

## 生物科学(菁英班)专业培养方案

**专业名称与代码:**生物科学(菁英班) 071001

**专业培养目标:**本专业旨在培养适应生物科学发展与技术进步需要的高级专门人才。毕业生不仅德智体全面发展,而且使用外语和计算机的能力较强。他们在生物科学、地质、地球化学、环境科学方面有坚实的基础,毕业后可攻读研究生学位,或在科研院所、高等院校、涉及生物科学的相关产业就业。

### 专业毕业要求

1. 具有扎实的数学、物理、化学、生物科学和地质学的基础理论知识;掌握生物科学的理论和实践工作技能及基本的地球科学实验和鉴定技术,具备从事分子生物、生态、环境科学、第四纪地质学、地球化学等方面的基础理论研究、应用研究、分析实验、数据处理等工作的基本能力。

2. 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,能熟练将计算机文字、图形、数据等处理并应用于生物科学与技术研究。

3. 掌握一门外语,具备听、说、读、写及进行国际学术交流的能力,达到能独立获取信息的水平。

4. 具有一定的人文科学和管理科学的知识和能力。

### 毕业生应获得以下几个方面的知识和能力

1. 具有较坚实的数、理、化、外语、计算机基础知识与应用能力。

2. 掌握生物科学的基本理论、技能和工作方法。

3. 具有从事分子生物、生态、地质学、环境科学等方面的研究能力。

4. 具有对生物科学及相关领域信息处理、成果解释和应用的初步能力。

5. 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。

### 毕业要求及实现途径

| 序号 | 毕业要求                         | 实现途径(教学过程)  |
|----|------------------------------|---|
| 1  | 具有较坚实的数、理、化、外语、计算机基础知识与应用能力  | ①课堂教学:大学英语、C语言程序设计、高等数学 B、概率论与数理统计 B、大学物理 C、大学化学 B、分析化学 B、有机化学 B<br>②课外学习:物理实验 B、计算机课程设计  |
| 2  | 掌握生物科学的基本理论、技能和工作方法          | ①课堂教学:生物科学专业导论、动物生物学、生物化学 A、细胞生物学、植物生物学、微生物学、遗传学<br>②课外学习:动物生物学实验、生物化学实验 A、细胞生物学实验、植物生物学实验、微生物学实验、遗传学实验                             |
| 3  | 具有从事分子生物、生态、地质学、环境科学等方面的研究能力 | ①课堂教学:普通地质学 B、矿物岩石学、地貌学及第四纪地质学、普通生态学、分子生物学<br>②课外学习:分子生物学实验、植物学现场教学、海洋生物及地质学教学实习(北戴河)、植物学及生态学教学实习(三峡)、动物生物学课程设计、植物生物化学课程设计、微生物学课程设计 |

| 序号 | 毕业要求                          | 实现途径(教学过程)                                      |
|----|-------------------------------|---|
| 4  | 具有对生物科学及相关领域信息处理、成果解释和应用的初步能力 | ①课堂教学:R 语言与生物统计、生物信息学、各个选修课程<br>②课外学习:毕业实习、毕业设计 |
| 5  | 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   | 课外学习;社会调查、其他(学科竞赛、发明创造、科研报告)                    |

**主干学科:**生物科学。

**核心课程:**植物生物学、动物生物学、微生物学、普通生态学、生物化学、分子生物学、细胞生物学、遗传学、普通地质学、地貌学及第四纪地质学、进化生物学、生物信息学。

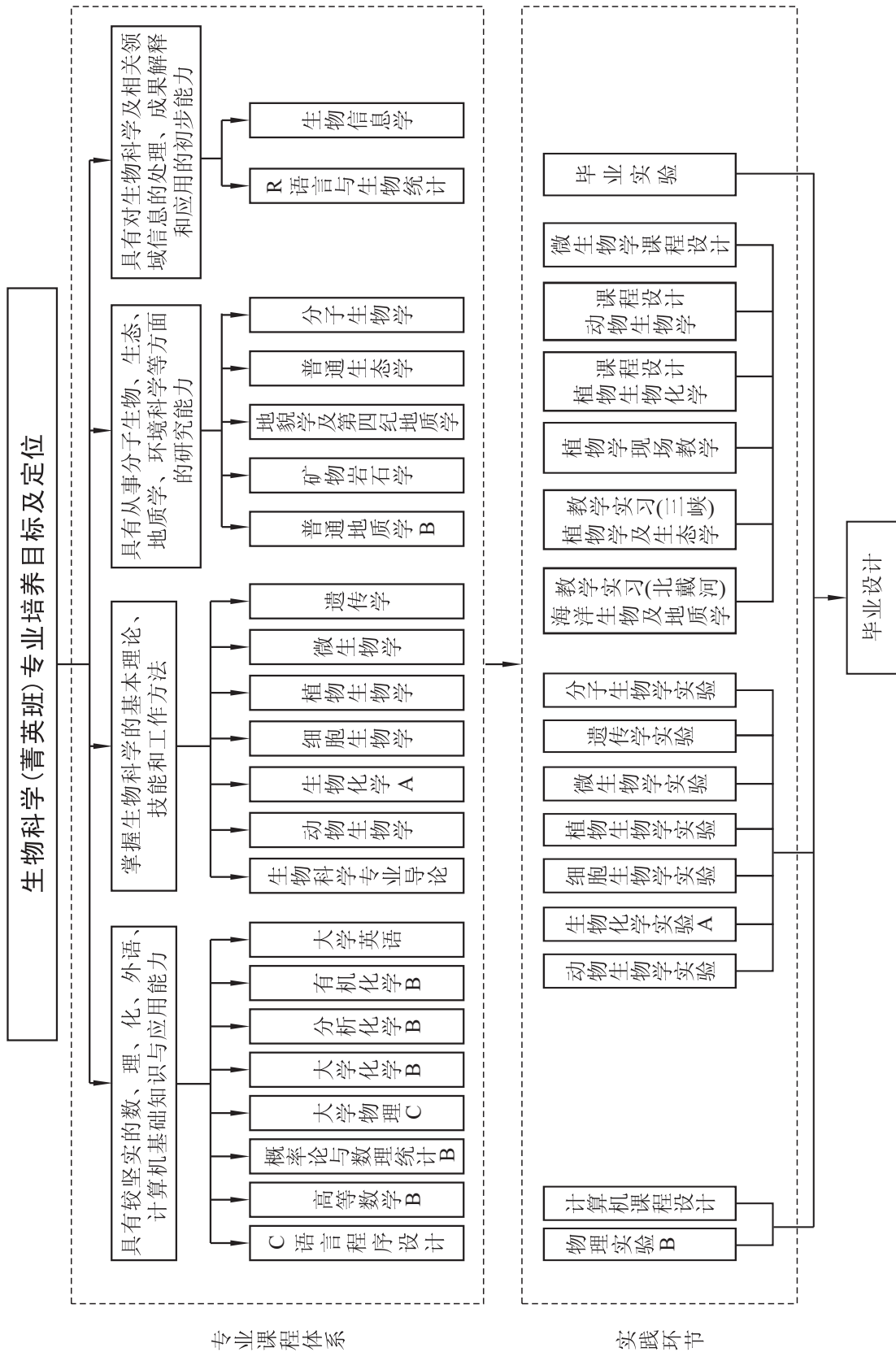
**主要专业实验:**动植物临时(永久)装片制作、动植物鉴定、染色技术、生物大分子提取分离技术、分子克隆技术、古生物鉴定、地球化学样品分析等。

**主要实践性教学环节:**地质认识及海洋生物认知实习(秦皇岛)、植物认知及生态实习(三峡)、计算机程序设计、毕业(研究)实习、毕业论文。

**修业年限:**四年。

**授予学位:**理学士。

**相近专业:**地质学、地球化学、环境科学。



## Program for Biological Science(Elite Class)

**Specialty and Code:** Biological Sciences(Elite Class) 070401

**Education Objective:** The program aims to train advanced professionals in biology who have great potential to do research involved in applications and exploration of biological sciences. Our graduates not only have all-around development in moral, intellectual, and physical excellency, but also are competent with their relevant expertise including strong ability in using foreign language and computer science. They have solid foundation in Biological Sciences, as well as Geosciences, Geochemistry, and Environmental Sciences. Most of them will be qualified for further education in PhD program. The program prepares our students for employment in teaching and research in research institutes or institutions of higher learning involving biological sciences or in a wide range of biologically-related industries.

### Graduation Requirements

1. To master the basic theories of mathematics, physics, chemistry, biology, and earth sciences; to master the skills not only on theory and experimental techniques in biology but also on composition analysis and identification in earth sciences. To be able to carry on fundamental scientific research on molecular biology, ecology, environmental sciences, quaternary geology, and geochemistry.

2. To master basic knowledge of computer sciences including a sound understanding of both the hardware and software, to master at least one advanced computer language programming. Be able to apply all kinds of computer techniques in terms of text, image, and data processing into biological sciences.

3. To master a foreign language with proficiency of listening, speaking, reading, and writing and thus to ensure fluent communication and independent information retrieval.

4. Being physically and mentally healthy and be able to carry out plans and management in humanism.

### Graduates Are Required

1. Having the basic knowledge and application ability of mathematics, Physics, Chemistry, English and computer science.

2. Master the basic theory, skills and methods of biological science.

3. Having the abilities to do researches in molecular biology, ecology, geology and environmental science.

4. Having the basic ability to process, interpret and apply the information of the biological sciences and related fields.

5. Having good scientific literacy, psychological quality, comprehensive ability and management ability.

**Graduation Requirements and Ways to Achieve**

| No. | Graduation Requirements  | Ways to Achieve(Teaching Process)   |
|-----|--|---|
| 1   | Having the basic knowledge and application ability of mathematics, Physics, Chemistry, English and computer science    | ①Classroom Teaching: College English, C Language Programming, Higher Mathematics B, Probability and Statistics B, College Physics C, College Chemistry B, Analytical Chemistry B, Organic Chemistry B<br>② Out-of-class Learning: Physical Experiments B, Computer Course Design  |
| 2   | Master the basic theory, skills and methods of biological science  | ①Classroom Teaching: Introduction to Biological Science, Animal Biology, Biochemistry A, Cell Biology, Plant Biology, Microbiology, Genetics<br>②Out-of-class Learning: Experiments of Animal Biology, Experiments of Biochemistry A, Experiments of Cell Biology, Experiments of Plant Biology Experiments of Microbiology, Experiments of Genetics  |
| 3   | Having the abilities to do researches in molecular biology, ecology, geology and environmental science                 | ① Classroom Teaching: Physical Geology B, Mineralogy and Lithology, Geomorphology and Quaternary Geology, General Ecology, Molecular Biology<br>②Out-of-class Learning: Experiments of Molecular Biology, Field Teaching of Botany, Teaching Practice of Marine Biology and Geology (Beidaihe), Teaching Practice of Botany and Ecology (The Three Gorges), Course Design of Animal Biology, Course Design of Plant Biochemistry, Course Design of Microbiology |
| 4   | Having the basic ability to process, interpret and apply the information of the biological sciences and related fields | ① Classroom Teaching: R Language and Biostatistics, Bioinformatics, and various elective courses<br>②Out-of-class Learning: Graduation Practice, Graduation Design  |
| 5   | Having good scientific literacy, psychological quality, comprehensive ability and management ability                   | ② Out-of-class Learning: Social Investigation, Others (subject competition, invention and creation, academic presentation)  |

**Major Disciplines:** Biological Sciences.

**Main Courses:** Plant Biology, Animal Biology, Microbiology, Biochemistry, Cell Biology, Genetics, Molecular Biology, General Ecology, Physical Geology, Geomorphology and Quaternary Geology, Evolutionary Biology, Bio-Informatics.

**Lab Experiments:** Plant Biology, Animal Biology, Microbiology, Biochemistry, Cell Biology, Genetics, Molecular Biology, General Ecology, Bio-informatics (on PC or internet).

**Practical Work:** Plant Field Teaching Practice, Marine Biology and General Geoscience Teaching Practice, General Ecology Field Teaching Practice, Graduation Practice, Thesis Writing.

**Duration:** four years.

**Degree Granted:** Bachelor of Science.

**Related Specialties:** Geology, Geochemistry, Environmental Science.

**生物科学(菁英班)专业课程教学计划表**  
**Course Descriptions of Biological Science (Elite Class)**

| 课程类别<br>Course<br>Classification          | 课程编号<br>Course<br>Code | 课程名称<br>Course Name                                       | 学分<br>Crs  | 学时<br>Hrs   | 学时分类<br>Class Hours |            | 先修课程<br>Prerequisite<br>Courses | 学期学分分配<br>Semester Credits |          |          |          |            |            |            |          |          |          |          |  |
|---|------------------------|---|--|-------------|---------------------|------------|---------------------------------|----------------------------|----------|----------|----------|------------|------------|------------|----------|----------|----------|----------|--|
|   |                        |   |  |             | 讲课<br>Lec.          | 实验<br>Lab. |                                 | 一<br>1st                   | 二<br>2nd | 三<br>3rd | 四<br>4th | 五<br>5th   | 六<br>6th   | 七<br>7th   | 八<br>8th |          |          |          |  |
|   |                        |   |  |             |                     |            |                                 |                            |          |          |          |            |            |            |          |          |          |          |  |
| 通识教育课<br>Liberal Education Courses        | 必修<br>Compulsory       | 11706200  | 马克思主义基本原理<br>Principles of Marxism   | 3           | 48                  | 48         |                                 |                            |          |          |          |            | 3          |            |          |          |          |          |  |
|   |                        | 11706500  | 毛泽东思想与中国特色社会<br>主义理论体系概论<br>Introduction to Mao Tse-tung<br>Thought and the Theoretical<br>System of Socialism with<br>Chinese Characteristics | 4           | 64                  | 64         |                                 |                            |          |          |          |            |            | 4          |          |          |          |          |  |
|   |                        | 11711800  | 中国近现代史纲要<br>The Essentials of Modern<br>Chinese History  | 2           | 32                  | 32         |                                 |                            |          |          |          |            | 2          |            |          |          |          |          |  |
|   |                        | 120002 * 0  | 思想道德修养与法律基础<br>Morality Education and Fun-<br>damentals of Law   | 3           | 48                  | 48         |                                 |                            |          |          |          |            | 1.5        | 1.5        |          |          |          |          |  |
|   |                        | 113076 * 0  | 体育<br>Physical Education   | 4           | 144                 | 144        |                                 |                            |          |          | 1        | 1          | 1          | 1          |          |          |          |          |  |
|   |                        | 109116 * 0  | 大学英语<br>College English  | 12          | 192                 | 192        |                                 |                            |          |          | 3        | 3          | 3          | 3          |          |          |          |          |  |
|   |                        | 11918902  | C 语言程序设计 B<br>C Language Programming B   | 2.5         | 40                  | 28         | 12                              |                            |          |          |          | 2.5        |            |            |          |          |          |          |  |
|   |                        | 20413300  | 生物科学专业导论<br>Introduction to Biology Sci-<br>ence   | 1           | 16                  | 16         |                                 |                            |          |          | 1        |            |            |            |          |          |          |          |  |
|   |                        | 14300100  | 军事理论<br>Military Theory  | 2           | 32                  | 32         |                                 |                            |          |          | 2        |            |            |            |          |          |          |          |  |
|   |                        | 选修<br>Elective  | 总计 12 学分,含创新创业选修课学分,跨<br>学科选修课不低于 6 学分   |             | 12                  | 192        |                                 |                            |          |          |          |            |            |            |          |          |          |          |  |
|   |                        | 小计<br>Sum   |  | <b>45.5</b> | <b>808</b>          | <b>604</b> | <b>12</b>                       |                            |          |          | <b>7</b> | <b>6.5</b> | <b>5.5</b> | <b>7.5</b> | <b>7</b> | <b>0</b> | <b>0</b> | <b>0</b> |  |
| 学科基础课<br>Disciplinary Fundamental Courses | 212127 * 2             | 高等数学 B<br>Advanced Mathematics B                          | 10   | 160         | 160                 |            |                                 |                            |          | 4        | 6        |            |            |            |          |          |          |          |  |
|   | 21213503               | 概率论与数理统计 C<br>Probability and Mathematics<br>Statistics C | 2  | 32          | 32                  |            |                                 |                            |          |          |          |            | 2          |            |          |          |          |          |  |
|   | 212130 * 3             | 大学物理 C<br>College Physics C                               | 6  | 96          | 96                  |            |                                 |                            |          |          | 3.5      | 2.5        |            |            |          |          |          |          |  |
|   | 21213202               | 物理实验 B<br>Physics Experiments B                           | 2  | 32          |                     | 32         |                                 |                            |          |          | 2        |            |            |            |          |          |          |          |  |
|   | 20302402               | 大学化学 B<br>College Chemistry B                             | 5  | 80          | 56                  | 24         |                                 |                            |          | 5        |          |            |            |            |          |          |          |          |  |

| 课程类别<br>Course Classification   | 课程编号<br>Course Code                                | 课程名称<br>Course Name | 学分<br>Crts | 学时<br>Hrs  | 学时分类<br>Class Hours                       |            | 先修课程<br>Prerequisite Courses | 学期学分分配<br>Semester Credits |          |          |          |  |          |          |          |            |                                  |     |             |             |          |          |          |          |          |          |          |
|---------------------------------|--|---------------------|------------|------------|---|------------|------------------------------|----------------------------|----------|----------|----------|--|----------|----------|----------|------------|----------------------------------|-----|-------------|-------------|----------|----------|----------|----------|----------|----------|----------|
|                                 |  |                     |            |            | 讲课<br>Lec.                                | 实验<br>Lab. |                              | 一<br>1st                   | 二<br>2nd | 三<br>3rd | 四<br>4th | 五<br>5th                                 | 六<br>6th | 七<br>7th | 八<br>8th |            |                                  |     |             |             |          |          |          |          |          |          |          |
|                                 |  |                     |            |            | 学科基础课<br>Disciplinary Fundamental Courses |            |                              |                            |          |          |          |  |          |          |          | 20311502   | 分析化学 B<br>Analytical Chemistry B | 3   | 48          | 28          | 20       |          |          | 3        |          |          |          |
| 20311402                        | 有机化学 B<br>Organic Chemistry B                      | 3.5                 | 56         | 40         |   |            |                              |                            |          |          |          |  |          |          |          | 16         |                                  | 3.5 |             |             |          |          |          |          |          |          |          |
| 20114900                        | 普通地质学<br>Physical Geology                          | 3                   | 48         | 48         |   |            |                              |                            |          |          |          |  |          |          |          |            |                                  | 3   |             |             |          |          |          |          |          |          |          |
| 20113100                        | 矿物岩石学 A<br>Mineralogy and Lithology A              | 3                   | 48         | 48         |   |            |                              |                            |          |          |          |  |          |          |          |            |                                  |     | 3           |             |          |          |          |          |          |          |          |
| 20101600                        | 地貌学及第四纪地质学<br>Geomorphology and Quaternary Geology | 2.5                 | 40         | 40         |   |            |                              |                            |          |          |          |  |          |          |          |            |                                  |     |             | 2.5         |          |          |          |          |          |          |          |
| 小计<br>Sum                       |  |                     | <b>40</b>  | <b>640</b> |   |            |                              |                            |          |          |          |  |          |          |          | <b>548</b> | <b>92</b>                        |     | <b>15.5</b> | <b>14.5</b> | <b>8</b> | <b>2</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> | <b>0</b> |
| 专业主干课<br>Main Specialty Courses |  |                     |            |            |   |            |                              |                            |          |          | 20419500 | 动物生物学<br>Animal Biology                  | 3        | 48       | 48       |            |                                  | 3   |             |             |          |          |          |          |          |          |          |
|                                 |  |                     |            |            |   |            |                              |                            |          |          | 20420200 | 动物生物学实验<br>Experiments of Animal Biology | 1.5      | 24       |          | 24         |                                  | 1.5 |             |             |          |          |          |          |          |          |          |
|                                 |  |                     |            |            |   |            |                              |                            |          |          | 20420700 | 生物化学<br>Biochemistry                     | 4.5      | 72       | 72       |            |                                  |     | 4.5         |             |          |          |          |          |          |          |          |
|                                 |  |                     |            |            |   |            |                              |                            |          |          | 20420800 | 生物化学实验<br>Experiments of Biochemistry    | 2.5      | 40       |          | 40         |                                  |     | 2.5         |             |          |          |          |          |          |          |          |
|                                 |  |                     |            |            |   |            |                              |                            |          |          | 20419900 | 细胞生物学<br>Cell Biology                    | 3        | 48       | 48       |            |                                  |     |             | 3           |          |          |          |          |          |          |          |
|                                 |  |                     |            |            |   |            |                              |                            |          |          | 20423700 | 细胞生物学实验<br>Experiments of Cell Biology   | 1.5      | 24       |          | 24         |                                  |     |             | 1.5         |          |          |          |          |          |          |          |
|                                 |  |                     |            |            |   |            |                              |                            |          |          | 20413400 | 植物生物学<br>Plant Biology                   | 3.5      | 56       | 56       |            |                                  |     |             |             | 3.5      |          |          |          |          |          |          |
|                                 |  |                     |            |            |   |            |                              |                            |          |          | 20413500 | 植物生物学实验<br>Experiments of Plant Biology  | 2        | 32       |          | 32         |                                  |     |             |             | 2        |          |          |          |          |          |          |
|                                 |  |                     |            |            |   |            |                              |                            |          |          | 20420300 | 普通生态学<br>General Ecology                 | 3        | 48       | 48       |            |                                  |     |             |             | 3        |          |          |          |          |          |          |
|                                 |  |                     |            |            |   |            |                              |                            |          |          | 20420400 | 微生物学<br>Microbiology                     | 3        | 48       | 48       |            |                                  |     |             |             | 3        |          |          |          |          |          |          |
|                                 |  |                     |            |            |   |            |                              |                            |          |          | 20423800 | 微生物学实验<br>Experiments of Microbiology    | 1.5      | 24       |          | 24         |                                  |     |             |             | 1.5      |          |          |          |          |          |          |
|                                 |  |                     |            |            |   |            |                              |                            |          |          | 20420500 | 分子生物学<br>Molecular Biology               | 3        | 48       | 48       |            |                                  |     |             |             |          | 3        |          |          |          |          |          |
| 20423900                        | 分子生物学实验<br>Experiments of Molecular Biology        | 1.5                 | 24         |            | 24  |            |                              |                            |          |          | 1.5      |  |          |          |          |            |                                  |     |             |             |          |          |          |          |          |          |          |

| 课程类别<br>Course Classification       | 课程编号<br>Course Code | 课程名称<br>Course Name   | 学分<br>Crts | 学时<br>Hrs | 学时分类<br>Class Hours |            | 先修课程<br>Prerequisite Courses | 学期学分分配<br>Semester Credits |          |          |          |          |          |          |          |   |
|-------------------------------------|---------------------|---|------------|-----------|---------------------|------------|------------------------------|----------------------------|----------|----------|----------|----------|----------|----------|----------|---|
|                                     |                     |   |            |           | 讲课<br>Lec.          | 实验<br>Lab. |                              | 一<br>1st                   | 二<br>2nd | 三<br>3rd | 四<br>4th | 五<br>5th | 六<br>6th | 七<br>7th | 八<br>8th |   |
|                                     |                     |   |            |           |                     |            |                              |                            |          |          |          |          |          |          |          |   |
| 专业主干课<br>Main Specialty Courses     | 20424000            | R 语言与生物统计<br>R Language and Biostatistics   | 2          | 32        | 16                  | 16         |                              |                            |          |          |          | 2        |          |          |          |   |
|                                     | 20420100            | 遗传学<br>Genetics   | 3          | 48        | 48                  |            |                              |                            |          |          |          |          | 3        |          |          |   |
|                                     | 20424100            | 遗传学实验<br>Experiments of Genetics  | 1.5        | 24        |                     | 24         |                              |                            |          |          |          |          |          | 1.5      |          |   |
|                                     | 20424200            | 生物信息学<br>Bioinformatics   | 2          | 32        | 16                  | 16         |                              |                            |          |          |          |          |          | 2        |          |   |
|                                     | 小计<br>Sum           |   | 42         | 672       | 448                 | 224        |                              |                            | 4.5      | 7        | 4.5      | 13       | 6.5      | 6.5      |          |   |
| 专业选修课<br>Specialty Elective Courses |                     | 具体见专业选修课列表  | 20         | 320       |                     |            |                              |                            |          |          |          |          |          |          |          |   |
| 合计<br>Sub-total                     |                     |   | 147.5      | 2440      | 1600                | 328        |                              |                            | 27       | 28       | 18       | 22.5     | 13.5     | 6.5      | 0        | 0 |
| 实践环节<br>Practical Work              | 44300200            | 军事训练<br>Military Training   | 2          | 2周        |                     |            |                              |                            | 2        |          |          |          |          |          |          |   |
|                                     | 41919002            | C语言课程设计 B<br>Course Design for C Language B   | 1.5        | 1.5周      |                     |            |                              |                            |          | 1.5      |          |          |          |          |          |   |
|                                     | 40424300            | 植物学现场教学<br>Botanical Field Practice   | 1          | 1周        |                     |            |                              |                            |          |          |          | 1        |          |          |          |   |
|                                     | 40420900            | 海洋生物及地质学教学实习<br>(北戴河)<br>Teaching Practice of Marine Biology and Geology (Beidaihe) | 3          | 3周        |                     |            |                              |                            |          |          | 3        |          |          |          |          |   |
|                                     | 40424400            | 植物学及生态学教学实习(三峡)<br>Teaching Practice of Botany and Ecology(The Three Gorges)        | 3          | 3周        |                     |            |                              |                            |          |          |          |          | 3        |          |          |   |
|                                     | 40421000            | 动物生物学课程设计<br>Course Design of Animal Biology  | 1          | 1周        |                     |            |                              |                            |          |          | 1        |          |          |          |          |   |
|                                     | 40424500            | 植物生物化学课程设计<br>Course Design of Plant Biology  | 1          | 1周        |                     |            |                              |                            |          |          |          |          | 1        |          |          |   |
|                                     | 40424600            | 微生物学课程设计<br>Course Design of Microbiology   | 1          | 1周        |                     |            |                              |                            |          |          |          |          | 1        |          |          |   |



| 课程类别<br>Course Classification            | 课程编号<br>Course Code | 课程名称<br>Course Name  | 学分<br>Crts  | 学时<br>Hrs                   | 学时分类<br>Class Hours |            | 先修课程<br>Prerequisite Courses | 学期学分分配<br>Semester Credits |             |           |             |             |            |           |           |  |
|--|---------------------|--|-------------|-----------------------------|---------------------|------------|------------------------------|----------------------------|-------------|-----------|-------------|-------------|------------|-----------|-----------|--|
|  |                     |  |             |                             | 讲课<br>Lec.          | 实验<br>Lab. |                              | 一<br>1st                   | 二<br>2nd    | 三<br>3rd  | 四<br>4th    | 五<br>5th    | 六<br>6th   | 七<br>7th  | 八<br>8th  |  |
|  |                     |  |             |                             |                     |            |                              |                            |             |           |             |             |            |           |           |  |
| 实践环节<br>Practical Work                   | 40424700            | 毕业实习<br>Graduation Practice  | 14          | 14周                         |                     |            |                              |                            |             |           |             |             |            | 14        |           |  |
|  | 40422800            | 毕业设计<br>Graduation Design  | 10          | 10周                         |                     |            |                              |                            |             |           |             |             |            |           | 10        |  |
|  | <b>小计<br/>Sum</b>   |  | <b>37.5</b> | <b>37.5周</b>                |                     |            |                              | <b>2</b>                   | <b>5.5</b>  | <b>0</b>  | <b>6</b>    | <b>0</b>    | <b>0</b>   | <b>14</b> | <b>10</b> |  |
| 创新创业自主学习<br>Autonomous Learning          | ZZ35000S            | 社会调查<br>Social Investigation   | 2           |                             |                     |            |                              |                            |             |           |             |             |            |           |           |  |
|  |                     | 其他(学科竞赛、发明创造、<br>科研报告)<br>Others (Contest, Invention,<br>Innovation and Research<br>Presentation)  | 3           |                             |                     |            |                              |                            |             |           |             |             |            |           |           |  |
|  | <b>小计<br/>Sum</b>   |  | <b>5</b>    |                             |                     |            |                              |                            |             |           |             |             |            |           |           |  |
| <b>总计<br/>Total</b>                      |                     |  | <b>190</b>  | <b>2440<br/>+<br/>37.5周</b> | <b>2124</b>         | <b>316</b> | <b>0</b>                     | <b>29</b>                  | <b>33.5</b> | <b>18</b> | <b>28.5</b> | <b>13.5</b> | <b>6.5</b> | <b>14</b> | <b>10</b> |  |
| 可开出专业选修课列表<br>Specialty Elective Courses | 20405700            | 环境同位素原理与技术<br>Environment Isotope Principles and Technology  | 2           | 32                          | 32                  |            |                              |                            |             |           |             |             | 2          |           |           |  |
|  | 20421100            | 土壤学<br>Soil Science  | 2           | 32                          | 32                  |            |                              |                            |             |           |             |             | 2          |           |           |  |
|  | 20400100            | 保护生物学<br>Conservation Biology  | 2           | 32                          | 32                  |            |                              |                            |             |           |             |             | 2          |           |           |  |
|  | 20411100            | 微生物生态学<br>Microbial Ecology  | 2           | 32                          | 32                  |            |                              |                            |             |           |             |             | 2          |           |           |  |
|  | 20401800            | 动物生理学<br>Animal Physiology   | 2.5         | 32                          | 32                  | 8          |                              |                            |             |           |             |             | 2.5        |           |           |  |
|  | 20411400            | 细胞工程<br>Cell Engineering   | 2           | 32                          | 32                  |            |                              |                            |             |           |             |             | 2          |           |           |  |
|  | 20420610            | 生命科学前沿(一)(华大基因、中科院微生物所、城市环境研究所)<br>Frontiers of Life Sciences (I) (Course of BGI, IM, IUE)         | 1.5         | 24                          | 24                  |            |                              |                            |             |           |             |             |            | 1.5       |           |  |
|  | 20420620            | 生命科学前沿(二)(中科院生态环境研究中心、武汉植物园、水生生物研究所)<br>Frontiers of Life Sciences (II) (Course of RCEES, WBG, IH) | 1.5         | 24                          | 24                  |            |                              |                            |             |           |             |             |            |           | 1.5       |  |
|  | 20403400            | 环境地质学 B<br>Environmental Geology B   | 2           | 32                          | 32                  |            |                              |                            |             |           |             |             |            | 2         |           |  |

| 课程类别<br>Course<br>Classifi-<br>cation  | 课程编号<br>Course<br>Code | 课程名称<br>Course Name                              | 学分<br>Crs | 学时<br>Hrs | 学时分类<br>Class Hours |            | 先修课程<br>Prerequisite<br>Courses | 学期学分分配<br>Semester Credits |     |     |     |     |     |     |     |  |
|--|------------------------|--|-----------|-----------|---------------------|------------|---------------------------------|----------------------------|-----|-----|-----|-----|-----|-----|-----|--|
|  |                        |  |           |           | 讲课<br>Lec.          | 实验<br>Lab. |                                 | 一                          | 二   | 三   | 四   | 五   | 六   | 七   | 八   |  |
|  |                        |  |           |           |                     |            |                                 | 1st                        | 2nd | 3rd | 4th | 5th | 6th | 7th | 8th |  |
| 可<br>开<br>出<br>专<br>业<br>选<br>修<br>课<br>列<br>表<br><br>S<br>p<br>e<br>c<br>i<br>a<br>l<br>t<br>y<br>E<br>l<br>e<br>c<br>t<br>i<br>v<br>e<br>C<br>o<br>u<br>r<br>s<br>e<br>s | 20110400               | 有机地球化学<br>Organic Geochemistry                   | 2         | 32        | 28                  | 4          |                                 |                            |     |     |     |     |     | 2   |     |  |
|  | 20421200               | 地下水与环境<br>Underground Water and En-<br>vironment | 2         | 32        | 32                  |            |                                 |                            |     |     |     |     |     | 2   |     |  |
|  | 20406300               | 基因工程<br>Genetic Engineering                      | 2         | 32        | 32                  |            |                                 |                            |     |     |     |     |     | 2   |     |  |
|  | 20406400               | 进化生物学<br>Evolutionary Biology                    | 2         | 32        | 32                  |            |                                 |                            |     |     |     |     |     | 2   |     |  |
|  | 20407200               | 全球生态学<br>Global Ecology                          | 2         | 32        | 32                  |            |                                 |                            |     |     |     |     |     | 2   |     |  |
|  | 20408000               | 湿地生态学<br>Wetland Ecology                         | 1.5       | 24        | 24                  |            |                                 |                            |     |     |     |     |     | 1.5 |     |  |
|  | 20424800               | 分子生态学<br>Molecular Ecology                       | 2         | 32        | 32                  |            |                                 |                            |     |     |     |     |     | 2   |     |  |
|  | 20417500               | 功能基因组学<br>Functional Genomics                    | 1.5       | 24        | 24                  |            |                                 |                            |     |     |     |     |     | 1.5 |     |  |

注：通识教育选修课学分和创新创业自主学习学分未列入具体学期。

## 生物科学(菁英班)专业课程分类统计

### Course Category Statistics of Biological Science (Elite Class)

| 课程学分<br>统计                      | 通识教育课<br>Liberal Education<br>Courses |                 | 学科基础课<br>Disciplinary<br>Fundamental<br>Courses | 专业主干课<br>Main<br>Specialty<br>Courses | 专业选修课<br>Specialty<br>Elective<br>Courses | 实践环节<br>Practical<br>Work | 创新创业<br>自主学习<br>Autonomous<br>Learning | 学时总计<br>Total<br>Hours | 学分总计<br>Total<br>Credits |
|---------------------------------|---------------------------------------|-----------------|---|---------------------------------------|---|---------------------------|--|------------------------|--------------------------|
|                                 | 必修<br>Compulsory                      | 选修<br>Selective |   |                                       |   |                           |  |                        |                          |
| 学时/学分<br>Hrs/Crs                | 536/33.5                              | 192/12          | 608/40  | 672/42                                | 320/20                                    | 37.5周/<br>37.5            | 80/5                                   | 2440+<br>37.5周         | 190                      |
| 学分所占比例<br>Proportion of Credits | 24%                                   |                 | 21.1%   | 22.1%                                 | 10.5%                                     | 19.7%                     | 2.6%                                   |                        | 100%                     |