算机科学与技术、遥感

# 四、学制和学习年限

学制为4年，最长修业年限为8年。

# 五、学分与学位

在修业年限内，学生修满本专业教学计划规定的167学分，其中通识教育课程平台43学分、综合素质培养课程平台7.5学分、学科基础课程平台48.5学分、专业教育课程平台68学分方可申请毕业符合学位授予要求者经申请可授予理学学士学位。

# 六、专业核心课程

地理信息系统原理、遥感概论、C语言程序设计、高级地理信息系统、GIS算法原理。

# 七、学位课程

自然地理学、地图学、地理信息系统原理、遥感概论、现代测量学、GIS算法原理、空间数据库原理、高级地理信息系统、GIS空间分析、C语言程序设计。

# 八、课程设置

（一）通识教育课程平台（43学分）

1.必修课（37）学分

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **课程代码** | | **课程名称** | | | | | | | **学分** | **学时分配** | | | | **考试课程** | **建议修读学期** | **备注** |
| **总学时** | **讲授** | **实验** | **实践** |
| 176031001 | | 形势与政策 Situation and Policy | | | | | | | 2 | 32 | 32 |  |  |  | 2 |  |
| 176031002 | | 思想道德修养与法律基础 Ideological and Moral Cultivation and Basic Law Education | | | | | | | 3 | 48 | 32 |  | 16 |  | 1 |  |
| 176031003 | | 马克思主义基本原理概论 Introduction to the Principle of Marxism | | | | | | | 3 | 48 | 32 |  | 16 |  | 3 |  |
| 176031004 | | 中国近现代史纲要 Outline of Modern Chinese History | | | | | | | 2 | 32 | 28 |  | 4 |  | 2 |  |
| 176031005 | | 毛泽东思想和中国特色社会主义理论体系概论 Introduction to MAO Zedong Thought & Theoretical System of Chinese Socialism | | | | | | | 4 | 64 | 48 |  | 16 | √ | 4 |  |
| 176071001 | | 大学英语（一） College English Ⅰ | | | | | | | 3 | 48 | 48 |  |  | √ | 1 |  |
| 176071002 | | 大学英语（二） College English Ⅱ | | | | | | | 3 | 56 | 48 |  | 8 | √ | 2 |  |
| 176071003 | | 大学英语（三） College English Ⅲ | | | | | | | 3 | 56 | 48 |  | 8 | √ | 3 |  |
| 176071004 | | 大学英语（四） College English Ⅳ | | | | | | | 3 | 48 | 48 |  |  | √ | 4 |  |
| 176191001 | | 体育（一） Physical Education Ⅰ | | | | | | | 1 | 36 |  |  | 36 | √ | 1 |  |
| 176191002 | | 体育（二） Physical Education Ⅱ | | | | | | | 1 | 36 |  |  | 36 | √ | 2 |  |
| 176191003 | | 体育（三） Physical Education Ⅲ | | | | | | | 1 | 36 |  |  | 36 | √ | 3 |  |
| 176191004 | | 体育（四） Physical Education Ⅳ | | | | | | | 1 | 36 |  |  | 36 | √ | 4 |  |
| 176191005 | | 军事理论 Military Theory | | | | | | | 2 | 36 | 36 |  |  | √ | 5 | 网络教学 |
|  | |  | | | | | | |  |  |  |  |  |  |  |  |
|  | |  | | | | | | |  |  |  |  |  |  |  |  |
| **小计** | |  | | | | | | | **32** | **612** | **400** | **0** | **212** | **10** |  |  |
| 173181001 | | 军事训练 Military Training | | | | | | | 2 | 2 |  |  |  | √ | 1 |  |
| 176031006 | | 毛泽东思想和中国特色社会主义理论体系概论社会实践 Practice of MAO Zedong Thought & Theoretical System of Chinese Socialism Ⅰ | | | | | | | 2 | 3 |  |  |  |  | 4 | 暑期进行 |
| 196191007 | | 劳动教育 Labor Education | | | | | | | 1 |  |  |  |  |  | 1-7 |  |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| **小计** | |  | | | | | | | **5** | **5** |  |  |  | **1** |  |  |

2.选修课（6）学分

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **课程代码** | **课程名称** | **学分** | **学时分配** | | | | **考试课程** | **建议修读学期** | **备注** |
| **总学时** | **讲授** | **实验** | **实践** |
|  | 在“公共选修课程目录”中选读。学生必须选修2学分艺术体育类课程。不得选修与本专业学科基础课程和专业课程相同或近似的课程。 | 6 | 96 |  |  |  |  | **1-8** |  |
| **小计** |  | **6** |  |  |  |  |  |  |  |

（二）综合素质培养课程平台（7.5学分）

1.必修课（5.5）学分

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **课程代码** | **课程名称** | **学分** | **学时分配** | | | | **考试课程** | **建议修读学期** | **备注** |
| **总学时** | **讲授** | **实验** | **实践** |
| 173091001 | 大学生心理素质教育 University Students Psychological Quality Education | 1.5 | 32 | 16 |  | 16 |  | 1.2 |  |
| 173091002 | 大学生职业发展与创新创业教育（一） College Students' Career Development and Education on Innovation and Entrepreneurship Ⅰ | 1.5 | 32 | 16 |  | 16 |  | 3 |  |
| 173091003 | 大学生职业发展与创新创业教育（二） College Students' Career Development and Education on Innovation and Entrepreneurship Ⅱ | 1 | 18 | 12 |  | 6 |  | 6 |  |
| 176031007 | 廉洁教育概论 Overview of Probity Education | 0.5 | 18 | 9 |  | 9 |  | 3 |  |
| 196211041 | 地理信息科学导论 Introduction to Geographic Information Science | 1 | 16 | 16 |  |  |  | 1 |  |
| **小计** |  | **5.5** | **116** | **69** | **0** | **47** | **0** |  |  |

2.选修课（2）学分

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **课程代码** | **课程名称** | **学分** | **学时分配** | | | | **考试课程** | **建议修读学期** | **备注** |
| **总学时** | **讲授** | **实验** | **实践** |
| 176211280 | 大学生创新创业教育实践 Practice for College Students' Innovation and Entrepreneurship Education | 2 |  |  |  |  |  | 6 | 课外实施 |
| **小计** | **“选修课”至少选修学分** | **2** |  |  |  |  | **0** |  |  |

（三）学科基础课程平台（48.5学分）

1.必修课（38.5）学分

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **课程代码** | **课程名称** | **学分** | **学时分配** | | | | **考试课程** | **建议修读学期** | **备注** |
| **总学时** | **讲授** | **实验** | **实践** |
| 176131002 | 大学计算机信息技术基础（Ⅱ） Fundamentals of Computer（Ⅱ） | 2 | 48 | 18 | 30 |  | √ | 1 |  |
| 176211006 | C语言程序设计  C Language Program Design | 2 | 36 | 36 |  |  | √ | 2 |  |
| 176021003 | 高等数学B（一） Advanced Mathematics B Ⅰ | 4 | 64 | 64 |  |  | √ | 1 |  |
| 176021004 | 高等数学B（二） Advanced Mathematics B Ⅱ | 3 | 48 | 48 |  |  | √ | 2 |  |
| 176021015 | 概率论与数理统计 Probability Theory & Mathematical Statistics | 3 | 48 | 48 |  |  | √ | 5 |  |
| 176021017 | 线性代数A Linear Algebra A | 3 | 48 | 48 |  |  | √ | 5 |  |
| 176211074 | 地图学 Cartography | 2 | 36 | 36 |  |  | √ | 3 |  |
| 196211009 | 地理信息系统原理 The Principle of Geographic Information System | 2 | 36 | 36 |  |  | √ | 2 |  |
| 196211032 | 自然地理学 Physical Geography | 2 | 32 | 32 |  |  | √ | 3 |  |
| 176211223 | 遥感概论 Principles of Remote Sensing | 2 | 36 | 36 |  |  | √ | 1 |  |
| 176211007 | C语言程序设计实验 Experiment of C Language Program Design | 1 | 36 |  | 36 |  |  | 2 |  |
| 196211026 | 地图学实验 Experiment of Cartography | 0.5 | 12 |  | 12 |  |  | 3 |  |
| 176211226 | 遥感概论实验 Experiment of Principles of Remote Sensing | 1 | 36 |  | 36 |  |  | 1 |  |
| 196211008 | 地理信息系统原理实验 Experiment of Principle of Geographic Information System | 1 | 36 |  | 36 |  |  | 2 |  |
|  |  |  |  |  |  |  |  |  |  |
| **小计** |  | **28.5** | **552** | **402** | **150** | **0** | **10** |  |  |
| 196211010 | 空间数据采集与管理实践 Practice of Spatial Data Acquisition and Management | 2 | 2 |  |  |  |  | 2 |  |
| 176211227 | 遥感数据处理综合实习 Comprehensive Practice of Remote Sensing Data processing | 2 | 2 |  |  |  |  | 5 |  |
| 176211008 | C语言课程实践 Comprehensive Practice of C Program | 2 | 2 |  |  |  |  | 3 |  |
| 176211013 | IDL二次开发实践 Comprehensive Practice of IDL Developmen | 2 | 2 |  |  |  |  | 6 |  |
| 176211262 | 自然地理综合实习 Comprehensive Practice to Physical Geograohy | 2 | 2 |  |  |  |  | 4 |  |
| **小计** |  | **10** | **10** | **0** | **0** | **0** | **0** |  |  |

2.选修课（10）学分

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **课程代码** | **课程名称** | **学分** | **学时分配** | | | | **考试课程** | **建议修读学期** | **备注** |
| **总学时** | **讲授** | **实验** | **实践** |
| 176211030 | 城市地理学 Urban Geography | 3 | 48 | 48 |  |  |  | 4 |  |
| 176211111 | 环境系统分析 Environment System Analysis | 3 | 48 | 48 |  |  |  | 4 |  |
| 196211002 | 遥感地学分析 Geo-analysis of Remote Sensing | 1 | 18 | 18 |  |  |  | 5 |  |
| 196211001 | 卫星导航定位技术应用 Application of Satellite Navigation and Positioning Technolog | 2 | 36 | 36 |  |  | √ | 6 |  |
| 176211181 | 人文地理学 Human and Economic Geography | 2 | 32 | 32 |  |  | √ | 5 |  |
| 176211073 | 地球科学概论 Principles of GeoScience | 2 | 32 | 32 |  |  |  | 1 |  |
| 196211006 | 遥感地学分析实验 Experiment of Remote Sensing Geo-analysis | 1 | 36 |  | 36 |  |  | 5 |  |
| 176211228 | 遥感数字图像处理实验 Experiment of Remote sening Digital Image processing | 2 | 72 |  | 72 |  |  | 4 |  |
| **小计** | **“选修课”至少选修学分** | **10** |  |  |  |  | **2** |  |  |

（四）专业教育课程平台（68学分）

1.必修课（53）学分

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **·** | **课程名称** | **学分** | **学时分配** | | | | **考试课程** | **建议修读学期** | **备注** |
| **总学时** | **讲授** | **实验** | **实践** |
| 176211042 | 初级地理信息系统 Primary Geographic Information System | 2 | 24 | 24 |  |  |  | 1 |  |
| 176211218 | 现代测量学 Modern surveying science | 2 | 30 | 30 |  |  | √ | 3 |  |
| 176211011 | GIS算法原理 Principle and Algorithm of GIS | 2 | 36 | 36 |  |  | √ | 3 |  |
| 176211144 | 空间数据库原理 The Principle of Spatial Database | 2 | 36 | 36 |  |  | √ | 6 |  |
| 176211082 | 高级地理信息系统 Secondary Geographic Information System | 2 | 30 | 30 |  |  | √ | 5 |  |
| 176211007 | GIS空间分析 Spatial Analysis of GIS | 2 | 36 | 36 |  |  | √ | 4 |  |
| 176211214 | 网络地理信息系统原理 The Principle and Application of Internet GIS | 2 | 36 | 36 |  |  |  | 5 |  |
| 176211043 | 初级地理信息系统实验 Experiment of Primary Geographic Information System | 1 | 30 |  | 30 |  |  | 1 |  |
| 176211219 | 现代测量学实验 Experiment of Modern Surveying Science | 1 | 36 |  | 36 |  |  | 3 |  |
| 176211012 | GIS算法原理实验 Experiment of Principle and Algorithm of GIS | 1 | 36 |  | 36 |  |  | 3 |  |
| 196211027 | 空间数据库原理实验 Experiment of the Principle of Spatial Database | 1 | 34 |  | 34 |  |  | 6 |  |
| 176211083 | 高级地理信息系统实验 Experiment of Secondary Geographic Information System | 1 | 36 |  | 36 |  |  | 5 |  |
| 196211011 | GIS空间分析实验 Experiment of GIS Spatial Analysis | 1 | 36 |  | 36 |  |  | 4 |  |
| 176211213 | 网络地理信息系统实验 Experiment of Internet GIS | 1 | 18 |  | 18 |  |  | 5 |  |
| 176211004 | AutoCAD地理制图实验 Experiment of AutoCAD Cartography | 2 | 54 |  | 54 |  |  | 6 |  |
| 176211058 | 地理信息系统三维建模方法与应用 GIS 3D Modeling and Application | 2 | 30 | 30 |  |  |  | 6 |  |
| 176211059 | 地理信息系统三维建模方法与应用实验 Experiment of GIS 3D Modeling and Application | 1 | 30 |  | 30 |  |  | 6 |  |
| 176211248 | 专业英语 GIS Speciality English | 3 | 54 | 54 |  |  | √ | 4 |  |
| **小计** |  | **29** | **622** | **312** | **310** | **0** | **6** |  |  |
| 176211057 | 地理信息系统开发综合实践 Comprehensive Practice of GIS Development | 2 | 2 |  |  |  |  | 6 |  |
| 196211028 | 数字测图综合野外实践 Comprehensive Practice of Digital Surveying and Mapping | 2 | 2 |  |  |  |  | 6 |  |
| 196211042 | 生产实习 Production Practice | 8 | 16 |  |  |  |  | 7 |  |
| 176211019 | 毕业论文 Graduation Thesis | 12 | 16 |  |  |  |  | 8 |  |
|  |  |  |  |  |  |  |  |  |  |
| **小计** |  | **24** | **36** | **0** | **0** | **0** | **0** |  |  |

2.选修课（15）学分

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **课程代码** | **课程名称** | **学分** | **学时分配** | | | | **考试课程** | **建议修读学期** | **备注** |
| **总学时** | **讲授** | **实验** | **实践** |
| **176211122** | 基于ARCGIS的三维建模与空间分析 3D Modeling and Analysis On ARCGIS | 3 | 60 | 30 | 30 |  |  |  |  |
| **176211186** | 三维城市数据获取与建模 3D Urban Data Acquirement and Modeling | 3 | 60 | 30 | 30 |  |  |  |  |
| 176211044 | 创造学 Creatology | 1 | 16 | 16 |  |  |  |  |  |
| **176211121** | 基于3D数据的空间分布模式与应用 Spatial patterns Analysis on 3Ddata | 3 | 66 | 30 | 36 |  |  |  |  |
| **176211192** | 时空数据模型与分析技术进展 3D Data Acquirement and Modeling | 3 | 60 | 30 | 30 |  |  |  |  |
| **196211046** | GIS应用开发 Application Development of GIS | 2 | 32 | 32 |  |  |  |  |  |
| **196211036** | MatLab应用 Application of Matlab | 1 | 18 | 18 |  |  |  |  |  |
| **196211037** | MatLab应用实验 Experiment of Matlab Application | 1 | 36 |  | 36 |  |  |  |  |
| 176211207 | 土地资源管理 Management of Land Source | 3 | 48 | 48 |  |  |  |  |  |
| 176211204 | 土地利用规划 Planning of Land Use | 3 | 48 | 48 |  |  |  |  |  |
| **196211038** | 区域分析方法 Planning and of analysis Regional | 2 | 32 | 32 |  |  |  |  |  |
| 176211053 | 地理信息系统工程 Geographic Information Project | 2 | 27 | 27 |  |  |  |  |  |
| 176211054 | 地理信息系统工程实验 Experiment of Geographic Information Project | 1 | 27 |  | 27 |  |  |  |  |
| 176211015 | Web程序设计 Program Design of Web Development | 2 | 36 | 36 |  |  |  |  |  |
| **176211016** | Web程序设计实验 Experiment of Program Design of Web Development | 1 | 36 |  | 36 |  |  |  |  |
| **196211029** | 空间数据结构 Spatial Data Structure | 1 | 18 | 18 |  |  | √ |  |  |
| **196211030** | 空间数据结构实验 Experiment of Spatial Data Structure | 1 | 36 |  | 36 |  |  |  |  |
|  | GIS应用开发实验 Experiment of of GIS Application Development | 1 | 32 |  | 32 |  |  |  |  |
| **196211040** | 环境学概论 Introduction to Environmental Studies | 2 | 32 | 32 |  |  |  |  |  |
| **1963211045** | 学科竞赛与创新创业实践 Practice of Discipline Competition and Innovation Entrepreneurship | 2 | 72 |  | 72 |  |  |  |  |
| **小计** | **“选修课”至少选修学分** | **15** |  |  |  |  | **2** |  |  |

# 九、学期学时测算表

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| 学期 | 学时统计 | | | 实践环节 周数小计 | 考试门数 小计 |
| 必修课 | 选修课 | 小计 |
| 一 | 386 | 32 | 418 | 2 | 6 |
| 二 | 380 | 16 | 396 | 2 | 5 |
| 三 | 408 | 84 | 492 | 2 | 6 |
| 四 | 274 | 142 | 416 | 5 | 5 |
| 五 | 252 | 174 | 426 | 2 | 3 |
| 六 | 202 | 192 | 394 | 6 | 2 |
| 七 | 0 | 16 | 16 | 16 | 0 |
| 八 | 0 | 0 | 0 | 16 | 0 |
| 九 | 0 | 0 | 0 | 0 | 0 |
| 十 | 0 | 0 | 0 | 0 | 0 |
| **合计** | **1902** | **656** | **2558** | **51** | **27** |

# 十、学分分配表

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 类别 | 学分及其占比 | | | | | | |
| 学分 | 必修课程 学分 | 占比 | 选修课程 学分 | 占比 | 实验（实 践）学分 | 占比 |
| 通识教育课程 | 43.00 | 37.00 | 86.05% | 6.00 | 13.95% | 11.37 | 26.43% |
| 综合素质培养课程 | 7.50 | 5.50 | 73.33% | 2.00 | 26.67% | 1.37 | 18.22% |
| 学科基础课程 | 48.50 | 38.50 | 79.38% | 10.00 | 20.62% | 14.50 | 29.90% |
| 专业教育课程 | 68.00 | 53.00 | 77.94% | 15.00 | 22.06% | 34.00 | 50.00% |
| 合计 | 167.00 | 134.00 | 80.24% | 33.00 | 19.76% | 61.23 | 36.67% |