数学与信息科学学院
School of Mathematics and Information Science

- 数学与应用数学（师范）

  Mathematics and Applied Mathematics (Normal)

- 数学与应用数学（创新实验班）

  Mathematics & Applied Mathematics (Innovative and Experimental Class)

- 统计学

  Statistics

- 信息与计算科学

  Information & Computation Science

数学与应用数学专业（师范）简介
Introduction to the Specialty of Mathematics and Applied Mathematics

数学与应用数学专业（师范），学制 4 年，专业属性为师范专业。数学与应用数学是我校最早的专业之一，已有 74 年的办学历史。数学与应用数学专业为第一批高等学校国家级特色专业、陕西省普通高校名牌专业，学院为陕西省人才培养模式创新实验区、陕西省专业综合改革试点项目建设单位。数学实验教学中心是陕西省实验示范教学中心，分析学团队和数学建模与数学实验团队是陕西省教学团队。

该专业现有专任教师 63 人，其中教授 20 人、副教授 31 人、讲师 12 人；具有博士学位者 60 人。教师中获教育部高校青年教师奖 2 人，陕西省教学名师 1 人，宝钢教育教师奖 2 人，明德教师奖 1 人。

该专业主要培养掌握数学与应用数学的基本理论与方法，熟悉数学研究与数学教育的基本规律，具备较强的数学思维能力、逻辑推理能力、知识更新能力与实践创新能力，具有现代教育观念，能在中学以及教育行政管理等部门从事教学、科研与管理的优秀教师、教育管理者和未来教育家。

Mathematics and Applied Mathematics (Normal) is a normal speciality with four-year schooling. Being one of the earliest specialties in SNNU, it enjoys a history of 74 years. It is ranked among the first batch of national-level specialties in colleges and universities, and is honored as top-class major in Shaanxi Province. Our school has been an innovative experimental zone for the talents training mode in Shaanxi Province, and a comprehensive specialty reform pilot in Shaanxi Province. The experimental teaching center of mathematics is the model experimental teaching center of Shaanxi, and the teaching faculty of mathematical analysis, mathematical modeling and mathematical experiment are selected as provincial teaching team.

There are 63 full-time teachers in the specialty, including 20 professors, 31 associate professors, and 12 lecturers, among whom 60 are doctoral degree holders, 2 were awarded the Young Teachers Award of the Ministry of Education, 1 was honored Outstanding Teacher in Shaanxi, 2 were awarded the Baogang Teacher Award and 1 won the Mingde Teacher Award.

The major mainly cultivates excellent teachers, educational administrators and future educators who can master the basic theories and methods of mathematics and applied mathematics, be familiar

with the basic rules of mathematics research and mathematics education, and have a strong mathematical thinking ability, logical reasoning ability, knowledge updating ability and practical innovation ability. Moreover, they should be able to use the modern education concept to engage in the teaching, scientific research and management in middle school, education administration and other departments.

数学与应用数学专业（师范）
The Specialty of Mathematics and Applied Mathematics (Normal)

一、培养目标

Ⅰ. Educational Objectives

1. 目标定位

本专业适应国家基础教育改革发展要求，立足西部，服务全国，培养思想品德好、政治觉悟高、教育情怀深、师德师风高尚，掌握数学与应用数学的基本理论与方法，熟悉数学研究与数学教育的基本规律，具备较强的数学思维能力、逻辑推理能力、知识更新能力与实践创新能力，具有现代教育观念，能在中学以及教育行政管理等部门从事教学、科研与管理的优秀教师、教育管理者和未来教育家。

1. Objective Orientation

This specialty, based in Western China, with a view to serve Western China and then face the whole country, meets the the requirements of national basic education reform and development, aiming to cultivate excellent teachers, educational administrators and future educators with a sense of high ideological and political awareness, profound love for educational career, and noble professional morality. The undergraduates of this specialty are expected to master the basic theories and methods of mathematics and applied mathematics, be familiar with the basic rules of mathematics research and mathematics education, and have a strong mathematical thinking ability, logical reasoning ability, knowledge updating ability and innovative ability in practice. Moreover, they should be able to use the modern education concept to engage in the teaching, scientific research and management in middle schools, educational administration and other departments.

2. 目标内涵

本专业毕业 5 年左右的学生应具有如下目标预期：

（1）思想觉悟高、政治立场坚定，具有良好的人文素养和教师职业素养，努力成长为新时代“四有”卓越教师。

（2）灵活运用数学专业知识，积极开展教学改革研究，熟练驾驭参与式、探究式数学课堂教学。

（3）具有较强的德育管理和组织领导能力，胜任学校、年级及班级的育人管理工作。

（4）适应基础教育改革发展趋势，具有较强的社会责任感；积极开展中学数学教育实践研究，指导中学生数学建模等创新实践活动；具有国际视野，开展国际教育交流活动。

（5）具有终身学习和专业发展意识，能利用国际先进教育理念、经验、方法和手段进行教育教学，不断提高自身教书育人水平，努力实现自我发展。

2. Objective Connotation

The graduates of this specialty should fulfill the following requirements after graduation about 5 years: (1) The undergraduates should have high ideological consciousness, firm political standpoint, good humanistic quality and professional quality of teachers, and strive to grow up to be outstanding teachers in the new era.

(2) The undergraduates should flexibly use the professional knowledge of mathematics, actively carry out research on teaching reform, and master the participatory and inquiry methods in the teaching of mathematics.

(3) With strong ability in moral education management and organizational leadership, the undergraduates should be competent in the management of education in school, grade and class levels.

(4) To adapt to the development of basic education reform, the undergraduates should have a strong sense of social responsibility; actively carry out the practical research on mathematics education in middle schools, and guide the innovative practice activities such as mathematical modeling of middle

school students; have an international perspective and carry out international educational exchange activities.

(5) With the consciousness of lifelong learning and professional development, the undergraduates can use the advanced international education concepts, experiences, methods and means to carry out education and teaching, improve gradually the level of self-education and realize self development.

3. 目标评价

（1）培养目标评价工作由教学副院长负责，学院教学委员会集体讨论分析各方反馈意见，并形成目标评价与修订意见。培养目标评价每两年开展一次，通过调研、座谈与问卷等方式征求政府、教师、学生与用人单位等相关利益群体的反馈意见，形成体量相当的意见样本。

（2）学院教学委员会依据国家政策、学校发展需求、学院办学实际、课程目标与课程体系的支撑情况、校友与用人单位的反馈意见等对培养目标进行系统分析，提炼有价值且合理的修订依据，形成最终的评价与修订意见。

（3）学院按照“四年一大动，两年一微调”的总原则，依据两次的评价与修订意见，建立稳定的培养目标修订机制。依照培养目标，不断调整和优化课程体系，修订本专业人才培养方案，并邀请领域专家对培养方案进行论证。

（4）建立培养方案的培养效果跟踪机制和持续改进机制。每年对学生表现情况、课程体系的支撑情况进行分析，作好记录和分析；及时收集用人单位、高校教师、学生及学生家长的意见和建议。依据人才培养效果和质量，持续优化培养方案。

3. Objective Evaluation

(1) The deputy dean of teaching is responsible for the evaluation of training objectives. The College's Teaching Committee collectively discuss and analys the feedback from all parties, and forms the evaluation and revision opinions of training objectives. The training objective evaluation is carried out every two years, and the feedback from the government, teachers, students and employers is sought through the research, the discussion and the questionnaires to form a sample of similar opinions.

(2) The College Teaching Committee carries out systematic analysis of the training objectives based on national policies, the school development needs, the school running practice, the support of curriculum objectives and curriculum system, the feedback from alumni and employers, extracts valuable and reasonable basis for revision, and forms the final evaluation and the revision opinions.

(3) In accordance with the general principle of "Four Years of Great Movements, Two Years of Fine-tuning", and based on two evaluations and revisions, the college has established a stable revision mechanism for training objectives. According to the training objectives, we should constantly adjust and optimize the curriculum system, revise the professional training program, and invite experts in the field to demonstrate the training program.

(4) The college has established the training effect tracking mechanism and continuous improvement mechanism of training programs. Every year, the students' performance and the support of the curriculum system are recorded and analyzed. Meanwhile, the opinions and suggestions of employers, university teachers, students and students' parents are collected in time. According to the effect and quality of talent training, we will continuously optimize the training plan.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 掌握马克思主义、毛泽东思想和习近平新时代中国特色社会主义思想的基本观点和方法，增强思想认同、政治认同、理论认同和情感认同，自觉践行社会主义核心价值观；贯彻党的教育方针，以立德树人为己任；遵守中小学教师职业道德规范，具有依法执教意识，立志成为有理想信念、有道德情操、有扎实学识、有仁爱之心的中学卓越老师。【师德规范】

2. 热爱教育事业，具有从教意愿，认同教师工作的意义和专业性，具有良好的职业道德和为基础教育发展服务的社会责任感；具有积极的情感、端正的态度和正确的价值观；具有人文底蕴和科学

精神，尊重学生人格，富有爱心、责任心、事业心，工作细心、耐心，做学生锤炼品格、学习知识、创新思维、奉献祖国的引路人。【教育情怀】

3. 扎实掌握数学学科的基础理论和基本思想方法，重点理解和掌握数学学科核心素养内涵，熟悉数学研究与数学教育的基本规律，具备较强的数学思维能力、逻辑推理能力、知识更新能力与实践创新能力；掌握教育学、心理学等教育基本理论，了解基础教育改革实际，掌握现代教育技术；了解跨学科知识，整合形成数学学科教学知识，初步习得基于核心素养的学习指导方法与策略。【知识整合】

4. 理解教师是学生学习和发展的促进者，具备教师的基本素养和基本技能，能够依据中学数学课程标准，以学生为中心，创设学习环境，指导学习过程，进行学习多元评价；掌握资料查询和运用现代技术获取相关信息的基本方法，具备初步的教学能力。【教学能力、技术融合】

5. 树立德育为先理念，了解中学德育原理与方法，掌握班级组织与建设的工作规律和基本方法，掌握班集体建设、班级教育活动组织、学生发展指导、综合素质评价、与家长及社区沟通合作等班级常规工作要点，能够在班主任工作中参与德育和心理健康教育的组织与指导。【班级指导】

6. 具有全程育人和立体育人意识，理解科学育人价值，了解中学生身心发展规律和教育活动的育人内涵，积极参与组织主题教育和社团活动，对学生进行有效的教育和引导。【综合育人】

7. 具有终身学习与专业发展意识，养成自主学习习惯，养成从学生学习、课程教学、学科理解等角度反思分析问题的习惯，掌握中学数学教育实践研究的方法和指导中学生数学建模等创新实践活动的技能。【自主学习、反思研究】

8. 了解国际数学教育发展的新成果、新趋势、新动态，能够积极尝试借鉴国际先进教育理念和经验进行中学数学教学实践；掌握沟通合作技能，具有团队协作精神，能够有条理的、有效的就数学教育问题与同行及学生家长进行沟通和交流，能够在多学科、跨文化背景下的团队中承担个体、团队成员和负责人的角色。【国际视野、交流合作】

Students of this major may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. The undergraduates should grasp the basic viewpoints and methods of Marxism, Mao Zedong Thought and Xi Jinping Thought of Socialism with Chinese Characteristics in the New Era, strengthen ideological, political, theoretical and emotional identity, and consciously practice socialist core values, carry out the party's education policy, and take high moral values establishment and people cultivation as their own responsibility, abide by the professional ethics of primary and secondary school teachers, have the awareness of teaching in accordance to the law, be determined to become an excellent teacher with firm conviction, high standard of morality, kindheartedness and solid professional knowledge. [The Teacher's Moral Standards]

2. The undergraduates should love educational career, have the willingness to teach, recognize the significance and professionalism of teachers' work, have good professional ethics and social responsibility of serving the basic education, and have positive emotion, correct attitude and correct values. Moreover, With humanistic background and scientific spirit, they should respect students' personality, teach with love, responsibility, dedication and patience, and be a guide for students to cultivate their character, learn knowledge, innovate thinking and contribute to the motherland. [Educational Feelings]

3. The undergraduates should have a solid grasp of basic theories and basic thinking methods of mathematics subject, with a focus on understanding and mastering the connotation of core accomplishment of mathematics subject, be familiar with the basic laws of mathematics research and mathematics education, and have strong mathematical thinking ability, logical reasoning ability, knowledge update ability and practical innovation ability. Moreover, they should master the basic theories of education and psychology, etc., have the knowledge about the reform of basic education, and master the modern educational technology, have interdisciplinary knowledge, integrate the knowledge of teaching mathematics, and preliminarily acquire the skills of guiding students based on core accomplishment. [Knowledge Integration]

4. The undergraduates should understand that teachers are the promoters of students' learning and development, have basic literacy and basic skills of teaching, and are able to create a student-centered learning environment, guide the learning process and conduct multiple evaluation of learning according to the middle school mathematics curriculum standards. Moreover, they should master the basic method of data

query and use modern technology to obtain relevant information, and have preliminary teaching ability. [Teaching Ability, Technology Fusion]

5. The undergraduates should prioritize moral education, observe moral education principles in middle schools and master the methods of class organization the main points of class routine work, such as the class construction and class education activity organization, student development guidance, the overall quality appraisal, communication and cooperation with parents and communities, etc. The undergraduates can participate in the organization and guidance of moral education and mental health education in the work of the class teacher. [Class guidance]

6. The undergraduates should have the awareness of whole-process education and three-dimensional education, understand the value of scientific education, understand the law of physical and mental development of middle school students and the connotation of educational activities, actively participate in organizing theme education and association activities, and effectively guide and educate students. [Comprehensive education]

7. With the awareness of lifelong learning and professional development，the undergraduates can develop self-learning habits and habits of reflecting and analyzing the problems. Meanwhile, the undergraduates can grasp the methods of practical research in middle school mathematics education and the skills of guiding students' innovative practical activities such as mathematical modeling. [Self-learning, reflection research]

8. The students are expected to understand the new achievements, the new trends and the new development of international mathematics education in order to learn from the international advanced educational ideas and experiences to carry out the teaching practice of mathematics in middle schools. The undergraduates should master the skills of communication and cooperation, have the spirit of teamwork, and be able to communicate with the peers and the parents of the students in an organized and effective way of mathematics education, and to take on the roles of individuals, team members and leaders in a multidisciplinary and cross-cultural team. [International Vision, Exchange and Cooperation]

三、主干学科

Ⅲ. Core Disciplines

数学

Mathematics

四、主干课程

Ⅳ. Main Courses

数学分析、高等代数、解析几何、数学学科教学论、数学学科中学教材分析与教学设计、中学数学教学改革专题选讲、数学学科教学技能训练、心理学基础、现代教育技术

Mathematical Analysis, Advanced Algebra, Analytic Geometry, Mathematical Discipline Pedagogy, Textbook Analysis and Teaching Design for Mathematics in Middle School, Selections of Mathematics Education Reform in Middle School, Teaching Skills Training of Mathematics, The Basis of Psychology , Contemporary Educational Technology

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

164 学分

164 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	37	49	22.6%	29.9%
	通识教育选修课 Liberal Studies Elective Courses	12		7.3%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	8	32	4.9%	19.5%
	本学科基础课 Disciplinary Foundation Courses	24		14.6%	
专业课程模块 Specialized Courses	专业必修课 Specialized Compulsory Courses	31	46	18.9%	28.0%
	专业限定选修课 Specialized Restrictive Elective Courses	6		3.7%	
	专业任意选修课 Specialized Non-restrictive Elective Courses	9		5.5%	
教师教育模块 Teacher-training Courses	公共必修课 General Compulsory Courses	11	19	6.7%	11.6%
	学科必修课 Disciplinary Compulsory Courses	8		4.9%	
	选修课 Elective Courses	2		0	
实践教学模块 Practice Work	必修课 Compulsory Courses	18	18	11.0%	11.0%
合计 Total		164		100%	
说明 Notes	1. 专业必修课、学科基础课和学科必修课共 23 门，其中双语课程 2 门，全英语课程 1 门。 2. 专业选修课共 21 门，其中专业限定选修课 5 门，分 1 个系列；专业任意选修课 16 门。学生应从限定选修课中至少选修 6 学分，从任意选修课中至少选修 9 学分。 3. 实验课程共 12 门，其中独立开设的实验课 6 门，既有理论又有实验的课程 6 门，含综合性、设计性实验的课程 12 门，占实验课程总数的 100%。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 21.3%，实践教学环节学时占总学时的比例为 31.9%。 1. There are 23 specialized compulsory courses、disciplinary foundation courses and disciplinary compulsory courses, including 2 bilingual courses and 1 English course. 2. There are 21 specialized elective courses in total including 4 defined elective courses which belong to the same series and 16 arbitrary elective courses. Undergraduates should obtain 6 credits in total by taking defined elective courses and 9 credits by taking arbitrary elective courses. 3. There are 12 experimental courses in total including 6 independent experimental courses, 6 courses both with theory and practice, 12 theoretical and designable experimental courses which is 100% of the total experimental courses. 4. Practice teaching content of this major includes practice teaching module and other course modules. The proportion of credit in practice teaching is 21.3%, and the proportion of teaching hours to total hours in practice teaching is 31.9%.				

八、数学与应用数学专业本科教学计划表

Ⅷ. Teaching Scheme for Mathematics and Applied Mathematics Undergraduate Candidates

（一）通识教育模块（45 学分）

（Ⅰ）Liberal Studies Courses（45 credits）

1. 通识教育必修课（37 学分）

1. Liberal Studies Compulsory Courses（37 credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（32 学分）

（Ⅱ）Disciplinary Foundation Courses（32 credits）

1. 相关学科基础课（8 学分）

1. Related Disciplinary Foundation Courses（8 credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521103	C 程序设计 C Programming	2	4	54	36	3/2	考试 Exam.
0521011	普通物理 General Physics	2	3	54		3	考试 Exam.

0521012	普通物理实验 General Physics Experiment	2	1		36	2	考查 Quiz

2. 本学科基础课（24 学分）

2. Disciplinary Foundation Courses（24 credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	学时 Weekly Hrs.	考试方式 Evaluation
0522008	数学分析(一) Mathematical Analysis (1)	1	5	108		6	考试 Exam.
0522010	数学分析(二) Mathematical Analysis (2)	2	4	90		5	考试 Exam.
0522011	数学分析(三) Mathematical Analysis (3)	3	4	90		5	考试 Exam.
0522104	高等代数(一) Advanced Algebra (1)	1	4	90		5	考试 Exam.
0522005	高等代数(二) Advanced Algebra (2)	2	4	90		5	考试 Exam.
0522103	解析几何 Analytic Geometry	1	3	72		4	考试 Exam.

（三）专业课程模块（46 学分）

（Ⅲ）Specialized Courses（46 credits）

1. 专业必修课（31 学分）

1. Specialized Compulsory Courses（31 credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0541120	近世代数 Modern Algebra	3	4	72		4	考试 Exam.
0541027	数学建模 Mathematical Modeling	4	3		54	3	考试 Exam.
0541125	数学实验 Mathematical Experiment	4	3	36	36	2/2	考试 Exam.
0541121	常微分方程（英语） Ordinary Differential Equation（English）	4	4	72		4	考试 Exam.
0541006	复变函数（双语） Complex Analysis (bilingual teaching)	4	3	54		3	考试 Exam.
0541024	数值分析 Numerical Analysis	5	3	54	18	3	考试 Exam.
0541102	实变函数（双语） Real Analysis(bilingual teaching)	5	3	54		3	考试 Exam.
0541123	概率论与数理统计 Probability Theory and Mathematical Statistics	6	4	72		4	考试 Exam.
0541007	微分几何 Differential Geometry	6	3	54		3	考试 Exam.
0541010	学术论文写作指导 Academic Writing Guidance	6	1	18		2	考查 Quiz
说明 Notes	数学建模的学分按 18 学时 1 学分计算。 The credit of course Mathematical Modeling are calculated at 1 credits per 18 hours.						

2. 专业限定选修课（6 学分）

2. Specialized Restrictive Elective Courses（6 credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	学时 Weekly Hrs.	考试方式 Evaluation

0542104	初等几何研究 Elementary Geometry Research	2	2	36		2	考试 Exam.
0542118	射影几何 Projective Geometry	5	2	36		2	考试 Exam.
0542121	初等数论 Elementary Number Theory	5	2	36		2	考试 Exam.
0542103	初等代数研究 Elementary Algebra Research	6	2	36		2	考试 Exam.
0542101	离散数学 Discrete Mathematics	8	2	36		2	考试 Exam.

3. 专业任意选修课（9 学分）

3. Specialized Non-restrictive Elective Courses（9 credits）

详见学院专业任意选修课。

See Specialized Non-restrictive Elective Courses of School of Mathematics and Information Science.

（四）教师教育模块（19 学分）

（Ⅳ）Teacher-training Courses（19 credits）

1. 公共必修课程（11 学分）

1. General Compulsory Courses（11 credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2431028	心理学基础 The Basis of Psychology	2	1	18		2	考试 Exam.
2431029	儿童发展 Child Development	2	1	18		2	考试 Exam.
2431030	中学生认知与学习 The Cognition and Learning of Middle School Students	3	1	18		2	考试 Exam.
2431031	中学生品德发展与道德教育 Moral Development and Moral Education for Middle School Student	3	1	18		2	考试 Exam.
2431032	中学生心理辅导 Psychological Guidance for Middle School Students	4	1	18		2	考试 Exam.
1531128	中学教育学基础 Foundation of Middle School Education	4	3	54		3	考试 Exam.
1531129	现代教育技术（网络教学） Contemporary Educational Technology (Online Course)	4	1	18		1	考试 Exam.
1531130	教师专业发展与职业道德 Teacher’s Professional Development & Professional Ethics	5	2	36		2	考试 Exam.

2. 学科必修课程（8 学分）

2. Disciplinary Compulsory Courses（8 credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0531112	数学学科教学论 Mathematical Discipline Pedagogy	5	2	36		2	考试 Exam.
0531114	师范生数学研课的理论与实践 Theory and Practice of Lesson Study for pre-service mathematics teachers	5	3	36	36	2/2	考试 Exam.
0531109	数学学科中学教材分析与教学设计 Textbook Analysis and Teaching Design for Mathematics in Middle School	6	2	36		2	考试 Exam.
0531013	中学数学教学专题 Subjects of Mathematics Education in Middle School	6	1		36	讲座	考查 Quiz

3. 选修课（见通识教育选修课程“教师教育”系列）
3. Elective Courses（See Teacher-training Series of Liberal Studies Elective Courses）

（五）实践教学模块（18 学分）
（Ⅴ）Practice Work（18 credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0550028	教师教学基本技能训练 Training of Teachers' Basic Teaching Skills		1				考查 Quiz
0550017	必读书目阅读 Required Readings		1				考查 Quiz
0550118	数学学科教学技能训练 Teaching Skills Training of Mathematics	6	2				考试 Exam.
0550019	教育见习 School Visit	1-6	1				考查 Quiz
0550031	教育实习 Teaching Practice	7	6				考查 Quiz
0550029	教育实践与社会调查 Teaching Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0550033	毕业论文（设计） Graduation Thesis Writing	7-8	4				考查 Quiz

九、数学与信息科学学院专业任意选修课
Ⅸ. Specialized Non-restrictive Elective Courses of School of Mathematics and Information Science

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
数学系列课程： Courses of mathematics series/dimension							
0543130	偏微分方程 Partial Differential Equation	5	3	54		3	考查 Quiz
0543107	泛函分析 Functional Analysis	6	3	54		3	考查 Quiz
0543131	拓扑学 Topology	6	3	54		3	考查 Quiz
0543115	模糊数学 Fuzzy Mathematics	8	2	36		3	考查 Quiz
0543120	运筹学 Operational Research	8	2	36		3	考查 Quiz
0543121	外微分初步 Exterior Differential	8	2	36		3	考查 Quiz
数学教育系列课程： Courses of mathematical education series/dimension							
0543101	数学史 History of Mathematics	6	2	36		2	考查 Quiz
0543036	数学解题学 Solving Problem in mathematics	8	2		36	3	考查 Quiz
0543037	数学竞赛学 Mathematics Competition	8	2		36	3	考查 Quiz
信息计算系列课程： Courses of information and computer science series/dimension							
0543132	计算机基础 Basics of Computer Technology	3	3	36	36	2/2	考查 Quiz

0543038	数据结构 Data Structure	8	3	36	36	3/3	考查 Quiz
0543117	小波分析 Wavelet Analysis	8	2	36		3	考查 Quiz
统计系列课程： Courses of statistics series/dimension							
0543124	金融数学 Financial Mathematics	6	3	54		3	考查 Quiz
0543125	统计预测与决策 Statistical Prediction and Decision	8	3	54		5	考查 Quiz
0543126	非参数统计 Nonparametric Statistics	8	3	54		5	考查 Quiz
0543042	应用统计学 Applied Statistics	8	3		54	5	考查 Quiz
学生选修说明 Notes	1. 数学与信息科学学院专业拓展课程共 16 门，分 4 个系列。 2. 数学与应用数学专业必须选修 9 学分，数学与应用数学（创新实验班）专业必须选修 14 学分，信息与计算科学专业必须选修 6 学分，统计学专业必须选修 8 学分。 3. 数学解题学、数学竞赛学、应用统计学的学分按 18 学时 1 学分计算。 1. There are 16 specialized development courses of School of Mathematics and Information Science in total divided into 4 series. 2. 9 credits should be obtained by undergraduates in Mathematics and Applied Mathematics specialty, 14 credits for Mathematics and Applied Mathematics-innovative and experimental class specialty, 6 credits for Information and computation Science specialty, and 8 credits for Statistics Specialty. 3. The credits of courses including Solving Problem in Mathematics, Operating System and Applied Statistics are calculated at 1 credit per 18 hours.						

数学与应用数学专业（创新实验班）简介

Introduction to the Specialty of Mathematics and Applied Mathematics (Innovative and Experimental Class)

数学与应用数学专业（创新实验班），学制 4 年，专业属性为非师范专业。数学与应用数学是我校最早的专业之一，已有 74 年的办学历史。数学与应用数学专业为第一批高等学校国家级特色专业、陕西省专业综合改革试点项目建设单位、陕西省普通高校名牌专业。数学实验教学中心是陕西省实验示范教学中心，分析学团队和数学建模与数学实验团队是陕西省省级教学团队。创新实验班依托于数学与应用数学师范专业，2008 年开始招生，是我校优势专业之一，获评陕西省人才培养模式创新实验区。

该专业现有专任教师 63 人，其中教授 20 人、副教授 31 人、讲师 12 人；具有博士学位者 60 人。教师中获教育部高校青年教师奖 2 人，陕西省教学名师 1 人，宝钢教育教师奖 2 人，明德教师奖 1 人。

该专业主要培养掌握数学基本理论与方法，受到数学思维的基本熏陶以及数学建模、数学思想方法、数学文化以及计算机应用能力等方面的基本训练，具有良好数学与人文素养、具备较强的知识更新能力、实际问题解决能力和科学研究能力，能继续攻读研究生学位或者能够在科研院所、公司、企业等机构从事深层次科学研究的复合型高级专门人才。

The major of Mathematics and Applied Mathematics (Experimental and Innovative Class), with a four-year academic system, is a non-normal education major. Mathematics and Applied Mathematics is one of the earliest majors in our university with a history of 74 years. The major is among the first batch of national-level specialties in colleges and universities, an innovative experimental zone for the mode of talents program, a specialized comprehensive reform pilot, and a top-class major among ordinary colleges and universities in Shaanxi Province. The experimental teaching center of mathematics is the model experimental teaching center, with the provincial-level analytical team and mathematical modeling and experimental team. Being praised as provincial-level talents-program model, the experimental and innovative class is the subdivision of mathematics and applied mathematics normal education major. It began to recruit students since 2008, which is one of the dominant majors in our university.

There are 63 full-time teachers in the profession, including 20 professors, 31 associate professors, 12 lecturers, and 60 doctoral degree holders. Among the teachers, 2 were awarded the

Young Teachers Award of the Ministry of Education, 1 by the Shaanxi Provincial Model Teacher Award, 2 by the Baogang Education Teacher Award, and 1 by the Mingde Teacher Award.

The major mainly cultivates students to master the basic theories and methods of mathematics, basic training in mathematical thinking, mathematical modeling, mathematical thinking methods, mathematical culture and computer application skills. It aims to train students to have good mathematics and humanities, as well as strong knowledge. Renewable ability, practical problem-solving ability and scientific research ability can make students to continue to pursue graduate degree or be able to engage in in-depth scientific research in the research institutes, companies, enterprises and other institutions for compound senior professional talents.

数学与应用数学专业（创新实验班）
The Specialty of Mathematics and Applied Mathematics (Innovative and Experimental Class)

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体全面发展，身心健康，掌握数学基本理论与方法，受数学思维的基本熏陶以及数学建模、数学思想方法、数学文化与计算机应用能力等方面的基本训练，具有良好数学与人文素养、具备较强的知识更新能力、科学研究能力和实际问题解决能力，具有继续深造的培养潜质，能继续攻读研究生学位或者能够在科研院所、公司、企业等从事深层次科学研究的复合型高级专门人才。

The undergraduates in this major should cultivate their moral, intellectual and physical developments, keep physical and mental health. In the meantime, they should master the basic theories and methods of mathematics, basic training in mathematical thinking, mathematical modeling, mathematical thinking methods, mathematical culture and computer application skills. Moreover, with good mathematical and humanistic quality, strong ability to update knowledge, scientific research ability and practical problem solving ability, and students can continue to pursue master’s degree or be able to engage in compound senior professional talents, such as research institutes, companies, enterprises, and so on.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 掌握马克思主义、毛泽东思想和习近平新时代中国特色社会主义思想的基本理论与观点，增进思想认同、政治认同、理论认同和情感认同，践行社会主义核心价值观，具有高度的社会责任感；具有健康的体魄、良好的心理素质和积极的人生态度，能够适应科学与社会的发展。

2. 掌握数学专业的基础理论、基本技能和基本方法，具有较扎实的数学基础和较强的数学语言表达能力，了解数学的历史概况、发展动态、应用前景和行业需求，具有灵活应用数学知识建立数学模型以解决实际问题的初步能力。

3. 具有良好的外语水平和计算机基本知识，能熟练应用数学软件并具有一定的程序设计和科学计算能力；了解相关学科的基础知识，具有一专多能的知识结构和良好的人文素养。

4. 掌握资料查询、文献检索以及运用现代技术获取相关信息的基本方法，积极参与科研训练和科研项目，具有较强的创新精神和实践能力，具有继续深造的培养潜质。

5. 具有国际视野和开放心态，掌握沟通合作技能，积极参与国际学术交流活动，具有团队协作、组织管理和科学研究的能力。

6. 具有终身学习与专业发展意识，了解专业发展核心内容和发展阶段路径，能够结合就业和深造愿景制定自身学习和专业发展计划，具备自主学习、知识更新和自我发展的能力。

Students of this major may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. The undergraduates should grasp the basic theories and viewpoints of Marxism, Mao Zedong thought and Xi Jinping's new era of socialism with Chinese characteristics, and enhance ideological identity, political

identity, theoretical identity and emotional identity, practice socialist core values, and then have a high sense of social responsibility; Meanwhile, they should have a healthy physical fitness, good psychological quality and positive attitude towards life and adapt to the development of science and society.

2. The undergraduates should master the basic theories, basic skills and basic methods of mathematics major, have a more solid mathematical foundation and strong ability to express mathematical language, understand the history of mathematics, development, application prospects and industry needs, with the flexible application of mathematical knowledge to establish a mathematical model and then solve the practical problems.

3. With good proficiency in foreign languages and basic computer knowledge, the undergraduates should be able to apply mathematical software skillfully and have a certain ability of programming and scientific computing; also, they need to understand the basic knowledge of related disciplines, with a versatile knowledge structure and good humanistic quality.

4. The major aims to cultivate students to master the basic methods of information retrieval, literature retrieval, and using modern technology to obtain relevant information, actively participating in scientific research training and scientific research projects, with strong innovative spirit and practical ability, and the training potential of continuing further study.

5. With an international vision and an open mind, the undergraduates should master the communication and cooperation skills, actively participate in international academic exchanges, team cooperation, organization management and scientific research.

6. With the awareness of lifelong learning and professional development, the core content of the professional development and the path of development, the undergraduates can develop their own learning and professional development plans in combination with the employment and future vision, and have the ability of self-study, knowledge renewal and self-development.

三、主干学科

Ⅲ. Core Discipline

数学

Mathematics

四、主干课程

Ⅳ. Main Courses

数学分析、高等代数、解析几何、概率论与数理统计、常微分方程、近世代数、复变函数、实变函数、微分几何、拓扑学、泛函分析、数值分析、C 程序设计、数学建模

Mathematical Analysis, Advanced Algebra, Analytic Geometry, Probability Theory and Mathematical Statistics, Ordinary Differential Equations, Modern Algebra, Complex Analysis, Real Analysis, Differential Geometry, Topology, Functional Analysis, Numerical Analysis, C Programming, Mathematical Modeling

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

154 学分

154 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	37	49	24.0%	31.8 %
	通识教育选修课 Liberal Studies Elective Courses	12		7.8%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	8	35	5.2%	22.7%
	本学科基础课 Disciplinary Foundation Courses	27		17.5%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	33	52	21.4%	33.8%
	专业方向课程 Specialized Orientation Courses	5		3.2%	
	专业拓展课程 Specialized Development Courses	14		9.1%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	6	6	3.9%	3.9%
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.8%	7.8%
合计 Total		154		100%	
说明 Notes	1．专业必修课（包括专业核心课程、学科基础课程、专业技能模块）共 22 门，双语课程 2 门，全英语课程 1 门。 2．专业选修课共 23 门，其中专业方向课程 4 门，分 1 个系列（方向）；专业拓展课程 19 门。学生应从专业方向课程中至少选修 5 学分，从专业拓展课程中至少选修 14 学分。 3．实验课程共 12 门，其中独立开设的实验课 7 门，既有理论又有实验的课程 5 门，含综合性、设计性实验的课程 12 门，占实验课程总数的 100 %。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 19.5%，实践教学环节学时占总学时的比例为 28.6%。 1. There are 22 specialized required courses including subject general courses in total, 2 bilingual courses and 1 English course. 2. There are 23 specialized elective courses in total including 4 specialized courses which are in 1 series and 19 specialized extended courses. Undergraduates should obtain 5 credits in total by taking specialized dimension courses and 14 credits by taking specialized extended courses. 3. There are 12 experimental courses in total including 7 independent experimental course, 5 courses both with theory and practice, 12 theoretical and designable experimental courses which is 100% of the total experimental courses. 4. Practice teaching content of this major includes practice teaching module and other course modules. The proportion of credit in practice teaching is 19.5%, and the proportion of teaching hours to total hours in practice teaching is 28.6%.				

八、数学与应用数学（创新实验班）专业本科教学计划表

Ⅷ. Teaching Scheme for Mathematics and Applied Mathematics (innovative and experimental class) Undergraduate Candidates

（一）通识教育模块（49 学分）

（Ⅰ）Liberal Studies Courses（49 credits）

1. 通识教育必修课（37 学分）

1. Liberal Studies Compulsory Courses（37 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005- 1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文（理） College Chinese (for Science)	2	2	36		2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2.通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（35 学分）

（Ⅱ）Disciplinary Foundation Courses（35 credits）

1. 相关学科基础课（8 学分）

1. Related Disciplinary Foundation Courses（8 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521103	C 程序设计 C Programming	2	4	54	36	3/2	考试 Exam.
0521011	普通物理 General Physics	2	3	54		3	考试 Exam.
0521012	普通物理实验 General Physics Laboratory	2	1		36	2	考查 Quiz

2. 本学科基础课（27 学分）

2. Disciplinary Foundation Courses（27 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0522008	数学分析(一) Mathematical Analysis (1)	1	5	108		6	考试 Exam.
0522002	数学分析(二) Mathematical Analysis (2)	2	5	108		6	考试 Exam.
0522003	数学分析(三) Mathematical Analysis (3)	3	5	108		6	考试 Exam.
0522104	高等代数(一) Advanced Algebra (1)	1	4	90		5	考试 Exam.
0522005	高等代数(二) Advanced Algebra (2)	2	4	90		5	考试 Exam.
0522103	解析几何 Analytic Geometry	1	3	72		4	考试 Exam.
0522107	专业导引 Major Introduction	1	1		36	讲座	考试 Exam.

（三）专业课程模块（52 学分）

（Ⅲ）Specialized Courses（52 credits）

1. 专业核心课程（33 学分）

1. Specialized Core Courses（33 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0541120	近世代数 Modern Algebra	3	4	72		4	考试 Exam.
0541121	常微分方程（英语） Ordinary Differential Equation（English）	4	4	72		4	考试 Exam.
0541138	复变函数（双语） Complex Analysis (bilingual)	4	4	72		4	考试 Exam.
0541122	实变函数（双语） Real Analysis (bilingual)	5	4	72		4	考试 Exam.
0541105	偏微分方程 Partial Differential Equation	5	3	54		3	考试 Exam.
0541024	数值分析 Numerical Analysis	5	3	54	18	3/1	考试 Exam.
0541123	概率论与数理统计 Probability Theory and Mathematical Statistics	6	4	72		4	考试 Exam.

0541007	微分几何 Differential Geometry	6	3	54		3	考试 Exam.
0541023	拓扑学 Topology	6	3	54		3	考试 Exam.
0541010	学术论文写作指导 Academic writing Guidance	6	1	18		2	考查 Quiz

2. 专业方向课程（5 学分）

2. Specialized Dimension Courses（5 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0542121	初等数论 Elementary Number Theory	5	2	36		2	考试 Exam.
0542026	泛函分析 Functional Analysis	6	3	54		3	考试 Exam.
0542108	随机过程 Stochastic Process	7	2	36		4	考试 Exam.
0542101	离散数学 Discrete Mathematics	8	2	36		3	考试 Exam.

3. 专业拓展课程（14 学分）

3. Specialized Development Courses（14 credits）

详见学院专业拓展课程。

See Specialized Development Courses of School of Mathematics and Information Science.

（四）专业技能模块（6 学分）

（Ⅳ）Professional Skills Courses（6 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0544110	数学建模 Mathematical Modeling	4	3		54	3	考试 Exam.
0544103	数学实验 Mathematical Experiment	4	3	36	36	2/2	考试 Exam.
说明 Notes	数学建模的学分按 18 学时 1 学分计算。 The credit of course Mathematical Modeling are calculated at 1 credits per 18 hours.						

（五）实践教学模块（12 学分）

（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0550017	必读书目阅读 Required Readings		1				考查 Quiz
0550032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
0550021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0550033	毕业论文（设计） Graduation Thesis(Design)	7-8	4				考查 Quiz

九、数学与信息科学学院专业拓展课程

Ⅸ. Specialized Development Courses of School of Mathematics and Information Science

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
数学系列课程： Courses of mathematics series/dimension							
0543128	数学分析选讲 Mathematical Analysis Selected Teaching	7	2	36		4	考查 Quiz
0543129	高等代数选讲 Advanced Algebra Selected Teaching	7	2	36		4	考查 Quiz
0543115	模糊数学 Fuzzy Mathematics	8	2	36		3	考查 Quiz
0543120	运筹学 Operational Research	8	2	36		3	考查 Quiz
0543121	外微分初步 Exterior Differential	8	2	36		3	考查 Quiz
数学教育系列课程： Courses of mathematical education series/dimension							
0543101	数学史 History of Mathematics	6	2	36		2	考查 Quiz
0543043	数学教学技能训练 Mathematics Teaching Skills Training	6	3		54	3	考查 Quiz
0543036	数学解题学 Problem-Solving in mathematics	8	2		36	3	考查 Quiz
0543037	数学竞赛学 Mathematics Competition	8	2		36	3	考查 Quiz
信息计算系列课程： Courses of information and computer science series/dimension							
0543132	计算机基础 Basics of Computer Technology	3	3	36	36	2/2	考查 Quiz
0543044	操作系统 Operating System	7	2		36	4	考查 Quiz
0543111	组合数学 Combinatorial Mathematics	7	2	36		4	考查 Quiz
0543038	数据结构 Data Structure	8	3	36	36	3/3	考查 Quiz
0543117	小波分析 Wavelet Analysis	8	2	36		3	考查 Quiz
统计系列课程： Courses of statistics series/dimension							
0543124	金融数学 Financial Mathematics	6	3	54		3	考查 Quiz
0543133	贝叶斯统计 Bayesian Statistics	7	3	54		6	考查 Quiz
0543125	统计预测与决策 Statistical Prediction and Decision	8	3	54		5	考查 Quiz
0543126	非参数统计 Nonparametric Statistics	8	3	54		5	考查 Quiz
0543042	应用统计学 Applied Statistics	8	3		54	5	考查 Quiz
说明 Notes	1. 数学与信息科学学院专业拓展课程共 19 门，分 4 个系列。 2. 数学与应用数学专业必须选修 9 学分，数学与应用数学（创新实验班）专业必须选修 14 学分，信息与计算科学专业必须选修 6 学分，统计学专业必须选修 8 学分。 3. 数学教学技能训练、数学解题学、数学竞赛学、操作系统、应用统计学的学分按 18 学时 1 学分计算。 1. There are 19 specialized extended courses of School of Mathematics and Information Science in total, including 4 series. 2. 9 credits should be obtained by undergraduates in Mathematics and Applied Mathematics specialty, 14 credits for Mathematics and Applied Mathematics-innovative and experimental class specialty, 6 credits for Information and computation Science specialty, and 8 credits for Statistics Specialty. 3. The credits of courses including Mathematics Teaching Skills Training, Solving Problem in mathematics, Mathematics Competition, Operating System and Applied Statistics are calculated at 1 credit per 18 hours.						

统计学专业简介
Introduction to the Specialty of Statistics

统计学专业，学制 4 年，专业属性为非师范专业。该专业是关于数据的方法论学科，提供数据采集、数据整理和数据分析的各种方法。我校统计学专业从 2013 年开始正式招生。

该专业现有专任教师 13 人，其中教授 4 人，副教授 6 人，具有博士学位者 10 人。

该专业主要培养具有数学和统计学基本理论、基础知识和基本技能，掌握现代统计理论、数据分析方法与计算机信息处理技术，具备较强的信息搜集、整理与数据分析能力，能适应科学技术发展需要的在企事业单位从事统计调查、统计质量管理、数据分析等工作，或在科研、教育部门从事研究和教学工作的复合型高级专门人才。

The major of Statistics, with a four-year academic system, is a non-normal education major. This specialty is a methodological subject on data, providing various methods of data collection, data collation and data analysis. This specialty started the enrollment in 2013.

There are 13 full-time faculty members for this major, including 4 professors, 6 associate professors, and 10 of them are doctoral degree holders.

The major is to help students develop in an all-round way and make them have the basic theory, knowledge and skills of mathematics and statistics, master modern statistics theory, data analysis as well as computer information processing technology. Besides, this major is to enable the students to have the strong ability of information collection, sorting and data analysis, adapt to the needs of the development of science and technology, cope with the statistical investigation, statistical quality management, data analysis, etc. in the enterprises and institutions, or the research and teaching work in the scientific research and educational departments.

统计学专业
The Specialty of Statistics

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康；具有较为扎实的数学基础，掌握统计学的基本思想、基本理论与方法以及相关的计算机技术，具备较强的知识更新能力和实践创新能力，能够适应不同领域统计基础理论研究和应用的，能在政府部门、企事业单位从事市场调研、数据分析、质量控制与信息咨询，或在科研、教育部门从事研究和教学等工作的复合型高级专门人才。

This major aims to cultivate talents with the all-round development of morality, intelligence, body and beauty.This major is to help students develop in an all-round way and train them with a more solid foundation of mathematics, master the basic ideas, theories and methods, as well as the related computer technology of statistics and have the abilities of knowledge updating and innovation. Besides, this major is able to help students adapt to the research and application work based on the basic statistical theories in different fields. After graduation, students can work in the fields of market research, data analysis, quality control and information consultation for the government departments, enterprises and institutions，, or the research and teaching work in the scientific research and educational departments.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 践行社会主义核心价值观，增进对习近平新时代中国特色社会主义思想的政治认同、理论认同和情感认同。具有良好的道德品质、法制意识、诚信意识和团队合作精神。具有良好的心理素质，科学的世界观和积极的人生观。养成健全的职业人格以及对统计的热爱态度。

2. 扎实掌握数学和统计学理论知识体系，重点理解和掌握现代统计学的统计思想和方法，能够根据数据的特点运用恰当的统计方法进行分析、推断和预测。

3. 具有良好的外语水平和计算机基础知识，能熟练应用统计软件并具备较好的编程能力和计算能力，能正确利用统计思想和方法判断统计软件的计算结果。

4. 掌握中外文资料查询、文献检索及运用现代信息技术获取相关信息的基本方法，积极参与科研训练和科研项目，获得初步的科学研究和实际应用能力，具备一定的创新能力和理论联系实际的能力。

5. 具有终身学习与专业发展意识。了解专业发展核心内容和发展阶段路径，能够结合就业和深造愿景制定自身学习和专业发展计划。具备自主学习、知识更新和自我发展的能力。

6. 具有全球意识和开放心态，具有团队协作精神，掌握沟通合作技能，积极开展合作学习，具有一定的学术交流能力。

Students of this major may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. Students should practice the socialist core values and enhance the political, theoretical and emotional identification of Xi Jinping's thought on socialism with Chinese characteristics in the new era. They are expected to have good moral character, legal consciousness, good faith and teamwork spirit. They must be equipped with a good psychological quality, a scientific world outlook and a positive outlook on life. And

they should develop a sound professional personality and a loving attitude toward statistics.

2. Students should master the knowledge system of mathematics and statistics, understand the statistical ideas and methods of modern statistics, and use appropriate statistical methods to analyze, deduce and predict according to the characteristics of the data.

3. Students should have good proficiency with foreign languages and computer skills, be able to apply statistical software skillfully and have good programming and computing power. They should be able to correctly use statistical ideas and methods to judge the results of statistical software。

4. Students should grasp the basic methods of Chinese and foreign information inquiry, literature retrieval and be able to use modern information technology to obtain relevant information. They are to actively participate in scientific research training and scientific research projects, obtain preliminary scientific research and practical application abilities, and have the ability of innovating and linking theory with practice.

5. Students should have the consciousness of lifelong learning and professional development. Understand the core content and development stages of professional development, and make plans for self learning and professional development combined with the vision of employment and further education. They are to be capable of autonomous learning, knowledge updating and self development.

6. Students should be equipped with global awareness and teamwork spirit, master communication skills, actively develop cooperative learning, and have certain academic communication abilities.

三、主干学科

Ⅲ. Core Disciplines

数学、统计学

Mathematics, Statistics

四、主干课程

Ⅳ. Main Courses

数学分析、高等代数、解析几何、概率论、数理统计、近世代数、实变函数、常微分方程、随机过程、多元统计分析、实用回归分析

Mathematical Analysis, Advanced Algebra, Analytic Geometry, Probability Theory, Mathematical Statistics, Modern Algebra, Real Analysis, Ordinary Differential Equations, Stochastic Processes, Multivariate Statistical Analysis, Applied Regression Analysis

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

160 学分

160 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	37	49	23.1%	30.6%
	通识教育选修课 Liberal Studies Elective Courses	12		7.5%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	8	35	5%	21.9%
	本学科基础课 Disciplinary Foundation Courses	27		16.9%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	37	57	23.1%	35.6%
	专业方向课程 Specialized Dimension Courses	12		7.5%	
	专业拓展课程 Specialized Extended Courses	8		5%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	7	7	4.3%	4.3%
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.5%	7.5%
合计 Total		160		100%	
说明 Notes	1．专业必修课（包括专业核心课程、学科基础课程、专业技能模块）共 21 门，双语课程 1 门，全英语课程 1 门。 2．专业选修课共 27 门，其中专业方向课程 6 门，分 1 个系列（方向）；专业拓展课程 21 门。学生应从专业方向课程中至少选修 12 学分，从专业拓展课程中至少选修 8 学分。 3．实验课程共 20 门，其中独立开设的实验课 7 门，既有理论又有实验的课程 13 门，含综合性、设计性实验的课程 19 门，占实验课程总数的 100 %。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 19.4%，实践教学环节学时占总学时的比例为 28.8%。 1. There are 21 specialized required courses including subject general courses in total, 1 bilingual course and 1 English course. 2. There are 27 specialized elective courses in total including 6 specialized dimension courses which are in 1 series and 21 specialized extended courses. Undergraduates should obtain 12 credits in total by taking specialized dimension courses and 8 credits by taking specialized extended courses. 3. There are 20 experimental courses in total including 7 independent experimental course, 13 courses both with theory and practice, 19 theoretical and designable experimental courses which is 100% of the total experimental courses. 4. Practice teaching content of this major includes practice teaching module and other course modules. The proportion of credit in practice teaching is 19.4%, and the proportion of teaching hours to total hours in practice teaching is 28.8%.				

八、统计学专业本科教学计划表

Ⅷ. Teaching Scheme for Statistics Specialty Undergraduate Candidates

（一）通识教育模块（49 学分）

（Ⅰ）Liberal Studies Courses（49 credits）

1. 通识教育必修课（37 学分）

1. Liberal Studies Compulsory Courses（37 credits）

课程编码 Course Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.

1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文（理） College Chinese (for Science)	2	2	36		2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（35 学分）

（Ⅱ）Disciplinary Foundation Courses（35 credits）

1. 相关学科基础课（8 学分）

1. Related Disciplinary Foundation Courses（8 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521103	C 程序设计 C Programming	2	4	54	36	3/2	考试 Exam.
0521011	普通物理 General Physics	2	3	54		3	考试 Exam.
0521012	普通物理实验 General Physics Laboratory	2	1		36	2	考查 Quiz

2. 本学科基础课（27 学分）

2. Disciplinary Foundation Courses（27 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0522008	数学分析(一) Mathematical Analysis (1)	1	5	108		6	考试 Exam.
0522002	数学分析(二) Mathematical Analysis (2)	2	5	108		6	考试 Exam.
0522003	数学分析(三) Mathematical Analysis (3)	3	5	108		6	考试 Exam.
0522104	高等代数(一) Advanced Algebra (1)	1	4	90		5	考试 Exam.
0522005	高等代数(二) Advanced Algebra (2)	2	4	90		5	考试 Exam.
0522103	解析几何 Analytic Geometry	1	3	72		4	考试 Exam.
0522107	专业导引 Major Introduction	1	1		36	讲座	考试 Exam.

（三）专业课程模块（57 学分）

（Ⅲ）Specialized Courses（57 credits）

1. 专业核心课程（37 学分）

1. Specialized Core Courses（37 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0541127	概率论 Probability Theory	3	4	72		4	考试 Exam.
0541004	近世代数 Modern Algebra	3	3	54		3	考试 Exam.
0541128	数理统计 Mathematical Statistics	4	4	72		4	考试 Exam.
0541121	常微分方程（英语） Ordinary Differential Equation（English）	4	4	72		4	考试 Exam.
0541137	统计分析与软件 Statistical Analysis and Software	4	5	72	36	4/2	考试 Exam.
0541130	随机过程 Stochastic Processes	5	3	54		3	考试 Exam.
0541031	实用回归分析 Applied Regression Analysis	5	3	54	18	3/1	考试 Exam.
0541122	实变函数（双语） Real Analysis (bilingual teaching)	5	4	72		4	考试 Exam.
0541024	数值分析 Numerical Analysis	5	3	54	18	3/1	考试 Exam.
0541032	多元统计分析 Multivariate Statistical Analysis	6	3	54	18	3/1	考试 Exam.
0541010	学术论文写作指导 Academic writing Guidance	6	1	18		2	考查 Quiz

2. 专业方向课程（12 学分）

2. Specialized Dimension Courses（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0542121	初等数论 Elementary Number Theory	5	2	36		2	考试 Exam.
0542124	生物统计 Biostatistics	5	3	54	18	3/1	考试 Exam.
0542122	探索性数据分析 Exploratory Data Analysis	6	4	54	36	3/2	考试 Exam.
0542125	抽样调查 Survey Sampling	6	3	54	18	3/1	考试 Exam.
0542126	时间序列分析 Time Series Analysis	7	3	54	18	4/1	考试 Exam.
0542123	试验设计 Design of Experiment	7	3	54	18	4/1	考试 Exam.

3. 专业拓展课程（8 学分）

3. Specialized Extended Courses（8 credits）

详见学院专业拓展课程。

See Specialized Extended Courses of School of Mathematics and Information Science.

（四）专业技能模块（7 学分）

（Ⅳ）Professional Skills Courses（7 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0544110	数学建模 Mathematical Modeling	4	3		54	3	考试 Exam.
0544111	统计计算 Statistical computing	6	4	54	36	3/2	考试 Exam.
说明 Notes	数学建模的学分按 18 学时 1 学分计算。 The credit of course Mathematical Modeling are calculated at 1 credits per 18 hours.						

（五）实践教学模块（12 学分）

（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0550017	必读书目阅读 Required Readings		1				考查 Quiz
0550032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
0550021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0550033	毕业论文（设计） Graduation Thesis Writing	7-8	4				考查 Quiz

九、数学与信息科学学院专业拓展课程

Ⅸ. Specialized Extended Courses of School of Mathematics and Information Science

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
数学系列课程： Courses of mathematics series/dimension							
0543130	偏微分方程 Partial Differential Equation	5	3	54		3	考查 Quiz
0543107	泛函分析 Functional Analysis	6	3	54		3	考查 Quiz
0543128	数学分析选讲 Mathematical Analysis Selected Teaching	7	2	36		4	考查 Quiz
0543129	高等代数选讲 Advanced Algebra Selected Teaching	7	2	36		4	考查 Quiz
0543115	模糊数学 Fuzzy Mathematics	8	2	36		3	考查 Quiz
0543120	运筹学 Operational Research	8	2	36		3	考查 Quiz
0543121	外微分初步 Exterior Differential	8	2	36		3	考查 Quiz
数学教育系列课程： Courses of mathematical education series/dimension							
0543101	数学史 History of Mathematics	6	2	36		2	考查 Quiz
0543043	数学教学技能训练 Mathematics Teaching Skills Training	6	3		54	3	考查 Quiz
0543036	数学解题学 Solving Problem in mathematics	8	2		36	3	考查 Quiz
0543037	数学竞赛学 Mathematics Competition	8	2		36	3	考查 Quiz
信息计算系列课程： Courses of information and computer science series/dimension							
0543132	计算机基础 Basics of Computer Technology	3	3	36	36	2/2	考查 Quiz
0543044	操作系统 Operating System	7	2		36	4	考查 Quiz
0543111	组合数学 Combinatorial Mathematics	7	2	36		4	考查 Quiz
0543038	数据结构 Data Structure	8	3	36	36	3/3	考查 Quiz
0543117	小波分析 Wavelet Analysis	8	2	36		3	考查 Quiz
统计系列课程： Courses of statistics series/dimension							
0543124	金融数学 Financial Mathematics	6	3	54		3	考查 Quiz
0543133	贝叶斯统计 Bayesian Statistics	7	3	54		6	考查 Quiz
0543125	统计预测与决策 Statistical Prediction and Decision	8	3	54		5	考查 Quiz
0543126	非参数统计 Nonparametric Statistics	8	3	54		5	考查 Quiz
0543042	应用统计学 Applied Statistics	8	3		54	5	考查 Quiz

学生选修说明 Notes	1. 数学与信息科学学院专业拓展课程共 21 门，分 4 个系列。 2. 数学与应用数学专业必须选修 9 学分，数学与应用数学（创新实验班）专业必须选修 14 学分，信息与计算科学专业必须选修 6 学分，统计学专业必须选修 8 学分。 3. 数学教学技能训练、数学解题学、数学竞赛学、操作系统、应用统计学的学分按 18 学时 1 学分计算。 1. There are 21 specialized extended courses of School of Mathematics and Information Science in total, including 4 series. 2. 9 credits should be obtained by undergraduates in Mathematics and Applied Mathematics specialty, 14 credits for Mathematics and Applied Mathematics-innovative and experimental class specialty, 6 credits for Information and computation Science specialty, and 8 credits for Statistics Specialty. 3. The credits of courses including Mathematics Teaching Skills Training, Solving Problem in mathematics、Mathematics Competition、Operating System and Applied Statistics are calculated at 1 credit per 18 hours.

信息与计算科学专业简介
Introduction to the Specialty of Information and Computation Science

信息与计算科学为非师范专业，学制 4 年。该专业始建于 2001 年，是由信息科学、计算科学、运筹与控制科学等交叉渗透而形成的一个新的理科专业。该专业是我校优势特色专业之一，专业所在的数学与信息科学学院是陕西省人才培养模式创新实验区、陕西省专业综合改革试点单位。

该专业现有专任教师 18 人，其中教授 3 人，副教授 6 人，讲师 9 人；具有博士学位者 14 人。

该专业主要培养具有良好的数学基础和数学思维能力，掌握信息与计算科学的基本理论、方法和技能，受到科学研究的训练，能解决信息处理和工程计算中的实际问题的复合型高级专门人才。

The major of Information and Computation Science has a schooling period of 4 years and is not of teacher education major. It was established in 2001, evolving from the combination of information science, computation science and operation researches. It boasts one of the prominent and specialized subjects in Shaanxi Normal University. It is subordinate to the School of Mathematics and Information Science, which is the Shaanxi Provincial-level innovation and reformation unit for professionals-training.

The major has 18 full-time teachers including 3 professors, 6 associate professors and 9 lecturers, of whom 14 have Ph. D. degrees.

Information and Computation Science is aimed to train and cultivate comprehensive senior professional talents with mathematical capacity, theoretical skills and problem-solving capability in dealing with information processing and project calculation.

信息与计算科学专业
The Specialty of Information and Computation Science

一、培养目标

Ⅰ. Educational Objectives

本专业是以数学为主，科学计算为核心，融合信息科学、运筹学与控制理论等的技术类理科专业；主要研究信息技术的核心基础与运用现代计算工具高效求解科学与工程问题的数学理论与方法。

本专业主要培养德、智、体、美全面发展，身心健康，掌握信息科学、计算科学、运筹与控制科学等基本理论、基础知识、基本方法和基本技能，受到系统的科学研究训练，有良好的数学基础和数学思维能力，具备处理信息和解决工程计算中实际问题能力，能在企业事业单位、科技、教育和行政、经济管理等部门从事研究、教学、应用软件开发和管理工作的复合型高级专门人才。

This major is a technical science specialty with mathematics as the main subject and scientific calculation as the core, which integrates information science, operational research and control theory, etc. It mainly studies the core foundation of information technology and the mathematical theory and method of using modern computing tools to solve scientific and engineering problems efficiently.

This major mainly trains comprehensive senior professional talents that grasp the basic theories and skills of information science, computational science, operational research and control science, the basic methods and skills of information and computational science, the training of systematic scientific research, the ability of mathematical foundation and thinking, the ability to solve information processing and the ability of mathematical thinking. Graduates will become professionals with comprehensive moral, intellectual, physical and aesthetic development, physical and mental health, and they can engage in research, teaching, application software development and management in enterprises, institutions, science and technology, education, administration and economic management departments.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱祖国，拥护中国共产党，坚持马克思主义、中国特色社会主义基本理论观点，积极践行社会主义核心价值观，具有科学的世界观、正确的人生观和价值观以及高尚的道德品质。

2. 自觉遵纪守法，知荣明耻，注重职业道德，有责任心和社会责任感，有诚信意识和团队协作精神，德、智、体、美全面发展，有一定的科学文化素养和人际沟通修养。

3. 具有健康的体魄和积极人生态度，掌握健体强身的科学方法，养成良好的体育锻炼和卫生习惯，达到国家规定关于大学生体育锻炼合格标准和身体素质、心理素质健康要求。

4. 具有良好的数学基础和较高的数学素养，掌握信息与计算科学的基础理论和基本方法；能熟练使用计算机（包括常用语言、工具及专用软件），具备一定的算法分析、设计和软件开发能力；具备在信息科学和计算科学领域从事科学研究、教学、软件设计开发的能力。

5. 基本掌握一门外语，能够较顺利地阅读本专业的外文书刊，具有熟练听、说、读、写的外语基础和外语水平。

6. 掌握文献检索、资料查询的基本方法，了解信息与计算科学理论、技术及应用的最新发展动态，具有全球意识和开放心态，有较强的语言表达能力，掌握沟通合作技能。

7. 树立终身学习理念和专业发展意识，了解专业发展核心内容和发展阶段路径，能够结合就业愿景制定自身学习和专业发展规划，具有一定的自主学习能力和自我管理能力。

8. 能运用所学的理论、方法和技能解决应用领域中的某些实际问题，对新知识、新技术有较强敏锐性，能及时更新知识、追踪新技术。

9. 掌握信息科学或计算科学或运筹控制的专业知识，达到本专业规范规定的总学分要求和分类学分要求。

Students of this major may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. Undergraduates should be of high civil quality. With a deep love for the CPC, our motherland and a proper understanding of the basic principle and knowledge of Chinese Marxism, they should steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of conduct so as to become highly-qualified ideological and political professionals.

2. Undergraduates should consciously abide by the law, know the conscience, pay attention to professional ethics, have a sense of social responsibility, integrity, teamwork spirit as well as moral, intellectual, physical and aesthetic development and also have a certain scientific and cultural literacy and interpersonal communication.

3. Undergraduates should build a healthy body, have a positive attitude towards life, master the scientific methods of physical fitness, develop good physical exercise and healthy habits, and meet the national requirements of physical fitness and psychological quality for college students.

4. Undergraduates should equip themselves with good mathematical foundation and high mathematical literacy, master the basic theory and basic methods of information and computing science, and have the ability to engage in scientific research, teaching and programming in the field of information science and computational science.

5. Undergraduates should basically master a foreign language, smoothly read the foreign language books and periodicals of their major, and have the basic level of a foreign language in good listening, speaking, reading and writing skills.

6. Undergraduates should grasp the basic methods of literature retrieval and information inquiry, know the latest development of information and computing science theory, technology and application, have both the global awareness and strong language expression abilities, and master the skills of communication and cooperation.

7. Undergraduates should establish the concept of lifelong learning and professional development, understand the core content of the professional development and the path of development stage, formulate their own learning and professional development planning in combination with the vision of employment, and have certain self-learning and self-management abilities.

8. Undergraduates should use the theory, methods and skills to solve some practical problems in the field of application, be keen on new knowledge and technology, update their knowledge and trace new technology in time.

9. Undergraduates should master the knowledge of information science or computing science or operations control, and achieve both the general credit and classification credit requirements specified in the professional standards.

三、主干学科

III. Core Disciplines

数学、信息科学

Computation Science, Information Science

四、主干课程

Ⅳ. Main Courses

数学分析、高等代数、解析几何、概率论与随机过程、常微分方程、数值分析、信息论与编码基础、现代密码学、信息安全实验、C 程序设计、JAVA 程序设计

Mathematical Analysis, Advanced Algebra, Analytic Geometry, Probability Theory and Stochastic Processes, Ordinary Differential Equations, Numerical Analysis, Foundation of Information Theory and Coding, Modern Cryptography, Information Security Experiment, C Programming, JAVA Programming

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credit

159 学分

159 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 **Course Catalogue**		学分及比例 **Credits and Percentage**			
		学 分 **Cre.**	小 计 **Sub-Total**	占总学分比例 **Percentage in Total Credits**	小 计 **Sub-Total**
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	37	49	23.3%	30.8%
	通识教育选修课 Liberal Studies Elective Courses	12		7.5%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	8	35	5.0%	22.0%
	本学科基础课 Disciplinary Foundation Courses	27		17.0%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	40	54	25.2%	34.0%
	专业方向课程 Specialized Orientation Courses	8		5.0%	
	专业拓展课程 Specialized Development Courses	6		3.8%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	9	9	5.7%	5.7%
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.5%	7.5%
合计 Total		159		100%	

说明 Notes	1．专业必修课（包括专业核心课程、学科基础课程、专业技能模块）共 26 门，双语课程 1 门，全英语课程 1 门。 2．专业选修课共 26 门，其中专业方向课程 6 门，专业拓展课程 20 门。学生应从专业方向课程中至少选修 8 学分，从专业拓展课程中至少选修 6 学分。 3．实验课程共 18 门，其中独立开设的实验课 9 门，既有理论又有实验的课程 9 门，含综合性、设计性实验的课程 18 门，占实验课程总数的 100 %。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 20.8%，实践教学环节学时占总学时的比例为 30.9%。 1. There are 26 specialized required courses including subject general courses in total, 1 bilingual course and 1 English course. 2. There are 26 specialized elective courses in total including 6 specialized orientation courses which are in 1 series and 20 specialized development courses. Undergraduates should obtain 8 credits in total by taking specialized orientation courses and 6 credits by taking specialized development courses. 3. There are 18 experimental courses in total including 9 independent experimental course, 9 courses both with theory and practice, 19 theoretical and designable experimental courses which is 100% of the total experimental courses. 4. Practice teaching content of this major includes practice teaching module and other course modules. The proportion of credit in practice teaching is 20.8%, and the proportion of teaching hours to total hours in practice teaching is 30.9%.

八、信息与计算科学专业本科教学计划表

Ⅷ.Teaching Scheme for Information and Computation Science Undergraduate Candidates

（一）通识教育模块（49 学分）

（Ⅰ）Liberal Studies Courses（49 credits）

1. 通识教育必修课（37 学分）

1. Liberal Studies Compulsory Courses（37 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文（理） College Chinese (for Science)	2	2	36		2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.

1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（35 学分）

（Ⅱ）Disciplinary Foundation Courses（35 credits）

1. 相关学科基础课（8 学分）

1. Related Disciplinary Foundation Courses（8 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521103	C 程序设计 C Programming	2	4	54	36	3/2	考试 Exam.
0521011	普通物理 General Physics	2	3	54		3	考试 Exam.
0521012	普通物理实验 General Physics Laboratory	2	1		36	2	考查 Quiz

2. 本学科基础课（27 学分）

2. Disciplinary Foundation Courses（27 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0522008	数学分析(一) Mathematical Analysis (1)	1	5	108		6	考试 Exam.
0522002	数学分析(二) Mathematical Analysis (2)	2	5	108		6	考试 Exam.
0522003	数学分析(三) Mathematical Analysis (3)	3	5	108		6	考试 Exam.
0522104	高等代数(一) Advanced Algebra (1)	1	4	90		5	考试 Exam.
0522005	高等代数(二) Advanced Algebra (2)	2	4	90		5	考试 Exam.
0522103	解析几何 Analytic Geometry	1	3	72		4	考试 Exam.
0522107	专业导引 Major Introduction	1	1		36	讲座	考试 Exam.

（三）专业课程模块（58 学分）

（Ⅲ）Specialized Courses（58 credits）

1. 专业核心课程（40 学分）

1. Specialized Core Courses（40 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0541004	近世代数 Modern Algebra	3	3	54		3	考试 Exam.
0541121	常微分方程（英语） Ordinary Differential Equation（English）	4	4	72		4	考试 Exam.
0541124	概率论与随机过程 Probability Theory and Stochastic Process	4	4	72		4	考试 Exam.
0541027	数学建模 Mathematical Modeling	4	3		54	3	考试 Exam.
0541125	数学实验 Mathematical Experiment	4	3	36	36	2/2	考试 Exam.
0541002	数值分析 Numerical Analysis	5	4	72	18	4/1	考试 Exam.
0541134	信息论与编码基础 Foundation of Information Theory and Coding	5	4	72		4	考试 Exam.
0541135	数字信号处理 Digital Signal Processing	5	4	72		4	考试 Exam.
0541033	现代密码学 Modern Cryptography	6	4	72		4	考试 Exam.
0541010	学术论文写作指导 Academic writing Guidance	6	1	18		2	考查 Quiz
0541133	最优化方法 Optimization Methods	6	3	54		3	考试 Exam.
0541136	离散数学 Discrete Mathematics	6	3	54		3	考试 Exam.
说明 Notes	数学建模的学分按 18 学时 1 学分计算。 The credit of course Mathematical Modeling are calculated at 1 credits per 18 hours.						

2. 专业方向课程（8 学分）

2. Specialized Orientation Courses（8 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0542017	数据结构与算法 Data Structure and Algorithm	3	4	54	36	3/2	考试 Exam.
0542121	初等数论 Elementary Number Theory	5	2	36		2	考试 Exam.
0542009	复变函数与积分变换 Complex Analysis and Integral Transform	5	3	54		3	考试 Exam.
0542119	实变函数（双语） Real Analysis (bilingual teaching)	5	4	72		4	考试 Exam.
0542120	C++程序设计 C++ Programming	6	4	54	36	3/2	考试 Exam.
0542010	数据库原理及应用 Database principle and Application	7	4	54	36	5/2	考试 Exam.

3. 专业拓展课程（6 学分）

3. Specialized Development Courses（6 credits）

详见学院专业拓展课程。

See Specialized Development Courses of School of Mathematics and Information Science.

（四）专业技能模块（9 学分）
（Ⅳ）Professional Skills Courses（9 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0544109	JAVA 程序设计 JAVA Programming	3	4	54	36	3/2	考试 Exam.
0544105	计算机网络 Computer Network	4	3	36	36	2/2	考试 Exam.
0544113	信息安全实验 Information Security Experiment	6	1		36	2	考查 Quiz
0544114	通信实验 Communication Experiment	7	1		36	2	考查 Quiz

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0550017	必读书目阅读 Required Readings		1				考查 Quiz
0550032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
0550021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0550033	毕业论文（设计） Graduation Thesis Writing	7-8	4				考查 Quiz

九、数学与信息科学学院专业拓展课程
Ⅸ. Specialized Development Courses of School of Mathematics and Information Science

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
数学系列课程： Courses of mathematics series/dimension							
0543130	偏微分方程 Partial Differential Equation	5	3	54		3	考查 Quiz
0543107	泛函分析 Functional Analysis	6	3	54		3	考查 Quiz
0543128	数学分析选讲 Mathematical Analysis Selected Teaching	7	2	36		4	考查 Quiz
0543129	高等代数选讲 Advanced Algebra Selected Teaching	7	2	36		4	考查 Quiz
0543115	模糊数学 Fuzzy Mathematics	8	2	36		3	考查 Quiz
0543120	运筹学 Operational Research	8	2	36		3	考查 Quiz
0543121	外微分初步 Exterior Differential	8	2	36		3	考查 Quiz
数学教育系列课程： Courses of mathematical education series/dimension							
0543101	数学史 History of Mathematics	6	2	36		2	考查 Quiz

0543043	数学教学技能训练 Mathematics Teaching Skills Training	6	3		54	3	考查 Quiz
0543036	数学解题学 Solving Problem in mathematics	8	2		36	3	考查 Quiz
0543037	数学竞赛学 Mathematics Competition	8	2		36	3	考查 Quiz
信息计算系列课程： Courses of information and computer science series/dimension							
0543132	计算机基础 Basics of Computer Technology	3	3	36	36	2/2	考查 Quiz
0543044	操作系统 Operating System	7	2		36	4	考查 Quiz
0543111	组合数学 Combinatorial Mathematics	7	2	36		4	考查 Quiz
0543117	小波分析 Wavelet Analysis	8	2	36		3	考查 Quiz
统计系列课程： Courses of statistics series/dimension							
0543124	金融数学 Financial Mathematics	6	3	54		3	考查 Quiz
0543133	贝叶斯统计 Bayesian Statistics	7	3	54		6	考查 Quiz
0543125	统计预测与决策 Statistical Prediction and Decision	8	3	54		5	考查 Quiz
0543126	非参数统计 Nonparametric Statistics	8	3	54		5	考查 Quiz
0543042	应用统计学 Applied Statistics	8	3		54	5	考查 Quiz
学生选修说明 Notes	1.数学与信息科学学院专业拓展课程共 20 门，分 4 个系列。 2.数学与应用数学专业必须选修 9 学分，数学与应用数学（创新实验班）专业必须选修 14 学分，信息与计算科学专业必须选修 6 学分，统计学专业必须选修 8 学分。 3.数学教学技能训练、数学解题学、数学竞赛学、操作系统、应用统计学的学分按 18 学时 1 学分计算。 1. There are 20 specialized development courses of School of Mathematics and Information Science in total, including 4 series. 2. 9 credits should be obtained by undergraduates in Mathematics and Applied Mathematics specialty, 14 credits for Mathematics and Applied Mathematics-innovative and experimental class specialty, 6 credits for Information and computation Science specialty, and 8 credits for Statistics Specialty. 3. The credits of courses including Mathematics Teaching Skills Training, Solving Problem in mathematics、Mathematics Competition、Operating System and Applied Statistics are calculated at 1 credit per 18 hours.						

物理学与信息技术学院
School of Physics & Information Technology

- 物理学（师范）

  Physics（Normal）

- 物理学（创新实验班）

  Physics (Innovative and Experimental Class)

- 电子信息科学与技术

  Electronic Information Science and Technology

物理学专业（师范）简介

Introduction to the Specialty of Physics（Normal）

物理学专业，学制 4 年，专业属性为师范专业。该专业始建于 1944 年，是我校成立最早的专业之一。物理学专业先后获评陕西省名牌专业、国家级特色专业、省级人才培养模式创新实验区。学院现有物理学博士后流动站，物理学博士、硕士学位授权点。

目前该专业在职教师 73 人，其中教授 28 人、副教授 32 人，具有国外学习和工作经历以及具有博士学位的教师占教师总数的 85%以上。

该专业主要培养具有掌握扎实的数学和物理学基本理论、基础知识和基本技能，具有一定的实践能力、独立获取知识的能力，科学观察和思考能力，分析问题、解决问题能力，有较高的科学素养，能在物理学及其相关学科等领域从事基础教学、教育管理和研究的优秀教师、教学管理者和未来教育家。

The Specialty of Physics, with a four-year schooling system, is a teacher-training program founded in 1944. Physics was awarded as Famous brand of Shaanxi Province in 2001, National First -rank Characteristic Discipline in 2009, and the Provincial Level Training Mode Innovative Experimental Areas. It is established the Center of Postdoctoral Research in Physics, and qualified to confer doctor degree and master degree in physics, as well as other engineering and professional degree in the School of Physics and Information Technology.

There are 73 teachers in this specialty. Most of the teachers have got their PhD degrees and research experiences out of China. Among them, there are 28 professors and 32 associate professors.

This major provide students with theoretical basis, fundamental skills and methods of science. The undergraduates are trained to get higher sciecntific literacy, spirit of innovation and practical ability. It aims to make the graduates to be outstanding teachers of physics in the middle-level education institutes, educational administrators and future educator.

物理学专业（师范）
The Specialty of Physics（Normal）

一、培养目标

Ⅰ. Educational Objectives

1. 目标定位

本专业立足西部、面向全国，培养德、智、体、美全面发展，身心健康，具有高尚师德和教育情怀，掌握扎实的数学和物理学基础理论和实验技能，具备独立获取知识能力、科学观察与思考能力、分析和解决问题能力，具有较高的人文与科学素养、现代教育理念和国际视野，具有一定的创新创业能力，能够适应国家基础教育改革发展需要，能在重点中学、教育机构和教育行政管理部门从事物理教学、物理研究和教学管理的优秀教师、教育管理人员及未来教育家。

1. Objective Orientation

This major stands in the western part of China, and keeps close links with the whole country. It emphasizes students' comprehensive development in morality, intelligence, sports and aesthetics. They should graps solid basic knowledge and experimental skill s in mathematics and physics, have the ability of acquiring knowledge independently, rational observation and thinking, and analyzing and solving problems, have a high level of humanities and scientific literacy, modern education theory and internaitonal vision. They should have some innovation and enterpreneurship ability, and can adapt to the needs of national basic educaiton reform. They will become excellent teachers, education administrators and future educators in key middle schools, educational institutes and education administration organizations.

2. 目标内涵

（1)热爱教育事业，较强的沟通交流能力以及班级管理能力；关爱学生，了解中学生身心发展特点和成长规律；视野开阔，善于创新，社会适应能力强；具有坚定的教育信念，能以自身人格魅力和学识魅力感染学生，做学生健康成长的引路人。

（2)掌握扎实的物理学专业基础知识和科学研究方法，具备较强的物理学课程教学设计和课堂组织能力，善于运用现代信息技术从事教学工作；关注物理学领域发展动态、熟悉课程改革的最新进展，能够基于课程标准指导课堂学习和课外活动，善于引导学生自主学习；能够独立开展物理学相关的教育教学研究，设计促进物理学基础教育的教学用具，完成物理学相关的基础教学改革项目等。

（3）勇于教学创新，能主动带动同事通过教研共同发展，发挥辐射示范作用；具有团队协作精神，能与其他专业人员交流合作，在团队中发挥专业特长，共同促进学校和区域教学能力提升。能通过校内外教研活动开展专业交流，在所工作的区域内具有一定的影响力。

（4)具有终生学习能力，有意识地从广泛渠道了解国内外基础教育发展的趋势和前沿动态，不断更新自己的知识结构、教育理念和教育方式，具有传播和普及最新研究成果的意识；对于相关职业从业人员，能不断学习其他领域的知识和核心素养，成为复合型人才，并秉持合作交流精神，在社会上努力营造良好的教育价值观氛围。

2. Objective Connotation

(1) Undergraduate should have a deep love for the career of education, good communication and interpersonal skills, and class management ability. They should learn to take good care of teenagers, have knowledge of the characteristics of physical and mental development and growth law of students in the middle school. They should have broad vision, good innovation ability, and strong social adaptability. They could give students positive influence as a supervisor with their own charming and reputation.

(2) Undergraduates should have solid theoretical basis of physics and mathematics, and should have learned knowledge of new advance of physics, the application of modern physics in high technology and manufactures, and the development of interdisciplines and new technologies that are closely related to

physics. They also should have elementary scientific research skills and abilities to analyze and solve problems.

(3) Undergraduates with good team spirit should be keen on the innovation, make mutual development of the team, and have impacts on the regional educational activities.

(4) Undergraduates with life-long learning ability should have the concepts to get information in multiple ways. They should be familiar with the trends of international education and the related frontier. They are necessary to renew their knowledge system, educational philosophy, and training mode. They should become inter-disciplinary with a wide range of knowledge.

3. 目标评价

（1)依据国家形势和教育政策的变化，及时修订培养目标。紧随时代发展，培养符合国家基础教育改革发展需求的中学物理教师。

（2)对人才就业情况与表现进行持续调研，形成有效的人才培养质量反馈机制。征求各方利益群体的意见与建议，形成对培养目标的动态评价体系。

（3)形成历年培养方案变化的跟踪机制。根据学生学业状况动态调整培养目标和毕业要求，不断进行优化，持续改进。

3. Objective Evaluaiton

(1) We will modify the educational objectives in time with the development of the national educational policy, which guarantees the graduates fit in the requirements of basic education reform of middle school level. Graduates should be qualified physics teacher.

(2) We will investigate the employment of the graduates, form the effective feedback mechanism of the quality of talent training, establish the evaluation system transiently of the educational objectives by means of making survey from the cooperation institutes.

(3) We will follow the track of the modification of the educational objectives, optimize the educational objectives and Graduation Requirements according to the status of the undergraduates progressively.

二、毕业要求

Ⅱ. Graduation Requirements

本专业依托“厚基础、促创新、高素质、国际化”的人才培养理念，培养具有深厚数理基础、师德高尚、信念坚定，有仁爱之心的符合社会需求的优秀教师和未来教育家。学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 爱党爱国，践行社会主义核心价值观，增进对中国特色社会主义的思想认同、政治认同、理论认同和情感认同；贯彻党的教育方针，以立德树人为己任；遵守中小学教师职业道德规范，具有依法执教意识，立志成为有理想信念、有道德情操、有扎实学识、有仁爱之心的好老师。【师德规范】

2. 有从教意愿，热爱教育事业，认同教师工作的意义和专业性，具有积极的情感、端正的态度和正确的价值观；具有人文底蕴和科学精神，尊重学生人格，富有爱心、责任心、事业心，工作细心、耐心，做学生锤炼品格、学习知识、创新思维、奉献祖国的引路人。【教育情怀】

3. 扎实掌握物理学学科知识体系、物理思想和科学研究方法，重点掌握物理学科核心素养内涵。具有扎实的物理学、数学基础理论和实验技能；具备独立获得知识能力，科学观察与思考能力，分析问题解决问题能力和较高的科学素养以及适应社会的能力。要对物理学的新发展、近代物理学在高新技术在生产中的应用，了解与物理学密切相关的交叉学科和新技术的发展。【知识整合】

4. 理解教师是学生学习和发展的促进者，把学生作为教学的中心。充分认识基础物理教育在基础教育中的地位和作用；具有跨学科知识，认识物理学科与数学、化学、生物等自然科学学科知识间的联系，了解自然科学领域前沿动态，具备多学科知识综合应用能力和整合相关学科知识进行教学的能力，提升综合素养；具备基础物理教学设计和研究能力，能整合学科教学知识实施有效教学。熟悉中学物理课程标准，在教学实践中，能够以学习者为中心，创设适合的学习环境，指导学习过程，进行学习评价。【教学能力】

5. 初步掌握应用信息技术优化物理课堂教学的方法技能，能够运用信息技术进行物理教学设计、实施和评价，具有运用信息技术支持学习设计和转变学生物理学习方式的初步经验。掌握基于学

生认知水平展开教学设计的科学方法，认识学生学习主体作用，具有培养学生运用现代信息手段质疑和探索科学问题的能力。【技术融合】

6. 树立德育为先理念。了解中学德育原理与方法，掌握班级组织与建设的工作规律与基本方法。使班级管理依靠学生并为了学生，要注意调动学生的积极性、主动性，发挥学生的创造性。公平对待每一个学生，并为其提供锻炼的机会和条件。善于协调统一学校、家庭和社会的教育力量，努力构建以学校为核心的、以班级教育为主阵地的、有统一教育目标的教育集体，共同做好班级的管理工作，并积极参与德育和心理健康教育等教育活动的组织与指导。【班级指导】

7. 具有全程育人、立体育人的意识，了解学校文化和教育活动的育人内涵和方法理解物理学科育人价值，能够在物理教学实践中将知识学习、能力发展和品德养成相结合进行育人活动。了解中学生身心发展和养成教育规律，积极参与组织主题教育和社团活动，对学生进行有效的教育和引导。【综合育人】

8. 具有终身学习与专业发展意识。了解物理专业发展核心内容和发展阶段路径，结合就业期望做好专业规划，实现学习目标，坚定服务基层的教育理想。把物理基础知识学习、实验技能提升、创新科学研究等综合学习能力有机结合，培养未来优秀物理教师特质。养成自主学习习惯，具有自我管理能力。【自主学习】

9. 具有全球意识和开放心态，培养国际视野，了解国外物理基础教育改革发展的趋势和前沿动态，积极参与国际教育交流。借鉴国外先进教育理念和经验开展中学物理教学。【国际视野】

10. 理解教师是反思型实践者。运用批判性思维方法，养成从学生学习、课程教学、学科理解等不同角度反思分析问题的习惯。掌握教育实践研究的基本方法，具有一定的科研能力，掌握科学研究基本方法和指导学生开展基础科学研究的能力。【反思研究】

11. 理解学习共同体作用，具有团队协作精神；具有较强的语言表达能力和交流沟通能力，掌握团队协作技能，积极开展小组互助和合作学习。【交流合作】

This program is limited in 4-6 years. If undergraduates have got the prescribed credits in the teaching plan, and meet the following requirements, they can apply for graduation.

1. Undergraduates should master the basic theoretical knowledge of socialism with Chinese characteristics, recognize and practice the core socialist values and code of conduct. They should be familiar with the basic laws and regulations, the basic current situations and the development trend of education in China, establish a firm professional belief, and develop noble professional ethics of physics education. They should stay true to the original intention and practice teacher’s ethics. Undergraduates should realize that teachers are subjects of “imparting knowledge and solving doubts”, with a deep love for educational career, they should improve self-cultivation, practice teacher’s ethics through spiritual experience, and interpret the true connotation of ethics and teaching style of teachers in practices. [Code of Teacher’s Ethics]

2. Undergraduates should have the willingness to teach, recognize the significance and professionalism of teachers’ work, and be able to help students acquire language knowledge and skills. They should have positive emotion and hold correct attitudes and values. They should own humanistic connotations and scientific spirit. Besides, they must love their work and be devoted to it, and set up ambitions of struggling lifelong for education career. Being indifferent to fame and wealth, they must focus on education career, and have childlike innocence to understand students, respect students, and care for students. Being willing to innovate and pioneering, in addition, they must set examples for students, set high moral values and cultivate students. With their own personality strength and charm, they can attract students and better guide and help students to grasp the direction of life. [Educational Feelings]

3. Undergraduates should have solid theoretical basis of physics and mathematics, and should have learned knowledge of new advance of physics, the application of modern physics in high technology and manufactures, and the development of inter-disciplines and new technologies that are closely related to physics. They also should have elementary scientific research skills and abilities to analyze and solve problems. [Knowledge Integration]

4. Undergraduates should understand that students are the center of teaching, and teachers play the role of facilitators in students’ learning and development. They should master the better ability to know technical and personality aspects, including good language expression ability, organizational and management ability,

ability to deal with textbooks, to develop courses, and to understand students, ability to understand others and to interact with others, and self-monitoring ability. They should have certain ability of integrating courses to carry out reasonable learning design and implementation with students as the center. [Teaching Ability]

5. Undergraduates should master the methods and skills of applying information technology to optimize physics classroom teaching. Using information technology to design, implement and evaluate English teaching, they should highlight the subject of learning to cultivate independence, initiative and divergence of students' thoughts. They should motivate students' enthusiasm to learn, tap their potential, and promote independent learning to return initiative to students. [Technology Convergence]

6. Undergraduates should set up the concept of moral education first. In addition to understanding the principles and methods of moral education in middle school and mastering the working rules and basic methods of class organization and construction, they should make class management depend on students and for students, and pay attention to arouse students' enthusiasm, initiative and give play to students' creativity. They must treat every student equally and provide them with opportunities and conditions for exercise. Moreover, they must be good at coordinating and unifying the education forces of school, family and society, striving to build the education collective with the school as the core, class education as the main position, and the unified education goal, doing the class management work well together, and actively participating in the organization and guidance of education activities such as moral education and mental health education. [Class Guidance]

7. Undergraduates should uphold a belief that the foundation of education is educating people, understand the principles and methods of moral education in secondary schools, understand the rules of physical and mental development and the nature of cultivation in secondary school education, and acquire the rules and basic methods of the class organization and construction; they should understand the value of nurturing a person in physics courses, be able to educate a person during physics teaching activities. They should know the content and methods of school culture and educational activities, participate in organizing theme education and society activities, and provide guidance and constructive training for students' development. [Comprehensive Education]

8. Undergraduates should have awareness of lifelong learning and professional development. They should understand the core concepts and the paths of the physics major development, and have professional planning so as to achieve learning goals and to fulfill employment expectations. They should be able to combine physics learning in class with the ability to explore knowledge after class to cultivate the characteristics of "self-reliance", "self-determination" and "self-discipline". [Autonomous Learning]

9. Undergraduates should have a global awareness and an open mind, cultivating an international vision. In addition to knowing the cutting-edge trends of the reform and development in international physics education, they should also actively participate in exchanges, interactions and in-depth contacts with foreign universities and other education institutions. They should learn from foreign advanced education concepts and experience to improve the current situation of domestic middle school physics teaching. [International Vision]

10. Undergraduates should know that teachers are reflective practitioners. They should realize that teaching research is the inward demand of physics teachers. Through reflection and research, they can become wise in physics teaching, form the teaching rationality, improve the teaching realm and realize the significance of teaching. What's more, they should master the advanced physics educational ideas and timely explore the advanced education and teaching experience and reform information, which can provide unfamiliar interpretation and other working styles for familiar events, thus providing different perspectives for solution of problems. [Reflection and Research]

11. Undergraduates should recognize that the physics teacher team is a learning community. They should learn to communicate and cooperate with others and learn from each other, use teamwork spirit in physics teaching, take the initiative to participate in teaching activities, and dare to take responsibility. They should be able to effectively express their ideas orally or in writing. [Exchange and Cooperation]

三、主干学科

Ⅲ. Core Discipline

物理学

Physics

四、主干课程

Ⅳ. Core Courses

力学、热学、电磁学、光学、原子物理学、理论力学、热力学与统计物理、电动力学、量子力学；物理教学论、中学物理教材研究与教学设计、普通物理实验、近代物理实验、中学物理实验研究、多媒体辅助教学

Mechanics, Thermology, Electromagnetics, Optics, Atomic Physics, Theoretical Mechanics, Thermodynamics and Statistical Physics, Electrodynamics, Quantum Mechanics, Pedagogy of Physics Teaching, Experiments of General Physics, Modern Physics Experiment, Middle School Physics Experiment, CAI Teaching

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credit

163.5 学分

163.5 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 **Course Catalogue**		学分及比例 **Credits and Percentage**			
		学 分 **Cre.**	小 计 **Sub-Total**	占总学分比例 **Percentage in Total Credits**	小 计 **Sub-Total**
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.7%	33.0%
	通识教育选修课 Liberal Studies Elective Courses	12		7.3%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	16	41.5	9.8%	25.4%
	本学科基础课 Disciplinary Foundation Courses	25.5		15.6%	
专业课程模块 Specialized Courses	专业必修课 Specialized Compulsory Courses	25	35	15.3%	21.4%
	专业限定选修课 Specialized Restrictive Elective Courses	6		3.7%	
	专业任意选修课 Specialized Non-restrictive Elective Courses	4		2.4%	
教师教育模块 Teacher-training Courses	公共必修课 General Compulsory Courses	11	16	6.7%	9.8%

	学科必修课 Disciplinary Compulsory Courses	5		3.1%	
	选修课 Elective Courses	2		已并入通识教育选修课	
实践教学模块 Practice Work	必修课 Compulsory Courses	17	17	10.4%	10.4%
合计 Total		163.5		100%	

说明 Notes	1. 专业必修课（包括相关基础课程、学科基础课程和专业核心课程）共 21 门，其中双语课程 2 门。 2. 专业选修课共 11 门，其中专业方向（限定选修课）课程 7 门， 2 个系列；专业拓展课程（任意选修课）6 门。学生应从专业限定选修课程中至少选修 6 学分，从专业任意选修课程中至少选修 4 学分。 3. 实验课程共 12 门，其中独立开设的实验课 6 门，既有理论又有实验的课程 6 门，含综合性、设计性、研究性实验的课程 2 门。 4. 本专业学科专业课程包括学科基础模块课程、专业课程模块课程和教师教育模块、实践教学模块中的学科专业课程，其学分占总学分比例为 59.0 %。 5. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 20.0%，实践教学环节学时占总学时的 26.0%。 1. There are 21 specialized compulsory courses (including related foundation courses, disciplinary foundation courses and specialized core courses), including 2 bilingual courses. 2. There are 11 specialized elective courses including 7 specialized orientation courses divided into 2 series or dimensions and 6 specialized development courses. Undergraduates should obtain 6 credits in total by taking specialized orientation courses and 4 credits by taking specialized development courses. 3. There are 12 experimental courses in total including 6 independent experimental courses, 6 courses with theory and experiment, included 2 theoretical and designable experimental courses. 4. Discipline curriculum includes the related courses in the modules of disciplinary foundation courses, specialized course, teacher-training courses, and practice work, and the ratio is 59.0 % of the total credits. 5. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 20.0% of the total credits，26.0% of the total hours.

八、物理学本科教学计划表

Ⅷ. Teaching Scheme for Physics Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses(54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2	36		2	考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
0611401	计算机基础 Fundamentals of Computer	1	1.5	18	18	2/1	考试 Exam.
0622036	C 程序设计 C Programming	2	3.5	54	18	3/1	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.

0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（41.5 学分）

（Ⅱ）Disciplinary Foundation Courses(41.5 credits)

1. 相关学科基础课（16 学分）

1. Related Disciplinary Foundation Courses (16 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521201	高等数学－1（理）微积分 I Advanced Mathematics 1	1	4	72		4	考试 Exam.
0521202	高等数学－2（理）微积分 II Advanced Mathematics 2	2	4	72		3	考试 Exam.
0521203	高等数学－3（理）线性代数与数理统计 Advanced Mathematics 3	3	4	72		4	考试 Exam.
0521204	高等数学－4（理）复变函数和数学物理方法 Advanced Mathematics 4	4	4	72		4	考试 Exam.

2. 本学科基础课（25.5 学分）

2. Disciplinary Foundation Courses (25.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0641401	学科导引讲座 Lectures on Discipline	1	2	36		讲座 lecture	考查 Quiz.
0622004	力学 Mechanics	1	4	72		4	考试 Exam.
0622021	热　学 Thermology	2	2	36		3	考试 Exam.
0622105	电工学 Electrotechnics	2	3.5	54	18	3/1	考试 Exam.
0622022	电磁学 Electromagnetics	3	4	72		4	考试 Exam.
0622023	光　学 Optics	4	3	54		3	考试 Exam.

0641030	原子物理学 Atomic Physics	5	3	54		3	考试 Exam.
0622302	普通物理实验 1 General Physics Experiments 1	1	1		54	2	考试 Exam.
0641139	普通物理实验 2 General Physics Experiments 2	2	1		54	2	考试 Exam.
0641140	普通物理实验 3 General Physics Experiments 3	3	1		54	2	考试 Exam.
0641141	普通物理实验 4 General Physics Experiments 4	4	1		54	2	考试 Exam.

（三）专业课程模块（33 学分）

（Ⅲ）Specialized Courses(33 credits)

1. 专业必修课（25 学分）

1. Specialized Compulsory Courses (25 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0641043	模拟电路及实验 Analog Electronic Circuit	3	3.5	54	18	3/1	考试 Exam.
0641138	数字电路及实验 Digital Electronic Circuit	4	3.5	54	18	3/1	考试 Exam.
0641102	理论力学 Theoretical Mechanics	4	4	72		4	考试 Exam.
0641031	热力学与统计物理 Thermodynamics and Statistical Physics	5	4	72		4	考试 Exam.
0641032	电动力学 Electrodynamics	6	4	72		4	考试 Exam.
0641033	量子力学 Quantum Mechanics	6	4	72		4	考试 Exam.
0641034	近代物理实验(一) Modern Physics Experiment(1)	5	1		54	2	考试 Exam.
0641152	近代物理实验(二) Modern Physics Experiment(2)	6	1		54	3	考试 Exam.

2. 专业限定选修课（6 学分）

2. Specialized Restrictive Elective Courses (6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
应用物理类 （Applied Physics）							
0642076	声学基础 Fundamentals of Acoustics	4	2	36		4	考试 Exam.
0642104	生物物理 Biophysics	5	2	36		4	考试 Exam.
0643607	神经元兴奋动力学 Dynamics of Neuronal Excitability	6	2	36		4	考查 Quiz
0642148	非线性动力学导论 Introduction to Nonlinear Dynamics	6	2	36		4	考试 Exam.
近代物理类 （Modern Physics）							
0642061	高等量子力学 Advanced Quantum Mechanics	8	2	36		4	考试 Exam.
0642060	固体物理 Solid State Physics	8	2	36		2	考试 Exam.
0642106	模拟物理 II Simulation Physics II	7	2	36		4	考试 Exam.

3. 专业任意选修课（4 学分）

3. Specialized Non-restrictive Elective Courses (4 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
物理类（Physics）							
0643802	科学哲学与物理学史 Philosophy of Science and History of Physics	6	2	36			考查 Quiz
0643609	物理学前沿讲座 Advanced Special Topics of Physics	5-8	2/1	36/18			考查 Quiz
应用物理类（Applied Physics）							
0643703	超声技术及其应用 Ultrasonic Technology and its Application	5	2	36		4	考查 Quiz
0643704	声环境概论 Acoustic Environment Introduction	6	2	36		4	考查 Quiz
技术与应用系列（Technology and Application）							
0643304	MATLAB 在物理学中的应用 MATLAB and Application in physics	5	2	36		4	考查 Quiz
0643408	微机原理 Microcomputer Principle	6	3	36	36	3/1	考查 Quiz

说明：学院开设恒元物理学讲座，如果学生听满 9 个讲座，可认定《物理学前沿讲座》（课程号：0643069）1 学分；如果听满 18 个讲座，可认定《物理学前沿讲座》2 学分。认定方式：学生提交讲座笔记以及记录册。

（四）教师教育模块（16 学分）

（Ⅳ）Teacher-training Courses（16 credits）

1. 公共必修课（11 学分）

1. General Compulsory Courses（11 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2431028	心理学基础 The Basis of Psychology	2	1	18		2	考试 Exam.
2431029	儿童发展 Child Development	2	1	18		2	考试 Exam.
2431030	中学生认知与学习 The Cognition and Learning of Middle School Students	3	1	18		2	考试 Exam.
2431031	中学生品德发展与道德教育 Moral Development and Moral Education for Middle School Student	3	1	18		2	考试 Exam.
2431032	中学生心理辅导 Psychological Guidance for Middle School Students	4	1	18		2	考试 Exam.
1531128	中学教育学基础 Foundation of Middle School Education	4	3	54		3	考试 Exam.
1531129	现代教育技术（网络教学） Contemporary Educational Technology (Online Course)	4	1	18		1	考试 Exam.
1531130	教师专业发展与职业道德 Teacher’s Professional Development & Professional Ethics	5	2	36		2	考试 Exam.

2. 学科必修课（5 学分）

2. Disciplinary Compulsory Courses（5 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0631005	物理教学论 Discipline Pedagogy of Physics	5	3	54		3	考试 Exam.
0631109	中学物理教材研究与教学设计 Middle School Teaching Material Analysis and Teaching Design in Physics	6	2	36		2	考试 Exam.

3. 选修课（2 学分，已并入通识教育选修课）

3. Elective Courses（2 学分）

学科技能课程 Scientific Skills Courses		开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0642803	中学实验设计与教具制作 Experimental Instrument Design	5	2	18	36	2/2	考查 Quiz
0642802	中学物理教学评析 Comments on Middle School Teaching	7	1		36		考查 Quiz
0642804	物理教学实践能力提升 Education of Physics Teaching Ability	8	1		36		考查 Quiz

（五）实践教学模块（17 学分）

（Ⅴ）Practice Work（17 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0650028	教师教学基本技能训练 Training on Basic Teaching Skills	6	1				考查 Quiz
0650017	必读书目阅读 Required Readings		1				考查 Quiz
0650018	物理学科教学技能训练 Pedagogical Training	6	1				考试 Exam.
0650019	教育见习 School Visits	1-6	1				考查 Quiz
0650031	教育实习 Teaching Practice	7	6				考查 Quiz
0650021	教育实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0650033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

物理学专业（创新实验班）简介
Introduction to the Specialty of Physics (Innovative and Experimental Class)

物理学专业（创新实验班），学制 4 年，专业属性为非师范专业，创建于 2007 年，先后获批省级名牌专业、国家级特色专业、省级人才培养模式创新实验区。

目前该专业在职教师 73 人，其中教授 28 人、副教授 32 人，具有国外学习和工作经历以及具有博士学位的教师占教师总数的 85%以上。教师队伍中有国家级突出贡献专家 1 人，入选国家“百千万人才工程”1 人，青年千人计划学者 1 人。

该专业主要培养具有物理学基本理论、基础知识和基本技能，能够从事物理学及其相关专业方面的研究及管理等工作的复合型高级专门人才。

The Specialty of Physics is a non-normal program, and the duration for the bachelor degree of physics is usually four academic school years. This specialty is established in 2007. The physics specialty is one of the Famous Brand Specialty of Shaanxi Province, State-Level Characteristic Specialty, and the Innovative experimentation area of talent training mode of Shaanxi province.

There are 73 teachers in this specialty. Most of the teachers have got their PhD degrees and aboard research experiences. Among them, there are 28 professors and 32 associate professors, including one National Outstanding Contribution Expert, one National Key Talent Project candidate, and one Thousand Youth Talents Plan scholar.

Specialty of physics devotes to training students with basic theory, basic knowledge and basic skills in physics, also with comprehensive developments in morality, intelligence, physique, and aesthetic cultivation. Graduates are expected to be qualified to jobs in physics and related areas.

物理学专业（创新实验班）
The Specialty of Physics (Innovative and Experimental Class)

一、培养目标
I. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具有深厚数理基础、多学科交叉理念和创新精神、广泛适应能力和宽广国际化视野的复合型创新人才；具备独立获取知识的能力，科学观察与独立思考能力，分析问题、解决问题的能力和较好科学素养；具有良好的实践基础、较高的适应能力和竞争力；能在物理学及其它学科从事科学研究、教学、技术开发和相关管理工作的复合型高级专门人才。

This specialty aims to cultivate talents with the all-round development of morality, intelligence, body and beauty. Graduates should have a solid basic knowledge of science, multi-interdisciplinary concepts, general adaptability, and broad international perspective. Students will grow to be inter-disciplinary talents of innovation ability. Students should have the ability to have access to all-round knowledge, scientific observation and independent thinking ability, ability to analyze and solve problems and good scientific literacy. With good practice and extensive adaptability and competitiveness, graduates will become advanced inter-disciplinary specialized talents in physics and other subjects engaged in scientific research, teaching, technology development and related management work.

二、毕业要求
II. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国，掌握马克思主义、毛泽东思想和中国特色社会主义理论体系的基本观点和方法，具有科学的世界观、正确的人生观和高尚的道德品质；德、智、体、美全面发展，身心健康。

2. 具有良好的人文素质与科学素质，健全的人格和良好的心理素质；良好的数学基础理论知识，掌握扎实的物理学专业基础理论和技能，具有较强的动手实践能力和从事科学研究的初步能力。

3. 掌握其它相关学科的基础知识、学科交叉理念和创新精神；具备独立获取知识的能力、科学观察与独立思考能力、分析问题解决问题能力和较高的科学素养。

4. 掌握团队协作技能，理解学习共同体作用。具有团队协作精神；具有较强的语言表达能力和交流沟通能力。

5. 具有广泛适应能力、国际化视野和竞争力，能在物理学及其它学科从事科学研究、教学、技术开发和相关管理工作。

6. 具有终身学习与专业发展意识。了解物理专业发展核心内容和发展阶段路径，结合就业期望做好专业规划，实现学习目标。把物理基础知识学习、实验技能提升、创新科学研究等综合学习能力有机结合，培养未来优秀物理研究人员特质。养成自主学习习惯，具有自我管理能力。

7. 具有健康体魄和一定的军事基本理论及基本技能，达到国家学生体质健康标准和军事训练标准。

This program is limited in 4-6 years. If undergraduates have got the prescribed credits in the teaching plan, and meet the following requirements, they can apply for graduation.

1. Undergraduates should be of high civil quality. With a deep love for Communist Party of China, our motherland, they should grasp Marxism, Mao Zedong Thought and basic concepts and methods of socialist theoretical system with Chinese characteristics. They should develop scientific outlook of the world, correct outlook of life and high noble morality, with all-round development of morality, intelligence, body and beauty.

2. Undergraduates should develop gracious humanistic literacy, sound personality and good psychological quality. They should have solid theoretical basis of physics and mathematics, strong practical abilities and preliminary ability of conducting scientific research.

3. Undergraduates should grasp basic knowledge of other related disciplines, and the interdisciplinary concept and innovation. They should develop the ability of obtaining knowledge independently, scientific observation and independent thinking, analyzing and solving problems and high scientific literacy.

4. Undergraduates should develop skills of cooperation, understanding the importance of teamwork, develop the spirit of cooperation. They should grasp strong ability of expressing themselves and communication.

5. Undergraduates should have a global awareness and competitiveness, and be able to conduct scientific research, teaching, technology development and administration in physics and other disciplines.

6. Undergraduates should have awareness of lifelong learning and professional development. They should understand the core concepts and the paths of the physics major development, and have professional planning so as to achieve learning goals and to fulfill employment expectations. They should be able to combine physics basic theory and experimental skills learning in class with the ability to scientific research, and improving their scientific quality. They should develop the habit of self-study and self-management.

7. Undergraduates should have healthy physique and basic military theory and skills, and achieve national standard for physical performance and military training of college students.

三、主干学科

Ⅲ. Core Disciplines

物理学

Physics

四、主干课程

Ⅳ. Main Courses

高等数学 1-3、电路分析、模拟电路及实验、基础物理 I-IV、数学物理方法、物理学导引讲座、固体物理、化学概论、生物学概论、分析力学、热力学与统计物理学、电动力学、量子力学、固体物理、模拟物理 I、普通物理实验 I-IV、近代物理实验 I-II、交叉及研究性实验 I-II

Advanced Mathematics 1-3，CircuitAnalysis，Analog Electronic Circuit and experiments，Fundamental Physics I-IV, Methods of Mathematical Physics, Solid Physics, Introduction to Physics, Introduction to Chemistry, Introduction to biology，Analytical Mechanics, Electrodynamics, Quantum Mechanics, Thermodynamics and Statistical Physics, Solid State Physics, Simulation Physics I，Experiments of General Physics I-IV, Modern Physics Experiment I-II, Research Experiments, Multidisciplinary Experiments

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credit

159 学分

159 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课程类别 **Course Catalogue**		学分及比例 **Credits and Percentage**			
		学分 Cre.	**小计 Sub-Total**	**占总学分比例 Percentage in Total Credits**	**小计 Sub-Total**
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	26.4%	33.9%
	通识教育选修课 Liberal Studies Elective Courses	12		7.5%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	20	51	12.6%	32.1%
	本学科基础课 Disciplinary Foundation Courses	31		19.5%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	23	36	14.5%	22.7%
	专业方向课程 Specialized Orientation Courses	6		3.8%	
	专业拓展课程 Specialized Development Courses	7		4.4%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	4	6	2.5%	3.8%
	选修课 Elective Courses	2		1.3%	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.5%	7.5%
合计 Total		159		100%	
说明 Notes	1. 专业必修课（包括学科基础课程和专业核心课程）共 24 门，其中双语课程 6 门。 2. 专业选修课共 24 门，其中专业方向课程 15 门；专业拓展课程 9 门。学生应从专业方向课程中至少选修 6.0 学分，从专业拓展课程中至少选修 7.0 学分。 3. 实验课程共 14 门，其中独立开设的实验课 8 门，既有理论又有实验的课程 6 门，含综合性、设计性、研究性实验的课程 2 门。 4. 本专业学科专业课程包括学科基础模块课程、专业课程模块课程和教师教育模块、实践教学模块中的学科专业课程，其学分占总学分比例为 54.8%。 5. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 25.0%。 1. There are 24 specialized compulsory courses, including 5 bilingual courses . 2. There are 24 specialized elective courses in total，including 15 specialized orientation Courses and 9 specialized development Courses. Undergraduates should earn a minimum of 6.0 credits from specialized orientation Courses and 6.0 credits from specialized development courses. 3. There are 14experimental courses in total，including 8 independent experimental courses, 6 theoretical and designable experimental courses, and 2 research experimental courses. 4. Discipline curriculum includes the related courses in the modules of disciplinary foundation courses, specialized courses, teacher-training courses, and practice work, and the ratio is 54.80% of the total credits. 5. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 25.0% of the total credits.					

八、物理学（创新实验班）本科教学计划表

Ⅷ. Teaching Scheme for Physics (experimental and innovative class) Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
0611107	计算机基础 Fundamentals of Computer	1	2	36	36	2	考试 Exam.
0622036	C 程序设计 C Programming	2	3	54	36	3	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36		2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses (12 credits)

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses including the course of Current World Economics and Policy, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（51 学分）

（Ⅱ）Disciplinary Foundation Courses (51 credits)

1. 相关学科基础课（20 学分）

1. Relevant Disciplinary Foundation Courses (20 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521201	高等数学－1（理）微积分（1） Advanced Mathematics 1	1	4	72		4	考试 Exam.
0521202	高等数学－2（理）微积分（2） Advanced Mathematics 2	2	4	72		4	考试 Exam.
0521203	高等数学－3（理）线性代数与概率论 Advanced Mathematics 3	3	4	72		4	考试 Exam.
0622033	电路分析 Circuit Analysis	2	4.5	72	18	4	考试 Exam.
0641043	模拟电路及实验 Analog Circuit and Experiments	3	3.5	54	18	3/1	考试 Exam.

2.本学科基础课（12 门课，31 学分）

2. Disciplinary Foundation Courses (31 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0641401	学科导引讲座 Lectures on Discipline	1	2	36		讲座 lecture	考试 Exam.
0622038	基础物理学 I（力学） Fundamental Physics I（Mechanics ）	1	4	72		4	考试 Exam.
0622040	基础物理学 II（电磁学） Fundamental Physics II（Electromagnetism）	2	4	72		4	考试 Exam.
0622041	基础物理学 III（热学、光学） Fundamental Physics III (Heat and Optics)	3	3	72		4	考试 Exam.
0622042	基础物理学 IV（原子物理学及近代物理学） Fundamental Physics IV (Atomic Physics and Modern Physics)	4	4	72		4	考试 Exam.
0612005	数理方法 Mathematical Methods for physics	4	4	72		4	考试 Exam.
0622302	普通物理实验 I General Physics Experiments I	1	1		54	3	考试 Exam.
0641139	普通物理实验 II General Physics Experiments II	2	1		54	3	考试 Exam.
0641140	普通物理实验 III General Physics Experiments III	3	1		54	3	考试 Exam.
0641141	普通物理实验 IV General Physics Experiments IV	4	1		54	3	考试 Exam.
0641154	化学概论 Introduction to Chemistry	1	3	54		3	考试 Exam.
0641155	生物学概论 Introduction to Biology	3	3	54		3	考试 Exam.

（三）专业课程模块（36 学分）

（Ⅲ）Specialized Courses (36 credits)

1. 专业核心课程（23 学分）

1. Specialized Core Courses (23 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0641171	分析力学 Analytical Mechanics	3	4	72		4	考试 Exam.
0641003	热力学与统计物理 Thermodynamics and Statistical Physics	4	4	72	18（讨论课）	4	考试 Exam.
0641004	电动力学 Electrodynamics	5	4	72		4	考试 Exam.
0641005	量子力学 Quantum Mechanics	5	4	72	18（讨论课）	4	考试 Exam.
0641153	固体物理学 Solid State Physics	6	3	54		3	考试 Exam.
0641174	模拟物理 I Simulation Physics I	6	2	36		4	考试 Exam.
0641034	近代物理实验 I Experiments in Modern Physics I	5	1		54	4	考试 Exam.
0641152	近代物理实验 II Experiments in Modern Physics II	6	1		72	3	考试 Exam.

备注：《热力学统计物理》、《量子力学》是本专业重要的课程改革试点课程，课程相关实践学时包含讨论课 18 学时，其他实践环节 18 学时。讨论课分组开课，由具有国外教研经历 1 年以上的教师团队负责。

2. 专业方向课程（6 学分）

2. Specialized Orientation Courses (6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
纯物理课程							
0642061	高等量子力学 Advanced Quantum Mechanics	6	2	36		4	考试 Exam.
0642150	粒子物理 Particle Physics	6	2	36		4	考试 Exam.
0643212	群论 Group Theory in Physics	6	2	36		4	考查 Quiz
0642106	模拟物理 II Simulation Physics II	7	2	36		4	考试 Exam.
学科交叉课程							
0642104	生物物理 Biophysics	5	2	36		4	考试 Exam.
0643607	神经元兴奋动力学 Dynamics of Neuronal Excitability	6	2	36		4	考查 Quiz
0642105	电介质物理 Dielectric Physics	5	2	36		4	考试 Exam.
0642010	材料物理 Material Physics	5	2	36		4	考试 Exam.
0642145	量子化学 Quantum Chemistry	6	2	36		4	考试 Exam.
0642148	非线性动力学导论 Introduction to Nonlinear Dynamics	6	2	36		4	考试 Exam.
0642144	经济物理 Economy Physics	6	2	36		4	考试 Exam.
0642151	化学物理 Chemical Physics	7	2	36		4	考试 Exam.
声学相关课程							
0642076	声学基础 Fundamental Acoustics	4	2	36		4	考试 Exam.
0643703	超声技术及其应用 Ultrasonic Technology and its Application	5	2	36		4	考查 Quiz
0643704	声环境概论 Introduction to Acoustic Environment	6	2	36		4	考查 Quiz

说明：专业方向课程包含纯物理课程、学科交叉课程、声学相关课程，修读总学分不少于 6.0 学分。

Notes: This section includes pure physics, interdisciplinary courses，and courses relevant to acoustics. Students should obtain at least 10 credits from this section.

3. 专业拓展课程（7 学分）

3. Specialized Development Courses (7 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hre.	实验/实践学时 Experiment/ Training Hre.	周学时 Weekly Hrs.	考试方式 Evaluation
0642065	数字电路及实验 Digital Circuit and Experiments	4	3.5	54	18	3/1	考试 Exam.
0643608	激光原理 Laser Principle	5	2	36		4	考查 Quiz
0643069	物理学前沿讲座 Lecture on Frontier of Physics	5-8	2/1	36/18			考查 Quiz
0643802	科学哲学与物理学史 Philosophy of Science and History of Physics	6	3	54		3	考查 Quiz
0643304	MATLAB 在物理学中的应用 MATLAB and Application in physics	6	2	36		4	考查 Quiz
0643408	微机原理 Microcomputer Principle	6	3.5	54	18	3/1	考查 Quiz
0642075	单片机与接口技术 Microcomputer Interface	7	3	36	36	2/2	考查 Quiz
0643211	量子场论 Quantum Field Theory	7	2	36		4	考查 Quiz

说明：学院开设恒元物理学讲座，如果学生听满 9 个讲座，可认定《物理学前沿讲座》（课程号：0643069）1 学分；如果听满 18 个讲座，可认定《物理学前沿讲座》2 学分。认定方式：学生提交讲座笔记以及记录册。

（四）专业技能模块（6 学分）

（Ⅳ）Professional Skills Courses (6 credits)

1.必修课（4 学分）

1. Compulsory Courses (4 credits) 选学两门课

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0641161	交叉性与研究性实验 I Interdisciplinary Research Experiments I	6	2		72	4	考查 Quiz
0641175	科技论文写作 Scientific Paper Writing	6-8	2		72	2	考查 Quiz

2.选修课（2 学分）

2. Elective Courses (2 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0641163	交叉性与研究性实验 II Interdisciplinary Research Experiments II	7	2		72	4	考查 Quiz
0650010	科研训练 Scientific Research Training	3-8	2		72		考查 Quiz

说明：下面四种情况，完成一项即可视为科研训练合格并给予学分认定：

毕业前主持一项创新创业项目（包括国家、学校或学院等资助的项目），结项后有正式论文发表或者提交结项报告。

独立完成一项综合类实验，提交正规的有指导教师签名的实验报告，经考核合格。

参加各类国家级（或省级、校级）学术、实验以及创新创业类竞赛并获奖。

在学术刊物上公开发表论文，或各种学术会议宣读并收入会议论文集。

（五）实践模块（12 学分）

（Ⅴ）Practice Work (12 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
2450017	必读书目阅读 Required Readings	1-4	1				考查 Quiz
0650032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
2450021	专业实践与社会调查 Professional Practice and Social Survey	7-8	1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0650033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

电子信息科学与技术专业简介

Introduction to the Specialty of Electronic Information Science and Technology

电子信息科学与技术专业，学制 4 年，专业属性为非师范专业。本专业始建于 2001 年，是我校学科综合化发展的主要方向之一，其前身为上世纪 90 年代我校物理系电子方向以及后来的应用电子技术教育专业。依托本专业，学校建设有省级电工电子实验示范中心。本学科具有硕士学位授权点，含生物医学信号检测与处理、无线通信网络、微弱光电信号检测与信息处理、超声传感及信号处理及数字图像处理等方向。

目前本专业在职任课教师 26 人，其中教授 6 人，副教授 8 人，具有博士学位的教师 23 人，具有硕士学位的教师 2 人。

本专业主要培养扎实掌握电子信息科学与技术基础知识、基本理论和基本技能，具有一定的实践能力、独立获取知识的能力，科学观察和思考能力，分析问题、解决问题能力和较高的科学素养，具备在电子信息技术、光信息处理技术及声信息技术等领域和行政部门从事相关的科学研究、技术开发、产品设计等的复合型高级专门人才。

The major of Electronic Information Science and Technology, with bachelor degree in four years, is a non-normal major which was founded in 2001. This major is one of the main directions for the comprehensive development of our university. Its predecessor was the electronic direction of the Physics Department in the 1990s and the major of Applied Electronic Technology Education. Based on this major, the university has an electric and electronic experiment demonstration center of Shaanxi Province. This discipline is able to grant master's degree, including the major of Biomedical Signal Detection and Processing, Wireless Communication Networks, Weak Photoelectric Signal Detection and Information Processing, Ultrasonic Sensing and Signal Processing, and Digital Image Processing.

At present, there are 26 in-service teachers in this major, including 6 professors, 8 associate professors, 23 teachers with doctoral degrees, and 2 teachers with master's degrees.

The aim of this major is mainly to train higher level of special comprehensive talents, who obtain the basic knowledge, theory and skills of electronic information science and technology, with certain practical ability, independent ability to acquire knowledge, scientific observation and thinking ability, the ability to analyze and solve problems, high scientific literacy. They should also obtain the ability of executing scientific research, technology development, product design in electronic information technology, optical information processing technology and acoustic information technology and administrative departments.

电子信息科学与技术专业
The Specialty of Electronic Information Science and Technology

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康；具备扎实的电子信息科学与技术的基本理论和基本知识与技能，受到严格的科学实验训练和科学研究初步训练，具有一定的实践能力、独立获取知识的能力，科学观察和思考能力，分析问题、解决问题能力和较高的科学素养，能在电子信息科学与技术和计算机科学与技术相关领域从事光信息处理技术及声信息技术等领域和行政部门从事科学研究、技术开发、产品设计、生产技术或管理工作的电子信息科学与技术复合型高级专门人才。

The program is to cultivate interdisciplinary professionals. It is aimed to cultivate talents with the all-round development of morality, intelligence, body and beauty. It is designed to help students master the basic theory and knowledge of electronic information science and technology, and have the ability to work on scientific research, technology development, and product design in the field of electronic information technology, optical information processing technology and sound information technology.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 素质要求

身心素质：具有强健的体魄，身体健康、能适应紧张的工作环境；具有健康的心理素质，正确的自我认识，良好的人际关系，健全的人格，良好的环境适应能力；培养优良的气质与性格，坚强的意志，坚韧不拔的毅力。

思想道德素质：具有坚定正确的政治立场、观点和信仰，热爱祖国、热爱人民，国家利益至上；具有较高的思想道德、文化素质修养、敬业精神和强烈的社会责任感；具有社会主义的道德品质和文明的行为习惯，具有敬业精神和职业道德、富有责任心和社会责任感；遵纪守法，学习和了解国家宪法和法律常识，具有知法、守法的法制意识和观念；诚信做人，诚信做事，诚信做学问，具有良好的团队协作精神和能力，集体观念强，乐于助人。

文化素质：具有中华文化传统的道德美德，传承和弘扬中华民族的民族精神；具有一定的人文科学（文、史、哲等）知识，了解中国传统文化，对中外历史和文化有一定的了解；具有较强的现代意识、创新意识和竞争意识等；要有自我控制能力，能够理性的处理生活、感情、工作和学习中发生的各项事情，富有合作精神，善于与人交往。

专业素质：具有逻辑思维、辨证思维、形象思维的能力；有批判意识和求真务实的科学思维方法；掌握电子信息科学与技术及其相关领域的基本科学研究方法；崇尚科学、求真务实，具有较强的创新意识和创新精神；具有较强的工程意识、实践意识和质量意识，以及节能意识和环保意识；具有较强的解决实际工程问题的能力，能较好地分析和处理实际工作中遇到的相关技术问题；敢于革故鼎新，在实践中敢于且善于使用新技术、新理论、新观点和新思想。

2. 能力要求

知识获取能力：具有较扎实的基础理论知识，顺利阅读本专业文献，具备自我知识更新的能力和掌握科学的学习方法；具有良好的专业知识书面表达、口头交流能力和外语交流能力；良好的社交能

力和协调事务能力，善于与他人合作，待人谦和；具有基本的资料搜集、文献检索能力，善于从不同的渠道搜集、检索信息。

知识应用能力：基础理论较扎实，认知和实践能力强，掌握自底向上和自顶向下的问题分析方法，具有运用所学知识解决实际问题的基本能力；能熟练使用常用的实验仪器，具有综合运用本专业知识和应用工具软件知识，进行仿真实验和硬件实验的能力；在综合类实习、实验中具有较强的独立设计、分析和调试系统的能力；能综合分析实际工作中出现的问题，具备较强的解决实际工程问题的能力。

创新能力：专业知识扎实，思路较开阔，能灵活运用所学过的知识，尤其是跨学科的知识，具有较强的创新意识和一定的创新能力；能在实践环节中，探索、验证已有的结论，并具备一定的自主设计实验的能力；具有初步的应用技术开发和科学研究能力，有较强的钻研精神及一定的接受新理论，新知识和新技术的能力。

3. 知识要求

工具性知识：能使用外文进行一般性交流，具有一定的本专业外文书籍和文献资料的阅读能力，能初步撰写专业文章的外文摘要；掌握本专业所需的各类计算机技术的相关知识，具有一定的计算机软、硬件应用能力；能够用互联网进行各种信息收集和利用，具备一定的综合文献资料的能力；具有一定的实验和模拟仿真的基本知识。掌握常用的计算方法，演绎推理方法、归纳法等基本数学处理方法；能较好地总结和归纳实验、课程设计等教学环节中所做的工作；能撰写本专业文献综述、毕业设计论文。

人文社科科学知识：阅读一定数量的文学名著，了解一些中外著名的文学作家和代表性作品；能通过文学著作品味人生、了解社会、提高文学知识的水平；了解中华民族的文明史，尤其是近代革命史，有很强的民族责任感和使命感；了解在世界科技发展中发生的重大事件；系统地学习马克思主义哲学，掌握唯物辩证法的基本思想；具有从哲学角度看待世界、分析问题的视野，有马克思主义的立场、观点和方法；具有中华民族传统的道德观念、优秀的道德品质和良好的职业道德；能系统地理解毛泽东思想、邓小平理论、“三个代表”及习近平新时代中国特色社会主义思想的主要内容，并联系实际，深刻领会，自觉实践；具有艺术修养初步知识；学习法律基本知识，具有法律意识和法制观念；具有社会学的初步知识，了解社会，融入社会；具有基本的心理学知识，了解基本的心理特征，能够进行自我心理调整。

自然科学知识：具有必要的高等数学和工程数学等知识；基本概念清楚，推导演算熟练；在专业课程的学习中，能较好地运用所学的数学知识；具有必要的大学物理的知识，概念清楚，理论比较扎实，实验技能强；具有化学的基本知识；具有生命科学的初步知识；具有节约资源，保护环境的意识和基本知识。

工程技术知识：具有机械工程制图的基本知识；能读懂、绘制一般的工程图纸；具有电路理论、模拟和数字电子技术等的系统知识；比较熟练地掌握常用电子电路的原理和分析方法，能分析较复杂的电子电路；具有设计、调试电子电路的能力；具有一定的计算机软硬件知识、程序设计技术及单片机、DSP、嵌入式系统等相关技术，了解计算机对系统进行控制和管理的初步知识；具有电子信息系统中有关信号采集、检测、处理、存储和利用等方面的知识；了解电子信息系统工程设计、实施和检测的基本知识，具有一定的工程实践能力。

专业知识：系统学习和掌握电路与电子、信号与系统、电磁场与电磁波等方面的知识；熟练掌握电子信息系统设计、无线电技术和电子信息处理等专业知识，且在 1-2 个专业知识方向具有一定的应用能力。

4. 发展要求

自主学习：具有终身学习与专业发展意识。了解本专业发展核心内容和发展阶段路径，结合就业期望做好专业规划，实现学习目标。把基础知识学习、实验技能提升、创新科学研究等综合学习能力

有机结合，培养未来复合型高级专门人才特质。养成自主学习习惯，具有自我管理能力。

国际视野：具有全球意识和开放心态，培养国际视野，了解国内外电子信息科学与技术发展的趋势和前沿动态，积极参与国际交流。

反思研究：掌握实践研究的基本方法，具有一定的科研能力，掌握科学研究基本方法和开展基础科学研究的能力。

交流合作：具有团队协作精神，具有较强的语言表达能力和交流沟通能力，掌握团队协作技能。

1. Quality requirements

Physical and mental quality: Undergraduates should have strong physical fitness, healthy body and be able to adapt to a stressful working environment. They should have healthy psychological quality, correct self-awareness, good interpersonal relationship, sound personality, and good environmental adaptability. They should cultivate excellent temperament and personality, and have strong will and perseverance.

Ideological and moral quality: Undergraduates should have a firm and correct political position, viewpoints and beliefs, love the motherland, the people, and regard the national interests as of supreme position. They should have high ideological and moral, cultural quality, professionalism and strong sense of social responsibility. They should have socialist moral qualities and civilized habits, professionalism, professional ethics, sense of responsibility and social responsibility. They should obey the law, learn and understand the national constitution and legal common sense, have the legal awareness and concept. They should be honest, do and learn things with integrity, have a good spirit of teamwork and ability, have a strong collective concept, and be helpful.

Cultural quality: Undergraduates should have the moral virtue of the Chinese cultural tradition, inherit and carry forward the national spirit of the Chinese nation. They should have some certain knowledge of the humanities (literature, history, philosophy, etc.), understand traditional Chinese culture, and have a certain understanding of Chinese and foreign history and culture. They should have a strong sense of modernity, innovation and competitiveness, and the ability to control themselves. They should be able to rationally deal with life, feelings, work and learning, and have a spirit of cooperation and be kind with people.

Professional quality: Undergraduates should have the ability to have logical, dialectical and image thinking. They should have a scientific thinking method with critical consciousness and truth-seeking and pragmatism. They should master basic scientific research methods in electronic information science and technology and related fields. They should advocate science, seek truth and be pragmatic. They should have a strong sense of innovation, engineering, practice and quality, as well as energy-saving awareness and environmental awareness. They should have a strong ability to solve practical engineering problems, have the ability to analyze and deal with the related technical problems encountered in the actual work process; have strong initiative for innovation. They should be good at using new technologies, new theories, new ideas and new ideas in practice.

2. Capacity requirements

Knowledge acquisition ability: Undergraduates should have a solid basic theoretical knowledge and be able to read the professional literature; have the ability to update their own knowledge and master scientific learning methods, be able to communicate with others on professional knowledge in written and oral forms and in foreign languages. They should have good social skills and coordination of affairs, be good at cooperating with others as well as being modest to others. They should have the basic ability of data collection and literature retrieval, and be good at collecting and retrieving information from different channels.

Knowledge application ability: Undergraduates should have solid basic theory, strong cognitive and practical ability, master bottom-up and top-down problem analysis methods; have the basic ability to use the knowledge learned to solve practical problems, be able to use experimental instruments with ease. They should be able to use professional knowledge and software knowledge; carry out simulation experiment and hardware experiment, have the ability to design, analyze and debug system independently in comprehensive

practice and experiment, and to analyze and solve problems in practical work comprehensively.

Innovation ability: Undergraduates should have solid professional knowledge and broad vision, be able to use the knowledge they have learned, especially interdisciplinary knowledge, have a strong sense of innovation and a certain degree of innovation ability. They can explore and verify the existing conclusions in the practical link, and have a certain ability to design experiments independently. With technical development and scientific research ability, they must have a strong spirit of research and a certain acceptance of new theories, new knowledge and new technology ability.

3. Knowledge requirements

Knowledge on specialized instrument: Undergraduates should be capable of communicating, reading books and literature, and writing abstracts of professional articles in the foreign language. They should be skillful at the related knowledge on computer science, e.g., software and hardware applications. They should be skillful at collecting the useful information from Internet, e.g., a comprehensive survey, and at fundamental knowledge of experiment and simulation. They should be skillful at basic arithmetic knowledge and reasoning and induction methods, etc. They should be capable of analyzing and summarizing the outcomes from experiments, curriculum designs, and other teaching practices. They should be skillful at writing the literature review and thesis.

Knowledge on humanities and social science: Undergraduates should be capable of knowing some famous literary writers and their representative works by reading a number of classic literatures, having perception and insight in civil life and society and improving the literary knowledge, understanding the history of Chinese civilization and especially the history of modern revolution. Additionally, they should own a strong national responsibility and knowing major events in the history of worldwide science and technology.

Undergraduates should systematically study and master the Marxist philosophy and basic materialist dialectics, be capable of analyzing information from the philosophical perspective of the Marxist standpoint and method. They should own the traditional Chinese moral and ethics and be capable of understanding the major content of Mao Zedong Thought, Deng Xiaoping Theory, Three Represents, and Xi Jinping Thought with practice. They should be capable of having preliminary knowledge on artistic accomplishment, understanding common legal knowledge, owning legal awareness and concept, having basic sociology knowledge and understanding society and the basic psychological knowledge. They should understand the basic psychological characteristics resulting in the self-psychological adjustment.

Natural Sciences Knowledge: Undergraduates should have necessary knowledge of advanced mathematics and engineering mathematics with clear basic concept and skilled in deduction and calculation. They should be able to use the mathematics flexibly during the study of professional courses, and master necessary knowledge of college physics which required clear concept and solid theory as well as strong experimental skill. Besides, they should have basic knowledge of chemistry and life science. The consciousness and basic knowledge of saving resources and protecting environment are also be required.

Engineering Technology Knowledge: Undergraduates should have basic knowledge of mechanical engineering drawing, and able to read and draw general engineering drawings. They should have knowledge of circuit theory, analog and digital electronics. They should be familiar with the principle and analysis method of common electronic circuit, and analyze complex electronic circuit with the ability to design and debug electronic circuits. They should also have certain knowledge of computer software and hardware, programming technology, microcomputer, DSP, embedded system and other related technologies, and understand the preliminary knowledge of computer control and management of the system. Knowledge of signal acquisition, detection, processing, storage and utilization in electronic information system are also required. Besides, undergraduates should understand the basic knowledge of electronic information system engineering design, implementation and detection, and have certain engineering practice ability.

Professional Knowledge: Undergraduates should systematically learn and master knowledge of circuits

and electronics, signals and systems, electromagnetic fields and electromagnetic waves. They should be proficient in electronic information system design, radio technology and electronic information processing and other professional knowledge. Moreover, they should have certain application ability in 1-2 professional knowledge directions.

4. Learning to Develop Themselves

Autonomous Learning: Undergraduates should have awareness of lifelong learning and professional development. They should understand the core concepts and the development paths of Electronic Information Science and Technology, and have professional planning to achieve learning goals and to fulfill employment expectations. They should be able to combine comprehensive learning abilities, including basic knowledge learning, experimental skills upgrading and innovative scientific research, to cultivate the characteristics of future inter-disciplinary senior professionals. They should develop the habit of autonomous learning with self-management ability

International vision: Undergraduates should have a global awareness and an open mind, and cultivate an international vision. In addition to knowing the cutting-edge trends of the reform and development in international Electronic Information Science and Technology education, they should also actively participate in international exchanges, interactions.

Reflection and Research: Undergraduates should master the basic method of practical research, have certain scientific research ability of carrying out basic scientific research.

Exchange and Cooperation: Undergraduates should have team cooperation spirit. They should be able to effectively express their ideas orally or in writing, and master the skills to communicate and cooperate with others.

三、主干学科

Ⅲ. Core Discipline

电子科学与技术

Electronic Information Science and Technology

四、主干课程

Ⅳ. Main Courses

电路分析、模拟电子技术、数字电子技术、大学物理、C 程序设计、电子设计自动化（EDA）、信号与系统、数字信号处理、数字图像处理、电磁场与电磁波、通信原理、数据结构、微机原理与接口技术、通信网络

Circuit Analysis, Analog Electronic Technology, Digital Electronic Technology, University Physics, C Programming, Electronic Design Automation (EDA), Signals and Systems, Digital Signal Processing, Digital Image Processing, Electromagnetic Field and Electromagnetic Wave, Communication Principle, Data Structure, Microcomputer Principle and Interface Technology, Communication Network

五、学制

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credit

162 学分

162 Credits

七、课程设置及学分比例

Ⅷ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.93%	33.33%
	通识教育选修课 Liberal Studies Elective Courses	12		7.41%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	25	44	15.43%	27.16%
	本学科基础课 Disciplinary Foundation Courses	19		11.73%	
专业课程模块（已包含专业技能模块） Specialized Courses (Professional Skills Block Included）	专业核心课程 Specialized Core Courses	37	51	22.84%	31.48%
	专业方向课程 Specialized Orientation Courses	8		4.94%	
	专业拓展课程 Specialized Development Courses	6		3.70%	
实践教学模块 Practice work	必修课 Compulsory Courses	13	13	8.02%	8.02%
合计 Total		162		100%	

说明
Notes

1. 专业必修课（包括专业核心课程和学科基础课程）共 28 门，其中双语课程 1 门。

2. 专业方向课共 9 门，专业拓展课程 5 门。学生应从专业方向课程中至少选修 8 学分，从专业拓展课程中至少选修 6 学分。

3. 实验课程共 19 门，含综合性、设计性实验的课程 9 门，占实验课程总数的 47.3%。

4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 30.0%。

1. There are 28 compulsory courses, including 1 bilingual courses .

2. There are 9 Specialized Core Courses and 5 Specialized Development Courses. Undergraduates should obtain 8 credits in total by taking s Specialized Core Courses and 6 credits by taking Specialized Development Courses.

3. There are 19 experimental courses in total including 9 synthetic and designing experimental courses which is 47.3% of the total experimental courses.

4. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 30.0% of the total credits.

八、电子信息科学与技术专业本科教学计划表

Ⅷ. Teaching Scheme for Electronic Information Science and Technology Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1.通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
0611107	计算机基础 Fundamentals of Computer	1	2	36	36	2	考试 Exam.
0622036	C 程序设计 C Programming	2	3	54	36	3	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses (12 credits)

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（44 学分）

（Ⅱ）Disciplinary Foundation Courses (44 credits)

1. 相关学科基础课（25 学分）

1. Related Disciplinary Foundation Courses (25 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521201	高等数学—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		4	考试 Exam.
0521202	高等数学—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
0621003	概率论与数理统计 Probability Theory and Mathematical Statistica	4	3	54		3	考试 Exam
0622038	基础物理学 1（力学） Fundamental Physics（Mechanics ）	1	4	72	0	4	考试 Exam.
0622040	基础物理学 2（热学、电磁学） Fundamental Physics（Electromagnetism）	2	4	72	0	4	考试 Exam.
0622302	普通物理实验 1 General Physics Experiments 1	1	1		54	2	考试 Exam.
0641139	普通物理实验 2 General Physics Experiments 2	2	1		54	2	考试 Exam.
0641140	普通物理实验 3 General Physics Experiments 3	3	1		54	2	考试 Exam.
0641154	化学概论 Introduction to Chemistry	1	3	54		3	考试 Exam.

2. 本学科基础课（19 学分）

2. Disciplinary Foundation Courses (19 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0641401	学科导引课程 Subject guidance curriculum	1	2	36	0	讲座 lecture	考试 Exam.
0622033	电路分析及实验 Circuit Analysis	2	4.5	72	36	4	考试 Exam.
0641037	模拟电路及实验 Analog Circuit and Experiments	3	4.5	72	36	4	考试 Exam.
0641138	数字电路及实验 Digital Circuit and Experiments	4	3.5	54	36	3	考试 Exam.
0622115	信号与系统（双语） (bilingual course)	5	4.5	72	36	4	考试 Exam.

（三）专业课程模块（51 学分）

（Ⅲ）Specialized Courses (51 credits)

1. 专业核心课程（37 学分）

1. Specialized Core Courses (37 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0641134	数据结构及实验 Data Structure and Experiments	3	3	54	36	3	考试 Exam.
0641135	单片机与接口技术及实验 Microcomputer Interface	3	3	36	36	2	考试 Exam.
0641039	微机原理及实验 Microcomputer Principle and Experiments	5	4	72	36	4	考试 Exam.
0641167	电子工程实践 Electronic Engineering Practice	4	2	18	72	2	考查 Quiz
0641041	高频电子线路及实验 High Frequency Circuit	5	3	54	36	3	考试 Exam.
0641176	EDA 技术及实验 EDA Technology and Experiments	5	3	45	54	3	考查 Quiz

0641060	数字信号处理及实验 Digital Signal Processing	6	3	54	36	3	考试 Exam.
0641036	研究方法与学术论文写作 Research Method and Thesis Writing	6	1	18	18	讲座	考查 Quiz
0641136	自动控制原理及实验 Principle of Automatic Control	6	3	54	36	3	考试 Exam.
0641137	通信原理及实验 Communication Principle and Experiments	6	3	54	36	3	考试 Exam.
0641001	离散数学 Discrete Mathematics	3	2	36		2	考试 Exam.
0641005	线性代数 Linear Algebra	3	2	36		2	考试 Exam.
0641004	复变函数 Complex Functions	4	2	36		2	考试 Exam.
0641042	传感器与检测技术及实验 Sensor and Detection Technology and Experiments	6	3	54	36	3	考试 Exam.

2. 专业方向课程（8 学分）

2. Specialized Orientation Courses (8 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0642047	工程制图 Engineering Drawing	4	2.5	36	36	2	考试 Exam.
0642427	电子系统设计与制作 Electronic System Design	5	1.5	9	54	2	考查 Quiz
0642125	科技英语 English for Science and Technology	6	2	36		2	考试 Exam.
0642072	数字图像处理 Digital Image Processing	7	3	54	18	3	考试 Exam.
0642423	通信网络 Communication Networks	6	2	36	18	2	考试 Exam.
0642084	电磁场与电磁波 Electromagnetic Field and Electromagnetic Wave	4	3	54		3	考试 Exam.
0642079	人工智能导论 Introduction to Artificial Intelligence	5	2	36		2	考试 Exam.
0642078	信号检测与估计 Signal Detection and Estimation	8	2	36		2	考试 Exam.
0642085	信息论基础 Introduction to Information	6	3	54		3	考试 Exam.

3. 专业拓展课程（6 学分）

3. Specialized Development Courses (6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hre.	实验/实践学时 Experiment/ Training Hre.	周学时 Weekly Hrs.	考试方式 Evaluation
0643303	MATLAB 及实验 MATLAB and Experiments	5	2	36	18	4	考查 Quiz
0643089	电子学科竞赛实践一 Electronic Design Practice I	5	2	18	36	4	考查 Quiz
0643089	电子学科竞赛实践二 Electronic Design Practice II	6	2	9	54	4	考查 Quiz
0643090	现代仿真技术与应用 Modern Simulation Technology and Application	7	2	36		2	考查 Quiz
0643607	神经元兴奋动力学 Dynamics of Neuronal Excitability	6	2	36		4	考查 Quiz
0643091	非线性动力学导论 Introduction to Nonlinear Dynamics	6	2	36		4	考试 Exam.

说明：

电子学科竞赛实践一课程为大学生电子设计竞赛的专题课程，经认定的成绩优秀者获得第六学期的电子学科竞赛实践二课程选课资格。

选修电子学科竞赛实践二的同学需是电子学科竞赛实践一课程经认定的成绩优秀者；经认定的本课程的成绩优秀者将获得电子竞赛参赛资格参赛(电子竞赛成功参赛可替代第七学期为期两个月两学分的专业实习，竞赛获奖按学校相关规定可额外认定学分)。

（四）专业技能模块（已并入专业课程模块）

（Ⅳ）Professional Skills Courses(Included in Specialized Courses）

（五）实践教学模块（13 学分）

（Ⅴ）Practice Work（13 credits）

课程编码 Course Code	课程名称 Course Name	学期 Semester	学分 Cre.	学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0650017	必读书目阅读 Required Readings	1-4	1				考查 Quiz
0650023	专业见习 Professional Visits	1-7	2				考查 Quiz
0650032	专业实习 Professional Practice	7	2				考查 Quiz
0650021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0650022	科研训练 Scientific Research Training	5-8	1				考查 Quiz
0650033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

化学化工学院
School of Chemistry & Chemical Engineering

- 化学（师范）

  Chemistry (Normal)

- 化学（创新实验班）

  Chemistry (Innovative and Experimental Class)

- 应用化学

  Applied Chemistry

化学专业（师范）简介
Introduction to the Specialty of Chemistry (Normal)

化学专业学制 4 年，专业属性为师范专业，是“教育部卓越中学教师培养计划项目”承担专业之一。该专业始建于 1944 年，是陕西师范大学优势特色专业之一，先后获评国家级特色专业、陕西省级名牌专业。依托该专业，学院建设有国家级实验教学示范中心 2 个（化学实验教学中心和化学虚拟仿真实验教学中心）。在全国第四轮高等学校学科评估中，化学学科位列 B+行列。

目前该专业在职任课教师 118 人，其中教授 63 人，副教授 49 人，讲师 6 人；具有博士学位的教师 103 人；国家级教学名师 1 人，陕西省教学名师 2 人，国家教材委员会委员、国家督学和国家高中化学课程标准修订组组长各 1 人。

本专业主要培养具有优秀的人文与科学素养、良好的道德风貌，具有宽厚扎实的化学和相关理学基础知识及实验技能，富有创新意识，能从事化学基础教育的优秀教师、教育管理者和未来教育家。

Established in 1944 at SNNU, the chemistry major teaches chemical education with a four-year undergraduate program, which is one of the majors undertakes the “Excellent Middle School Teacher Training Project” from the Ministry of Education. As one of the best majors at SNNU, the chemistry major has been awarded Provincial AAA Major and National Major with Special Features. Based on chemistry major, the School of Chemistry at SNNU has founded two National Experimental Teaching Demonstration Centers (Chemistry Experimental Teaching Center and Chemistry Virtual Simulation Experimental Teaching Center). In The fourth round of academic assessment of higher education institutions of China, chemistry site in B+.

There are 118 faculty members providing various courses for chemistry major, including 63 full-time professors, 49 associate professors and 6 lecturers. Among them there are 103 doctorate degree holders, 1 national outstanding teacher and 2 provincial outstanding teachers. 1 National School Materials Committee member, National Inspector and Head of the National High School Chemistry Curriculum Revision Team.

Chemistry major aims to cultivate the researchers, chemistry teachers and administrative managers for research institutions, key high schools and enterprises, by equipping undergraduates with excellent humanities and scientific literacy, good moral character, solid basic theory, basic knowledge and basic skills of chemistry with a sense of innovation.

化学专业（师范）
The Specialty of Chemistry (Normal)

一、培养目标

Ⅰ. Educational Objectives

1. 目标定位

本专业立足西部、面向全国，培养适应国家基础教育发展需求，德、智、体、美、劳全面发展，身心健康，具有高尚的师德修养和立德树人情怀，熟练掌握基于科学文化的化学专业知识和技能，具备突出的化学教育教学能力、创新思维能力、信息技术应用能力及语言沟通交流能力，熟悉教育教学规律和方法，具备卓越教师潜质的优秀化学教师。毕业后再经过 5-8 年的持续培养和发展，成长为在区域内具有引领作用的卓越化学教师。

1. Objective Orientation

The program of Chemistry is aimed at training chemistry teachers for the national basic education. The students graduated from this major should master the knowledge and skills of related chemistry discipline and be proficient in chemistry teaching, creative thinking, communication skills and application of information technology. The students should also have good physical and mental health and be familiar with the teaching rules and methods. The students are expected be become outstanding chemistry teachers in their region, with 5-8 years of further development after their graduation.

2. 目标内涵

（1)适应国家基础教育发展需求，德、智、体、美、劳全面发展，身心健康，具有高尚的师德修养和立德树人情怀，了解中学生身心发展特点和成长规律；拥有宽厚扎实的专业基础知识，具备较强的化学专业基础和实验技能；视野开阔，善于创新，社会适应能力强。

（2)熟练掌握基于科学文化的化学专业知识和技能。具有良好的化学教学设计能力和课堂组织能力，善于运用现代信息技术；熟悉课程改革的最新进展，能够基于课程标准指导课堂学习和课外活动。

（3)具备突出的化学教育教学能力及语言沟通交流能力。善于在化学教学中进行育人活动，将化学知识学习、能力发展和品德养成有机结合；具备较强的教育教学管理能力，能够胜任班主任工作。

（4)熟悉教育教学规律和方法，了解国内外基础教育发展的趋势和前沿动态，不断更新自己的教育理念和教育方式；善于独立思考，能够针对实际教育问题开展科学、严谨的研究；具有团队协作精神，能通过校内外教研活动开展专业交流。

（5）毕业后再经过 5-8 年的持续培养和发展，成长为在区域内具有引领作用的卓越化学教师。

2. Objective Connotation

(1) Having deep love for the chemistry education cause, possessing broad and solid professional basic knowledge, having strong chemistry professional foundation and experimental skills. Caring for students, understanding the characteristics and growth rules of middle school students' physical and mental development. Having broad vision, strong social adapt ability, being good at innovation, and being able to work independently.

(2) Having good abilities of chemistry instructional design and class organizing, being good at using modern information technology, conducting demonstration class. Being familiar with the latest progress of curriculum reform and being able to guide classroom learning and extracurricular activities based on curriculum standards. Making outstanding achievements in education and teaching.

(3) Being good at educating people in chemistry teaching and organically combining the learning of chemistry knowledge, ability development and morality cultivation. Having strong ability in education and teaching management, being qualified with the class supervisor work. Having firm educational belief and being able to influence students with their personality charm and being a guide for students' healthy growth.

(4) Keeping well informed of the development tendency and frontier dynamics of basic education at home and abroad, updating their educational idea and educational methods constantly. Being adept at independent thinking, being able to carry out scientific and rigorous research on practical education issues. Having good teamwork spirit, possessing abilities of professional communication through teaching and research activities inside and outside school, having a certain influence in the working area.

（5）The students are expected be become outstanding chemistry teachers in their region, with 5-8 years of further development after their graduation.

3. 目标评价

（1)依据国家形势和教育政策的变化，及时对培养目标进行修订。紧随时代发展，借助政府主管部门、学校管理部门以及中学相关部门的力量，把握人才需求方向，培养符合国家基础教育改革发展需求的中学化学教师。

（2)以学年为单位，建立稳定的培养目标修订机制。依照培养目标，对人才就业情况与表现进行持续调研，并邀请领域内的专家对培养体系进行论证。建立信息公开平台，对培养目标修订提供条件支撑，随时将目标及其理念进行公开，征求各方利益群体的意见与建议，并将目标评价的修订完善随时向公众特别是利益相关主体进行公开。

（3)建立历年培养方案变化的跟踪机制。每年对学生表现情况、不同课程毕业要求的支撑情况进行分析，作好记录和分析；通过收集用人单位、学生、高校教师、学生家长的意见和建议，了解培养方案的优势和不足，建立档案，不断进行优化。

3. Objective Evaluation

(1) In accordance with the changes in the national situation and educational policies, the training objectives will be revised in time. With the development of the times and the help of government departments, school management departments and the relevant departments of middle schools, we will grasp the direction of talent demand and cultivate middle school chemistry teachers who meet the needs of national basic education reform and development.

(2) A stable training target revision mechanism is established based on the academic year. According to the training objectives, the employment situation and performance of talents are continuously investigated, and experts in the field are invited to demonstrate the training system. Establish a platform for information disclosure, provide conditional support for the revision of training objectives, open the objectives and their concepts at any time, solicit opinions and suggestions from all stakeholders, and make the revision and perfection of the objective evaluation open to the public, especially stakeholders at any time.

(3) A tracking mechanism for changes in training programs has been established over the years. Students' performance and the support of different courses' graduation requirements have been analyzed and recorded every year. We can understand the advantages and disadvantages of the training programs establish files and constantly optimize it by collecting the opinions and suggestions of employers, students, college teachers and students' parents.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在 4-6 年修读年限内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 自觉贯彻党和国家的教育方针、政策，以立德、树人为己任。遵守教师职业道德规范，具有依法执教意识，立志成为有理想信念、有道德情操、有扎实学识、有仁爱之心的好老师。认同化学教师工作的意义和专业性，培养德、智、体、美、劳全面发展的社会主义建设者和接班人。

2. 懂得人文关怀，富有科学素养。具有从教意愿，认同化学教师的专业性和独特性，关爱每一个学生，尊重学生，富有爱心、责任心、耐心和细心；为人师表，教书育人，自尊自律，以人格魅力和学识魅力教育感染学生，通过所开展的教学活动，做中学生健康成长的指导者和引路人。

3. 掌握基于化学学科核心素养的化学知识体系、思想方法和基本技能，理解其教育价值；具备跨学科相关知识，并能在整合之后正确认识和解决化学基础教育教学过程中所面临的各种问题。

4. 认识化学教育本质，理解化学学科核心素养在塑造中学生成长中的教育价值；理解教师是学生学习化学知识和个性发展的促进者，能够规范地进行教学设计，并基于训练有素的教学技能开展各种形式的教学活动；能够对教学活动进行教、学、评相统一的测量与评价，具备课程整合与综合性学习设计与实施能力。

5. 掌握常见化学专业软件，熟练运用信息技术从事化学教学，获取并创设教育教学资源；能通过虚拟仿真完成化学实验操作，解决化学教学中的疑难问题；综合运用现代信息技术，创设自主、合作、探究式学习环境，引导学生转变学习方式。

6. 熟悉中学教育的基本原理和规律，掌握班集体建设与班级管理的策略与方法。能够根据中学生的特点，创造性地进行班集体建设，通过与家长及社区沟通、合作，开展班级教育活动、指导学生发展、评价综合素质。能够在班主任工作实践中，参与德育和心理健康等教育活动的组织与指导。

7. 树立育人为本的理念，掌握育人基本知识与技能，善于抓住教育契机，能够创设育人环境，促进中学生的全面和个性化发展。理解化学学科的育人价值，能够结合化学教学，发展学生的关键能力、必备品格和正确的价值观念。理解学校文化和教育活动的育人内涵，能够组织主题教育，引导学生全面发展。

8. 具有自主学习意识，养成自主学习习惯，具备自主学习能力。能够制定体现教师专业发展核心内容和符合教师专业发展路径的规划，不断优化知识结构，提高专业素质和从业能力，适应社会发展对高素质化学教师不断提高的要求。

9. 具有全球意识和开放心态，能够利用英语阅读并了解国外化学基础教育改革发展的趋势和动态，积极参与国际化学教育交流；能够积极学习并借鉴国外先进化学基础教育的经验和做法，持续改进和引领我国，特别是西部地区化学基础教育改革与发展。

10. 理解反思在教师专业能力发展中的地位与作用，运用批判性思维方法，从学生学习、课程教学、学科理解等不同角度反思分析和解决化学教育教学中的问题。具有创新意识，掌握教育实践研究方法，初步具备开发校本课程和开展化学教育教学研究的能力。

11. 能够理解学习共同体的作用，具有团队协作的意识。能够就学生发展与化学教育等问题，与同行、学生家长、社会公众等进行有效沟通和交流。具备开展小组互助和合作学习的能力。

Chemistry undergraduates will be able to graduate with the following basic requirements after 4-6 years of study and completion of the credits stipulated in the teaching plan.

1. Chemistry undergraduates should master the basic theoretical knowledge of socialism with Chinese characteristics, recognize and practice the socialist core values and code of conduct. They should be familiar with the basic laws and regulations, the basic current situations and the development trend of chemistry education in China. They should establish a firm professional belief in chemistry education and develop noble professional ethics of chemistry education. They should abide by the professional ethics of middle and primary school teachers. Chemistry undergraduates should improve self-cultivation, practice teacher’s ethics through spiritual experience, and interpret the true connotation of ethics and teaching style of teachers in practices.

2. Chemistry undergraduates should have the willingness to teach, recognize the significance and professionalism of teachers’ work. They should have positive emotion and hold correct attitudes and values. Besides, they must love their work and be devoted to it, and set up ambitions of lifelong for education career. Being chemistry teachers, they must understand students, respect students, and care for students. In addition, they must set examples for students, set high moral values and cultivate students. With their own personality strength and charm, they can impress students and help students to grasp the direction of life.

3. Chemistry undergraduates should have sufficient chemistry discipline literacy and education theory accomplishment, focus on understanding and mastering the core connotation of chemistry subject, master the basic skills necessary for chemical science (computational, experimental, chemical symbolic language), understand the relevant knowledge of trans-chemical disciplines (such as mathematical culture, scientific culture, humanistic connotations, etc.), and then integrate and form the knowledge of subject teaching. Besides, they should recognize their own chemical problems, natural problems, social problems and life problems.

4. Chemistry undergraduates should understand the essence of education, understand the core accomplishment of chemistry discipline in shaping middle school student' education value, and teachers play the role of facilitators in students' learning and development. They should master the ability to organize and design courses, effectively implement the teaching based on student-centered and scientific inquiry-based learning. Besides, they should be familiar with measure and evaluate teaching, understand the path of professional development of chemistry teachers, and master the ability to develop for life.

5. Chemistry undergraduates should master the use of common chemistry software, be able to get chemical resources for teaching and be familiar with information technology for chemistry teaching. They should be able to carry out virtual-reality experiments, facilitating chemistry teaching.

6. Chemistry undergraduates should set up the concept of moral education first. In addition to understanding the principles and methods of moral education in middle school and mastering the working rules and basic methods of class organization and construction. Moreover, they must be good at coordinating and unifying the education forces of school, family and society, striving to build the education collective with the school as the core, class education as the main position, and the unified education goal, doing the class management work well together, and actively participating in the organization and guidance of education activities such as moral education and mental health education.

7. Chemistry undergraduates should be able to establish equal teacher-student relationship and help students establish good peer relationship. According to the characteristics of middle school students and chemistry teaching, they can organize and carry out moral education activities and education activities which are beneficial to students' physical and mental development. They should able to guide the students in the development of ideal, psychology, study and other aspects.

8. Chemistry undergraduates should understand teachers are reflective practitioners. They should use the critical thinking method to develop the habit of reflecting and analyzing problems from different perspectives such as students' learning, course teaching and subject understanding, so as to improve teaching . They should have the teaching research ability with reflection and inquiry as the core.

9. Chemistry undergraduates should recognize that the chemistry teacher team is a learning community. They should learn to communicate and cooperate with others and learn from each other, use teamwork spirit in teaching, take the initiative to participate in teaching activities, and dare to take responsibility. Besides, deeply experiencing the cooperative learning activities such as mutual aid, cooperative research and group practice, then they should be willing to share and exchange practical experience. They should be able to effectively express their ideas orally or in writing.

10. Chemistry major undergraduates should have awareness of lifelong learning and professional development. They should pay attention to professional development, formulate professional development planning according to their own chemical background and professional needs, and constantly improve their own chemical professional quality. They should constantly optimize their knowledge structure and improve their culture quality.

11. Chemistry undergraduates should have a global awareness and an open mind, cultivating an international vision. In addition to knowing the cutting-edge trends of the reform and development in international Science education, they should also actively participate in exchanges, interactions and in-depth contacts with foreign education institutions. They should learn from foreign advanced education concepts and experience to improve the current situation of domestic middle school chemistry teaching.

三、主干学科

III. Core Disciplines

化学、教育学、心理学、教育技术学

Chemistry, Pedagogy, Psychology, Educational Technology

四、主干课程

Ⅳ. Main Courses

无机化学、有机化学、化学分析、仪器分析、物理化学、结构化学、化工基础、化学教学论、高等数学、普通物理、大学外语、计算机基础、化学基础实验、化学综合实验、研究型化学实验、心理学基础、教师专业发展、教育技术学

Inorganic Chemistry, Organic Chemistry, Analytical Chemistry, Instrument Analysis, Physical Chemistry, Structural Chemistry, Fundamental in Chemical Engineering, Chemoinformatics, Chemistry Teaching Theory, Higher Mathematics, General Physics, College English, Pedagogy, Psychology, Basic Computer Technology, Basic Chemistry Experiments, Comprehensive Chemical Experiments, Research-led Experiments, Chemistry Teaching Methodology of Middle School

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credit

158.5 学分

158.5 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 **Course Catalogue**		学分及比例 **Credits and Percentage**			
		学分 **Cre.**	小计 **Sub-Total**	占总学分比例 **Percentage in Total Credits**	小计 **Sub-Total**
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	26.2%	31.5%
	通识教育选修课 Liberal Studies Elective Courses	12		5.2%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	12.5	18.5	8.2%	12.1%
	本学科基础课 Disciplinary Foundation Courses	6		3.9%	
专业课程模块 Specialized Courses	专业必修课 Specialized Compulsory Courses	42.5	57.5	27.9%	37.7%
	专业限定选修 Specialized Restrictive Elective Courses	9		5.9%	
	专业任意选修课 Specialized Non-Restrictive Elective Courses	6		3.9%	
教师教育模块 Teacher-Training Courses	公共必修课 General Compulsory Courses	6	11.5	3.9%	7.5%
	学科必修课 Disciplinary Compulsory Courses	5.5		3.6%	
实践教学模块 Practice Work	必修课 Compulsory Courses	17	17	11.1%	11.1%
合计 Total		158.5		100%	
说明 Notes	1. 专业必修课（包括学科基础课程）共 25 门。 2. 专业选修课共 34 门（含双语课程 3 门），其中专业限定选修课程 17 门,专业任意选修课程 17 门。学生应从专业限定选修课程中至少选修 9 学分。专业任意选修课程共三个系列，学生应从每个系列中至少选修 1 门课程，总学分不低于 6 学分。				

	3. 实验课程共 12 门，其中独立开设的实验课 9 门，既有理论又有实验的课程 1 门，含综合性、研究型实验的课程 2 门。 4. 本专业学科专业课程包括学科基础模块课程、专业课程模块课程和教师教育模块、实践教学模块中的学科专业课程，其学分占总学分比例为 65.9 %。 5. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 25.6 %。 1. There are a total of 25 specialized compulsory courses (including Disciplinary Foundation Courses). 2. There are a total of 34 specialized Elective Courses (3 bilingual courses), including 17 Specialized Restrictive Elective Courses and 17 Specialized Non-restrictive Elective Courses. Undergraduates are required to obtain at least 9 credits in total by taking Specialized Orientation Courses. There are 3 series of Specialized Development Courses, and undergraduates are required to take at least one course in each series and at least 6 credits in total. 3. There are a total of 12 experimental courses, including 9 independent experiment courses, 1 theoretical-practical experiment courses, and 2 research-oriented experiment courses. 4. Discipline curriculum includes the related courses in the modules of disciplinary foundation courses, specialized course, teacher-training courses, and practice work, and the ratio is 65.9 % of the total credits. 5. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 25.6% of the total credits.

八、化学本科教学计划表

Ⅷ. Teaching Scheme for Chemistry Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam
1711005-1711011	形势与政策（1-7） The Current Situation and Policy (1-7)	1-7	2				考查 Quiz
2011011	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文（理、艺、体） College Chinese(for Science, Art and P.E. Specialties)	2	2	36		2	考试 Exam
1211044	计算机基础（理工科） Fundamentals of Computer(for Science Specialties)	1	2	27	18	2	考试 Exam
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36		考试 Exam
0411046	大学外语（一） College English 1	1	3	36	36		考试 Exam
0411047	大学外语（二） College English 2	2	3	36	36		考试 Exam
0411048	大学外语（三） College English 3	3	3	36	36		考试 Exam
0411049	大学外语（四） College English 4	4	2	36			考试 Exam
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam
1011040	大学体育（二） Physical Education 2	2	1		36	2	考试 Exam

1011041	大学体育（三） Physical Education 3	3	1		36	2	考试 Exam
1011042	大学体育（四） Physical Education 4	4	1		36	2	考试 Exam
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（18.5 学分）

（Ⅱ）Disciplinary Foundation Courses (18.5 credits)

1. 相关学科基础课（12.5 学分）

1. Related Disciplinary Foundation Courses (12.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1(for Science Specialties)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2(for Science Specialties)	2	4	72		4	考试 Exam.
0721011	普通物理及实验 General Physics and Experiments	3	4.5	72	18	5	考试 Exam.

2. 本学科基础课（6 学分）

2. Disciplinary Foundation Courses (6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0722020	无机化学（上） Inorganic Chemistry I	1	3	54		3	考试 Exam.
0722012	无机化学（下） Inorganic Chemistry II	2	3	54		3	考试 Exam.

（三）专业课程模块（57.5 学分）

（Ⅲ）Specialized Courses (57 .5 credits)

1. 专业必修课（42.5 学分）

1. Specialized Compulsory Courses (42.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0741077	化学实验室安全与规范 Chemistry Laboratory Safety and Regulation	1	0.5	10		2	考试 Exam.
0741078	化学学科专业导论 Introduction to Chemistry	1	0.5	10		2	考查 Quiz
0741065	化学分析 Chemical Analysis	2	2.5	46		3	考试 Exam.
0741051	有机化学（上） Organic Chemistry I	3	3	54		3	考试 Exam.
0741052	物理化学（上） Physical Chemistry I	3	3	54		3	考试 Exam.

0741029	有机化学（下） Organic Chemistry II	4	3	54		3	考试 Exam.
0741031	物理化学（下） Physical Chemistry II	4	3	54		3	考试 Exam.
0741001	仪器分析 Instrumental Analysis	5	3.5	64		4	考试 Exam.
0741053	结构化学 Structural Chemistry	5	3	54		3	考试 Exam.
0741021	研究方法与学术论文写作指导 Guidance on Research Approach and Academic Dissertation Writing	6	1	18		2	考试 Exam.
0741081	化工基础 Fundamentals and Experiments in Chemical Engineering	6	3	54		4	考试 Exam.
0744040	化工基础实验 Fundamentals Experiments in Chemical Engineering	6	1		18	4	考试 Exam.
0741063	高分子化学导论 Principles and Experiments of Polymer Chemistry	6	2	36		2	考试 Exam.
0744030	基础无机化学实验（上） Basic Experiments in Chemistry I	1	1.5		54	4	考试 Exam.
0744031	基础无机化学实验（下） Basic Experiments in Chemistry II	2	1.5		54	4	考试 Exam.
0744023	基础分析化学实验 Experiments in Analytical Chemistry	2	1		36	4	考试 Exam.
0744032	基础有机化学实验（上） Experiments in Organic Chemistry I	3	1.5		54	4	考试 Exam.
0744033	基础有机化学实验（下） Experiments in Organic Chemistry II	4	1.5		54	4	考试 Exam.
0744034	基础物理化学实验（含结构） Experiments in Physical /Structural Chemistry	4	2		72	4	考试 Exam.
0744035	基础仪器分析实验 Experiments in Instrumental Analysis	5	1.5		54	4	考试 Exam.
0745001	化学综合实验 Comprehensive Chemical Experiments	5	1.5		54	8	考试 Exam.
0746011	研究型设计实验 Research-oriented Experiments	5	1.5		54	8	考试 Exam.

2. 专业限定选修课（9 学分）

2. Specialized Restrictive Courses (9 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0742022	配位化学 Coordination Chemistry	3	1.5	28			考查 Quiz
0742002	中级无机化学 Intermediate Inorganic Chemistry	4	1.5	28			考查 Quiz
0742005	金属有机化学 Organometallic Chemistry	3	1.5	28			考查 Quiz
0742006	天然产物化学 Natural Product Chemistry	4	1.5	28			考查 Quiz
0742051	无机材料化学 Inorganic Materials Chemistry	4	2	36			考查 Quiz
0742025	统计热力学基础 Elemental Statistical Thermodynamics	5	1.5	28			考查 Quiz
0742038	生物化学 Biochemistry	4	1.5	28			考查 Quiz
0742023	有机合成化学 Chemistry for Organic Synthesis	5	1.5	28			考查 Quiz
0742024	高等有机化学 Advanced Organic Chemistry	5	1.5	28			考查 Quiz
0742010	胶体与界面化学 Colloid and Interface Chemistry	5	1.5	28			考查 Quiz

0742044	工业催化 Industrial Catalysis	5	1.5	28			考查 Quiz
0742009	分离科学 Separation Science	5	1.5	28			考查 Quiz
0742019	化学信息学 Chemoinformatics	6	1.5	28			考查 Quiz
0742042	化学生物学导论 Chemical Biology	6	2	36			考查 Quiz
0742037	结晶化学 Crystal Chemistry	6	1.5	28			考查 Quiz
0742036	现代分析化学（双语） Modern Analytical Chemistry (Bilingual Course)	6	1.5	28			考查 Quiz
0742054	专题教学研究与化学教育前沿发展 Teaching Research about Special Topic and the Frontier Development of Chemical Education	8	1.5	28			考查 Quiz
0742053	普通化学(全英语） General Chemistry （English Course ）	6	1.5	28			考查 Quiz

3. 专业任意选修课（6 学分）
3. Specialized Non-restrictive Courses (6 credits)
3.1 专业任意选修课系列（I）
3.1 Specialized Non-restrictive Courses（I）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0743004	无机合成化学 Synthesis in Inorganic Chemistry	3	2	36			考查 Quiz
0743075	物理化学（双语） Physical Chemistry (Bilingual Course)	4	2	36			考查 Quiz
0743005	生物无机化学 Bioinorganic Chemistry	5	2	36			考查 Quiz
0744036	计算化学实验 Computational Chemistry Experiment	6	2	36			考查 Quiz
0744037	中级分析化学实验 Intermediate Experiments of Analytical Chemistry	6	1	18			考查 Quiz
0743027	不对称催化 Asymmetric Catalysis	6	2	36			考查 Quiz
0743014	高分子合成技术 Synthetic Polymer Technology	6	2	36			考查 Quiz
0743060	纳米材料 Nanometer Materials	4	1.5	28			考查 Quiz

3.2 专业任意选修课系列（II）
3.2 Specialized Non-restrictive Courses（II）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0743008	能源化学 Energy Chemistry	3	2	36			考查 Quiz
0743030	药学概论 Introduction to Pharmacy	4	2	36			考查 Quiz
0743016	化学科学发展史 History of Chemistry Science	3	2	36			考查 Quiz
0743024	分子设计 Molecular Design	5	2	36			考查 Quiz
0743025	超分子化学 Supramolecular Chemistry	5	2	36			考查 Quiz
0743009	化学专业英语 Specialized English for Chemistry	5	2	36			考查 Quiz

0743011	波谱学 Spectroscopy	6	2	36			考查 Quiz
0743015	科学教育与化学教学（双语） Science Education and Chemistry Teaching (Bilingual Course)	7	2	36			考查 Quiz

3.3 专业任意选修课系列（III）

3.3 Specialized Non-Restrictive Courses （III）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0743021	化学前沿讲座 Lectures on Latest Development in Chemistry	5	2	36			考查 Quiz

（四）教师教育模块（16.5 学分）

（Ⅳ）Teacher-Training Courses（16.5 credits）

1. 公共必修课（11 学分）

1. General Compulsory Courses（11 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2431028	心理学基础 The Basis of Psychology	2	1	18		2	考试 Exam.
2431029	儿童发展 Child Development	2	1	18		2	考试 Exam.
2431030	中学生认知与学习 The Cognition and Learning of Middle School Students	3	1	18		2	考试 Exam.
2431031	中学生品德发展与道德教育 Moral Development and Moral Education for Middle School Student	3	1	18		2	考试 Exam.
2431032	中学生心理辅导 Psychological Guidance for Middle School Students	4	1	18		2	考试 Exam.
1531003	中学教育学基础 Foundation of Middle School Education	4	3	54		3	考试 Exam.
1531005	现代教育技术（网络教学） Contemporary Educational Technology (Online Course)	4	1	18		1	考试 Exam.
1531004	教师专业发展与职业道德 Teacher’s Professional Development & Professional Ethics	5	2	36		2	考试 Exam.

2. 学科必修课（5.5 学分）

2. Disciplinary Compulsory Courses（5.5 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0731108	化学教学论 Chemistry Discipline Pedagogy	6	2.5	45	18	3	考试 Exam.
0731109	化学教学设计与微格教学 Teaching Design and Microteaching in Chemistry	6	2	36		2	考试 Exam.
0731110	课程标准与教材分析 Curriculum Standards and Teaching Material Analysis in Chemistry Subjects	6	1	18		2	考试 Exam.

3. 拓展课程（见通识教育选修课程“教师教育”系列）

3. Curriculum Exploration（See Teacher-Training Series of Liberal Studies Elective Courses）

（五）实践教学模块（17 学分）
（Ⅴ）Practice Work（17 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0750028	教师教学基本技能训练 Training of Teachers' Basic Teaching Skills		1				考查 Quiz
0750017	必读书目阅读 Required Readings		1				考查 Quiz
0750022	化学信息化教学技术 Application of ICT (Information Communication Technology) in Chemistry Teaching	6	1				考试 Exam
0750019	教育见习 School Visits	1-6	1				考查 Quiz
0750020	教育实习 Teaching Practice	7	6				考查 Quiz
0750021	教育实践与社会调查 Educational Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0750032	毕业论文（设计） Graduation Thesis	8	4				考查 Quiz

化学专业（创新实验班）简介
Introduction to the Specialty of Chemistry (Innovative and Experimental Class)

化学（创新实验班），学制 4 年，专业属性为非师范专业。本专业始建于 1944 年，先后入选陕西省级名牌专业、国家级特色专业和省级专业综合改革试点建设单位，现已成为我院创新人才培养的特色专业。依托该专业，学院建设有国家级实验教学示范中心 2 个（化学实验教学中心和化学虚拟仿真实验教学中心）。

目前该专业在职任课教师 109 人（具有博士学位的 104 人）,其中教授 62 人，副教授 40 人，国家级教学名师 1 人，陕西省教学名师 2 人，宝钢教师教育奖 2 人，明德教师奖 1 人，校级教学名师 1 人，建设了物理化学课程国家级教学团队和有机化学省级教学团队。

本专业主要培养具有良好的政治素质和道德修养、有坚实的化学基础知识和熟练的实验技能、较强的创新意识与创新能力、能胜任在化学及相关的科学技术和其他领域从事科研、教学、技术及管理工作的复合型高级专门人才。

Chemistry (Innovative and Experimental Class) is a non-teacher major with a four-year length of undergraduate academic study. It was established in 1944. As one of the characteristic and competitive major in SNNU, chemistry major has in succession been awarded Provincial AAA Major, National Characteristic Major, Provincial Pilot Planning Unit Conducting Comprehensive Major Reform. Based on chemistry major, we have one university innovation class and two National Experimental Teaching Demonstration Centers founded (Chemistry Experimental Teaching Center and Chemistry Virtual Simulation Experimental Teaching Center).

We have 109 faculty members with 104 of them are Doctoral Degree holders, providing various courses for chemistry major, including 62 full-time professors and 40 associate professors, 1 nationally outstanding teacher, 2 provincial outstanding teachers, 1 Baosteel Teacher Education Award holder, 1 Mingde Teacher Award holder, 1 university-level outstanding teacher. We have built one National physical chemistry teaching team and one Provincial teaching team of organic chemistry.

This speciality aims to cultivate interdisciplinary senior professionals who could serve as researchers, chemistry teachers and administrative managers for research institutions, key high schools and enterprises, by equipping undergraduates with excellent humanities and scientific literacy, good moral character, solid basic theory, basic knowledge and basic skills of chemistry with a sense of innovation.

化学专业（创新实验班）
The Specialty of Chemistry (Innovative and Experimental Class)

一、培养目标

Ⅰ. Educational Objectives

本专业培养德、智、体、美全面发展，身心健康，具有良好的政治素质和道德修养、有坚实的化学基础知识和熟练的实验技能、较强的创新意识与创新能力、能胜任在化学及相关的科学技术和其他领域从事科研、教学、技术及管理工作的复合型高级专门人才。

The program of Chemistry (experimental and innovative class) is aimed at development of good political quality and moral cultivation, and designed to provide a thorough grounding in theoretical principles, experiment skills, and highly innovation ability. Students in this area are able to qualify for scientific researching teaching, technology, and related management in the field of science and technology of chemistry and oriented-chemistry, and furthermore, directly start graduate study without taking an entrance exam if outstanding achievements.

二、毕业要求

Ⅱ. Graduation Requirements

学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国，掌握马列主义、毛泽东思想、邓小平理论和“三个代表”重要思想；坚持科学发展观，具有科学的世界观、正确的人生观和价值观以及高尚的道德品质。

2. 要求学生掌握数学、物理等方面的基本知识，系统掌握应用化学专业的基础理论、实验技能和基本方法；掌握一定的化学工艺与设备知识，具备运用所学知识和实验技能进行应用研究、科技开发、化工产品开发的基本技能；了解本学科的理论前沿、应用前景、最新发展动态，以及应用化学相关产业发展状况、知识产权等方面的政策、法规；掌握中外文资料查询,文献检索及运用现代信息技术获取相关信息的基本方法；熟练掌握一门外语，达到国家规定的四级外语(英语)水平。

3. 具有发现问题、提出问题、分析问题和解决问题的能力和适应社会的能力；具有民主与法制意识、改革开放意识、效率与效益意识、国际意识、竞争意识、环境意识和可持续发展的意识等现代观念。

4. 具有健康体魄和一定的军事基本理论及基本技能,达到国家规定的大学生体育合格标准和军事训练标准,养成锻炼身体的习惯。

5. 具有良好的人文素质与科学素质，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力，成为德、智、体、美等全面发展的高素质人才。

This program is limited in 4-6 years. If undergraduates have got the prescribed credits in the teaching plan, and meet the following requirements, they can apply for graduation.

1. Undergraduates should be of high civil quality. With a deep love for our motherland, they should steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of conduct. Undergraduates should build up noble moral accomplishment. They should develop a correct outlook of life and gracious humanistic literacy by inheriting excellent Chinese culture and absorbing advanced values and scientific concepts abroad to cultivate wholesome personality and sound psychological quality.

2. Undergraduates should grasp the basic knowledge of math, physics, and so on; have solid theory foundation of applied chemistry, experiment skills and basic methods. They should be able to research and develop of new product by learned knowledge and experimental skills. They should know principles of the

frontiers of chemical theory, application prospect, and the latest development tendency of chemical industry, laws and regulations of intellectual property. They can master the basic methods of search for the Chinese and English information and literature, and access to the information by the modern technology. They should have the skills to use one foreign language and reach the specified standard of College English Test Brand 4 of our country.

3. Undergraduates should be able to find, introduce, analyze and solve problems, and adapt the social. Have modern concepts of democratic and legal awareness, reform and opening up consciousness, senses of international, competition, environment, sustainable development.

4. Undergraduates should have a good health and a certain extent of basic military theory and skills and know principles of physical exercise and qualified diathesis.

5. Undergraduates should possess well humanistic quality and scientific quality, sound personality and well psychological quality, strong spirit of innovation and ability of practice. Become the educational talents with all-round development.

三、主干学科

Ⅲ. Core Discipline

化学

Chemistry

四、主干课程

Ⅳ. Primary Courses

无机化学、有机化学、分析化学、物理化学、化工基础、结构化学、高分子化学与物理、研究方法与学术论文写作指导、无机化学实验、有机化学实验、分析化学实验、物理化学实验、化学综合实验、研究型设计实验、化工基础实验、生物化学、无机合成化学、波谱学

Inorganic Chemistry, Organic Chemistry, Analytical Chemistry, Physical Chemistry, Fundamentals and Experiments in Chemical Engineering, Structural Chemistry, Polymer Chemistry and Physics, Direction of Research Approach and Academic Dissertation Writing, Experiments in Inorganic Chemistry, Experiments in Organic Chemistry, Experiments in Analytical Chemistry, Experiments in Physical Chemistry, Comprehensive Chemical Experiments, Research-led Experiments, Biological Chemistry, Synthesis in Inorganic Chemistry, Spectroscopy

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credit

153 学分

153 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	27.5%	35.3%
	通识教育选修课 Liberal Studies Elective Courses	12		7.8%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	15.5	21.5	10.1%	14.1%
	本学科基础课 Disciplinary Foundation Courses	6		3.9%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	45.5	60.5	29.7%	39.5%
	专业方向课程（I、II） Specialized Orientation Courses（I、II）	9		5.9%	
	专业拓展课程（I、II、III） Specialized Development Courses（I、II、III）	6		3.9%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	5	5	3.3%	3.3%
	选修课 Elective Courses	0		0%	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.8%	7.8%
合计 Total		153		100.0%	

说明
Notes

1. 专业必修课（含学科基础课程）共 28 门。

2. 专业选修课共 34 门，其中专业方向课程 20 门，专业拓展课程 14 门，双语课程 3 门，全英文课程 1 门。学生应从专业限定选修课程中至少选修 9 学分。专业任意选修课程共三个系列，学生应从每个系列中至少选修 1 门课程，总学分不低于 6 学分。

3. 实验课程共 13 门，其中独立开设的实验课 11 门，既有理论又有实验的课程 1 门，含综合性、研究型实验的课程 2 门，占实验课程总数的 23 %。

4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 27.0%。

1. There are a total of 28 specialized compulsory courses (including Disciplinary Foundation Courses).

2. There are a total of 34 specialized Elective Courses (3 bilingual courses, 1 monolingual-English course), including 20 Specialized Orientation Courses and 14 Specialized Development Courses. Undergraduates are required to obtain at least 9 credits in total by taking Specialized Orientation Courses. There are 3 series of Specialized Development Courses, and undergraduates are required to take at least 1 course in each series and at least 6 credits in total.

3. There are a total of 13 experimental courses, including 9 independent experiment courses, 1 theoretical-practical experiment courses, and 2 research-oriented experiment courses (account for 20% of the total experiment courses).

4. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 27.0% of the total credits.

八、化学本科教学计划表

Ⅷ. Teaching Scheme for Chemistry Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam
1711005- 1711011	形势与政策（1-7） The Current Situation and Policy (1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文（理、艺、体） College Chinese(for Science, Art and P.E. Specialties)	2	2	36		2	考试 Exam
1211044	计算机基础（理工科） Fundamentals of Computer(for Science Specialties)	1	3	36	36		考试 Exam
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36		考试 Exam
0411046	大学外语（一） College English 1	1	3	36	36		考试 Exam
0411047	大学外语（二） College English 2	2	3	36	36		考试 Exam
0411048	大学外语（三） College English 3	3	3	36	36		考试 Exam
0411049	大学外语（四） College English 4	4	2	36			考试 Exam
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam
1011039	大学体育（一） Physical Education 1	1	1		36	2	考试 Exam
1011040	大学体育（二） Physical Education 2	2	1		36	2	考试 Exam
1011041	大学体育（三） Physical Education 3	3	1		36	2	考试 Exam
1011042	大学体育（四） Physical Education 4	4	1		36	2	考试 Exam
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（21.5 学分）

（Ⅱ）Disciplinary Foundation Courses (21.5 credits)

1. 相关学科基础课（15.5 学分）

1. Related Disciplinary Foundation Courses (15.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1(for Science Specialties)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2(for Science Specialties)	2	4	72		4	考试 Exam.

0721011	普通物理及实验 General Physics and Experiments	3	4.5	72	18	5	考试 Exam.
0721012	线性代数与概率 Linear Algebra and Probability	3	3	54		4	考试 Exam.

2. 本学科基础课（6 学分）
2. Disciplinary Foundation Courses (6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0722020	无机化学（上） Inorganic Chemistry I	1	3	54		4	考试 Exam.
0722012	无机化学（下） Inorganic Chemistry II	2	3	54		3	考试 Exam.

（三）专业课程模块（61 学分）
（Ⅲ）Specialized Courses (61 credits)
1. 专业核心课程（46 学分）
1. Specialized Core Course (46 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0741077	化学实验室安全与规范 Chemistry Laboratory Safety and Regulation	1	0.5	10		2	考试 Exam.
0741078	化学学科专业导论 Introduction to Chemistry	1	0.5	10		2	考查 Quiz
0741065	化学分析 Chemical Analysis	2	2.5	46		3	考试 Exam.
0741051	有机化学（上） Organic Chemistry I	3	3	54		3	考试 Exam.
0741052	物理化学（上） Physical Chemistry I	3	3	54		3	考试 Exam.
0741029	有机化学（下） Organic Chemistry II	4	3	54		3	考试 Exam.
0741031	物理化学（下） Physical Chemistry II	4	3	54		3	考试 Exam.
0741001	仪器分析 Instrumental Analysis	5	3.5	64		4	考试 Exam.
0741053	结构化学 Structural Chemistry	5	3	54		3	考试 Exam.
0741058	无机合成化学 Synthesis in Inorganic Chemistry	5	2	36		2	考试 Exam.
0741059	波谱学 Spectroscopy	6	2	36		2	考试 Exam.
0741021	研究方法与学术论文写作指导 Guidance on Research Approach and Academic Dissertation Writing	6	1	18		2	考试 Exam.
0741081	化工基础 Principles of Chemical	5	3	54		4	考试 Exam.
0744040	化工基础实验 Experiments in Principles of Chemical	5	1		18	3	考试 Exam.
0741060	生物化学 Biochemistry	7	3	54		4	考试 Exam.
0744030	基础无机化学实验（上） Basic Experiments in Chemistry I	1	1.5		54	4	考试 Exam.
0744031	基础无机化学实验（下） Basic Experiments in Chemistry II	2	1.5		54	4	考试 Exam.
0744023	基础分析化学实验 Experiments in Analytical Chemistry	2	1		36	4	考试 Exam.

0744032	基础有机化学实验（上） Experiments in Organic Chemistry I	3	1.5		54	4	考试 Exam.
0744033	基础有机化学实验（下） Experiments in Organic Chemistry II	4	1.5		54	4	考试 Exam.
0744034	基础物理化学实验（含结构） Experiments in Physical /Structural Chemistry	4	2		72	4	考试 Exam.
0744035	基础仪器分析实验 Experiments in Instrumental Analysis	5	1.5		54	4	考试 Exam.
0746011	研究型实验 Research-oriented Experiments	5	1.5		54	8	考试 Exam.

2. 专业方向课程（9 学分）

2. Specialized Orientation Courses (9 credits)

2.1 专业方向课程方向（I）：生命化学

2.1 Specialized Orientation Courses （I）: Chemistry of Life

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0742006	天然产物化学 Natural Product Chemistry	4	1.5	28			考查 Quiz
0742045	生物分析化学 Bio-analytical Chemistry	4	1.5	28			考查 Quiz
0742009	分离科学 Separation Science	5	1.5	28			考查 Quiz
0742024	高等有机化学 Advanced Organic Chemistry	5	1.5	28			考查 Quiz
0742046	药物设计与合成 Drug Design & Synthesis	5	1.5	28			考查 Quiz
0743009	化学专业英语 Specialized English for Chemistry	5	2	36			考查 Quiz
0742019	化学信息学 Chemoinformatics	6	1.5	28			考查 Quiz
0742042	化学生物学导论 Chemical Biology	6	2	36			考查 Quiz
0742036	现代分析化学（双语) Modern Analytical Chemistry (Bilingual Course)	6	1.5	28			考查 Quiz
0742048	科研训练 I Scientific Research Training I	3-7	1.5		54		考查 Quiz
0742049	科研训练 II Scientific Research Training II	3-7	1		36		考查 Quiz

2.2 专业方向课程方向（II）：能源和材料分子工程

2.2 Specialized Orientation Courses （II）: Molecular Engineering of Energy and Materials

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0743008	能源化学 Energy Chemistry	3	2	36			考查 Quiz
0742022	配位化学 Coordination Chemistry	3	1.5	28			考查 Quiz
0742051	无机材料化学 Inorganic Materials Chemistry	4	2	36			考查 Quiz
0742037	结晶化学 Crystal Chemistry	6	1.5	28			考查 Quiz
0742025	统计热力学基础 Elemental Statistical Thermodynamics	5	1.5	28			考查 Quiz
0742002	中级无机化学 Intermediate Inorganic Chemistry	4	1.5	28			考查 Quiz

0742005	金属有机化学 Organometallic Chemistry	3	1.5	28			考查 Quiz
0742043	胶体与界面化学（英文) Colloid and Interface Chemistry (English Course)	5	1.5	28			考查 Quiz
0742044	工业催化 Industrial Catalysis	5	1.5	28			考查 Quiz
0744036	计算化学实验 Computational Chemistry Experiment	5	1.5	28			考查 Quiz
0743009	化学专业英语 Specialized English for Chemistry	5	2	36			考查 Quiz
0742019	化学信息学 Chemoinformatics	6	1.5	28			考查 Quiz
0742048	科研训练 I Scientific Research Training I	3-7	1.5		54		考查 Quiz
0742049	科研训练 II Scientific Research Training II	3-7	1		36		考查 Quiz

3. 专业拓展课程（6 学分）
3. Specialized Development Courses (6 credits)
3.1 专业拓展课程系列（I）
3.1 Specialized Development Courses （I）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly/ Hrs.	考试方式 Evaluation
0743004	无机合成化学 Synthesis in Inorganic Chemistry	3	2	36			考查 Quiz
0743075	物理化学（双语） Physical Chemistry (Bilingual Course)	4	2	36			考查 Quiz
0743060	纳米材料 Nanometer Materials	6	1.5	28			考查 Quiz
0743005	生物无机化学 Bioinorganic Chemistry	5	2	36			考查 Quiz
0744037	中级分析化学实验 Intermediate Experiments in Analytical Chemistry	6	1	18			考查 Quiz
0743014	高分子合成技术 Polymer Synthesis Technology	7	2	36			考查 Quiz

3.2 专业拓展课程系列（II）
3.2 Specialized Development Courses （II）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly/ Hrs.	考试方式 Evaluation
0743026	药物化学概论 An introduction to Medicinal Chemistry	4	2	36			考查 Quiz
0743016	科学发展史 History of Science	4	2	36			考查 Quiz
0743025	超分子化学 Supramolecular Chemistry	5	2	36			考查 Quiz
0743024	分子设计 Molecular Design	5	2	36			考查 Quiz
0743027	不对称催化 Asymmetric Catalysis	6	2	36			考查 Quiz

3.3 专业拓展课程系列（III）

3.3 Specialized Development Courses （III）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly/ Hrs.	考试方式 Evaluation
0743021	化学前沿讲座 Lectures on Latest Development in Chemistry	5	2	36			考查 Quiz

（四）专业技能模块（5 学分）

（Ⅳ）Professional Skills Courses（5 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0741062	有机合成化学 Chemistry for Organic Synthesis	5	1.5	28			考试 Exam.
0745001	化学综合实验 Comprehensive Chemical Experiment	5	1.5		56	8	考试 Exam.
0741056	高分子化学与物理 Polymer Chemistry and Physics	6	3	54		4	考试 Exam.

（五）实践教学模块（12 学分）

（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0750017	必读书目阅读 Required Readings		1				考查 Quiz
0750026	专业实习与见习 Professional Visits and Practice	7	4				考查 Quiz
0750021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0750025	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

应用化学专业简介
Introduction to the Specialty of Applied Chemistry

应用化学专业，学制 4 年，专业属性为非师范专业。该专业在我院始建于 1999 年，经过多年建设，目前已成为我院的特色专业，并于 2008 年被批准为陕西省人才培养模式创新实验区。

目前在职任课教师 31 人，其中教授 15 人，副教授 15 人，讲师 1 人。国家级教学名师 1 人，陕西省教学名师 3 人。

本专业主要培养具有应用化学基础知识、基本理论和基本技能，德、智、体全面发展，能够在企事业单位运用所学知识从事应用研究、科技开发以及化工产品开发等的复合型高级专门人才。

Applied Chemistry comes under non-teacher-training program with a four-year length of undergraduate academic study. Established in 1999 in SNNU, Applied Chemistry has now become a characteristic major in SNNU after years of efforts, and was approved in 2008 to be the Creation Pilot Base for Talent Cultivation Mode of Shaanxi Province.

We have 31 faculty members providing various courses for applied chemistry major, including 15 full-time professors and 15 associate professors and 1 lecturer.Among them there is one state-level distinguished teacher and three province-level distinguished teachers.

Applied Chemistry major aims to cultivate qualified talents for enterprise and public institution by equipping undergraduates with chemistry-related basic theory, basic knowledge and basic skills, and by emphasizing an all-round development, including moral, intellectual, physical and anesthetic aspects.

应用化学专业
The Specialty of Applied Chemistry

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具有良好的政治素质和道德修养、扎实的化学基础理论、基本知识和实验技能以及必要的工程和技术基本理论，具有能将化学化工基本理论和基本知识与生产实际相结合以及分析、解决相关实际问题的能力，能胜任在科研机构、高等院校、化工企业从事技术和产品开发、科学研究的复合型高级专门人才。

The program of Applied Chemistry is aimed at development of good political quality and moral cultivation, and designed to provide a thorough grounding in theoretical principles, experiment skills, and the indispensable basic theory of engineering and technology. Students are expected to have the ability to combine the basic theory of chemical and engineering with actual practice, solve the practical problems. Students in this area are able to qualify for scientific researching and new products exploiting in scientific research institution, university, chemical and engineering enterprise.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国；掌握马克思主义、毛泽东思想、习近平新时代中国特色社会主义思想和中国特色社会主义理论体系的基本观点和方法，具有科学的世界观、正确的人生观和高尚的道德品质。

2. 要求学生掌握数学、物理等方面的基本知识，系统掌握应用化学专业的基础理论、实验技能和基本方法；掌握一定的化学工艺与设备知识，具备运用所学知识和实验技能进行应用研究、科技开发、化工产品开发的基本技能；了解本学科的理论前沿、应用前景、最新发展动态，以及应用化学相关产业发展状况、知识产权等方面的政策、法规；掌握中外文资料查询,文献检索及运用现代信息技术获取相关信息的基本方法；熟练掌握一门外语，达到国家规定的四级外语(英语)水平。

3. 具有发现问题、提出问题、分析问题和解决问题的能力和适应社会的能力；具有民主与法制意识、改革开放意识、效率与效益意识、国际意识、竞争意识、环境意识和可持续发展的意识等现代观念。

4. 具有健康体魄和一定的军事基本理论及基本技能，达到国家规定的大学生体育合格标准和军事训练标准，养成锻炼身体的习惯。

5. 具有良好的人文素质与科学素质，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力，成为德、智、体、美等全面发展的高素质人才。

Undergraduates who receive all required credits in 4~6 years and have met the following requirements for a bachelor’s degree will be allowed to graduate.

1. Undergraduates should have deep love with Chinese Communist Party and the socialist motherland; master the basic standpoints and methods of Marxism, Mao Zedong Thoughts，Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era and theoretical system of Chinese characteristics socialism; have scientific worldview, correct outlook on life and noble moral character.

2. Undergraduates should grasp the basic knowledge of math, physics, and so on; have solid theory foundation of applied chemistry, experiment skills and basic methods. They should be able to research and develop of new product by learned knowledge and experimental skills. They should know principles of the

frontiers of chemical theory, application prospect, and the latest development tendency of chemical industry, laws and regulations of intellectual property. They can master the basic methods of search for the Chinese and English information and literature, and access to the information by the modern technology. They should have the skills to use one foreign language and reach the specified standard of College English Test Brand 4 of our country.

3. Undergraduates should be able to find, introduce, analyze and solve problems, and adapt the social. Have modern concepts of democratic and legal awareness, reform and opening up consciousness, senses of international, competition, environment, sustainable development.

4. Undergraduates should have a good health and a certain extent of basic military theory and skills and know principles of physical exercise and qualified diathesis.

5. Undergraduates should possess well humanistic quality and scientific quality, sound personality and well psychological quality, strong spirit of innovation and ability of practice. Become the educational talents with all-round development.

三、主干学科

Ⅲ. Core Discipline

化学

Chemistry

四、主干课程

Ⅳ. Primary Courses

无机化学、有机化学、分析化学、物理化学、化工原理、化工制图、精细有机合成、精细化工概论、化学反应工程、化工工艺设计、化工分析与监测、化学基础实验、化学综合实验、研究型设计实验、应化专业实验

Inorganic Chemistry, Organic Chemistry, Analytical Chemistry, Physical Chemistry, Principles of Chemical Engineering, Drawing of Chemical Engineering, Fine Organic Synthesis Chemistry, Introduction of Fine Chemical Engineering, Chemical Reaction Engineering, Technological Design of Chemical Engineering, Analysis and testing of Chemical Engineering, Basic Chemistry Experiments, Comprehensive Chemical Experiments, Research-led Experiments, Experiments in Applied Chemistry

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credit

157.5 学分

157.5 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课程类别 Course Catalogue		学分及比例 Credits and percentage			
		学分 Cre.	小计 Sub-Total	占总学分比例 Percentage in Total Credits	小计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	26.7%	34.3%
	通识教育选修课 Liberal Studies Elective Courses	12		7.6%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	15.5	21.5	9.8%	13.7%
	本学科基础课 Disciplinary Foundation Courses	6		3.8%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	42.5	54	27.0%	34.3%
	专业方向课程（I、II） Specialized Orientation Courses（I、II）	6.5		4.1%	
	专业拓展课程（I、II、III） Specialized Development Courses （I、II、III）	5		3.2%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	16	16	10.2%	10.2%
	选修课 Elective Courses	0		0	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.6%	7.6%
合计 Total		157.5		100%	

说明
Notes

1. 专业必修课（含学科基础课程）共 27。

2. 专业选修课共 35 门，其中专业方向课 22 门，专业拓展课 13 门，双语课程 2 门，全英文课程 1 门。学生应从专业限定选修课程中至少选修 6.5 学分。专业任意选修课程共三个系列，学生应从每个系列中至少选修 1 门课程，总学分不低于 5 学分。

3. 实验课程共 12 门，其中独立开设的实验课 9 门，占总实验课的 75%；既有理论又有实验的课程 1 门，占总实验课的 8.3%；含综合性、研究型实验的课程 2 门，占总实验课的 16.7%。

4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 25.9%。

1. There are a total of 27 specialized compulsory courses (including Disciplinary Foundation Courses).

2. There are a total of 35 specialized Elective Courses (2 bilingual courses, 1 monolingual-English course), including 22 Specialized Orientation Courses and 13 Specialized Development Courses. Undergraduates are required to obtain at least 6.5 credits in total by taking Specialized Orientation Courses. There are 3 series of Specialized Development Courses, and undergraduates are required to take at least one course in each series and at least 5 credits in total.

3. There are a total of 12 experimental courses, which include 9 independent experiment courses, 1 theoretical-practical experiment courses, and 2 research-oriented experiment courses, accounting for 75%, 8.3% and 16.7% of the total experimental courses, respectively.

4. The practice teaching contents include the Practice Work and the practice teaching contents of the liberal studies courses, disciplinary foundation courses and specialized courses, with its credits accounting for 25.9% of the total credits.

八、应用化学专业本科教学计划表

Ⅸ. Teaching Scheme for Applied Chemistry Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses（54 credits）

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam
1711005-1711011	形势与政策（1-7） The Current Situation and Policy (1-7)	1-7	2				考查 Quiz
2011011	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文（理、艺、体） College Chinese(for Science, Art and P.E. Specialties)	2	2	36		2	考试 Exam
1211044	计算机基础（理工科） Fundamentals of Computer(for Science Specialties)	1	2	27	18	2	考试 Exam
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36		考试 Exam
0411046	大学外语（一） College English 1	1	3	36	36		考试 Exam
0411047	大学外语（二） College English 2	2	3	36	36		考试 Exam
0411048	大学外语（三） College English 3	3	3	36	36		考试 Exam
0411049	大学外语（四） College English 4	4	2	36			考试 Exam
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam
1011040	大学体育（二） Physical Education 2	2	1		36	2	考试 Exam
1011041	大学体育（三） Physical Education 3	3	1		36	2	考试 Exam
1011042	大学体育（四） Physical Education 4	4	1		36	2	考试 Exam
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, according to *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（21.5 学分）

（Ⅱ）Disciplinary Foundation Courses（21.5 credits）

1. 相关学科基础课（15.5 学分）

1. Related Disciplinary Foundation Courses（15.5 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1(for Science Specialties)	1	4	72		5	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2(for Science Specialties)	2	4	72		4	考试 Exam.

0721011	普通物理及实验 General Physics and Experiments	3	4.5	72	18	5	考试 Exam.
0721012	线性代数与概率 Linear Algebra and Probability	3	3	54		4	考试 Exam.

2. 本学科基础课（6 学分）

2. Disciplinary Foundation Courses（6 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0722020	无机化学上 Inorganic Chemistry I	1	3	54		4	考试 Exam.
0722012	无机化学下 Inorganic Chemistry II	2	3	54		3	考试 Exam.

（三）专业课程模块（53.5 学分）

（Ⅲ） Specialized Courses （53.5 credits）

1. 专业核心课程（42.5 学分）

1. Specialized Core Courses（42.5 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0741077	化学实验室安全与规范 Chemistry Laboratory Safety and Regulation	1	0.5	10		2	考试 Exam.
0741078	化学学科专业导论 Introduction to Chemistry	1	0.5	10		2	考查 Quiz
0741065	化学分析 Chemical Analysis	2	2.5	46		3	考试 Exam.
0741051	有机化学上 Organic Chemistry I	3	3	54		3	考试 Exam.
0741052	物理化学上 Physical Chemistry I	3	3	54		3	考试 Exam.
0741029	有机化学下 Organic Chemistry II	4	3	54		3	考试 Exam.
0741031	物理化学下 Physical Chemistry II	4	3	54		3	考试 Exam.
0741053	结构化学 Structural Chemistry	5	2	36			考试 Exam.
0741001	仪器分析 Instrumental Analysis	5	3.5	64		4	考试 Exam.
0741037	化工原理 上 Principles of Chemical I	5	3	54		4	考试 Exam
0741038	化工原理 下 Principles of Chemical II	6	3	54		4	考试 Exam
0744041	化工原理 实验 Experiments in Principles of Chemical	6	1		36	4	考试 Exam.
0741021	研究方法与学术论文写作指导 Guidance on Research Approach and Academic Dissertation Writing	6	1	18		2	考试 Exam.
0744030	基础无机化学实验上 Basic Experiments in Chemistry I	1	1.5		54	4	考试 Exam.
0744031	基础无机化学实验下 Basic Experiments in Chemistry II	2	1.5		36	4	考试 Exam.
0744023	基础分析化学实验 Experiments in Analytical Chemistry	2	1		36	4	考试 Exam.
0744032	基础有机化学实验上 Experiments in Organic Chemistry I	3	1.5		54	4	考试 Exam.
0744033	基础有机化学实验下 Experiments in Organic Chemistry II	4	1.5		54	4	考试 Exam.

0744034	基础物理化学实验（含结构） Experiments in Physical /Structural Chemistry	4	2		72	4	考试 Exam.
0744035	基础仪器分析实验 Experiments in Instrumental Analysis	5	1.5		54	4	考试 Exam.
0746011	研究型实验 Research-oriented Experiments	5	3		108	8	考试 Exam.

2. 专业方向课程（6.5 学分）

2. Specialized Orientation Courses（6.5 credits）

2.1 专业方向课程方向（I）：精细化工品合成

2.1 Specialized Orientation Courses（I）：Fine Chemical Synthesis

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0742022	配位化学 Coordination Chemistry	3	1.5	28			考查 Quiz
0742037	结晶化学 Crystal Chemistry	6	1.5	28			考查 Quiz
0742005	金属有机化学. Organometallic Chemistry	4	1.5	28			考查 Quiz
0742006	天然产物化学 Natural Product Chemistry	4	1.5	28			考查 Quiz
0742025	统计热力学基础 Elemental Statistical Thermodynamics	5	1.5	28			考查 Quiz
0742023	有机合成化学 Chemistry for Organic Synthesis	5	1.5	28			考查 Quiz
0742024	高等有机化学 Intermediate Organic Chemistry	5	1.5	28			考查 Quiz
0742044	工业催化 Industrial Catalysis	5	1.5	28			考查 Quiz
0743009	化学专业英语 Specialized English for Chemistry	5	2	36			考查 Quiz
0742019	化学信息学 Chemoinformatics	6	1.5	28			考查 Quiz
0742050	精细化工概论 An Introduction to Fine Chemical Engineering	7	1.5	28			考查 Quiz
0742048	科研训练 I Scientific Research Training I	3-6	1.5				考查 Quiz
0742049	科研训练 II Scientific Research Training II	3-6	1				考查 Quiz

2.2 专业方向课程方向（II）：化工产品质量控制

2.2 Specialized Orientation Courses（II）：Quality Control of Chemical Products

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0742051	无机材料化学 Inorganic Materials Chemistry	3	2	36			考查 Quiz
0742002	中级无机化学 Intermediate Inorganic Chemistry	4	1.5	28			考查 Quiz
0742006	天然产物化学 Natural Product Chemistry	4	1.5	28			考查 Quiz
0741053	结构化学 Structural Chemistry	5	2	36			考查 Quiz
0742009	分离科学 Separation Science	5	1.5	28			考查 Quiz
0742046	药物设计与合成 Drug Design & Synthesis	5	1.5	28			考查 Quiz

0742043	胶体与界面化学（英文) Colloid and Interface Chemistry (English Course)	5	1.5	28			考查 Quiz
0743009	化学专业英语 Specialized English for Chemistry	5	2	36			考查 Quiz
0742042	化学生物学导论 Chemical Biology	6	2	36			考查 Quiz
0742036	现代分析化学 (双语) Modern Analytical Chemistry (Bilingual Course)	6	1.5	28			考查 Quiz
0742045	生物分析化学 Bio-analytical Chemistry	6	1.5	28			考查 Quiz
0742019	化学信息学 Chemoinformatics	6	1.5	28			考查 Quiz
0742048	科研训练 I Scientific Research Training I	3-6	1.5				考查 Quiz
0742049	科研训练 II Scientific Research Training II	3-6	1				考查 Quiz

3. 专业拓展课程（5 学分）
3. Specialized Development Courses（5 credits）
3.1 专业拓展课程系列（I）
3.1 Specialized Development Courses（I）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0743004	无机合成化学 Synthesis in Inorganic Chemistry	3	2	36			考查 Quiz
0743075	物理化学（双语） Physical Chemistry (Bilingual Course)	4	2	36			考查 Quiz
0743005	生物无机化学 Bioinorganic Chemistry	5	2	36			考查 Quiz
0744036	计算化学实验 Computational Chemistry Experiment	6	2	36			考查 Quiz
0744037	中级分析化学实验 Intermediate Experiments in Analytical Chemistry	6	1	18			考查 Quiz
0743027	不对称催化 Asymmetric Catalysis	6	2	36			考查 Quiz
0743014	高分子合成技术 Polymer Synthesis Technology	7	2	36			考查 Quiz

3.2 专业拓展课程系列（II）
3.2 Specialized Development Courses（II）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0743008	能源化学 Energy Chemistry	3	2	36			考查 Quiz
0743026	药物化学概论 An introduction to Medicinal Chemistry	4	2	36			考查 Quiz
0743016	化学科学发展史 History of Science	3	2	36			考查 Quiz
0743025	超分子化学 Supramolecular Chemistry	5	2	36			考查 Quiz
0743024	分子设计 Molecular Design	5	2	36			考查 Quiz
0743011	波谱学 Spectroscopy	6	2	36			考查 Quiz

3.3 专业拓展课程系列（III）

3.3 Specialized Development Courses（III）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0743021	化学前沿讲座 Lectures on Latest Development in Chemistry	5	2	36			考查 Quiz

（四）专业技能模块（16 学分）

（Ⅳ）Professional Skills Courses（16 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0741039	精细有机合成 Fine Organic Synthesis	5	3	54		3	考试 Exam.
0741026	化工制图 Drawing of Chemical Engineering	5	3	54		4	考试 Exam.
0745001	化学综合实验 Comprehensive Chemical Experiments	5	1.5		54	8	考试 Exam.
0741057	化工工艺设计 Technological Design of Chemical Engineering	6	2.5	45		2	考试 Exam.
0744011	应化专业实验 Experiments in Applied Chemistry	6	1.5		54	4	考试 Exam.
0741042	化学反应工程 Chemical Reaction Engineering	7	2.5	45		4	考试 Exam.
0741041	化工分析与监测 Analysis and Detection for Chemical Engineering	7	2	36		2	考试 Exam.

（五）实践教学模块（12 学分）

（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0750017	必读书目阅读 Required Readings		1				考查 Quiz
0750026	专业见习 Professional Visits	5-6	1				考查 Quiz
0743024	应化专业实习 Practice in Applied Chemistry	7	3				考查 Quiz
0750021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students'Employment Guidance	6	1				考查 Quiz
0750025	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

生命科学学院
School of Life Sciences

- 生物科学（师范）

  Biological Science (Normal)

- 生物科学（基地班）

  Biological Science (Talent Training Base)

- 生物技术

  Biotechnology

- 生态学

  Ecology

- 生命科学学院专业拓展课程（专业任意选修课）

  Specialized Development Courses (Specialized Non-restrictive Elective Courses) of School of Life Sciences

生物科学专业（师范）简介
Introduction to the Specialty of Biological Science (Normal)

生物科学专业，学制 4 年，专业属性为师范专业。本专业始建于 1956 年，为陕西省名牌专业和国家级特色建设专业。依托该专业，学院建有生物学虚拟仿真实验教学中心、教育部“国家理科野外实践教育共享平台”和省级生物学基础实验教学中心。近年来承担多项教育部的国家基础教育课程改革项目和全国中小学教师培养和培训计划，有效促进了中学任课教师的专业发展和教学改进，为国家基础教育改革决策提供服务，得到社会和学校的一致好评。

该专业在职任课教师 87 人，其中教授 34 人，副教授 43 人，讲师 10 人；具有博士学位的教师 84 人，具有硕士学位的教师 3 人。

本专业主要培养具有优秀的人文与科学素养、良好的道德风貌，具有宽厚扎实的生物科学的基本理论、基本知识、实验技能，富有创新意识，能从事基础教育生物学科的教学、研究和教育管理的优秀教师、教育管理者和未来教育家。

Biological Science belongs to a normal program with a four-year length of undergraduate academic study. Founded in 1956, the major is one of the advantage majors in our school. In recent years, this major has undertaken a number of the national basic education curriculum reform project from the Ministry of education and the national primary and secondary school teachers training plan, and effectively promotes the middle school teacher's professional development and teaching improvement, and provides services for the national basic education reform policy. It is well recognized by society schools.

Currently, there are 87 in-service teachers, including 34 professors, 43 associate professors, 10 lecturers. Of which, 84 teachers have a PhD degree, while the other 3 have master degree.

The specialty trains excellent teachers for fundamental biological education, who have comprehensive development in moral education, intellectual education, physical education and aesthetics education, possessing basic theory, knowledge and experimental skills in biological sciences. The training will lay a foundation for them to become outstanding teachers, education administrators and future educators.

生物科学专业（师范）
The Specialty of Biological Science (Normal)

一、培养目标

Ⅰ. Educational Objectives

1. 目标定位

以中国特色社会主义理论体系为指导，全面贯彻党的教育方针，落实立德树人根本任务，依据《教师教育振兴行动计划（2018—2022）》的要求，结合我国中学生物学教育改革发展的实际和学校定位，制定本专业的培养目标。本专业立足西部，面向全国，培养具有高尚师德和奉献精神、具备扎实的生物科学基本知识、实验技能，掌握教育教学理论与方法，能从事基础教育生物学科的教学、研究和教育管理的优秀教师、教育管理者和未来教育家。

1. Objective Orientation

Guided by the theoretical system of socialism with Chinese characteristics, we should fully implement the Party's educational policy and implement the fundamental task of Building Morality and cultivating people. According to the requirements of teacher education revitalization action plan (2018 - 2022), combining the reality of the reform and development of biology education in middle schools and the orientation of schools, the training objectives of this major are formulated. This specialty is based on the West and faces the whole country. It trains excellent teachers, educational administrators and future educators with noble morality and dedication, solid basic knowledge and experimental skills of biological science, mastering educational teaching theories and methods, and engaging in teaching, researching and managing biology in elementary education.

2. 目标内涵

（1）热爱社会主义祖国，拥护中国共产党的领导，形成并确立正确的世界观、人生观和价值观；热爱教育事业，了解教育政策，具有坚定的教师专业信念和高尚的职业道德；践行社会主义核心价值观，认同中国特色社会主义理论体系；贯彻党的教育方针，将立德树人任务落实到教育教学活动中；具有人文底蕴和科学精神，尊重学生人格，做学生锤炼品格、学习知识、创新思维、奉献祖国的引路人，努力成为有理想信念、有道德情操、有扎实学识、有仁爱之心的好老师。

（2）掌握坚实的生物学基础知识和实验技能，了解本学科及相关专业各学科学术发展的历史，客观分析与生物学相关社会事件的能力；理解和掌握生物学学科核心素养的内涵，理解学习科学相关知识，整合形成学科教学知识；了解跨学科知识，把握生物学与其他学科、社会实践的联系；了解最新的生物学课程标准，设计以学习者为中心的教学活动；合理运用现代信息技术，改善课堂教学效果。

（3）树立德育为先理念，具有全程育人、立体育人意识；熟悉中学德育原理和方法，能够胜任班主任工作，善于结合日常班级管理，开展德育、心理健康教育等教育活动；将生物学学科教学与育人工作有机结合，根据学科特点，在学科发展史的教学活动中适时进行道德教育和情感熏陶；结合学校文化建设和教育活动开展育人工作；善于和家长、社区等合作，开展综合实践活动，促进学生的健康成长。

（4）具有终身学习和专业发展意识，了解生物学教师专业发展核心内容和发展路径；熟悉基础教育改革实践现状，具有以反思、探究为核心的教学研究素养及在基础教育领域开拓创新的能力；具有国际视野和开放心态，了解国外生物学教育改革发展的趋势和前沿动态；理解学习共同体的作用，具有团队协作精神，善于和校内外的同行展开交流与合作，互助提高。

2. Objective Connotation

(1) Undergraduates should love the socialist motherland, support the leadership of the Communist Party of China, form and establish a correct world outlook, outlook on life and values; love the cause of education, understand educational policies, have a firm professional belief and noble professional ethics of teachers; practice the socialist core values, identify with the socialist theory with Chinese characteristics On the system; Implementing the Party's educational policy and putting the task of cultivating morality and people into practice in educational and teaching activities; having humanistic connotation and scientific spirit, respecting students'personality, being the guide of students' tempering character, learning knowledge, innovative thinking and devoting to the motherland, and striving to become a person with ideals and beliefs, moral sentiment, solid knowledge, etc. A good teacher with kindhearted heart.

(2) Undergraduates should master solid basic biological knowledge and experimental skills, understanding the history of academic development of this subject and other related disciplines, and the ability to objectively analyze biology-related social events; understanding and mastering the connotation of the core accomplishment of biology, understanding and learning related scientific knowledge, integrating and forming subject teaching knowledge; Understand interdisciplinary knowledge, grasp the relationship between biology and other disciplines, social practice; understand the latest biology curriculum standards, design learner-centered teaching activities; rationally use modern information technology to improve classroom teaching results.

(3) Undergraduates should set up the idea of moral education as the first step, having the consciousness of whole-course and three-dimensional education; being familiar with the principles and methods of moral education in middle schools, being able to be competent for the work of class teachers, and being good at combining with the daily class management, carrying out such educational activities as moral education and mental health education; combining the teaching of biology with the work of educating people organically, according to the characteristics of the subject. In order to promote the healthy growth of students, we should carry out moral education and emotional nurturing in the teaching activities of the history of subject development, carry out educational work in combination with school cultural construction and educational activities, and carry out comprehensive practical activities in cooperation with parents and communities.

(4) Undergraduates have the consciousness of lifelong learning and professional development, understand the core content and development path of biology teachers' professional development; be familiar with the current situation of basic education reform and practice, have the teaching and research accomplishment with reflection and inquiry as the core and the ability to explore and innovate in the field of basic education; have an international perspective and an open mind, understand the country We should understand the role of the learning community, have the spirit of teamwork, be good at communicating and cooperating with colleagues inside and outside the school, and help each other to improve.

3. 目标评价

（1）依据国家形势和教育政策的变化，及时对培养目标进行修订。紧随时代发展，借助政府主管部门、学校管理部门以及中学相关部门的力量，把握人才需求方向，培养符合国家基础教育改革发展需求的中学生物学教师。

（2）以学年为单位，建立稳定的培养目标修订机制。依照培养目标，对人才就业情况与表现进行持续调研，并邀请领域内的专家及学科基础教育名家对培养体系进行论证。建立信息公开平台，为培养目标修订提供条件支撑，随时将目标及理念进行公开，征求各方利益群体的意见与建议，并将目标评价的修订完善随时向公众特别是利益相关主体进行公开。

（3）建立历年培养方案变化的跟踪机制。每年对学生表现情况、不同课程毕业要求的支撑情况进行分析，作好记录和分析；通过收集用人单位、学生、高校教师、学生家长的意见和建议，了解培养方案的优势和不足，建立档案，不断进行优化。

3. Objective Evaluation

(1) In accordance with the changes in the national situation and educational policies, the training objectives should be revised in time. With the rapid development of the times, the government departments, school management departments and the relevant departments of secondary schools should help to grasp the direction of talent demand and train biology teachers who meet the needs of the national basic education reform and development.

(2) To Establish a stable training target revision mechanism based on the academic year. In accordance with the training objectives, the employment situation and performance of talents are continuously investigated, and experts in the field and experts in basic education are invited to demonstrate the training system. Establish a platform for information disclosure, provide conditional support for the revision of training objectives, open the objectives and concepts at any time, solicit the opinions and suggestions of all stakeholders, and make the revision and perfection of target evaluation open to the public, especially stakeholders at any time.

(3) To establish a tracking mechanism for changes in training programmes over the years. Every year, the performance of students, the support of different courses for graduation requirements for good records and analysis; through the collection of employers, students, College teachers, parents of students'opinions and suggestions, to understand the advantages and disadvantages of the training program, establish files, and constantly optimize.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 爱党爱国，践行社会主义核心价值观，增进对中国特色社会主义的思想认同、政治认同、理论认同和情感认同；贯彻党的教育方针，以立德树人为己任；遵守中小学教师职业道德规范，具有依法执教意识，立志成为有理想信念、有道德情操、有扎实学识、有仁爱之心的好老师。【师德规范】

2. 具有从教意愿，热爱教育事业，认同教师工作的意义和专业性，具有积极的情感、端正的态度和正确的价值观；具有人文底蕴和科学精神，尊重学生人格，富有爱心、责任心、事业心，工作细心、耐心，做学生锤炼品格、学习知识、创新思维、奉献祖国的引路人。【教育情怀】

3. 掌握生物学所需的数学、物理、化学等基础知识，系统掌握生物学专业的基本知识、基本原理和基本技能，熟悉本学科的发展前沿，具有科学合理的知识结构；能够综合运用本学科的知识解决学习、工作中遇到的问题；对我国国情有较深刻的理解，善于沟通与表达。了解跨学科知识，把握生物学与其他学科、社会实践的联系。【学科素养】

4. 了解并依据最新的生物学课程标准，系统设计生物学课程教学活动；在教育实践中，能够以学习者为中心，创设适合的学习环境，指导学习过程，进行学习评价，掌握中外文资料查询、文献检索及运用现代信息技术获取相关信息的基本方法以及用信息技术优化生物学课堂教学的方法技能；正确处理传统教学媒介和现代信息技术的关系，改善课堂教学效果；具有运用信息技术支持学习设计和转变学生生物学相关知识学习方式的初步经验。【教学能力】

5. 树立德育为先理念，重视思想引领，了解中学德育原理与方法，掌握班级组织与建设的工作规律与基本方法，将德育渗透在日常班级管理活动中；掌握班集体建设、班级教育活动组织、学生发展指导、综合素质评价、与家长及社区沟通合作等班级常规工作要点；熟悉班主任工作，参与德育和心理健康教育等教育活动的组织与指导，获得积极体验。【班级指导】

6. 了解中学生身心发展和养成教育规律，理解生物学学科育人价值，将育人融入生物学学习活动，了解学校文化和教育活动的育人内涵和方法；重视生物学课程的熏陶感染作用，能够在教育实践中将生物学知识学习、能力发展与品德养成相结合，在潜移默化中培养学生的良好品格；积极参与组织主

题教育和社团活动，对学生进行有效的教育和引导。【综合育人】

7. 具有终身学习和专业发展意识，了解生物学教师专业发展核心内容和发展路径，能够结合就业愿景制订自身发展核心内容和专业发展规划；职前学习和职后学习相衔接，持续提升专业能力；养成自主学习习惯，具有自我管理能力。具有较开阔的国际视野，保持开放心态，了解国外生物学教育改革发展的趋势和前沿动态。善于进行教学反思，做反思活动的实践者，运用批判性思维方法，养成从学生学习、课程教学、学科理解等角度反思分析问题的习惯；熟悉基础教育改革实践现状，具有以反思、探究为核心的教学研究素养及在基础教育领域开拓创新的能力。【学会反思】

8. 理解学习共同体的作用，具有团队协作精神；了解课堂观察的方法，提升教学研究能力；善于和校内外的同行展开交流与合作，互助提高。【沟通合作】

Students of this major may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. To love the party and love the country , practice the socialist core values; Enhancing ideological identity, political identity, theoretical identification and emotional identification of socialism with Chinese characteristics. Carrying out the party's educational policy and taking moral education as its responsibility; Abide by the professional ethics of primary and secondary school teachers, have a sense of teaching in accordance with the law, aspire to become a good teacher with ideals and beliefs, moral sentiment, solid knowledge, benevolence.

2. To have the willingness to teach, love the cause of education, identify with the significance and professionalism of teachers' work, have positive feelings, correct attitude and correct values. With humanistic details and scientific spirit; Respect students' personality; With love, responsibility and dedication; Be careful and patient in work. To be a guide for students to temper their character, learn knowledge, innovate their thinking and dedicate themselves to the motherland.

3. To grasp the basic knowledge of mathematics, physics and chemistry needed for biology; Master the basic knowledge, basic principles and basic skills of biology; Be familiar with the development frontier of this discipline and have a scientific and rational knowledge structure. Use the knowledge of this discipline to solve problems encountered in study and work. Have a deep understanding of China's national conditions, good at communication and expression. Understand interdisciplinary knowledge and grasp the relationship between biology and other disciplines and social practice.

4. To understand and design the biology curriculum teaching activities according to the latest biology curriculum standards. In educational practice, it is possible to create a learner-centered learning environment, guide the learning process, conduct learning evaluation, master the basic methods of inquiring Chinese and foreign materials, searching literature and using modern information technology to obtain relevant information, and optimize biology classroom teaching with information technology. Correctly handle the relationship between traditional teaching media and modern information technology, and improve classroom teaching effect. Preliminary experience in using information technology to support the design and transformation of students' biology-related knowledge learning methods.

5. To Establish the concept of moral education as the first, attach importance to ideological guidance, understand the principles and methods of moral education in middle schools, master the working rules and basic methods of class organization and construction, and infiltrate moral education into daily class management activities.Grasp the main points of class routine work, such as class collective construction, class education organization, student development guidance, comprehensive quality evaluation, communication and cooperation with parents and communities. Familiar with the work of head teachers, participate in the organization and guidance of moral and psychological health education activities, and gain positive experience.

6. To understand the law of physical and mental development and cultivation education of middle school students, to understand the value of biology education, to integrate education into biology learning activities,

and to understand the connotation and methods of education in school culture and educational activities. Attaching importance to the influence of biology curriculum can combine the study of biology knowledge, the development of biology ability and the cultivation of students'moral character in educational practice, and cultivate students' good character imperceptibly. Actively participate in the organization of thematic education and community activities, effective education and guidance for students.

7. To have the awareness of lifelong learning and professional development, understanding the core content and development path of biology teachers' professional development, and being able to formulate their own core content and professional development plan in combination with their employment prospects. Pre service learning and post job learning should be linked to enhance professional competence. Develop autonomous learning habits, and have self-management ability. It has a broad international perspective, maintains an open mind, and understands the trends and frontiers of the reform and development of biology education abroad. Be good at teaching reflection, be a practitioner of reflective activities, use critical thinking methods, develop the habit of reflecting and analyzing problems from the perspective of students' learning, curriculum teaching, subject understanding, etc. Familiar with the practice of basic education reform, with reflection, inquiry as the core of teaching and research literacy and in the field of basic education to pioneer innovation.

8. To understand the role of learning community and have the spirit of teamwork. Understand the methods of classroom observation and improve teaching research ability. Be good at communicating and cooperating with colleagues in and out of school.

三、主干学科

Ⅲ. Core Discipline

生物学、教育学

Biology, Pedagogy

四、专业主干课程

Ⅳ. Main Courses

动物学、植物学、生物化学、分子生物学、遗传学、微生物学、细胞生物学、植物生理学、动物生理学、生态学、人体组织解剖学、生物教学论

Zoology, Botany, Biochemistry, Molecular Biology, Genetics, Microbiology, Cell Biology, Plant Physiology, Animal Physiology, Ecology, Human Histology and Anatomy, Pedagogy in Biology

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

165 学分

165 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.45%	32.72%
	通识教育选修课 Liberal Studies Elective Courses	12		7.27%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	8	28	4.85%	16.97%
	本学科基础课 Disciplinary Foundation Courses	20		12.12%	
专业课程模块 Specialized Courses	专业必修课 Specialized Compulsory Courses	18	35	10.91%	21.21%
	专业限定选修课 Specialized Restrictive Elective Courses	13		7.88%	
	专业任意选修课 Specialized Non-restrictive Elective Courses	4		2.42%	
教师教育模块 Teacher-training Courses	公共必修课 General Compulsory Courses	11	17	6.67%	10.31%
	学科必修课 Disciplinary Compulsory Courses	6		3.64%	
	选修课 Elective Courses	2		已列入通识教育选修课	
实践教学模块 Practice Work	必修课 Compulsory Courses	31	31	18.78%	18.78%
合计 Total		165		100%	

说明 Notes	1. 专业必修课（包括学科基础课程和专业必修课）共 12 门。 2. 实验课程共 10 门，其中独立开设的实验课 10 门，既有理论又有实验的课程 10 门，含综合性、设计性实验的课程 10 门，占实验课程总数的 100%。 3. 本专业学科专业课程包括学科基础模块课程、专业课程模块课程和教师教育模块、实践教学模块中的学科专业课程，其学分占总学分比例为 55.2%。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 26.7%。 1. There are 12 specialized compulsory courses. 2. There are 10 experimental courses in total including 10 independent experimental courses,10 theoretical and designable experimental courses which is 100% of the total experimental courses. 3. The professional courses of this specialty include basic module courses, professional curriculum module courses, teacher education module, practical teaching module, and the proportion of credits to total credits is 55.2%. 4. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 26.7% of the total credits.

八、生物科学（师范）本科教学计划表

Ⅷ. Teaching Scheme for Biological Science (Normal) Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts	1	1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming(for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College English 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（28 学分）

（Ⅱ）Disciplinary Foundation Courses (28 credits)

1. 相关学科基础课（8 学分）

1. Related Disciplinary Foundation Courses (8 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics(Ⅱ) -1(for Science Specialty)	1	4	72		4	考试 Exam.

0521006	高等数学（二）—2（理） Advanced Mathematics(Ⅱ)- 2(for Science Specialty)	2	4	72		4	考试 Exam.

2. 本学科基础课（20 学分）

2. Disciplinary Foundation Courses (20 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0821013	无机及分析化学 Inorganic and Analytical Chemistry	1	4	72	36	4/2	考试 Exam.
0821002	有机化学 Organic Chemistry	2	4	54	36	4/2	考试 Exam.
0821006	普通物理学 General Physics	3	4	72	36	4/2	考试 Exam.
0822062	生命科学导论 Introduction to Life Science	1	2	36		2	考查 Quiz
0822037	动物学 Zoology	1	3	54		3	考试 Exam.
0822039	植物学 Botany	2	3	54		3	考试 Exam.

（三）专业课程模块（35 学分）

（Ⅲ）Specialized Courses (35 credits)

1. 专业必修课（18 学分）

1. Specialized Compulsory Courses (18 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0841102	生物化学 Biochemistry	3	3	54		3	考试 Exam.
0841103	分子生物学 Molecular Biology	4	3	54		3	考试 Exam.
0841104	细胞生物学 Cell Biology	4	3	54		3	考试 Exam.
0841064	生态学 Ecology	3	3	54		3	考试 Exam.
0841052	遗传学 Genetics	5	3	54		3	考试 Exam.
0841054	微生物学 Microbiology	5	3	54		3	考试 Exam.

2. 专业限定选修课（13 学分）

2. Specialized Restrictive Elective Courses (13 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0842027	生物统计学 Biostatistics	4	2	36		2	考试 Exam.
0842031	人体组织与解剖学 Human Histology and Anatomy	3	3	54		3	考试 Exam.
0842075	植物生理学 Plant Physiology	6	3	54		3	考试 Exam.
0842076	动物生理学 Animal Physiology	6	3	54		3	考试 Exam.
0842077	基因组学 Genomics	5	1	18		2	考试 Exam.

0842080	进化生物学 Evolutionary biology	6	1	18		2	考试 Exam.
0843117	植物防疫 Plant prevention of epidemis	5	2	36		2	考查 Quiz
0843118	生物多样性原理与应用 Principle and application of biological diversity	5	2	36		2	考查 Quiz
0843119	肿瘤的细胞和分子生物学 Cell and molecular biology of cancer	5	2	36		2	考查 Quiz
0843120	群体遗传学 Population Genetics	5	2	36		2	考查 Quiz

3. 专业任意选修课（4 学分）

3. Specialized Non-restrictive Elective Courses (4 credits)

详见学院专业任意选修课。

See Specialized Non-restrictive Elective Courses of the School of Life Sciences.

（四）教师教育模块（17 学分）

（Ⅳ）Teacher-training Courses（17 credits）

1. 公共必修课（11 学分）

1. General Compulsory Courses（11 credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2431028	心理学基础 The Basis of Psychology	2	1	18		2	考试 Exam.
2431029	儿童发展 Child Development	2	1	18		2	考试 Exam.
2431030	中学生认知与学习 The Cognition and Learning of Middle School Students	3	1	18		2	考试 Exam.
2431031	中学生品德发展与道德教育 Moral Development and Moral Education for Middle School Student	3	1	18		2	考试 Exam.
2431032	中学生心理辅导 Psychological Guidance for Middle School Students	4	1	18		2	考试 Exam.
1531128	中学教育学基础 Foundation of Middle School Education	4	3	54		3	考试 Exam.
1531129	现代教育技术（网络教学） Contemporary Educational Technology (Online Course)	4	1	18		1	考试 Exam.
1531130	教师专业发展与职业道德 Teacher’s Professional Development & Professional Ethics	5	2	36		2	考试 Exam.

2. 学科必修课（6 学分）

2. Disciplinary Compulsory Courses（6 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0831008	中学生物学教材分析与教学设计 Teaching Materials Analysis and Teaching Design of Middle School Biology	5	2	36		2	考试 Exam.
0831009	中学生物学教育技术 Middle school biology education technology	5	1	18		2	考查 Quiz
0831010	中学生物学实验与实践教学 Experiment and Practice Teaching of Middle school biology	6	1	18		2	考查 Quiz
0831007	中学生物学教学导论 Introduction to Biology Teaching in Middle School	6	2	36		2	考试 Exam.

3. 选修课（见通识教育选修课程“教师教育”系列，2 学分）

3. Elective Courses（See Teacher-training Series of Liberal Studies Elective Courses）

（五）实践教学模块（31 学分）

（Ⅴ）Practice Work（31 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0850064	教师教学基本技能训练 Training of Teachers' Basic Teaching Skills		2				考查 Quiz
0850017	必读书目阅读 Required Readings		1				考查 Quiz
0850072	教育见习 School Visits	1-6	1				考查 Quiz
0850020	教育实习 Teaching Practice	7	6				考查 Quiz
0850021	教育实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0850067	毕业论文（设计） Graduation Thesis(Design)	7-8	4				考查 Quiz
0850039	动植物野外综合实习 Comprehensive Field Practice in zoology & Botany	2	2				考查 Quiz
0850065	学科教学技能训练（生物） Pedagogical Training(Biology)	6	2				考试 Exam.
0850031	动物学实验 The Experiment of Zoology	1	1		36	2	考查 Quiz
0850047	植物学实验 The Experiment of Plants	2	1		36	2	考查 Quiz
0850048	生物化学实验 The Experiment of Biochemistry	3	1		36	2	考查 Quiz
0850026	人体组织学与解剖学实验 The Experiment of Human Histology and Anatomy	3	1		36	2	考查 Quiz
0850029	分子生物学实验 The Experiment of Molecular Biology	4	1		36	2	考查 Quiz
0850030	细胞生物学实验 The Experiment of Cell Biology	4	1		36	2	考查 Quiz
0850032	遗传学实验 The Experiment of Genetics	5	1		36	2	考查 Quiz
0850033	微生物学实验 The Experiment of Microbiology	5	1		36	2	考查 Quiz
0850034	植物生理学实验 The Experiment of Plant Physiology	6	1		36	2	考查 Quiz
0850035	动物生理学实验 The Experiment of Animal Physiology	6	1		36	2	考查 Quiz

生物科学专业（基地班）简介
Introduction to the Specialty of Biological Science （Talent Training Base）

生物科学（基地）专业，学制 4 年，专业属性为非师范专业。我校该专业始建于 1996 年，并于 1997 年开始招生。是我校优势特色专业之一，先后获评省级名牌专业、省级、国家级特色专业、省级专业综合改革试点建设单位。依托该专业，学校建设有“国家理科基础科学研究和人才培养基地”。

目前该专业在职任课教师 87 人，其中教授 34 人，副教授 43 人，讲师 10 人；具有博士学位的教师 84 人，具有硕士学位的教师 3 人。

本专业主要培养具有生物学基本理论、基础知识和基本技能，能够在在生物学及相关领域从事科学研究、技术开发、教学及管理工作的复合型高级专门人才。

The schooling system of biological science specialty is 4 years, and its professional attribute is non-normal. This discipline was founded in 1996, and began enrollment in 1997. This major is one of the major characteristics of our school, has won the provincial famous brand professional, provincial, national characteristic professional, provincial professional comprehensive reform pilot construction unit. Relying on the professional, the school established the “National Science Foundation Science Research and the Talented Person Training Base ".

Currently, there are 87 in-service teachers, including 34 professors, 43 associate professors and 10 lecturers, 84 teachers with a doctoral degree, 3 teachers with master degree.

This specialty aims to train the students to be outstanding and innovative talents who grasp the basic knowledge and techniques in biology and can engage in scientific research, technological development, teaching and management work in biology and related fields.

生物科学专业（基地班）
The Specialty of Biological Science（Talent Training Base）

一、培养目标

Ⅰ. Educational Objectives

本专业培养德、智、体、美全面发展，身心健康，掌握生物科学的基本理论、基本知识和较强的实验技能，具有数理化基础、人文社科素质、国际化视野和科学思维能力，接受专业训练和专业技能培训，了解生物科学发展趋势、应用前景，并能够运用所掌握的知识和技能在生物学及相关领域从事科学研究、技术开发、教学及管理工作的复合型高级专门人才。

In this specialty, we fosters outstanding and innovative talents who master the basic theory, knowledge and laboratory skills in biological sciences, who have mathematical basis, humantic quanlity, international vision and scientific thinking way, who have received professional training and professional skill training, understand the trend of development of biological sciences, application prospects, and can use the mastered knowledge and skills to engage in scientific research, technological development, teaching and management work in biology and related fields.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国，掌握马列主义、毛泽东思想、邓小平理论和“三个代表”重要思想；坚持科学发展观，具有科学的世界观、正确的人生观和价值观以及高尚的道德品质。

2. 掌握生物学所需的数学、物理、化学等基础知识，系统掌握本专业的基本理论、基本知识和基本技能，熟悉本学科的发展前沿，获得创新和科研的初步能力；了解相关学科的知识，具有一专多能的知识结构；掌握现代信息技术的基本知识和技能；熟练掌握一门外语，达到国家规定的四级外语水平；掌握资料查询、文献检索及运用现代信息技术获得相关信息的基本方法；会讲普通话，达到二级乙等以上水平，具有较强的语言和文字表达能力。

3. 具有发现问题、提出问题、分析问题和解决问题的能力和适应社会的能力；具有民主与法制意识、改革开放意识、效率与效益意识、国际意识、竞争意识、环境意识和可持续发展的意识等。

4. 具有健康体魄和一定的军事基本理论及基本技能，达到国家学生体质健康标准和军事训练标准，养成锻炼身体的习惯。

5. 具有良好的人文素质与科学素质，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力，成为德、智、体、美等全面发展的高素质人才。

Students of this major may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. Undergraduates should be of high civil quality. With a deep love for our motherland, they should steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of conduct. Undergraduates should build up noble moral accomplishment. They should develop a correct outlook of life and gracious humanistic literacy by inheriting excellent Chinese culture and absorbing advanced values and scientific concepts abroad to cultivate wholesome personality and sound psychological quality.

2. Undergraduates should master the basic knowledge in mathematics, physics, chemistry, which is

required by biological sciences, systematically grasp the basic theory, knowledge and skills in biological sciences, be familiar with the developmental frontier of the discipline of biology, and obtain basic capacity for innovation and scientific research. They should also understand the knowledge of relevant disciplines, possess a knowledge structure with which one can work in multiple fields although specializing in one; master basic computer knowledge, and possess certain ability to applying them; master a foreign language, and reach the national standard of CET4; master the basic methods for information inquiry, literature retrieval, and acquirement of information by applying modern information technology; can speak Mandarin, have good skills for language and literal expression.

3. Undergraduates should develop the ability to discover problem and raise questions, the ability to analyze and solve the problems, as well as the ability to adapt to the society. They should also have the consciousness of democracy and law, of social reform and opening, of efficiency, of internationalization, of competition, of environment, of sustainable development, etc..

4. Undergraduates should have healthy physique and certain basic military knowledge and skills, reach the national standard for physique and health, and military training, form habit of regular physical exercise.

5. Undergraduates should possess good humanistic and scientific quality, the perfect personality and good psychological quality, have stronger capacity for innovation and practice, with comprehensive development in moral, intellectual, physical and aesthetics educations.

三、主干学科

Ⅲ. Core Discipline

生物学

Biology

四、主干课程

Ⅳ. Primary Courses

动物学、植物学、生物化学、分子生物学、遗传学、微生物学、细胞生物学、植物生理学、动物生理学、生态学

Zoology, Botany, Biochemistry, Molecular Biology, Genetics, Microbiology, Cell Biology, Plant Physiology, Animal Physiology, Ecology

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credit

160 学分

160 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	26.25%	33.75%
	通识教育选修课 Liberal Studies Elective Courses	12		7.50%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	20	44	12.50%	27.50%
	本学科基础课 Disciplinary Foundation Courses	24		15.00%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	11	27	6.88%	16.88%
	专业方向课程 Specialized Orientation Courses	10		6.25%	
	专业拓展课程 Specialized Development Courses	6		3.75%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	5	7	3.13%	4.38%
	选修课 Elective Courses	2		1.25%	
实践教学模块 Practice Work	必修课 Compulsory Courses	28	28	17.50%	17.50%
合计 Total		160		100%	

说明
Notes

1. 专业必修课（包括专业核心课程和学科基础课程）共 17 门，双语课程 1 门。

2. 专业选修课共 50 门，其中专业方向课程 4 门，专业拓展课程 46 门；学生应从专业方向课程中至少选修 6 学分，从专业拓展课程中至少选修 6 学分。

3. 实验课程共 14 门，其中独立开设的实验课 10 门，既有理论又有实验的课程 10 门，含综合性、设计性实验的课程 10 门，综合性实验 3 门， 创新性试验 1 门， 占实验课程总数的 100%。

4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 25.6%。

1. There are 17 specialized compulsory courses, including 1 bilingual courses.

2. There are 50specialized elective courses in total, including 4 specialized orientation courses and 46 specialized expanding courses. Undergraduates should obtain 8 credits in total by taking specialized orientation courses and 6 credits by taking specialized expanding courses.

3. There are 14 experimental courses in total including 10 independent experimental courses which all include comprehensive and innovative experiment. In addition, there are 3 independent comprehensive experiment courses and 1 innovative experiment course.

4. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 25.6% of the total credits.

八、生物科学（基地）本科教学计划表

Ⅷ. Teaching Scheme for Biological Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.

1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts	1	1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming(for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（44 学分）

（Ⅱ）Disciplinary Foundation Courses (44 credits)

1. 相关学科基础课（20 学分）

1. Related Disciplinary Foundation Courses (20 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics(Ⅱ)- 1(for Science Specialty)	1	4	72		5	考试 Exam.
0821013	无机及分析化学 Inorganic and Analytical Chemistry	1	4	72	36	4/2	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics(Ⅱ)- 2(for Science Specialty)	2	4	72		4	考试 Exam.

0821002	有机化学 Organic Chemistry	2	4	54	36	4/2	考试 Exam.
0821006	普通物理学 General Physics	3	4	72	36	4/2	考试 Exam.

2. 本学科基础课（24 学分）

2. Disciplinary Foundation Courses (24 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0822037	动物学 Zoology	1	3	54		3	考试 Exam.
0822039	植物学 Botany	2	3	54		3	考试 Exam.
0822062	生命科学导论 Introduction to Life Science	1	2	36		2	考查 Quiz
0822014	生物化学 Biochemistry	3	4	72		4	考试 Exam.
0822033	分子生物学 Molecular Biology	4	3	54		3	考试 Exam.
0822035	细胞生物学 Cell Biology	4	3	54		3	考试 Exam.
0822059	微生物学 Microbiology	5	3	54		3	考试 Exam.
0822058	遗传学 Genetics	5	3	54		3	考试 Exam.

（三）专业课程模块（27 学分）

（Ⅲ）Specialized Courses (27 credits)

1. 专业核心课程（11 学分）

1. Specialized Core Courses (11 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0841064	生态学 Ecology	3	3	54		3	考试 Exam.
0841098	基因组学 Genomics	5	2	36		2	考查 Quiz
0841056	植物生理学 Plant Physiology	6	3	54		3	考试 Exam.
0841058	动物生理学 Animal Physiology	6	3	54		4	考试 Exam.

2. 专业方向课程（10 学分）

2. Specialized Orientation Courses (10 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0842081	生物信息学(双语) Bioinformatics(bilingual)	5	2	36		2	考查 Quiz
0842058	发育生物学 Development Biology	4	2	36		2	考查 Quiz
0842029	免疫学 Immunology	6	2	36		2	考查 Quiz
0842072	进化生物学 Evolutionary Biology	4	2	36		2	考查 Quiz
0842013	组织学 Histology	4	2	36		2	考查 Quiz

3. 专业拓展课程（6 学分）

3. Specialized Development Courses (6 credits)

详见学院专业拓展课程。

See Specialized Development Courses of the School of Life Sciences.

（四）专业技能模块（7 学分）

（Ⅳ）Professional Skills Courses(7 credits)

1. 必修课（5 学分）

1. Compulsory Courses (5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0842032	生物专业英语 Specialized English in Biology	4	2	36		2	考查
0842027	生物统计学 Biostatistics	3	2	36		2	考查 Quiz
0842033	生物学研究方法与论文写作 The Research Methods of Biology and Scientific Writing	3	1	18		2	考查

2. 选修课（2 学分）

2. Elective Courses（2 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0843040	病毒学 Virology	5	2	36		2	考查
0843110	神经生物学 Neurobiology	6	2	36		3	考查 Quiz

（五）实践教学模块（28 学分）

（Ⅴ）Practice Work（28 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0850017	必读书目阅读 Required Readings		1				考查 Quiz
0850021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
0850022	科研训练 Scientific Research Training	3-6	1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0850067	毕业论文（设计） Graduation Thesis (Design)	7-8	4				考查 Quiz
0850036	生物学野外实习 Field Practice of Biology	2	3				考查 Quiz
0850062	专业见习与实习（生命科学创新实验） Professional Visits And Practice（The Innovative Experiment in Life Sciences）	6	4			6	考查 Quiz
0850031	动物学实验 The Experiment of Zoology	1	1		36	2	考查 Quiz

0850047	植物学实验 The Experiment of Plants	2	1		36	2	考查 Quiz.
0850048	生物化学实验 The Experiment of Biochemistry	3	1		36	2	考查 Quiz
0850029	分子生物学实验 The Experiment of Molecular Biology	4	1		36	2	考查 Quiz.
0850030	细胞生物学实验 The Experiment of Cell Biology	4	1		36	2	考查 Quiz.
0850032	遗传学实验 The Experiment of Genetics	5	1		36	2	考查 Quiz.
0850033	微生物学实验 The Experiment of Microbiology	5	1		36	2	考查 Quiz.
0850034	植物生理学实验 The Experiment of Plant Physiology	6	1		36	2	考查 Quiz
0850035	动物生理学实验 The Experiment of Animal Physiology	6	1		36	2	考查 Quiz
0850059	细胞生物学综合实验 The Comprehensive Experiment in Cell Biology	5	1		36	9	考查 Quiz
0850060	形态学综合实验 The Comprehensive Experiment in Morphology	5	1		36	9	考查 Quiz
0850061	微生物代谢产物的色谱分析综合实验 The Comprehensive Experiment in Chromatographic Analysis of Microbial Metabolic Products	5	1		36	9	考查 Quiz

生物技术专业简介
Introduction to the Specialty of Biotechnology

生物技术专业，学制 4 年，专业属性为非师范专业。该专业始建于 2001 年，学校重点建设专业。

目前该专业在职任课教师 20 人，其中教授 6 人，副教授 14 人，所有任课教师具有博士学位，90%以上具有海外留学经历。

本专业依托国家基础科学人才培养基金——秦岭生物学野外实践教学基地，西北濒危药材资源开发国家工程实验室，陕西省生物基础实验教学示范中心等平台，培养具有优秀的人文与科学素养、宽厚的自然科学基础、扎实的生命科学专业知识和技能，融知识、能力、素质全面协调发展的从事生物技术相关学科研究、开发、生产和管理等工作的复合型高级专门人才。

Biotechnology specialty, with 4 years of the schooling period, is a non-teacher training one. The biotechnology specialty was founded in 2001 and the school focuses on building majors. At present, there are 20 teachers, including 6 professors and 14 associate professors. All teachers of the courses have doctoral degrees and more than 90 percent of teachers have overseas study experiences.

This major relies on many platforms such as the National Science Talents Fund - Qinling Biological Field Practice Teaching Base, National Engineering Laboratory of Endangered Medicinal Resources Development in Northwest, Teaching Demonstration Center of Basic Biological Experiment in Shaanxi Province. The purpose of this major is to cultivate the senior talents who have excellent humanistic and scientific literacy, generous natural science foundation and comprehensive and coordinated development with knowledge, ability and quality. The graduates have the abilities to conduct the scientific research, development, production and management work in biotechnology-related disciplines.

生物技术专业
The Specialty of Biotechnology

一、培养目标

Ⅰ. Educational Objectives

本专业主要根据培养德、智、体、美全面发展，身心健康，有较强的研究开发能力、科研创新能力和实践动手能力，能在科研机构或高等学校从事科学研究，适应现代生物科技发展及对生物技术人才的需求，融知识、能力、素质全面协调发展，能在医药、食品、农、林、牧、渔、环保等行业的企、事业单位从事专业相关技术开发、生产管理和行政管理等工作的复合型高级专门人才。

With the development of modern biotechnology and the demand for biotechnology talents, the major aims to prepare students to have “thick foundation, wide caliber, innovation and strong ability”. We will build a talent training system with unique characteristics of western resources, and cultivate high-quality composite innovative talents with comprehensive research and development capabilities, scientific research and innovation capabilities, and practical hands-on ability, and who is engaged in scientific research or teaching work in research institutions or colleges and universities, and who is engaged in biotechnology application research, technology development, production management and administration work in industry, medicine, food, agriculture, forestry, animal husbandry, fishery, environmental protection, landscape and other industries and enterprises, institutions and administration management departments.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国；了解马克思主义、毛泽东思想，熟悉邓小平理论；坚持党的基本路线，坚持四项基本原则，坚持建设有中国特色的社会主义；具有科学的世界观、正确的人生观和高尚的道德品质，能为人师表。

2. 本专业学生主要学习生物技术方面的基本理论、基本知识、接受应用基础研究和技术开发方面的科学思维和科学实验训练，具有较好的科学素养及初步的教学、研究、开发与管理的基本能力。毕业生应获得以下几方面的知识和能力：

（1）掌握数学、物理、化学等方面的基本理论和基本知识；掌握基础生物学、生物化学、分子生物学、微生物学、基因工程、发酵工程及细胞工程等方面的基本理论、基本知识和基本实验技能，以及生物技术及其产品开发的基本原理和基本方法；了解相近专业的一般原理知识；熟悉国家生物技术产生政策、知识产权及生物工程安全条例等有关政策和法规；了解生物技术的理论前沿、应用前景和最新发展动态，以及生物技术产业发展状况；掌握资料查询、文献检索及运用现代信息技术获取相关信息的基本方法；具有一定的实验设计，创造实验条件，归纳、整理、分析实验结果，撰写论文，参与学术交流的能力。

（2）具有健康的体魄和一定的军事基本知识、基本技能；达到国家规定的大学生体育合格标准和军事训练标准；养成终生锻炼身体的习惯。

（3）具有健全的人格、良好的心理和审美素养。

Students of this major may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. Undergraduates should be of high civil quality. With a deep love for our motherland, they should

steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of conduct. Undergraduates should build up noble moral accomplishment. They should develop a correct outlook of life and gracious humanistic literacy by inheriting excellent Chinese culture and absorbing advanced values and scientific concepts abroad to cultivate wholesome personality and sound psychological quality.

2. Undergraduates should know the basic theories, knowledge and the training of scientific thoughts and experiments for the applied study and technical develop; possess better scientific quality and the preliminary abilities to teaching, researching, developing and management.

(1)To understand basic theories and knowledge of mathematic, physics, chemistry and other related subjects; master the basic theories, knowledge and experimental skills of basic biology, biochemistry, molecular biology, microbiology, genetic engineering, fermentation engineering and cellular engineering, as well as the basic principles and methods for biotechnology and product development; know the basic theories of similar majors; know national policies and rules of biotechnologies, intellectual property and the safety of bioengineering; be aware of advanced theories, development and forward trends of biotechnology and biotech industry; master the basic ways to check information, document retrieval and obtain information by modern technologies; have the abilities to design experiment, create experimental conditions and generalize, analysis the results, write papers and participate academic exchanges.

(2) To be healthy; know military basics and skills; be up to the sports and military training standards for college students; form the habit of taking exercise all life.

(3) To have healthy and good quality in personality, psychology and aesthetics.

三、主干学科

Ⅲ. Core Disciplines

生物学

Biology

四、主干课程

Ⅳ. Main Courses

生物化学、分子生物学、遗传学、微生物学、细胞生物学、生物统计学、生物信息学、基因工程、细胞工程、酶工程、微生物工程

Biochemistry, Molecular Biology, Genetics, Microbiology, Cellular Biology, Biostatistics, Bioinformatics, Genetic Engineering, Cell Engineering, Enzyme Engineering, Microbiology Engineering

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

159 学分

159 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	26.4%	34%
	通识教育选修课 Liberal Studies Elective Courses	12		7. 5%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	17	42	10.7%	25.2%
	本学科基础课 Disciplinary Foundation Courses	23		14.5%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	16	34	10.1%	21.4%
	专业方向课程 Specialized Orientation Courses	12		7. 5%	
	专业拓展课程 Specialized Development Courses	6		3.8%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	6	6	3.8%	3.8%
	选修课 Elective Courses	0		0.00%	
实践教学模块 Practice Work	必修课 Compulsory Courses	25	25	15.7%	15.7%
合计 Total		159		100%	
说明 Notes	1. 专业必修课（包括专业核心课程和学科基础课程）共 14 门。 2. 实验课程共 9 门，其中独立开设的实验课 9 门，既有理论又有实验的课程 9 门，含综合性、设计性实验的课程 9 门，占实验课程总数的 100 %。 3. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 25.5%。 1. There are 14 specialized compulsory courses. 2. There are 9 experimental courses in total including 9 independent experimental courses, 9 theoretical and designable experimental courses which is 100% of the total experimental courses. 3. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 25.5% of the total credits.				

八、生物技术专业本科教学计划表

Ⅷ. Teaching Scheme for (Biotechnology) Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses(54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.

1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2	72			考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（40 学分）

（Ⅱ）Disciplinary Foundation Courses (40 credits)

1. 相关学科基础课（17 学分）

1. Related Disciplinary Foundation Courses (17 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
0821010	无机及分析化学 Inorganic and Analytical Chemistry	1	3	54		4/2	考试 Exam.
0821011	有机化学 Organic Chemistry	2	3	54		4/2	考试 Exam.
0821012	普通物理学 General Physics	3	3	54		4/2	考试 Exam.

2. 本学科基础课（23 学分）

2. Disciplinary Foundation Courses (23 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0822064	动物生物学 Zoobiology	1	3	54		3	考试 Exam.
0822065	植物生物学 Phytobiology	2	3	54		3	考试 Exam.
0822063	生态学 Ecology	3	2	36		2	考试 Exam.
0822031	生物化学 Biochemistry	4	3	54		3	考试 Exam.
0822043	分子生物学 Molecular Biology	4	3	54		3	考试 Exam.
0822045	细胞生物学 Cell Biology	4	3	54		3	考试 Exam.
0822058	遗传学 Genetics	5	3	54		3	考试 Exam.
0822059	微生物学 Microbiology	5	3	54		3	考试 Exam.

（三）专业课程模块（34 学分）

（Ⅲ）Specialized Courses (34 credits)

1. 专业核心课程（16 学分）

1. Specialized Core Courses (16 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0841077	生物统计学 Biostatistics	3	2	36		2	考试 Exam.
0841087	生物信息学 Bioinformatics	5	2	36		2	考试 Exam.
0841008	细胞工程 Cell Engineering	6	3	54		3	考试 Exam.
0841009	基因工程 Genetic Engineering	6	3	54		3	考试 Exam.
0841068	酶工程 Enzyme Engineering	6	3	54		3	考试 Exam.
0841069	微生物工程 Microbial Engineering	6	3	54		3	考试 Exam.

2. 专业方向课程（12 学分）

2. Specialized Orientation Courses (12 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0842029	免疫学 Immunology	3	2	36		2	考查 Quiz
0842035	天然药物化学 Natural Pharmaceutical Chemistry	4	2	36		2	考查 Quiz
0842034	生物制药概论 Introduction to Biopharmacy	4	2	36			考查 Quiz
0842036	生物检测技术 Biological Detection Technology	5	2	36		2	考试 Exam.

0842038	生物安全评价 Biosecurity Evaluation	5	2	36			考查 Quiz
0842040	生物工程下游技术 Bioengineering Downstream Technology	7	2	36		2	考查 Quiz

3. 专业拓展课程（6 学分）

3. Specialized Development Courses (6 credits)

详见学院专业拓展课程。

See Specialized Development Courses of School of the School of Life Sciences

（四）专业技能模块（6 学分）

（Ⅳ）Professional Skills Courses(6 credits)

1. 必修课（6 学分）

1. Compulsory Courses (6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0842041	生物信息学实践 Practice of Bioinformatics	5	1		36	2	考查 Quiz
0842059	生物检测技术实践 Practice of Modern Instrumental Technology	5	1		36	2	考查 Quiz
0841019	细胞工程实验 The Experiment of Cell Engineering	6	1		36	3	考查 Quiz
0841020	基因工程实验 The Experiment of Genetic Engineering	6	1		36	3	考查 Quiz
0841022	酶工程实验 The Experiment of Enzyme Engineering	6	1		36	3	考查 Quiz
0841021	微生物工程实验 The Experiment of Microbial Engineering	6	1		36	3	考查 Quiz.

（五）实践教学模块（25 学分）

（Ⅴ）Practice Work（25 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0850017	必读书目阅读 Required Readings		1				考查 Quiz
0850066	专业见习与实习（生物技术专业生产实习） Professional Visits and Practice	7	4				考查 Quiz
0850021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0850033	毕业论文（设计） Graduation Thesis (Design)	7-8	4				考查 Quiz
0850037	无机及分析化学实验 The Experiment of Inorganic and Analytical Chemistry	1	1		36	4/2	考查 Quiz
0850063	有机化学实验 The Experiment of Organic Chemistry	2	1		36	4/2	考查 Quiz
0850064	普通物理学实验 The Experiment of General Physics	3	1		36	4/2	考查 Quiz
0850042	动物生物学实验 The Experiment of Zoobiology	1	1		36	2	考查 Quiz
0850043	植物生物学实验 The Experiment of Phytobiology	2	1		36	2	考查 Quiz

0850036	生物学野外实习 Field Practice of Biology	2	3				考查 Quiz
0850048	生物化学实验 The Experiment of Biochemistry	3	1		36	2	考查 Quiz
0850029	分子生物学实验 The Experiment of Molecular Biology	4	1		36	2	考查 Quiz
0850030	细胞生物学实验 The Experiment of Cell Biology	4	1		36	2	考查 Quiz
0850032	遗传学实验 The Experiment of Genetics	5	1		36	2	考查 Quiz
0850033	微生物学实验 The Experiment of Microbiology	5	1		36	2	考查 Quiz

生态学专业简介
Introduction to the Specialty of Ecology

生态学专业，学制 4-6 年，专业属性为非师范专业，2015 年开始招生。我校生态学学科于 2010 年被评为省级重点学科，2011 年获得生态学一级学科博士学位授予权，2012 年增设为博士后科研流动站，2015 年被列入陕西师范大学一流学科建设计划。该学科已拥有完整的本科生—硕士生—博士生—博士后人才培养层次。

生态学专业目前有在职教师 36 人。其中，教授 15 人，副教授 14 人，讲师 7 人；具有博士学位的教师 28 人；博士生导师 14 人，硕士生导师 25 人。

本专业培养具有扎实的生态学基础理论、基本知识和技能，德、智、体、美全面发展，能够在科研、教学及企事业单位从事生态学相关工作的复合型高级专门人才。

The schooling system of ecology specialty is 4 years, a non-normal educational system. Based on the primary discipline doctoral degree-awarding power, ecology specialty was founded in 2015. This discipline was awarded the provincial key disciplines and has been eligible for ecology master degree-awarding and the doctor's degree-awarding. In 2012, it was added for the post-doctoral research station. This discipline has a full system of professional development, and was included in the first-class discipline construction project of SNNU in 2015.

Currently, there are 24 in-service teachers, including 14 professors (doctoral tutor 7), 7 associate professors, 3 lecturers. 87.5% of teachers have a doctorate.

The main aim of this specialty is to cultivate all-round development high-quality personnel with ecology basic theory, knowledge and skills. Students can be engaged in works of relevant ecological field, such as scientific research, teaching, enterprises, institutions, etc.

生态学专业
The Specialty of Ecology

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具有良好的科学、文化素养和高度的社会责任感，较系统地掌握生态学基础知识、基本理论和基本技能，富有创新精神、创业意识和创新创业能力，以服务国家和区域生态文明建设与可持续发展需要为宗旨，以解决我国西部地区生态保护、资源开发利用、社会经济发展与环境综合性问题为目标，能够胜任与生态学密切相关的行业、产业、规划与管理以及教育等部门工作的复合型高级专门人才。

This specialty trains the professional persons who master the basic theory and skills in ecology sciences, and who have the good social adaptation ability, practical ability, innovation and entrepreneurial ability. Thus, they can be employed as applied and compound talents in the sectors of agriculture, forestry, animal husbandry, fishery, water conservancy, environmental protection, ecological planning and management, resource development, development and reform. Meanwhile, they can also be in a number of professions of the green industry, environmental assessment, resource protection (reserve), ecological restoration (new roads and damaged ecological system), etc.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国，掌握马列主义、毛泽东思想、邓小平理论、“三个代表”和习近平新时代中国特色社会主义重要思想；坚持科学发展观，具有科学的世界观、正确的人生观和价值观以及高尚的道德品质。

2. 在修业年限内完成培养计划并获得规定学分；系统掌握本专业的基础知识、基本理论和技能，了解本学科的发展动态，掌握与生态学相关的基础学科知识；掌握比较扎实的数学、化学、计算机和信息科学方面的基础知识。英语达到国家规定的水平，能较熟练地运用外语阅读专业期刊和进行文献检索，有初步的外语交流和科技写作能力。

3. 具有综合运用所掌握的理论知识和技能，从事生态科学及其相关领域科学研究的能力；具有主动获取知识的能力、较强的创新精神和社会适应能力；具有民主与法制意识、国际意识、竞争意识、环境意识和可持续发展的意识等。

4. 掌握一定的军事基本理论及基本技能，达到国家规定的大学生体育锻炼标准。

5. 具有一定的历史、人文、科技和艺术等方面的通识性知识，具有健全的人格和良好的心理素质。

Students of this major may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. Undergraduates should be of high civil quality. With a deep love for our motherland, they should steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of conduct. Undergraduates should build up noble moral accomplishment. They should develop a correct outlook of life and gracious humanistic literacy by inheriting excellent Chinese culture and absorbing advanced values and scientific concepts abroad to cultivate wholesome personality and sound psychological quality.

2. Undergraduates should master the basic knowledge in ecology sciences, systematically grasp the basic theory, knowledge and skills in ecology sciences, be familiar with the developmental frontier of the discipline of ecology and related industries, and obtain basic capacity for innovation and scientific research. They should also understand the knowledge of relevant disciplines, possess a knowledge structure with which one can work in multiple fields although specializing in one; master modern information technology basic knowledge and technique; master a foreign language, and reach the national standard of CET4; master the basic methods for information inquiry, literature retrieval, and acquirement of information by applying modern information technology.

3. Undergraduates should develop the ability to discover problem and raise question, the ability to analyze and solve the problem, as well as the ability to adapt to the society. They should also have the consciousness of democracy and law, of social reform and opening, of efficiency, of internationalization, of competition, of environment, of sustainable development, etc..

4. Undergraduates should have healthy physique and certain basic military knowledge and skills, reach the national standard for physique and health, and military training, form habit of regular physical exercise.

5. Undergraduates should possess good humanistic and scientific quality, the perfect personality and good psychological quality, have stronger capacity for innovation and practice, with comprehensive development in moral, intellectual, physical and aesthetics educations.

三、主干学科

Ⅲ. Core Disciplines

生态学

Ecology

四、主干课程

Ⅳ. Main Courses

生态学导论、分子与进化生态学、生理生态学、种群生态学、群落与生态系统生态学、景观生态学、微生物生态学、科学研究方法与论文写作、生物统计学、试验设计与数据分析、生态学专业英语、生态建模、基础生态学综合实验、生态学野外综合实习、生态学创新大实验

Introduction to Ecology, Molecular & Evolutionary Ecology, Physiological Ecology, Population Ecology, Community & Ecosystem Ecology, Landscape Ecology, Microbial Ecology, Research Methods and Scientific Writing, Biostatistics, Ecology Major English, Ecological Modeling, Comprehensive Experiments of Basic Ecology, Comprehensive Field Practice in Ecology, Innovative Ecological Experiments

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

160.5 学分

160.5 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	26.17%	33.64%
	通识教育选修课 Liberal Studies Elective Courses	12		7.48%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	20	46	12.46%	28.66%
	本学科基础课 Disciplinary Foundation Courses	26		16.20%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	16	26	9.97%	16.20%
	专业方向课程 Specialized Orientation Courses	4		2.49%	
	专业拓展课程 Specialized Development Courses	6		3.74%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	8	8	4.98%	4.98%
实践教学模块 Practice Work	必修课 Compulsory Courses	26.5	26.5	16.51%	16.51%
合计 Total		160.5		100%	
说明 Notes	1. 专业必修课（包括专业核心课程和学科基础课程）共 20 门。 2. 专业选修课共 12 门，其中专业方向课程 12 门，分 3 个方向；专业拓展课程 10 门。学生应从专业方向课程中至少选修 4 学分，从专业拓展课程中至少选修 6 学分。 3. 实验（实习）课程共 28 门，其中独立开设的实验课 15 门（36 学时），既有理论又有实验的课程 9 门（18 学时），含综合性、设计性实验的课程 4 门（综合实验、实习、大实验），占实验课程总数的 14.3%。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 24.0%，实践教学环节学时占总学时的 41.4%。 1. There are 20 specialized compulsory courses. 2. There are 12 specialized elective courses in total including 12 specialized orientation courses divided into 3 dimensions and 10 specialized development courses. Undergraduates should obtain 4 credits in total by taking specialized orientation courses and 6 credits by taking specialized development courses. 3. There are 28 experimental courses in total including 15 independent experimental courses,9 theoretical and 4 designable experimental courses which is 14.3% of the total experimental courses. 4. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 24.0% of the total credits，41.4% of the total hours.					

八、生态学专业本科教学计划表

Ⅷ. Teaching Scheme for Ecology Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses(54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.

1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（42 学分）

（Ⅱ）Disciplinary Foundation Courses (42 credits)

1. 相关学科基础课（20 学分）

1. Related Disciplinary Foundation Courses (20 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics(Ⅱ) -1(for Science Specialty)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics(Ⅱ)- 2(for Science Specialty)	2	4	72		4	考试 Exam.
0821003	无机及分析化学 Inorganic and Analytical Chemistry	1	5	72	36	4/2	考试 Exam.
0821002	有机化学 Organic Chemistry	2	4	54	36	3/2	考试 Exam.
0821001	环境科学概论 Introduction to Environmental Science	2	3	54		3	考试 Exam.

2. 本学科基础课（26 学分）

2. Disciplinary Foundation Courses (26 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0822037	动物学 Zoology	1	3	54		3/2	考试 Exam.
0822062	生命科学导论 Introduction to Life Sciences	2	2	36		2	考试 Exam.
0822039	植物学 Botany	2	3	54		3/2	考试 Exam.
0822066	概率论 Probability Theory	2	2	36			考试 Exam.
0822067	线性代数 Linear Algebra	3	2	36			考试 Exam.
0822060	生物化学及分子生物学 Biochemistry & Molecular Biology	3	3	54		3/2	考试 Exam.
0822068	遗传学 Genetics	3	3	54		3/2	考试 Exam.
0822055	土壤学 Agrology	3	3	54		3	考试 Exam.
0842027	生物统计学 Biostatistics	4	2	36		2	考试 Exam.
0822059	微生物学 Microbiology	5	3	54		3/2	考试 Exam.

（三）专业课程模块（26 学分）

（Ⅲ）Specialized Courses (26 credits)

1. 专业核心课程（16 学分）

1. Specialized Core Courses (16 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0841101	生态学导论 Introduction to Ecology	1	2	36		2	考试 Exam.
0841105	生理生态学 Physiological Ecology	3	4	72		4	考试 Exam.
0841092	种群生态学 Population Ecology	4	2	36		2	考试 Exam.
0841093	群落与生态系统生态学 Community & Ecosystem Ecology	4	2	36		2	考试 Exam.
0841106	景观生态学 Landscape Ecology	5	2	36		2	考试 Exam.
0841107	微生物生态学 Microbial Ecology	6	2	36		2	考试 Exam.
0841108	分子与进化生态学 Molecular & Evolutionary Ecology	6	2	36		2	考试 Exam.

2. 专业方向课程（4 学分）

2. Specialized Orientation Courses (4 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
植物生态学方向课程 Courses of Plant Ecology Dimension							

0842060	植物生态学 Plant Ecology	4	2	36			考查 Quiz
0842055	生物入侵生态学 Biological Invasion Ecology	5	2	36		2	考查 Quiz
0842061	种子生态学 Seed Ecology	6	2	36			考查 Quiz
动物生态学方向课程 Courses of Animal Ecology Dimension							
0842063	昆虫生态学 Insect Ecology	4	2	36			考查 Quiz
0842064	鸟类生态学 Avian Ecology	5	2	36			考查 Quiz
0842073	行为生态学 Behavioral Ecology	6	2	36		2	考查 Quiz
恢复生态学方向课程 Courses of Restoration Ecology Dimension							
0842048	恢复生态学 Restoration Ecology	4	2	36		2	考查 Quiz
0842045	自然保护区管理 Management of Nature Reserves	5	2	36		2	考查 Quiz
0842050	污染生态学 Pollution Ecology	6	2	36		2	考查 Quiz

3. 专业拓展课程（6 学分）

3. Specialized Development Courses (6 credits)

详见生命科学学院专业拓展课程。

See Specialized Development Courses of School of Life Sciences

（四）专业技能模块（8 学分）

（Ⅳ）Professional Skills Courses (8 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0842078	科学研究方法与论文写作 Research Methods and Scientific Writing	5	2	36		2	考查 Quiz
0822079	试验设计与数据分析 Experimental Designs & Data Analysis	5	2	36		3	考查 Quiz
0842053	生态学专业英语 Specialized English in Ecology	6	2	36		2	考查 Quiz
0842054	生态建模 Ecological Modeling	6	2	36		2	考查 Quiz

（五）实践教学模块（26.5 学分）

（Ⅴ）Practice Work（26.5 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0850017	必读书目阅读 Required Readings		1				考查 Quiz
0850040	专业见习与实习（生态学野外综合实习） Professional Visits And Practice（Comprehensive Field Practice in Ecology）	6	4		12 天		考查 Quiz
0850021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
0850036	生物学野外实习 Field Study of Biology	2	3				考查 Quiz

1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0850067	毕业论文 Graduation Thesis	7-8	4				考查 Quiz
0841049	动物学实验 The Experiment of Zoology	1	1		36	2	考查 Quiz
0822040	植物学实验 The Experiment of Plants	2	1		36	2	考查 Quiz.
0850044	生物化学与分子生物学实验 The Experiment of Biochemistry and Molecular Biology	3	1		36	2	考查 Quiz
0850051	生理生态学实验 The Experiment of Physiological Ecology	3	1		36	2	考查 Quiz
0850032	遗传学实验 The Experiment of Genetics	3	1		36	2	考查 Quiz.
0850052	土壤学实验 The Experiment of Agrology	3	1		36	2	考查 Quiz
0850053	景观生态学实验 The Experiment of Landscape Ecology	5	0.5		18	1	考查 Quiz
0850054	试验设计与数据分析实验 The Experiment of Experimental Designs & Data Analysis	5	0.5		18	1	考查 Quiz
0850033	微生物学实验 The Experiment of Microbiology	5	1		36	2	考查 Quiz.
0850068	基础生态学综合实验 The Comprehensive Experiment of Basic Ecology	5	1		36	2	考查 Quiz
0850069	微生物生态学实验 The Experiment of Microbial Ecology	6	0.5		18	1	考查 Quiz
0850070	分子与进化生态学实验 The Experiment of Molecular & Evolutionary Ecology	6	0.5		18	1	考查 Quiz
0850071	生态建模实验 The Experiment of Ecological Modeling	6	0.5		18	1	考查 Quiz
0850072	生态学创新实验 The Innovative Experiment in Ecology	7	1		36	2	考查 Quiz

生命科学学院专业拓展课程（专业任意选修课）
Specialized Development Courses (Specialized Non-restrictive Elective Courses) of School of Life Sciences

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0843117	植物防疫 Plant Prevention of Epidemis	5	2	36		2	考查 Quiz
0843118	生物多样性原理与应用 Principles and Application of Biological Diversity	5	2	36		2	考查 Quiz
0843119	肿瘤的细胞和分子生物学 Cell and Molecular Biology of Cancer	5	2	36		2	考查 Quiz
0843120	群体遗传学 Population Genetics	5	2	36		2	考查 Quiz
0843098	动物分类学与系统演化 Animal Systematics and Systematic Evolution	4	2	36		2	考查 Quiz
0843056	系统与进化植物学 Systematic and Evolutional Botany	5	2	36		2	考查 Quiz
0843017	被子植物胚胎学 Embryology of Angiosperm	5	2	36		2	考查 Quiz
0843004	植物发育生物学 Plant Developmental Biology	5	2	36		2	考查 Quiz
0843099	植物分类学与区系分析 Plant Systematics and Flora Analysis	4	2	36		2	考查 Quiz
0843076	表观遗传学 Epigenetic Genetic	6	2	36		2	考查 Quiz
0843090	神经生物学 Neurobiology	6	2	36		2	考查 Quiz
0843057	植物抗性生理学 Plant Resistant Physiology	5	2	36		2	考查 Quiz
0843055	果蔬营养与保健作用 Nutrition and Health Protection of Fruits and Vegetables	4	2	36		2	考查 Quiz
0843082	动物行为学 Animal Behavior	3	2	36		2	考查 Quiz
0843012	昆虫学 Entomology	3	2	36		2	考查 Quiz
0843027	观赏植物学 Ornamental Plant	5	2	36		2	考查 Quiz
0843063	植物衰老与调控 Plant Senescence and Regulation	6	2	36		2	考查 Quiz
0843084	生命科学领域新进展专题 The Latest Progress in the Field of Life Science	6	2	36		2	考查 Quiz
0843127	遗传与优生学 Heredity and Eugenics	6	2	36		2	考查 Quiz
0843083	现代生物技术专题讲座 Lectures on Modern Biotechnology	6	2	36		2	考查 Quiz
0843113	蛋白质工程 Protein Engineering	5	2	36		2	考查 Quiz
0843091	生物制药概论 Introduction to Biopharmaceutical	4	2	36		2	考查 Quiz
0843092	天然药物化学 Chemistry of Natural Medicinal Products	4	2	36		2	考查 Quiz
0843085	生物工程下游技术 Bioengineering Downstream Technology	5	2	36		2	考查 Quiz
0843093	生物检测技术 Biological Detection Technology	5	2	36		2	考查 Quiz
0843007	现代仪器分析 Modern Instrumental Analysis	5	2	36		2	考查 Quiz

0843094	生物安全评价 Biological Safety Assessment	5	2	36		2	考查 Quiz
0843132	生物实验室安全 Biological Laboratory Safety	5	2	36		2	考查 Quiz
0843133	现代生物技术概论 Introduction to Modern Biotechnology	6	2	36		2	考查 Quiz
0843105	森林生态学 Forest Ecology	5	2	36		2	考查 Quiz
0843108	生态安全概论 Introduction to Ecological Security	5	2	36		2	考查 Quiz
0843131	湿地生态学 Wetland Ecology	5	2	36		2	考查 Quiz
0843038	保护生物学 Conservation Biology	6	2	36		2	考查 Quiz
0843104	农业生态学 Agroecology	6	2	36		2	考查 Quiz
0843130	生物地理学 Biogeography	6	2	36		2	考查 Quiz
0843109	生物入侵 Biological Invasion	5	2	36		2	考查 Quiz
说明 Notes	生命科学学院专业拓展课程共 36 门。 There are 36 specialized development courses for the School of Life Sciences.						

备注：各专业修过的课程，不要在拓展课程中重复选择。

地理科学与旅游学院
School of Geography and Tourism

- 地理科学（师范）

  Geographical Science（Normal）

- 地理科学（创新实验班）

  Geographical Sciences (Innovative and Experimental Class)

- 地理信息科学

  Geographic Information Science

- 环境科学

  Environmental Science

- 旅游管理

  Tourism Management

地理科学专业（师范）简介
Introduction to the Specialty of Geographical Science (Normal)

地理科学专业，学制 4 年，专业属性为师范专业。该专业始建于 1944 年，其前身为陕西省立师范专科学校史地科。地理科学专业是我校优势特色专业之一，2003 年被评为陕西省名牌专业。2006 年其主干课程“自然地理”课程评为国家级精品课程。2008 年地理科学专业被评为国家级特色专业。2009 年入选省级优秀教学团队，地理学实验教学中心 2015 年被评为国家级实验教学示范中心。

目前该专业有在职任课教师 64 人，其中教授 22 人，副教授 14 人，讲师 28 人，其中 54 人具有博士学位。

该专业主要培养具备一专多能的专业知识结构和运用地理学视角提出问题、分析问题和解决问题的能力，以及系统的专业教育教学能力，能在基础教育领域从事地理学科教育、教育管理和研究的优秀教师、教育管理者和未来教育家。

Geographical Science is a four-year normal undergraduate program. It was founded in 1944 under its original name “History and Geography Science” in Shaanxi Provincial Teachers’ College, the predecessor of Shaanxi Normal University. Geographical Science is one of the preponderant and characteristic disciplines in this university. In 2003, the specialty of Geographical Science was awarded Shaanxi famous-brand specialty. In 2006, the course “Physical Geography” was awarded state-level excellent course. In 2008, Geographical Science Specialty was awarded nation-level specialized disciplines. In 2009, teachers of Geographical Science won the award of “Provincial Excellent Teaching Team”， and the geographical comprehensive laboratory was awarded “National Experimental Teaching Demonstration Center” in 2015.

Presently, there are 59 faculty members, including 22 professors, 14 associate professors and 28 lecturers. Among all these faulty members, 54 are doctoral degree holders.

The objective is to cultivate undergraduate students to possess the knowledge structure in one field while possessing all-round knowledge and ability, and has the ability to put forward, analyze and solve problems using geographic perspective, and the professional teaching ability of the system. They possess good humanity quality and scientific quality, and prepare them to be qualified to work as outstanding teachers, education administrators and future educators with outstanding education of basis geographic knowledge, engaged in the geography education, the education administration and the research in the middle school education field.

地理科学专业（师范）
The Specialty of Geographical Science (Normal)

一、培养目标

Ⅰ. Educational Objectives

1. 目标定位

本专业适应国家基础教育改革发展要求，立足西部，面向全国，培养具有高尚的师德修养、深厚的地理科学专业素养、突出的教育教学能力和较强的科研能力，身心健康，能够在中等学校从事地理教学、研究和管理工作的优秀教师、教育管理者和未来教育家。

1. Objectives Orientation

Adapting to the national foundation education reform and development requirements of the western region and the whole country, this major aims to cultivate excellent teachers and education managers with lofty moral cultivation, profound geographical science professional quality, outstanding education teaching ability and strong scientific research ability, as well as sound physical and mental health.

2. 目标内涵

本专业毕业 5 年左右的学生，应当具备以下素养。

（1）热爱地理教育事业，拥有宽厚扎实的专业基础知识，具备较强的文本解读能力、读图绘图能力和口语、书面表达能力；关爱学生，了解中学生身心发展特点和成长规律；视野开阔，善于创新，社会适应能力强，能够独立开展工作。

（2）具有良好的地理教学设计能力和课堂组织能力，善于运用现代信息技术，能上示范公开课；熟悉课程改革的最新进展，能够基于课程标准指导课堂学习和课外活动；教育教学成效显著，成为所在学校骨干教师。

（3）善于在地理教学中进行育人活动，将地理知识学习、能力发展和品德养成有机结合；具备较强的教育教学管理能力，能够胜任班主任工作；具有坚定的教育信念，能以自身人格魅力和学识魅力感染学生，做学生健康成长的引路人。

（4）了解国内外基础教育发展的趋势和前沿动态，不断更新自己的教育理念和教育方式；善于独立思考，能够针对实际教育问题开展科学、严谨的研究；具有团队协作精神，能通过校内外教研活动开展专业交流，在所工作的区域内具有一定的影响力。

2. Objective Connotation

Graduates from this major for about 5 years should have the following qualities.

(1) Loving geography education, possessing broad and solid professional basic knowledge, and having strong ability of text interpretation, maps interpretation and drawing, and oral and written expression; caring for students, understanding the characteristics of physical and mental development and growth law of middle school students; having broad vision and strong social adaptability; being able to work independently and creatively.

(2) Having good ability of geography teaching design and class organization, being good at using modern information technology, and can take demonstration of open classes; having a great knowledge of the latest progress of curriculum reform, and can guide classroom learning and extracurricular activities based on curriculum standards; having remarkable results in education and teaching, and becoming cadre teachers in their schools.

(3) Being good at carrying out education activities in geography teaching, and organically combine the learning of geography knowledge, ability development and character cultivation; Having strong education teaching management ability, and being competent to head teacher work; Having a firm belief of education, and can infect students with their own personality and knowledge, and act as a guide for the healthy growth of students.

(4) Understanding the development trend and frontier dynamics of basic education at home and abroad, and constantly updating our education concept and education mode; Being good at independent thinking, and able to carry out scientific and rigorous research on actual education problems; Having the spirit of teamwork, could carry out professional communication in teaching and research activities, and having certain influence in the work area.

3. 目标评价

（1)依据国家形势和教育政策的变化，及时对培养目标进行修订。紧随时代发展，借助政府主管部门、学校管理部门以及中学相关部门的力量，把握人才需求方向，培养符合国家基础教育改革发展需求的中学地理教师。

（2)以学年为单位，建立稳定的培养目标修订机制。依照培养目标，对人才就业情况与表现进行持续调研，并邀请领域内的专家对培养体系进行论证。建立信息公开平台，对培养目标修订提供条件支撑，随时将目标及其理念进行公开，征求各方利益群体的意见与建议，并将目标评价的修订完善随时向公众特别是利益相关主体进行公开。

（3)建立历年培养方案变化的跟踪机制。每年对学生表现情况、不同课程毕业要求的支撑情况进行分析，作好记录和分析；通过收集用人单位、学生、高校教师、学生家长的意见和建议，了解培养方案的优势和不足，建立档案，不断进行优化。

3. Objective Evaluation

(1) In accordance with the changes in the national situation and educational policies, the training objectives are revised in time. With the development of the times, under the help of government departments, school management departments and middle school departments, we should grasp the direction of talent demand and cultivate middle school geography teachers who meet the needs of the national basic education reform and development.

(2) Establishing a stable training objective revision mechanism based on the academic year. In accordance with the training objectives, the employment situation and performance of talents are continuously investigated, and experts in the field are invited to demonstrate the training system. Establishing a platform for information disclosure, which could provide conditional support for the revision of training objectives, open the objectives and their concepts at any time, solicit opinions and suggestions from all stakeholders, and make the revision and perfection of the objective evaluation open to the public, especially stakeholders at any time.

(3) Establishing a tracking mechanism for changes in training programs over the years. Every year, the performance of students, and the support of different courses for graduation requirements could be recorded and analyzed; Through the opinions and suggestions collection from employers, students, college teachers, parents of students, understanding the advantages and disadvantages of the training program, and establishing files for constantly optimization.

二、毕业要求

Ⅱ. Graduation Requirements

为提高教师教学的针对性和学生学习的目的性，本专业将毕业要求细化为可落实、可评价、有逻辑性和专业特点的11个指标点，用以支撑培养目标。本专业学生在修读年限4-6年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 掌握中国特色社会主义的基本理论知识，认同并践行社会主义核心价值观及行为规范。熟悉我国地理教育基本法规、基本现状和发展趋势，树立坚定的地理教育职业信念，养成高尚的地理教育职业道德。不忘初心，践行师德。认识到教师是“传道授业解惑”的主体，应当热爱教育，提升自我修养，以精神体验践行师德，在实践中诠释师德师风的真正内涵。【师德规范】

2. 具有从教意愿，认同教师工作的意义和专业性，能够帮助学生获取语言知识、技能。具有积极的情感、端正的态度、正确的价值观。具有人文底蕴和科学精神。爱岗敬业、尽心尽职，树立为教育事业奋斗终生的志向。淡泊名利，专注于教育事业，拥有童心、读懂学生、尊重学生、关爱学生。乐于创新、勇于开拓。以身示范、立德树人，用自己的人格力量和魅力吸引并打动学生，更好地引导和帮助学生把握好人生方向。【教育情怀】

3. 拥有充足的人文知识与科学素养，扎实掌握地理学科的知识体系、思想与方法，重点理解和掌握地理学科核心素养内涵。具有跨学科知识结构，加强地理学科与历史、环境等学科及领域的内在联系，实现资源共享，优势互补，增强学生驾驭各学科知识的能力。对学习科学相关知识能理解并初步应用，能整合形成学科教学知识。讲求实效，加强合作意识，提高知识整合的利用率，使地理教学有针对性和实效性。初步掌握基于地理核心能力和知识素养的学习指导方法和策略。【知识整合】

4. 理解教师是学生学习和发展的促进者，把学生作为教学的中心。掌握较好的技术侧面和人格侧面的能力，包括良好的语言表达能力、组织管理能力、处理教材的能力、课程开发的能力、了解学生的能力、理解他人以及与他人交往的能力和自我监控能力。具有一定的知识整合能力，以学生为中心进行合理的学习设计与实施。【教学能力】

5. 初步掌握应用信息技术优化地理学科课堂教学的方法技能。运用信息技术，进行地理教学设计、实施和评价。突出学习主体，培养学生的思维独立性、主动性、发散性。激发学生学习的热情，挖掘他们的潜力，促进自主学习，把学习的主动权交还给学生。【技术融合】

6. 树立德育为先理念。了解中学德育原理与方法，掌握班级组织与建设的工作规律与基本方法。使班级管理依靠学生并为了学生，要注意调动学生的积极性、主动性，发挥学生的创造性。公平对待每一个学生，并为其提供锻炼的机会和条件。善于协调统一学校、家庭和社会的教育力量，努力构建以学校为核心的、以班级教育为主阵地的、有统一教育目标的教育集体，共同做好班级的管理工作，并积极参与德育和心理健康教育等教育活动的组织与指导。【班级指导】

7. 树立育人为本的理念，了解中学德育原理和方法，了解中学生身心发展和养成教育规律，掌握班级组织与建设的工作规律和基本方法。理解地理学科育人价值，能够有机结合地理教学进行育人活动。了解学校文化和教育活动的育人内涵和方法，参与组织主题教育和社团活动，对学生进行教育和引导。【综合育人】

8. 具有终身学习与专业发展意识。了解地理专业发展核心内容和发展阶段路径，做好专业规划，实现学习目标和就业期望。把地理学科课内学习和课外探究知识的能力结合起来，培养“自立”“自为”“自律”的特质。【自主学习】

9. 具有全球意识和开放心态，培养国际视野，了解国际地理教育改革发展的趋势和前沿动态，积极参与国外大学等教育机构的交流、互动与深度往来。借鉴国外先进教育理念和经验来改善中学地理教学的现状。【国际视野】

10. 理解教师是反思型实践者。认识到教学研究是地理教师的内需和自求，通过反思研究，增长地理教学智慧，形成教学理性，提升教学境界，实现教学意义。掌握先进的地理教育教学思想，并及时探索先进的教育教学经验和教改信息，可以为熟悉的事件提供不熟悉的阐释和另外的工作方式，从而给问题解决提供不同的视角。认识到教师是教学研究的主体，意味着教师自己来研究问题、研究自己的问题、研究问题的自己。【反思研究】

11. 认识到地理教师团队是一个学习共同体。学会与他人沟通合作，相互借鉴，共同探讨，发挥团队精神在地理教学中的运用，主动参与教学活动，勇于承担责任。深度体验观摩互助、合作研究、小组实习等协作学习活动，乐于分享交流实践经验。能够通过口头或书面方式有效表达自己的想法。【交流合作】

Students of this major can graduate after completing the credits specified in the teaching plan and meeting the following basic requirements within 4 to 6 years of study:

1. Geography undergraduates should master the basic theoretical knowledge of socialism with Chinese characteristics, recognize and practice the socialist core values and code of conduct. They should be familiar with the basic laws and regulations, the basic current situations and the development trend of Geography education in China, establish a firm professional belief in Geography education, and develop noble professional ethics of Geography education. Stay true to the original intention and practice teacher’s ethics. Geography undergraduates should realize that teachers are subjects of “imparting knowledge and solving doubts”, with a deep love for education, they should improve self-cultivation, practice teacher’s ethics through spiritual experience, and interpret the true connotation of ethics and teaching style of teachers in practices. [Code of Teacher’s Ethics]

2. Geography undergraduates should have the willingness to teach, recognize the significance and professionalism of teachers' work, and be able to help students acquire language knowledge and skills. They should have positive emotion and hold correct attitudes and values. They should own humanistic connotations and scientific spirit. Besides, they must love their work and be devoted to it, and set up ambitions of struggling lifelong for education career. Being indifferent to fame and wealth, they must focus on education career, and have childlike innocence to understand students, respect students, and care for students. Being willing to innovate and pioneering, in addition, they must set examples for students, set high moral values and cultivate students. With their own personality strength and charm, they can attract students and better guide and help students to grasp the direction of life. [Educational Feelings]

3. Geography undergraduates should have sufficient humanistic knowledge and scientific literacy, master the knowledge system, thoughts and methods of Geography subject, focus on understanding and mastering the core connotation of Geography subject. They need to own the ability to strengthen the internal connection between Geography subject, history, environment and other disciplines and fields with an interdisciplinary knowledge structure, to realize resource sharing and complementary advantages, and to strengthen students' ability to integrate the knowledge of all disciplines. They should understand and apply the knowledge related to science, and integrate and form the knowledge of subject teaching. Besides, they should focus on practical results, strengthen the awareness of cooperation, and improve the utilization rate of knowledge integration so that Geography teaching can be targeted and effective. They should master the guiding methods and strategies of learning based on Geography core competence and knowledge accomplishment. [Knowledge Integration]

4. Geography undergraduates should understand that students are the center of teaching, and teachers play the role of facilitators in students' learning and development. They should master the better ability to know technical and personality aspects, including good language expression ability, organizational and management ability, ability to deal with textbooks, to develop courses, and to understand students, ability to understand others and to interact with others, and self-monitoring ability. They should have certain ability of integrating courses to carry out reasonable learning design and implementation with students as the center. [Teaching Ability]

5. Geography undergraduates should master the methods and skills of applying information technology to optimize Geography classroom teaching. Using information technology to design, implement and evaluate Geography teaching, they should highlight the subject of learning to cultivate independence, initiative and divergence of students' thoughts. They should motivate students' enthusiasm to learn, tap their potential, and promote independent learning to return initiative to students. [Technology Convergence]

6. Geography undergraduates should set up the concept of moral education first. In addition to understanding the principles and methods of moral education in middle school and mastering the working rules and basic methods of class organization and construction, they should make class management depend on students and for students, and pay attention to arouse students' enthusiasm, initiative and give play to students' creativity. They must treat every student equally and provide them with opportunities and conditions for exercise. Moreover, they must be good at coordinating and unifying the education forces of school, family and society, striving to build the education collective with the school as the core, class education as the main position, and the unified education goal, doing the class management work well together, and actively participating in the organization and guidance of education activities such as moral education and mental health education. [Class Guidance]

7. Geography undergraduates should uphold a belief that the foundation of education is educating people, understand the principles and methods of moral education in secondary schools, understand the rules of physical and mental development and the nature of cultivation in secondary school education, and acquire the rules and basic methods of the class organization and construction; they should understand the value of nurturing a person in Geography language courses, be able to educate a person during Geography teaching activities. They should know the content and methods of school culture and educational activities, participate in organizing theme education and society activities, and provide guidance and constructive training for students' development. [Comprehensive Education]

8. Geography undergraduates should have awareness of lifelong learning and professional development. They should understand the core concepts and the paths of the Geography major development, and have

professional planning so as to achieve learning goals and to fulfill employment expectations. They should be able to combine Geography learning in class with the ability to explore knowledge after class to cultivate the characteristics of “self-reliance”, “self-determination” and “self-discipline”. [Autonomous Learning]

9. Geography undergraduates should have a global awareness and an open mind, cultivating an international vision. In addition to knowing the cutting-edge trends of the reform and development in international Geography education, they should also actively participate in exchanges, interactions and in-depth contacts with foreign universities and other education institutions. They should learn from foreign advanced education concepts and experience to improve the current situation of domestic middle school Geography teaching. [International Vision]

10. Geography undergraduates should know that teachers are reflective practitioners. They should realize that teaching research is the inward demand of Geography teachers. Through reflection and research, they can become wise in Geography teaching with established teaching rationality and improved teaching realm to realize the significance of teaching. What’s more, they should master the advanced Geography educational ideas and timely explore the advanced education and teaching experience and reform information, which can provide unfamiliar interpretation and other working styles for familiar events, thus providing different perspectives for solution of problems. The recognition that the teacher is the subject of teaching research implies that the teacher studies problems by himself/herself, studies problems of himself/herself and studies himself/herself with problems. [Reflection and Research]

11. Geography undergraduates should recognize that the Geography teacher team is a learning community. They should learn to communicate and cooperate with others and learn from each other to demonstrate teamwork spirit in Geography teaching. They may take the initiative to participate in teaching activities, and dare to take responsibility. Besides, deeply experiencing the cooperative learning activities such as mutual aid, cooperative research and group practice, then they should be willing to share and exchange practical experience. They should be able to effectively express their ideas orally or in writing. [Exchange and Cooperation]

三、主干学科

Ⅲ. Core Disciplines

地理科学，教育学

Geography, Pedagogy

四、主干课程

Ⅳ. Main Courses

地图学、地球概论、气象与气候学、地貌学、水文与水资源学、土壤地理学、植物地理学、人文地理学、经济地理学、中国地理、世界地理、遥感概论、地理信息系统、教育学、心理学、教育心理学

Cartology, Introduction to Geoscience, Meteorology and Climatology, Geomorphology, Hydrology, Pedogeography, Phytogeography, Human Geography, Economic Geography, Chinese Geography, World Geography, Introduction to Remote Sense, Geography Information System, Pedagogy, psychology, and educational psychology

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

163 学分

163 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课程类别 Course Catalogue		学分及比例 Credits and Percentage			
		学分 Cre.	小计 Sub-Total	占总学分比例 Percentage in Total Credits	小计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.8%	32.1%
	通识教育选修课 Liberal Studies Elective Courses	12		7.4%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	14	22	8.6%	13.5%
	本学科基础课 Disciplinary Foundation Courses	8		4.9%	
专业课程模块 Specialized Courses	专业必修课 Specialized Compulsory Courses	37	55	22.7%	33.7%
	专业限定选修课 Specialized Restrictive Elective Courses	12		7.4%	
	专业任意选修课 Specialized Non-Restrictive Elective Courses	6		3.7%	
教师教育模块 Teacher-Training Courses	公共必修课 General Compulsory Courses	11	16	6.7%	9.8%
	学科必修课 Disciplinary Compulsory Courses	5		3.1%	
	选修课 Elective Courses	2		已并入通识教育选修课	
实践教学模块 Practice Work	必修课 Compulsory Courses	16	16	9.8%	9.8%
合计 Total		163		100%	

说明 Notes

1. 专业必修课（包括学科基础课程和专业必修课）共 18 门， 全英语课程 0 门。

2. 专业选修课共 35 门，其中专业限选课程 11 门，分 2 个系列（方向）；专业任选课程 24 门。学生应从专业限选课程中至少选修 12 学分，从专业任选课程中至少选修 6 学分。

3. 实验课程共 8 门，其中独立开设的实验课 0 门，既有理论又有实验的课程 8 门，含综合性、设计性实验的课程 5 门，占实验课程总数的 62.5 %。

4 本专业学科专业课程包括学科基础模块课程、专业课程模块课程和教师教育模块、实践教学模块中的学科专业课程，其学分占总学分比例为 56.9 %。

5. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 27.7%。

1. There are 18 specialized compulsory courses,including 0 Geography courses.

2. There are 35 specialized elective courses in total, including 11 elective restrictive courses divided into 2 series or dimensions and 24 specialized non-restrictive elective courses. Undergraduates should obtain 12 credits in total by taking elective restrictive courses and 6 credits by taking specialized non-restrictive elective courses.

3. There are 8 experimental courses in total including 0 independent experimental courses, 8 theoretical and experimental courses and 5 designable experimental courses which is 62.5 % of the total experimental courses.

4. The professional courses include disciplinary foundation courses, specialized courses, and professional courses of teacher-training courses and practice work, which account for 56.9% of the total credits.

5. The professional practice courses include practice work, and practical teaching contents in other course catalogue, which account for 27.7% of the total credits.

八、地理科学本科教学计划表

Ⅷ. Teaching Scheme for Geographical Science Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005- 1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming(for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一） College Geography 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College Geography 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College Geography 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College Geography 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory &Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（22 学分）

（Ⅱ）Disciplinary Foundation Courses (22 credits)

1. 相关学科基础课（14 学分）

1. Related Disciplinary Foundation Courses (14 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1(for Science Specialties)	1	4	72		5	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2(for Science Specialties)	2	4	72		4	考试 Exam.
0921001	人文地理学(含专业实习) Human Geography	2	3	54		3	考试 Exam.
0921016	经济地理学 Economic Geography	3	3	54		3	考试 Exam.

2. 本学科基础课（8 学分）

2. Disciplinary Foundation Courses (8 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0922043	地理科学引论 Introduction to Geography Science	1	1	18		1	考试 Exam.
0922036	测量与地图学（含专业实习） Gartology	1	3	54		3	考试 Exam.
0922044	地球概论 Introduction to Geoscience	2	4	54	18	4	考试 Exam.

（三）专业课程模块（55 学分）

（Ⅲ）Specialized Courses (55 credits)

1. 专业必修课（37 学分）

1. Specialized Compulsory Courses (37 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0941117	遥感概论 Introduction to Remote Sense	3	2	36		2	考试 Exam.
0941118	地理信息系统 Geography Information System	4	2	36		2	考试 Exam.
0941125	地质学基础（含专业实习） Geology	1	4	60	12	4	考试 Exam.
0941181	气象与气候学（含专业实习） Meteorology and Climatology	2	4	64	8	4	考试 Exam.
0941126	地貌学（含专业实习） Geomorphology	3	3	50	4	3	考试 Exam.
0941127	水文与水资源学（含专业实习） Hydrology	3	3	50	4	3	考试 Exam.
0941057	土壤地理学（含专业实习） Pedogeography	4	3	36	18	3	考试 Exam.
0941058	植物地理学（含专业实习） Phytogeography	4	3	42	12	3	考试 Exam.
0941128	世界地理 World Geography	5	6	108		6	考试 Exam.
0941073	地理研究方法与论文写作 Research Methodology of Geography and Dissertation Writing	5	1	18		1	考查 Quiz
0941129	中国地理（含专业实习） Chinese Geography	6	6	108		6	考试 Exam.

2. 专业限定选修课（12 学分）
2. Specialized Restrictive Elective Courses (12 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
自然地理系列（方向）课程： Courses of Physical Geography series:							
0942128	概率论与数理统计 Probability and Statistics	3	3	54		3	考查 Exam.
0942012	计量地理 Mathematical Geography	5	3	36	18	3	考查 Exam.
0942001	综合自然地理学 Integrated Physical Geography	5	2	36		2	考查 Quiz
0942110	全球变化与环境变迁 Global and Environment Changes	5	2	36		2	考查 Quiz
0942134	乡土地理学 Native Geography	5	2	36		2	考查 Quiz
0942061	自然资源学 Natural Resource Science	5	2	36		2	考查 Quiz
0942085	人口与城市地理学 Population and Urban Geography	6	2	36		2	考查 Quiz
0942086	文化地理学 Cultural Geography	6	2	36		2	考查 Quiz
0942008	自然灾害学 Natural Hazard Sciences	6	2	36		2	考查 Quiz
0942111	普通环境学 General Environmentology	6	2	36		2	考查 Quiz
人文地理系列（方向）课程： Courses of Human Geography Series:							
0942128	概率论与数理统计 Probability and Statistics	3	3	54		3	考查 Quiz
0942183	计量地理 Mathematical Geography	5	3	36	18	3	考查 Quiz
0942182	综合自然地理学 Integrated Physical Geography	5	2	36		2	考查 Quiz
0942110	全球变化与环境变迁 Global and Environment Changes	5	2	36		2	考查 Quiz
0942134	乡土地理学 Native Geography	5	2	36		2	考查 Quiz
0942061	自然资源学 Natural Resource Science	5	2	36		2	考查 Quiz
0942085	人口与城市地理学 Population and Urban Geography	6	2	36		2	考查 Quiz
0942086	文化地理学 Cultural Geography	6	2	36		2	考查 Quiz
0942008	自然灾害学 Natural Hazard Sciences	6	2	36		2	考查 Quiz
0942009	旅游地理学 Tourism Geography	6	2	36		2	考查 Quiz

3. 专业任意选修课（6 学分）
3. Specialized Non-Restrictive Elective courses (6 credits)
详见学院专业拓展课程。
See Specialized Non-Restrictive Elective Courses of School of Geography and Tourism.

（四）教师教育模块（16 学分）
（Ⅳ）Teacher-Training Courses（16 credits）
1. 公共必修课（11 学分）
1. General Compulsory Courses（11 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2431028	心理学基础 The Basis of Psychology	2	1	18		2	考试 Exam.
2431029	儿童发展 Child Development	2	1	18		2	考试 Exam.
2431030	中学生认知与学习 The Cognition and Learning of Middle School Students	3	1	18		2	考试 Exam.
2431031	中学生品德发展与道德教育 Moral Development and Moral Education for Middle School Student	3	1	18		2	考试 Exam.
2431032	中学生心理辅导 Psychological Guidance for Middle School Students	4	1	18		2	考试 Exam.
1531128	中学教育学基础 Foundation of Middle School Education	4	3	54		3	考试 Exam.
1531129	现代教育技术（网络教学） Modern Educational Technology (Online Course)	4	1	18		1	考试 Exam.
1531130	教师专业发展与职业道德 Teacher’s Professional Development & Professional Ethics	5	2	36		2	考试 Exam.

2. 学科必修课（5 学分）

2. Subject Compulsory courses（5 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0931108	地理学科教学导论 Geographical Science Pedagogy	6	3	54		3	考试 Exam.
0931109	地理学科中学教材分析与教学设计 Middle School Teaching Material Analysis and Teaching Design in Geography	5	2	36		2	考试 Exam.

3.选修课（见通识教育选修课程“教师教育”系列）

3. Elective Courses（See Teacher-Training Series of Liberal Studies Elective Courses）

（五）实践教学模块（17 学分）

（Ⅴ）Practice Work（17 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0950028	教师教学基本技能训练 Training of Teachers’ Basic Teaching Skills	5	1				考查 Quiz
0950017	必读书目阅读 Required Readings		1				考查 Quiz
0950018	地理学科教学技能训练 Pedagogical Training	6	1				考试 Exam.
0950019	教育见习 School Visits	1-6	1				考查 Quiz
0950031	教育实习 Teaching Practice	7	6				考查 Quiz
0950029	教育实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0950033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

九、地理科学与旅游学院地理科学专业任意选修课

Ⅸ. Specialized Non-Restrictive Elective Courses of School of Geography and Tourism

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0943062	旅游美学 Tourism Aesthetics	6	2	36		2	考查 Quiz
0943057	陕西导游（英语） Tour Guide In Shaanxi (English)	7	2	36		2	考查 Quiz
0943084	旅游系统论 Tourism System Theory	7	2	36		2	考查 Quiz
0943017	景观生态与规划 Landscape Ecology and Planning	5	2	36		2	考查 Quiz
0943106	旅游影响研究 Tourism impact	5	2	36		2	考查 Quiz
0943108	旅游可持续发展（全英授课） Sustainable Development of Tourism	6	2	36		2	考查 Quiz
0943021	自然保护概论 The Introduction of Nature Conservation	5	2	36		2	考查 Quiz
0943044	环境保护 Environmental Protection	5	2	36		2	考查 Quiz
0943096	荒漠化防治 Prevention and Control of Desertification	5	2	36		2	考查 Quiz
0943091	环境修复 Environmental Modification	6	2	36		2	考查 Quiz
0943105	健康地理 Geography and Health	6	2	36		2	考查 Quiz
0943048	城市生态学 Urban Ecology	5	2	36		2	考查 Quiz
0943101	中国分区地理 The Geographical Zone of China	6	2	36		2	考查 Quiz
0943102	世界主要国家地理 The Geography of the World Major Countries	6	2	36		2	考查 Quiz
0943016	全球环境问题与对策 Global Environmental Problems and the Countermeasures	6	2	36		2	考查 Quiz
0943019	城市规划学 Urban Planning	6	2	36		2	考查 Quiz
0943004	网页制作与发布 Webpage Making and Releasing	6	2	36		2	考查 Quiz
0943107	宇宙与地球 Earth and Universe	6	2	36		2	考查 Quiz
0943046	线性代数 Liner Algebra	6	2	36		2	考查 Quiz
0943109	风沙地貌学 Aeolian Geomorphology	5	2	36		2	考查 Quiz
0943110	宇宙环境视频欣赏 Cosmic Environment Video Appreciation	4	2	36		2	考查 Quiz
0943111	冰川学导论 An Introduction of Glaciology	4	2	36		2	考查 Quiz
0943114	社会调查与量化研究 Social Investigation and Quantitative Research	4	2	36		2	考查 Quiz
0943113	Matlab 的地理学应用 Application of Matlab in Geography	6	2	36		2	考查 Quiz
说明 Notes	1. 旅游与环境学院专业任意选修课程共 24 门，分 4 个系列或方向。 2. 地理科学专业必须选修 6 学分；地理科学（卓越班）专业必须选修 6 学分；地理科学（创新实验班）专业必须选修 4 学分；地理信息科学专业必须选修 6 学分；旅游管理专业必须选修 4 学分；环境科学专业必须选修 4。 1. There are 24 specialized non-restrictive elective courses of School of Tourism and Environment in total divided into 4 series or dimensions. 2. Undergraduates in Geographical Sciences specialty (excellent class)and in Geographical Science specialty (Innovation experimental class) should obtain 6 credits. Innovative and experimental class should obtain 4 credits. Undergraduates in Geographic Information System specialty should obtain 6 credits. Undergraduates in Environmental Science specialty and in Tourism Management specialty should obtain 4 credits						

地理科学专业（创新实验班）简介
Introduction to the Specialty of Geographical Science (Innovative and Experimental Class)

地理科学专业（创新实验班），学制 4 年，专业属性为非师范专业。该专业始建于 1944 年，是我校优势特色专业之一。该专业 1981 年和 1998 年分获硕士、博士学位授予权，并成为陕西省重点学科。2003 设立国家地理学一级学科博士后流动站，同年“地理科学专业”被评为陕西省名牌专业。2006 年，专业主干课程“自然地理”课程被评为国家级精品课程。2008 年地理科学专业被评为国家级特色专业。2009 年入选省级优秀教学团队，2016 年获批国家级地理学实验教学示范中心。地理科学（创新实验班）是在地理科学专业基础上新设的非师范专业，开设于 2008 年。

目前，在职任课教师 64 人，其中教授 22 人，副教授 14 人，讲师 28 人，54 人具有博士学位。本专业拥有兼职院士 1 人、长江学者 1 人，博士生导师 11 人，师资队伍实力雄厚。

该专业主要培养具有现代地理科学基础理论与技能、扎实的空间信息处理与模拟及外语素养与地理科研能力，具有较强的创新意识与创新能力，能在政府部门及其他相关等单位从事地理学科研究、国土资源开发与保护、基础教育和教育行政管理等工作的复合型高级专门人才。

The specialty of Geographical Science specialty in SNNU was founded in 1944, which was selected as the provincial key discipline, and it was empowered for granting the master's and doctoral degrees in 1981 and 1998respectively. In 2003 we established the first-level discipline postdoctoral research station of geography. And the specialty of Geographical Science was rated as the famous-band specialty of Shaanxi Province in the same year. In 2006, the specialized core course "Nature Geography"was ranked as the state-level quality course. In 2008 Geographical Science was granted as the state-level specialized specialty. In 2009, the teaching staffs of Geographical Specialty were granted as the provincial excellent teaching staff. In 2016, it was honored as the state-level Geograhpical Science experiment center. The specialty of Geographical Science (Innovative and Experimental Class) was set up on the base of Geographical Science in 2008.

There are 64 teachers, including 1 part-time academican, 1 Yangtze River scholar, 11 doctoral degree supervisors, 22 professors, 14 associate professors, 28 lecturers, with 54 of them holding doctoral degrees.

It aims to develop students' ability in basic theories and skills of modern geographical science, sound abilities of space information management, foreign language use and scientific research with innovative spirit and ability, prepare them to become advanced inter-disciplinary specialized talents qualified to work on research on Geographical Science, Exploration and Development of land resources, basic education and education management in government offices and other related employment sectors.

地理科学专业（创新实验班）
The Specialty of Geographical Sciences (Innovative and Experimental Class)

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，系统掌握现代地理科学专业基础理论、基本知识、基本方法和基本技能和相关学科的基本知识，具有良好的专业知识结构，具有现代地理科学基础理论与技能、扎实的空间信息处理与模拟及外语素养与地理科研能力，具有创新意识与创新能力，能在政府部门及其他相关等单位从事地理学科研究、国土资源开发与保护、基础教育和教育行政管理等工作的复合型高级专门人才。

The objective is to cultivate undergraduate students to achieve the comprehensive development of moral, intellectual, physical, beauty, and the physical and mental health. They systematically acquire knowledge about basic theory, basic skills and basic methods of geographical science. It aims to develop students' ability in basic theories and skills of modern geographical science, sound abilities of space information management, foreign language use and scientific research, prepare them to become advanced inter-disciplinary specialized talents qualified to work on research on Geographical Science, Exploitation and Development of land resources, basic education and education management in government offices and other related employment sectors.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国；掌握马克思主义、毛泽东思想和中国特色社会主义理论体系的基本观点和方法，具有科学的世界观、正确的人生观和高尚的道德品质。德、智、体、美全面发展，身心健康。

2. 系统掌握现代地理科学基础理论、基本技能和基本方法；了解本学科发展前沿；了解相关学科的基本知识，具有一专多能的知识结构。具有获取知识的能力，具有提出问题、分析问题和解决问题的地理应用能力；具有地理科学研究的初步能力。

3. 熟练掌握地理调查研究的基本程序、方法和步骤，具有较强的野外观察能力和综合分析、判断能力以及创新与科研的初步能力。计算机通过二级等级考试；外语通过国家四级水平考试。

4. 具有健康的体魄和一定的军事基本理论及基本技能，达到国家规定的大学生体育合格标准和军事训练标准，养成锻炼身体的习惯。

5. 具有良好的人文素质与科学素质，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力。具有良好适应社会以及与人合作共事的能力。

Students of this major may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. Undergraduates should be of high civil quality. With a deep love for our motherland, they should steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of conduct. Undergraduates should build up noble moral accomplishment. They should develop a correct outlook of life and gracious humanistic literacy by inheriting excellent Chinese culture and absorbing advanced values and scientific concepts abroad to cultivate wholesome personality and sound psychological quality.

2. Undergraduates should have a firm and systematic knowledge of geography, basic scientific theory, skills, and methods related to this major. The students should also understand the frontier of the geographical field. They should have a basic knowledge of related subjects and become an expert in one field while possessing all-round knowledge and ability. The students should know how to acquire knowledge and should have the ability to discover, question, analyze, and solve geographical problems, have the initial ability of geographical scientific research.

3. Undergraduates should master the basic procedures, methods, and processes for geographic study and have a strong ability to observe nature. They should be able to analyze by synthesis, judgment, innovation, and study. They must pass the Grade 2 of the National Computer Rank Examination Certification and the CET4 (College Geography Test 4). They are also required to speak Putonghua.

4. Undergraduates should be healthy and possesses certain basic knowledge and skills of military theory. They should master the standard of the university students' sports qualification and military training standards and be physically active on a regular basis.

5. Undergraduates must have interpersonal and scientific skills, good character, psychological soundness, and a strong spirit of innovation and practical ability. And they should be easily to adapted to the society and cooperate with others.

三、主干学科

Ⅲ. Core Disciplines

地理科学

Geography

四、主干课程

Ⅳ. Main Courses

测量与地图、地球概论、地貌学、水文与水资源学、气象与气候学、土壤地理学、植物地理学、综合自然地理学、人文地理学、经济地理学、城市地理学、世界地理、中国地理、遥感概论、地理信息系统

Cartology, Introduction to Geoscience, Geomorphology, Hydrology, Meteorology and Climatology, Pedogeography, Phytogeography, Integrated Physical Geography, Human Geography, Economic Geography, Urban Geography, World Geography, Chinese Geography, Introduction to Remote Sensing, Geographic Information Systems

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

165 学分

165 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.5%	32.7%
	通识教育选修课 Liberal Studies Elective Courses	12		7.3%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	8	28	4.8%	17.0%
	本学科基础课 Disciplinary Foundation Courses	20		12.1%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	42	52	25.5%	31.5%
	专业方向课程 Specialized Orientation Courses	6		3.6%	
	专业拓展课程 Specialized Development Courses	4		2.4%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	15	19	9.1%	11.5%
	选修课 Elective Courses	4		2.4%	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.3%	7.3%
合计 Total		165		100%	
说明 Notes	1. 专业必修课（包括专业核心课程和学科基础课程）共 20 门，双语课程 2 门，全英语课程 1 门。 2. 专业选修课共 32 门，其中专业方向课程 13 门，分 2 个系列（方向）；专业拓展课程 24 门。学生应从专业方向课程中至少选修 6 学分，从专业拓展课程中至少选修 4 学分。 3. 实验课程共 13 门，其中独立开设的实验课 0 门，既有理论又有实验的课程 13 门，含综合性、设计性实验的课程 0 门，占实验课程总数的 0 %。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学时的比例为 25.6%。 1. There are 20 specialized compulsory courses, including 2 bilingual courses and 1Geography courses. 2. There are 32 specialized elective courses in total including 13 specialized orientation courses divided into 2 series or dimensions and 24 specialized Development courses. Undergraduates should obtain 6 credits in total by taking specialized orientation courses and 4 credits by taking specialized development courses. 3. There are 13 experimental courses in total including 0 independent experimental courses, 13 theoretical and designable experimental courses which is 0% of the total experimental courses. 4. The professional practice courses include practice work, and practical teaching contents in other course catalogue, which account for 25.6% of the total credits.					

八、地理科学（创新实验班）专业本科教学计划表

Ⅷ. Teaching Scheme for Geographical Sciences (Innovative and Experimental Class) Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 Credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005- 1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一） College Geography 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College Geography 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College Geography 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College Geography 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Education & Practice of Innovation and Entrepreneurship	3	2	36			考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science& Arts		1	18		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 Credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（28 学分）

（Ⅱ）Disciplinary Foundation Courses (28 Credits)

1. 相关学科基础课（8 学分）

1. Related Disciplinary Foundation Courses (8 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		5	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2(for Science Specialties)	2	4	72		4	考试 Exam.

2. 本学科基础课（20 学分）
2. Disciplinary Foundation Courses (20 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0922053	地理类引论 Introduction to Geography Class	1	4	72		4	考试 Exam.
0922055	环境学概论 Introduction to Environment	1	3	54		3	考试 Exam.
0922054	地图学（含野外实习） Cartography	1	3	54		3	考试 Exam.
0921020	环境物理学 Environmental Physics	2	3	54		3	考试 Exam.
0922056	地理信息系统 Geographical Information System	2	4	36	36	4	考试 Exam.
0922052	遥感概论（双语） Introduction to Remote Sensing	3	3	54		3	考试 Exam.

（三）专业课程模块（52 学分）
（Ⅲ）Specialized Courses (52 Credits)
1. 专业核心课程（42 学分）
1. Specialized Core Courses (42 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0941119	地球概论 Introduction to Geoscience	4	3	54		3	考试 Exam.
0941172	地质学基础（含专业实习） Geological Foundation (Including Speciality Practice)	3	3	46	8	3	考试 Exam.
0941193	气象与气候学（含专业实习） Meteorology and Climatology(Including Speciality Practice)	3	3	48	6	4	考试 Exam.
0941126	地貌学（含专业实习） Geomorphology(Including Speciality Practice)	4	3	50	4	3	考试 Exam.
0941183	土壤地理学（含专业实习） Pedogeography(Including Speciality Practice)	3	3	46	8	3	考试 Exam.
0941127	水文与水资源学（含专业实习） Hydrology(Including Speciality Practice)	4	3	50	4	3	考试 Exam.
0941058	植物地理学（含专业实习） Phytogeography(Including Speciality Practice)	4	3	42	12	3	考试 Exam.
0941184	世界地理 World Geography	5	6	108		6	考试 Exam.
0941129	中国地理（含专业实习） Chinese Geography(Including Speciality Practice)	6	6	108		6	考试 Exam.
0921001	人文地理学（含专业实习） Human Geography(Including Speciality Practice)	3	3	54		3	考试 Exam.
0921016	经济地理学 Economic Geography	3	3	54		3	考试 Exam.
0941159	城市地理学（含专业实习） Urban Geography(Including Speciality Practice)	6	3	48	6	3	考试 Exam

2. 专业方向课程（6 学分）
2. Specialized Orientation Courses (6 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
自然地理学系列(方向)课程： Courses of Physical Geography Series:							

0942171	综合自然地理学 Integrated Physical Geography	5	2	36		2	考查 Quiz
0942172	自然资源学 Natural Resource Science	5	2	36		2	考查 Quiz
0942008	自然灾害学 Natural Resource Pollution	6	2	36		2	考查 Quiz
0942086	文化地理学 Cultural Geography	6	2	36		2	考查 Quiz
0942134	乡土地理学 Native Geography	5	2	36		2	考查 Quiz
0942148	城市生态学 Urban Ecology	5	2	36		2	考查 Quiz
0942084	全球变化与环境变迁 Global and Environment Changes	5	2	36		2	考查 Quiz
0942087	干旱区地理 Arid Land Geography	5	2	36		2	考查 Quiz
0942148	城市生态学 Urban Ecology	5	2	36		2	考查 Quiz
人文地理学系列(方向)课程： Courses of Human Geography series:							
0942171	综合自然地理学 Integrated Physical Geography	5	2	36		3	考查 Quiz
0942172	自然资源学 Natural Resource Science	5	2	36		3	考查 Quiz
0942008	自然灾害学 Natural Resource Pollution	6	2	36		2	考查 Quiz
0942086	文化地理学 Cultural Geography	6	2	36		2	考查 Quiz
0942134	乡土地理学 Native Geography	5	2	36		2	考查 Quiz
0942169	人口地理学 Population Geography	5	2	36		2	考查 Quiz
0942090	区域发展与区域规划 Regional Development and Planning	7	2	36		3	考查 Quiz
0942063	城市规划学 Urban Planning	5	2	36		2	考查 Quiz
0942091	城市土地评估原理 Principle of Urban Land Assessment	5	2	36		2	考查 Quiz

3. 专业拓展课程（4 学分）

3. Specialized Development Courses (4 Credits)

详见学院专业拓展课程。

See Specialized Development Courses of School of Geography and Tourism

（四）专业技能模块（19 学分）

（Ⅳ）Professional Skills Courses (19 Credits)

1. 必修课（15 学分）

1. Compulsory Courses (15 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
自然地理系列(方向)课程： Courses of Physical Geography Series:							
0941120	概率论与数理统计 Probability and Statistics	3	3	54		3	考试 Exam.
0941114	地理研究方法与论文写作 Research Methodology of Geography and Dissertation Writing	5	1	18		1	考查 Quiz
0944002	计量地理 Mathematical Geography	5	3	36	18	3	考试 Exam.

0944004	GIS 软件与应用 Application of GIS	6	3	36	18	3	考试 Exam.
0944009	遥感影像处理与分析 Remote Sensing Processing and Analysis	6	3	36	18	3	考试 Exam.
0944021	地理学专业英语 English for Geography	5	2	36		2	考试 Exam.
人文地理系列(方向)课程： Courses of Human Geography Series:							
0941120	概率论与数理统计 Probability and Statistics	3	3	54		3	考试 Exam.
0941114	地理研究方法与论文写作 Research Methodology of Geography and Dissertation Writing	5	1	18		1	考查 Quiz
0944002	计量地理 Mathematical Geography	5	3	36	18	3	考试 Exam.
0944004	GIS 软件与应用 Application of GIS	6	3	36	18	3	考试 Exam.
0944009	遥感影像处理与分析 Remote Sensing Processing and Analysis	6	3	36	18	3	考试 Exam.
0944021	地理学专业英语 Geography Geography	5	2	36		2	考试 Exam.

2. 选修课（4 学分）

2. Elective Courses（4 Credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
自然地理系列(方向)课程： Courses of Physical Geography Series:							
0942011	专题地图制图 Special Mapping	5	2	36	含实验	2	考查 Quiz
0942150	地理课程与教学论 Teaching Methods for Geography	6	3	36	18	3	考查 Quiz
0944151	数据库原理及应用 Principle and Application of Database	7	2	26	10	2	考查 Quiz
0942152	社会经济统计学原理 Socioeconomic Statistics	7	2	26	10	2	考查 Quiz
人文地理系列(方向)课程： Courses of Human Geography Series:							
0942011	专题地图制图 Special Mapping	5	2	36	含实验	2	考查 Quiz
0942150	地理课程与教学论 Teaching Methods for Geography	6	3	36	18	3	考查 Quiz
0944151	数据库原理及应用 Principle and Application of Database	7	2	26	10	2	考查 Quiz
0942152	社会经济统计学原理 socioeconomic Statistics	7	2	26	10	2	考查 Quiz

（五）实践教学模块（12 学分）

（Ⅴ）Practice Work（12 Credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0950017	必读书目阅读 Required Readings		1				考查 Quiz

0950034	专业见习与实习 Professional Visits	1-7	4				考查 Quiz
0950021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0950033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

九、地理科学与旅游学院专业任意选修课

Ⅸ. Specialized Non-Restrictive Elective Courses of School of Geography and Tourism

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0943062	旅游美学 Tourism Aesthetics	6	2	36		2	考查 Quiz
0943057	陕西导游（英语） Tour Guide in Shaanxi (English)	7	2	36		2	考查 Quiz
0943084	旅游系统论 Tourism Systematics	7	2	36		2	考查 Quiz
0943017	景观生态与规划 Landscape Ecology and Planning	5	2	36		2	考查 Quiz
0943106	旅游影响研究 Tourism impact	5	2	36		2	考查 Quiz
0943108	旅游可持续发展（全英授课） Sustainable Development of Tourism	6	2	36		2	考查 Quiz
0943021	自然保护概论 Introduction to Nature Conservation	5	2	36		2	考查 Quiz
0943044	环境保护 Environmental Protection	5	2	36		2	考查 Quiz
0943096	荒漠化防治 Prevention and Control of Desertification	5	2	36		2	考查 Quiz
0943091	环境修复 Environmental Modification	6	2	36		2	考查 Quiz
0943105	健康地理 Geography and Health	6	2	36		2	考查 Quiz
0943048	城市生态学 Urban Ecology	5	2	36		2	考查 Quiz
0943101	中国分区地理 China Regional Geography	6	2	36		2	考查 Quiz
0943102	世界主要国家地理 The Geography of the World Major Countries	6	2	36		2	考查 Quiz
0943016	全球环境问题与对策 Global Environmental Problems and the Countermeasures	6	2	36		2	考查 Quiz
0943019	城市规划学 Urban Planning	6	2	36		2	考查 Quiz
0943004	网页制作与发布 Webpage Making and Releasing	6	2	36		2	考查 Quiz
0943107	宇宙与地球 Earth and the Universe	6	2	36		2	考查 Quiz
0943046	线性代数 Liner Algebra	6	2	36		2	考查 Quiz
0943109	风沙地貌学 Aeolian Geomorphology	5	2	36		2	考查 Quiz
0943110	宇宙环境视频欣赏 Cosmic Environment Video Appreciation	4	2	36		2	考查 Quiz
0943111	冰川学导论 An Introduction to Glaciology	4	2	36		2	考查 Quiz
0943112	社会调查与量化研究 Social Investigation and Quantitative Research	4	2	36		2	考查 Quiz
0943113	Matlab 的地理学应用 Application of Matlab in Geography	6	2	36		2	考查 Quiz

说明 Notes	1. 旅游与环境学院专业任意选修课程共 24 门，分 4 个系列或方向。 2. 地理科学专业必须选修 6 学分；地理科学（卓越班）专业必须选修 6 学分；地理科学（创新实验班）专业必须选修 4 学分；地理信息科学专业必须选修 6 学分；旅游管理专业必须选修 4 学分；环境科学专业必须选修 4。 1. There are 24 specialized non-restrictive elective courses of School of Tourism and Environment in total divided into 4 series or dimensions. 2. Undergraduates in Geographical Sciences specialty and in Geographical Science (excellent class) specialty should obtain 6 credits. Innovative and experimental class should obtain 4 credits. Undergraduates in Geographic Information System specialty should obtain 6 credits. Undergraduates in Environmental Science specialty and in Tourism Management specialty should obtain 4 credits.

地理信息科学专业简介
Introduction to the Specialty of Geographic Information Science

地理信息科学专业，学制 4 年，专业属性为非师范专业，是近 20 年来新兴的一门集地理学、计算机、遥感技术和地图学于一体的交叉学科。我校从 2000 年开始设立该专业，是设立 GIS 专业较早的高校之一。

目前在职任课教师 14 人，其中教授 3 人，副教授 9 人，具有博士学位的教师 12 人。

本专业旨在培养具有地理信息科学基本理论、基础知识和基本技能，能够在城市、区域、资源、教育、环境、交通、人口、住房、土地、灾害、基础设施和规划管理等领域从事与地理信息系统应用、研究、技术开发、生产管理和行政管理等工作的复合型高级专门人才。

Geographic Information Science (non-teacher-training specialty), 4 years of schooling, is an interdisciplinary subject with the integration of geography, cartography, remote sensing and computer technology，which emerged in recent 20 years. It was set up in 2000, relatively early and ranking more forward in professional colleges and universities with GIS specialty. This specialty contains doctor degree program and master degree program. At present, there are 14 professional in-service teachers, including 3 professors, 9 associate professors, of whom 12 teachers with doctoral degrees. The aim of this specialty is to train professional personnel, who have the basic theory, knowledge and skills of Geographic Information System(GIS), Remote Sensing and Cartography. Graduate students may have ability to perform well not only in relative research institutes but also in colleges of higher learning. Besides, the skills they learn from this specialty can also meet needs of public service and management fields, such as urban planning, regional resources, environment, transportation, population, housing, land-use as well as infrastructure management.

地理信息科学专业
The Specialty of Geographic Information Science

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具备地理信息系统、遥感、测量学及地图学等基本理论、基本知识和基本技能，能熟练运用各种 GIS 软件并具备二次开发能力，能在科研机构、高等院校或相关行业从事科学研究、教学及产品研发工作，能在城市、区域、资源、环境、交通、人口、住房、土地、基础设施和规划管理等领域从事与地理信息系统有关的应用研究、技术开发、生产管理和行政管理等工作的 GIS 复合型高级专门人才。

This major mainly cultivates students the all-round development of morality, intelligence, physical fitness and beauty, as well as physical and mental health. Students are required to have basic theories, basic knowledge and basic skills such as geographic information system, remote sensing, surveying and cartography. The should be proficient in applying and secondary developing of various GIS software. This specialty aims to cultivate GIS senior specialized talents, who have ability to perform well in the scientific research, teaching and product research and development work not only in relative research institutes but also in institutions of higher learning.or related industries. Besides, skills they learn from this specialty can also equip them to work in the field of applied research, technology development, production management and administrative management, meeting needs of public service and management fields, such as urban planning, regional resources, environment, transportation, population, housing, land-use as well as infrastructure management.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业:

1．热爱中国共产党，热爱社会主义祖国；掌握马克思主义、毛泽东思想和中国特色社会主义理论体系的基本观点和方法，具有科学的世界观、正确的人生观和高尚的道德品质。德、智、体、美全面发展，身心健康。

2. 掌握地理信息系统、测量与地图学、遥感图像处理与应用的基本理论、基本知识和基本实践技能，以及地理信息系统技术开发的原理和方法。

3. 熟悉地理信息系统的理论前沿、应用前景和最新发展动态，以及地理信息系统产业发展状况、软件市场动态。了解相邻专业如自然地理学、区域地理学、资源环境与城乡规划管理、测绘工程等的发展现状与前沿问题。

4. 具备数学、物理、计算机科学等方面的基础理论和基本知识；掌握计算机图形图像处理技术及数据库技术；通过计算机二级及以上等级考试具有基本的应用软件开发与调试能力；掌握一门外语，具有良好的听、说、读、写能力，达到国家外语四级水平。

5．掌握资料查询、文献检索及运用现代信息技术获取相关信息的基本方法；具有一定的实验设计、实验操作及归纳、整理、分析实验结果撰写专业论文的能力；具有参与学术活动和与人沟通合作的能力。

6. 具有健全的人格、健康的体魄及良好的心理素质、具有一定的军事基本理论及基本技能，达到国家规定的大学生体育合格标准和军事训练标准。

Students of this major may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. Undergraduates should be of high civil quality. With a deep love for our motherland, they should steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of conduct. Undergraduates should build up noble moral accomplishment. They should develop a correct outlook of life and gracious humanistic literacy by inheriting excellent Chinese culture and absorbing advanced values and scientific concepts abroad to cultivate wholesome personality and sound psychological quality.

2. Undergraduates should grasp the basic theory, knowledge and skills for geographic information systems, surveying and cartography, remote sensing image processing and application.

3. Undergraduates should know application prospects and latest techniques about GIS, as well as application prospects and latest industry news about relative specialties, such as Physical Geography, Regional Geography, Resources Environment, Urban Planning, Surveying and Mapping Engineering, etc.

4. Undergraduates should know basic theory and principles of Mathematics, physics and computer science, and the technique of geo-database and digital graphics and image processing. The citification of NCRE-2 and CET-4 are all needed.

5. Undergraduates should know methods of data queries, document retrieval and modern information technology, have the ability to make experimental design and operation, to summarize, collation, analyze the experimental results, to write professional papers, and to participate in academic activities and communication with other people.

6. Undergraduates should have healthy personality, good health and mental qualities，with a certain military basic theory and basic skills, and meet the national requirements of sports and military training standards.

三、主干学科

Ⅲ. Core Disciplines

地理学

Geography

四、主干课程

Ⅳ. Main Courses

地图学、自然地理学、测量学、地理信息系统、地理信息系统开发、遥感概论、遥感图像处理与分析、软件应用、专题地图设计、地理建模原理与方法、数据库原理与应用、数据结构、程序设计、GPS 原理及应用、概率论与数理统计

Cartography, Physical Geography, Surveying, Geographic Information System, Development of GIS, Introduction of Remote Sensing, Digital Remote Sensing Image Processing and Analysis, ArcGIS Software Applications,Thematic map design, Geographic Modeling,Theory and Application of Database, Data Structures,Programming Designing for GIS,The Principle and Application of GPS,Probability Theory and Mathematical Statistic

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

164 学分

164 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课程类别 Course Catalogue		学分及比例 Credits and Percentage			
		学分 Cre.	小计 Sub-Total	占总学分比例 Percentage in Total Credits	小计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.6%	32.9%
	通识教育选修课 Liberal Studies Elective Courses	12		7.3%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	14	32	8.4%	19.5%
	本学科基础课 Disciplinary Foundation Courses	18		10.9%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	42	52	25.6%	31.7%
	专业方向课程 Specialized Orientation Courses	8		4.8%	
	专业拓展课程 Specialized Development Courses	6		3.6%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	8	14	4.9%	8.6%
	选修课 Elective Courses	6		3.7%	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.3%	7.3%
合计 Total		164		100%	
说明 Notes	1. 专业必修课（包括专业核心课程和学科基础课程）共 21 门，双语课程 1 门，全英语课程 0 门。 2. 专业选修课共 30 门，其中专业方向课程 8 门，分 2 个系列（方向）；专业拓展课程 22 门。学生应从专业方向课程中至少选修 8 学分，从专业拓展课程中至少选修 6 学分。 3. 实验课程共 22 门，其中独立开设的实验课 0 门，既有理论又有实验的课程 22 门，含综合性、设计性实验的课程 16 门，占实验课程总数的 73%。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学时占总学时的比例为 30.1%。 1. There are 21specialized compulsory courses，including 1 bilingual courses and 0 English courses. 2. There are 30 specialized elective courses in total including 8 courses divided into 2 series or dimensions and 22 specialized Development courses. Undergraduates should obtain 8 credits in total by taking specialized orientation courses and 6 credits by taking specialized Development courses. 3. There are 22 experimental courses in total including 0 independent experimental courses, 22 theoretical and experimental courses, 16 synthetic and designing experimental courses which are 73% of the total experimental courses. 4. The practical teaching contents of this major include practical teaching modules and other teaching modules. The ratio of teaching hours to total hours is 30.1%.					

八、GIS 本科教学计划表

Ⅷ. Teaching Scheme for GIS Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses(54 Credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005- 1711011	形势与政策 1-7 The Current Situation and Policy (1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts	1	1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	3	考试 Exam.
0411046	大学外语（一） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College English 3	3	3	36		2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Education & Practice of Innovation and Entrepreneurship	3	2	36			考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 Credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（31 学分）

（Ⅱ）Disciplinary Foundation Courses (31 Credits)

1. 相关学科基础课（14 学分）

1. Related Disciplinary Foundation Courses (14 Credits)

课程编码 Courses Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		4	考试 Exam.

0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
0922055	环境学概论 Introduction to Environment	1	3	54		3	考试 Exam.
0921020	环境物理学 Environmental Physics	2	3	54		3	考试 Exam.

2. 本学科基础课（18 学分）

2. Disciplinary Foundation Courses (18 Credits)

课程编码 Courses Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0922053	地理类引论 Introduction to Geography Class	1	4	72		4	考试 Exam.
0922054	地图学（含野外实习） Cartography	1	4	54	18	3	考试 Exam.
0922056	地理信息系统 Geographical Information System	2	4	36	36	4	考试 Exam.
0922033	自然地理学（含野外实习与专业见习） Physical Geography	3	4	54	18	4	考试 Exam.
0922034	人文地理学 Human Geography	3	2	36		2	考试 Exam.

（三）专业课程模块（52 学分）

（Ⅲ）Specialized Courses (52 Credits)

1. 专业核心课程（42 学分）

1. Specialized Core Courses (42 Credits)

课程编码 Courses Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0941121	遥感概论（双语教学） Introduction to RS	3	4	72		4	考试 Exam.
0941010	数据库原理及应用 The Principle and Application of Database	4	4	54	18	4	考试 Exam.
0941065	测量学（含野外实习与专业见习） Modern Surveying	4	4	54	18	4	考试 Exam.
0941174	地理信息系统二次开发 Development of GIS	5	4	36	36	4	考试 Exam.
0941155	遥感图像处理与分析 Remote Sensing Image Processing & Analysis	5	4	36	36	4	考试 Exam.
0941156	ArcGIS 软件应用 The Application of ArcGIS Software	4	4	36	36	4	考试 Exam.
0941017	地理建模原理与方法 The Methods and Principles of Geodata Modeling	6	4	54	18	4	考试 Exam.
0941011	GIS 研究方法与学术论文写作 Research Method and Research Paper Writing of GIS	7	2	36		2	考试 Exam.
0941074	数据结构 Data Structure	5	3	36	18	3	考试 Exam.
0941175	C#程序设计 Programming Language	4	4	54	18	4	考试 Exam.
0941158	GPS 原理及应用 The Principle and Application of GPS	5	2	18	18	2	考试 Exam.
0941120	概率论与数理统计 Probability Theory and Mathematical Statistics	3	3	54		3	考试 Exam.

2. 专业方向课程（7 学分）

2. Specialized Orientation Courses (7 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
理论系列（方向）课程： Courses of Theory Dimension							
0942173	地球概论 Introduction of Earth	3	3	54		3	考试 Exam.
0942184	WEBGIS WEBGIS	5	2	36		2	考试 Exam.
0942080	空间分析应用 Spatial Analysis	7	2	18	18	4	考试 Exam.
0942143	3S 集成技术 Integrating Technology of 3S	6	3	36	18	3	考试 Exam.
0942174	计算机图形学与图像处理 Computer Graphics & Image Processing	5	3	36	18	3	考试 Exam.
0942145	资源环境遥感 Application of Resources Remote Sensing	6	3	36	18	3	考试 Exam.
应用系列（方向）课程： Courses of Application Dimension							
0942117	网页制作与发布 Webpage Making and Releasing	4	2	36		2	考试 Exam.
0942144	土地评价与遥感应用 Land Evaluation and Application of RS	6	2	36		2	考试 Exam.
0942017	WEBGIS WEBGIS	5	2	36		2	考试 Exam.
0942080	空间分析应用 Spatial Analysis	7	2	18	18	4	考试 Exam.
0942143	3S 集成技术 Integrating Technology of 3s	6	3	36	18	3	考试 Exam.
0942145	资源环境遥感 Application of Resources Remote Sensing	6	3	36	18	3	考试 Exam.

3. 专业拓展课程（3 学分）

3. Specialized Development Courses (3 Credits)

详见学院专业拓展课程。

See Specialized Development Courses of School of Geography and Tourism

（四）专业技能模块（14 学分）

（Ⅳ）Professional Skills Courses(14 Credits)

1. 必修课（8 学分）

1. Compulsory Courses (8 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0944152	专题地图设计 The Design of Thematic Map	5	2	18	18	2	考试 Exam.
0946003	GIS 商用软件 GIS Commercial software	6	3	36	18	3	考试 Exam.
0944011	地信专业英语 Specialized English for GIS	6	3	36	18	3	考试 Exam.

2. 选修课（6 学分）

2. Elective Courses（6 Credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0944012	线性代数 Linear Algebra	5	3	54		3	考试 Exam.

0945002	地理微格教学 Microteaching of Geography	6	2	18	18	2	考查 Quiz
0946004	AutoCAD 制图 AutoCAD Mapping	5	2	18	18	2	考试 Exam.
0944020	摄影测量学（基础） Photogrammetric	6	2	18	18	2	考试 Exam.

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work（12 Credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0950017	必读书目阅读 Required Readings		1				考查 Quiz
0950034	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
0950021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0950033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

九、地理科学与旅游学院专业拓展课程
Ⅸ. Specialized Development Courses of School of Geography and Tourism

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0943062	旅游美学 Tourism Aesthetics	6	2	36		2	考查 Quiz
0943057	陕西导游（英语） Tourism of Shaanxi (English)	7	2	36		2	考查 Quiz
0943084	旅游系统论 Tourism System Theory	7	2	36		2	考查 Quiz
0943017	景观生态与规划 Landscape Ecology and Planning	5	2	36		2	考查 Quiz
0943106	旅游影响研究 Tourism Impact	5	2	36		2	考查 Quiz
0943108	旅游可持续发展（全英授课） Sustainable Development of Tourism (English)	6	2	36		2	考查 Quiz
0943021	自然保护概论 The Introduction of Nature Conservation	5	2	36		2	考查 Quiz
0943044	环境保护 Environmental Protection	5	2	36		2	考查 Quiz
0943096	荒漠化防治 Prevention and Control of Desertification	5	2	36		2	考查 Quiz
0943091	环境修复 Environmental Modification	6	2	36		2	考查 Quiz
0943105	健康地理 Geography and Health	6	2	36		2	考查 Quiz
0943048	城市生态学 Urban Ecology	5	2	36		2	考查 Quiz
0943101	中国分区地理 The Geographical Zone of China	6	2	36		2	考查 Quiz
0943102	世界主要国家地理 The Geography of the World Major Countries	6	2	36		2	考查 Quiz

0943016	全球环境问题与对策 Global Environmental Problems and the Countermeasures	6	2	36		2	考查 Quiz
0943019	城市规划学 Urban Planning	6	2	36		2	考查 Quiz
0943004	网页制作与发布 Webpage Making and Releasing	6	2	36		2	考查 Quiz
0943107	宇宙与地球 Earth and Universe	6	2	36		2	考查 Quiz
0943046	线性代数 Liner Algebra	6	2	36		2	考查 Quiz
0943109	风沙地貌学 Aeolian Geomorphology	5	2	36		2	考查 Quiz
0943110	宇宙环境视频欣赏 Cosmic Environment Video Appreciation	4	2	36		2	考查 Quiz
0943111	冰川学导论 An Introduction of Glaciology	4	2	36		2	考查 Quiz
学生选修说明 Notes	1. 旅游与环境学院专业任意选修课程共 22 门，分 4 个系列或方向。 2. 地理科学专业必须选修 8 学分；地理科学（卓越班）专业必须选修 8 学分；地理科学（创新实验班）专业必须选修 8 学分；地理信息科学专业必须选修 6 学分；旅游管理专业必须选修 4 学分；环境科学专业必须选修 4。 1. There are 22 specialized non-restrictive elective courses of School of Tourism and Environment in total divided into 4 series or dimensions. 2. Undergraduates in Geographical Sciences specialty and in Geographical Science (excellent class & experimental and innovative class) specialty should obtain 8 credits. Undergraduates in Geographic Information Science specialty should obtain 6 credits. Undergraduates in Environmental Science specialty and in Tourism Management specialty should obtain 4 credits.						

环境科学专业简介
Introduction to the Specialty of Environmental Science

环境科学专业，学制 4 年，专业属性为非师范专业。我校 2000 年设立环境科学本科专业，2001 年开始招生，同年获得环境科学硕士学位授权点。2005 年在地理学一级学科下自设区域环境学硕士和博士学位授权点。2009 年获得省级环境学实验教学示范中心。2010 年获得环境科学与工程一级学硕士授权点和环境工程硕士专业学位授权点，2011 年与生命科学学院联合获得了生态学博士授权点。

目前，环境科学专业在职任课教师 19 人，其中教授 6 人，副教授 6 人，讲师 7 人，具有博士学位的教师 17 人。

本专业主要培养掌握环境科学的基本理论知识和环境治理、保护与管理的基本技能，具有良好的人文素质、较强的创新能力和业务竞争能力，能从事环境科学研究相关工作，能在企事业单位及相关行政部门从事科研、教学、环境保护与管理等工作，能在环境保护、城市建设、企业环保、国土资源、城市治理等行业和部门从事相关工作需要的复合型高级专门人才。

Environmental Science is a 4-year non-teacher-training undergraduate major. It was set up in 2000 and has entrolled students from 2001. The master degree of environmental science was awarded in 2001. The master and doctor degrees of regional environment were set up under geography in 2005. Provincial Experimental Teaching Center of Environmental Science was established in 2009. The master degrees of environmental science and engineering environmental engineering major were obtained in 2010. The doctor degree of ecology was got in 2011.

Now, there are 19 faculties, including 6 professors, 6 associate professor and 7 lecturers. 17 teachers have obtained doctoral degrees.

With solid foundation, wide caliber, high quality, strong ability, innovation" as culture concept, and guided by market demand, students are required to learn environmental science courses and other courses related and enabled to master the basic theories of environmental science, environmental management and protection as well as basic skills of management. Students will have good humanity quality and strong ability to innovate and compete in this field. It aims to cultivate talents for economy construction and environment improvement of environmental science and the related fields. "Foundation" talents on scientific environmental research are cultivated to qualify work in enterprises and institutions and the relevant administrative departments engaged in scientific research, education, environmental protection and management and so on. These compound talents can be competent for environmental protection, city construction, enterprise environment, land resources, city management and other industries and departments.

环境科学专业
The Specialty of Environmental Science

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，掌握环境科学的基本理论知识和环境治理、保护与管理的基本技能，具有良好的人文素质、较强的创新能力和业务竞争能力，能从事环境科学研究相关工作，能在企事业单位及相关行政部门从事科研、教学、环境保护与管理等工作，能在环境保护、城市建设、企业环保、国土资源、城市治理等行业和部门从事相关工作需要的复合型高级专门人才。

With solid foundation, wide caliber, high quality, strong ability, innovation" as culture concept, and guided by market demand, students are required to learn environmental science courses and other courses related and enabled to master the basic theories of environmental science, environmental management and protection as well as basic skills of management. Students will have good humanity quality and strong ability to innovate and compete in this field. It aims to cultivate talents for economy construction and environment improvement of environmental science and the related fields. "Foundation" talents on scientific environmental research are cultivated to qualify work in enterprises and institutions and the relevant administrative departments engaged in scientific research, education, environmental protection and management and so on. These compound talents can be competent for environmental protection, city construction, enterprise environment, land resources, city management and other industries and departments.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国；掌握马克思主义、毛泽东思想和中国特色社会主义理论体系的基本观点和方法，具有科学的世界观、正确的人生观和高尚的道德品质。

2. 掌握环境科学方面的基本理论、基本知识，受到应用基础、应用研究和环境管理的基本的训练，具有较好的科学素养及一定的教学、研究、开发和管理能力，具备环境监测与环境评价的方法及进行环境规划与管理的基本技能。

3. 了解相近专业的一般原理和知识；熟悉国家环境保护、自然资源合理利用、可持续发展、知识产权等有关政策和法规；掌握数学、物理、化学等方面的基本理论与技能和环境科学与管理的基本知识、理论和技能；了解学科前沿和发展动态。掌握资料查询、文献检索及运用现代信息技术获取相关信息的基本方法，具有一定的实验设计，归纳、整理、分析试验结果，撰写论文、参与学术交流的能力；具有良好的身体、心理素质。

4. 具有健康体魄和一定的军事基本理论及基本技能,达到国家学生体质健康标准和军事训练标准，养成锻炼身体的习惯具有健全的人格，良好的心理素质。掌握一门外语，达到国家规定的四级外语水平。

Undergraduates of this specialty are asked to mainly study basic theories and knowledge of environmental science and experience the basic training of applied foundation, applied research and environmental management, have good scientific literacy and ability of teaching, research, development and management, and grasp the methods of environmental monitoring and environmental assessment and the basic skills of environmental planning and management and principles as follows.

1. Undergraduates should be of high civil quality. With a deep love for our motherland, they should steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of conduct. Undergraduates should build up noble moral accomplishment. They should develop a correct outlook of life and gracious humanistic literacy by inheriting excellent Chinese culture and absorbing advanced values and scientific concepts abroad to cultivate wholesome personality and sound psychological quality.

2. Undergraduates should understand the general principles and knowledge of related specialties, to be familiar with the related policies and laws regulations of national environmental protection, reasonable utilization of natural resources, sustainable development and intellectual property. Undergraduates should grasp the basic theories and skill of mathematics, physics and chemistry and so on, master the basic knowledge, theories and skills of environmental science and management.

3. Undergraduates should understand the frontier and development of environmental science, to grasp the basic methods of data search, documents search and information acquisition by applying modern information technology, to have the ability of experiment design, analysis of experimental results, paper writing and participation in academic exchange. Undergraduates should own a strong body and healthy psychological quality.

三、主干学科

Ⅲ. Core Disciplines

环境科学

Environmental Science

四、主干课程

Ⅳ. Main Courses

无机及分析化学、有机化学、环境学基础、环境地理学、环境经济学、环境生态学、环境微生物学、环境监测、环境化学、水污染控制工程、大气污染控制工程、固体废弃物处理与处置、环境评价、荒漠化与防治、环境规划

Inorganic and Analytical Chemistry, Organic Chemistry, Fundamentals of Environment, Physical Geography, Environmental Economics, Environmental Ecology, Environmental Microbiology, Environmental Monitoring, Environmental Chemistry, Engineering of Water Pollution Control, Engineering of Air Pollution Control, Solid Waste Disposal, Environment Assessment, Desertification Combating, Environmental Planning

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

162 学分

162 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.9%	33.3%
	通识教育选修课 Liberal Studies Elective Courses	12		7.4%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	17	33	10.5%	20.4%
	本学科基础课 Disciplinary Foundation Courses	16		9.9%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	32	42	19.7%	25.9%
	专业方向课程 Specialized Orientation Courses	6		3.7%	
	专业拓展课程 Specialized Development Courses	4		2.5%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	17	21	10.5%	13.0%
	选修课 Elective Courses	4		2.5%	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.4%	7.4%
合计 Total		162		100%	

说明
Notes

1. 专业必修课（包括专业核心课程和学科基础课程）共 22 门，双语课程 2 门,全英语课程 1 门。

2. 专业选修课共 19 门，其中专业方向课程 11 门，分 2 个系列（方向）；专业拓展课程 22 门。学生应从专业方向课程中至少选修 6 学分，从专业拓展课程中至少选修 4 学分。

3. 实验课程共 9 门，其中独立开设的实验课 8 门，既有理论又有实验的课程 9 门，含综合性、设计性实验的课程 4 门，占实验课程总数的 44%。

4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 25.5%。

1. There are 22 specialized compulsory courses，including 2 bilingual courses and 1 English course.

2. There are 19 specialized elective courses in total including 11 specialized orientation courses divided into 2 series or dimensions and 22 specialized development courses. Undergraduates should obtain 6 credits in total by taking specialized orientation courses and 4 credits by taking specialized development courses.

3. There are 9 experimental courses in total including 8 independent experimental courses, 9 theoretical and experimental courses, 4 comprehensive and design experimental courses which is 40% of the total experimental courses.

4. The practical teaching contents of this major include practical teaching modules and other teaching modules. The ratio of teaching hours to total hours is 25.5%.

八、环境科学本科教学计划表

Ⅷ. Teaching Scheme for Environmental Science Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses(54 Credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 Credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.

1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005- 1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2	24		1	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Education & Practice of Innovation and Entrepreneurship	3	2	36			考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts	1	1	18		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（33 学分）

（Ⅱ）Disciplinary Foundation Courses (33 credits)

1. 相关学科基础课（17 学分）

1. Related Disciplinary Foundation Courses (17 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1(for Science Specialties)	1	4	72		5	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
0921017	线性代数 Linear Algebra	3	3	54		3	考试 Exam.
0921018	无机及分析化学 Inorganic and Analytical Chemistry	1	3	54		3	考试 Exam.

0921019	有机化学 Organic Chemistry	2	3	54		3	考试 Exam.

2. 本学科基础课（16 学分）
2. Disciplinary Foundation Courses (16 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0922053	地理类引论 Introduction to Geography	1	4	42		4	考试 Exam.
0922055	环境科学导论 Introduction to Environment	1	3	54		3	考试 Exam.
0921020	环境物理学 Environmental Physics	2	3	54		3	考试 Exam.
0922040	现代仪器分析 Modern Instrumental Analysis	3	3	54		3	考试 Exam.
0922041	工程制图 Engineering Drawing	3	3	54		3	考试 Exam.

（三）专业课程模块（42 学分）
（Ⅲ）Specialized Courses (42 credits)
1. 专业核心课程（32 学分）
1. Specialized Core Courses (32 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0941022	环境监测 Environmental Monitoring	5	3	54		3	考试 Exam.
0941132	环境微生物学 Environmental Microbiology	5	3	54		3	考试 Exam.
0941134	环境化学 Environmental Chemistry	5	3	54		3	考试 Exam.
0941135	水污染控制工程 Engineering of Water Pollution Control	6	2	36		2	考试 Exam.
0941109	大气污染控制工程 Engineering of Air Pollution Control	6	3	54		3	考试 Exam.
0941113	固体废物处置与利用 Solid Waste Disposal and Utilization	4	3	54		3	考试 Exam.
0941137	环境土壤学 Environmental Soil	3	3	54		3	考试 Exam.
0941110	环境生态学 Environmental Ecology	4	3	54		3	考试 Exam.
0941025	环境评价 Environmental Assessment	4	3	54		3	考试 Exam.
0941136	环境经济学 Environmental Economics	4	3	54		3	考试 Exam.
0941177	环境毒理学 Environmental Toxicology	6	3	54		3	考试 Exam.

2. 专业方向课程（6 学分）
2. Specialized Orientation Courses (6 Credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
环境科学理论(方向)课程： Courses of Environmental Assessment and Remediation dimension							

0942166	荒漠化与防治 Desertification Combating	4	2	36		3	考试 Exam.
0942142	环境统计学 Methods of Environment Data Processing	4	2	36		2	考试 Exam.
0942118	环境规划 Environmental Planning	5	2	36		2	考试 Exam
0942125	环境法学 Environment Law	3	2	36		2	考试 Exam
0942167	土壤化学 Soil Chemistry	3	2	36		2	考试 Exam
0945008	应用环境案例分析 Cases Analysis of Applied Environment	7	2	36		2	考试 Exam
0942102	环境与健康 Environment and Health	6	2	36		2	考查 Quiz
环境科学应用(方向)课程： Courses of Environmental Ecology Dimension							
0942166	荒漠化与防治 Desertification Combating	4	2	36		3	考试 Exam.
0942168	土壤污染与治理 Soil Pollution and Remediation	3	2	36		2	考试 Exam.
0942136	环境修复技术 Environmental Remediation	3	2	36		2	考试 Exam
0942139	污染生态学 Pollution Ecology	4	2	36		2	考试 Exam
0942107	生态工程学 Ecological Engineering	5	2	36		3	考试 Exam
0945008	应用环境案例分析 Cases Analysis of Applied Environment	7	2	36		2	考试 Exam
0942102	环境与健康 Environment and Health	6	2	36		2	考查 Quiz

3. 专业拓展课程（4 学分）

3. Specialized Development Courses (4 Credits)

详见学院专业拓展课程。

See Specialized Development Courses of School of Geography and Tourism

（四）专业技能模块（21 学分）

（Ⅳ）Professional Skills Courses(21 Credits)

1. 必修课（17 学分）

1. Compulsory Courses (17 Credits)

课程编码 Courses Code	**课程名称 Courses Name**	**开课学期 Semester**	**学分 Cre.**	**讲授学时 Teaching Hrs.**	**实验/实践学时 Experiment/ Training Hrs.**	**周学时 Weekly Hrs.**	**考试方式 Evaluation**
环境科学理论(方向)课程： Courses of Environmental Assessment and Remediation Dimension							
0921022	环境地理学（含见习） Physical Geography	1	3	45	9	3	考试 Exam.
0944016	有机化学实验 Experiment of Organic Chemistry	2	1		36	2	考试 Exam.
0944015	无机及分析化学实验 Experiment of Inorganic and Analytical Chemistry	1	1		36	2	考试 Exam.
0945003	环境工程微生物实验 Experiment of Environmental Microbiology	5	1		36	2	考试 Exam.
0945004	环境化学实验 Experiment of Environmental Chemistry	5	1		36	2	考试 Exam.
0945005	环境监测实验 Experiment of Environmental Monitoring	5	1		36	2	考试 Exam.

0945006	水污染控制工程实验 Experiment of Engineering of Water Pollution Control	6	1		36	2	考试 Exam.
0945007	大气污染控制工程实验 Experiment of Engineering of Air Pollution Control	6	1		36	2	考试 Exam.
0945009	环境土壤学实验 Experiment of Environmental Soil	3	1		36	2	考试 Exam.
0945010	外文文献检索与科技论文写作 Foreign Literature Retrieval and Scientific Paper Writing	6	2	36		2	考查 Quiz
0941138	环境科学前沿系列讲座 Seminar of Environmental Frontier	7	1	18		2	考查 Quiz
0922056	地理信息系统 含实验 Geographical Information System	2	3		54	2	考试 Exam.
环境科学应用(方向)课程： Courses of Environmental Ecology Dimension							
0921022	环境地理学（含见习） Physical Geography	1	3	45	9	3	考试 Exam.
0944016	有机化学实验 Experiment of Organic Chemistry	2	1		36	2	考试 Exam.
0944015	无机及分析化学实验 Experiment of Inorganic and Analytical Chemistry	1	1		36	2	考试 Exam.
0945003	环境工程微生物实验 Experiment of Environmental Microbiology	5	1		36	2	考试 Exam.
0945004	环境化学实验 Experiment of Environmental Chemistry	5	1		36	2	考试 Exam.
0945005	环境监测实验 Experiment of Environmental Monitoring	5	1		36	2	考试 Exam.
0945006	水污染控制工程实验 Experiment of Engineering of Water Pollution Control	6	1		36	2	考试 Exam.
0945007	大气污染控制工程实验 Experiment of Engineering of Air Pollution Control	6	1		36	2	考试 Exam.
0945009	环境土壤学实验 Experiment of Environmental Soil	3	1		36	2	考试 Exam.
0945010	外文文献检索与科技论文写作 Foreign literature Retrieval and Scientific Paper Writing	6	2	36		2	考查 Quiz
0941138	环境科学前沿系列讲座 Seminar of Environmental Frontier	7	1	18		2	考查 Quiz
0922056	地理信息系统 含实验 Geographical Information System	2	3		54	2	考试 Exam.

2. 选修课（4 学分）

2. Elective Courses（4 Credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
环境科学理论(方向)课程： Courses of Environmental Assessment and Remediation dimension							
0942135	环境工程原理 Principles of Environmental Engineering	3	2	36		2	考查 Quiz
0942023	物理化学 Physical Chemistry	4	2	36		2	考查 Quiz
0942138	环境管理 Environmental Management	4	2	36		2	考查 Quiz
0942137	环境功能材料 Environmental Functional Materials	5	2	36		2	考查 Quiz
0942127	清洁生产 Cleaner Production	6	2	36		2	考查 Quiz

环境科学应用(方向)课程： Courses of Environmental Ecology Dimension							
0942135	环境工程原理 Principle of Environmental Engineering	3	2	36		2	考查 Quiz
0942023	物理化学 Physical Chemistry	4	2	36		2	考查 Quiz
0942140	分子生物学 Molecular Biology	5	2	36		2	考查 Quiz
0942178	环境气象学 Environmental Meteorology	4	2	36		2	考查 Quiz
0942122	环境生物学 Environmental Biology	6	2	36		3	考查 Quiz

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work（12 Credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1		36		考查 Quiz
0950017	必读书目阅读 Required Readings	8	1		36		考查 Quiz
0950026	专业见习与实习 Professional Visits	1-7	4		144		考查 Quiz
0950021	专业实践与社会调查 Professional Practice and Social Survey	7	1		36		考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1		36		考查 Quiz
0950025	毕业论文（设计） Graduation Thesis	7-8	4		144		考查 Quiz

九、地理科学与旅游学院专业拓展课程
Ⅸ. Specialized Development Courses of School of Geography and Tourism

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0943062	旅游美学 Tourism Aesthetics	6	2	36		2	考查 Quiz
0943057	陕西导游（英语） Tourism of Shaanxi (English)	7	2	36		2	考查 Quiz
0943084	旅游系统论 Tourism System Theory	7	2	36		2	考查 Quiz
0943017	景观生态与规划 Landscape Ecology and Planning	5	2	36		2	考查 Quiz
0943106	旅游影响研究 Tourism impact	5	2	36		2	考查 Quiz
0943108	旅游可持续发展（全英授课） Sustainable Development of Tourism	6	2	36		2	考查 Quiz
0943021	自然保护概论 Introduction of Nature Conservation	5	2	36		2	考查 Quiz
0943044	环境保护 Environmental Protection	5	2	36		2	考查 Quiz
0943096	荒漠化防治 Prevention and Control of Desertification	5	2	36		2	考查 Quiz
0943091	环境修复 Environmental Modification	6	2	36		2	考查 Quiz
0943105	健康地理 Geography and Health	6	2	36		2	考查 Quiz

0943048	城市生态学 Urban Ecology	5	2	36		2	考查 Quiz
0943101	中国分区地理 The Geographical Zone of China	6	2	36		2	考查 Quiz
0943102	世界主要国家地理 The Geography of the World Major Countries	6	2	36		2	考查 Quiz
0943016	全球环境问题与对策 Global Environmental Problems and the Countermeasures	6	2	36		2	考查 Quiz
0943019	城市规划学 Urban Planning	6	2	36		2	考查 Quiz
0943004	网页制作与发布 Webpage Making and Releasing	6	2	36		2	考查 Quiz
0943107	宇宙与地球 Earth and Universe	6	2	36		2	考查 Quiz
0943046	线性代数 Liner Algebra	6	2	36		2	考查 Quiz
0943109	风沙地貌学 Aeolian Geomorphology	5	2	36		2	考查 Quiz
0943110	宇宙环境视频欣赏 Cosmic Environment Video Appreciation	4	2	36		2	考查 Quiz
0943111	冰川学导论 An Introduction of Glaciology	4	2	36		2	考查 Quiz
学生选修说明 Notes	1. 旅游与环境学院专业任意选修课程共 22 门，分 4 个系列或方向。 2. 地理科学专业必须选修 8 学分；地理科学（卓越班）专业必须选修 8 学分；地理科学（创新实验班）专业必须选修 8 学分；地理信息科学专业必须选修 6 学分；旅游管理专业必须选修 4 学分；环境科学专业必须选修 4。 1. There are 22 specialized non-restrictive elective courses of School of Geography and Tourism in total divided into 4 series or dimensions. 2. Undergraduates in Geographical Sciences specialty and in Geographical Science (Excellent Class & Experimental and Innovative class) specialty should obtain 8 credits. Undergraduates in Geographic Information Science specialty should obtain 6 credits. Undergraduates in Environmental Science specialty and in Tourism Management specialty should obtain 4 credits.						

旅游管理专业简介
Introduction to the Specialty of Tourism Management

旅游管理专业，学制 4 年，专业属性为非师范专业。该专业始建于 1993 年。本专业是实践性与应用性并重的交叉新兴学科，师资力量雄厚，实验设备先进。陕西师范大学旅游管理学科是在地理学、经济学、历史学、心理学等传统优势学科的基础上于上世纪 80 年代建设发展形成的。1996 年被国务院学位委员会批准设立旅游管理硕士学位授权点，2003 年批准设立旅游管理博士学位授权点，2003 年被选为陕西省省级重点学科。

目前该专业在职教师 22 人，其中教授 6 人，副教授 7 人，具有博士学位的教师 20 人。教师队伍中有陕西省教学名师 2 人。

本专业主要培养系统掌握旅游管理专业基础理论、基本知识、具备合理知识结构、扎实专业技能，能在各级旅游行政管理部门、旅游企事业单位从事旅游管理工作的复合型高级专门人才。

The speciality of Tourism Management with 4 year’s schooling, is a non-teacher major. The discipline of Tourism Management was built and developed in the 1980s on the basis of Geography, Economics, History, Psychology and other traditional advantaged disciplines. In 1996, it was approved by the Academic Degrees Committee of the State Council to establish the Master's Degree Authorization Point of Tourism Management. In 2003, it was approved to set up a PhD Authorization Point of Tourism Management and selected as the Provincial Key Subject of Shaanxi province.

At present, there are 22 full-service teachers in the department, including 6 professors, 7 associate professors, and 20 of them are PhD holders. Among them, 2 are awarded as Shaanxi Provincial Master Teachers.

It is a new interdisciplinary with both practicality and applicability, equipped with strong teaching staff and advanced experimental equipment. It aims to cultivate high level specialized personnel of tourism administration departments and tourism enterprises and institutions with basic theory and basic knowledge of tourism management, making them qualified person with rational knowledge structure and solid professional skills.

旅游管理专业
The Specialty of Tourism Management

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，系统掌握旅游管理专业基础理论、基本知识、具备合理知识结构、扎实专业技能，具有执行力、思考力以及创新研究能力，掌握信息技术、适应旅游产业发展，能在各级旅游行政管理部门、旅游企事业单位从事旅游管理工作的复合应用型创新人才。

This program is aimed to cultivate compound talents with executive ability, thinking and innovative research ability, solid foundation, good quality, wide knowledge, strong research ability, mastering information technology and adapting to the development of tourism industry. It is expected to cultivate high level specialized personnel of tourism administration departments and tourism enterprises and institutions with basic theory and basic knowledge of tourism management, making them qualified person with rational knowledge structure and solid professional skills. It also tries to cultivate all-round developed talents with healthy body and scientific literacy, professional knowledge and professional skills, sound personality and good psychological quality, innovative spirit and practical ability.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国，掌握马列主义、毛泽东思想、邓小平理论和“三个代表”重要思想；坚持科学发展观，具有科学的世界观、正确的人生观和价值观以及高尚的道德品质。遵纪守法，努力学习，积极上进，具有高尚品质。

2. 系统学习和掌握本专业的基础理论和基本知识，受到旅游经营管理方面的专业技能训练，懂得一定的经济学理论，具备初步的创新与科学研究能力，能独立分析和解决工作中的实际问题。计算机通过一级等级考试；外语达到国家四级及以上水平。

3. 具有适应社会的能力，获取知识的能力，分析问题和解决问题的能力以及与人合作共事的能力；具有科学、合理的知识结构；具有实事求是的科学态度；具有民主与法制意识、改革开放意识、竞争参与意识、市场意识、责任意识、效率与效益意识、国际意识、环境意识和可持续发展的意识等现代观念。具备获取知识的能力，创造能力及与人合作的能力，具有科学合理的知识、能力和素质结构，个性鲜明，具有良好的组织协调和管理能力。

4. 具有健康的体魄和一定的军事基本理论及基本技能，达到国家规定的大学生体育合格标准和军事训练标准，养成锻炼身体的习惯。

5. 具有良好的人文素质与科学素质，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力。

1. Undergraduates should be of high civil quality. With a deep love for our motherland, they should steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of conduct. Undergraduates should build up noble moral accomplishment. They should develop a correct

outlook of life and gracious humanistic literacy by inheriting excellent Chinese culture and absorbing advanced values and scientific concepts abroad to cultivate wholesome personality and sound psychological quality.

2. Undergraduates should have a firm and systematic knowledge of tourism management, basic scientific theory, and economic principles. The students should have initial capability of scientific study and the ability of innovation. They are capable to analyze and solve the practical problems independently. They must pass the Grade 1 of the National Computer Rank Examination Certification and the CET4 (College English Test 4).

3. Undergraduates should know how to adapt to the society and acquire knowledge. They should have the ability to discover, question, analyze, and solve problems and be able to cooperate with others. They should have scientific and reasonable knowledge structure and realistic research attitude. They are required to have the awareness of law and democracy, opening, competition consciousness of participation, market awareness, responsibility, efficiency and effectiveness, international awareness, environment awareness and the awareness of sustainable development. They should be equipped with scientific knowledge, ability and quality structure, strong personality and ability of coordination and management.

4. Undergraduates should be healthy and possess certain basic knowledge and skills of military theory. They should master the standard of the university students' sports qualification and military training standards and be physically active on a regular basis.

5. Undergraduates should have humanity-based quality and scientific attainments as well as sound personality and healthy mental quality, they should have the ability of innovation and practice.

三、主干学科

Ⅲ. Core Disciplines

旅游管理学

Tourism Management

四、主干课程

Ⅳ. Main Courses

旅游学学科引论、旅游学、旅游地学、管理学原理、微观经济学、旅游资源与开发、旅游伦理与法律规制、旅游目的地管理、旅游经济学、旅游接待业管理、旅游规划与实践、旅游心理与行为、会计学、旅游文化学、旅游管理专业英语、旅游市场营销、财务管理与实践

Introduction to Tourism, Tourism, Tourism Geoscience, Principles of Management, Microeconomics, Tourism Resource and Exploitation, Tourism Ethics and Law Regulation, Tourism Destination Management, Tourism Economics, Tourism Hospitality Management, Tourism Planning and Practice, Tourist Psychology and Behavior, Accounting, Tourism Culture, Tourism Management English, Tourism Marketing, Financial Management and Practice

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

管理学学士

Bachelor of Management

六、学分要求

Ⅵ. Total Credits

165 学分

165 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 **Course Catalogue**		学分及比例 **Credits and Percentage**			
		学 分 **Cre.**	小 计 **Sub-Total**	占总学分比例 **Percentage in Total Credits**	小 计 **Sub-Total**
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.5%	32.7%
	通识教育选修课 Liberal Studies Elective Courses	12		7.3%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	8	17	4.8%	10.3%
	本学科基础课 Disciplinary Foundation Courses	9		5.5%	
专业课程模块 Specialized Courses	专业核心课程 Professional Core Courses	43	58	26.1%	35.2%
	专业方向课程 Specialty-Oriented Courses	11		6.7%	
	专业拓展课程 Professional Extended Courses	4		2.4%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	17	23	10.3%	13.9%
	选修课 Elective Courses	6		3.6%	
实践教学模块 Practice Work	必修课 Compulsory Courses	13	13	7.9%	7.9%
合计 Total		165		100%	

说明 Notes	1. 专业必修课（包括专业核心课程和学科基础课程）共 19 门，其中双语课程 0 门，全英语课程 0 门。 2. 专业选修课共 23 门，其中专业方向课程 10 门，分 1 个系列（方向）；专业拓展课程 21 门。学生应从专业方向课程中至少选修 11 学分，从专业拓展课程中至少选修 4 学分。 3. 实验课程共 3 门，其中独立开设的实验课 0 门，既有理论又有实验的课程 2 门，含综合性、设计性实验的课程 1 门，占实验课程总数的 33.3%。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 25.5%。 1. There are 19 specialized compulsory courses, including 0 bilingual courses and 0 English courses. 2. There are 23 specialized elective courses in total including 10 specialty-oriented elective courses of 1 series or dimension and 21 professional extended courses. Undergraduates should obtain 11 credits in total by taking specialty-oriented courses and 4 credits by taking professional extended courses. 3. There are 3 experimental courses in total including 0 independent experimental courses, 2 theoretical and designable experimental courses and 1 integrated designable experimental course which is 33.3 % of the total experimental courses. 4. Practice teaching content of this major includes practice teaching module and other course modules, and the credits of practice teaching is 25.5% of the total credits.

八、旅游管理本科教学计划表

Ⅷ. Teaching Scheme for Tourism Management Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 Credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211043	计算机基础（文、艺、体） Fundamentals of Computer (for Liberal Arts, Art and P.E. Specialties)	1	2	27	18	2	考试 Exam.
1211037	ACCESS 数据库应用技术（文科） Applied Technology of ACCESS Datebase (for Liberal Arts Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Education & Practice of Innovation and Entrepreneurship	3	2	36			考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 Credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（17 学分）

（Ⅱ）Disciplinary Foundation Courses (17 Credits)

1. 相关学科基础课（8 学分）

1. Related Disciplinary Foundation Courses (8 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		5	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.

2. 本学科基础课（9 学分）

2. Disciplinary Foundation Courses (9 Credits)

课程编码 Course Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0922057	旅游学学科引论（含见习） Introduction to Tourism	1	1	18		2	考试 Exam.
0922018	旅游学 Tourism	1	2	36		2	考试 Exam.
0922037	旅游地学 Tourism Geoscience	1	3	54		3	考试 Exam.
0922029	管理学原理 Principles of Management	1	3	54		3	考试 Exam.

（三）专业课程模块（58 学分）

（Ⅲ）Specialized Courses (58 Credits)

1. 专业核心课程（43 学分）

1. Professional Core Courses (43 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0941124	微观经济学 Microeconomics	1	3	54		3	考试 Exam.
0941146	旅游资源与开发（含见习） Tourism Resource and Exploitation	3	4	54	36	3	考试 Exam.
0941144	旅游伦理与法律规制 Tourism Ethics and Law Regulation	4	3	18	72	3	考试 Exam.
0941101	线性代数与数理统计 Linear Algebra and Mathematical Statistics	3	4	72		4	考试 Exam.
0941160	旅游目的地管理 Tourism Destination Management	2	2	36		2	考试 Exam.
0941031	旅游经济学 Tourism Economics	2	3	54		3	考试 Exam.
0941185	旅游接待业管理 Tourism Hospitality Management	4	2	36		2	考试 Exam.
0941186	旅游规划与实践 Tourism Planning and Practice	5	3		108	3	考试 Exam.
0941161	旅游心理与行为 Tourist Psychology and Behavior	3	3	54		3	考试 Exam.
0941029	会计学 Accounting	3	3	54		3	考试 Exam.

0941148	旅游文化学 Tourism Culture	2	3	54		3	考试 Exam.
0941162	旅游管理专业英语 Tourism Management English	5	3	54		3	考试 Exam.
0941170	旅游市场营销 Tourism Marketing	4	3	54		3	考试 Exam.
0941187	财务管理与实践 Financial Management and Practice	4	2	36		2	考试 Exam.
0941167	旅游英语听说 Listening and Speaking of Tourism English	6	2	36		2	考试 Exam.

2. 专业方向课程（11 学分）

2. Specialty-Oriented Courses (11 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0942067	人力资源管理 Human Resources Management	5	2	36		2	考查 Quiz
0942153	城市旅游与休闲（双语） Urban Tourism and Leisure (Bilingual)	6	2	36		2	考查 Quiz
0942180	住宿业管理与实践（含见习） lodging Industry Management and Practice	3	3	36	36	3	考查 Quiz.
0942155	主题景区管理与运营（双语） Management of Tourism Scenic Area (Bilingual)	6	2	36		2	考查 Quiz
0942181	会展管理与实践 Exhibitions Management and Practice	6	2		72	2	考查 Quiz
0942157	旅行社经营与管理 Travel Agency Management	6	2	36		2	考查 Quiz
0942159	旅游项目投资决策分析 Tourism Project Investment and Decision-making	6	2	36		2	考查 Quiz
0942042	饭店前厅与客房管理 Management of Hotel Lobby and Guest Rooms	6	2	36		2	考查 Quiz
0942165	旅游创新与创业管理 Tourism Innovation and Entrepreneurship Management	7	2	36		2	考查 Quiz
0941163	旅游电子商务与网络营销 Tourism E-Commerce and Network Marketing	5	2	36		2	考查 Quiz

3. 专业拓展课程（4 学分）

3. Professional Extended Courses (4 Credits)

详见学院专业拓展课程

See Professional Extended Courses of School of Geography and Tourism.

（四）专业技能模块（23 学分）

（Ⅳ）Professional Skills Courses（23 Credits）

1. 必修课（17 学分）

1. Compulsory Courses (17 Credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0941192	导游业务与技巧（含见习） Tourist Guide Operation	6	3		108	3	考试 Exam
0941188	统计软件操作与应用 Statistical Software Application	5	3	54		3	考试 Exam
0941166	旅游研究方法 Tourism Research Methodology	5	2	36		2	考试 Exam

0941189	旅游市场分析与预测 Tourism Market Analysis and Forecast	6	3	54		3	考试 Exam
0941168	跨文化礼仪与交际 Cross-cultural Communication and Etiquette	7	2		72	2	考试 Exam
0941190	旅游调查技术（含野外实习） Tourism Field Investigation Techniques	2	2		72	2	考试 Exam
0941191	旅游信息化 Tourism Information	4	2	36		2	考试 Exam

2. 选修课（6 学分）

2. Elective Courses（6 Credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0942158	旅游综合体运营与管理 CTC Operation and Management	6	2	36		2	考查 Quiz
0942160	旅游战略管理经典案例分析 Case Study of Tourism Strategic Management	5	2	36		2	考查 Quiz
0942161	茶旅游、葡萄酒旅游及品鉴 Tea Tourism, Wine Tourism and Tasting	7	2	18	36	2	考查 Quiz
0942163	乡村旅游（双语） Rural Tourism (Bilingual)	4	2	36		2	考查 Quiz
0942164	旅游可持续发展（全英授课） Sustainable Development of Tourism (English)	7	2	36		2	考查 Quiz
0942175	国家公园管理（全英授课） National Park Management (English)	4	2	36		2	考查 Quiz
0942176	国际连锁酒店品牌运营与管理 International Chain Brand Hotel Operations and Management	5	2	36		2	考查 Quiz
0942177	旅游策划与创意实践 Tourism Planning and Creativity Practice	7	2		72	2	考查 Quiz

（五）实践教学模块（13 学分）

（Ⅴ）Practice Work（13 Credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
0950017	必读书目阅读 Required Readings		1				考查 Quiz
0950034	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
0950021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
0950022	科研训练 Scientific Research Training	3-6	1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
0950033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

九、地理科学与旅游学院专业拓展课程

Ⅸ. Professional Extended Courses of School of Geography and Tourism

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0943062	旅游美学 Tourism Aesthetics	5	2	36		2	考查 Quiz
0943084	旅游系统论 Tourism System Theory	7	2	36		2	考查 Quiz
0943017	景观生态与规划 Landscape Ecology and Planning	5	2	36		2	考查 Quiz
0943106	旅游影响研究 Tourism Impact	5	2	36		2	考查 Quiz
0943108	旅游可持续发展（全英授课） Sustainable Development of Tourism (English)	7	2	36		2	考查 Quiz
0943021	自然保护概论 Introduction to Nature Conservation	5	2	36		2	考查 Quiz
0943044	环境保护 Environmental Protection	5	2	36		2	考查 Quiz
0943096	荒漠化防治 Prevention and Control of Desertification	5	2	36		2	考查 Quiz
0943091	环境修复 Environmental Modification	6	2	36		2	考查 Quiz
0943105	健康地理 Geography and Health	6	2	36		2	考查 Quiz
0943048	城市生态学 Urban Ecology	5	2	36		2	考查 Quiz
0943101	中国分区地理 The Geographical Zone of China	6	2	36		2	考查 Quiz
0943102	世界主要国家地理 The Geography of the World Major Countries	6	2	36		2	考查 Quiz
0943016	全球环境问题与对策 Global Environmental Problems and the Countermeasures	6	2	36		2	考查 Quiz
0943019	城市规划学 Urban Planning	6	2	36		2	考查 Quiz
0943004	网页制作与发布 Webpage Making and Releasing	6	2	36		2	考查 Quiz
0943107	宇宙与地球 Earth and Universe	6	2	36		2	考查 Quiz
0943046	线性代数 Liner Algebra	6	2	36		2	考查 Quiz
0943109	风沙地貌学 Aeolian Geomorphology	5	2	36		2	考查 Quiz
0943110	宇宙环境视频欣赏 Cosmic Environment Video Appreciation	4	2	36		2	考查 Quiz
0943111	冰川学导论 Introduction of Glaciology	4	2	36		2	考查 Quiz
说明 Notes	1. 旅游与环境学院专业拓展课程共 21 门，分 4 个系列或方向。 2. 地理科学专业必须选修 8 学分；地理科学（卓越班）专业必须选修 8 学分；地理科学（创新实验班）专业必须选修 8 学分；地理信息科学专业必须选修 6 学分；旅游管理专业必须选修 4 学分；环境科学专业必须选修 4。 1. There are 21 Professional Extended courses of School of Tourism and Environmental Sciences in total divided into 4 series or dimensions. 2. Undergraduates in Geographical Science specialty and in Geographical Science (excellent class & innovative and experimental class) specialty should obtain 8 credits. Undergraduates in Geographic Information Science specialty should obtain 6 credits. Undergraduates in Environmental Science specialty and in Tourism Management specialty should obtain 4 credits.						

计算机科学学院
School of Computer Science

- 计算机科学与技术（师范）

  Computer Science and Technology (Normal)

- 计算机科学与技术（创新实验班）

  Computer Science and Technology (Innovative and Experimental Class)

- 软件工程

  Software Engineering

- 计算机科学学院专业拓展课程（专业任意选修课）

  Specialized Development Courses (Specialized Non-restrictive Elective Courses) of the School of Computer Science

计算机科学与技术专业（师范）简介
Introduction to the Specialty of Computer Science and Technology (Normal)

计算机科学与技术专业（师范），学制 4 年，专业属性为师范专业，始建于 1985 年，2008 年获批陕西省特色专业，2015 年入选陕西师范大学一流学科建设计划。

目前，该专业在职任课教师 24 人，其中教授 5 人、副教授 9 人，17 人具有博士学位，18 人具有海外研究学习经历。拥有现代教学技术教育部重点实验室、陕西省教学信息技术工程实验室、陕西省实验教学示范中心、教学技能实训实验室、教育大数据实验室，以及省内外三十余个教育实习基地。

本专业整体实力在全国同类专业中名列前茅，是地区教育主管部门招聘计算机类师范毕业生的优先和指定专业，毕业生的主要去向是中初教育单位，可异地就业，就业地域覆盖全国，就业率保持在 100%。

该专业主要培养以计算思维能力为主，融会贯通计算机科学和教育科学基本理论、知识、技能和方法，能够在中学、相关教育部门从事信息技术教学的优秀教师、教育管理者及未来教育家。

The Specialty of Computer Science and Technology (Normal), with a four-year full-time educational system, is a normal undergraduate program. The Specialty was established in 1985, granted as Shaanxi Province’s Characteristic Specialty in 2008 and joined the First-Class Disciplines Project of Shaanxi Normal University in 2015.

Currently, there are 24 full-time faculty members in this major, including 5 professors and 9 associate professors. 17 faculty members have Ph.D. degrees and 18 faculty members have overseas studying and researching experience. The Specialty has a plurality of Laboratories, which includes Key Laboratory of Modern Teaching Technology (National level), Education Engineering Laboratory of Teaching Information Technology, Shaanxi Province (Provincial and Ministerial level), Ministry of Education and the Shaanxi Provincial Experimental Teaching Demonstration Center(Provincial and Ministerial level), teaching-training laboratory, and network engineering laboratory. The Specialty also has some specialty-oriented characteristics laboratories, such as education robot laboratory, education big data laboratory. In addition, there are also more than thirty educational practice bases with long-term partnership inside and outside the province.

One of the major objectives of this Specialty is to cultivate the students with computational

thinking skills and the Specialty is targeted to cultivate excellent teachers, education administrators and future educators who will integrate basic knowledge, theory, skills, and methods of computer science and education science and capable of doing teaching, researching and managing jobs in secondary schools and related education departments.The overall strength of this Specialty is among the best of its counterparts in the country, and the it is usually the first priority choice and the designated specialty for regional education authorities and educational units to employ the normal graduates. The main destination of graduates is the primary and secondary education units, and graduates can be employed in different places, i.e. it is not limited to the region where the students come from. The employment region covers the whole country and the employment rate has been maintained at 100%.

计算机科学与技术专业（师范）
The Specialty of Computer Science and Technology (Normal)

一、培养目标

Ⅰ. Educational Objectives

1. 目标定位

本专业适应国家基础教育发展要求，立足西部，面向全国，培养具有高尚的师德修养、深厚的计算机科学与技术专业素养、突出的教育教学能力和较强的科研能力，身心健康，能够在中小学校从事信息技术教学、研究和管理工作的优秀教师、教育管理者及未来教育家。

1. Objective Orientation

Based on the west China and facing the whole country, this Specialty adapts to the requirements of the national development of basic education. The main objective of Specialty is to prepare students with the following qualities: noble teacher morality and literacy, deep professionalism of computer science and technology, outstanding ability of education and teaching, strong ability of scientific research; have the physical and mental health; be capable of becoming the outstanding teachers, educational administrators and future educators who will be engaged in information technology teaching, research and management in primary and secondary schools.

2. 目标内涵

本专业毕业 5 年左右的学生，应当具备以下素养：

（1)热爱信息技术教育事业，掌握扎实系统的计算机学科和教育学科的基础知识、原理和技能；关爱学生，了解中学生身心发展特点和成长规律；视野开阔，善于创新，社会适应能力强，能够独立开展工作。

（2)具有良好的信息技术教学设计能力和课堂组织能力，善于运用现代信息技术，能开设示范公开课；熟悉课程改革的最新进展，能够基于课程标准指导课堂学习和课外活动；教育教学成效显著，成为所在学校骨干教师。

（3)树立育人为本的理念，善于将信息技术知识学习、能力发展和品德养成有机结合；具备较强的教育教学管理能力，能够胜任班主任工作；具有坚定的教育信念，能以自身人格魅力和学识魅力感染学生，做学生健康成长的引路人。

（4)了解国内外基础教育发展的趋势和前沿动态，不断改进自己的教育理念和教育方式；善于独立思考，能够针对实际教育问题开展科学、严谨的研究；具有团队协作精神，能通过校内外教研活动开展专业交流，在所工作的区域内具有一定的影响力。

2. Objective Connotation

Students who have graduated from this Specialty for about 5 years should have the following qualities:

(1) Have a deep love for education, master solid and systematic basic knowledge, principles and skills in computer science and education science; care for students, understand the rules of physical and mental development and the nature of cultivation in secondary school students; have broad perspective, be good at innovation, have strong social adaptability, be able to work independently.

(2) Have good information technology teaching design ability and classroom organization ability; be good at using modern information technology; can teach open demonstration class; be familiar with the latest developments in curriculum reform; have ability to guide classroom learning and extracurricular activities

based on curriculum standards; achieve significant accomplishment in education and teaching; become the backbone teachers in host school.

(3) Uphold a belief that the foundation of education is educating people; be good at combining information technology knowledge learning, ability development and morality to educating people; have strong educational and teaching management skills and the ability to work as a head class teacher; have a firm belief in education; can infect students with self-personality charm and academic charm, and can be a mentor for the healthy growth of students.

(4) Understand the domestic and international trends and frontier dynamics of basic education development; continuously improve the educational philosophy and education methods; be good at thinking independently; have the ability to conduct scientific and rigorous research on practical education issues; have teamwork spirit; can carry out professional communication through teaching and research activities inside and outside the school; have a certain influence in the area where they work.

3. 目标评价

（1)依据国家形势和教育政策的变化，及时调整培养目标。紧随时代发展，借助政府主管部门、学校管理部门以及中学相关部门的力量，把握人才需求方向，培养符合国家基础教育改革发展需求的中学信息技术教师。

（2)以学年为单位，建立稳定的培养目标修订机制。依照培养目标，对人才就业情况与表现进行持续调研，并邀请领域内的专家对培养体系进行论证。建立信息公开平台，对培养目标修订提供条件支撑，随时将目标及其理念进行公开，征求各方利益群体的意见与建议，并将目标评价的修订完善随时向公众特别是利益相关主体进行公开。

（3)建立历年培养方案变化的跟踪机制。每年对学生表现情况、不同课程对毕业要求的支撑情况进行分析，作好记录和分析；通过收集用人单位、学生、任课教师、学生家长的意见和建议，了解培养方案的优势和不足，建立档案，不断进行优化。

3. Objective Evaluation

(1) According to changes in the national situation and education policy, the Specialty will timely revise the training objectives. Keeping up with the times and with the help of the power of government authorities, school administration and related departments in secondary schools, the Specialty will grasp the direction of talent demand to cultivate information technology teachers in secondary schools that meet the needs of national basic education reform and development.

(2) The Specialty will establish a stable training objective revision mechanism for each academic year. According to cultivating objectives, the Specialty will conduct continuously research on the employment situation and performance of graduates and inviting experts in the field to argument the training system. The Specialty will establish a public information platform to provide conditional support for revision of the training objectives, and the training goals and ideas will keep public at all time to seek opinions and suggestions from various interest groups. The revision of the target evaluation is made public to the public, especially the stakeholders.

(3) Establishing a tracking mechanism for changes in training programs of each year; analyzing the student performance and the support of different courses for graduation requirements each year, and make a record and analyze. By collecting opinions and suggestions from employers, students, college teachers, and parents of students to understand the advantages and disadvantages of the training program and create files and continually optimize the training program.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国；掌握马列主义、毛泽东思想、邓小平理论、“三个代表”重要思想、科学发展观和习近平新时代中国特色社会主义思想理论体系的基本观点和方法；能践行和弘扬社会主义核心价值观；具有科学的世界观、正确的人生观和价值观以及高尚的道德品质。贯彻党的教育方针，以立德树人为己任；遵守中学教师职业道德规范，具有依法执教意识，立志成为有理想信念、有道德情操、有扎实学识、有仁爱之心的好老师。【师德规范】

2. 具有从教意愿，热爱教育事业，认同教师工作的意义和专业性，具有积极的情感、端正的态度和正确的价值观；具有人文底蕴和科学精神，尊重学生人格，富有爱心、责任心、事业心，工作细心、耐心，做学生锤炼品格、学习知识、创新思维、奉献祖国的引路人。【教育情怀】

3. 掌握坚实的计算机学科知识体系，理解掌握计算机如何工作、结构化和面向对象编程、数据结构和算法设计分析、软件工程、数据库、操作系统、编译原理、计算机网络、知识产权的基础知识、基本原理和方法；具有良好的计算思维意识及运用能力，能综合运用移动设备、虚拟现实、大数据、人工智能和机器学习等软硬件工具平台以及本学科的知识解决学习、工作中遇到的问题；了解本学科与数学、物理、生物、化学、历史人文等相关学科的联系，并对我国国情和文化传统有较深刻的理解，整合形成学科教学知识；善于沟通与表达，初步习得针对计算机学科核心素养的学习指导方法和策略。【学科素养】

4. 理解教师是学生学习和发展的促进者；了解最新的信息技术课程标准，能够依据课程标准设计系统的信息技术教学活动；在教育实践中，能够以学习者为中心，创设适合的学习环境，指导学习过程，评价学习效果。具备一定的教学研究能力。【教学能力】

5. 树立德育为先理念，重视思想引领，了解中学生德育原理与方法，掌握班级组织与建设工作的规律与基本方法，将德育渗透在日常班级管理活动中；掌握班集体建设、班级教育活动组织、学生发展指导、综合素质评价、与家长及社区沟通合作等班级常规工作方法的要点；熟悉班主任工作，参与德育和心理健康教育等教育活动的组织与指导，获得积极体验。【班级指导】

6. 具有全程育人、全方位育人意识，理解信息技术学科育人价值，了解学校文化和教育活动的育人内涵和方法。能够在教育实践中将信息技术知识学习、能力发展与品德养成相结合，自觉在信息技术学科教学中进行育人活动，积极参与组织主题教育和社团活动，对学生进行有效的教育和引导。【综合育人】

7. 具有终身学习和专业发展意识，了解信息技术教师专业发展核心内容和发展路径，能够结合就业愿景制订自身发展核心内容和专业发展规划；职前学习和职后学习相衔接，持续提升专业能力；养成自主学习习惯，具有自我管理能力。善于进行教学反思，运用批判性思维方法，养成从学生学习、课程教学、学科理解等角度反思分析问题的习惯；熟悉基础教育改革实践现状，具有以反思、探究能力为核心的教学研究素养及在信息技术基础教育领域开拓创新的能力。【学习反思】

8. 理解学习共同体的作用，具有团队协作精神，掌握沟通合作技能，积极开展小组互助和合作学习；善于和校内外的同行展开交流与合作，互助提高。【沟通合作】

Within a period of 4-6 years to obtain all the credits in the teaching scheme, students of this specialty also need to meet the following basic requirements:

1. Undergraduates should have deep love for Chinese Communist Party and our socialism motherland; master the basic standpoints and methods of Marxism-Leninism, Mao Zedong Thoughts, Deng Xiaoping Theory, the important thought of “Three Represents”, Scientific Concepts on Development and Xi Jinping's New Era of Socialism with Chinese Characteristics; they can practice, advance and enrich the core values of the socialism; they should have scientific worldview, healthy outlook on life and noble moral character; they

should take establishing morality and cultivating people as their own responsibility; they should comply with the professional ethics of secondary school teachers; they should have awareness of teaching according to law and determined to be a good teacher with ideal and belief, ethics, solid knowledge, and kindness.

2. Educational Feelings: The students should have the willingness to teach, love education, recognize the meaning and professionalism of teachers' work, and have positive emotions, correct attitudes and correct values; they should have humanistic heritage and scientific spirit, respect students' personality, have love, responsibility and dedication, and be careful and patient; they should work as a guide for students to cultivate character, learn knowledge, innovate in thinking, and contribute to our motherland.

3. Discipline Literacy: The students should master a solid knowledge system of computer science, understand the basic knowledge, principles and methods of how the computer works, structural and object-oriented programming, data structure and algorithm design analysis, software engineering, database, operating system, compiler principle, computer network, and intellectual property; they should have awareness of computational thinking and application skills, can comprehensively use software and hardware tools or platforms of mobile devices, virtual reality, big data, artificial intelligence and machine learning, as well as knowledge of the subject to solve the problems encountered in learning and work; they should know the history of academic development in various disciplines including mathematics, physics, biology, chemistry, history and humanities, understand the connection between computer science and these related disciplines, and have a deep understanding of China's national conditions and cultural traditions. The students are also expected to integrate the above knowledge to form the disciplinary content knowledge for subject teaching; they should be good at communication and expression, and preliminarily master the learning guidance methods and strategies for the core literacy of computer science.

4. Teaching Ability: The students should understand that teachers are the promoters of student learning and development; they should understand the latest information technology curriculum standards and can design systematic information technology teaching activities according to the curriculum standard; they, in the learner-centered teaching practice, can create a suitable learning environment and guide learning process and can evaluate learning outcomes. They are also expected to have certain teaching and research ability.

5. Class Guidance: The students should establish the idea that moral education be the first when educating people, value ideological guidance, understand the principles and methods of middle school students' moral education, and master the rules and basic methods of class organization and construction; they should infiltrate moral education into daily class management activities; they should master the key points of work methods for regular activities such as the construction of class, organization of class education activities, students development guidance, comprehensive quality evaluation, communication with parents and the community, etc.; they should be familiar with the work of the headteacher, participate in the organization and guidance of educational activities such as moral education and mental health education, and gain a positive experience.

6. Comprehensive Education: The students should have the awareness of cultivating people from the whole educating process and the awareness of cultivating people in all directions; they should understand the value of educating people in the science of information technology, and understand the connotation and methods of educating people in school culture and educational activities. They can combine information technology learning, ability development and moral cultivation in educational practice, consciously carry out educational activities in information technology teaching, actively participate in organizing theme education and community activities, and effectively educate and guide students.

7. Learning and Reflection: The students should have a lifelong learning and professional development awareness, understand the core content and development path of information technology teachers'

professional development, and be able to formulate core content and professional development plan for self-development in combination with the employment vision; pre-employment learning and post-employment learning are connected to continuously improve professional competence; they should develop self-learning habits and possess self-management ability. The students are expected to be good at teaching reflection, using critical thinking methods to develop the habit of reflecting and analyzing problems from the perspectives of student learning, curriculum teaching, and subject understanding; they should be familiar with the current situation of basic education reform practice, and have the teaching and research literacy with reflection ability and inquiry ability as the core; they should have the ability to develop and innovate in the field of basic information technology education.

8. Exchange and Cooperation: The students should understand the role of the learning community, have the spirit of teamwork, master the communication and cooperation skills, and actively carry out group mutual assistance and cooperative learning; they should be good at communicating and cooperating with peers inside and outside the school; they should help each other and improve together.

三、主干学科

Ⅲ. Core Disciplines

计算机科学与技术

Computer Science and Technology

四、主干课程

Ⅳ. Main Courses

C 语言程序设计、面向对象程序设计、数据结构与算法、数据库原理及应用、操作系统、计算机网络、计算思维、信息技术学科教学论、信息技术学科教材分析与教学设计、信息技术学科教学技能训练

Programming in C, Object-oriented Programming, Data Structures and Algorithms, Principles and Applications of Database System, Operating Systems, Computer Networks, Computational Thinking, Discipline Pedagogy, Disciplinary Textbook Analysis and Teaching Design, Pedagogical Training

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

164 学分

164 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Credit	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	37	49	22.6%	29.9%
	通识教育选修课 Liberal Studies Elective Courses	12		7.3%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	18	32	11.0%	19.5%
	本学科基础课 Disciplinary Foundation Courses	14		8.5%	
专业课程模块 Specialized Courses	专业必修课 Specialized Compulsory Courses	36	50	22.0%	30.5%
	专业限定选修课 Specialized Restrictive Elective Courses	10		6.1%	
	专业任意选修课 Specialized Free Elective Courses	4		2.4%	
教师教育模块 Teacher-training Courses	公共必修课 General Compulsory Courses	11	16	6.7%	9.7%
	学科必修课 Disciplinary Compulsory Courses	5		3.0%	
	选修课 Elective Courses	2		——	
实践教学模块 Practice Work	必修课 Compulsory Courses	17	17	10.4%	10.4%
合计 Total		164		100%	
说明 Notes	1. 专业必修课（包括学科基础课程和专业必修课程）共 19 门，其中双语课程 3 门，全英语课程 2 门。 2. 专业选修课共 32 门，其中专业限定选修课 14 门，专业任意选修课 18 门。本专业学生应从专业限定选修课中至少选修 10 学分，从专业任意选修课程中至少选修 4 学分。 3. 包含实验的课程共 44 门，其中独立开设的实验课 8 门，其中既有理论又有实验的课程 36 门，含综合性、设计性实验的课程 36 门，占实验课程总数的 82%。 4. 本专业学科专业课程包括学科基础模块课程、专业课程模块课程和教师教育模块、实践教学模块中的学科专业课程，其学分占总学分比例为 62%。 5. 实践教学环节包括实践教学模块课程以及其余各模块课程中的实验/实践部分，其学分占总学分比例为 38.1%。 1. There are 19 specialized compulsory courses (including Specialized Compulsory Courses and Disciplinary Foundation Courses) in total, including 3 bilingual courses and 2 English courses. 2. There are 32 specialized elective courses, including 14 specialized restrictive elective courses and 18 specialized free elective courses. Undergraduates of this specialty should obtain at least 10 credits by taking Specialized Restrictive Elective Courses and at least 4 credits by taking Specialized Free Elective Courses. 3. There are 44 experimental courses in total including 8 independent experimental courses, 36 theoretical and experimental courses, 36 comprehensive and designable experimental courses which is 82% of the total experimental courses. 4. The disciplinary specialized courses of this specialty include Disciplinary Foundation Courses, Specialized Courses, and the specialized disciplinary courses in Teacher-training Courses and Practice Work, and the credits of disciplinary specialized courses account for 62% of the total credits. 5. The practical teaching section includes the courses in Practice work and the experimental/practical part of the other course modules, and its credits account for 38.1% of the total credits.					

八、计算机科学与技术（师范）专业本科教学计划表

Ⅷ. Teaching Scheme for Computer Science and Technology Undergraduate Candidates

（一）通识教育模块（49 学分）

（Ⅰ）Liberal Studies Courses (49 credits)

1. 通识教育必修课（37 学分）

1. Liberal Studies Compulsory Courses (37 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts	1	1	18		2	考查 Quiz
0211012	大学语文（理、艺、体） College Chinese(for Science, Art and P.E. Specialties)	2	2	36		2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory and Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses (12 credits)

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses; see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（32 学分）

（Ⅱ）Disciplinary Foundation Courses (32 credits)

1. 相关学科基础课（18 学分）

1. Related Disciplinary Foundation Courses (18 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1221006	高等数学（一） Advanced Mathematics 1	1	4	72	0	4	考试 Exam.
1221009	线性代数 Linear Algebra	1	3	54	0	3	考试 Exam.
1221014	高等数学（二） Advanced Mathematics 2	2	4	72	0	4	考试 Exam.

1221011	离散数学 Discrete Mathematics	2	3	54	0	3	考试 Exam.
1221999	普通物理及实验 General Physics and Experiments	2	4	54	36	3	考试 Exam.

2. 本学科基础课（14 学分）

2. Disciplinary Foundation Courses (14 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1250034	计算机学科导论 Introduction to Computer Science	1	4	54	36	3	考试 Exam.
1222999	C 语言程序设计 Programming in C	1	5	72	36	4	考试 Exam.
1222031	数据结构与算法 Data Structures and Algorithms	3	5	72	36	4	考试 Exam.

（三）专业课程模块（50 学分）

（Ⅲ）Specialized Courses (50 credits)

1. 专业必修课程（36 学分）

1. Specialized Compulsory Courses (36 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1241405	面向对象程序设计 Object-oriented Programming	2	4	54	36	3	考试 Exam.
1241412	电路基础 Fundamentals of Electric Circuits	2	3.5	54	18	3	考试 Exam.
1241041	数据库原理及应用 Principles and Applications of Database System	3	4	54	36	3	考试 Exam.
1241404	数字逻辑 Digital Logic	3	3.5	54	18	3	考试 Exam.
1241023	概率论与数理统计 Probability and Statistics	4	3	54	0	3	考试 Exam.
1241406	计算机组成原理 Principles of Computer Organization	4	3.5	54	18	3	考试 Exam.
1241415	计算机网络 Computer Networks	4	4.5	72	18	3	考试 Exam.
1241002	研究方法与学术论文写作指导 Research Methods and Academic Writing	5	1	18	0	2	考试 Exam.
1241408	操作系统（一） Operating Systems 1	5	3.5	54	18	3	考试 Exam.
1241411	计算思维 Computational Thinking	5	2	18	36	2	考查 Quiz
1241996	编译原理 Compiling Principles	5	3.5	54	18	3	考试 Exam.

2. 专业限定选修课程（10 学分）

2. Specialized Restrictive Elective Courses (10 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
教师教育（卓越教师）方向课程： Courses of Teacher-Training (Outstanding Teachers) dimension:							

1242417	JAVA 语言程序设计 Programming in JAVA	3	3	36	36	2	考试 Exam.
1242418	软件工程 Software Engineering	3	2	36	0	2	考查 Quiz
1242424	电子技术基础 Fundamentals of Electronic Technology	3	2.5	36	18	2	考试 Exam.
1242409	多媒体教学设计艺术 The Art of Multimedia Teaching Design	4	1.5	18	18	2	考查 Quiz
1242075	教学动画设计 Animation Design for Teaching	4	1.5	18	18	2	考查 Quiz
1242428	网络工程 Network Engineering Practice	5	3	36	36	2	考查 Quiz
1242073	教育大数据应用 Applications of Education Big Data	5	1.5	18	18	2	考查 Quiz
1242074	虚拟现实教学应用 Virtual Reality and its Applications in Education	5	1.5	18	18	2	考查 Quiz
1242076	Office 可视化集成开发 Integrated Visual Development for Office	6	1.5	18	18	2	考查 Quiz
1242077	微课设计与实践 Microlecture Design and Practice	6	1.5	18	18	2	考查 Quiz
1242078	教育统计方法与技术 Education statistics: Methods and Technologies	6	2.5	36	18	2	考查 Quiz
1242079	教育信息系统设计与开发 Education Information System Design and Development	6	1.5	18	18	2	考查 Quiz
1242084	教育机器人 Education Robot	6	2.5	36	18	2	考查 Quiz
1242085	知识产权 Intellectual Property	7	1	18	0	2	考查 Quiz

3. 专业任意选修课程（4 学分）

3. Specialized Free Elective Courses of School of Computer Science (4 credits)

详见学院专业拓展课程。

See Specialized Non-restrictive Elective Courses of School of Computer Science for details.

（四）教师教育模块（16 学分）

（Ⅳ） Teacher-training Courses (16 credits)

1. 公共必修课程（11 学分）

1. General Compulsory Courses (11 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2431028	心理学基础 The Basis of Psychology	2	1	18		2	考试 Exam.
2431029	儿童发展 Child Development	2	1	18		2	考试 Exam.
2431030	中学生认知与学习 The Cognition and Learning of Middle School Students	3	1	18		2	考试 Exam.
2431031	中学生品德发展与道德教育 Moral Development and Moral Education for Middle School Student	3	1	18		2	考试 Exam.
2431032	中学生心理辅导 Psychological Guidance for Middle School Students	4	1	18		2	考试 Exam.
1531128	中学教育学基础 Foundation of Middle School Education	4	3	54		3	考试 Exam.
1531129	现代教育技术（网络教学） Contemporary Educational Technology (Online Course)	4	1	18		1	考试 Exam.
1531130	教师专业发展与职业道德 Teacher’s Professional Development & Professional Ethics	5	2	36		2	考试 Exam.

2. 学科必修课程（5 学分）

2. Disciplinary Compulsory Courses (5 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1231114	信息技术学科教学论 Discipline Pedagogy	2	3	54		3	考试 Exam.
1231115	信息技术学科教材分析与教学设计 Disciplinary Textbook Analysis and Teaching Design	4	2	36		2	考试 Exam.

3. 选修课程（见通识教育选修课程“教师教育”系列）

3. Elective Courses (See Teacher-training Series of Liberal Studies Elective Courses)

（五）实践教学模块（17 学分）

（Ⅴ）Practice Work (17 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1250019	教育见习 School Visits	1-6	1				考查 Quiz
1250017	必读书目阅读 Required Readings	1-8	1				考查 Quiz
1250028	教师教学基本技能训练 Training of Teachers’ Basic Teaching Skills	3-7	1				考查 Quiz
1250021	教育实践与社会调查 Educational Practice and Social Survey	4-7	1				考查 Quiz
1250018	信息技术学科教学技能训练 Pedagogical Training	4	1				考试 Exam.
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1250031	教育实习 Teaching Practice	7	6				考查 Quiz
1250033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

计算机科学与技术专业（创新实验班）简介

Introduction to the Specialty of Computer Science and Technology (Innovative and Experimental Class)

计算机科学与技术专业（创新实验班），学制 4 年，专业属性为非师范专业。2012 年依托计算机科学与技术专业（陕西省特色专业）学科优势组建，体现了陕西师范大学重点建设的、以突出创新实践为特色的创新教育与人才培养新形式。

目前，该专业在职任课教师 26 人，其中教授 7 人，副教授 11 人，均具有博士学位或硕士学位，拥有陕西省实验教学示范中心、大数据实验室，以及省内外多个专业实习基地。

该专业分为“网络信息安全”和“数据科学与人工智能”两个方向，旨在培养掌握计算机科学与技术基础理论、基本知识和基本技能与方法的，在计算机领域具有创新意识、创新能力的复合型高级专门人才。网络信息安全方向侧重培养学生在信息安全、网络通信、网络建设等方面的应用实践能力和科学研究能力；数据科学与人工智能方向侧重培养学生在数据科学与人工智能相关领域进行大数据采集、存储、处理、分析的工程实践能力和科学研究能力。

Computer Science and Technology (Experimental and Innovative Class) offers a 4-year non-teacher-training undergraduate program. It comes from the program of Computer Science and Technology (Shaanxi Province's Characteristic Discipline) established since 2012. As one of the key programs of Shaanxi Normal University, it is a new form of cultivation and training in order to highlight innovative practice features.

Currently, there are 20 faculty members, including 4 professors and 6 associate professors. All faculty members hold doctoral degrees or master’s degrees. The undergraduate computer lab for practice is certificated as Shaanxi provincial experimental teaching demonstration centre. And there is also a plurality of specialty practice bases with long-term partnership inside and outside the province.

This program trains students to become high-level composite innovative talents who can not only master the basic theories, knowledge and skills of computer science and technology including computer foundation, network communication and information system design and development etc., but also have the application capacity of big data, image processing and information security, and the accomplishment of research method, team collaboration and innovation venture. The undergraduates will be able to work in computer science and technology application and research in the areas of government departments, IT business enterprises, and scientific research units.

计算机科学与技术专业（创新实验班）——网络信息安全方向

The Specialty of Computer Science and Technology (Innovative and Experimental Class) ——Network Information Security Orientation

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具有突出的科学研究潜质、优秀的创新创业素质和开阔的国际视野，掌握计算机科学与技术学科基本理论、基本知识和基本技能，具有在计算机系统、网络通信和信息安全等领域开展科学研究、系统研发和工程应用的专业能力，具备良好的人文素质、职业道德、自主学习能力和行业竞争力的复合型高级专门人才。

For the purpose of enhancing morality and fostering talents, the Computer Science and Technology (Experimental and Innovative Class) aims to cultivate students to have a comprehensive moral, intellectual, physical and aesthetic development, as well as moral quality, knowledge construction, highlight of capacity potential, and international vision. The students should master basic theories of computer science, basic knowledge and basic skills. Its graduates can enter high-level institutions as postgraduates, as well as work in computer system, network communication and information security in the units such as scientific research departments, education departments and business enterprises with highlight of capacity potential, and competition.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国；掌握马列主义、毛泽东思想、邓小平理论、“三个代表”重要思想、科学发展观和习近平新时代中国特色社会主义思想理论体系的基本观点和方法；能践行和弘扬社会主义核心价值观；具有科学的世界观、正确的人生观和价值观以及高尚的道德品质。

2. 掌握计算机科学与技术的基本理论、基本知识和基本技能，了解计算机网络及信息安全技术领域的发展动态，能够设计、研发和管理计算机网络系统，具备网络技术、信息安全的工程实践能力。

3. 具备获取知识的能力、分析问题和解决问题的能力，具备创新意识和创造能力以及与人合作共事的能力；具备科学、合理的知识、能力和素质结构，具有继续深造的潜质。

4. 具有健康的体魄和一定的军事基本知识、基本技能，达到国家规定的《大学生体育合格标准》和军事训练标准；养成终生锻炼身体的习惯。

5. 具有良好的人文素质与科学素质，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力。

Within a period of 4-6 years to obtain all the credits in the teaching scheme, students of this specialty also need to meet the following basic requirements:

1. Undergraduates should have deep love with Chinese Communist Party and our motherland; master the basic standpoints and methods of Marxism-Leninism, Mao Zedong Thoughts, Deng Xiaoping Theory, the

important thought of " Three Represents " , Scientific Concepts on Development and Xi Jinping's New Era of Socialism with Chinese Characteristics; can practice and carry forward the core values of socialism; be of the scientific world outlook, correct outlook on life and values, and noble moral character.

2. Undergraduates should have a grounding in natural sciences, humanities and social sciences, and be proficient in English and reach the requirement of CET-4. Undergraduates should have a solid mastery of basic principles and knowledge of computer science and technology, especially the development and trends in computer and network technology, and have the ability to design, develop, operate and manage networks.

3. Undergraduates should have the ability to acquire knowledge, to analyze and solve problems, to innovate and create, and to cooperate with people. They should also obtain scientific and reasonable structure of knowledge, ability and quality, and a potential for the further studies.

4. Undergraduates should have a healthy physique and some basic military knowledge and skills, meet *the National Standards of Physical Education* and military training, and develop lifelong exercise habits.

5. Undergraduates should have good characters and scientific literacy, sound personality and good psychological quality, strong innovative spirits and practical abilities.

三、主干学科

Ⅲ. Core Discipline

计算机科学与技术

Computer Science and Technology

四、主干课程

Ⅳ. Main Courses

C 语言程序设计、面向对象程序设计、数据结构、数据库原理、软件工程、计算机组成原理、操作系统、计算机网络、算法设计与分析、Internet 协议原理与设计、编译原理、网络工程、网络安全、计算机通信原理、路由交换技术与实践

Programming in C, Object-oriented Programming, Data Structures, Principles of Database System, Software Engineering, Fundamentals of Electric Circuits, Principles of Computer Organization, Operating Systems, Computer Networks, Algorithm Design and Analysis, Principle and Design of Internet Protocols, Compiling Principles, Network Engineering, Network Security, Computer Communication Principles, Routing and Switching

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

161.5 学分

161.5 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课程类别 Course Catalogue		学分及比例 Credits and Percentage			
		学分 Cre.	小计 Sub-Total	占总学分比例 Percentage in Total Credits	小计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	37	49	23.0%	30.4%
	通识教育选修课 Liberal Studies Selective Courses	12		7.4%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	18	32	11.1%	19.8%
	本学科基础课 Disciplinary Foundation Courses	14		8.7%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	37.5	64.5	23.2%	39.9%
	专业方向课程 Specialized Orientation Courses	21		13.0%	
	专业拓展课程 Specialized Development Courses	6		3.7%	
专业技能模块 Professional Skills Courses	专业技能课程 Professional Skills Courses	4	4	2.5%	2.5%
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.4%	7.4%
合计 Total		161.5		100%	

说明 Notes	1. 专业必修课（包括学科基础课和专业核心课）共 19 门。 2. 专业选修课共 35 门，其中专业方向课 17 门，专业拓展课 18 门。本专业学生应从专业方向课中至少选修 21 学分，从专业拓展课中至少选修 6 学分。 3. 实验课程共 35 门，其中独立开设的实验课 1 门，既有理论又有实验的课程 34 门，含综合性、设计性实验的课程 31 门，占实验课程总数的 88.6 %。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 25.0%。 1. There are 19 Specialized Compulsory Courses (including Specialized Compulsory Courses and Disciplinary Foundation Courses). 2. There are 35 specialized elective courses, including 17 Specialized Orientation Courses and 18 Specialized Development Courses. Undergraduates of this specialty should obtain at least 21 credits by taking Specialized Orientation Courses and at least 6 credits by taking Specialized Development Courses. 3. There are 35 experimental courses, including 1 independent experimental courses, 34 theoretical and designable experimental courses which is 88.6% of the total experimental courses. 4. The practice work content of this specialty includes practice work module and other course modules. The proportion of credit in practice work is 25.0%.

八、计算机科学与技术专业（创新实验班）本科教学计划表

Ⅷ. Teaching Scheme for Computer Science and Technology (Experimental and Innovative Class) Undergraduate Candidates

（一）通识教育模块（49 学分）

（Ⅰ）Liberal Studies Courses (49 credits)

1. 通识教育必修课（37 学分）

1. Liberal Studies Compulsory Courses (37 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts	1	1	18		2	考查 Quiz
0211012	大学语文(理、艺、体) College Chinese (for Science, Art and P.E. Specialties)	2	2	36		2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses (12 credits)

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses，see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University*.

（二）学科基础模块（32 学分）

（Ⅱ） Disciplinary Foundation Courses (32 credits)

1. 相关学科基础课（18 学分）

1. Related Disciplinary Foundation Courses (18 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1221006	高等数学（一） Advanced Mathematics 1	1	4	72	0	4	考试 Exam.

1221009	线性代数 Linear Algebra	1	3	54	0	3	考试 Exam.
1221014	高等数学（二） Advanced Mathematics 2	2	4	72	0	4	考试 Exam.
1221011	离散数学 Discrete Mathematics	2	3	54	0	3	考试 Exam.
1221999	普通物理及实验 General Physics and Experiment	2	4	54	36	3	考试 Exam.

2. 本学科基础课（14 学分）

2. Disciplinary Foundation Courses (14 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1222034	计算机学科导论 Introduction to Computer Science	1	4	54	36	3	考试 Exam.
1222999	C 语言程序设计 Programming in C	1	5	72	36	3	考试 Exam.
1222033	数据结构 Data Structures	2	5	72	36	4	考试 Exam.

（三）专业课程模块（64.5 学分）

（Ⅲ）Specialized Courses (64.5 credits)

1. 专业核心课程（37.5 学分）

1. Specialized Core Courses (37.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1241405	面向对象程序设计 Object-oriented Programming	2	4	54	36	3	考试 Exam.
1241409	数据库原理 Principles of Database System	3	4	54	36	3	考试 Exam.
1241412	电路基础 Fundamentals of Electric Circuits	3	3.5	54	18	3	考试 Exam.
1241413	软件工程 Software Engineering	3	3	54	0	3	考试 Exam.
1241023	概率论与数理统计 Probability and Statistics	4	3	54	0	3	考试 Exam.
1241408	操作系统（一） Operating Systems1	4	3.5	54	18	3	考试 Exam.
1241414	计算机组成原理 Principles of Computer Organization	4	4.5	72	18	4	考试 Exam.
1241415	计算机网络 Computer Networks	4	4.5	72	18	4	考试 Exam.
1241416	算法设计与分析 Algorithm Design and Analysis	5	3	54	0	3	考查 Quiz
1241002	研究方法与学术论文写作指导 Research Methods and Academic Writing	6	1	18	0	2	考查 Quiz
1241996	编译原理 Compiling Principles	6	3.5	54	18	3	考试 Exam.

2. 专业方向课程（21 学分）

2. Specialized Orientation Courses (21 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
创新人才培养课程： Courses of Innovative Talents Cultivation							
1242424	电子技术基础 Fundamentals of Electronic Technology	3	2.5	36	18	2	考试 Exam.
1242426	汇编语言程序设计 Assembly Language Programming	4	3	36	36	2	考试 Exam.
1242431	高级英语 Advanced English	5	3	54	0	3	考查 Quiz
1242432	网络安全 Network Security	6	2.5	36	18	2	考查 Quiz
1242460	高等数学（综合提高） Advanced Mathematics (Comprehensive Improvement)	6	2	36	0	2	考查 Quiz
创业人才培养课程： Courses of Entrepreneurial Talents Cultivation							
1242417	JAVA 语言程序设计 Programming in Java	3	3	36	36	2	考试 Exam.
1242427	可视化程序设计 Visual Programming	4	3	36	36	2	考查 Quiz
1242428	网络工程 Network Engineering	5	3	36	36	2	考查 Quiz
1242458	Android 应用开发 Android Application Development	5	3	36	36	2	考查 Quiz
1242405	嵌入式系统 Embedded System	6	3	36	36	2	考查 Quiz
共选课程： Common Selection Courses							
1242425	数字逻辑 Digital Logic	3	3.5	54	18	3	考试 Exam.
1242470	路由交换技术与实践 Routing and Switching	5	2.5	36	18	2	考查 Quiz
1242430	数据库应用 Database Applications	5	2	18	36	2	考查 Quiz
1242420	Web 信息系统设计与开发 Design and Development of Web Information Systems	5	3	36	36	2	考查 Quiz
1242433	计算机通信原理 Computer Communication Principles	6	3	54	0	3	考试 Exam.
1242469	高性能计算 High Performance Computing	6	3	36	36	2	考查 Quiz
1242462	网络技术研究与应用 Network Technology Research and Application	6	2	36	0	2	考查 Quiz

3. 专业拓展课程（6 学分）

3. Specialized Development Courses (6 credits)

详见学院专业拓展课程。

See Specialized Development Courses of the School of Computer Science

（四）专业技能模块（3 学分）
（Ⅳ） Professional Skills Courses(3 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1231118	Internet 协议原理与设计 Principle and Design of Internet Protocols	5	4	72	0	4	考查 Quiz

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work(12 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1250017	必读书目阅读 Required Readings		1				考查 Quiz
1250032	专业见习与实习 Professional Visits and Practice	1-7	4				考查 Quiz
1250021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1250033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

计算机科学与技术专业（创新实验班）
——数据科学与人工智能方向
The Specialty of Computer Science and Technology (Innovative and Experimental Class)
——Data Science and Artificial Intelligence Orientation

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具有国际视野，扎实掌握数据科学与人工智能相关学科的基本理论、基础知识和基本技能，熟练掌握大数据采集、存储、处理与分析技术，具备良好的人文素质、职业道德、自主学习能力、工程实践能力的复合型高级专门人才。

In enhancing morality and fostering talents for the purpose, the specialty mainly cultivates students to be the composite innovative talent who is of the firm and correct political direction, sound in body and mind, observing the law and discipline, of the all-round development of morality, intelligence physique and aesthetic, of the international perspective, of the solid grasp of the basic theories, basic knowledge and basic skills in the related disciplines of data science and artificial intelligence, familiar with big data acquisition, storage, processing and analysis technology, of the good humanistic quality, professional ethics, independent learning ability, engineering practice ability.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国；掌握马列主义、毛泽东思想、邓小平理论、“三个代表”重要思想、科学发展观和习近平新时代中国特色社会主义思想理论体系的基本观点和方法；能践行和弘扬社会主义核心价值观；具有科学的世界观、正确的人生观和价值观以及高尚的道德品质。

2. 掌握数据科学与人工智能领域的相关知识，拥有大数据智能系统设计与研发能力，实现知识、能力与素质的协调发展，具备数据管理、数据分析、智能处理等方面的工程实践能力。

3. 具备获取知识的能力、分析问题和解决问题的能力，具备创新意识和创造能力以及与人合作共事的能力；具备科学、合理的知识、能力和素质结构，具有继续深造的潜质。

4. 具有健康的体魄和一定的军事基本知识、基本技能，达到国家规定的《大学生体育合格标准》和军事训练标准；养成终生锻炼身体的习惯。

5. 具有良好的人文素质与科学素质，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力。

1. Undergraduates should have deep love with Chinese Communist Party and our motherland; master the basic standpoints and methods of Marxism-Leninism, Mao Zedong Thoughts, Deng Xiaoping Theory, the important thought of " Three Represents " , Scientific Concepts on Development and Xi Jinping's New Era of Socialism with Chinese Characteristics; can practice and carry forward the core values of socialism; be of the scientific world outlook, correct outlook on life and values, and noble moral character.

2. Undergraduates should grasp the relative knowledge in the area of data science and artificial

intelligence, have the ability of designing and developing the intelligent system of big data, be of the coordinated development of knowledge, ability and quality, be of the engineering ability in the fields of data management, data analysis, intelligent processing, etc.

3. Undergraduates should have the ability to acquire knowledge, to analyze and solve problems, to innovate and create, and to cooperate with people. They should also obtain scientific and reasonable structure of knowledge, ability and quality, and a potential for the further studies.

4. Undergraduates should have a healthy physique and some basic military knowledge and skills, meet *the National Standards of Physical Education* and military training, and develop lifelong exercise habits.

5. Undergraduates should have good characters and scientific literacy, sound personality and good psychological quality, strong innovative spirits and practical abilities.

三、主干学科

Ⅲ. Core Discipline

计算机科学与技术

Computer Science and Technology

四、主干课程

Ⅳ. Main Courses

C 语言程序设计、数据结构、数据库原理、软件工程、电路基础、计算机组成原理、操作系统、计算机网络、数值优化、人工智能、大数据计算系统、机器学习、数据挖掘

Programming in C, Data Structures, Principles of Database System, Software Engineering, Fundamentals of Electric Circuits, Principles of Computer Organization, Operating Systems, Computer Networks, Numerical Optimization, Artificial Intelligence, Computational System of Big Data, Machine Learning, Data Mining

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

163.5 学分

163.5 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课程类别 Course Catalogue		学分及比例 Credits and Percentage			
		学分 Cre.	小计 Sub-Total	占总学分比例 Percentage in Total Credits	小计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	37	49	22.6%	30.0%
	通识教育选修课 Liberal Studies Elective Courses	12		7.3%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	18	32	11.0%	19.6%
	本学科基础课 Disciplinary Foundation Courses	14		8.6%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	41.5	64.5	25.4%	39.4%
	专业方向课程 Specialized Orientation Courses	17		10.4%	
	专业拓展课程 Specialized Development Courses	6		3.7%	
专业技能模块 Professional Skills Courses	专业技能课程 Professional Skills Courses	6	6	3.7%	3.7%
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.3%	7.3%
合计 Total		163.5		100%	

说明
Notes

1. 专业必修课（包括学科基础课和专业核心课）共 21 门。

2. 专业选修课共 31 门，其中专业方向课 13 门，专业拓展课 18 门。本专业学生应从专业方向课中至少选修 17 学分，从专业拓展课中至少选修 6 学分。

3. 实验课程共 32 门，其中独立开设的实验课 2 门，即有理论又有实验的课程 30 门，含综合性、设计性实验的课程 30 门，占实验课程总数的 94 %。

4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 25.0%。

1. There are 21 Specialized Compulsory Courses (including Specialized Compulsory Courses and Disciplinary Foundation Courses).

2. There are 31 specialized elective courses, including 13 Specialized Orientation Courses and 18 Specialized Development Courses. Undergraduates of this specialty should obtain at least 17 credits by taking Specialized Orientation Courses and at least 6 credits by taking Specialized Development Courses.

3. There are 32 experimental courses, including 2 independent experimental courses, 30 theoretical and designable experimental courses which is 94% of the total experimental courses.

4. The practice work content of this specialty includes practice work module and other course modules. The proportion of credit in practice work is 25.0%.

八、计算机科学与技术专业（创新实验班）（数据科学与人工智能方向）本科教学计划表

Ⅷ. Teaching Scheme for Computer Science and Technology (Experimental and Innovative Class) Undergraduate Candidates (Data Science and Artificial Intelligence Orientation)

（一）通识教育模块（49 学分）

（Ⅰ）Liberal Studies Courses (49 credits)

1. 通识教育必修课（37 学分）

1. Liberal Studies Compulsory Courses (37 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.

1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts	1	1	18		2	考查 Quiz
0211012	大学语文(理、艺、体) College Chinese (for Science, Art and P.E. Specialties)	2	2	36		2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses (12 credits)

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses，see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University*.

（二）学科基础模块（32 学分）

（Ⅱ）Disciplinary Foundation Courses (32 credits)

1. 相关学科基础课（18 学分）

1. Related Disciplinary Foundation Courses (18 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1221006	高等数学（一） Advanced Mathematics 1	1	4	72	0	4	考试 Exam.
1221009	线性代数 Linear Algebra	1	3	54	0	3	考试 Exam.
1221014	高等数学（二） Advanced Mathematics 2	2	4	72	0	4	考试 Exam.
1221011	离散数学 Discrete Mathematics	2	3	54	0	3	考试 Exam.
1221999	普通物理及实验 General Physics and Experiment	2	4	54	36	3	考试 Exam.

2. 本学科基础课（14 学分）

2. Disciplinary Foundation Courses (14 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1222034	计算机学科导论 Introduction to Computer Science	1	4	54	36	3	考试 Exam.
1222999	C 语言程序设计 Programming in C	1	5	72	36	4	考试 Exam.
1222033	数据结构 Data Structures	2	5	72	36	4	考试 Exam.

（三）专业课程模块（67.5 学分）

（Ⅲ）Specialized Courses (67.5 credits)

1. 专业核心课程（41.5 学分）

1. Specialized Core Courses (41.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1241405	面向对象程序设计 Object-oriented Programming	2	4	54	36	3	考试 Exam.
1241408	操作系统（一） Operating Systems1	3	3.5	54	18	3	考试 Exam.
1241412	电路基础 Fundamentals of Electric Circuits	3	3.5	54	18	3	考试 Exam.
1241413	软件工程 Software Engineering	3	3	54	0	3	考试 Exam.
1241023	概率论与数理统计 Probability and Statistics	3	3	54	0	3	考试 Exam.
1241031	数值优化 Numerical Optimization	3	2	36	0	2	考查 Quiz
1241032	人工智能 Artificial Intelligence	3	2	36	0	2	考查 Quiz
1241409	数据库原理 Principles of Database System	4	4	54	36	3	考试 Exam.
1241414	计算机组成原理 Principles of Computer Organization	4	4.5	72	18	4	考试 Exam.
1241415	计算机网络 Computer Networks	4	4.5	72	18	4	考试 Exam.
1241033	大数据计算系统 Computational System of Big Data	4	3.5	54	18	2	考查 Quiz
1241416	算法设计与分析 Algorithm Design and Analysis	5	3	54	0	3	考查 Quiz
1241002	研究方法与学术论文写作指导 Research Methods and Academic Writing	6	1	18	0	2	考查 Quiz

2. 专业方向课程（17 学分）

2. Specialized Orientation Courses (17 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
创新人才培养课程： Courses of Innovative Talents Cultivation							
1242424	电子技术基础 Fundamentals of Electronic Technology	3	2.5	36	18	2	考试 Exam.
1242463	数据挖掘 Data Mining	4	2.5	36	18	2	考查 Quiz

1242464	统计学 Statistics	4	2	36	0	2	考试 Exam.
1242431	高级英语 Advanced English	5	3	54	0	3	考查 Quiz
1242465	机器学习 Machine Learning	5	4	54	36	2	考查 Quiz
1242460	高等数学（综合提高） Advanced Mathematics (Comprehensive Improvement)	6	2	36	0	2	考查 Quiz
创业人才培养课程： Courses of Entrepreneurial Talents Cultivation							
1242417	JAVA 语言程序设计 Programming in Java	3	3	36	36	2	考试 Exam.
1242458	Android 应用开发 Android Application Development	5	3	36	36	2	考查 Quiz
1242466	云计算 Cloud Computing	6	2.5	36	18	2	考查 Quiz
共选课程： Common Optional Courses							
1242425	数字逻辑 Digital Logic	3	3.5	54	18	3	考试 Exam.
1242467	大数据可视化 Visualization of Big Data	4	2.5	36	18	2	考查 Quiz
1242468	分布式系统 Distributed System	6	2	36	0	2	考查 Quiz
1242469	高性能计算 High Performance Computing	6	3	36	36	2	考查 Quiz

3. 专业拓展课程（6 学分）

3. Specialized Development Courses (6 credits)

详见学院专业拓展课程。

See Specialized Development Courses of the School of Computer Science

（四）专业技能模块（6 学分）

（Ⅳ）Professional Skills Courses(6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1231116	大数据应用 Applications of Big Data	5	3	54	0	3	考查 Quiz
1231117	深度学习应用 Applications of Deep Learning	6	3	54	0	3	考查 Quiz

（五）实践教学模块（12 学分）

（Ⅴ） Practice Work (12 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1250017	必读书目阅读 Required Readings		1				考查 Quiz
1250032	专业见习与实习 Professional Visits and Practice	1-7	4				考查 Quiz
1250021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1250033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

软件工程专业简介
Introduction to the Specialty of Software Engineering

软件工程专业，学制 4 年，专业属性为非师范专业。该专业始建于 2004 年，是我院独具特色的专业之一。

目前，该专业在职任课教师 26 人，其中教授 4 人，副教授 13 人，均具有博士学位，拥有陕西省实验教学示范中心、软件工程实验室，以及陕西省软件测评中心等多个专业实习基地。

该专业主要培养系统掌握计算机基础理论、软件开发、软件管理等计算机应用技术，具备运用先进的工程化方法、技术和工具从事软件分析、设计、开发、维护等工作，以及工程项目的组织与管理能力、团队协作能力的高层次实用型、复合型软件工程技术和管理的复合型高级专门人才。

The Specialty of Software Engineering is a 4-year non-teacher-training undergraduate program. This specialty was established in 2004, and is one of the feature majors of the School of Computer Science.

Currently, there are 26 faculty members, including 4 professors and 13 associate professors. All faculty members hold doctoral degrees. The specialty has Shaanxi provincial experimental teaching demonstration centre, software engineering laboratory and some specialty practice bases such as Software Evaluation Center of Shaanxi province.

This specialty trains the students to become advanced practical, compound software engineering technology and management talents who can not only systematically master computer basic theory, software development, software management and computer application technology, but also use the advanced engineering methods, techniques and tools in the software analysis, design, development, maintenance and other work. They may have the organization and management ability of project and team cooperation ability as well.

软件工程专业
The Specialty of Software Engineering

一、培养目标
Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具有国际视野，扎实掌握计算机基础理论、软件开发、软件管理等基础知识和基本技能，能够运用先进的工程化方法、技术和工具从事软件分析、设计、开发、维护等工作，具备良好的人文素质、职业道德、自主学习能力、工程项目的组织与管理能力、团队协作能力的复合型高级专门人才。

In enhancing morality and fostering talents for the purpose, the main objective of this specialty is to cultivate students to have good physical and mental health, law-abiding, comprehensive development of moral, intellectual, physical and aesthetic and have international vision. The students can grasp the basic knowledge and basic skills of computer basic theory, software development, software management and so on. The students can also use advanced engineering methods, techniques and tools to engage in software analysis, design, development and maintenance. The students will become the excellent software engineers who have good humanistic quality, professional ethics, independent learning ability as well as organization, management and teamwork ability of engineering projects.

二、毕业要求
Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国；掌握马列主义、毛泽东思想、邓小平理论、“三个代表”重要思想、科学发展观和习近平新时代中国特色社会主义思想理论体系的基本观点和方法；能践行和弘扬社会主义核心价值观；具有科学的世界观、正确的人生观和价值观以及高尚的道德品质。

2. 掌握软件工程相关理论、计算机软件系统分析与设计的基本方法和技术，了解计算机软件知识产权有关的法规，具有认真细致的工作作风、勇于创新和良好的团队合作精神，具备从事大型软件系统开发、组织和管理的能力。

3. 具备获取知识的能力、分析问题和解决问题的能力；具备创新意识和创造能力以及与人合作共事的能力；具备科学、合理的知识、能力和素质结构，具有鲜明的个性特征。

4. 具有健康的体魄和一定的军事基本知识、基本技能，达到国家规定的《大学生体育合格标准》和军事训练标准；养成终生锻炼身体的习惯。

5. 具有良好的人文素质与科学素质，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力。

Within a period of 4-6 years to obtain all the credits in the teaching scheme, students of this specialty also need to meet the following basic requirements:

1. Undergraduates should have deep love with Chinese Communist Party and our motherland; master the basic standpoints and methods of Marxism-Leninism, Mao Zedong Thoughts, Deng Xiaoping Theory, the important thought of “Three Represents”, Scientific Concepts on Development and Xi Jinping's New Era of

Socialism with Chinese Characteristics; can practice and carry forward the core values of socialism; be of the scientific world outlook, correct outlook on life and values, and noble moral character.

2. Undergraduates are expected to have a mastery of basic principles and knowledge of software engineering and the basic methodology of software system analysis and design; have the ability to develop, organize, and manage large software engineering projects; to have careful and meticulous work style, pioneering spirit, innovation and good team spirit; to understand related regulations about software intellectual property.

3. Undergraduates are expected to be equipped with the abilities such as knowledge acquisition, problem analysis and solving; to be provided with innovative consciousness, creative ability and cooperation ability; to have a scientific and rational knowledge, ability and quality structure, as well as distinct personality characteristics.

4. Undergraduates should have a healthy physique and some basic military knowledge and skills, meet th e National Standards of Physical Education and military training, and develop lifelong exercise habits.

5. Undergraduates should have good characters and scientific literacy, sound personality and good psychological quality, strong innovative spirits and practical abilities.

三、主干学科

Ⅲ. Core Disciplines

软件工程、计算机科学与技术

Software Engineering, Computer Science and Technology

四、主干课程

Ⅳ. Main Courses

C 语言程序设计、数据结构、面向对象程序设计、数据库原理、软件工程、JAVA 语言程序设计、计算机网络、操作系统、软件体系结构、软件需求工程、人机交互的软件工程方法、软件项目开发实训

Programming in C, Data Structure, Object-Oriented Programming, Principles of Database System, Software Engineering, Programming in JAVA, Computer Networks, Operating Systems, Software Architecture, Software Requirements Engineering, Software Engineering Method of Human-Computer Interaction, Software Project Development Practice

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

工学学士

Bachelor of Engineering

六、学分要求

Ⅵ. Total Credits

160 学分

160 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	37	49	23.1%	31.1%
	通识教育选修课 Liberal Studies Elective Courses	12		7.5%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	18	32	11.3%	20%
	本学科基础课 Disciplinary Foundation Courses	14		8.8%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	39	61	24.3%	38%
	专业方向课程 Specialized Orientation Courses	16		10.0%	
	专业拓展课程 Specialized Development Courses	6		3.8%	
专业技能模块 Professional Skills Courses	专业技能课程 Professional Skills Courses	6	6	3.8%	3.8%
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.5%	7.5%
合计 Total		160		100%	
说明 Notes	1. 专业必修课（包括学科基础课和专业核心课）共 20 门。 2. 专业选修课共 32 门，其中专业方向课 14 门，专业拓展课 18 门。本专业学生应从专业方向课中至少选修 16 学分，从专业拓展课中至少选修 6 学分。 3. 实验课程共 34 门，其中独立开设的实验课 2 门，既有理论又有实验的课程 32 门，含综合性、设计性实验的课程 32 门，占实验课程总数的 94 %。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 25%。 1. There are 20 Specialized Compulsory Courses (including Specialized Core Courses and Disciplinary Foundation Courses). 2. There are 32 specialized elective courses, including 14 Specialized Orientation Courses and 18 Specialized Development Courses. Undergraduates of this specialty should obtain at least 16 credits by taking Specialized Orientation Courses and at least 6 credits by taking Specialized Development Courses. 3. There are 34 experimental courses, including 2 independent experimental courses, 32 courses combined theory and experiment courses, and 32 theoretical and designable experimental courses which is 94% of the total experimental courses. 4. The practice work content of this specialty includes practice work module and other course modules. The proportion of credit in practice work is 25%.					

八、软件工程专业本科教学计划表

Ⅷ. Teaching Scheme for Software Engineering Undergraduate Candidates

（一）通识教育模块（49 学分）

（Ⅰ）Liberal Studies Courses（49 credits）

1. 通识教育必修课（37 学分）

1. Liberal Studies Compulsory Courses（37 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.

1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 Current Situation and Policy (1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文(理、艺、体) College Chinese (for Science, Art and P.E. Specialties)	2	2	36		2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（32 学分）

（Ⅱ）Disciplinary Foundation Courses (32 credits)

1. 相关学科基础课（18 学分）

1. Related Disciplinary Foundation Courses (18 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1221006	高等数学（一） Advanced Mathematics 1	1	4	72	0	4	考试 Exam.
1221009	线性代数 Linear Algebra	1	3	54	0	3	考试 Exam.
1221014	高等数学（二） Advanced Mathematics 2	2	4	72	0	4	考试 Exam.
1221011	离散数学 Discrete Mathematics	2	3	54	0	3	考试 Exam.
1221999	普通物理及实验 General Physics and Experiments	2	4	54	36	3	考试 Exam.

2. 本学科基础课（14 学分）

2. Disciplinary Foundation Courses (14 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1222034	计算机学科导论 Introduction to Computer Science	1	4	54	36	3	考试 Exam.
1222999	C 语言程序设计 Programming in C	1	5	72	36	4	考试 Exam.
1222033	数据结构 Data Structures	2	5	72	36	4	考试 Exam.

（三）专业课程模块（61 学分）

（Ⅲ）Specialized Courses (61 credits)

1. 专业核心课程（39 学分）

1. Specialized Core Courses (39 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1241405	面向对象程序设计 Object-oriented Programming	2	4	54	36	3	考试 Exam.
1241409	数据库原理 Principles of Database System	3	4	54	36	3	考试 Exam.
1241036	计算机组织与结构 Computer Organization and Structures	3	4.5	72	18	4	考试 Exam.
1241413	软件工程 Software Engineering	3	3	54	0	3	考试 Exam.
1241419	JAVA 语言程序设计 Programming in JAVA	3	3	36	36	2	考查 Quiz
1241415	计算机网络 Computer Networks	4	4.5	72	18	4	考试 Exam.
1241408	操作系统（一） Operating Systems 1	4	3.5	54	18	3	考试 Exam.
1241030	软件体系结构 Software Architecture	4	2	36	0	2	考试 Exam.
1241426	软件需求工程 Software Requirements Engineering	5	3	54	0	3	考试 Exam.
1241420	Web 信息系统设计与开发 Web Information System Design and Development	5	3	36	36	2	考查 Quiz
1241004	研究方法与学术论文写作指导 Research Methods and Academic Writing	6	1	18	0	2	考查 Quiz
1241996	编译原理 Compiling Principles	6	3.5	54	18	3	考试 Exam.

2. 专业方向课程（16 学分）

2. Specialized Orientation Courses (16 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
软件工程创新人才培养课程： Courses of Software Engineering Innovative Talents							
1242005	概率论与数理统计 Probability and Statistics	5	3	54	0	3	考试 Exam.
1242431	高级英语 Advanced English	5	3	54	0	3	考查 Quiz

1242460	高等数学（综合提高） Advanced Mathematics (Comprehensive improvement)	6	2	36	0	2	考查 Quiz
1242434	并行处理与分布式计算 Parallel Processing and Distributed Computing	6	3	36	36	2	考查 Quiz
卓越工程师培养课程： Courses of Excellent Engineers of Software Engineering							
1242428	网络工程 Network Engineering Practice	5	3	36	36	2	考查 Quiz
1242405	嵌入式系统 Embedded System	5	3	36	36	2	考查 Quiz
1242461	交互式系统设计 Interactive System Design	5	2.5	36	18	2	考查 Quiz
1242437	软件测试技术 Software Testing	6	3.5	54	18	3	考查 Quiz
1242471	人机交互的软件工程方法 Software Engineering Method of Human-Computer Interaction	6	2.5	36	18	2	考查 Quiz
共选课程： Common Selection Courses							
1242430	数据库应用 Database Applications	3	2	18	36	2	考查 Quiz
1242436	可视化建模与 UML Visual Modeling and UML	4	3.5	54	18	3	考查 Quiz
1242033	算法分析与设计 Algorithm Analysis and Design	5	3	54	0	3	考查 Quiz
1242472	电路基础 Fundamentals of Electric Circuits	3	3.5	54	18	3	考试 Exam.
1242425	数字逻辑 Digital Logic	3	3.5	54	18	3	考试 Exam.

3. 专业拓展课程（6 学分）

3. Specialized Development Courses (6 credits)

详见学院专业拓展课程。

See Specialized Development Courses of the School of Computer Science.

（四）专业技能模块（6 学分）

（Ⅳ）Professional Skills Courses（6 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1250101	Android 应用开发 Android Application Development	5	3	54		3	考查 Quiz
1250102	软件项目开发实训 Software Project Development Practice	6	3	54		3	考查 Quiz

（五）实践教学模块（12 学分）

（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1250017	必读书目阅读 Required Readings		1				考查 Quiz
1250032	专业见习与实习 Professional Visits and Practice	1-7	4				考查 Quiz

1250021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1250033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

计算机科学学院专业拓展课程（专业任意选修课）
Specialized Development Courses (Specialized Non-restrictive Elective Courses) of the School of Computer Science

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1243052	Python 语言程序设计 Programming in Python	4	3	36	36	2	考查 Quiz
1243001	专业英语 Computer English	5	2	36	0	2	考查 Quiz
1243421	微机原理与接口技术 Microcomputer and Interface Technology	5	2.5	36	18	2	考查 Quiz
1243422	计算机图形学 Computer Graphics	5	1.5	18	18	2	考查 Quiz
1243432	高级数据结构 Advanced Data Structures	5	2	36	0	2	考查 Quiz
1243423	移动计算 Mobile Computing	6	1.5	18	18	2	考查 Quiz
1243424	数字图像处理技术 Digital Image Processing Technologies	6	1.5	18	18	2	考查 Quiz
1243425	Android 应用开发 Development of Android Application	6	1.5	18	18	2	考查 Quiz
1243433	操作系统（二） Operating Systems, II	6	2	36	0	2	考查 Quiz
1243434	高级程序设计 Advanced Programming	6	2	36	0	2	考查 Quiz
1243435	互联网思维 Internet Thinking Pattern	6	2	36	0	2	考查 Quiz
1243436	大数据技术基础 Technological Basics of Big Data	6	2.5	36	18	2	考查 Quiz
1243426	信息安全 Information Security	7	1.5	18	18	2	考查 Quiz
1243053	智能计算 Intelligent Computing	7	2	18	36	2	考查 Quiz
1243428	电子商务 Electronic Commerce	7	2	36	0	4	考查 Quiz
1243429	创新创业指导 Innovation and Entrepreneurship Guidance	8	1	18	0	2	考查 Quiz
1243430	计算机新技术 New Computer Technologies	8	1	18	0	2	考查 Quiz
1243431	网络安全 Network Security	8	2.5	36	18	2	考查 Quiz
说明 Notes	1. 计算机科学学院专业拓展课程共 18 门。 2. 计算机科学与技术专业（师范）学生应至少选修 4 学分；计算机科学与技术专业（创新实验班）学生应至少选修 6 学分；软件工程专业学生应至少选修 6 学分；信息管理与信息系统专业学生应至少选修 6 学分。 1. There are 18 specialized development courses of School of Computer Science in total. 2. Undergraduates in Computer Science and Technology Specialty (Teaching-Training) should obtain at least 4 credits; undergraduates in Computer Science and Technology specialty (experimental and innovative class) should obtain at least 6 credits; undergraduates in Software Engineering Specialty should obtain at least 6 credits; undergraduates in Information Management and Information System Specialty should obtain at least 6 credits.						

食品工程与营养科学学院
School of Food Engineering and Nutrition Science

- 食品科学与工程

  Food Science and Engineering

- 食品质量与安全

  Food Quality and Safety

食品科学与工程专业简介
Introduction to the Specialty of Food Science and Engineering

食品科学与工程专业，学制 4 年，专业属性为非师范专业。我校该专业始于 2002 年经教育部批准开始招生，2011 年被评为陕西省特色专业。

目前该专业在职任课教师 54 人，其中教授 11 人，副教授 23 人，具有博士学位的教师 50 人。

该专业主要培养具有化学、生物学、食品工程和食品技术知识，能够在食品领域内从事食品生产、加工及贮运技术管理、品质控制、科学研究、工程设计和产品开发的高级工程技术人才和管理方面的复合型高级专门人才。

Food Science and Engineering is four years schooling system, which is non-teacher training major. This major in our school is approved by the Ministry of Education for student enrollment in 2002，and this specialty was awarded as Shaanxi Province’s Characteristic Discipline.

At present, this major has 54 teachers, including 11 professors and 23 associate professors. 40 teachers hold doctor degree.

This major mainly cultivates senior engineering talents and management talents with knowledge of chemistry, biology, food engineering and technology, with moral, intellectual, physical and aesthetic development, which enable students to engage in food production, processing and storage technology management, quality control, scientific research, engineering design and product development.

食品科学与工程专业
The Specialty of Food Science and Engineering

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，适应社会发展和经济建设需要的具有良好人文素质、科学素养、较强的创新能力和业务竞争实力的复合型高级专门人才，遵循“厚基础，宽口径，强能力，高素质”的新型人才培养理念，培养的学生具有扎实的理论基础，掌握必要的专业知识和技能，具备科学的思维方法和实践能力，毕业后可从事食品科学与工程方向的科研、教学、管理、经营、新产品开发等方面的工作。

The objective for undergraduates of food science and engineering major is that they possess good humanities quality, scientific literacy, innovative ability and the competitive strength of business as high-level personnel following the concept of “solid foundation, wide entrance, strong competence and high qualities”, and the graduating undergraduates should have a solid theoretical foundation with scientific thinking and practical ability, master the necessary professional knowledge and skills to work in scientific research, teaching, management, marketing and new product development in food science and engineering direction.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业。

1. 热爱中国共产党，热爱社会主义祖国；掌握马列主义、毛泽东思想、邓小平理论、“三个代表”重要思想、科学发展观和习近平新时代中国特色社会主义思想理论体系的基本观点和方法；具有科学的世界观、正确的人生观和高尚的道德品质。

2. 系统掌握食品科学与工程学科的基本理论、基本技能和基本方法，掌握食品分析、检测的方法；具有工艺设计、设备选用、食品生产管理和技术经济分析的能力；熟悉食品工业发展的方针、政策和法规；了解食品储运、加工、保藏及资源综合利用的理论前沿和发展动态，具有科学研究的初步能力；了解相关学科的基本知识，具有一专多能的知识结构；掌握计算机的基本知识，并具有一定的应用能力；掌握一门外语。

3. 具有适应社会的能力，获取知识的能力，分析问题和解决问题的能力以及与人合作共事的能力；具有科学、合理的知识结构；具有实事求是的科学态度；具有民主与法制意识、改革开放意识、竞争参与意识、市场意识、责任意识、效率与效益意识、国际意识、环境意识和可持续发展的意识等现代观念。

4. 具有健康的体魄和一定的军事基本理论及基本技能，达到国家规定的大学生体育合格标准和军事训练标准，养成锻炼身体的习惯。

5. 具有良好的人文素质与科学素质，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力，成为德、智、体、美等全面发展的高素质人才。

1. Undergraduates should be of high civil quality. With a deep love for our motherland, they should steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of conduct. Undergraduates should build up noble moral accomplishment. They should develop a correct outlook of life and gracious humanistic literacy by inheriting excellent Chinese culture and absorbing

advanced values and scientific concepts abroad to cultivate wholesome personality and sound psychological quality.

2. Undergraduates should master the basic theory, basic skills and basic methods of food disciplines, understand the development frontier of the discipline, with the initial capacity of scientific research; understand the basic knowledge of related disciplines, with the knowledge structure of the multi-skill; master the basic knowledge of computer and certain applications; master a foreign language.

3. Undergraduates should have the ability to meet the community's capacity and acquire knowledge, ability of analyzing problems and problem-solving skills and ability to work with people, scientific and rational knowledge structure, scientific attitude of seeking truth from facts, democracy and the rule of law awareness, awareness of reform and opening up, competitive consciousness of participation, the modern concept of market awareness, sense of responsibility, efficiency and effectiveness of awareness, international awareness, environmental awareness and sustainable development awareness.

4. Undergraduates should have good health and a military basic theory and basic skills, and meet the state Sports Qualification standards and military training standards, in addition, students should develop the habit of exercise.

5. Undergraduates should have the good human qualities and scientific quality, a sound personality and good psychological quality, a strong innovative spirit and practical ability, and become the highly qualified personnel all-round development in moral, intellectual, physical, and the aesthetic.

三、主干学科

Ⅲ. Core Discipline

食品科学与工程

Food Science and Engineering

四、主干课程

Ⅳ. Main Courses

食品生物化学、食品化学、食品微生物学、食品科学概论、机械基础、试验设计与数据处理、食品分析与检测、食品工程原理、食品机械与设备

Food Biochemistry, Food Chemistry, Food Microbiology, Introduction to Food Science, Fundamentals of Mechanics, Experimental Design and Data Processing, Food Analysis and Testing, Principles of Food Engineering, Food Machinery and Equipment

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

工学学士

Bachelor of Engineering

六、学分要求

Ⅵ. Total Credits

165 学分

165 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.4%	32.7%
	通识教育选修课 Liberal Studies Elective Courses	12		7.27%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	26	41	15.7%	24.8%
	本学科基础课 Disciplinary Foundation Courses	15		9.09%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	19	40	11.5%	24.2%
	专业方向课程 Specialized Orientation Courses	11		6.67%	
	专业拓展课程 Specialized Development Courses	10		6.06%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	16	18	9.70%	10.9%
	选修课 Elective Courses	2		1.21%	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.27%	7.27%
合计 Total		165		100%	

说明
Notes

1. 专业必修课（包括专业核心课程和学科基础课程）共 21 门。

2. 专业选修课共 21 门，其中专业方向课程 7 门；专业拓展课程 14 门。学生应从专业方向课程中至少选修 11 学分，从专业拓展课程中至少选修 10 学分。专业技能课也应按要求修够学分。

3. 实验课程共 28 门，既有理论又有实验的课程 28 门，含综合性、设计性实验的课程 28 门，占实验课程总数的 100%。

4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 30.3%。

1. There are 21 specialized compulsory courses.

2. There are 21 specialized elective courses in total including 7 specialized orientation courses and 14 specialized development courses. Undergraduates should obtain 11 credits in total by taking specialized orientation courses and 10 credits by taking specialized development courses.

3. There are 28 experimental courses in total including 28 theoretical and designable experimental courses which is 100% of the total experimental courses.

4. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 30.3% of the total credits.

八、食品科学与工程专业本科教学计划表

Ⅷ. Teaching Scheme for Food Quality and Safety Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ） Liberal Studies Courses(54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.

1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005- 1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialty)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialty)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses(12 credits)

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（41 学分）

（Ⅱ） Disciplinary Foundation Courses (35.5credits)

1. 相关学科基础课（26 学分）

1. Related Disciplinary Foundation Courses (26credits)

课程编码 Course Code	**课程名称 Course Name**	**开课学期 Semester**	**学分 Cre.**	**讲授学时 Teaching Hrs.**	**实验/实践学时 Experiment/ Training Hrs.**	**周学时 Weekly Hrs.**	**考试方式 Evaluation**
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		5	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
1421004	普通物理学 General Physics	2	3	46	18	3	考试 Exam.
1421008	线性代数 Linear Algebra	3	2	36		2	考试 Exam.

1421002	无机及分析化学 Inorganic and Analytical Chemistry	1	4	60	48	4	考试 Exam.
1421015	有机化学 Organic Chemistry	2	4	54	36	4	考试 Exam.
1421014	食品工业用电技术 Food Engineering Electrical Technology	3	2.5	36	10	3	考试 Exam.
1421013	物理化学 Physical Chemistry	3	2.5	36	10	2	考试 Exam.

2. 本学科基础课（15 学分）

2. Disciplinary Foundation Courses (16credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1422004	机械基础 Fundamentals of Mechanics	3	3	54		3	考试 Exam.
1422015	食品工程原理 Principles of Food Engineering	4	3	54	18	3	考试 Exam.
1422016	食品微生物学 Food Microbiology	4	4	54	36	4	考试 Exam.
1422010	食品科学概论 Introduction to Food Science	2	2	36		3	考试 Exam.
1422011	食品生物化学 Food Biochemistry	3	3	48	18	4	考试 Exam.

（三）专业课程模块（40 学分）

（Ⅲ）Specialized Courses (49credits)

1. 专业核心课程（19 学分）

1. Specialized Core Courses (28credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1441093	试验设计与数据处理 Experimental Design and Data Processing	3	2.5	46		3	考试 Exam.
1441052	工程制图与计算机绘图 Engineering Drawing and Computer Graphics	2	3.5	50	20	4	考试 Exam.
1441025	食品化学 Food Chemistry	4	2.5	40	18	4	考试 Exam.
1441005	食品机械与设备 Food Machinery and Equipment	5	3	50	10	4	考试 Exam.
1441083	食品营养学 Food Nutrition	3	3	46	18	3	考试 Exam.
1441084	食品工厂设计基础 Fundamentals of Food Factory Design	6	2.5	40	8	3	考试 Exam.
1441096	食品原料学 Food Raw Materials	2	1	20	12	2	考试 Exam.
1441097	食品物性学 Physical Properties of Foods	5	1	20		3	考试 Exam.

2. 专业方向课程（11 学分）

2. Specialized Orientation Courses (11credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
食品科学与工程方向课程： Courses of Food Science and Engineering dimension：							

1442031	食品包装与物流学 Food Packaging and Logistics	6	2	36		3	考试 Exam.
1442007	食品发酵原理与技术 Principles and Technology of Food Fermentation	6	2.5	36	14	3	考试 Exam.
1442076	食品安全与卫生 Food Safety and Hygiene	6	2	40		2	考试 Exam.
1442074	食品毒理学 Food Toxicology	5	2.5	36	15	3	考试 Exam.
1442043	食品生物工程 Food Bioengineering	6	2	34	10	3	考试 Exam.
1442045	食品添加剂（双语） Food Additives（bilingual）	6	2	36	10	3	考试 Exam.
1442065	现代仪器分析 Modern Instrument Analysis	5	2	30	18	3	考试 Exam.

3. 专业拓展课程（10 学分）

3. Specialized Development Courses (10credits)

详见学院专业拓展课程。

See Specialized Development Courses of School of (Food Engineering and Nutritional Science College)

（四）专业技能模块（18 学分）

（Ⅳ）Professional Skills Courses(18credits)

1. 必修课（16 学分）

1. Compulsory Courses (16credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
食品科学与工程系列（方向）课程： Courses of Food Science and Engineering series/dimension							
1441004	食品分析与检验 Food Analysis and Test	4	3	36	36	4	考试 Exam.
1441008	粮油加工工艺学 Cereal and Oil Technology	6	3	42	18	4	考试 Exam.
1441050	果品蔬菜加工学 Fruit and Vegetable Processing	5	3	42	18	4	考试 Exam.
1441009	畜产食品工艺学 Animal Product Processing Technology	5	3	42	18	4	考试 Exam.
1441011	果品蔬菜贮藏学 Storage Science of Fruit and Vegetable	6	2	30	12	3	考试 Exam.
1441010	软饮料工艺学 Soft Drinks Technology	5	2	30	10	3	考试 Exam.

2. 选修课（2 学分）

2. Elective Courses(2 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
食品科学与工程系列（方向）课程： Courses of Food Science and Engineering series/dimension：							
1442018	食品感官鉴评学 Food Sensory Evaluation Science	6	2	24	12	2	考查 Quiz.
1442051	食品质量管理学 Food Quality Management	5	2	36		2	考查 Quiz.
1443033	现代食品科学与工程研究进展专题 Topics on Modern Research Progress of Food Science and Technology	6	1	18		2	考查 Quiz.

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work(12credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1450017	必读书目阅读 Required Readings		1				考查 Quiz
1450032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
1450021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1450033	毕业论文（设计） Graduation Thesis（Design）	7-8	4				考查 Quiz

九、食品工程与营养科学学院专业拓展课程

Ⅸ. Specialized Development Courses of School of Food Engineering and Nutritional Science College

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
食品科学与工程系列（方向）课程： Courses of Food Science and Engineering series/dimension：							
1443001	食品资源开发利用 Exploitation and Utilization of Food Sources	7	2	40		2	考查 Quiz
1443003	专业外语 Specialized English	6	2	36		2	考查 Quiz
1443054	食品酶工程 Enzyme Engineering in Food Industry	7	2	36		2	考查 Quiz
1443012	功能食品学 Functional Foods	5	2	28	12	3	考查 Quiz
1443010	食品冷冻技术 Food Refrigeration	7	1	20		2	考查 Quiz
1443045	食品环境工程 Food Environmental Engineering	8	1	18		2	考查 Quiz
1443031	国际食品质量与安全研究进展专题 Topics on Modern Research Progress of International Food Quality and Safety	8	1	18		2	考查 Quiz
1443032	科学研究方法与科技论文写作 Scientific Research Methods and Thesis Writing	7	1	18		2	考查 Quiz
1443037	茶学概论 Introduction to Tea Science	6	1	18		2	考查 Quiz
1443038	葡萄酒工艺学 Wine Enology	6	1.5	26	10	2	考查 Quiz
1443053	国际贸易与市场营销 International Trade and Marketing	8	1	18		2	考查 Quiz
1443052	食品科技发展简史 The Developing History of Food Science and Technology	7	1	18		2	考查 Quiz
1443071	食品安全监督管理 Food Safety Supervision and Management	7	1	18		2	考查 Quiz
1443051	食品标准与法规 Food Standard and Regulation	7	2	36		2	考查 Quiz
说明 Notes	1. 食品工程与营养科学学院专业拓展课程共 14 门。 2. 食品科学与工程专业必须选修 10 学分；食品质量与安全专业必须选修 10 学分。 1. There are 14 Specialized Development Courses of (Food Engineering and Nutritional Science School/College in total. 2. Undergraduates in Food Science and Engineering specialty should obtain 10 credits, and 10 credits for Food Quality and Safety specialty.						

食品质量与安全专业简介
Introduction to the Specialty of Food Quality and Safety

食品质量与安全专业，学制 4 年，专业属性为非师范专业。我校该专业于 2009 年经教育部批准开始招生。

目前该专业在职任课教师 54 人，其中教授 11 人，副教授 23 人，具有博士学位的教师 50 人。

该专业主要培养具有化学、生物学、食品科学与工程、管理学及法律知识，掌握食品安全、食品营养与卫生、食品质量安全监测技术与控制技术的基本理论和实践技能，能够在企业管理、行政管理、商检卫生防疫等国家机关、科研院所等部门从事食品质量与安全检测、监测、评价、预警、控制、认证、监管、策划以及食品质量与安全标准和法规制定和食品质量安全的教学、科研、管理工作的富有创新精神和实践能力的复合型高级专门人才。

Food quality and safety major is four years schooling system, which is non-teacher training major. This major in our school is approved by the Ministry of Education for student enrollment in 2009.

At present, this major has 54 teachers, including 11 professors and 23 associate professors. 50 teachers have doctor degree.

This major mainly cultivates senior application-oriented talents with moral, intellectual, physical and aesthetic development, with knowledge of chemistry, biology, food science, engineering, management and legal knowledge, mastering basic theory and skills in food safety, nutrition, food hygiene, food quality safety monitoring and control technology, which enable students to work with management, administration, health, quarantine inspection and other state department, research institutes and other departments involved in food quality and safety testing, monitoring, evaluation, early warning, control, certification, regulatory, planning, food quality and safety rule-making, food quality teaching, research and management, with innovative spirit and practical ability.

食品质量与安全专业
The Specialty of Food Quality and Safety

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具有化学、生物学、食品科学与工程、管理学及法律知识，掌握食品安全学、食品营养与卫生学、食源性疾病预防控制、食品质量安全监测技术、食品质量与安全控制技术的基本理论和实践技能，熟悉食品工艺、食品标准与法规，在企业管理、行政管理、市场经济、商检卫生防疫等国家机关、科研院所等部门从事食品质量与安全检测、监测、评价、预警、控制、认证、监管、策划以及食品质量与安全标准和法规制定和食品质量安全的教学、科研、管理工作的富有创新精神和实践能力的复合型高级专门人才。

In order to meet the demands to develop the potential talents of the undergraduates, which may concern students' moral intelligent and physical aspects. Meanwhile, the undergraduates should master the basic theories and practical skills in food safety technology, food nutrition and hygiene, foodborne disease prevention and control, food quality safety testing, food quality and safety control technology with acknowledgement of chemistry, biology, food science and engineering, management and law, as well as food technology and food standards and regulations, which will enable the students to work in the departments of management, administration, marketing, economics or hygiene state organs and scientific research institution for testing, monitoring, assessment, early-warning, control, certification, supervision, planning and making regulations or teach and research in food quality and safety.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业。

1. 热爱中国共产党，热爱社会主义祖国；掌握马列主义、毛泽东思想、邓小平理论、“三个代表”重要思想、科学发展观和习近平新时代中国特色社会主义思想理论体系的基本观点和方法；具有科学的世界观、正确的人生观和高尚的道德品质。

2. 系统掌握食品质量与安全学科的基本理论、基本技能和基本方法，掌握食品分析、检测的方法；具有食品生产管理和技术经济分析的能力；熟悉食品工业发展的方针、政策和法规；了解食品储运、加工、保藏及资源综合利用的理论前沿和发展动态，具有科学研究的初步能力；了解相关学科的基本知识，具有一专多能的知识结构；掌握计算机的基本知识，并具有一定的应用能力；掌握一门外语。

3. 具有适应社会的能力，获取知识的能力，分析问题和解决问题的能力以及与人合作共事的能力；具有科学、合理的知识结构；具有实事求是的科学态度；具有民主与法制意识、改革开放意识、竞争参与意识、市场意识、责任意识、效率与效益意识、国际意识、环境意识和可持续发展的意识等现代观念。

4. 具有健康的体魄和一定的军事基本理论及基本技能，达到国家规定的大学生体育合格标准和军事训练标准，养成锻炼身体的习惯。

5. 具有良好的人文素质与科学素质，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力，成为德、智、体、美等全面发展的高素质人才。

1. Undergraduates should be of high civil quality. With a deep love for our motherland, they should steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of

conduct. Undergraduates should build up noble moral accomplishment. They should develop a correct outlook of life and gracious humanistic literacy by inheriting excellent Chinese culture and absorbing advanced values and scientific concepts abroad to cultivate wholesome personality and sound psychological quality.

2. Undergraduates should master the basic theory, basic skills and basic methods of food disciplines, understand the development frontier of the discipline, with the initial capacity of scientific research; understand the basic knowledge of related disciplines, with the knowledge structure of the multi-skill; master the basic knowledge of computer and certain applications; master a foreign language.

3. Undergraduates should have the ability to meet the community's capacity and acquire knowledge, ability of analyzing problems and problem-solving skills and ability to work with people, scientific and rational knowledge structure, scientific attitude of seeking truth from facts, democracy and the rule of law awareness, awareness of reform and opening up, competitive consciousness of participation, the modern concept of market awareness, sense of responsibility, efficiency and effectiveness of awareness, international awareness, environmental awareness and sustainable development awareness.

4. Undergraduates should have good health and a military basic theory and basic skills, to meet the state Sports Qualification standards and military training standards, in addition, students should develop the habit of exercise.

5. Undergraduates should have the good human qualities and scientific quality, a sound personality and good psychological quality, a strong innovative spirit and practical ability, and become the highly qualified personnel all-round development in moral, intellectual, physical, and the aesthetic.

三、主干学科

Ⅲ. Core Discipline

食品质量与安全

Food Quality and Safety

四、主干课程

Ⅳ. Main Courses

食品化学、食品营养学、食品分析与检测、分子生物学基础、食品质量标准体系与法规、食品毒理学、食品安全与卫生、动植物检疫学、食品保藏学、现代仪器分析

Food Chemistry, Food Nutrition, Food Analysis and Testing, Fundamental Molecular Biology, Food Quality Standards System and Regulation, Food Toxicology, Food Safety and Hygiene, Animal and Plant Quarantine, Food Preservation, Modern Instrumental Analysis

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

工学学士

Bachelor of Engineering

六、学分要求

Ⅵ. Total Credits

165 学分

165 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.5%	32.8%
	通识教育选修课 Liberal Studies Elective Courses	12		7.27%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	23.5	35.5	14.2%	21.5%
	本学科基础课 Disciplinary Foundation Courses	12		7.27%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	26.5	47.5	16.1%	28.8%
	专业方向课程 Specialized Orientation Courses	11		6.67%	
	专业拓展课程 Specialized Development Courses	10		6.06%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	14	16	8.48%	9.70%
	选修课 Elective Courses	2		1.21%	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.27%	7.27%
合计 Total		165		100%	
说明 Notes	1. 专业必修课（包括专业核心课程和学科基础课程）共 23 门，双语课程 2 门。 2. 专业选修课共 19 门，其中专业方向课程 6 门；专业拓展课程 13 门。学生应从专业方向课程中至少选修 11 学分，从专业拓展课程中至少选修 10 学分。专业技能课也应按要求修够学分。 3. 实验课程共 24 门，其中独立开设的实验课 2 门，既有理论又有实验的课程 22 门，含综合性、设计性实验的课程 24 门，占实验课程总数的 100 %。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 32.1%。 1. There are 23 specialized compulsory courses， including 2 bilingual courses. 2. There are 19 specialized elective courses in total including 6 specialized orientation courses and 13 specialized development courses. Undergraduates should obtain 11 credits in total by taking specialized orientation courses and 10 credits by taking specialized development courses. 3. There are 24 experimental courses in total including 2 independent experimental courses, 24 theoretical and designable experimental courses which is 100% of the total experimental courses. 4. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 32.1% of the total credits.				

八、食品质量与安全专业本科教学计划表

Ⅷ. Teaching Scheme for Food Quality and Safety Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses(54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses(12 credits)

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（35.5 学分）

（Ⅱ）Disciplinary Foundation Courses (35.5 credits)

1. 相关学科基础课（23.5 学分）

1. Related Disciplinary Foundation Courses (23.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		5	考试 Exam.

0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
1421004	普通物理学 General Physics	2	3	46	18	3	考试 Exam.
1421008	线性代数 Linear Algebra	3	2	36		2	考试 Exam.
1421002	无机及分析化学 Inorganic and Analytical Chemistry	1	4	60	48	4	考试 Exam.
1421015	有机化学 Organic Chemistry	2	4	54	36	4	考试 Exam.
1421013	物理化学 Physical Chemistry	3	2.5	36	10	3	考试 Exam.

2. 本学科基础课（12 学分）

2. Disciplinary Foundation Courses (12 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1422010	食品科学概论 Introduction to Food Science	2	2	36		2	考试 Exam.
1422011	食品生物化学 Food Biochemistry	3	3	48	18	4	考试 Exam.
1422012	食品微生物学 Food Microbiology	4	3	48	18	4	考试 Exam.
1422013	食品原料学 Food Raw Materials	3	2.5	36	18	3	考试 Exam.
1442014	人体生理学概论 Introduction to Human Physiology	2	1.5	36		2	考试 Exam.

（三）专业课程模块（47.5 学分）

（Ⅲ）Specialized Courses (47.5 credits)

1. 专业核心课程（26.5 学分）

1. Specialized Core Courses (26.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1441075	食品营养学（双语） Food Nutrition(bilingual)	4	3	46	18	3	考试 Exam.
1441089	食品卫生学（双语） Food Hygiene（bilingual）	5	2.5	46		3	考试 Exam.
1441072	食品毒理学 Food Toxicology	5	2.5	36	15	2	考试 Exam.
1441025	食品化学 Food Chemistry	4	2.5	40	18	3	考试 Exam.
1441077	食品安全监督管理 Food Safety Supervision and Management	5	2	36		3	考试 Exam.
1441090	食品工艺学 Food Technology	5	3	60		5	考试 Exam.
1441091	食品工程原理 Principles of Food Engineering	4	3	40	18	3	考试 Exam.
1441092	食品质量管理学 Food Quality Management	5	1.5	36		2	考试 Exam.
1441093	试验设计与数据处理 Experimental Design and Data Processing	3	2.5	46		3	考试 Exam.
1441088	食品感官鉴评学 Food Sensory Evaluation Science	6	2	24	12	2	考试 Exam.
1441094	食品标准与法规 Food Standard and Regulation	5	2	36		2	考试 Exam.

2. 专业方向课程（11 学分）

2. Specialized Orientation Courses (11 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
食品质量与安全方向课程： Courses of Food Quality and Safety dimension							
1442041	食品机械与设备概论 Introduction to Food Machinery and Equipment	5	2	36		2	考查 Quiz
1442031	食品包装与物流学 Food Packaging and Logistics	7	2	36		2	考查 Quiz
1442071	食品微生物检验学 Food Microbiological Testing	6	2.5	30	36	3	考查 Quiz
1442072	食品贮藏与运输 Food Preservation and Transportation	6	2.5	36	18	3	考查 Quiz
1442045	食品添加剂（双语） Food Additives (bilingual)	6	2	36	10	2	考查 Quiz
1442073	食品风味化学 Food Flavor Chemistry	6	2	36			考查 Quiz

3. 专业拓展课程（10 学分）

3. Specialized Development Courses (10 credits)

详见学院专业拓展课程。

See Specialized Development Courses of School of (Food Engineering and Nutritional Science College)

（四）专业技能模块（16 学分）

（Ⅳ）Professional Skills Courses(16 credits)

1. 必修课（14 学分）

1. Compulsory Courses (14 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
食品质量与安全方向系列（方向）课程： Courses of Food Quality and Safety series/dimension:							
1441079	食品安全与卫生综合实验 Comprehensive Experiments of Food Safety and Hygiene	6	1.5		54	3	考查 Quiz
1441098	食品分析与检验 Food Analysis and Test	4	3.0	36	54	5	考试 Exam.
1441081	食品工艺学综合实验 Comprehensive Experiments of Food Technology	5	1.5		54	3	考查 Quiz
1441099	现代仪器分析 Modern Instrument Analysis	5	2.5	36	21	2	考试 Exam.
1441056	动植物检验检疫学 Animal & Plant Testing and Quarantine	7	2.5	40	18	3	考试 Exam.
1441095	食品分子生物学 Food Molecular Biology	5	3	54	28	3	考试 Exam.

2. 选修课（2 学分）

2. Elective Courses (2 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
食品质量与安全系列（方向）课程： Courses of Food Quality and Safety series/dimension：							
1442040	免疫学基础 Fundamentals of Immunology	6	2	36	10	3	考查 Quiz.
1442007	食品发酵原理与技术 Principles and Technology of Food Fermentation	6	2.5	36	14	3	考查 Quiz.

（五）实践教学模块（12 学分）

（Ⅴ）Practice Work(12 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1450017	必读书目阅读 Required Readings		1				考查 Quiz
1450032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
1450021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1450033	毕业论文（设计） Graduation Thesis（Design）	7-8	4				考查 Quiz

九、食品工程与营养科学学院专业拓展课程

Ⅸ. Specialized Development Courses of School of (Food Engineering and Nutritional Science College)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
食品质量与安全系列（方向）课程： Courses of Food Quality and Safety series/dimension							
1443001	食品资源开发利用 Exploitation of and Utilization Food Sources	7	2	40		2	考查 Quiz
1443002	食品物性学 Physical Properties of Foods	6	2	36		2	考查 Quiz
1443003	专业外语 Specialized English	6	2	36		2	考查 Quiz
1443054	食品酶工程 Enzyme Engineering in Food Industry	7	2	36		2	考查 Quiz
1443012	功能食品学 Functional Foods	5	2	28	12	3	考查 Quiz
1443010	食品冷冻技术 Food Refrigeration	7	1	20		2	考查 Quiz
1443045	食品环境工程 Food Environmental Science	8	1	18		2	考查 Quiz
1443031	国际食品质量与安全研究进展专题 Topics on Modern Research Progress of International Food Quality and Safety	8	1	18		2	考查 Quiz
1443032	科学研究方法与科技论文写作 Scientific Research Methods and Thesis Writing	7	1	18		2	考查 Quiz
1443037	茶学概论 Introduction to Tea Science	6	1	18		2	考查 Quiz

1443038	葡萄酒工艺学 Wine Enology	6	1.5	26	10	2	考查 Quiz
1443053	国际贸易与市场营销 International Trade and Marketing	8	1	18		2	考查 Quiz
1443052	食品科技发展简史 The Developing History of Food Science and Technology	7	1	18		2	考查 Quiz
说明 Notes	1. 食品工程与营养科学学院专业拓展课程共 13 门。 2. 食品质量与安全专业必须选修 10 学分；食品科学与工程专业必须选修 10 学分。 1. There are 13 Specialized Development Courses of Food Engineering and Nutritional Science School/College in total. 2. Undergraduates in Food Quality and Safety specialty should obtain 10 credits, and 10 credits for Food Science and Engineering specialty.						

教育学院
School of Education

- 教育学（创新实验班）

  Pedagogy (Innovative and Experimental Class)

- 教育技术学（师范）

  Educational Technology (Normal)

- 学前教育（师范）

  Preschool Education (Normal)

教育学专业（创新实验班）简介
Introduction to the Specialty of Pedagogy (Innovative and Experimental Class)

教育学专业（创新实验班），学制 4 年，专业属性为非师范专业。该专业始建于 1944 年，是我校优势特色专业之一，先后获评省级名牌专业、省级、国家级特色专业、省级专业综合改革试点建设单位。有国家级精品课程 1 门，国家级精品资源共享课 3 门，省级精品课程 3 门，省级教学团队 1 个，国家规划教材 3 部。

目前该专业专任教师 41 人，其中教授 11 人，副教授 18 人；具有博士学位的教师 33 人，具有硕士学位的教师 38 人。

该专业主要培养具有宽厚的教育学基础知识和理论知识，具备一定的教育思想，了解本学科研究方法，具有较大学术发展潜力、较强实际工作能力，能够从事教育科学研究和教育实践、小学全科教学工作的复合型高级专门人才。

The Specialty of Pedagogy in our University has a four-year schooling system and it is positioned as a non-teacher training education major. The course name used to be School Education, later Education Management and Pedagogy. It is one of the major specialties in education field in our university. Students majoring in Pedagogy are expected to master the basic knowledge and skills in Pedagogy and get familiar with the education and school and become excellent staff who have a good understanding of educational theories and high research abilities in education field, and become excellent talents in the fields of education and school education and teaching management and research after graduation.

Up till now, there are 41 in-service teachers who are responsible for the teaching and researching, among whom 11 are professors, 18 are associate professors, with 33 doctorate degree holders and 38 master degree holders.

The program’ purpose is to equip students with profound foundation of knowledge and theory of education, in order to do scientific research and teaching in education, and with strong academic potential in education research.

教育学专业（创新实验班）
The Specialty of Pedagogy (Innovative and Experimental Class)

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展、身心健康，具有宽厚的教育学基础知识和理论知识，具备一定的教育思想，了解本学科研究方法，具有较大学术发展潜力、较强实际工作能力，能够从事教育科学研究和教育实践、小学全科教学工作的复合型高级专门人才。

The program' purpose is to equip students with good political thought and moral quality, profound foundation of knowledge, theory of education and also the discipline, in order to do scientific research and teaching in education, and with strong academic potential in education research.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国，掌握马列主义、毛泽东思想和中国特色社会主义理论，具有科学的世界观、正确的人生观和价值观以及高尚的道德品质，德、智、体、美全面发展。

2. 掌握教育研究所要求的普通文化基础知识和相关学科专业理论，普通话水平达到二级乙等以上，掌握计算机的基本知识，具有一定的应用能力，通过计算机技能测试，掌握一门外语，达到国家规定的四级外语水平。

3. 系统掌握教育学专业基础知识、理论和基本方法，了解本学科的发展前沿，熟悉国内外教育改革与发展现状，具有国际教育视野、先进的教育理念和教育改革与创新意识与能力，具有从事教育科学研究的基本能力。

4. 具有教育问题意识、教育研究意识、教育改革意识和教育创新精神，具有利用教育理论分析教育现象、解决实际教育问题的能力。

5. 具有良好的人文素质与科学素质，健康体魄和一定的军事基本理论及基本技能，达到国家学生体质健康标准和军事训练标准，养成锻炼身体的习惯，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力。

This program is limited in 4-6 years. If undergraduates have got the prescribed credits in the teaching plan, and meet the following requirements, they can apply for graduation.

1. To love the Communist Party of China, to love the socialist country, to grasp the Marxism-Leninism, the MAO Zedong thought, Deng Xiaoping theory and the important thought of "three represents", to insist on scientific development outlook, with the scientific outlook, the correct outlook on life and values and noble moral quality.

2. To master the requirements of the basic knowledge of common culture and related disciplines professional theory set by some education institutes, to reach the Chinese level above 2B, to pass the computer skills test, mastering a foreign language, to pass the National College English Test Band 4.

3. To systematically master the basic theories and methods of Pedagogy professional, and to know the frontier development, to be familiar with the educational reform and status domestic and overseas, to have the basic skills of educational science research. to bear international vision of education and advanced ideas, to conduct educational reform and innovative.

4. To be conscious of the educational problems, research and reform, to have the spirit of educational innovation, and to have the ability of analyzing the phenomenon with educational theories and the ability of solving the practical educational problems.

5. To have the good humanity quality and scientific quality, good health and military training, to form a good habit for body exercise, to have the sound personality and good psychological quality with a strong spirit of innovation and practice ability, to become the high quality talent who makes all-round development in virtue, intelligence , sport, art and labor.

三、主干学科

Ⅲ. Core Disciplines

教育学、心理学

Pedagogy, Psychology

四、主干课程

Ⅳ. Main Courses

教育学原理、心理学基础、中国教育史、外国教育史、教育心理学、教育量化与质性研究方法、教育哲学、德育原理、教育社会学、课程论、教学论、比较教育学、学校管理学、教育法学、教育统计学、教育评价与测量、教育经济学、教育技术学

Principles of Pedagogy, Fundamentals of Psychology, History of Chinese Education, History of Foreign Education, Educational Psychology, Quantitative and Qualitative Research Methods of Education, Educational Philosophy, Principles of Moral Education, Educational Sociology, Curriculum Theories, Teaching Theories, Comparative Pedagogy, School Management, Educational Law, Educational Statistics, Educational Assessment & Measurement, Educational Economics, Educational Technology

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

教育学学士

Bachelor of Education

六、学分要求

Ⅵ. Total Credits

154 学分

154 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 **Course Catalogue**		学分及比例 **Credits and Percentage**			
		学 分 **Cre.**	小 计 **Sub-Total**	占总学分比例 **Percentage in Total Credits**	小 计 **Sub-Total**
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	27.27%	35.1%
	通识教育选修课 Liberal Studies Elective Courses	12		7.79%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	8	26	5.19%	16.9%
	本学科基础课 Disciplinary Foundation Courses	18		11.69%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	26	48	16.88%	31.2%

	专业方向课程 Specialized Orientation Courses	12		7.79%	
	专业拓展课程 Specialized Development Courses	10		6.49%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	8	14	5.19%	9.1%
	选修课 Elective Courses	6		3.90%	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.79%	7.8%
合计 Total		154		100%	

说明 Notes	1. 专业必修课（包括专业核心课程和学科基础课程）共 22 门，双语课程 3 门，全英语课程 0 门。 2. 专业选修课共 34 门，其中专业方向课程 23 门，分 2 个方向；专业拓展课程 11 门。学生应从专业方向课程中至少选修 12 学分，从专业拓展课程中至少选修 10 学分。 3. 实验课程共 23 门，其中独立开设的实验课 0 门，既有理论又有实验的课程 23 门，含综合性、设计性实验的课程 0 门，占实验课程总数的 0 %。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 19.5%。 1. There are 22 specialized compulsory courses， including 3 bilingual courses and 0 English courses. 2. There are 34 specialized elective courses in total including 23specialized orientation courses divided into 2 dimensions and 11 specialized development courses. Undergraduates should obtain 12 credits in total by taking specialized orientation courses and 10 credits by taking specialized development courses. 3. There are 23experimental courses in total including 0 independent experimental courses, 23 theoretical and designable experimental courses which is 0 % of the total experimental courses. 4. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 19.5% of the total credits.

八、教育学专业（创新实验班）本科教学计划表

Ⅷ. Teaching Scheme for Pedagogy（Innovative and experimental class） Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0511033	高等数学（文科） Advanced Mathematics (for Liberal Arts Specialties)	2	2	36		2	考试 Exam.
1211043	计算机基础（文、艺、体） Fundamentals of Computer(for Liberal Arts, Art and P.E. Specialties)	1	2	27	18	2	考试 Exam.
1211037	ACCESS 数据库应用技术（文科） Applied Technology of ACCESS Database(for Liberal Arts Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.

0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（26 学分）

（Ⅱ）Disciplinary Foundation Courses (26 credits)

1. 相关学科基础课（8 学分）

1. Related Disciplinary Foundation Courses (8 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1521012	心理学基础 Psychology Essentials	1	3	54		3	考试 Exam.
1521022	哲学概论 Introduction to Philosophy	1	3	54		3	考试 Exam.
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.

2. 本学科基础课（18 学分）

2. Disciplinary Foundation Courses (18 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1522059	教育学原理 Fundamentals of Pedagogy	2	4	72		4	考试 Exam
1522002	中国教育史 History of Chinese Education	2	3	54		3	考试 Exam.
1522005	外国教育史 History of Foreign Education	3	3	54		3	考试 Exam
1522004	教育心理学（双语） Educational Psychology (bilingual)	3	3	54		3	考试 Exam
1522082	教育量化与质性研究方法 Quantitative and Qualitative Research Methods of Education	2	3	36	36	4	考试 Exam
1522078	教育学科专业导引 Introduction to Education Discipline	1	2	36		2	考试 Exam.

（三）专业课程模块（48 学分）

（Ⅲ）Specialized Courses (48 credits)

1. 专业核心课程（26 学分）

1. Specialized Core Courses (26 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1541100	发展心理学 Developmental Psychology	2	2	36		2	考试 Exam
1541018	教育哲学 Educational Philosophy	4	2	36		2	考试 Exam
1541198	德育原理 Principles of Moral Education	3	2	36		2	考试 Exam
1541016	教育社会学 Educational Sociology	3	2	36		2	考试 Exam
1541005	教育法学 Educational Law	4	2	36		2	考试 Exam
1541017	教育行政学 Educational Administration	5	2	36		2	考试 Exam.
1541199	教学论（双语） Teaching Theories (bilingual)	4	2	36		2	考试 Exam
1541126	课程论 Curriculum Theories	5	2	36		2	考试 Exam
1541200	比较教育学（双语） Comparative Pedagogy (bilingual)	6	2	36		2	考试 Exam
1541218	中国教育思想与名著选读 Chinese Educational Thought and Classics Selected Reading	3	2	36		2	考查 Quiz
1541219	外国教育思想与名著选读 Foreign Educational Thought and Classics Selected Reading	4	2	36		2	考查 Quiz
1541006	教育专业外语 Specialized English for Education	5	2	36		2	考试 Exam
1541206	教育学科前沿问题研究 Study on the Latest Issues of Education	6	2	36		2	考查 Quiz

2. 专业方向课程（12 学分）

2. Specialized Orientation Courses (12 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1542214	语文基础知识 Fundamental Knowledge of Chinese Language and Literature	3	2	36		2	考试 Exam.
1542215	初等数学研究 Elementary Mathematics	4	2	36		2	考试 Exam.
1542216	小学全科教师导论 Introduction to Elementary Generalist Teachers	4	2	36		2	考试 Exam.
1542163	教师专业发展与职业道德 Teacher Professional Development and Professional Ethics	5	2	36		2	考查 Quiz
1542164	小学德育案例研究 Case Studies on Moral Education in Primary School	5	2	18	36	3	考查 Quiz
1542217	中外基础教育改革 Basic Educational Reform in China and Abroad	5	2	36		2	考查 Quiz
1542165	小学语文课程与教学 Chinese Curriculum and Instruction in Primary School	5	2	27	18	2.5	考试 Exam
1542166	小学数学课程与教学（双语） Mathematics Curriculum and Instruction in Primary School（bilingual）	6	2	27	18	2.5	考试 Exam
1542167	小学英语课程与教学 English Curriculum and Instruction in Primary School	6	2	27	18	2.5	考试 Exam
1542168	小学科学教育 Science Education in Primary School	6	2	27	18	2.5	考试 Exam.

1542169	小学社会教育 Social Education in Primary School	7	2	27	18	2.5	考试 Exam.
1542170	小学综合艺术教育 Comprehensive Art Education in Primary School	7	2	27	18	2.5	考查 Quiz
1542171	小学课堂教学艺术 Art of Classroom Instruction in Primary School	7	2	18	36	3	考查 Quiz
1542172	小学生心理健康与辅导 Guidance for Mental Health with Primary School Students	8	2	27	18	2.5	考查 Quiz
1542173	小学班级管理实务 Affairs of Class Management in Primary School	8	2	18	36	3	考试 Exam
1542174	农村教育学 Rural Pedagogy	6	2	36		2	考试 Exam
1542175	教育经济学 Educational Economics	7	2	36		2	考试 Exam
1542176	学校管理学 School Management	7	2	27	18	2.5	考试 Exam
1542004	教育政策学 Educational Policy	8	2	36		2	考试 Exam
1542089	教育领导学 Educational Leadership	5	2	36		2	考试 Exam
1542177	教育政治学 Educational Politics	5	2	36		2	考试 Exam
1542106	高等教育学 Studies on Higher Education	6	2	36		2	考试 Exam
1542107	职业教育原理 Principles of Vocational Education	6	2	36		2	考试 Exam

3. 专业拓展课程（10 学分）

3. Specialized Development Courses (10 credits)

详见学院专业拓展课程。

See Specialized Development Courses of Educational School.

（四）专业技能模块（14 学分）

（Ⅳ）Professional Skills Courses (14 credits)

1. 必修课（8 学分）

1. Compulsory Courses (8 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1531141	教育技术学 Educational Technology	5	2	18	36	3	考试 Exam.
1531142	教育测量与评价 Educational Measurement and Assessments	4	2	18	36	3	考试 Exam.
1531143	微格教学 Micro- Teaching	5	2	18	36	3	考查 Quiz
1531145	小学教材分析与教学设计 Instruction Design and Analysis of Teaching Materials in Primary school	6	2	18	36	3	考试 Exam.

2. 选修课（6 学分）

2. Elective Courses（6 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1542178	教育统计与 Spss 应用 Educational Statistics and Spss Application	7	2	27	18	2.5	考试 Exam
1542179	教师礼仪与审美修养 Teacher Protocol and Accomplishment	7	2	27	18	2.5	考查 Quiz

1542180	教育信息检索与应用 Searching & Application of Educational Information	7	2	18	36	3	考查 Quiz
1542220	教育研究实务 Research Affairs of Education	8	2	18	36	3	考查 Quiz
1542182	多媒体技术与课件制作 Multi- Media and Courseware- making	8	2	27	18	2.5	考查 Quiz
1542183	教学系统设计 Instructional System Design	8	2	27	18	2.5	考试 Exam
1542221	教育实验设计与数据分析 Design of Educational Experiment &Data Analysis	8	2	18	36	3	考查 Quiz

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1550017	必读书目阅读 Required Readings		1				考查 Quiz
1550044	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
1550021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1550043	毕业论文（设计） Graduation Thesis(Design)	7-8	4				考查 Quiz

九、教育学院专业拓展课程
Ⅸ. Specialized Development Courses of Educational School

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1543011	特殊教育概论 Introduction to Special Education	6	2	36		2	考查 Quiz
1543102	现代教育战略 Strategy for Modern Education	8	2	36		2	考查 Quiz
1543029	教育伦理学 Educational Ethics	6	2	36		2	考查 Quiz
1543004	教育生态学 Educational Ecology	5	2	36		2	考查 Quiz
1543093	教育人类学 Educational Anthropology	5	2	36		2	考查 Quiz
1543173	家庭教育学 Family Education	8	2	36		2	考查 Quiz
1543001	班级社会学 Class Sociology	7	2	36		2	考查 Quiz
1543078	教育文化学 Educational Culture Studies	7	2	36		2	考查 Quiz
1543177	民办教育专题研究 Monographic Research on Privately-run Schools	7	2	36		2	考查 Quiz
1543178	社会教育专题研究 Monographic Research on Social Education	6	2	36		2	考查 Quiz
1543179	信息技术与课程整合 Integration of Information Technology and Curriculum	8	2	36		2	考查 Quiz
说明 Notes	1. 教育学院专业拓展课程共 11 门，分 2 个系列或方向。 2. 教育学专业必须选修 10 学分。 1. There are 11 Specialized Development Courses of School of Education in total divided into 2 series or dimensions. 2. Undergraduates in Pedagogy specialty should obtain 10 credits						

教育技术学专业（师范）简介

Introduction to the Specialty of Educational Technology（Normal）

教育技术学专业，学制 4 年，专业属性为师范专业。该专业始建于 1985 年，2005 年被评为陕西省名牌专业，2007 年获批陕西省特色专业。

该专业专职任课教师 15 人，其中教授 6 人，副教授 6 人，讲师 3 人，具有博士学位的教师 8 人，国家级教学名师和全国优秀教师 1 人。目前拥有微机原理实验室、摄影与摄录像技术实验室、数字媒体技术实验室、网络与远程教育实验室、智慧教育实验室和机器人与通用技术实验室等 6 个专业实验室。

教育技术学专业致力于培养从事信息技术课程教学、数字化资源设计与开发、信息化教学环境建设、创客教育、信息化教育服务与管理等工作的优秀教师、教育管理人员和未来教育家。

The major of educational technology is a teacher-training program for four years of schooling. It was founded in 1985, and was rated as Famous Brand of Shaanxi Province in 2005. In 2007, it was awarded as the Featured Major of Shaanxi Province.

The major has 15 in-service teachers, including 6 professors, 6 associate professors and 3 lecturers. 6 teachers have got their PhD degree, and 1 teacher is awarded National Distinguished Teacher as well as National Outstanding Teacher. At present, there are 6 professional laboratories such as Computer Principle Laboratory, Photography and Video Technology Laboratory, Digital Media Technology Laboratory, Network and Distance Education Laboratory, Intelligent Education Laboratory and Robot and General Technology Laboratory.

The major in our university aims to cultivate excellent teachers, education administrators and future educators who will take on information technology teaching, digital resource design and development, digital instructional environment construction, Maker education, and informationized education service and management.

教育技术学专业（师范）
The Specialty of Educational Technology（Normal）

一、培养目标

Ⅰ. Educational Objectives

1. 目标定位

培养具有良好的人文素质与科学素质、健全的人格和良好的心理素质、较强的创新精神和实践能力，能胜任信息技术课程教学、信息技术与课程整合研究与设计、数字化教学资源设计开发、数字化教学环境及智慧校园构建与管理等工作的中学信息技术课程教师、教育管理人员和未来教育家。

1. Objective Orientation

The educational technology major mainly aims at cultivating IT teachers for secondary schools, education administrators and future educators. These talents should possess good humanistic and scientific quality, fine personality and nice mental quality, as well as strong spirit of innovation and practical ability. They should be qualified with information technology teaching, be competent in research and design of the integration of information technology and curriculum, and be competent in design and development of digital teaching resource, construction and management of digital teaching environment and smart campus.

2. 目标内涵

本专业毕业 5 年左右的学生，应当具备以下素养：

（1）热爱教育事业，具有扎实的教育技术学、计算机科学与技术相关理论及技能，能够对信息技术环境下的教学过程和教学资源进行设计、开发、运用、管理、评价；社会适应能力强，能够独立开展工作。

（2）掌握中学生身心发展特点和规律；具有良好的信息技术学科教学设计能力和课堂组织能力；熟悉课程改革的最新进展，能够基于课程标准指导课堂学习和课外活动；教育教学成效显著，成为所在学校骨干教师。

（3）善于将信息技术知识学习、技能培养与提升学生核心素养有机结合；具备较强的教学管理能力，能够胜任班主任工作；具有坚定的教育信念，能以自身人格魅力和学识魅力感染学生，做学生健康成长的引路人。

（4）了解国内外信息技术发展与课程改革的前沿动态，不断更新自身知识结构与提升专业技能；善于独立思考与专业创新，能够结合信息技术的发展积极开展教学创新的研究与实践；能够充分发挥专业优势，成为所在学校教育信息化环境建设与师资建设的骨干力量；具有团队协作精神，能通过校内外的教研活动开展专业交流，在所工作的区域内具有一定的影响力。

2. Objective Connotation

Students who have graduated from this major for about 5 years should have the following qualities:

(1)They should love education and have solid theories and skills related to educational technology, computer science and technology. They are competent in the design, development, application, management and evaluation of teaching process and instructional resources in the information technology environment. And they have strong social adaptability and are able to work independently.

(2)They should master the characteristics and laws of physical and mental development of secondary school students, have a good ability of instructional design in information technology disciplines and classroom organization, be familiar with the latest developments in curriculum reform, and be able to guide classroom learning and extracurricular activities based on curriculum standards. They should achieve remarkable results in education and instruction, and become a backbone teacher in the school.

(3)They should be good at combining information technology knowledge learning, skills training and improvement of students' core literacy. They should have a strong ability of teaching management, being able

to work as a class teacher. With a firm belief in education, they can influence students with their own personality charm and academic charm, and be a guide for the healthy growth of students.

(4)They should understand the frontier developments of information technology development and curriculum reform at home and abroad, constantly update their knowledge structure and enhance professional skills. They should be good at independent thinking and professional innovation, can actively carry out research and practice of teaching innovation in combination with the development of information technology. They should be able to give full play to professional advantages and become the backbone of the education information environment construction and teacher construction in the school. With the spirit of teamwork, they can carry out professional exchanges through teaching and research activities inside and outside the school, and have certain influence in the area where they work.

3. 目标评价

（1)依据国家形势和教育政策的变化，及时对培养目标进行修订；借助教育主管部门、教育研究机构及基础教育学校的力量，动态把握教育技术学专业的人才培养需求，培养符合国家基础教育改革发展需求的信息技术学科教师。

（2)建立稳定的培养目标修订机制，以学年为单位对人才就业情况与表现进行调研，收集用人单位、学生、专业教师、学生家长的意见和建议，并邀请领域内的专家对培养体系进行论证。通过信息公开平台，向社会及利益相关群体公开人才培养目标的修订结果。

（3)建立培养方案动态监控机制。以学年为单位对学生课程学业情况、课程设置与人才培养目标的适切度等情况进行跟踪、记录和分析；广泛调研国内外师范院校教育技术学专业人才培养方案的设计与修订情况，及时完善和优化人才培养方案，保持其在专业领域的先进性。

3. Objective Evaluation

(1)We will revise the training objectives in a timely manner according to changes in the national situation and education policies; With the help of the competent educational departments, educational research institutions and basic education schools, we will dynamically grasp the talent training needs of the education technology major and train teachers of information technology disciplines that meet the needs of the national basic education reform and development.

(2)We will establish a stable training target revision mechanism, conduct research on the employment situation and performance of talents in the school year, collect opinions and suggestions from employers, students, professional teachers, and parents of students, and invite experts in the field to demonstrate the training system. We will revise the results of the training objectives of the talents to the society and stakeholders through the information disclosure platform.

(3)We will establish a dynamic monitoring mechanism for the training program, track, record and analyze the academic situation of the students, the appropriateness of the curriculum and the training objectives of the students in the school year. We will extensively research the design and revision of the training program for educational technology professionals in normal schools at home and abroad, improve and optimize the personnel cultivating program in time, and maintain its advanced nature in the professional field.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 践行社会主义核心价值观，增进对中国特色社会主义的思想认同、政治认同、理论认同和情感认同。贯彻党的教育方针，以立德树人为己任。遵守中小学教师职业道德规范，具有依法执教意识，立志成为有理想信念、有道德情操、有扎实学识、有仁爱之心的好老师。【师德规范】

2. 具有从教意愿，认同教师工作的意义和专业性，具有积极的情感、端正的态度、正确的价值观，树立坚定的职业信念。具有人文底蕴和科学精神，尊重学生人格，富有爱心、责任心，工作细心、耐心，做学生锤炼品格、学习知识、创新思维、奉献祖国的引路人。【教育情怀】

3. 掌握教育技术学科的基本知识、基本原理和基本技能，理解学科知识体系基本思想、学科发展历史及学科主要研究方法。了解信息技术学科与其他学科的联系，了解信息技术学科与社会实践的联系，了解教育信息化改革的基本方向与内容。具有跨学科知识结构，初步掌握教育学、心理学、学习科学、计算机科学与技术等领域的基本知识和技能，并具有将上述学科知识融合来实现教学创新的能力。【学科素养】

4. 具有信息技术与课程整合的能力，能够依据信息技术学科课程标准，针对中学生身心发展和学科认知特点，在信息技术环境下对教学过程和教学资源进行设计、开发、运用、管理、评价。掌握信息技术学科教学基本技能，具有一定的教学研究能力，能够积极创新教学方法，围绕学生核心素养的培养进行新型课堂的探索与实践。能够胜任数字化教学环境及智慧校园构建与管理等教育信息化相关工作。【教学能力】

5. 树立德育为先理念，了解中学德育原理与方法。掌握班级组织与建设的工作规律和基本方法。能够在班主任工作实践中，参与德育和心理健康教育等教育活动的组织与指导，获得积极体验。【班级指导】

6. 了解中学生身心发展和养成教育规律。理解学科育人价值，能够有机结合学科教学进行育人活动。了解学校文化和教育活动的育人内涵和方法，参与组织主题教育和社团活动，对学生进行教育和引导，并充分发挥信息技术在育人中的积极作用。【综合育人】

7. 具有终身学习与专业发展意识。了解国内外基础教育改革发展与信息技术发展的动态，能够适应时代和教育发展需求，进行学习和职业生涯规划。初步掌握反思方法和技能，具有一定创新意识，运用批判性思维方法，学会分析和解决教育教学问题。【学会反思】

8. 理解学习共同体的作用，具有团队协作精神，掌握沟通合作技能，具有小组互助和合作学习体验。积极参与观摩互助、合作研究、小组实习等协作学习活动，积极分享交流实践经验。【沟通合作】

In order to guide teachers to teach purposefully and students to learn purposefully, this major refines the graduation requirements into eight index points that are practical, evaluable, logical and professional. The details are as follows:

1. Undergraduates of Educational Technology major should practice the core values of socialism and enhance the ideological identity, political identity, theoretical identity and emotional identity of socialism with Chinese characteristics. They should carry out the Party's educational policy and take the role of strengthening of moral education and cultivating people. Adhere to the professional ethics of primary and secondary school teachers, have the awareness of teaching according to law, and aspire to become a good teacher with ideals, ethical sentiments, solid knowledge, and benevolent heart. [Code of Teacher's Ethics]

2. Undergraduates of Educational Technology major should have the willingness to teach, recognize the significance and professionalism of teachers’ work. They should have positive emotion, hold correct attitudes and values and establish a firm belief in career. They should own humanistic connotations and scientific spirit. Then they should respect the personality of the students, be caring and responsible and work carefully and patiently, and be a guide for students to temper character, learn knowledge, innovate in thinking, and contribute to the motherland. [Educational Feelings]

3. Undergraduates of Educational Technology major should master the basic knowledge, basic principles and basic skills of the educational technology discipline, and understand the basic ideas of the subject knowledge system, the history of the discipline development and the main research methods of the discipline. They should understand the relationship between information technology disciplines and other disciplines, understand the relationship between information technology disciplines and social practice, and understand the basic direction and content of education informationization reform. What’s more, they should have an interdisciplinary knowledge structure, and have an initial grasp of the basic knowledge and skills in the fields of education, psychology, learning science, and computer science, and have the ability to integrate the above-mentioned subject knowledge to achieve teaching innovation. [Subject Literacy]

4. Undergraduates of Educational Technology major should have the ability of information technology and curriculum integration, and can design, develop, apply, manage, evaluate the teaching process and teaching resources under the information technology environment aiming at the physical and mental

development of middle school students and the cognitive characteristics of the subject according to the information technology subject curriculum standards. They should master the basic skills of information technology subject teaching, have certain teaching and research capabilities, be able to actively innovate teaching methods, and explore and practice new classrooms around the cultivation of students' core literacy. Besides, they should be competent in construction and management of digital teaching environment and smart campus and other educational information related work. [Teaching Ability]

5. Undergraduates of Educational Technology major should set up the concept of moral education first. In addition to understanding the principles and methods of moral education in middle school and mastering the working rules and basic methods of class organization and construction, they should participate in the organization and guidance of educational activities such as moral education and mental health education, and gain a positive experience in the work of the class teacher. [Class Guidance]

6. Undergraduates of Educational Technology major should understand the rules of physical and mental development and the nature of cultivation in secondary school education. They should understand the value of nurturing a person in this subject, be able to educate a person during teaching activities. They should know the content and methods of school culture and educational activities, participate in organizing theme education and society activities, provide guidance and constructive training for students' development and give full play to the positive role of information technology in educating people. [Comprehensive Education]

7. Undergraduates of Educational Technology major should have awareness of lifelong learning and professional development. They should understand the dynamics of basic education reform and development and information technology development at home and abroad, be able to adapt to the needs of the times and educational development and plan their learning and career. Additionally, they should initially master the methods and skills of reflection, have a certain sense of innovation, use critical thinking methods, learn to analyze and solve education and teaching problems. [Learn Reflection]

8. Undergraduates of Educational Technology major should understand the role of the learning community, have the spirit of teamwork, master communication and cooperation skills, and have experience of group mutual help and cooperative learning. Besides, actively experiencing the cooperative learning activities such as mutual aid, cooperative research and group practice, then they should be active in sharing and exchanging practical experience. [Communication and Cooperation]

三、主干学科

Ⅲ. Core Disciplines

教育学、心理学、计算机科学与技术

Education, Psychology, Computer Science and Technology

四、主干课程

Ⅳ. Main Courses

教育技术学、教学系统设计、信息技术与课程整合、教育技术研究方法、现代远程教育、教育传播学、教育心理学、计算机网絡、多媒体技术应用

Educational Technology, Instructional System Design, Integration of information technology and Curriculum, Research Methodology in Educational Technology, Modern Remote Education, Educational Communications Theories, Educational Psychology, Computer Networks, Application of Multimedia Technology

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

162 学分

162 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 **Course Catalogue**		学分及比例 **Credits and Percentage**			
		学 分 **Cre.**	小 计 **Sub-Total**	占总学分比例 **Percentage in Total Credits**	小 计 **Sub-Total**
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.9%	33.3%
	通识教育选修课 Liberal Studies Elective Courses	12		7.4%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	11	18	6.8%	11.1 %
	本学科基础课 Disciplinary Foundation Courses	7		4.3%	
专业课程模块 Specialized Courses	专业必修课 Specialized Compulsory Courses	34	58	21%	35.8%
	专业限定选修课 Specialized Restrictive Elective Courses	20		12.3%	
	专业任意选修课 Specialized Non-restrictive Elective Courses	4		2.5%	
教师教育模块 Teacher-training Courses	公共必修课 General Compulsory Courses	10	15	6.2%	9.3%
	学科必修课 Disciplinary Compulsory Courses	5		3.1%	
	选修课 Elective Courses	2			
实践教学模块 Practice Work	必修课 Compulsory Courses	17	17	10.5%	10.5%
合计 Total		162		100%	

说明
Notes

1. 本专业学科专业课程包括学科基础模块课程、专业课程模块课程和教师教育模块、实践教学模块中的学科专业课程，其学分占总学分比例为 57.4 %。

2. 专业必修课（包括学科基础课程和专业必修课）共 20 门，其中双语课程 1 门，全英语课程 0 门。

3. 专业选修课共 24 门，其中专业限选课程 17 门，分 6 个系列（方向）；专业任选课程 7 门。学生应从专业限选课程中至少选修 20 学分，从专业任选课程中至少选修 4 学分。

4. 实验课程共 31 门，其中独立开设的实验课 1 门，既有理论又有实验的课程 30 门，含综合性、设计性实验的课程 23 门，占实验课程总数的 74.2%。

5. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 23.0%,实践教学环节学时占总学时的比例为 38.6%

1. The specialized courses of this major include the subject-based module course, the professional course module course, the teacher education module and subject profession curriculum in the practical teaching module, whose credits account for 57.4% of the total credits.

2. There are 20 specialized compulsory courses, including 1 bilingual course.

3. There are 24 specialized elective courses in total , including 17 specialized restrictive elective courses divided into 6 series or dimensions and 7 specialized non-restrictive elective courses. Undergraduates should obtain 20 credits in total by taking specialized restrictive elective courses and 4 credits by taking specialized non-restrictive elective courses.

4. There are 31 Experimental Courses in total including 1 Independent Experimental Course, 30 Theoretical and Experimental Courses , and 23 Designable Experimental Courses which is 74.2% of the total Experimental Courses.

5. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 23.0% of the total credits.

八、教育技术学（师范）专业本科教学计划表

Ⅷ. Teaching Scheme for Educational Technology Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses(54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer(for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming(for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（18 学分）

（Ⅱ）Disciplinary Foundation Courses(18 credits)

1. 相关学科基础课（11 学分）

1. Related Disciplinary Foundation Courses (11 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		5	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
1521026	数据库原理与应用 Database Theory and Application	3	3	36	36	4	考试 Exam

2. 本学科基础课（7 学分）

2. Disciplinary Foundation Courses (7 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1522064	视听心理学 Audio-visual Psychology	3	2	36		2	考试 Exam
1522081	教育技术学 Educational Technology	1	3	54		3	考试 Exam
1522066	教育心理学 Educational Psychology	2	2	36		2	考试 Exam

（三）专业课程模块（58 学分）

（Ⅲ）Specialized Courses(58 credits)

1. 专业必修课（34 学分）

1. Specialized Compulsory Courses (34 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1541213	模拟电路 Analog Circuit	3	3	36	36	4	考试 Exam
1541158	教学系统设计 Instructional System Design	5	3	54		3	考试 Exam
1541159	教育技术学研究方法 Educational Technology Research Methods	5	2	36		2	考试 Exam
1541160	研究设计与论文写作 Research Design and Thesis Writing	6	2	36		2	考查 Quiz
1541161	计算机网络 Computer Network	5	3	54		3	考试 Exam
1541162	信息技术与课程整合 Information Technology and Curriculum Integration	4	2	36		2	考试 Exam
1541164	现代远程教育 Modern Distance Education	6	2	36		2	考试 Exam
1541165	教育传播学 Educational Communication Theories	3	2	36		2	考试 Exam
1541214	多媒体应用基础 Fundamentals of Multimedia’Application	5	3	36	36	4	考试 Exam
1541168	学科专业导引 Introduction to Educational Technology	1	1	18		1	考试 Exam
1541220	信息化教育管理工程 Informational Education Management	5	2	36		2	考试 Exam

1541215	微机原理 Computer Principles	5	3	36	36	4	考试 Exam
1541216	数字电路 Digital circuit	4	3	36	36	4	考试 Exam
1541217	C 程序设计 C Programming	2	3	36	36	4	考试 Exam

2. 专业限定选修课（20 学分）

2. Specialized Restrictive Elective Courses (20 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
教育技术专业技能系列课程： Courses of Educational Technology Professional Skill series：							
1542129	通用技术与人工智能 General purpose Technology and Artificial Intelligence	6	3	36	36	4	考查 Quiz
1542130	数字媒体教育应用 Application of Digital Media in Education	8	2.5	36	18	3	考查 Quiz
1542131	教育统计学 Educational Statistics	3	3	54		3	考查 Quiz
1542187	多媒体课件设计与制作 Multimedia Courseware Design and Production	6	3	36	36	4	考查 Quiz
1542206	信息技术教育应用 Application of Information Technology and Education	2	2	36		2	考查 Exam
1542207	网页设计与网站开发 Webpage Design and Website Development	5	3	36	36	4	考查 Quiz
1542134	移动学习理论与实践 Mobile learning Theory and Practice	4	2.5	36	18	3	考查 Quiz
1542189	电路基础 Fundamentals of Circuit	2	3	36	36	4	考查 Quiz
1542209	数据结构 Data Structure	3	2	36		2	考查 Quiz
1542190	基础教育课程改革专题 Basic Education Curriculum Reform	4	1	18		1	考查 Exam.
1542210	三维动画技术 3D Animation Technology	6	3	36	36	4	考查 Quiz
1542137	教育信息处理 Education and Information Processing	2	2	36		2	考查 Quiz
1542211	摄录像与非线编技术 Camera and Non-Linear Editing Technique	4	3	36	36	4	考查 Quiz
1542192	网络工程与信息安全 Networks Project and Information Safety	6	3	36	36	4	考查 Quiz
1542212	数字视频制作 Digital Video Making	5	3	36	36	4	考查 Exam
1542140	摄影技术基础 Fundamentals of Photography	2	2.5	36	18	3	考查 Quiz
1542141	学习科学导论 Introduction to the Learning Sciences	6	2	36		2	考查 Quiz

3. 专业任意选修课（4 学分）

3. Specialized Non-restrictive Elective Courses (4 credits)

详见学院专业任意选修课。

See Specialized Non-restrictive Elective Courses of School of Education.

（四）教师教育模块（15 学分）

（Ⅳ）Teacher-training Courses（15 credits）

1. 公共必修课（10 学分）

1. General Compulsory Courses（10 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2431028	心理学基础 The Basis of Psychology	2	1	18		2	考试 Exam.
2431029	儿童发展 Child Development	2	1	18		2	考试 Exam.
2431030	中学生认知与学习 The Cognition and Learning of Middle School Students	3	1	18		2	考试 Exam.
2431031	中学生品德发展与道德教育 Moral Development and Moral Education for Middle School Student	3	1	18		2	考试 Exam.
2431032	中学生心理辅导 Psychological Guidance for Middle School Students	4	1	18		2	考试 Exam.
1531128	中学教育学基础 Foundation of Middle School Education	4	3	54		3	考试 Exam.
1531130	教师专业发展与职业道德 Teacher’s Professional Development & Professional Ethics	5	2	36		2	考试 Exam.

2. 学科必修课（5 学分）

2. Disciplinary Compulsory Courses（5 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1531136	信息技术学科教学论 Information Technology Discipline Pedagogy	6	3	54		3	考试 Exam.
1531137	中小学信息技术教材分析与教学设计 Middle School and Primary School Teaching Material Analysis and Teaching Design	6	2	36		2	考试 Exam

3. 选修课（见通识教育选修课程“教师教育”系列）

3. Elective Courses（See Teacher-training Series of Liberal Studies Elective Courses）

（五）实践教学模块（17 学分）

（Ⅴ）Practice Work（17 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1550028	教师教学基本技能训练 Training of Teachers’ Basic Teaching Skills		1				考查 Quiz
1550017	必读书目阅读 Required Readings		1				考查 Quiz
1550040	信息技术学科教学技能训练 Pedagogical Training	6	1				考试 Exam.
1550019	教育见习 School Visits	1-6	1				考查 Quiz
1550042	教育实习 Teaching Practice	7	6				考查 Quiz
1550035	教育实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1550043	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

九、教育学院专业任意选修课

Ⅸ. Specialized Non-restrictive Elective Courses of School of Education

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
教育学系列（方向）课程： Courses of Education series/dimension							
1543128	计算机的使用与维护 Maintenance and Use of Computers	6	2	18	36	3	考查 Quiz
1543129	专业外语（教育技术学） Specialized Foreign Languages(for Educational Technology)	5	2	36		2	考查 Quiz
1543130	机器人教育 Robot Education	8	3	36	36	4	考查 Quiz
1543131	增强现实技术 Augmented Reality Technique	6	2	18	36	3	考查 Quiz
1543132	班级社会学 Classroom Sociology	6	2	36		2	考查 Quiz
1543180	微课程设计与应用 Micro curriculum Design and Application	4	3	36	36	4	考查 Quiz
1543134	人机交互与 E-Learning 设计 Human-Computer Interaction and E-learning Design	6	2	36		2	考查 Quiz
说明 Notes	1. 教育学院专业任意选修课共 7 门。 2. 教育技术学专业必须选修 4 学分； 1. There are 7 Specialized Non-restrictive Elective Courses； 2. Undergraduates in Educational Technology Major should obtain 4 credits.						

学前教育专业（师范）简介
Introduction to the Specialty of Preschool Education（Normal)

学前教育专业，学制 4 年，专业属性为师范专业。该专业最早可以追溯到 1957 年暑期，文革期间一度中断，1982 年恢复招生，属于全国同类专业中设置较早的专业，该专业现已成为具有涵盖本科、硕士、博士的完整学前教育人才培养体系。专业是陕西师范大学特色专业、陕西省特色专业，也是国家级幼儿教育卓越教师培养单位。该专业目前有国家级精品课程 1 门，省级精品课程 2 门。

目前该专业在职任课教师 22 人，其中教授 5 人，副教授 13 人，具有博士学位的教师 14 人，具有硕士学位的教师 5 人。

该本专业主要培养师德高尚，具备扎实的儿童发展与学前教育理论与基本知识，拥有科学的保教和研究能力，能够独立承担幼儿园教育教学管理和研究任务，具备卓越幼儿教师潜质的优秀教师、教育管理者和未来教育家。

The specialty of Preschool Education is a 4-year undergraduate teacher-training program with a long history. This program dates back to the summer vacation period in 1957. As one of the earliest programs of teacher education, it was suspended during the Culture Revolution period and resumed in 1982. With much accumulation and development over the past 30 years, this program has evolved into a holistic education system covering programs ranging from bachelor’s degree, master’s degree to doctoral degree. The specialty of Preschool Education is a Characteristic Program of Shaanxi Normal University and Shaanxi province, responsible for the training of national excellent kindergarten teachers.

At present, there are 22 teachers working in this program, including 5 professors, 13 associate professors. Among them, 14 teachers have obtained doctoral degree and 5 teachers have obtained master's degree.

This major aims to help the students to develop the awareness of love as the basic characteristics of morality, and to have rich child development and pre-school education theory, and then to have the ability of scientific research who can undertake the kindergarten education and research assignment independently with outstanding potential teaching techniques as outstanding teachers, education administrators and future educators.

学前教育专业（师范）
The Specialty of Preschool Education（Normal)

一、培养目标

Ⅰ. Educational Objectives

1. 目标定位

本专业立足西部，面向全国，培养德、智、体、美全面发展，身心健康，师德高尚，热爱学前教育事业，具备扎实的儿童发展与学前教育理论与基本知识，拥有科学的保教和研究能力，能够独立承担幼儿园教育教学管理和研究任务，具备成为卓越幼儿教师潜质的熟练型幼儿园优秀教师、教育管理者和未来教育家。

1. Objectives Orientation

This major stands in the western part of China, and keeps close links with the whole country. It emphasizes students' comprehensive development in morality, intelligence, sports and aesthetics. The ultimate objective of this major is to cultivate skilled teachers and education managers who are equipped with high quality of physical and mental health, moral standards, enthusiasm for preschool education, solid theory and basic knowledge in the field of preschool education, ability of scientific child care work, research ability and the capacity to undertake kindergarten education and teaching management.

2. 目标内涵

本专业毕业 5 年左右的学生，应当具备以下素养。

（1)形成学前教育专业的先进理念。热爱学前教育专业，坚持依法执教；具备高尚的师德理念，形成致力于幼教专业的坚定信念；具有自我发展的自我意愿，形成自我发展的内在动力。

（2）熟练掌握学前教育事业的相关知识。拥有扎实的从事保教工作的相关知识，掌握 3—6 岁幼儿身心发展特点及规律；掌握现代幼儿教师需要的广博科学文化知识基础。

（3)形成熟练的从事学前教育工作的能力。具有丰富的幼儿游戏设计与指导能力，能够独立组织五大领域教育活动，能够创设具有教育情景的幼儿园环境；具有较强的自我反思意识和能力，掌握反思的基本方法，能够对自己的专业成长进行反思；拥有独立承担学前教育科学研究的能力，具备科学观察和评价幼儿的能力，初步形成批判性思维；拥有与专业相关的沟通与对话能力，形成良好的同事关系、师幼关系、与家长的关系，具备指导家庭教育和家园共育的能力；具备课程开发的能力，能够结合幼儿园实际进行幼儿园课程开发和设计。

（4)具备持续自我发展的意识和能力。了解国内外学前教育发展的趋势和前沿动态，不断更新自己的教育理念和教育方式；善于独立思考，能够针对实际教育问题开展科学、严谨的研究；具有团队协作精神和区域影响力。

（5)具备育人的理念和能力。能够合理组织、优化环境，营造适宜幼儿发展的软硬件环境，具备班级管理的能力；善于运用各种教育契机对幼儿进行教育，具备全园育人、全程育人的能力和意识。

2. Objectives Connotation

Students who graduated from this major for about 5 years should have the following qualities.

(1) Having advanced concepts in the field of preschool education. Students should have enthusiasm for preschool education, perseverance of teaching based on law, a noble concept of teacher ethics, a firm belief in preschool education, and internal motivation and desire of self-development.

(2) Developing proficient knowledge of preschool education. Students should have a solid knowledge of kindergarten care work, learn the physical and mental development of 3-6 years old children, and develop a wide knowledge which is important for a modern preschool teacher.

(3) Establishing skilled ability to engage in preschool education. Students should have rich capacity to design and guide early childhood game, independently organize education activities in the Five Fields, create a kindergarten environment with educational scenes, have strong sense and ability of self-reflection, and

master the basic method of reflection and can reflect on their professional growth. Additionally, students can independently undertake scientific research in pre-school education, develop the ability to scientifically observe and evaluate children, take critical thinking, develop professional related communication skills, build good relationships with colleagues, children and parents, establish the ability to guide family education and home co-education. Finally, students should have abilities to design and develop curriculum based on the practice in kindergartens.

(4) Developing the sense and ability of continuous self-development. Students can learn about the development trends and frontiers in preschool education and constantly update their educational ideas and methods. In addition, they can be good at independent thinking and carry out scientific and rigorous research plan based on practical education issues. The spirit of teamwork and regional influence are also necessary to be built for students.

(5) Establishing concepts and abilities to educate people. Students should reasonably organize and optimize the environment, create a suitable environment for early childhood development including environment of software and hardware, develop the ability of class management. Moreover, students should be good at using various educational opportunities to educate young children and have the ability and awareness of education for all personnel, all gardens, and all stages.

3. 目标评价

（1)依据国家形势和教育政策的变化，及时对培养目标进行修订。紧随时代发展，借助政府主管部门、学校管理部门以及幼儿园相关部门的力量，把握人才需求方向，培养符合国家学前教育改革发展需求的优秀幼儿园教师。

（2)以学年为单位，建立稳定的培养目标修订机制。依照培养目标，对人才就业情况与表现进行持续调研，并邀请领域内的专家对培养体系进行论证。

（3)建立历年培养方案变化的跟踪机制。每年对学生表现情况、不同课程毕业要求的支撑情况进行分析，作好记录和分析；通过收集用人单位、学生、高校教师、学生家长的意见和建议，了解培养方案的优势和不足，建立档案，不断进行优化。

3. Objectives Evaluation

(1) We will revise the training objectives in a timely manner in accordance with changes in the national situation and education policies. With the development of the times and the help of the competent government departments, school management departments and relevant departments of kindergartens, we will grasp the direction of talent demand and cultivate excellent kindergarten teachers who meet the needs of national preschool education reform and development.

(2) We will establish a stable training objectives revision mechanism in each academic year. According to the training objectives, we will continue to conduct research on the employment situation and performance of talents and invite experts in the field to demonstrate the training system.

(3) We will establish a tracking mechanism for changes in training programs over the years. We will analyze and make records and analysis on the performance of students and the support of graduation requirements of different courses every year, collect the opinions and suggestions of employers, students, college teachers, and parents of students to understand the advantages and disadvantages of the training programs, and Establish related archives and make continuous optimization.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 践行社会主义核心价值观，增进对中国特色社会主义的思想认同、政治认同、理论认同和情感认同；贯彻党的教育方针，以立德树人为己任；遵守幼儿教师职业道德规范，具有依法执教意识，立志成为有理想信念、有道德情操、有扎实学识、有仁爱之心的“四有”好老师。【师德规范】

2. 具有从教意愿，热爱学前教育事业，认同幼儿教师工作的意义和专业性，具有积极的情感、坚定的职业信念、端正的态度和正确的价值观；具有人文底蕴和科学精神，尊重幼儿人格，富有爱心、责任心、事业心，工作细心、耐心，成为幼儿健康成长的启蒙者和引路人。【教育情怀】

3. 具有从事幼儿教育事业必须的科学和人文素养，正确理解幼儿的身心发展规律和学习特点；理解学前教育事业所需的领域基本知识，掌握幼儿园保教活动的基本方法和基本策略；注重在幼儿园教育活动组织与实施中对知识的整合。【保教知识】

4. 依据《幼儿园教育指导纲要（试行）》、《3—6 岁儿童学习与发展指南》和《幼儿园工作规程》，能够根据幼儿身心发展规律和学习特点，科学运用幼儿保教知识，结合幼儿园实际正确规划幼儿一日生活、科学创设室内外环境、合理组织幼儿活动；具有科学观察幼儿、与幼儿谈话并能记录与分析的能力；具有幼儿园活动评价与自我研究的能力。【保教能力】

5. 熟悉并熟练掌握幼儿园班级工作基本特点，帮助幼儿建立积极的班级秩序与规则；能够科学合理规划利用幼儿园的空间和时间，创设良好健康积极的班级环境；充分利用幼儿园内外的各种教育资源，积极开发和构建符合幼儿园需求的园本资源体系；建立良好的同伴关系和师幼关系，营造良好班级心理氛围；为人师表，发挥自身的榜样作用。【班级管理】

6. 科学理解幼儿的社会性—情感发展的特点和规律，加强幼儿社会性教育，注重培育幼儿良好意志品质和行为习惯；充分理解幼儿园环境所蕴含的育人价值，了解园所文化和一日生活对幼儿发展的价值，营造能够促进幼儿全面发展的物质环境和精神环境氛围，发掘并运用幼儿一日生活中各种教育契机，注重对幼儿进行随机而教；综合利用幼儿园、家庭和社区各种资源全面育人，构建“家庭—社区—幼儿园”协同育人的环境；注重幼儿园教师群体之间团结协作，发挥教师群体的协同育人功能。【综合育人】

7. 了解幼儿教师在专业发展特征及专业成长历程，具备终身学习与专业发展意识，能够进行专业发展的科学规划和专业成长自我设计；了解国内外学前教育改革发展动态，具备学前教育发展的全球视野，能够适应时代和教育发展需求；熟练掌握科学的学前教育专业反思方法和技能，具备一定的创新意识和创新思维，能够科学、熟练运用批判性思维方法。【学会反思】

8. 理解幼儿教师工作的集体性劳动特征，了解学习共同体在学前教育事业发展和教师专业成长中的积极作用；具有团队协作精神，建立和谐融洽、有效配合、积极合作的同伴工作关系；掌握沟通合作技能，掌握与同事、家长和幼儿进行有效沟通的科学方法；具有小组互助和合作学习体验。【沟通合作】

Students of this major have to obtain the credits required by the teaching plan during 4-6years, meeting the following basic requirements to graduate:

1. Undergraduates should love the CPC and the nation, practice the core values of socialism, enhance the ideological identity, political identity, theoretical identity and emotional identity of socialism with Chinese characteristics. They should implement the Party's educational policy, take the ethics as one’s own responsibility, observe the professional ethics of teachers. Students should be equipped with awareness of teaching according to law, and the determination to become a good teacher with ideals and convictions, moral sentiments, solid knowledge, and benevolent heart. [Teacher's Moral Standards]

2. Undergraduates should have the willingness to teach, love education, recognize the meaning and professionalism of preschool teachers. They should have positive emotions, correct attitudes and correct values, as well as humanistic and scientific spirit, and respect children's personality. Students should become the enlighteners and guiders of children, who are equipped with love, responsibility, career commitment and patience. [Educational Feelings]

3. Undergraduates should have the scientific and humanistic qualities necessary for engaging in early childhood education, correctly understand the rules and characteristics of children's physical and mental development, understand the basic knowledge required in preschool education, master the basic methods and basic strategies of child care and education in kindergarten, and focus on the integration of knowledge in the organizing educational activities. [Child Care Knowledge]

4. Undergraduates should follow the "Guidelines of Kindergarten Education (Trial)" and "Guidelines for the Learning and Development of Children Aged 3-6", and also take as the basis the rules of children's physical and mental development and the characteristics of learning. They should apply the knowledge of

early childhood education, scientifically plan a day of life and create an environment and rationalize organize activity. Students should have the ability to observe young children, talk to children, record, analyze and evaluate kindergarten activities. [Care and Teaching Ability]

5. Undergraduates should master the characteristics of kindergarten classes, establish class order and rules, reasonably plan and utilize space and time, create a good class environment, make full use of various educational resources, establish good peer relationships and teacher-child relationship, and create a good class atmosphere. Teachers should also act as models to the children. [Class Management]

6. Undergraduates should understand the characteristics and processes of children's social-emotional development, and pay attention to cultivating children's good quality of willpower and behavioral habits. They should understand the value of environmental education and kindergarten culture and daily life for the development of children, and make full use of multiple educational opportunities to educate children. They should comprehensively utilize the resources of kindergartens, families and communities to for education. [Integrated Education]

7. Undergraduates should have awareness of lifelong learning and professional development, understand the development of preschool education reform at home and abroad, adapt to the needs of the times and education development, and conduct study and career planning. They should initially master the methods and skills of reflection, have a certain sense of innovation, use critical thinking methods, and learn to analyze and solve problems. [Learn to Reflect]

8. Undergraduates should understand the role of the learning community, have the spirit of teamwork, master skills of communication and cooperation, and have cooperative learning experience within groups. [Communication and Cooperation]

三、主干学科

Ⅲ. Core Disciplines

教育学、心理学、艺术学

Pedagogy, Psychology, Art Theory

四、主干课程

Ⅳ. Main Courses

教育学基础、心理学基础、教育心理学、学前教育学、儿童心理学、学前卫生学、幼儿园课程、幼儿园管理学、学前教育科研方法、幼儿园游戏、学前教育评价、学前教育音乐基础、学前教育舞蹈基础、学前教育美术基础

Fundamentals of Pedagogy, Fundamentals of Psychology, Educational Psychology, Preschool Pedagogy, Children Psychology, Preschool Hygiene, Kindergarten Curriculum, Kindergarten Administration, Preschool Education Research Methods, Kindergarten Games, Preschool Education Assessment, Fundamentals of Music in Preschool Education, Fundamentals of Dance in Preschool Education, Fundamentals of Fine Arts in Preschool Education

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

教育学学士

Bachelor of Education

六、学分要求

Ⅵ. Total Credits

164 学分

164 Credits

七、课程设置及学分比例
Ⅶ. Curriculum Setting and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.6%	32.9%
	通识教育选修课 Liberal Studies Elective Courses	12		7.3%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	6	20	3.7%	12.2%
	本学科基础课 Disciplinary Foundation Courses	14		8.5%	
专业课程模块 Specialized Courses	专业必修课 Specialized Compulsory Courses	31	60	18.9%	38.6%
	专业限定选修课 Specialized Restrictive Elective Courses	27		16.5%	
	专业任意选修课 Specialized Non-restrictive Elective Courses	2		1.2%	
教师教育模块 Teacher-training Courses	公共必修课 General Compulsory Courses	4	8	2.4%	4.9%
	学科必修课 Disciplinary Compulsory Courses	4		2.4%	
	选修课 Elective Course	2		已并入通识教育选修课	
实践教学模块 Practice Work	必修课 Compulsory Courses	22	22	13.4%	13.4%
合计 Total		164		100%	

说明 Notes	1. 专业必修课（包括专业必修课程和学科基础课程）共 25 门。 2. 专业选修课共 30 门，其中专业方向课程 22 门；专业拓展课程 8 门。学生应从专业方向课程中至少选修 27 学分，从专业拓展课程中至少选修 2 学分。 3. 实验课程共 4 门，其中独立开设的实验课 1 门，既有理论又有实验的课程 1 门，含综合性、设计性实验的课程 2 门，占实验课程总数的 50%。 4. 本专业学科专业课程包括学科基础模块课程、专业课程模块课程和教师教育模块、实践教学模块中的学科专业课程，其学分占总学分比例为 63.41%。 5. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 25.0%。 1. There are 25 Specialized Compulsory Courses in total, including Specialized Core Courses and Disciplinary Foundation Courses. 2. There are 30 Specialized Elective Courses in total, including 22 Specialized Orientation Courses and 8 Specialized Development Courses. Undergraduates should obtain at least 27 credits in total by taking Specialized Orientation Courses and 3 credits by taking Specialized Development Courses. 3. There are 4 Experimental Courses in total, including 1 Independent Experimental Course, 1 Theoretical and Experimental Course, 2 Comprehensive Designing Experimental Courses, which is 50% of the total Experimental Courses. 4. Specialized courses of the subject include disciplinary foundation courses, specialized core courses, specialized orientation courses, specialized development courses, professional courses, specialized courses of practice work, taking up 63.41% of the total credits. 5. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 25.0% of the total credits.

八、学前教育本科教学计划表
Ⅷ. Teaching Scheme for Preschool Education Undergraduate Candidates

（一）通识教育模块（54 学分）
（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005- 1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0511033	高等数学（文科） Advanced Mathematics (for Liberal Arts Specialties)	2	2	36		2	考试 Exam.
1211043	计算机基础（文、艺、体） Fundamentals of Computer (for Liberal Arts, Art and P.E. Specialties)	1	2	27	18	2	考试 Exam.
1211036	多媒体应用技术与网页设计（文科） Multimedia Technology Application and Webpage Design (for Liberal Arts Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（20 学分）

（Ⅱ）Disciplinary Foundation Courses (20 credits)

1. 相关学科基础课（6 学分）

1. Related Disciplinary Foundation Courses (6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0221001	大学语文（文） College Chinese (for Liberal Arts Specialties)	3	2	36		2	考试 Exam.
1521004	哲学概论 Introduction to Philosophy	1	2	36		2	考试 Exam.
1521009	艺术概论 Introduction to Arts	2	2	36		2	考试 Exam.

2. 本学科基础课（14 学分）

2. Disciplinary Foundation Courses (14 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1522001	教育学基础 Fundamentals of Pedagogy	2	3	54		3	考试 Exam.
1522040	心理学基础 Fundamentals of Psychology	1	3	54		3	考试 Exam.
1522062	中外教育史 History of Chinese and Foreign Education	2	3	54		3	考试 Exam.
1522080	教育统计学 Educational Statistics	4	3	54		3	考试 Exam.
1522066	教育心理学 Educational Psychology	4	2	36		2	考试 Exam.

备注：中外教育史采取分段授课方式进行，开课当学期前半段开设“中国教育史”部分，后半段开设“外国教育史”部分。

（三）专业课程模块（60 学分）

（Ⅲ）Specialized Courses (60 credits)

1. 专业必修课（31 学分）

1. Specialized Compulsory Courses (31 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1541136	学前教育学科专业导引 Introduction to Preschool Education	1	1	18		2	考查 Quiz
1541127	学前卫生学 Preschool Hygiene	3	3	54		3	考试 Exam.
1541146	儿童心理学 Children Psychology	3	3	54		3	考试 Exam.
1541147	学前教育学 Preschool Pedagogy	4	3	54		3	考试 Exam.
1541123	学前教育史 History of Preschool Education	6	2	36		2	考试 Exam.
1541221	幼儿园课程 Kindergarten Education Course	5	2	36		2	考试 Exam.
1541149	幼儿园管理学 Kindergarten Administration	6	2	36		2	考试 Exam.
1541150	幼儿园游戏 Kindergarten Games	5	2	36		2	考试 Exam.
1541151	学前教育研究方法（不含实验设计与论文写作） Preschool Education and Research Methods (Experimental Design and Thesis Writing Excluded)	5	3	54		3	考查 Quiz.
1541152	学前教育评价 Preschool Education Assessment	6	2	36		2	考查 Quiz.
1541153	幼儿文学 Children's Literature	3	2	36		2	考查 Quiz

1541137	学前教育音乐基础（一） Fundamentals of Music in Preschool Education	1	1		36	2	考试 Exam.
1541138	学前教育舞蹈基础（一） Fundamentals of Dance in Preschool Education	1	1		36	2	考试 Exam.
1541139	学前教育美术基础（一） Fundamentals of Fine Arts in Preschool Education	1	1		36	2	考试 Exam.
1541154	学前教育音乐基础（二） Fundamentals of Music in Preschool Education	2	1		36	2	考试 Exam.
1541155	学前教育舞蹈基础（二） Fundamentals of Dance in Preschool Education	2	1		36	2	考试 Exam.
1541156	学前教育美术基础（二） Fundamentals of Fine Arts in Preschool Education	2	1		36	2	考试 Exam.

2. 专业限定选修课（27 学分）

2. Specialized Restrictive Elective Courses (27 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1542113	学前教育专业英语 Specialized English for Preschool Educational	6	2	36		2	考查 Quiz.
1542114	幼儿园手工制作与环境创设 Kindergarten Handcraft and Environment Creation	3	2	18	36	3	考查 Quiz
1542115	幼儿园实用音乐作品弹唱（一） Playing and Singing of Gebrauchsmusik in Kindergarten Ⅰ	3	1		36	2	考查 Quiz
1542116	幼儿园实用音乐作品弹唱（二） Playing and Singing of Gebrauchsmusik in Kindergarten Ⅱ	4	1		36	2	考查 Quiz
1542117	幼儿园实用舞蹈表演 Kindergarten Practical Dance Performance	3	1		36	2	考查 Quiz
1542118	学前儿童健康教育 Preschool Children Health Education	5	2	36		2	考查 Quiz
1542119	学前儿童语言教育 Preschool Children Language Education	5	2	36		2	考查 Quiz
1542120	学前儿童社会教育 Preschool Children Social Education	5	2	36		2	考查 Quiz
1542121	学前儿童科学教育 Preschool Children Science Education	5	2	36		2	考查 Quiz
1542122	学前儿童数学教育 Preschool Children Math Education	6	2	36		2	考查 Quiz
1542123	学前儿童艺术教育（音乐） Preschool Children Arts Education (Music)	5	2	36		2	考查 Quiz
1542124	学前儿童艺术教育（舞蹈） Preschool Children Arts Education (Dance)	4	2	36		2	考查 Quiz
1542125	学前儿童艺术教育（美术） Preschool Children Arts Education (Fine Arts)	4	2	36		2	考查 Quiz
1542126	学前儿童家庭与社区教育 Preschool Children Family and Community Education	6	2	36		2	考查 Quiz
1542127	学前教育实验设计 Preschool Education Experimental Design	5	1		36	2	考查 Quiz
1542128	学前教育专业论文设计与写作 Thesis Design and Writing of Pre-school Education Major	6	1	18		2	考查 Quiz
1542193	特殊儿童心理发展与教育 Psychology and Education for Children with Special Needs	6	2	36		2	考查 Quiz
1542194	中外学前教育名著导读 Guided Reading of Masterpieces on Chinese and Foreign Preschool Education	6	2	36		2	考查 Quiz
1542195	学前教育心理学 Preschool Education Psychology	6	2	36		2	考查 Quiz
1542197	比较学前教育 Comparative Pre-school Education	6	2	36		2	考查 Quiz
1542198	儿童教育哲学 Children's Educational Philosophy	6	2	36		2	考查 Quiz

1542199	0-3 岁儿童发展与教育 Children Development and Education(aged 0-3)	6	2	36		2	考查 Quiz
1542218	学前教育专业前沿问题研究 Frontier issues of preschool education	6	2	36		2	考查 Quiz
1542219	儿童行为观察与分析 Child behavior observation and analysis	6	2	36		2	考查 Quiz

3. 专业任意选修课（2 学分）
3. Specialized Non-restrictive Courses (2 credits)
详见学院专业任意选修课。
See Specialized Non-restrictive Courses of School of Education.

（四）教师教育模块（8 学分）
（Ⅳ）Teacher-Training Courses（8 credits）
1. 公共必修课程（4 学分）
1. General Compulsory Courses（4 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1531130	教师专业发展与职业道德 Teacher’s Professional Development & Professional Ethics	6	2	36		2	考试 Exam.
1531125	现代媒体技术应用 Application of Modern Multimedia Technology	5	2	18	18	2	考查 Quiz.

2. 学科必修课（4 学分）
2. Disciplinary Compulsory Courses（4 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1531126	学前教育政策法规 Policies and Regulations in Preschool Education	6	2	36		2	考查 Quiz.
1531153	幼儿教师心理健康与调适 Teachers’ Mental Health and Adjustments	6	2	36		2	考查 Quiz

3. 选修课（见通识教育选修课程“教师教育”系列）
3. Elective Courses（See Teacher-training Series of Liberal Studies Elective Courses）

（五）实践教学模块（22 学分）
（Ⅴ）Practice Work（22 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1550028	教师教学基本技能训练 Training of Teachers’ Basic Teaching Skills		1				考查 Quiz
1550017	必读书目阅读 Required Readings		1				考查 Quiz
1550034	学前教育专业教学技能训练 Preschool Education Teaching Skill Training	5	1	18	18	2	考试 Exam.
1500040	教育见习（一） School Visits Ⅰ	1	1				考查 Quiz
1500041	教育见习（二） School Visits Ⅱ	2	1				考查 Quiz

1500030	教育见习（三） School Visits Ⅲ	3	1				考查 Quiz
1500031	教育见习（四） School Visits Ⅳ	4	1				考查 Quiz
1500032	教育见习（五） School Visits Ⅴ	5	1				考查 Quiz
1500033	教育见习（六） School Visits Ⅵ	6	1				考查 Quiz
1550042	教育实习 Teaching Practice	7	6				考查 Quiz
1550021	教育实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1550043	毕业论文（设计） Graduation Thesis(Design)	7-8	4				考查 Quiz

备注：教育见习安排在每学期第三个月的第二周，采取集中一周见习的方式进行。

Note: School Visits are arranged in the second week in the third month of each semester, lasting for a week.

九、学前教育专业任意选修课

Ⅸ. Specialized Non-restrictive Courses of Preschool Education

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1543116	声乐 Vocal Music	5	1	18	18	2	考查 Quiz
1543120	舞蹈 Dance	5	1	18	18	2	考查 Quiz
1543121	琴法 Piano Performance	6	1	18	18	2	考查 Quiz
1543122	幼儿园实用玩教具制作 Toys and Teaching Aids Making in Kindergarten	5	1	18	18	2	考查 Quiz
1543123	儿童音乐作品欣赏 Appreciation of Children’s Musical Works	6	1	18	18	2	考查 Quiz
1543124	艺术欣赏 Art Appreciation	6	1	18	18	2	考查 Quiz
1543125	综合实践活动 Comprehensive Practical Activity	6	1		18	2	考查 Quiz
1543126	奥尔夫音乐教学法 Orff Music Teaching Methodology	6	1		18	2	考查 Quiz
说明 Notes	1. 教育学院专业拓展课程共 8 门。 2. 学前教育专业必须选修 2 学分。 1. There are 8Specialized Development Courses in School of Education in total. 2. Undergraduates in Preschool Education Specialty should obtain 2 credits.						

国际商学院
School of International Business

- 经济学

  Economics

- 金融学

  Finance

- 数量金融创新实验班

  Innovative Experimental Class of Quantitative Finance

- 市场营销

  Marketing

- 人力资源管理

  Human Resource Management

- 电子商务

  E-commerce

- 财务管理

  Financial Management

- 国际商学院专业拓展课程

  Specialized Development Courses of School of International Business

经济学专业简介
Introduction to the Specialty of Economics

经济学专业，学制 4 年，专业属性为非师范专业。2002 年开始招生。

本专业在职任课教师 26 人，其中教授 7 人，副教授 10 人，讲师 9 人。

本专业主要培养具有较深厚经济学理论基础，掌握现代经济学分析技术与方法，具有初步规范与实证研究能力，能够在政府、企业、金融、高校等部门、行业从事相应工作的复合型高级专门人才。

Economics specialty is intended for four-year non-normal undergraduates.

Currently there are 26 full-time teachers in this specialty, among whom there are 7 professors, 10 associate professors, and 9 lecturers.

This specialty has achieved abundant results in teaching and scientific research. The Theoretical Economics Discipline has been assessed and awarded as the “National Key Discipline” and “State-Level I Discipline Doctoral Program”, and it also has a center for post-doctoral studies. The Civil Economics Discipline has been granted “State-Level II Discipline Doctoral Program”. The Theoretical Economics and Applied Economics has been granted “State-Level I Discipline Master Program”.

Economics specialty aims to provide students with a solid foundation of economics. On completion of the program, students will be able to utilize techniques and methods for modern economic analysis and conduct normative and empirical research in micro- and macro- economic phenomena. This specialty is designed to prepare senior specialized professionals for government departments, financial institutions, enterprises, and institutions of higher learning.

经济学专业
The Specialty of Economics

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具有扎实的马克思主义经济理论和现代经济学理论基础，系统掌握现代经济理论，并能熟练运用经济管理和其它金融、统计、应用经济学知识、方法和手段分析实际问题；熟悉国家经济政策与经济法规和国内外商务通用的规划与惯例；知识面宽广，应用能力强，具备对经济问题做定性研究与定量分析的能力，有向经济学相关领域扩展渗透的能力，具备创新思维与创新意识的，能够适用市场经济需求，适合政府机关、事业单位与国内外企业从事相关工作的复合型高级专门人才。

This major aims to cultivate students with a solid foundation of Marx’s economic theory and modern economics theory, mastering modern economic theory, and proficiency in the use of economic management, and other financial statistics, applied economics knowledge, methods and means of analysis of practical problems; familiar with national economic policies and economic laws and regulations and the domestic and foreign general business planning and practice; broad knowledge and application ability, have the ability to do qualitative research and quantitative analysis on economic issues, has extended the penetrating ability to the area of economics, with innovative thinking and innovation consciousness, and ultimately achieve the thick foundation, wide caliber, high quality, strong ability, innovation. This specialty is designed to prepare senior specialized professionals for government departments, financial institutions, enterprises, and institutions of higher learning.

二、毕业要求

Ⅱ. Educational Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国；掌握马克思主义、毛泽东思想和中国特色社会主义理论体系的基本观点和方法，具有科学的世界观、正确的人生观和高尚的道德品质。德、智、体、美、全面发展，身心健康。

2. 熟练掌握经济学基础理论知识，了解经济学发展理论前沿，初步掌握现代经济学分析技术与手段，具有一定研究能力，能够运用经济学理论、分析技术与手段对现实经济问题进行初步规范与实证研究。

3. 掌握金融学、管理学、会计学等相关学科的基本理论及基本知识；熟悉国际、国内有关经济领域的政策、法规和惯例。具有调查研究、数据收集与处理，进行计量分析的基本能力。熟练掌握一门外语，具有阅读专业外文文献的能力，达到国家规定的外语四级水平。

4. 掌握计算机基本知识，具备运用主流统计、计量软件进行计量分析的能力。掌握文献检索、资料查询的基本方法，了解学术规范。

5. 具有健全的人格和良好的心理素质，具有健康的体魄和一定的军事基本理论及基本技能，达到国家规定的大学生体育合格标准和军事训练标准。

Students of this major can graduate once they have completed the credits specified in the teaching plan within 4-6 years and have reached the following basic requirements:

1. The students should love the Communist Party of China and the socialist motherland. They are expected to master the basic philosophy and methods of Marxism, Mao Zedong Thoughts and the theoretical system of socialism with Chinese characteristics. They are supposed to equip themselves with a scientific

worldview, positive outlook on life and lofty moral trait.They are also expected to be emotionally and physically healthy with all-round development of morality, intellect, physique and aesthetics.

2. Undergraduates are expected to master the basic theories of economics, keep up with the development of economics, and be able to use techniques and methods for modern economic analysis to conduct normative and empirical research on economic phenomena.

3. Undergraduates are supposed to master the basic theories and knowledge of relevant areas in finance, management, accounting etc., and familiarize themselves with the domestic and international economic policies, regulations and practices. They are expected to be able to conduct investigation and research, collect and process data and perform econometric analysis.And they should also have high proficiency in one foreign language and can read foreign references of economics. Their English proficiency should reach the level of CET 4.

4. Undergraduates are expected to be computer-literate and capable of using major statistical and econometric software. In addition, they should master the basic methods of literature retrieval and data query, and know the academic norms.

5. The students should have wholesome personality and excellent psychological quality. In addition, they are expected to be sound in physique and acquire proper military theory and basic skills, meeting the requirements in National Physical Standard for College Students and develop the habit of doing exercise on a regular basis.

三、主干学科

Ⅲ. Core Disciplines

经济学

Economics

四、主干课程

Ⅳ. Main Courses

政治经济学、宏观经济学、微观经济学、《资本论》研究、计量经济学、发展经济学、产业经济学、金融学、国际经济学、公共财政学、经济理论史

Political Economics, Macroeconomics, Microeconomics, a Study of Marx’s Das Capital , Econometrics, Development Economics, Industrial Economics, Finance, International Economics, History of Economic Theories

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

经济学学士

Bachelor of Economics

六、学分要求

Ⅵ. Total Credits

158 学分

158 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	26.6%	34.2%
	通识教育选修课 Liberal Studies Elective Courses	12		7.6%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	14	20	8.9%	12.7%
	本学科基础课 Disciplinary Foundation Courses	6		3.8%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core courses	30	54	19.5%	34.2%
	专业方向课程 Specialized Orientation courses	18		11.7%	
	专业拓展课程 Specialized Development courses	6		3.9%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	18	18	11.3%	11.3%
	选修课 Elective Courses	0		0	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.6%	7.6%
合计 Total		158		100%	
说明 Notes	1. 专业核心课程和学科基础课程共 34 门，其中双语课程 3 门，全英语课程 2 门。 2. 专业方向和专业拓展课共 71 门，其中专业方向课程 15 门，分 1 个系列（方向）；专业拓展课程 56 门。学生应从专业方向课程中至少选修 18 学分，从专业拓展课程中至少选修 6 学分。 3. 实验课程共 16 门，其中独立开设的实验课 0 门，既有理论又有实验的课程 16 门。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 26.6%。 1. There are 34 specialized core courses and disciplinary foundation courses, including 3 bilingual courses and 2 English-taught courses. 2. There are 71 specialized orientation courses and specialized development courses in total, including 15 specialized orientation courses in 1series (dimension). Undergraduates are expected obtain at least 18 credits in total from the specialized orientation courses and 6 credits from specialized development courses. 3. There are 16 experimental courses, all of which are theoretical and designed with experimental courses. Independent experimental courses are not offered. 4. The practical teaching content of this major includes the content in the practical teaching module and other course modules, and the credits of the practical teaching account for 26.6% of the total credits.					

八、经济学专业本科教学计划表

Ⅷ. Teaching Scheme for Economics Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses(54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.

1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005- 1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts	1	1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College English 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（20 学分）

（Ⅱ）Disciplinary Foundation Courses (20 credits)

1. 相关学科基础课（14 学分）

1. Related Disciplinary Foundation Courses (14 credits)

课程编码 Course Code	**课程名称 Course Name**	**开课学期 Semester**	**学分 Cre.**	**讲授学时 Teaching Hrs.**	**实验/实践学时 Experiment/ Training Hrs.**	**周学时 Weekly Hrs.**	**考试方式 Evaluation**
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
1621001	线性代数 Linear Algebra	2	3	54		3	考试 Exam.
1621002	概率论与数理统计 Probability and Mathematical Statistics	3	3	54		3	考试 Exam.

2. 本学科基础课（6 学分）
2. Disciplinary Foundation Courses (6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1622016	微观经济学 Microeconomics	2	3	36	36	4	考试 Exam.
1622017	宏观经济学 Macroeconomics	3	3	36	36	4	考试 Exam.

（三）专业课程模块（54 学分）
（Ⅲ）Specialized Courses (54 credits)
1. 专业核心课程（30 学分）
1. Specialized Core Courses (30 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641092	政治经济学 Political Economics	1	2	18	36	3	考试 Exam.
1641330	管理学 Management	1	2	18	36	3	考试 Exam.
1641299	《资本论》研究 A study of “On Capital”	3	3	54		3	考试 Exam.
1641102	会计学 Accounting	2	2	18	36	3	考试 Exam.
1641103	经济法 Economic Law	3	2	36		2	考试 Exam
1641093	经济理论史 History of Economics Theories	4	2	18	36	3	考试 Exam.
1641296	博弈论与信息经济学 Game Theory and Information Economics	4	2	18	36	3	考试 Exam.
1641292	统计学 Statistics	4	2	18	36	3	考试 Exam.
1641100	金融学 Money And Finance	3	2	18	36	3	考试 Exam.
1641099	发展经济学 Development Economics	4	2	18	36	3	考试 Exam
1641309	制度经济学 Institutional Economics	6	2	18	36	3	考试 Exam.
1641112	产业经济学 Industrial Economics	6	2	36		2	考试 Exam.
1641111	区域经济学 Regional Economics	6	2	18	36	2	考试 Exam
1641113	国际金融 International Finance	7	2	18	36	6	考试 Exam.
1641266	研究方法与学术论文写作 Research Methods and Academic Writing	7	1	18		2	考查 Quiz

2. 专业方向课程（18 学分）
2. Specialized Orientation Courses (18 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1642005	经济史 History of Economics	3	2	36		2	考查 Quiz
1642184	公共财政学 Public Finance	3	2	36		2	考查 Quiz

1642185	创新经济学 Economics of Innovation	5	2	18	36	2	考查 Quiz
1642121	国际经济学 International Economics	5	2	18	36	3	考查 Qui
1642130	国际贸易实务 International Trade Practice	5	2	36		2	考查 Quiz
1642122	人口、资源与环境经济学 Population Resources & Environmental Economics	5	2	36		2	考查 Quiz
1642186	劳动经济学 Labor Economics	6	2	36		2	考查 Quiz
1642169	规制经济学 Economics of Regulation	6	2	36		2	考查 Quiz
1642124	企业理论 Firm’s Theory	7	2	36		4	考查 Quiz
1642209	国际商法 International Commercial Law	2	2	36		2	考查 Quiz
1642210	市场调研与抽样方法 Market Investigation and Sampling Methods	3	2	36		2	考查 Quiz
1642211	经济管理中的质性分析方法 Quality Methods in Economic Management	5	2	36		2	考查 Quiz
1642212	当代中国经济 Contemporary Chinese economy	6	2	36		2	考查 Quiz
1642213	经济学精典文献选读 Selected readings in classical Economics literature	6	1	18		2	考查 Quiz
1642214	经济伦理学 Economic ethics	7	2	36		2	考查 Quiz

3. 专业拓展课程（6 学分）
3. Specialized Development Courses (6 credits)
详见学院专业拓展课程。
See Specialized Development Courses of International Business School.

（四）专业技能模块（18 学分）
（Ⅳ）Professional Skills Courses(18 credits)
1. 必修课（18 学分）
1. Compulsory Courses (18 credits)

课程编码 Course Code	**课程名称 Course Name**	**开课学期 Semester**	**学分 Cre.**	**讲授学时 Teaching Hrs.**	**实验/实践学时 Experiment/ Training Hrs.**	**周学时 Weekly Hrs.**	**考试方式 Evaluation**
1641326	运筹学 Operations Research	4	2	18	36	3	考试 Exam.
1641310	随机过程理论 Stochastic Process Theory	5	2	18	36	3	考试 Exam.
1641222	数学模型 Mathematical Model	4	2	18	36	3	考试 Exam.
1641311	数理经济学 Mathematical Economics	5	3	36	36	4	考试 Exam
1641300	行为与实验经济学 Behavioral Economics	5	2	36		2	考试 Exam.
1641105	计量经济学Ⅰ Econometrics Ⅰ	5	3	36	36	4	考试 Exam.
1641106	计量经济学Ⅱ Econometrics Ⅱ	6	2	18	36	3	考试 Exam.
1641301	时间序列分析 Time Series Analysis	6	2	18	36	3	考试 Exam.

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1650017	必读书目阅读 Required Readings		1				考查 Quiz
1650032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
1650021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1650033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

金融学专业简介
Introduction to the Specialty of Finance

金融学专业，学制 4 年，专业属性为非师范专业。金融学是经济学门类中的应用经济学一级学科下设的二级学科，毕业授予经济学学士学位。该专业始建于 2003 年。

本专业任课教师 15 人，其中教授 2 人，副教授 10 人，讲师 3 人。所有教师均具有博士学位，其中 12 名教师具有海外访学经历。

本专业培养掌握金融及投资等方面基本理论和基本技能，能在银行、证券、保险等金融机构及其他经济管理部门和企业从事相关工作的复合型高级专门人才。

The specialty of Finance, founded in 2003 in the International Business School, is intended for four-year non-normal undergraduates.

Currently there are 15 full-time teachers in this specialty, of whom there are 2 professors, 10 associate professors and 3 lecturers. What’s more, all of these teachers are doctoral degree holders and 6 of them have overseas studies and research experiences.

The training objective of undergraduate students majoring in finance is to make the student to be an application-oriented and research-oriented professional person who master financial expertise and relevant skills systematically. Also, the graduates from this specialty are expected to meet the general requirements of the financial institutions, government departments, enterprise and business unit, and to establish a solid foundation to pursue a higher level degree in domestic and overseas scientific research institutions.

金融学专业
The Specialty of Finance

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具备健全的人格、良好的心理素质和合作精神，系统掌握金融专业知识、理论和技能，具备创新精神、创业意识和创新创业能力，能够在金融机构、政府部门和企事业单位从事相关工作的复合型高级专门人才。

The training objective of undergraduate students majoring in finance is to make the students into application-oriented and research-oriented professionals who love the motherland and maintain the socialist system, obey the law and discipline, have a sound personality, good psychological diathesis, cooperative spirit, the spirit of innovation, the sense and ability of innovation and entrepreneurship, and master financial expertise and relevant skills systematically. Also, The graduates from this specialty are expected to meet the general requirements of the financial institutions, government departments, enterprise and business units, and establish a solid foundation to pursue a higher level degree in domestic and overseas scientific research institutions.

二、毕业要求

Ⅱ. Graduation requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 知识要求

应掌握一定的工具性知识：熟练掌握 1 门外语，具备较强的外语阅读、听、说、写、译的能力，能够熟练运用现代信息管理技术进行专业文献检索、数据处理、模型设计等；同时要牢固掌握本专业基础知识、基本理论与基本技能，既掌握经济学、管理学的基本原理，也应充分了解金融理论前沿和实践发展现状，熟悉金融活动的基本流程；金融学类本科专业人才还应当了解其他相关领域知识，形成兼具人文社会科学、自然科学、工程与技术科学的均衡知识结构。

2. 素质要求

在思想道德素质方面，既要努力学习马克思主义、毛泽东思想和中国特色社会主义理论体系，确立在中国共产党领导下走中国特色社会主义道路、实现国家繁荣昌盛的共同理想和坚定信念，遵守宪法、法律和法规，遵守公民道德规范，又要遵守《高等学校学生行为准则》，遵守学校管理制度，具有良好的道德品质和文明习惯，同时还应倡导社会主义核心价值观，树立诚信意识，履约践诺，知行合一，培养良好的职业操守和职业道德，具备社会责任感和人文关怀意识；在专业素质方面，应具有良好的专业素养，熟悉国家有关金融的方针、政策和法律法规，了解国内外金融发展动态；在科学文化素质方面，具有一定的科学知识与科学素养，具备一定的文学、艺术素养和鉴赏能力，对中国传统文化与历史有一定了解；在身心素质方面，具有健康的体魄，体育达标，具有良好的心理素质、较强的自我控制和自我调节能力。

3. 能力要求

能够掌握有效的学习方法，主动接受终身教育，能够应用现代科技手段进行自主学习，适应金融理论和实践快速发展的客观情况，与时俱进；能够在金融实践活动中灵活运用所掌握的专业知识，对各种国内外的金融信息加以甄别、整理和加工，从而为政府、企业、金融机构等部门解决实际问题提供对策建议；具备创新精神、创业意识和创新创业能力，能够把握金融发展的趋势，学以致用，创造性地解决实际问题。

1. Knowledge

Students are required to master certain knowledge of tools: Mastering 1 foreign languages skillfully, having a strong ability to read, listen, speak, write and translate foreign languages, and be able to skillfully use modern information management technology to carry out professional literature retrieval, data processing, model design and so on. At the same time, students are required to firmly grasp the basic knowledge, basic theory and basic skills of their major. They should not only grasp the basic principles of economics and management, but also fully understand the frontiers of financial theory and the current situation of practical development, and be familiar with the basic process of financial activities. The undergraduate professionals in financial science should also understand the knowledge of other related fields and form the equilibrium of the humanities, the natural science, the engineering and the technology science.

2. Quality

In terms of ideological and moral quality, students should not only study Marxism, Mao Zedong's thoughts and the theoretical system of socialism with Chinese characteristics, establish the common ideal and firm belief of the road of socialism with Chinese characteristics under the leadership of the Communist Party of China, realize the prosperity of the country, abide by the constitution, laws and regulations, and the civic moral standard. According to The Code of Conducts for Students of Higher Learning Institutions, students are expected to obey the school regulations, have good moral quality and civilized habits. At the same time, the students should also advocate the core values of socialism, set up a sense of honesty and integrity, cultivate good professional ethics and develop a sense of social responsibility. In terms of professional quality, they should have good professional quality, be familiar with our country’s finance policies, laws and regulations, understand the development of finance at home and abroad, and have certain scientific knowledge and scientific literacy in the field of science and culture, and have certain literary, artistic attainments and lessons. They are also supposed to acquire some knowledge of traditional Chinese culture and history. In terms of physical and mental quality, they are expected to reach the standards of physical training, and have good psychological quality including the ability of self-control and self-regulation.

3. Ability

Students should master effective learning methods, accept life-long education actively, apply modern scientific and technological means to study independently, adapt to the objective situation of rapid development of financial theory and practice, keep pace with the times, and be able to use the professional knowledge in the financial practice flexibly and cope with all kinds of financial information at home and abroad. They are also supposed to provide countermeasures and suggestions for the government, enterprises, financial institutions and other departments to solve practical problems. With the spirit of innovation and entrepreneurship, the students can grasp the trend of financial development, and solve practical problems creatively.

三、主干学科

Ⅲ. Core Disciplines

经济学

Economics

四、主干课程

Ⅳ. Main Courses

微观经济学、宏观经济学、金融学、会计学、保险学、中央银行学、金融中介学、公司金融学、投资银行学、国际金融学、金融市场学、证券投资学、商业银行经营管理、计量经济学、金融工程学、行为金融学

Basic Microeconomics, Basic Macroeconomics, Finance, Accounting, Insurance, Central Banking, Financial Intermediaries, Corporate Finance, Investment banking, International Finance, Financial Market, Securities Investment, Commercial Bank Management, Econometrics, Financial Engineering, Behavior Finance

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

经济学学士

Bachelor of Economics

六、学分要求

Ⅵ. Total Credits

159 学分

159 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 **Course Catalogue**		学分及比例 **Credits and Percentage**			
		学 分 **Cre.**	小 计 **Sub-Total**	占总学分比例 **Percentage in Total Credits**	小 计 **Sub-Total**
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	26.5%	33.9%
	通识教育选修课 Liberal Studies Elective Courses	12		7.5%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	14	20	8.8%	12.6%
	本学科基础课 Disciplinary Foundation Courses	6		3.7%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	29	57	18.2%	35.8%
	专业方向课程 Specialized Direction Courses	22		13.8%	
	专业拓展课 Specialized Development Courses	6		3.8%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	16	16	10.1%	10.1%
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.5%	7.5%
合计 Total		159		100%	

说明 Notes	1. 专业核心课程和学科基础课程共 21 门，其中双语课程 4 门，全英语课程 2 门。 2. 专业方向和专业拓展课共 62 门，其中专业方向课程 15 门，分 1 个系列（方向）；专业拓展课程 53 门。学生应从专业方向课程中至少选修 22 学分，从专业拓展课程中至少选修 6 学分。 3. 实验课程共 32 门，其中独立开设的实验课 0 门，既有理论又有实验的课程 32 门。 4. 理论教学内容 18 学时 1 学分，实践教学内容 36 学时 1 学分。 5. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 26.4%。 1. There are 21 specialized core courses and disciplinary foundation courses in total, including 4 bilingual courses and 2 English-taught courses. 2. There are 62 specialized direction courses and specialized development courses in total, including 15 specialized direction courses which are in 1 series (dimension), and 53 specialized development courses. Undergraduates should earn at least 22 credits from specialized direction courses and 6 credits from specialized development courses. 3. There are 32 experimental courses in total, all of which are theoretical and designed with experimental courses. Independent experimental course is not offered. 4. 18-hour theoretical teaching content equals 1 credit; 36-hour practical teaching content equals 1 credit. 5. Practice work includes the courses of the specific module of practice work and the practice work within the courses of other modules, taking up 26.4% of the total credits.

八、金融学本科教学计划表

Ⅷ. Teaching Scheme for Finance Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	9	2	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	2	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（20 学分）

（Ⅱ）Disciplinary Foundation Courses (20 credits)

1. 相关学科基础课（14 学分）

1. Related Disciplinary Foundation Courses (14 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1(for Science Specialties)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
1621001	线性代数 Linear Algebra	2	3	54		3	考试 Exam.
1621002	概率论与数理统计 Probability and Mathematical Statistics	3	3	54		3	考试 Exam.

2. 本学科基础课（6 学分）

2. Disciplinary Foundation Courses (6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1622016	微观经济学 Microeconomics	2	3	36	36	4	考试 Exam.
1622017	宏观经济学 Macroeconomics	3	3	36	36	4	考试 Exam.

（三）专业课程模块（54 学分）

（Ⅲ）Specialized Courses (54 credits)

1. 专业核心课程（29 学分）

1. Specialized Core Courses (29 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641092	政治经济学 Political Economics	1	2	18	36	3	考试 Exam
1641330	管理学 Management	1	2	18	36	3	考试 Exam.
1641102	会计学 Accounting	2	2	18	36	3	考试 Exam.
1641100	金融学 Finance	3	2	18	36	3	考试 Exam.
1641350	互联网金融 Internet Finance	3	2	36		2	考查 Quiz
1641117	金融中介学 Financial Intermediaries	4	2	36		2	考查 Quiz
1641116	金融市场学 Financial Market	4	2	36		2	考查 Quiz
1641125	公司金融学 Corporate Finance	4	2	18	36	3	考试 Exam.
1641104	公共财政学 Public Finance	4	2	36		2	考试 Exam.
1641292	统计学 Statistics	4	2	18	36	3	考试 Exam.
1641128	保险学 Insurance	4	2	18	36	3	考试 Exam.
1641304	商业银行经营管理 Commercial Bank Management	5	2	18	36	3	考试 Exam

1641120	国际金融学 International Finance	5	2	36		2	考试 Exam
1641118	中央银行学 Central Banking	6	2	36		2	考试 Exam
1641266	研究方法与学术论文写作 Research Methods and Academic Writing	7	1	18		2	考查 Quiz

2. 专业方向课程（22 学分）

2. Specialized Orientation courses (22 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1642115	经济法 Economic Law	3	2	36		2	考查 Quiz
1642205	西方金融理论 Western Finance Theory	3	2	36		2	考查 Quiz
1642126	财务报告分析 Financial Statement Analysis	4	2	18	36	3	考查 Quiz
1642162	国际经济学 International Economics	4	2	36		2	考查 Quiz
1642230	风险投资学 Venture Capital	4	2	18	36	3	考查 Quiz
1642231	金融风险管理 Financial Risk Management	5	2	18	36	3	考查 Quiz
1642092	随机过程理论 Stochastic Process Theory	5	2	18	36	3	考试 Exam.
1642127	保险公司经营管理 Management of Insurance Company	5	2	36		2	考查 Quiz
1642188	项目评估 Project Evaluation	5	2	36		2	考查 Quiz
1642244	博弈论与信息经济学 Game Theory and Information Economics	5	2	18	36	3	考试 Exam.
1642189	个人理财 Personal Finance	6	2	18	36	3	考查 Quiz
1642095	时间序列分析 Time Series Analysis	6	2	18	36	3	考查 Quiz
1642232	金融营销学 Financial Marketing	6	2	36		2	考查 Quiz
1642207	洗钱风险管理 Monetary Laundering Risk Management	6	2	36		2	考查 Quiz
1642206	金融危机及金融稳定 Financial Crisis and Financial Stability	7	2	36		2	考查 Quiz

注：在 15 门课程中自主选择 11 门以上课程。

3. 专业拓展课程（6 学分）

3. Specialized Development Courses (6 credits)

详见学院专业拓展课程。

See Specialized Development Courses of International Business School

（四）专业技能模块（16 学分）

（Ⅳ）Professional Skills Courses (16 credits)

1. 必修课（16 学分）

1. Compulsory Courses (16 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641105	计量经济学Ⅰ Econometrics Ⅰ	5	3	36	36	4	考试 Exam.

1641126	证券投资学 Securities Investment	5	2	18	36	3	考试 Exam
1641106	计量经济学Ⅱ Econometrics Ⅱ	6	2	18	36	3	考试 Exam.
1641297	金融工程学 Financial Engineering	6	3	36	36	4	考试 Exam.
1641305	银行信贷管理 Banking Credit Management	6	2	36		2	考试 Exam
1641127	投资银行学 Investment Banking	6	2	18	36	3	考查 Quiz
1641119	行为金融学 Behavioral Finance	7	2	36		2	考查 Quiz

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1		36		考查 Quiz
1650017	必读书目阅读 Required Readings		1		36		考查 Quiz
1650032	专业见习与实习 Professional Visits And Practice	1-7	4		144		考查 Quiz
1650021	专业实践与社会调查 Professional Practice and Social Survey		1		36		考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1		36		考查 Quiz
1650033	毕业论文（设计） Graduation Thesis	7-8	4		144		考查 Quiz

数量金融创新实验班简介
Introduction to the Innovative Experimental Class of Quantitative Finance

数量金融创新实验班，学制 4 年，隶属于金融学专业，专业属性为非师范专业。金融学是经济学门类中的应用经济学一级学科下设的二级学科，毕业授予经济学学士学位。该专业始建于 2017 年。

本专业任课教师 10 人，其中教授 2 人，副教授 5 人，讲师 3 人。所有教师均具有博士学位，其中 10 名教师具有海外访学经历。

本培养方向的学生主要学习经济学、金融学、投资学等方面课程，要求学生能够熟练掌握英语和金融投资领域的国际先进理论与方法，接受保险、投资、财务管理等方面基本技能的训练，具有从事金融领域工作所需的基本知识和综合应用技能的国际化复合型高级专门人才。

The Quantitative Finance, founded in 2017 in the International Business School, is intended for four-year non-normal undergraduates.

Currently there are 10 full-time teachers in this specialty, of whom there are 2 professors, 5 associate professors and 3 lecturers. What’s more, all of these teachers are doctoral degree holders and 10 (all) of them have overseas studies and research experiences.

Students of this major mainly study economics, finance, investment and other aspects of the course, and they are required to master English and the international advanced theories and methods of the field of financial investment. Students also have to receive insurance, investment, financial management and other basic skills to master the basic knowledge and comprehensive application skills needed in the field of finance.

数量金融创新实验班
The Specialty of Quantitative Finance

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，掌握现代商务特别是金融学专业领域基本理论、基本知识和基本技能，具有现代意识、国际视野，通晓国际规则，有较强国际沟通交流能力和创新实践能力，能适应市场经济和经济全球化发展需要的国际化复合型高级专门人才。

This major provides students with systematic education and training in modern business, and cultures their modern consciousness and international vision. Through systematic study and training, students are expected to be the complex international talents who possess international perspective, are proficient in international rules, master the basic theory of financial professionals, basic knowledge and basic skills, have strong ability of international communication and innovation and practice, and can adapt to market economy and economic globalization.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 具有较强的批判思维、团队精神和社会责任与道德。
2. 掌握包括经济学和金融学在内的现代商务基本理论和方法。
3. 具有扎实的高等数学基础，具有较强的数量分析能力。
4. 拥有较丰富的会计学知识、掌握财务分析的方法和技巧。
5. 熟悉企业财务管理流程和规则，懂得资本运作和财务策划的基本方法。
6. 了解国内外主要金融市场状况及其运行规则。
7. 熟悉主要的投资工具及其估值方法，能够进行投资收益及风险分析。
8. 具有较强中英文交流能力和文字表达能力，可以使用两种语言进行工作。

This program is limited in 4-6 years. If undergraduates have got the prescribed credits in the teaching plan, and meet the following requirements, they can apply for graduation.

1. Having strong critical thinking, team spirit, social responsibility and morality.
2. Mastering the basic theories and methods of modern business, including economics and finance.
3. Having solid foundation of advanced mathematics and strong ability of quantitative analysis.
4. Having a wealth of accounting knowledge, master the financial analysis methods and skills.
5. Familiar with corporate financial management processes and rules, understand the basic methods of capital operation and financial planning.
6. Knowing the status of major financial markets at home and abroad and its operating rules.
7. Familiar with the main investment vehicles and their valuation methods to carry out investment income and risk analysis.
8. Having strong English and Chinese communication and writing skills.

三、主干学科

Ⅲ. Core Disciplines

Economics

经济学

四、主干课程

Ⅳ. Main Courses

微观经济学、宏观经济学、计量经济学、管理学、会计学、统计学、中央银行学、金融管理学、公司金融学、投资管理学、国际金融学、中级财务会计、公司金融学、商业银行经营管理、风险管理学、金融工程学、随机过程

Basic Microeconomics, Basic Macroeconomics, Econometrics, Management, Accounting, Statistics, Science of Central Banking, Financial Intermediaries, Corporate Finance, Investment banking, International Finance, Intermediate Financial Accounting, Corporate Finance, Commercial Bank Management, Risk management, Financial Engineering, Stochastic Process

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

经济学学士

Bachelor of Economics

六、学分要求

Ⅵ. Total credits

151 学分

151 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of credits

课 程 类 别 **Course Catalogue**		学分及比例 **credits and Percentage**			
		学 分 **Cre.**	小 计 **Sub-Total**	占总学分比例 **Percentage in Total credits**	小 计 **Sub-Total**
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	27.8%	35.7%
	通识教育选修课 Liberal Studies Elective Courses	12		7.9%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	14	20	9.3%	13.3%
	本学科基础课 Disciplinary Foundation Courses	6		4.0%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	31	49	20.6%	32.5%
	专业方向课程 Specialized Orientation courses	12		7.9%	
	专业拓展课程 Specialized Development Courses	6		4.0%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	16	16	10.6%	10.6%
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.9%	7.9%
合计 Total		151		100%	
说明 Notes	1.专业核心课程和学科基础课程共 21 门，其中双语课程 6 门，全英语课程 3 门。 2. 专业方向和专业拓展课共 53 门，其中专业方向课程 12 门，分 1 个系列（方向）；专业拓展课程 41 门。学生应从专业方向课程中至少选修 12 学分，从专业拓展课程中至少选修 6 学分。 3. 实验课程共 26 门，其中独立开设的实验课 0 门，既有理论又有实验的课程 26 门。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为				

	29.8%。 1. There are 21 specialized core courses and disciplinary foundation courses in total, including 6 bilingual courses and 3 English-taught courses. 2. There are 53 specialized orientation courses and specialized development courses in total, including 12 specialized orientation courses which are in 1 series (dimension), and 41 specialized development courses. Undergraduates should earn at least 20 credits from specialized orientation courses and 6 credits from specialized development courses. 3. There are 26 experimental courses in total, all of which are theoretical and designed with experimental courses. Independent experimental course is not offered. 4. Practice work includes the courses of the specific module of practice work and those practice work within the courses of other modules, taking up 29.8% of the total credits.

八、数量金融本科教学计划表

Ⅷ. Teaching Scheme for Quantitative Finance Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（20 学分）

（Ⅱ）Disciplinary Foundation Courses (20 credits)

1. 相关学科基础课（14 学分）

1. Related Disciplinary Foundation Courses (14 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
1621001	线性代数 Linear Algebra	2	3	54		3	考试 Exam.
1621002	概率论与数理统计 Probability and Mathematical Statistics	3	3	54		3	考试 Exam.

2. 本学科基础课（6 学分）

2. Disciplinary Foundation Courses (6 Ccredits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1622016	微观经济学 Microeconomics	2	3	36	36	4	考试 Exam.
1622017	宏观经济学 Macroeconomics	3	3	36	36	4	考试 Exam.

（三）专业课程模块（49 学分）

（Ⅲ）Specialized Courses (49 credits)

1. 专业核心课程（31 学分）

1. Specialized Core Courses (31 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641092	政治经济学 Political Economics	1	2	18	36	3	考试 Exam
1641330	管理学 Management	1	2	18	36	3	考试 Exam.
1641102	会计学 Accounting	2	2	18	36	3	考试 Exam.
1641100	金融学 Finance	3	2	18	36	3	考试 Exam.
1641344	金融衍生品管理 Financial Derivatives Management	4	3	36	36	4	考试 Exam
1641116	金融市场学 Financial Market	4	2	36		2	考试 Exam
1641292	统计学 Statistics	4	2	18	36	3	考试 Exam.
1641311	数理经济学 Mathematical Economics	4	3	36	36	4	考试 Exam.

1641104	公共财政学 Public Finance	5	2	36		2	考试 Exam.
1641118	中央银行学 Science of Central Banking	5	2	36		2	考试 Exam
1641125	公司金融学 Corporate Finance	6	2	18	36	3	考试 Exam.
1641345	数量金融 Quantitative Finance	6	2	18	36	3	考试 Exam.
1641120	国际金融学 International Finance	6	2	36		2	考试 Exam
1641301	时间序列分析 Time Series Analysis	6	2	18	36	3	考查 Quiz
1641266	研究方法与学术论文写作 Research Methods and Academic Writing	7	1	18		2	考查 Quiz

2. 专业方向课程（12 学分）
2. Specialized Orientation courses (12 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1642115	经济法 Economic Law	3	2	36		2	考查 Quiz
1642221	运筹学 Operations Research	3	2	18	36	3	考查 Quiz
1642199	互联网金融 Internet Finance	3	2	36		2	考查 Quiz
1642126	财务报告分析 Financial Statement Analysis	4	2	18	36	3	考查 Quiz
1642162	国际经济学 International Economics	4	2	36		2	考查 Quiz
1642241	国际市场营销 International Marketing	4	2	36		2	考查 Qiuz
1642242	金融建模 Financial Modeling	5	2	36		2	考查 Quiz
1642092	随机过程理论 Stochastic Process Theory	5	2	18	36	3	考试 Exam.
1642243	商业银行经营管理 Commercial Bank Management	5	2	18	36	3	考试 Exam
1642119	保险学 Insurance	6	2	18	36	3	考试 Exam.
1642161	个人理财 Personal Finance	6	2	36		2	考查 Quiz
1642128	行为金融学 Behavioral Finance	7	2	36		2	考查 Quiz

3. 专业拓展课程（6 学分）
3. Specialized Development Courses (6 credits)
详见学院专业拓展课程。
See Specialized Development Courses of International Business School

（四）专业技能模块（16 学分）
（Ⅳ）Professional Skills Courses (16 credits)
1. 必修课（16 学分）
1. Compulsory Courses (16 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641346	Python 与数据分析基础 Python and Data Analysis Basis	3	1	18		2	考查 Qiuz
1641347	金融会计 Financial Accounting	5	2	36		2	考试 Exam
1641348	数据分析与建模 Data Analysis and Modeling	5	3	36	36	4	考试 Exam
1641349	博弈论与信息经济学 Game Theory and Information Economics	5	2	36		2	考试 Exam.
1641105	计量经济学Ⅰ Econometrics Ⅰ	5	3	36	36	4	考试 Exam.
1641106	计量经济学Ⅱ Econometrics Ⅱ	6	2	18	36	3	考试 Exam.
1641297	金融工程学 Financial Engineering	6	3	36	36	4	考试 Exam.

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Qiuz
1650017	必读书目阅读 Required Readings		1				考查 Quiz
1650026	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
1650021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1650025	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

市场营销专业简介
Introduction to the Specialty of Marketing

市场营销专业，学制 4 年，专业属性为非师范专业。于 1996 年设立市场营销本科专业，是我校最早建设的经管类专业之一，开设课程服务于经济建设和社会发展的需要。 经过二十几年的建设，在学科发展、师资队伍建设、科学研究、人才培养方面都获得了快速发展，显示出巨大的发展潜力和提升空间。

本专业现有专任教师 15 人，教授 2 人，副教授 6 人，讲师 7 人，8 人具有海外研学经历，已初步形成了中青年为主的成长型科研教学师资队伍。

本专业主要培养理论基础扎实、知识面宽、能力强、富有创新性，掌握适应现代组织需求和营销实践发展方向的专业知识，能以一专多能的知识结构和实践能力从事各行业企业、社会中介机构、以及事业单位等的市场营销复合型高级专门人才。

The Specialty of Marketing is designed as the non-normal major as well as four-year degree program. The undergraduate major of marketing was set up in 1996 as one of the earliest specialties of economics and management in our university, offering courses to serve the needs of economic construction and social development. After more than 20 years of development, it has achieved significant progress in the development of disciplines, faculties, personnel training and research, showing great potential for future improvement.

Currently, there are 15 teachers, 2 professors, 6 associate professors, 7 lecturers, and 8 of them has overseas research experiences. A strong team of research and teaching faculties, mainly young and middle-aged, has been formed.

This program is designed to cultivate high-level compound specialists with solid theoretical foundation, broad knowledge, and innovative capacity, who could meet the requirements for expertise knowledge keeping up with the changing trend of marketing practice. They can meet the needs of enterprises and society with a professional and versatile knowledge structure and practical skills by all kinds of organizations and institutions for specialized marketing professionals.

市场营销专业
The Specialty of Marketing

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，掌握管理学、经济学和信息技术基础知识，具有市场营销新理念和市场营销环境分析、市场营销战略规划、市场营销策略实施等的能力，熟悉国际营销业务规则，具备现代营销理论与方法，能够较好地应用外语和营销职业技能，具有创新精神和实践能力，在企、事业单位从事市场开拓、营销管理、营销策划和咨询、市场调查与研究工作的复合型高级专门人才。

This program is to cultivate talents with all-round development in moral, intellectual, physical and aesthetic qualities. Innovative spirit and practical ability with broad knowledge of management, economics, information technology, and marketing domain expertise, such as environmental analysis, marketing strategic planning, marketing strategy implementation, etc. are to be developed. By facilitating personal growth and the ability to adapt and respond to a complex and changing environment, the program helps students to acquire advanced knowledge to utilize modern marketing theory and methods for professions involving market development, marketing management, marketing consulting and planning, and marketing research domestically and internationally.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱祖国，热爱中国共产党，掌握马克思主义、毛泽东思想、邓小平理论，既有远大志向又有奉献精神，具有敬岗爱业、勇于拼搏、遵纪守法、团结合作的良好素质；培养德、智、体、美全面发展，身心健康。

2. 具有一定的人文社会科学和自然科学知识，掌握管理学、经济学、法律、统计学、会计学等方面的基本理论和基本知识；

3. 掌握市场营销专业理论和知识、定性与定量分析方法；具有较强的文字与语言表达能力、人际沟通能力、信息获取能力，以及分析和解决营销实际问题的能力；熟练掌握计算机应用技术，能运用现代信息技术手段开展网络资源开发和网络营销；掌握文献检索、资料查询的基本方法，具有一定的科学研究和实际工作能力。

4. 掌握一门外语，具有阅读专业外文文献以及开展国际营销业务沟通的能力；达到国家规定的外语四级水平；

5. 具有健全的人格和良好的心理素质，具有健康的体魄和一定的军事基本理论及基本技能，达到国家规定的大学生体育合格标准和军事训练标准。

Students of this major may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. Love the motherland, love the Communist Party of China, master Marxism, Mao Zedong Thought, Deng Xiaoping Theory. The program helps to develop good personal qualities including discipline and law-abiding, respect to duty and job, courageous striving and cooperative with both lofty aspirations and dedication, and cultivate moral, intellectual, physical and aesthetic development with physical and mental health.

2. Acquire knowledge of Humanities and Social Sciences and natural sciences, and master the fundamental theories and knowledge of management, economics, law, statistics, accounting, etc.

3. Master marketing theories and domain knowledge, to utilize qualitative and quantitative analysis methods; to have strong written and linguistic expression ability, interpersonal communication ability, information acquisition ability, as well as the ability to analyze and solve practical marketing problems; master computer application technology and use modern information technology means to exploit network resources to implement marketing activities; to master methods of literature retrieval and data query, establish relevant capacities for scientific research and practice.

4. Master a foreign language, having the ability to read literature in a foreign Language and carry out international marketing business communication, reach the national level-4 standard of foreign language.

5. Establish a sound personality and good psychological status with healthy physique and basic military theory and skills, meet the national standards for college students and military training standards.

三、主干学科

Ⅲ. Core Disciplines

工商管理

Management

四、主干课程

Ⅳ. Main Courses

管理学、战略管理、市场营销学、消费者行为学、服务营销、营销工程、商务数据分析、运营管理、财务管理

Management, Strategy Management, Marketing, Consumer Behavior, Service Marketing, Marketing Engineering, Business Data Analysis, Operations Management, Financial Management

五、学制及授予学位

Ⅴ. Schooling System &Degree Granting

学制 4 年

Four Years

管理学学士

Bachelor of Management

六、学分要求

Ⅵ. Total Credits

152 学分

152 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 **Course Catalogue**		学分及比例 **Credits and Percentage**			
		学 分 **Cre.**	小 计 **Sub-Total**	占总学分比例 **Percentage in Total Credits**	小 计 **Sub-Total**
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	27.6%	35.5%
	通识教育选修课 Liberal Studies Elective Courses	12		7.9%	
学科基础模块 Disciplinary Foundation	相关学科基础课 Related Disciplinary Foundation Courses	14	20	9.2%	13.1%

Courses	本学科基础课 Disciplinary Foundation Courses	6		3.9%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	24	50	15.8%	32.9%
	专业方向课程 Specialized Orientation Courses	20		13.2%	
	专业拓展课程 Specialized Development Courses	6		3.9%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	16	16	10.5%	10.5%
	选修课 Elective Courses	0		0	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.9%	7.9%
合计 Total		152		100%	

说明 Notes	1. 专业核心课程和学科基础课程共 44 门，双语课程 1 门，全英语课程 2 门。 2. 专业方向课和专业拓展课共 67 门，其中专业方向课程 20 门，分 1 个系列（方向）；专业拓展课程 56 门。学生应从专业方向课程中至少选修 20 学分，从专业拓展课程中至少选修 4 学分。 3. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 26.3%。 1. There are 44 specialized core courses and disciplinary foundation courses in total, including 1 bilingual course and 2 English-taught courses. 2. There are 67 specialized orientation courses and specialized development courses in total, including 20 specialized orientation courses in 1 series (dimension) and 56 specialized development courses. Undergraduates are expected to obtain at least 20 credits from specialized orientation courses and 4 credits from specialized development courses. 3. Practice teaching content of this major includes practice teaching module and other course modules, and the credits of practice teaching is 26.3% to total credits.

八、市场营销专业本科教学计划表

Ⅷ. Teaching Scheme for Marketing Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts	1	1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.

0411046	大学外语（一） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College English 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses(12credits)

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（20 学分）

（Ⅱ）Disciplinary Foundation Courses (20 credits)

1. 相关学科基础课（14 学分）

1. Related Disciplinary Foundation Courses (14 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
1621001	线性代数 Linear Algebra	2	3	54		3	考试 Exam.
1621002	概率论与数理统计 Probability & Mathematical Statistics	3	3	54		3	考试 Exam.

2. 本学科基础课（6 学分）

2. Disciplinary Foundation Courses (6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1622011	管理学 Management	1	3	54		3	考试 Exam.
1622013	会计学 Accounting	2	3	54		3	考试 Exam.

（三）专业课程模块（50 学分）

（Ⅲ）Specialized Courses (50 credits)

1. 专业核心课程（24 学分）

1. Specialized Core Courses (24 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641092	政治经济学 Political Economics	1	2	18	36	3	考试 Exam.
1641327	微观经济学 Elementary Microeconomics	2	2	18	36	3	考试 Exam.
1641328	宏观经济学 Elementary Macroeconomics	3	2	18	36	3	考试 Exam.
1641103	经济法 Economic Law	3	2	36		2	考试 Exam.
1641333	战略管理 Strategy Management	3	2	18	36	3	考试 Exam.
1641237	市场营销学 Marketing	3	2	18	36	3	考试 Exam.
1641314	消费者行为学 Consumer Behavior	3	2	18	36	3	考试 Exam.
1641292	统计学 Statistics	4	2	18	36	3	考试 Exam.
1641326	运筹学 Operational Research	4	2	18	36	3	考试 Exam.
1641150	品牌管理 Brand Management	4	2	18	36	3	考试 Exam.
1641146	服务营销 Service Marketing	4	2	18	36	3	考试 Exam.
1641061	广告学 Advertising Planning	5	2	36		2	考试 Exam.

2. 专业方向课程（20 学分）

2. Specialized Orientation Courses（20 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1642075	人力资源管理 Human Resource Management	3	2	36		2	考查 Quiz
1642225	组织行为学 Organizational Behavior	3	2	18	36	3	考试 Exam.
1642076	财务管理 Financial Management	4	2	36		2	考查 Quiz
1642197	创新管理 Innovation Management	4	2	36		2	考试 Exam.
1642117	计量经济学 Ⅰ Econometrics Ⅰ	5	3	36	36	4	考查 Quiz
1642226	公司治理 Corporate Governance	5	2	36			考查 Quiz
1642174	运营管理 Operations Management	5	2	18	36	3	考试 Exam.
1642227	定价理论与策略管理 Pricing Theory and Strategy Management	5	2	36		2	考查 Quiz
1642204	市场研究与数据分析 Marketing Research and Data analysis	5	2	18	36	3	考试 Exam.
1642228	行为与实验经济学 Behavioral Economics	5	2	36		2	考查 Quiz
1642229	网络营销 Network Marketing	6	2	18	36	3	考查 Quiz

1642034	管理信息系统 Management Information System	6	2	36		2	考查 Quiz
1642218	大数据营销 Big Data Marketing	6	2	36		2	考查 Quiz
1642203	商战与企业经营模拟 Business War and Business Operation	6	2	36		2	考查 Quiz
1642082	客户关系管理 Customer Relationship Management	7	2	36		4	考查 Quiz

3. 专业拓展课程（6 学分）

3. Specialized Development Courses（6 credits）

详见学院专业拓展课程。

See Specialized Development Courses of International Business School.

（四）专业技能模块（16 学分）

（Ⅳ）Professional Skills Courses(16 credits)

1. 必修课（16 学分）

1. Compulsory Courses (16 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641147	产品管理 Product Management	4	2	36		2	考试 Exam.
1641232	供应链与物流管理 Supply Chain and Logistics Management	5	2	18	36	3	考试 Exam.
1641308	营销工程 Marketing Engineering	6	2	18	36	3	考查 Quiz
1641338	商务数据分析 Business Data Analysis	6	2	18	36	3	考试 Exam.
1641332	国际市场营销 International Marketing	6	2	18	36	3	考试 Exam.
1641339	渠道管理 Distribution Management	7	1	18		2	考查 Quiz
1641319	零售管理 Retail Marketing	7	2	36		4	考查 Quiz
1641307	营销管理咨询 Marketing Management Consulting	7	2	18	36	6	考查 Quiz
1641266	研究方法与学术论文写作 Research Methods and Academic Writing	7	1	18		2	考查 Quiz

（五）实践教学模块（12 学分）

（Ⅴ）Practice Work (12 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1650017	必读书目阅读 Required Readings		1				考查 Quiz
1650032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
1650021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1650033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

人力资源管理专业简介
Introduction to the Specialty of Human Resource Management

人力资源管理专业，学制 4 年，专业属性为非师范专业。我校人力资源管理专业开设于 2002 年 12 月，2004 年开始招生，经过十几年的建设，目前人力资源管理专业已经拥有了培养学生的深厚基础。

目前该专业在职任课教师 12 人，其中教授 1 人，副教授 4 人，讲师 7 人，5 人具有海外研学经历，具有博士学位的教师 9 人，具有硕士学位的教师 3 名。

该专业主要培养具有扎实的管理学、心理学、社会学理论基础，具有绩效改进的战略思维、良好的职业素养、科学的治学精神、掌握人力资源管理八大核心技能，能够在企业、政府、事业单位等机关部门从事人力资源管理工作的复合型高级专门人才。

The Specialty of Human Resource Management is intended for four-year degree program as well as non-normal major. Founded in December 2002 in the International Business School, this specialty is at present a secondary discipline affiliated to business administration.

Currently there are 12 full-time teachers in this specialty, among whom there is 1 professor, 4 associate professors and 7 lecturers. What’s more, 9 of these teachers are doctoral degree holders; 3 of them are master degree holders, and 5 of them have overseas studies and research experiences and one is a postdoctoral faculty.

This specialty aims to provide students with a solid theoretical foundation of management, psychology, and sociology. On completion of the program, students will develop strategic thinking in performance improvement, achieve excellence in professionalism and rigorous scholarship, and master the eight core skills of human resource management. This specialty is designed to prepare senior specialized professionals committed in management and research work related to human resource management in government departments, enterprises, public institutions, administrative offices and institutions of higher learning.

人力资源管理专业
The Specialty of Human Resource Management

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德智体全面发展，身心健康，具备一定自然科学和人文社会科学素养，掌握管理学、经济学、心理学等方面基本理论，熟练掌握人力资源管理理论体系、专业技能与方法，熟悉劳动法律与政策规定，具有分析与解决人力资源管理问题的一般能力，具备绩效改进思维和创新精神，能够在企业、政府、事业单位等组织中从事人力资源管理相关工作的复合型高级专门人才。

The specialty of Human Resource Management aims to cultivate professional talents with all-around development in morality, intellect, physique and aesthetics, and with both natural science literacy and social sciences literacy. These promising young men have a good command of the basic theories with regard to management, psychology, and sociology, as well as the theoretical system, professional skills and methods of human resource management. They are familiar with labor law and the relevant policies, capable of analyzing and solving the problems in human resource management. Equipped with performance improvement thinking and innovative spirit, these versatile talents are competent for jobs related to human resource management in enterprises, government departments and public institutions.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

本专业学生主要学习经济学、管理学、心理学、法学、社会学、人力资源管理等方面的基本理论和基本知识，接受人力资源管理方法及技能方面的训练，具有分析和解决人力资源管理问题的基本能力。

1. 爱祖国，拥护中国共产党，具有高尚的道德意识、专业的职业素养和和良好的社会公民意识；

2. 通过系统的基础理论课程与专业课程学习，具有良好的专业素养和广泛的学术兴趣；

3. 通过专业培养与训练，能够准确地用书面和口头表达自己的思想与观点；通过案例学习与研讨，能够运用逻辑和数理推理方法进行批判性思维；通过跨文化交流及双语教学，具有适应多元化社会与管理环境的能力；通过专业技能的学习与拓展，具有适应社会就业需求的能力。

4. 具有健康的体魄和一定的军事基本知识、基本技能，达到国家规定的《大学生体育合格标准》和军事训练标准；养成终生锻炼身体的习惯。

5. 具有良好的人文素质与科学素质，具有健全的人格和良好的心理素质，具有较强的创新精神和实践能力，成为德、智、体、美等全面发展的高素质人才。

Undergraduates of this specialty are mainly exposed to the basics of economics, management, psychology, law, sociology, human resource management. They are supposed to master the methods and skills of human resource management, and be able to analyze and solve problems in the realm of human resource management.

1. Undergraduates should be of high civil quality. Equipped with patriotic spirit, they should steadily accept the basic values of the Chinese nation and learn to behave by the corresponding codes of conduct. They should also build up noble moral accomplishment and develop a correct outlook on life and gracious

humanistic literacy by inheriting excellent Chinese culture and absorbing advanced values and scientific concepts abroad to cultivate wholesome personality and sound psychological quality.

2. Undergraduates should have a good sense of professionalism and wide range of academic interest through systematic study.

3. Undergraduates should have strong written and oral communication skills and capabilities to convey their ideas; through case study and discussion, they should develop critical thinking using the methods of mathematical logic and reasoning; through cross-cultural communication and bilingual classes, they are able to adapt to the multicultural society and management environment; through specialized skills training, undergraduates should be capable of meeting the employment demand.

4. Undergraduates should have a healthy physique and master the basic military knowledge and skills to meet the national requirements of the military training standards and Qualification Standards of Physical Education for College Students, and develop a habit of lifelong physical exercise.

5. Undergraduates should possess high humanistic and scientific quality, sound personality and good psychological quality, and strong innovative spirit and practical ability in order to become qualified talents with all-round development.

三、主干学科

Ⅲ. Core Disciplines

管理学

Management

四、主干课程

Ⅳ. Main Courses

管理学、组织行为学、人力资源管理原理、人力资源规划、工作分析与职务设计、招聘与选拔管理、培训管理、薪酬设计与激励机制、绩效管理

Management, Organizational Behavior, Human Resource Management, Human Resource Planning, Job Analysis and Design , Recruitment and Selection, Training Management, Salary Design and Incentive-payment Mechanism, Performance Management

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

管理学学士

Bachelor of Management

六、学分要求

Ⅵ. Total Credits

149 学分

149 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	28.2%	36.2%
	通识教育选修课 Liberal Studies Elective Courses	12		8.0%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	14	20	9.4%	13.4%
	本学科基础课 Disciplinary Foundation Courses	6		4.0%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	25	45	16.8%	30.2%
	专业方向课程 Specialized Orientation Courses	14		9.4%	
	专业拓展课程 Specialized Development Courses	6		4.0%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	18	18	12.1%	12.1%
	选修课 Elective Courses	0		0.0%	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	8.1%	8.1%
合计 Total		149		100%	

说明
Notes

1. 专业核心课程和学科基础课程共 19 门，双语课程 1 门，全英语课程 5 门。

2. 专业方向课和专业拓展课共 68 门，其中专业方向课程 13 门，分 1 个系列（方向）；专业拓展课程 56 门。学生应从专业方向课程中至少选修 14 学分，从专业拓展课程中至少选修 6 学分。

3. 实验课程共 22 门，其中独立开设的实验课 0 门，既有理论又有实验的课程 22 门，含综合性、设计性实验的课程 22 门，占实验课程总数的 100 %。

4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 26.2%。

1. There are 19 specialized core courses and disciplinary foundation courses in total, including 1 bilingual course and 5 English-taught courses.

2. There are 68 specialized orientation courses and specialized development courses in total, including 13 specialized orientation courses in 1 series (dimension) and 56 specialized development courses. Undergraduates should obtain at least 14 credits from specialized orientation courses and 6 credits from specialized development courses.

3. There are 22 experimental courses in total, all of which are theoretical and designable experimental courses. Independent experimental courses are not offered.

4. The practice work includes the practice work in the practice work module and other course modules, the credits of the practice work account for 26.2% of the total credits.

八、人力资源管理本科教学计划表

Ⅷ. Teaching Scheme for Human Resource Management Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.

1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
0411046	大学外语（一） College English 1	1	3	36	36	4	考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1711005- 1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411047	大学外语（二） College English 2	2	3	36	36	4	考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
0411048	大学外语（三） College English 3	3	3	36	36	2	考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses(12 credits)

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（20 学分）

（Ⅱ）Disciplinary Foundation Courses (20 credits)

1. 相关学科基础课（14 学分）

1. Related Disciplinary Foundation Courses (14 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.
1621001	线性代数 Linear Algebra	2	3	54		3	考试 Exam.
1621002	概率论与数理统计 Probability & Mathematical Statistics	3	3	54		3	考试 Exam.

2. 本学科基础课（6 学分）
2. Disciplinary Foundation Courses (6 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1622011	管理学 Management	1	3	54		3	考试 Exam.
1622013	会计学 Accounting	2	3	54		3	考试 Exam.

（三）专业课程模块（45 学分）
（Ⅲ）Specialized Courses (45 credits)
1. 专业核心课程（25 学分）
1. Specialized Core Courses (25 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641103	经济法 Economic Law	3	2	36		2	考试 Exam
1641092	政治经济学 Political Economics	1	2	18	36	3	考试 Exam.
1641327	微观经济学 Microeconomics	2	2	18	36	3	考试 Exam.
1641284	心理学 Psychology	3	2	18	36	3	考试 Exam.
1641328	宏观经济学 Macroeconomics	3	2	18	36	3	考试 Exam.
1641283	人力资源管理 Human Resource Management	3	2	36		2	考试 Exam.
1641326	运筹学 Operations Research	4	2	18	36	3	考试 Exam.
1641292	统计学 Statistics	4	2	18	36	3	考试 Exam.
1641331	组织行为学 Organizational Behavior	3	2	18	36	3	考试 Exam.
1641285	运营管理 Operations Management	6	2	18	36	3	考试 Exam.
1641152	管理信息系统 Management Information System	4	2	36		2	考查 Quiz
1641010	市场营销学 Marketing	6	2	36		2	考试 Exam.
1641266	研究方法与学术论文写作 Research Methods and Academic Writing	7	1	18		2	考查 Quiz

2. 专业方向课程（14 学分）
2. Specialized Orientation Courses (14 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
人力资源管理专业系列（方向）课程： Courses of Human Resource Management Specialty series/dimension							
1642111	社会学 Sociology	3	2	18	36	3	考查 Quiz
1642091	战略管理 Strategy Management	3	2	36		2	考查 Quiz
1642191	劳动经济学 Labor Economics	4	2	36		2	考查 Quiz

1642157	管理心理学 Managerial Psychology	4	2	36		2	考查 Quiz
1642076	财务管理 Financial Management	4	2	36		2	考查 Quiz
1642201	社会保险学 Social Insurance	5	2	36		2	考查 Quiz
1642156	国际人力资源管理 International HRM	5	2	36		2	考查 Quiz
1642155	劳动法 Labour Law	5	2	36		2	考查 Quiz.
1642226	公司治理 Corporate Governance	5	2	36		2	考查 Quiz
1642240	商务数据处理 Business Data Analysis	6	1.5	18	18	2	考查 Quiz
1642220	商务礼仪 Business Briquettes	6	1.5	18	18	2	考查 Quiz
1642224	企业伦理 Business Ethics	6	1.5	18	18	2	考查 Quiz
1642202	人力资源管理咨询 Human Resource Management Consulting	7	1.5	18	18	4	考查 Quiz

3. 专业拓展课程（6 学分）
3. Specialized Development Courses (6 credits)
详见学院专业拓展课程
See Specialized Development Courses of International Business School.

（四）专业技能模块（18 学分）
（Ⅳ）Professional Skills Courses(18 credits)
1. 必修课（18 学分）
1. Compulsory Courses (18 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641248	组织设计与人力资源规划 Organizational Design and Human Resource Planning	3	2	18	36	3	考试 Exam.
1641334	冲突与沟通管理 Management of Communication and Conflict	4	1.5	18	18	2	考查 Quiz
1641286	工作分析与设计 Job Analysis and Design	4	2	18	36	3	考试 Exam.
1641175	招聘与选拔管理 Management of Recruiting and Selecting	5	2	18	36	3	考试 Exam.
1641176	绩效管理 Performance Management	5	2	18	36	3	考试 Exam.
1641177	人才测评 Personnel Assessment	4	2	18	36	3	考试 Exam.
1641335	培训管理 Training Management	5	1.5	18	18	2	考试 Exam.
1641336	组织职业生涯管理 Organizational Career Management	5	1.5	18	18	2	考试 Exam.
1641289	薪酬管理 Compensation Management	6	2	18	36	3	考试 Exam.
1641337	员工关系管理 Employee Relations Management	6	1.5	18	18	2	考试 Exam.

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work(12 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1650017	必读书目阅读 Required Readings		1				考查 Quiz
1650032	专业见习与专业实习 Professional Visits And Practice	1-7	4				考查 Quiz
1650021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1650033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

电子商务专业简介
Introduction to the Specialty of E-commerce

电子商务专业，学制 4 年，专业属性为非师范专业。我校于 2002 年获批电子商务本科专业，2003 年开始电子商务本科专业招生，经过多年的建设，目前电子商务专业已具有了培养学生的坚实基础。

目前该专业在职任课教师 11 人，其中教授 1 人，副教授 5 人，讲师 5 人；7 人具有海外研学经历；具有博士学位的教师 10 人，具有硕士学位的教师 1 人，已初步形成了以中青年教师为主的成长性科研教学师资队伍。

本专业主要培养能适应信息经济和知识经济发展的需要，具有扎实的电子商务理论功底和实践能力，能够熟练掌握信息科学理论与技术方法，具备信息技术与商务运营相结合的创新、创意、创业能力，能在企事业单位、政府部门、金融机构等领域，从事电子商务、电子政务、互联网金融的规划、实施与服务管理等工作的复合型高级专门人才。

The E-commerce specialty is established in 2003, which is designed as the non-normal major as well as four-year degree program. In fact, International Business School, one of the country’s newest and fastest growing business schools, was awarded the bachelor's degree of E-commerce in 2002. Now the school has been recognized internationally with accreditation by the Association to Advance Collegiate Schools of Business (AACSB) International, which will provide this major with both practical and theoretical knowledge upon graduation.

Currently, there are 11 full-time teachers in this specialty, of whom there are 1 professor, 5 associate professors and 5 lecturers. What’s more, 10 of them are doctoral degree holders, 1 is masters’ degree holder, and 7 of them have overseas studies and research experiences. This specialty has initially formed a youth faculty group oriented towards the growth of scientific research and teaching teams.

The E-commerce specialty aims to promote the students’ moral, intellectual, physical and aesthetic development. This specialty also aims to train senior specialized professionals with solid theoretical foundation and good command of basic skills in the realm of E-commerce. The graduates of this specialty can engage in the work related to E-commerce, big data analytics and internet.

电子商务专业
The Specialty of E-commerce

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、全面发展，身心健康，能适应信息经济和知识经济发展的需要，具有扎实的电子商务理论功底和实践能力，能够熟练掌握信息科学理论与技术方法，具备信息技术与商务运营相结合的创新、创意、创业能力，能在企事业单位、政府部门、金融机构等领域，从事电子商务、电子政务、互联网金融的规划、实施与服务管理等工作的复合型高级专门人才。

E-commerce is a new inter-discipline integrating computer science, management science, commerce and international trade, marketing, modern logistics. In order to adapt to economic globalization and informatization, this specialty cultivates the specialized E-Commerce talents with innovative spirit and practical ability in the information age. The graduates should be able to master the theory and technology of information science, information technology and business operations with a combination of innovative, creative, entrepreneurial ability, in the field of enterprises and institutions, government departments, financial institutions, research and application in e-commerce, e-government, Internet financial planning, implementation and management services.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱祖国，热爱中国共产党，掌握马克思主义、毛泽东思想、邓小平理论，既有远大志向又有奉献精神，具有敬岗爱业、勇于拼搏、遵纪守法、团结合作的良好素质；培养德、智、体、美全面发展，身心健康。

2. 掌握扎实的经济、管理、商务、金融、国际贸易、数据分析等领域的基础知识与基本理论；具有在信息化时代的企业经营、管理与决策、信息技术创新与知识管理中的创新精神和实践应用能力；掌握计算机网络、高级编程语言、软件开发与信息技术等方面的基础知识与实践技能；具备电子商务系统需求分析与规划、运营与管理、网络营销等基本知识与实践应用能力；掌握国内外商务活动的理论与实务操作的专业知识，初步具备国内外商务操作的流程控制与应用能力；具有较强的语言与文字表达、人际沟通、商业谈判、商务数据分析等能力；

3. 熟悉我国电子商务有关方针、政策和法规，以及国际商法与国际电子商务的相关惯例与规则；了解电子商务理论与实践的国内、国际发展动态与发展趋势；

4. 熟练掌握一门外语以及充分了解文献检索、资料查询的基本方法，具备阅读专业外文文献的能力和初步的科学研究能力，外语达到国家规定的外语四级水平。

5. 具有健康体魄和一定的军事基本理论及基本技能，达到国家学生体质健康标准和军事训练标准，养成锻炼身体的习惯具有健全的人格，良好的心理素质。

Students of this specialty may not graduate until they have completed the credits stipulated in the teaching plan within a period of 4-6 years and have met the following basic requirements:

1. Undergraduates should be be patriotic, love the Communist Party of China and master the basics of Marxism, Mao Zedong Thoughts and Deng Xiaoping Theory. They are expected to be equipped with such qualities as lofty aspirations, spirit of devotion, sense of commitment to their work, striving spirit, team spirit

and keen awareness of disciplines and laws. They should also be emotionally and physically healthy with all-round development in morality, intellect, physique and aesthetics.

2. Undergraduates should acquire the fundamental knowledge and basic theories of economy, management, business, finance, international trade, and data analysis. They are expected to have the innovative spirit and practical ability in enterprise management, management and decision-making, information technology innovation, knowledge management and business data analysis in the information age. They should also master the basics of computer networks, high-level programming languages, soft development and information technology. They are supposed to have the fundamental knowledge and practical abilities in e-commerce system requirements analysis and planning, operation and management, and network marketing. Besides, they should be highly competent in written communication, interpersonal communication, business negotiation and business data analysis.

3. They undergraduates should be familiar with the policies, regulations and laws in the field of e-commerce, as well as the established conventions and rules concerning international commercial law and international e-commerce. In addition, they are expected to have a general knowledge about the development trend of e-commerce theories and applications at home and abroad.

4. The students should have good command of one foreign language and know the fundamentals of literature retrieval and data query. They are expected to be able to read foreign references and preliminarily capable of scientific research. Their English proficiency should reach the level of CET 4.

5. The students are expected to be sound in physique and acquire proper military theory and basic skills, meeting the requirements in *National Physical Standard for College Students* and develop the habit of doing exercise on a regular basis. In addition, they should have wholesome personality and excellent psychological quality.

三、主干学科

Ⅲ. Core Disciplines

管理学

Management

四、主干课程

Ⅳ. Main Courses

管理学、电子商务概论、网络营销、网络经济学、管理信息系统、供应链与物流管理、电子商务法律与法规、电子商务服务、数据库原理与应用、Java 及 JSP 动态网页编程与应用

In our teaching plan, the main courses include Management Science, E-commerce Introduction, Cyber-marketing, Internet Economics, Management Information System, Supply Chain and logistics management, E-Commerce Law and Legislation, E-Commerce Service, Database Principle and Application, Java & JSP Dynamic Web Programming and Application

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

管理学学士

Bachelor of Management

六、学分要求

Ⅵ. Total Credits

154 学分

154 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	27.3%	35.1%
	通识教育选修课 Liberal Studies Elective Courses	12		7.8%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	14	20	9.1%	13.0%
	本学科基础课 Disciplinary Foundation Courses	6		3.9%	
专业课程模块 Specialized Courses	专业核心课程 Professional core courses	29	51	18.8%	33.1%
	专业方向课程 Professional Direction Courses	16		10.4%	
	专业拓展课程 Professional Development Courses	6		3.9%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	17	17	11.0%	11.0%
	选修课 Elective Courses	0		0	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.8%	7.8%
合计 Total		154		100%	
说明 Notes	1. 专业核心课程和学科基础课程共 21 门。 2. 专业方向课和专业拓展课共 66 门，其中专业方向课程 10 门，分 2 个系列（方向）；专业拓展课程 56 门。学生应从专业方向课程中至少选修 16 学分，从专业拓展课程中至少选修 6 学分。 3. 实验课程共 21 门，其中独立开设的实验课 0 门，既有理论又有实验的课程 20 门，含综合性、设计性实验的课程 1 门，占实验课程总数的 75%。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 24.7% 1. There are 21 professional core courses and disciplinary foundation courses in total. 2. There are 66 professional core courses and professional development courses in total, including 10 professional direction courses in 2 series (dimension), and 56 professional development courses. Undergraduates are required to earn at least 16 credits from professional direction courses and 6 credits from professional development courses 3. There are 21 experimental courses in total, including 20 theoretical and designable experimental courses and 1 comprehensive and designable experimental course. Independent experimental course is not offered. 4. Practice work includes the courses of the specific module of practice work and the practice work within the courses of other modules, taking up 24.7% of the total credits.					

八、电子商务专业本科教学计划表

Ⅷ. Teaching Scheme for E-commerce Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses(54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science&Arts	1	1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College English 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Education &Practice of Innovation and Entrepreneurship	3	2	36			考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（20 学分）

（Ⅱ）Disciplinary Foundation Courses (20 credits)

1. 相关学科基础课（14 学分）

1. Related Disciplinary Foundation Courses (14 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2 (for Science Specialties)	2	4	72		4	考试 Exam.

1621001	线性代数 Linear Algebra	2	3	54		3	考试 Exam.
1621002	概率论与数理统计 Probability & Mathematical Statistics	3	3	54		3	考试 Exam.

2. 本学科基础课（6 学分）
2. Disciplinary Foundation Courses (6 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1622011	管理学 Management Science	1	3	54		3	考试 Exam
1622013	会计学 Accounting	2	3	54		3	考试 Exam

（三）专业课程模块（51 学分）
（Ⅲ）Specialized Courses (51 credits)
1. 专业核心课程（29 学分）
1. Core Courses. (29 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641201	电子商务概论 E-Commerce Introduction	3	2	18	36	3	考试 Exam
1641266	研究方法与学术论文写作 Research Methods and Academic Writing	7	1	18		2	考查 Quiz
1641092	政治经济学 Political Economics	1	2	18	36	3	考试 Exam
1641327	微观经济学 Microeconomics	2	2	18	36	3	考试 Exam
1641328	宏观经济学 Macroeconomics	3	2	18	36	3	考试 Exam
1641100	金融学 Finance	3	2	18	36	3	考试 Exam
1641237	市场营销学 Marketing	3	2	18	36	3	考试 Exam
1641103	经济法 Economic Law	3	2	36		2	考试 Exam
1641292	统计学 Statistics	4	2	18	36	3	考试 Exam
1641326	运筹学 Operations Research	4	2	18	36	3	考试 Exam
1641255	财务管理原理 Financial Management Principle	4	2	36		2	考查 Quiz
1641152	管理信息系统 Management Information System	4	2	36		2	考查 Quiz
1641232	供应链与物流管理 Supply Chain and Logistics Management	5	2	18	36	3	考试 Exam
1641341	管理系统工程 Management Systems Engineering	5	2	18	36	3	考试 Exam
1641342	计量经济学 Econometrics	5	2	18	36	3	考试 Exam

2. 专业方向课程（16 学分）
2. Specialized Elective Courses (16 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1642105	网页设计与网站构建 Web Page Design and Web Site Construction	4	2	18	36	3	考查 Quiz
1642027	消费者行为学 Consumer Behavior	5	2	36		2	考查 Quiz
1642200	电子商务服务 E-Commerce Service	5	2	18	36	3	考查 Quiz
1642235	数据仓库与数据挖掘 Data Warehouse & Data Mining	5	2	36		2	考查 Quiz
1642236	商务智能 Business Intelligence	5	2	36		2	考查 Quiz
1642237	电子支付与互联网金融 Electronic Payment & E-Finance	6	2	18	36	3	考查 Quiz
1642163	组织行为学 Organizational Behavior	6	2	36		3	考查 Quiz
1642238	商务数据分析 Business data analysis	6	2	36		2	考查 Quiz
1642239	国际贸易与跨境电子商务 International Trade & Cross-border E-Commerce	7	2	36		2	考查 Quiz
1642197	创新管理 Innovative Management	7	2	36		2	考查 Quiz

3. 专业拓展课程（6 学分）

3. Specialized Non-restrictive Elective Courses (6 credits)

详见学院专业拓展课程。

See Specialized Non-restrictive Elective Courses of International Business School.

（四）专业技能模块（17 学分）

（Ⅳ）Professional Skills Courses (17 credits)

1. 必修课（17 学分）

1. Compulsory Courses (17 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641204	C 语言程序设计基础 Programming Basis	3	3	36	36	4	考试 Exam
1641205	数据库原理与应用 Database Principle and Application	4	3	36	36	4	考试 Exam
1641280	Java 及 JSP 动态网页编程与应用 Java & JSP Dynamic Web Programming and Application	5	3	36	36	4	考试 Exam
1641208	网络经济学 Internet Economics	5	2	36		2	考试 Exam
1641211	网络营销 Cyber-Marketing	6	2	18	36	3	考试 Exam
1641323	电子商务解决方案 E-Commerce Solution	6	2	36		2	考试 Exam
1641343	电子商务法律与法规 E-Commerce Law	6	2	36		2	考试 Exam

（五）实践教学模块（12 学分）

（Ⅴ）Practice Work（12 credits）

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz

1650017	必读书目阅读 Required Readings		1				考查 Quiz
1650032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
1650021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1650033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

财务管理专业简介
Introduction to the Specialty of Financial Management

财务管理专业，学制 4 年，专业属性为非师范专业。我校于 2003 年 12 月设立财务管理本科专业，2005 年 12 月成立财务学系（后改名为财务与会计系）、西部会计研究中心，2012 年获得会计学硕士学位授予权。经过二十几年的建设，目前财务专业已经拥有了培养学生的深厚基础。

目前该专业在职任课教师 11 人，其中教授 3 人，副教授 6 人，讲师 2 人，具有博士学位的教师 8 人，具有硕士学位的教师 3 人。

该专业主要培养具备企业、事业单位等理财方面知识和能力，具有理论基础扎实、知识面宽、能力强、富有创新精神以及实践能力，能满足公司、金融部门、社会中介机构、企事业单位等经济管理需要,能掌握会计业务处理和管理、财务筹资、投资、营运等方面的专门知识，具有一专多能的知识结构和一定的计算机应用能力的复合型高级专门人才。

Financial Management, established in December 2003, is designed as a four-year degree program for non-normal majors. International Business School of SNNU, one of the country's newest and fastest growing business schools, has set up Finance Department and Western Accounting Research Center in December 2005. Then our department was authorized to confer accounting master degree in 2012. Now the school has been recognized internationally with accreditation by the Association to Advance Collegiate Schools of Business (AACSB) International, which will provide this major with both practical and theoretical knowledge upon graduation.

At present, there are 11 full-time excellent scholars including 3 professors, 6 associate professors, and 2 lecturers.

This program is designed to encourage the development of comprehensive training, critical thinking, analysis, innovation and communication skills, which could meet the requirements of firms, financial bureaus, intermediary agencies, and other business organizations. By facilitating personal growth and the ability to adapt and respond to a complex and changing environment, the program helps the students acquire advanced knowledge in accounting, investment, operation and related aspects of business. In addition, this program will ensure the students to be a well-rounded business professional with a comprehensive outlook on accounting.

财务管理专业
The Specialty of Financial Management

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具备企业、事业单位等理财方面知识和能力，具有理论基础扎实、知识面宽、能力强、富有创新精神以及实践能力、能满足公司、金融部门、社会中介机构、企事业单位等经济管理需要的财务管理中高级专门人才，能够掌握会计业务处理和管理、财务筹资、投资、营运等方面的专门知识，具有一专多能的知识结构和一定的计算机应用能力的复合型高级专门人才。

This program is designed to encourage the development of comprehensive training, critical thinking, analysis, innovation and communication skills, which could meet the requirements of firms, financial bureaus, intermediary agencies, and other business organizations. By facilitating personal growth and the ability to adapt and respond to a complex and changing environment, the program helps the students acquire advanced knowledge in accounting, investment, operation and related aspects of business. In addition, this program will ensure the students to be a well-rounded business professional with a comprehensive outlook on accounting.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国；掌握马克思主义、毛泽东思想和中国特色社会主义理论体系的基本观点和方法，具有科学的世界观、正确的人生观和高尚的道德品质。德、智、体、美、全面发展，身心健康。

2. 具有扎实的会计与财务理论基础，能运用所学理论进行科学研究。

3. 具有较丰富的会计与财务实际知识，能正确进行会计与财务管理活动。

4. 具有健全的人格和良好的心理素质，具有健康的体魄和一定的军事基本理论及基本技能，达到国家规定的大学生体育合格标准和军事训练标准。

1. Undergraduates should love the Communist Party of China and love the socialist motherland; they have mastered the basic viewpoints and methods of Marxism, Mao Zedong Thought and the theoretical system of socialism with Chinese characteristics, and have a scientific world outlook, a correct outlook on life and a noble moral quality.

2. Undergraduates master the basic theory of accounting and finance and can do some research with the knowledge of accounting and finance.

3. Undergraduates should possess a wealth of practical knowledge of accounting and finance and carry out accounting and financial management properly.

4. Undergraduates should have preliminary scientific research ability and highly proficient operational skills.

三、主干学科

Ⅲ. Core Discipline

管理学

Management

四、主干课程

Ⅳ. Main Courses

会计学、中级财务会计、审计学、财务管理原理、中级财务管理、会计信息系统、高级财务会计、管理会计、纳税筹划、内部控制

Accounting, Intermediate Financial Accounting, Auditing, Financial Management Principles, Intermediate Financial Management, Accounting Information System, Advanced Financial Accounting, Management Accounting, Tax Planning, Internal Control

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

管理学学士

Bachelor of Management

六、学分要求

Ⅵ. Total Credits

153 学分

153 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学分 Cre.	小计 Sub-Total	占总学分比例 Percentage in Total Credits	小计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	27.5%	35.3%
	通识教育选修课 Liberal Studies Elective Courses	12		7.8%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	14	20	9.2%	13.1 %
	本学科基础课 Disciplinary Foundation Courses	6		3.9%	
专业课程模块 Specialized Courses	专业核心课 Professional Core Courses	21	48	13.7%	31.4%
	专业方向课 Professional Direction Courses	19		12.4%	
	专业拓展课 Professional Development Courses	8		5.3%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	19	19	12.4%	12.4%
	选修课 Elective Courses	0		0	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.8%	7.8%
合计 Total		153		100%	
说明 Notes	1. 专业核心课程和学科基础课程共 17 门，双语课程 0 门，全英语课 1 门。 2. 专业方向课程和专业拓展课程选修课共 70 门，其中专业方向课程 13 门，分 1 个系列（方向）；专业拓展课程 57 门。学生应从专业方向课中至少选修 19 学分，从专业拓展课中至少选修 8 学分。 3. 实验课程共 31 门，其中独立开设的实验课 0 门，既有理论又有实验的课程 31 门。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 37.9%。 1. There are 17 professional core courses and disciplinary foundation courses in total, including 1 English-taught course. Bilingual course is not offered.				

	2. There are 70 professional direction courses and professional development courses in total including 13 professional direction courses in 1 series (dimension), and 57 professional development courses. Undergraduates are required to earn at least 19 credits from professional direction courses and 8 credits from professional development courses. 3. There are 31 experimental courses in total, all of which are theoretical and designable experimental courses. Independent experimental course is not offered. 4. Practice work includes the courses of the specific module of practice work and the practice work within the courses of other modules, taking up 37.9% of the total credits.

八、财务管理专业本科教学计划表

Ⅷ. Teaching Scheme for Financial Management Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses(54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文（理、艺、体） College Chinese(for Science, Art and P.E. Specialties)	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer(for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming(for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		考试 Exam.
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Education & Practice of Innovation and Entrepreneurship	3	2	36			考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（20 学分）

（Ⅱ）Disciplinary Foundation Courses (20 credits)

1. 相关学科基础课（14 学分）

1. Related Disciplinary Foundation Courses (14 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1(for Science Specialties)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2(for Science Specialties)	2	4	72		4	考试 Exam.
1621001	线性代数 Linear Algebra	2	3	54		3	考试 Exam.
1621002	概率论与数理统计 Probability and Mathematical Statistics	3	3	54		3	考试 Exam.

2. 本学科基础课（6 学分）

2. Disciplinary Foundation Courses (6 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1622011	管理学 Management	1	3	54		3	考试 Exam.
1622013	会计学 Accounting	2	3	54		3	考试 Exam.

（三）专业课程模块（48 学分）

（Ⅲ）Specialized Courses (48 credits)

1. 专业核心课程（21 学分）

1. Professional core courses(21 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641266	研究方法与学术论文写作 Research Methods and Academic Writing	7	1	18		2	考查 Quiz
1641326	运筹学 Operations Research	4	2	18	36	3	考试 Exam.
1641092	政治经济学 Political Economics	1	2	18	36	3	考试 Exam.
1641327	微观经济学 Microeconomics	2	2	18	36	3	考试 Exam.
1641328	宏观经济学 Macroeconomics	3	2	18	36	3	考试 Exam.
1641292	统计学 Statistics	4	2	18	36	3	考试 Exam.
1641252	财务管理原理 Principles of Financial Management	4	2	18	36	3	考试 Exam.

1641239	中级财务管理 Intermediate Financial Management	6	2	18	36	3	考试 Exam.
1641329	会计信息系统 Accounting Information System	5	2	18	36	3	考试 Exam.
1641241	内部控制 Internal Control	6	2	18	36	3	考试 Exam.
1641192	审计学 Auditing	5	2	18	36	3	考试 Exam.

2. 专业方向课（19 学分）

2. Professional direction courses(19 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1642056	金融市场学 Financial Market	4	2	36		2	考查 Quiz
1642075	人力资源管理 Human Resource Management	4	2	36		2	考查 Quiz
1642101	国际财务管理 International Financial Management	7	2	18	36	3	考查 Quiz
1642115	经济法 Economic Law	3	2	36		2	考查 Quiz
1642162	国际经济学 International Economics	3	2	36		2	考查 Quiz
1642089	市场营销 Marketing	6	2	36		2	考查 Quiz
1642233	预算会计 Electronic Commerce	4	2	36		2	考查 Quiz
1642102	证券投资学 Securities Investment	6	2	18	36	3	考查 Quiz
1642104	投资银行学 Investment Banking	5	2	36		2	考查 Quiz
1642099	金融学 Finance	3	2	36		2	考查 Quiz
1641117	计量经济学（Ⅰ） Econometrics	5	3	36	36	4	考试 Exam.
1642226	公司治理 Corporate Government	5	2	36			考查 Quiz
1642163	组织行为学 Organizational Behavior	3	2	36			考查 Quiz

3. 专业拓展课（8 学分）

3. Professional development courses(8 credits）

详见学院专业拓展课程。

See Specialized Non-restrictive Elective Courses of International Business School.

（四）专业技能模块（19 学分）

（Ⅳ）Professional Skills Courses (19 credits)

1. 必修课（19 学分）

1. Compulsory Courses(19 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1641190	中级财务会计 Intermediate Financial Accounting	3	3	36	36	4	考试 Exam.
1641191	财务报告分析 Financial Statement Analysis	5	2	18	36	3	考试 Exam.

1641193	成本会计 Cost Accounting	6	2	18	36	3	考试 Exam.
1641194	管理会计 Management Accounting	6	2	18	36	3	考试 Exam.
1641198	高级财务会计 Advanced Financial Accounting	5	3	36	36	4	考试 Exam.
1641291	税法与税务会计 Tax Law and Tax Accounting	4	2	18	36	3	考试 Exam.
1641197	纳税筹划 Tax Planning	6	2	18	36	3	考查 Quiz
1641340	公司战略与风险管理 Corporate Strategy and Risk Management	5	3	36	36	4	考试 Exam.

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work(12 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
1650017	必读书目阅读 Required Readings		1				考查 Quiz
1650032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
1650021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
1650033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

国际商学院专业拓展课程
Specialized Development Courses of School of International Business

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1643114	经济理论史 History of Economic Thought	4	2	36		2	考查 Quiz
1643115	经济史 Economic History	3	2	36		2	考查 Quiz
1643116	数理经济学 Mathematical Economics	5	2	36		2	考查 Quiz
1643119	发展经济学 Development Economics	5	2	36		2	考查 Quiz
1643167	博弈论与信息经济学 Game Theory And Information Economics	5	2	36		2	考查 Quiz
1643035	消费行为学 Consumer Behavior	3	2	36		2	考查 Quiz
1643168	定价理论与策略管理 Pricing Theory and Strategy Management	5	2	36		2	考查 Quiz
1643042	电子商务概论 E-Commerce Introduction	2	2	36		2	考查 Quiz
1643041	供应链和物流管理 Supply Chain And Logistics Management	5	2	36		2	考查 Quiz
1643037	服务营销 The Service Marketing	5	2	36		2	考查 Quiz
1643080	品牌管理 Brand Management	6	2	36		2	考查 Quiz
1643081	商务谈判 Business Negotiation	6	2	36		2	考查 Quiz
1643026	组织行为学 Organizational Behavior	5	2	36		2	考查 Quiz
1643107	社会学基础 Sociology Basis	3	2	36		2	考查 Quiz
1643129	组织设计与人力资源规划 Organizational Design and Human Resource Planning	4	2	36		2	考查 Quiz
1643030	绩效管理 Performance Management	5	2	36		2	考查 Quiz
1643054	商务礼仪 Business Etiquettes	6	2	36		2	考查 Quiz
1643169	薪酬管理 Compensation Management	6	2	36		2	考查 Quiz
1643027	冲突与沟通管理 Management of Communication and Conflict	5	2	36		2	考查 Quiz
1643132	国际商法 International Commercial Law	4	2	36		2	考查 Quiz
1643133	商务函电 Business Letters	6	2	36		2	考查 Quiz
1643012	国际贸易实务 International Trade Practice	6	2	36		2	考查 Quiz
1643162	金融学 Finance	3	2	36		2	考查 Quiz
1643018	保险学 Insurance	6	2	36		2	考查 Quiz
1643065	商业银行经营管理 Commercial Bank Management	5	2	36		2	考查 Quiz
1643069	证券投资学 Securities Investment	5	2	36		2	考查 Quiz

1643125	国际金融 International Finance	6	2	36		2	考查 Quiz
1643128	财务管理 Financial Management	3	2	36		2	考查 Quiz
1643017	财务报告分析 Financial Statement Analysis	5	2	36		2	考查 Quiz
1643084	中级财务会计 Intermediate Financial Accounting	3	2	36		2	考查 Quiz
1643090	纳税筹划 Tax Planning	6	2	36		2	考查 Quiz
1643083	内部控制 Internal Control	6	2	36		2	考查 Quiz
1643170	技术经济学 Technical Economics	6	2	36		2	考查 Quiz
1643183	项目评估 Project Assessment	6	2	36		2	考查 Quiz
1643058	合同法 Contract Law	2	2	36		2	考查 Quiz
1643171	国际贸易模拟实践 Practical Affairs of International Trade	6	2	36		2	考查 Quiz
1643172	会计学原理（双语） Principle of Accounting(bilingual)	6	2	36		2	考查 Quiz
1643173	社会调查与研究方法 Social Investigation and Research Methods	3	1	18		2	考查 Quiz
1643174	中国文化问题研究 Research on Issues of Chinese Culture	6	1	18		2	考查 Quiz
1643155	劳动法 Labour Law	2	2	36		2	考查 Quiz
1642189	个人理财 Personal Finance	7	2	18	36	3	考查 Quiz
1643175	社会保障制度研究 Research on Social Security System	5	1	18		2	考查 Quiz
1643176	创业与创新管理 Entrepreneur and Innovation Management	6	2	36		2	考查 Quiz
1643158	企业伦理学 Entrepreneur Ethics	4	2	36		2	考查 Quiz
1643177	创新管理（英语） Innovation Management (English)	5	2	36		2	考查 Quiz
1643113	人力资源管理咨询 Human Resource Management Consultation	6	2	36		2	考查 Quiz
1643179	市场调研与抽样方法 Market Investigation and Sampling Methods	3	2	36		2	考查 Quiz
1643180	经济管理中的质性分析方法 Quality Methods in Economic Management	5	2	36		2	考查 Quiz
1643181	企业如何招贤纳士 How firms　recruiting	5	1	18			考查 Quiz
1643182	如何发现自己的优势——人才测评实务 How to Discover the Advantage of Yourself——Personnel Assessment Practice	5	2	36			考查 Quiz
1643184	绿色营销 Green Marketing	5	2	36			考查 Quiz
1643185	关系营销 Relationship Marketing	7	2	36			考查 Quiz
1643186	金融营销 Financial Marketing	5	2	36			考查 Quiz
1643187	社会营销 Social Marketing	6	2	36			考查 Quiz
1643188	大数据营销 Big Data Marketing	5	2	36			考查 Quiz
1643189	精准营销 Precision Marketing	7	2	36			考查 Quiz
1643190	软计算方法 Soft Computing Methods	5	2	36		2	考查 Quiz

1643191	经济数学方法与模型 Economic Mathematical Methods and Models	5	2	36		2	考查 Quiz
1643192	创业投资与理财 Venture Practice and Financing	5	2	36		2	考查 Quiz
1643193	网页设计与网站建设 Webpage Design	3	2	36		2	考查 Quiz
1643194	低碳经济与碳管理 Low Carbon Economics and Management	6	2	36		2	考查 Quiz
1643195	绿色金融与碳交易 G-Financing and Carbon Trading	6	2	36		2	考查 Quiz
1643196	创业者需知的产业组织理论 IO for Entrepreneur	5	1	18		2	考查 Quiz
1643197	儒家经济思想 The Economic Principles of Confucius	2	1	18		2	考查 Quiz
1643198	公司法 Company Law	5	2	36		2	考查 Quiz
1643199	经济学精典文献选读 Selected Readings in Classical Economics literature	6	1	18		2	考查 Quiz
1643200	劳动与发展经济学 The Labor and the Development of Economics	6	1	18		2	考查 Quiz
1643202	金融危机与金融稳定 Financial Crisis and Stability	5	2	36		2	考查 Quiz
1643201	互联网金融 Internet Finance	5	2	36		2	考查 Quiz
1643205	金融经济学 Finance Economics	6	2	36		2	考查 Quiz
1643206	西方金融理论 Western Finance Theory	7	2	36		2	考查 Quiz
1643207	保险精算 Actuarial Theory	7	2	36		2	考查 Quiz
1643208	洗钱风险管理 Monetary Laundering Risk Management	7	2	36		2	考查 Quiz
1643136	资产评估 Asset Assessment	4	2	36		2	考查 Quiz
学生选修说明 Notes	1. 国际商学院专业拓展课程共 68 门，分 6 个系列或方向； 2. 国际商学院各专业必须选修 6 学分。 1. There are 68 Specialized Non-restrictive Elective Courses offered by International Business School in total divided into 6 directions or dimensions. 2. Undergraduates f each specialty should obtain at least 6 credits from the above offered courses.						

心理学院
School of Psychology

- 心理学（泽如创新实验班）

  Psychology (Ze Ru Innovative and Experimental Class)

- 应用心理学

  Applied Psychology

心理学专业（泽如创新实验班）简介

Introduction to the Specialty of Psychology (Ze Ru Innovative and Experimental Class)

心理学专业（泽如创新实验班），学制 4 年，专业属性为非师范专业。我校该专业始建于 1986 年，先后获评国家级特色专业、省级特色专业与省级名牌专业，入选省一流专业，拥有“基础心理学”国家级教学团队、“发展与教育”省级教学团队，建有国家级心理学虚拟仿真实验教学中心、陕西省实验教学示范中心，建有多门国家级和省级精品资源共享课程和双语示范课程。

心理学专业（泽如创新实验班）师资力量雄厚，目前有专任教师 19 人, 18 名具有博士学位，其中包含 3 名宝钢优秀教师、2 名省级教学名师、2 名校级教学名师、3 名校级教书育人先进个人和 1 名明德优秀教师等。心理学专业教学团队在情绪、人格与社会行为及其神经生理基础、认知与语言认知及其神经机制、儿童青少年人格与社会认知发展等研究领域成果丰硕。

该专业主要培养掌握扎实的心理学基础理论知识，具备广泛的专业研究兴趣和研究创新能力，能够承担和胜任心理学教学、从事科研及其相关社会工作的复合型高级专门人才。

The specialty of Psychology (Ze Ru Innovative and Experimental Class) is a non-teacher training 4-year undergraduate program. This specialty was established in 1986 and has been awarded as “national-characteristic discipline”, “provincial-characteristic discipline”, “provincial famous discipline”, and "provincial first-class discipline". With a national and provincial teaching teams, we have established the national psychology virtual simulation experimental teaching center, the experimental teaching center of Shaanxi province, and have developed several excellent resource-sharing courses as well as bilingual courses at national, provincial, and university level.

We have a strong team of teachers, of which many teachers have been awarded as provincial excellent teachers, university-level excellent teachers, and Ming De Teacher Award. In the research field, we also have fruitful achievement, especially in the field of emotion, personality and social behavior, cognitive and neuro mechanisms of language, adolescents’ personality, and social cognitive developments.

The specialty aims to help the students to be equipped with professional psychological theories, broad academic interest and creativity, as well as abilities to serve in areas of teaching, research and other social sectors.

心理学专业（泽如创新实验班）
The Specialty of Psychology (Ze Ru Innovative and Experimental Class)

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具备扎实的专业知识、能力与人文科学素养和社会责任感，身心健康，通过系统的专业学习与训练，掌握扎实的心理学基础理论知识，形成基本的实践动手能力和研究创新能力，具有广泛的专业研究兴趣和进一步深造的良好专业潜质，能够承担和胜任心理学教学、从事科研及其相关社会工作的复合型高级专门人才。

We offer an all-round education and professional undergraduate program to train highly qualified students excellent in professional knowledge, academic ability, human and scientific achievement, sense of social responsibility, and psychologically well-being. Through a systematically academic training, we endeavor to make students to be equipped with professional psychological theories, practical abilities, creativity, broad academic interest, and professional foundation for further study, as well as abilities to serve in areas of teaching, research and other social sectors.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国，掌握马列主义、毛泽东思想、邓小平理论和“三个代表”的重要思想；坚持科学发展观，具有科学的世界观、正确的人生观以及高尚的道德品质。

2. 掌握与心理学密切相关的学科基础知识，包括数学、物理、生物等；系统掌握心理学专业主干课程知识、专业方向课程知识，熟练操作心理学基础实验、使用心理测验与量表，了解心理学学术研究的基本程序；初步形成发现问题、提出问题、形成假设并验证假设的心理学研究能力。

3. 至少掌握一门外语，且达到国家规定的四级及以上水平,能在指导下阅读外文专业文献；具备基本的专业写作和交流能力；具备计算机基本编程与软件应用能力；熟悉一般的文献检索技术与网络使用方法；普通话标准。

4. 具有健康体魄和一定的军事基本理论及基本技能，达到国家大学生体质健康标准和军事训练标准，形成一定的运动技能，养成良好的锻炼习惯。

Students of this major have to obtain the credits required by the teaching plan during 4-6years, meeting the following basic requirements to graduate:

1. Undergraduates should love the CPC and our motherland, possess a profound understanding of Marxism and Mao Zedong thoughts and the basic theory of theoretical system of socialism with Chinese characteristics, have a scientific world outlook, a positive outlook on life and values, and hold noble moral characters.

2. Undergraduates should master basic knowledge related to psychology, including mathematics, physics and biology. They should acquire both basic and advanced knowledge of psychology. Students should be able

to perform basic experiments and psychological assessments, know the basic procedure of psychological academic research, and develop the ability of detecting, raising, and solving academic questions.

3. Undergraduates should grasp at least a foreign language and reach at least band-four level of the certain foreign language. Students should have ability to read foreign language literature under guidance, and basic professional writing and communication skills. Students should have basic knowledge of computer programming and software application-on, and be familiar with document retrieval and network technology. They should also be able to speak fluent Mandarin.

4. Undergraduates should have a healthy body, grasp basic military theories and skills. They should reach the national standards of health and military training for undergraduates. Students should be good at doing certain sports and work out on a regular basis.

三、主干学科

Ⅲ. Core Disciplines

心理学

Psychology

四、主干课程

Ⅳ. Main Courses

普通心理学、实验心理学、心理统计、心理测量、发展心理学、教育心理学、情绪心理学、社会心理学、认知心理学、生理心理学、心理学实验程序设计、认知神经科学实验、多因素实验设计、心理学研究方法与论文写作指导

General Psychology, Experimental Psychology, Psychological Statistics, Psychometric, Development Psychology, Education Psychology, Emotional Psychology，Social Psychology, Cognitive Psychology, Physiopsychology, The experimental programming in psychology，Cognitive neuroscience experiment, Multifactoral Design，Methods of Psychological Research and Publication

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credits

156 学分

156 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	26.9%	34.6%
	通识教育选修课 Liberal Studies Elective Courses	12		7.7 %	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	16	35	10.3%	22.4%
	本学科基础课 Disciplinary Foundation Courses	19		12.1%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	30	44	19.2%	28.2%
	专业方向课程 Specialized Orientation Courses	8		5.1%	
	专业拓展课程 Specialized Development Courses	6		3.9%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	10	11	6.4%	7.1%
	选修课 Elective Courses	1		0.7%	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.7%	7.7%
合计 Total		156		100%	
说明 Notes	1. 专业必修课（含学科基础课程和专业必修课）共 21 门，双语课程 3 门，全英语课程 1 门. 2. 专业选修课共 20 门，其中专业方向课 7 门，分 3 个系列（方向）；专业拓展课 13 门。学生应从专业方向课中至少选修 8 学分，从任意选修课中至少选修 6 学分。 3. 实验课程共 7 门，其中独立开设的实验课 2 门，既有理论又有实验的课程 3 门，含综合性、设计性实验的课程 2 门，占实验课程总数的 29 %。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 31%。 1. There are 21 specialized compulsory courses including disciplinary foundation courses in total and 3 bilingual courses, and 1 English course. 2. There are 20 specialized elective courses in total including 7 specialized orientation courses divided into 3 series or dimensions and 13specialized development courses. Undergraduates should obtain 8 credits in total by taking specialized orientation courses and 6 credits by taking specialized development courses 3. There are 7 experimental courses in total including 2 independent experimental courses, 3 theoretical and 2 designable experimental courses which accounts for 29 % of the total experimental courses. 4. The practical teaching content of this major includes the practical teaching content in the practical teaching module and other course modules, and the credits of the practical teaching link account for 31 % of the total credits.					

八、心理学本科教学计划表

Ⅷ. Teaching Scheme for Psychology Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.

1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science ＆Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University*.

（二）学科基础模块（35 学分）

（Ⅱ）Disciplinary Foundation Courses (35 credits)

1. 相关学科基础课（16 学分）

1. Related Disciplinary Foundation Courses (16 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics 1 (for Science Specialties)	1	4	72		4	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics 2(for Science Specialties)	2	4	72		4	考试 Exam.

2421009	人体解剖生理学 Anthropotomy	1	3	36	36	3	考试 Exam.
2421002	普通物理学 General Physics	2	2	36		2	考试 Exam.
2421007	概率论与数理统计 Probability Theory and Mathematical Statistics	2	3	54		3	考试 Exam.

2. 本学科基础课（19 学分）

2. Disciplinary Foundation Courses (19 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2422030	普通心理学Ⅰ General Psychology Ⅰ	1	3	36	36	3	考试 Exam.
2422031	普通心理学Ⅱ General PsychologyⅡ	2	3	36	36	3	考试 Exam.
2422032	实验心理学 Experimental Psychology	3	4	54	36	4	考试 Exam.
2422033	心理学基础实验训练 Basic Experimental Training of Psychology	4	4	36	72	4	考试 Exam.
2422034	心理统计Ⅰ Psychological Statistics Ⅰ	2	3	36	36	3	考试 Exam.
2422035	心理统计Ⅱ Psychological Statistics Ⅱ	3	2	18	36	2	考试 Exam.

（三）专业课程模块（44 学分）

（Ⅲ）Specialized Courses (44 credits)

1. 专业核心课程（30 学分）

1. Specialized Core Courses (30 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2441017	心理学科专业指导 Guide for Psychology Majors	1	1	18		1	考查 Quiz
2441046	人格心理学（双语） Personality Psychology(Bilingual)	3	3	36	36	3	考试 Exam.
2441047	心理学概论（双语） Introduction to Psychology(Bilingual)	3	2	18	36	2	考查 Quiz.
2441048	发展心理学 Developmental Psychology	3	3	36	36	3	考试 Exam.
2441032	心理学史 History of Psychology	3	2	36		3	考试 Exam.
2441049	心理测量 Psychometrics	4	3	36	36	3	考试 Exam.
2441050	教育心理学（双语） Educational Psychology (Bilingual)	4	3	36	36	3	考试 Exam.
2441051	生理心理学 Physiopsychology	4	3	36	36	3	考试 Exam.
2441052	社会心理学 Social Psychology	5	3	36	36	3	考试 Exam.
2441053	临床心理学 Clinical Psychology	5	2	18	36	2	考试 Exam.
2441054	认知心理学 Cognitive Psychology	5	3	36	36	3	考试 Exam.
2441055	心理学研究方法与论文写作指导 Methods of Psychological Research and Publication	5	2	18	36	2	考试 Exam.

2. 专业方向课程（8 学分）

2. Specialized Orientation Courses (8 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2442078	心理咨询与治疗（全英） Psychological Counseling and Psychotherapy（English）	4	2	18	36	2	考试 Exam.
2442079	认知神经科学实验 Cognitive Neuroscience Experiment	5	2	18	36	2	考查 Quiz
2442080	管理心理学 Management Psychology	5	3	36	36	3	考试 Exam.
2442081	现代心理学进展 Advances in Modern Psychology	6	2	18	36	2	考查 Quiz
2442082	情绪心理学 Emotional Psychology	6	2	18	36	2	考查 Quiz
2442083	航空航天心理学 Aerospace Psychology	6	2	18	36	2	考试 Exam.
2442084	思维心理学 Thinking Psychology	7	2	18	36	2	考查 Quiz

3. 专业拓展课程（6 学分）

3. Specialized Development Courses (6 credits)

详见学院专业拓展课程。

See Specialized Development Courses of School of Psychology.

（四）专业技能模块（11 学分）

（Ⅳ）Professional Skills Courses (11 credits)

1. 必修课（10 学分）

1. Compulsory Courses (10 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2431040	心理学实验程序设计 The Experimental Programming in Psychology	4	2	18	36	2	考查 Quiz
2431041	SPSS 应用 SPSS Application	5	2	18	36	2	考查 Quiz
2431042	心理咨询技术与应用 Psychological Counseling Techniques and Application	5	3	36	36	3	考试 Exam.
2431043	多因素实验设计 Multifactoral Design	6	3	36	36	3	考试 Exam.

2. 选修课（1 学分）

2. Elective Courses（1 credit）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2442089	眼动与多导实验仪器操作训练 Training of Eye Tracking and Multichannel Physiology Apparatuses	6	1	9	18	1	考查 Quiz.
2442090	神经影像实验仪器操作训练 Neuroimaging Instruments Training	6	1	9	18	1	考查 Quiz

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
2450017	必读书目阅读 Required Readings		1				考查 Quiz
2450032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
2450021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
2450033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

九、心理学院专业拓展课程
Ⅸ. Specialized Development Courses of School of Psychology

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2443058	心理学理论与行动 Psychological Theory and Action	3	2	18	36	2	考查 Quiz
2443044	心理学名著导读 Introduction to Psychology Masterwork	3	1	18		1	考查 Quiz
2443054	航空应用认知 Aeronautical Application Cognition	4	1	18		1	考查 Quiz
2443055	访谈与问卷调查 Interview and Survey	4	1	18		1	考查 Quiz
2443056	设计心理学 Design Psychology	5	1	18		1	考查 Quiz
2443057	工程心理学前沿介绍 Frontier of Engineering Psychology	5	1	18		1	考查 Quiz
2443059	动态测验与潜能评估 Dynamic Testing and Potential Assessment	5	2	18	36	2	考查 Quiz
2443060	阅读与脑 Reading and Brain	5	2	18	36	2	考查 Quiz
2443061	积极情绪与幸福生活 Positive Emotions and Happy Life	6	2	18	36	2	考查 Quiz
2443062	学习心理学 Learning Psychology	6	2	18	36	2	考查 Quiz
2443045	心理社会肿瘤学 Psycho-oncology	6	1	18		1	考查 Quiz
2443063	健康心理学 Health Psychology	7	2	18	36	2	考查 Quiz
2443064	心理影片赏析 Analysis of Psychology Film	8	2	18	36	2	考查 Quiz
2443065	变态心理学 Abnormal Psychology	8	2	18	36	2	考查 Quiz
说明 Notes	1. 心理学院专业拓展课程共 14 门，分 4 个系列或方向。 2. 心理学专业必须选修 6 学分。 1. There are 13 specialized elective courses of School of Psychology in total with 4 series or dimensions. 2. Undergraduates in Psychology specialty should obtain 6 credits.						

应用心理学专业简介
Introduction to the Specialty of Applied Psychology

应用心理学专业，学制 4 年，专业属性为非师范专业。该专业始建于 2002 年，建有国家级心理学虚拟仿真实验教学中心、陕西省实验教学示范中心、陕西省高校人才培养模式创新实验区，拥有“应用心理学”省级教学团队，建有国家级心理学虚拟仿真实验教学中心、陕西省实验教学示范中心。

应用心理学专业师资力量雄厚，目前有专任教师 20 人, 16 名具有博士学位。教师队伍中拥有中国心理学会理事长、1 名宝钢优秀教师、1 名教书育人先进个人等。应用心理学专业教学团队在航空航天心理学、人因与环境心理学、教师职业健康心理与测评等研究领域成绩斐然。

本专业主要培养掌握扎实的心理学基础理论知识，具备广泛的专业兴趣与创造性解决实际问题的专业技能，能够承担和胜任心理学教学工作，从事心理咨询与辅导、人力资源开发与管理等工作的复合型高级专门人才。

The Specialty of Applied Psychology is a 4-year non-teacher training bachelor program. The specialty of Applied Psychology was established in 2002.We have established the national psychology virtual simulation experimental teaching center, the experimental teaching center of Shaanxi Province, university students talent training experimental zone of Shaanxi Province. We also have teaching teams at national and provincial levels, and have developed several excellent resource-sharing courses at national, provincial, and university levels.

We have a strong teaching team, including chairman of Chinese Psychological Society, one teacher with Baogang Excellent Teacher Award, one teacher with Teaching and Educating Talents Award. Our teachers have achieved excellent research fruits in aeronautical and astronomical psychology, occupational and health psychology, and ergonomics and environmental psychology.

The specialty aims to help the students to be equipped with professional psychological theories, broad academic interest, abilities to solve practical problems creatively and to serve in areas of teaching, psychological counseling, human resource and management.

应用心理学专业
The Specialty of Applied Psychology

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具备扎实的专业知识、技能与人文科学素养和社会责任感，身心健康，通过系统的专业学习与训练，掌握扎实的心理学基础理论知识，具备较强的实践动手能力和一定的研究能力，具有广泛的专业兴趣与专业技能、创造性解决实际问题的能力，能够承担和胜任心理学教学工作，从事心理咨询与辅导、人力资源开发与管理等工作的复合型高级专门人才。

We offer an all-round education and professional bachelor program to train highly qualified students excellent in professional knowledge, academic ability, human and scientific achievement, sense of social responsibility, and psychological well-being. Through the systematic academic training, we endeavor to make students to be equipped with professional psychological theories, practical abilities, creativity, broad academic interest, and professional foundation for further study, as well as abilities to serve in areas of teaching, psychological counseling, human resource and management.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 热爱中国共产党，热爱社会主义祖国，掌握马列主义、毛泽东思想、邓小平理论和“三个代表”的重要思想；坚持科学发展观，具有科学的世界观、正确的人生观、明确的法制意识以及高尚的道德品质。

2. 掌握与心理学密切相关的学科基础知识，包括数学、物理、生物等；系统掌握心理学专业主干课程知识、专业方向课程知识，熟练使用心理测验与量表施测，独立实施心理咨询与辅导，能够开展一般性人力资源测评工作；初步具备在教育、企事业部门从事社会服务性的心理学工作技能。

3. 掌握一门外语，且达到国家规定的四级水平,能在指导下阅读外文专业文献；具备基本的专业写作和交流能力；具备计算机基本编程与软件应用能力；熟悉一般的文献检索技术与网络使用方法；普通话标准。

4. 具有健康体魄和一定的军事基本理论及基本技能，达到国家大学生体质健康标准和军事训练标准，形成一定的运动技能，养成良好的锻炼习惯。

Students of this major have to obtain the credits required by the teaching plan during 4-6years, meeting the following basic requirements to graduate:

1. Undergraduates should love the CPC and our motherland, possess a profound understanding of Marxism and Mao Zedong thought and the basic theory of theoretical system of socialism with Chinese characteristics, have a scientific world outlook, a positive outlook on life and values and hold noble moral characters.

2. Undergraduates should master basic knowledge related to psychology, including mathematics, physics and biology. They should acquire both basic and advanced knowledge of psychology. Students should be able to perform

basic experiments and psychological assessments, know the basic procedure of psychological academic research, and develop the ability of detecting, raising, and solving academic questions.

3. Undergraduates should grasp a foreign language and reach at least band-four level of the certain foreign language. Students should have ability to read foreign language literature under guidance, and basic professional writing and communication skills; Students should have basic knowledge of computer programming and software application-on, and be familiar with document retrieval and network technology. They should also be able to speak fluent Mandarin.

4. Undergraduates should have a healthy body, basic military theories and skills. They should reach the national standards of health and military training for undergraduates. Students should be good at doing certain sports and work out on a regular basis.

三、主干学科

Ⅲ. Core Discipline

应用心理学

Applied Psychology

四、主干课程

Ⅳ. Main Courses

普通心理学、实验心理学、心理统计、心理测量、发展心理学、临床心理学、人因学、组织行为学、航空航天心理学、心理咨询技术与应用、环境心理学、职业健康心理学、团体心理辅导、人力资源开发与管理、心理咨询与治疗

General Psychology, Experimental Psychology, Psychological Statistics, Psychometric, Development Psychology, Clinical Psychology, Human Factors, Organizational behavior，Aerospace Psychology，Psychological Counseling Techniques and Application，Environmental Psychology，Occupational Health Psychology，Group Counseling，Human Resource Development and Management，Psychological Counseling and psychotherapy

五、学制及授予学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ.Total Credits

160 学分

160 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课 程 类 别 Course Catalogue		学分及比例 Credits and Percentage			
		学 分 Cre.	小 计 Sub-Total	占总学分比例 Percentage in Total Credits	小 计 Sub-Total
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	26.2%	33.7%
	通识教育选修课 Liberal Studies Elective Courses	12		7.5%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	16	35	10.%	21.9%
	本学科基础课 Disciplinary Foundation Courses	19		11.9%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	31	45	19.4%	28.1%
	专业方向课程 Specialized Orientation Courses	8		5.0%	
	专业拓展课程 Specialized Development Courses	6		3.7%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	13	14	8.2%	8.8%
	选修课 Elective Courses	1		0.6%	
实践教学模块 Practice Work	必修课 Compulsory Courses	12	12	7.5%	7.5%
合计 Total		160		100%	
说明 Notes	1. 专业必修课（含学科基础课程）共 21 门，双语课程 3 门，全英语课程 1 门 2. 专业选修课共 19 门，其中专业方向课 6 门，分 3 个系列（方向）；专业拓展课 13 门。学生应从方向课中至少选修 8 学分，从专业拓展课中至少选修 6 学分。 3. 实验课程共 4 门，其中独立开设的实验课 2 门，既有理论又有实验的课程 1 门，含综合性、设计性实验的课程 1 门，占实验课程总数的 25 %。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 31.5%。 1. There are 21 specialized compulsory courses including disciplinary foundation courses in total and 3 bilingual courses and 1 English course. 2. There are 19 specialized elective courses in total including 6 specialized orientation courses divided into 3 series or dimensions and 13specialized development courses. Undergraduates should obtain 8 credits in total by taking specialized orientation courses and 6 credits by taking specialized elective courses. 3. There are 4 experimental courses in total including 2 independent experimental courses, 1 theoretical and 1 designable experimental courses which accounts for 25 % of the total experimental courses. 4. The practical teaching content of this major includes the practical teaching content in the practical teaching module and other course modules, and the credits of the practical teaching link account for 31.5 % of the total credits				

八、应用心理学本科教学计划表

Ⅷ. Teaching Scheme for Applied Psychology Undergraduate Candidates

（一）通识教育模块（50 学分）

（Ⅰ）Liberal Studies Courses (50 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	4	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University*.

（二）学科基础模块（35 学分）

（Ⅱ）Disciplinary Foundation Courses (35 credits)

1. 相关学科基础课（16 学分）

1. Related Disciplinary Foundation Courses (16 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics (Ⅱ)- 1 (for Science Specialties)	1	4	72		4	考试 Exam.

0521006	高等数学（二）—2（理） Advanced Mathematics (Ⅱ)- 2(for Science Specialties)	2	4	72		4	考试 Exam.
2421009	人体解剖生理学 Anthropotomy	1	3	36	18	3	考试 Exam.
2421002	普通物理学 General Physics	2	2	36		2	考试 Exam.
2421007	概率论与数理统计 Probability Theory and Mathematical Statistics	2	3	54		3	考试 Exam.

2. 本学科基础课（19 学分）

2. Disciplinary Foundation Courses (19 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2422030	普通心理学Ⅰ General Psychology Ⅰ	1	3	36	36	3	考试 Exam.
2422031	普通心理学Ⅱ General PsychologyⅡ	2	3	36	36	3	考试 Exam.
2422032	实验心理学 Experimental Psychology	3	4	54	36	4	考试 Exam.
2422033	心理学基础实验训练 Basic Experimental Training of Psychology	4	4	36	72	4	考试 Exam.
2422034	心理统计Ⅰ Psychological Statistics Ⅰ	2	3	36	36	3	考试 Exam.
2422035	心理统计Ⅱ Psychological Statistics Ⅱ	3	2	18	36	2	考试 Exam.

（三）专业课程模块（45 学分）

（Ⅲ）Specialized Courses (45 credits)

1. 专业核心课程（31 学分）

1. Specialized Core Courses (31 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2441017	心理学科专业指导 Guide for Psychology Majors	1	1	18		1	考查 Quiz
2441046	人格心理学（双语） Personality Psychology(Bilingual)	3	3	36	36	3	考试 Exam.
2441047	心理学概论（双语） Introduction to Psychology(Bilingual)	3	2	18	36	2	考查 Quiz.
2441048	发展心理学 Developmental Psychology	3	3	36	36	3	考试 Exam.
2441032	心理学史 History of Psychology	3	2	36		3	考试 Exam.
2441049	心理测量 Psychometrics	4	3	36	36	3	考试 Exam.
2441050	教育心理学（双语） Educational Psychology (Bilingual)	4	3	36	36	3	考试 Exam.
2441051	生理心理学 Physiopsychology	4	3	36	36	3	考试 Exam.
2441056	人因学 Human Factors	4	3	36	36	3	考试 Exam.
2441052	社会心理学 Social Psychology	5	3	36	36	3	考试 Exam.
2441053	临床心理学 Clinical Psychology	5	2	18	36	2	考试 Exam.
2441054	认知心理学 Cognitive Psychology	5	3	36	36	3	考试 Exam.

2. 专业方向课程（8 学分）

2. Specialized Orientation Courses (8 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2442078	心理咨询与治疗（全英） Psychological Counseling and Psychotherapy（English）	4	2	18	36	2	考试 Exam.
2442085	组织行为学 Organizational behavior	5	2	18	36	2	考试 Exam.
2442086	学校心理学 School Psychology	5	3	36	36	3	考查 Quiz.
2442087	环境心理学 Environmental Psychology	6	2	18	36	2	考查 Quiz
2442083	航空航天心理学 Aerospace Psychology	6	2	18	36	2	考试 Exam.
2442088	职业健康心理学 Occupational Health Psychology	6	2	18	36	2	考查 Quiz

3. 专业拓展课程（6 学分）

3. Specialized Development Courses (6 credits)

详见学院专业拓展课程。

See Specialized Development Courses of School of Psychology.

（四）专业技能模块（14 学分）

（Ⅳ）Professional Skills Courses (14 credits)

1. 必修课（13 学分）

1. Compulsory Courses (13credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2431044	心理学软件应用 Psychological Software Application	4	2	18	36	2	考查 Quiz
2431041	SPSS 应用 SPSS Application	5	2	18	36	2	考查 Quiz
2431042	心理咨询技术与应用 Psychological Counseling Techniques and Application	5	3	36	36	3	考试 Exam.
2431045	行为矫正技术 Techniques of Behavior Modification	6	2	18	36	2	考查 Quiz
2431046	团体心理辅导 Group Counseling	6	2	18	36	2	考查 Quiz
2431047	人力资源开发与管理 Development and Management of Human Resources	7	2	18	36	2	考查 Quiz

2. 选修课（1 学分）

2. Elective Courses（1 credit）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2442089	眼动与多导实验仪器操作训练 Training of Eye Tracking and Multichannel Physiology Aparatuses	6	1	9	18	1	考查 Quiz.
2442091	心理测评技术与应用 Psychological Assessment Techniques and Applications	6	1	9	18	1	考查 Quiz

（五）实践教学模块（12 学分）
（Ⅴ）Practice Work（12 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
2450017	必读书目阅读 Required Readings		1				考查 Quiz
2450032	专业见习与实习 Professional Visits And Practice	1-7	4				考查 Quiz
2450021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
2450033	毕业论文（设计） Graduation Thesis	7-8	4				考查 Quiz

九、心理学院专业拓展课程
Ⅸ. Specialized Development Courses of School of Psychology

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2443058	心理学理论与行动 Psychological Theory and Action	3	2	18	36	2	考查 Quiz
2443044	心理学名著导读 Introduction to Psychology Masterwork	3	1	18		1	考查 Quiz
2443054	航空应用认知 Aeronautical Application Cognition	4	1	18		1	考查 Quiz
2443055	访谈与问卷调查 Interview and Survey	4	1	18		1	考查 Quiz
2443056	设计心理学 Design Psychology	5	1	18		1	考查 Quiz
2443057	工程心理学前沿介绍 Frontier of Engineering Psychology	5	1	18		1	考查 Quiz
2443059	动态测验与潜能评估 Dynamic Testing and Potential Assessment	5	2	18	36	2	考查 Quiz
2443060	阅读与脑 Reading and Brain	5	2	18	36	2	考查 Quiz
2443061	积极情绪与幸福生活 Positive Emotions and Happy Life	6	2	18	36	2	考查 Quiz
2443062	学习心理学 Learning Psychology	6	2	18	36	2	考查 Quiz
2443045	心理社会肿瘤学 Psycho-oncology	6	1	18		1	考查 Quiz
2443063	健康心理学 Health Psychology	7	2	18	36	2	考查 Quiz
2443064	心理影片赏析 Analysis of Psychology Film	8	2	18	36	2	考查 Quiz
2443065	变态心理学 Abnormal Psychology	8	2	18	36	2	考查 Quiz
说明 Notes	1. 心理学院专业拓展课程共 14 门，分 4 个系列或方向。 2. 心理学专业必须选修 6 学分。 1. There are 13 specialized elective courses of School of Psychology in total with 4 series or dimensions. 2. Undergraduates in Psychology specialty should obtain 6 credits.						

材料科学与工程学院
School of Materials Science and Engineering

- 材料化学

  Materials Chemistry

- 新能源材料与器件

  New Energy Materials and Devices

材料化学专业简介
Introduction to the Specialty of Materials Chemistry

材料化学专业，学制 4 年，专业属性为非师范专业。本专业自 2003 年开始招生，经过十多年的建设，成了特色鲜明的传感薄膜材料、文物保护材料、功能高分子材料、光电功能材料、太阳能电池材料及储能材料等研究方向。特别是在文物保护材料、太阳能电池材料等方面，该专业在国内外具有较高的研究水平。

本专业现有专职教师 18 名，包括博士生导师 7 人，教授 8 人、副教授 8 人、讲师 2 人，教师队伍中具有博士学位的 17 人，国家“百千万人才工程”第一、二层次入选者 1 人，享受国务院政府津贴者 2 人，“国家有突出贡献的中青年专家”获得者 1 人，陕西省“百人计划”特聘教授 2 人，陕西省中青年科技创新领军人才 1 人，陕西省青年科技奖获得者 1 人，陕西省青年科技新星 3 人。

本专业主要培养具有坚实的数理基础、广博的材料学基本知识、系统扎实的材料学基础理论、基本实验方法和技能，了解材料学科发展前沿和科学发展趋势，受到科学思维和科学实验的训练，具有一定科学基础研究、应用基础研究及科技管理的综合能力，具有较强的创新精神和实践能力，能在材料学、材料工程、化学及相关交叉学科进行更高层次深造，或在企业、科研机构、高校及事业单位从事科学研究、技术开发、教学与管理工作的复合型高级专门人才。

The Materials Chemistry is a non-normal specialty with a four-year schooling schedule. After a dozen years of development, characteristic research regarding functional materials have been established, including sensor and thin-film materials, materials for protection of historical relics, functional polymer materials, solar cell materials and energy storage materials. In particular, research in heritage conservation materials and solar cell materials has gained good reputation in domestic and overseas. The School of Materials Science and Engineering has the national key discipline doctoral program and the post-doctoral station of materials science and engineering. In the past decade, the discipline of materials science and engineering has formed a whole talents cultivation system ranging from undergraduate degree, master degree and doctoral degree to post-doctoral programs.

Currently, there are 18 teachers in this specialty, including 8 full-time professors, 8 associate professors and 2 lecturers, of whom 17 hold PhD degree, and 13 have research and working experiences overseas. The teaching staff in this specialty have won many highly valued honors and

awards: 1 teacher was selected in the State New Century Talents Project, 2 teachers were selected in Shaanxi Hundred Talents Program, 2 teachers enjoy the Special Allowance of the State Council, 1 teacher was awarded “National Expert with Remarkable Contributions”, 1 teacher was honored as “Leading Talent in Scientific and Technological Innovation”, 1 teacher won the “Award for Young Scientists in Shannxi”, 3 teachers won the award of “Young Science and Technology Star in Shaanxi”.

The specialty of materials chemistry aims to cultivate composite talents who can pursue further study in materials sciences, materials engineering, chemistry and relevant interdisciplinary, and be qualified to engage in scientific research, teaching, and business management in scientific research institutions, colleges and universities, public institutions and companies.

材料化学专业
The Specialty of Materials Chemistry

一、培养目标

Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具有良好的世界观、价值观，良好的人文素质与科学素质，健全的人格和良好的心理素质，具有坚实的数理基础、广博的材料学基本知识、系统扎实的材料学基础理论、基本实验方法和技能，了解材料学科发展前沿和科学发展趋势，受到科学思维和科学实验的训练，具有一定科学基础研究、应用基础研究及科技管理的综合能力，具有较强的创新精神和实践能力，能在材料学、材料工程、化学及相关交叉学科进行更高层次深造，或在企业、科研机构、高校及事业单位从事科学研究、技术开发、教学与管理工作的复合型高级专门人才。

The program is designed to train professional talents fully developed in morality, wisdom, physique and aesthetics with positive world view, philosophy and value. They are expected to possess good humanity quality, scientific quality, sound personality, good psychological quality, strong innovative spirit and practice ability. The program of Materials Chemistry is aimed at training students with solid foundation of natural science, and with basic theoretical knowledge and techniques of materials science and chemistry. The graduates will be candidates to study further in material science, material engineering, chemistry and relevant inter-disciplinaries, or be engaged in research on material science and related fields, as well as technical exploitation, teaching and administration in institutions, companies and government departments.

二、毕业要求

Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业：

1. 有较扎实的自然科学基础，较好的人文、艺术和社会科学素养；热爱中国共产党，热爱社会主义祖国，掌握马列主义、毛泽东思想、习近平新时代中国特色社会主义理论体系，具有科学的世界观、正确的人生观和价值观以及高尚的道德品质，德、智、体、美全面发展。

2. 掌握材料学及相关学科宽广的基础理论，主要包括五大化学（无机化学、分析化学、有机化学、物理化学（含结构化学）及高分子化学）、普通物理、高等数学、材料科学与工程基础、功能材料、材料分析与表征原理、材料物理性能测试原理等基础知识和基本理论；适应“厚基础、宽口径”培养需求。

3. 具有本专业必需的材料合成与表征技能；计算、测试、文献检索及计算机应用技能；掌握英语且达到四级以上，具备英语论文的写作能力；

4. 具有在无机功能材料，有机功能材料，高分子材料，液晶化学和纳米材料等专业领域所必需的专业知识，熟悉其应用、了解其相关领域科学前沿和发展趋势；

5. 具有终身学习的能力，富有创新意识和较高的综合素质。具有健康的体魄和一定的军事基本知识、基本技能，达到国家规定的《大学生体育合格标准》和军事训练标准，养成终生锻炼身体的习惯。

This program is designed to help students have the capacities and knowledge as follows:

1. The students should grasp the fundamental knowledge of natural science, attainment in humanities and art, cooperative and organizational skills. Being patriotic, supporting the Communist Party of China and socialism, possessing a profound understanding of Marxism, Mao Zedong thoughts, Xi Jinping Thought on

Socialism with Chinese Characteristics for a New Era, having a scientific world outlook, a positive outlook on life and values, holding noble moral characters. They are also expected to be emotionally and physically healthy with all-round development of morality, intelligence, physique and aesthetics.

2. The students should grasp the basic theories about materials science and related disciplines, including inorganic chemistry, analysis chemistry, organic chemistry, physical chemistry (structural chemistry), polymer chemistry, general physics, advanced mathematics, fundamentals of materials science and engineering, functional materials, principles and basic theories of material analysis and characterization.

3. The students are supposed to have a good command of techniques in material synthesis and characterization, be able to do documentary research, data query, learn English and reach the level of band four, and be able to write a scientific paper in English.

4. The students should master the fundamental knowledge in inorganic functional materials, organic functional materials, polymer functional materials, liquid crystal chemistry and nanomaterials, knowing about the development trend in the discipline.

5. The students are expected to develop the awareness of lifelong learning, and have the spirit of innovation. The should be sound in physique and acquire proper military theory and basic skills, meeting the requirements in National Physical Standard for College Students and develop the habit of doing exercise on a regular basis.

三、主干学科

Ⅲ. Core Disciplines

化学、材料科学与工程

Chemistry, Materials Science and Engineering

四、主干课程

Ⅳ. Main Courses

高等数学、大学物理、无机化学、分析化学、有机化学、物理化学、结构化学、材料科学与工程基础、功能材料、无机材料合成化学、材料表征技术、材料物理性能学、纳米材料

Advanced Mathematics, College Physics, Inorganic chemistry, Analysis Chemistry, Organic Chemistry, Physical Chemistry, Structure Chemistry, Fundamentals of Materials Science and Engineering, Functional Materials, Synthetic Chemistry of Inorganic Materials, Analytical Techniques of Materials, Physical Properties and Micro-structure of Materials, Nanomaterials

五、学制及学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

理学学士

Bachelor of Science

六、学分要求

Ⅵ. Total Credit

164.5 学分

164.5 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课程类别 Course Catalogue		学分及比例 Credits and Percentage			
		学分 Credits	小计 Subtotal	占总学分比例 Ratio in total Credits	小计 Subtotal
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.5%	32.8%
	通识教育选修课 Liberal Studies Elective Courses	12		7.3%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	17.5	60	10.6%	36.5%
	本学科基础课 Disciplinary Foundation Courses	42.5		25.8%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	13.5	22.5	8.2%	13.7%
	专业方向课程 Specialized Orientation Courses	4.5		2.7%	
	专业拓展课程 Specialized Development Courses	4.5		2.7%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	15	15	9.1%	9.1%
	选修课 Elective Courses	0		0.0%	
实践模块 Practice Work	必修课 Compulsory Courses	13	13	7.9%	7.9%
合计 Total		164.5		100%	
说明 Notes	1．专业必修课（包含专业核心课程和学科基础课）共 29 门，双语课程 0 门，全英语课程 1 门。 2．专业选修课共 15 门，其中专业方向课 9 门，分 3 个方向；分别是光电功能材料，液晶与高分子，文物保护。专业拓展课 6 门，分 3 个系列，分别是光电材料，电工电子元器件，有机无机复合材料。学生应从专业方向课中至少选修 4.5 学分，从拓展课中至少选修 4.5 学分。 3．实验课程共 12 门，其中独立开设的实验课 10 门，既有理论又有实验的课程 2 门，含综合性、设计性实验的课程 4 门，占实验课程总数的 33.33%。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 29.8%。 1. There are 29 specialized compulsory courses, including1 English-taught course and no bilingual course is offered. 2. There are 15 specialized elective courses in total, including 9 specialized orientation courses divided into 3 dimensions and 6 specialized development courses. Undergraduates should obtain at least 4.5 credits by taking specialized orientation courses and 4.5 credits by taking specialized development courses. 3. There are 12 experimental courses in total including10 independent experimental courses, 4 theoretical and designable experimental courses which account for 33.33% of the total experimental courses. 4. The practice teaching of this specialty includes the practice work and other practice contents in the experimental courses. The total practice teaching content accounts for 29.8% of the total credits.					

八、材料化学专业本科教学计划表

Ⅷ. Teaching Scheme for Material Chemistry Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.

1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005- 1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（60 学分）

（Ⅱ）Disciplinary Foundation Courses (60 credits)

1. 相关学科基础课（17.5 学分）

1. Related Disciplinary Foundation Courses (17.5 credits)

课程编码 Course Code	**课程名称 Course Name**	**开课学期 Semester**	**学分 Cre.**	**讲授学时 Teaching Hrs.**	**实验/实践学时 Experiment/ Training Hrs.**	**周学时 Weekly Hrs.**	**考试方式 Evaluation**
0521005	高等数学（二）—1（理） Advanced Mathematics(Ⅱ) -1 (for Science Specialties)	1	4	72		5	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics(Ⅱ) -2(for Science Specialties)	2	4	72		4	考试 Exam.
3521003	大学物理（上） College Physics (I)	2	3	54		4	考试 Exam.

3521004	大学物理（下）及实验 College Physics (II) and Experiments	3	3.5	54	18	5	考试 Exam.
3521002	线性代数与概率 Linear Algebra and Probability	3	3	54		4	考试 Exam.

2. 本学科基础课（42.5 学分）

2. Disciplinary Foundation Courses (42.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
3522001	无机化学（上） Inorganic Chemistry (I)	1	3	54		4	考试 Exam.
3522002	无机化学（下） Inorganic Chemistry (II)	2	3	54		4	考试 Exam.
3522003	有机化学（上） Organic Chemistry (I)	3	3	54		3	考试 Exam.
3522004	有机化学（下） Organic Chemistry (II)	4	3	54		3	考试 Exam.
3522034	材料科学与工程基础 Fundamentals of Materials Science and Engineering	5	3.5	64		5	考试 Exam.
3522029	实验室安全与规范 Laboratory Safety and Regulation	1	0.5	10		2	考查 Quiz.
3522030	材料科学与工程专业导引 Introduction to Materials Science and Engineering	1	0.5	10		2	考查 Quiz.
3522035	分析化学 Analytical Chemistry	3	2	36		2	考试 Exam.
3522008	物理化学（上） Physical Chemistry (I)	3	3	54		3	考试 Exam.
3522009	物理化学（下） Physical Chemistry (II)	4	3	54		3	考试 Exam.
3522036	结构化学 Structural Chemistry	4	2.5	46		3	考试 Exam.
3522037	仪器分析及实验 Instrumental Analysis	5	3.5	36	54	4	考试 Exam.
3522012	高分子化学与物理 Polymer Chemistry and Physics	5	3	54		3	考试 Exam.
3522013	无机化学实验（上） Experiments in Inorganic Chemistry (I)	1	1.5		54	4	考试 Exam.
3522014	无机化学实验（下） Experiments in Inorganic Chemistry(II)	2	1		36	4	考试 Exam.
3522015	分析化学实验 Experiments in Analytical Chemistry	3	1		36	4	考试 Exam.
3522041	有机化学实验（上） Experiments in Organic Chemistry(I)	3	1.5		54	4	考试 Exam.
3522042	有机化学实验（下） Experiments in Organic Chemistry (II)	4	1.5		54	4	考试 Exam.
3522040	物理化学实验（含结构） Experiments in Physical /Structural Chemistry	4	2.5		90	4	考试 Exam.

（三）专业课程模块（22.5 学分）

（Ⅲ）Specialized Courses (22.5 credits)

1. 专业核心课程（13.5 学分）

1. Specialized Core Courses (13.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
3541032	材料物理性能学 Physical Properties of Materials	5	2.5	46		3	考试 Exam.

3541011	功能材料 Functional Materials	6	3.5	64		4	考试 Exam.
3541031	固体物理学 Solid State Physics	6	2.5	46		3	考试 Exam.
3541012	无机材料合成方法 Synthetic Methods of Inorganic Materials	4	2	36		2	考试 Exam.
3541013	材料表征技术 Material Characterization Techniques	5	3	54		3	考试 Exam.

2. 专业方向课程（4.5 学分）

2. Specialized Orientation Courses (4.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
光电功能材料方向课程： Courses of photoelectronic functional materials series							
3542023	纳米材料学 Nano-structural Materials	6	1.5	28		2	考查 Quiz.
3542026	能源材料 Energy Materials	6	1.5	28		2	考查 Quiz.
3542027	电化学基础原理 Basic Principles of Electrochemistry	7	1.5	28		2	考查 Quiz.
液晶与高分子方向课程： Courses of liquid crystal and Polymer series							
3542028	液晶材料 Liquid Crystal Materials	5	1.5	28		2	考查 Quiz.
3542029	功能高分子多孔材料 Functional Polymer Materials with Porous Structure	6	1.5	28		2	考查 Quiz.
3542030	仿生材料学 Biomimetic Materials	7	1.5	28		2	考查 Quiz.
文物保护方向课程： Courses of protection of cultural relics series							
3542031	文物保护材料 Materials in Protection of Cultural Relics	5	1.5	28		2	考查 Quiz.
3542032	现代表征技术与科技考古 Modern characterization techniques and Scientific Archaeology	6	1.5	28		2	考查 Quiz.
3542033	档案保护与修复技术 Technology of Archive Protection and Restoration	7	1.5	28		2	考查 Quiz.
说明 Notes	1. 材料化学专业方向课程共 9 门， 3 个方向，分别是光电功能材料，液晶与高分子，文物保护。 2. 材料化学专业必须选修够 4.5 学分。 1. There are 9 specialized orientation courses in materials chemistry: photoelectronic functional materials, liquid crystal and Polymer, protection of cultural relics. 2. Undergraduates in material chemistry specialty should obtain at least 4.5 credits.						

3.专业拓展课程（4.5 学分）

3. Specialized Development Courses (4.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
3543016	有机光电材料与器件导论 Introduction of Organic Optoelectronic Materials and Devices	5	1.5	28		2	考查 Quiz
3543017	二维原子晶体材料与器件 Two-dimensional Atomic Crystal and Device	6	1.5	28		2	考查 Quiz
3543018	稀土发光材料 Rare Earth Luminescent Materials	7	1.5	28		2	考查 Quiz
3543023	电工电子学基础 Fundamentals of Elector Techniques and Electronics	5	1.5	28		2	考查 Quiz

3543024	半导体物理与器件 Semiconductor Physics and Devices	6	1.5	28		2	考查 Quiz
3543022	胶体化学与界面 Colloid Chemistry and Interface	7	1.5	28		2	考查 Quiz
说明 Notes	1. 材料科学与工程学院专业拓展课程共 6 门， 3 个系列，分别是光电材料，电工电子元器件，有机无机复合材料。 2. 材料化学专业必须选修够 4.5 学分。 1. There are 6 specialized development courses in materials chemistry specialty: photoelectric materials, electro technical and electronic devices, organic-inorganic composite materials. 2. Undergraduates in materials chemistry specialty should obtain at least 4.5 credits.						

（四）专业技能模块（15 学分）
（Ⅳ）Professional Skills Courses (15 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
3544013	无机非金属材料制备与表征实验 Experiments in Preparation and Characterization of Inorganic Nonmetallic Materials	6	2		72	4	考试 Exam.
3544012	高分子材料制备与表征实验 Experiments in Preparation and Characterization of Polymer Materials	5	1.5		54	4	考试 Exam.
3545001	功能材料综合实验 Comprehensive Experiments in Functional Materials	6	2		72	8	考试 Exam.
3544014	微结构与物理性能实验 Experiments in Physical Properties and Micro-structure of Materials	5	1.5		54	8	考试 Exam.
3546006	材料化学专业实践 Practice of Material Chemistry Specialty	7	6		12 周		考查 Quiz
3541006	研究方法与学术论文写作 Research Approach and Academic Dissertation Writing	6	1	18		2	考试 Exam.
3541026	材料化学专业英语 Specialized English of Materials Chemistry	4	1	18		2	考试 Exam.

（五）实践教学模块（13 学分）
（Ⅴ）Practice Work（13 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
3550017	必读书目阅读 Required Readings		1				考查 Quiz
3550032	专业见习与实习 Professional Visits and Practice	1-7	4				
3550021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
3550022	科研训练 Scientific Research Training	3-6	1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
3550033	毕业论文（设计） Graduation Thesis (Design)	7-8	4				考查 Quiz

新能源材料与器件专业简介

Introduction to the Specialty of New Energy Materials & Devices

新能源材料与器件专业，学制 4 年，属于非师范专业。该专业与新兴产业密切相关，材料科学与工程学院自 2011 年围绕该专业进行相应的师资队伍与教学资源建设，2017 年经教育部审核批准招生。拟通过 5-10 年的努力，建成在太阳能电池、储能材料与器件及液晶高分子材料与液晶显示等领域具有一定影响力的品牌专业。

本专业现有专职教师 18 名，包括博士生导师 9 人，教授 11 人、副教授 7 人，全部具有博士学位。教师队伍中包括国家“千人计划”特聘教授 1 人，国家“百千万人才工程”第一、二层次入选者 1 人，宝钢优秀教师奖 1 人，陕西省“三秦学者”1 人，陕西省“百人计划”特聘教授 6 人，陕西省青年科技新星 1 人。

本专业主要培养具备坚实的数理基础、广博的光电材料基本知识和系统扎实的基础理论、基本实验方法和技能，尤其在太阳能电池、燃料电池、锂离子电池、有机电致发光材料与器件及超级电容器材料与器件等方面具有坚实的专业知识和技能，具有一定科学基础研究、应用基础研究及科技管理的综合能力，能在企业、科研机构、高校及事业单位从事与新能源材料与器件相关的科学研究、技术开发、教学与管理工作的复合型高级专门人才。

The New Energy Materials and Devices is a non-normal specialty with a four-year schedule .

New Energy Materials and Devices is a specialty closely connected with emerging industry. Since 2011, School of Materials Chemistry and Engineering has prioritized this specialty to build up teaching facilities including the professional teaching staff and teaching resources. In 2017, this specialty was approved by the Ministry of Education to recruit students. After 5-10 years efforts, it is anticipated that this specialty develop into one of most influential specialties in the field of solar cell, energy storage materials and device and liquid-crystal polymer and display.

In this specialty, there are 18 teachers, including 11 professors and 7 associate professors. All of them hold the PhD. Among them, one was selected in “New Century Talents Project”, 6 teachers selected in “Shaanxi Hundred Talents Program”, 1 teacher was selected in the “Sanqin Scholars Program”, 1 teacher won “Baogang Award for Outstanding Teachers”, 1 teacher was honored as “Young Science and Technology Star in Shaanxi” and 2 teachers enjoy the Special Allowance of the State Council.

The program is designed to train talents with solid mathematical basis, extensive knowledge of photoelectric materials and a sound foundation of basic theories, experimental methods and skills.

The students, in particular, are expected to master specialized knowledge and skills in solar cells, fuel cells, dye-sensitized solar cells, lithium ion batteries, organic light-emitting devices and supercapacitor, and have the abilities to conduct fundamental scientific research, applied fundamental research and technological management. The graduates are supposed to be candidates engaged in science research, technical exploitation, teaching and administration in new energy materials and devices field in institutes, companies and government departments.

新能源材料与器件专业
The Specialty of New Energy Materials and Devices

一、培养目标
Ⅰ. Educational Objectives

本专业主要培养德、智、体、美全面发展，身心健康，具备坚实的数理基础、广博的光电材料基本知识和系统扎实的基础理论、基本实验方法和技能，尤其在太阳能电池、燃料电池、锂离子电池、有机电致发光材料与器件及超级电容器材料与器件等方面具有坚实的专业知识和技能，具有一定科学基础研究、应用基础研究及科技管理的综合能力，能在企业、科研机构、高校及事业单位从事与新能源材料与器件相关的科学研究、技术开发、教学与管理工作的复合型高级专门人才。

The program is designed to train professional talents fully developed in morality, wisdom, physique and aesthetics with positive world view, philosophy and value. The program is designed to train talents with solid mathematical basis, extensive knowledge of photoelectric materials and a sound foundation of basic theories, experimental methods and skills. The students, in particular, are expected to master specialized knowledge and skills in solar cells, fuel cells, dye-sensitized solar cells, lithium ion batteries, organic light-emitting devices and supercapacitor, and have the abilities to conduct fundamental scientific research, applied fundamental research and technological management. The graduates are supposed to be candidates engaged in science research, technical exploitation, teaching and administration in new energy materials and devices field in institutes, companies and government departments.

二、毕业要求
Ⅱ. Graduation Requirements

本专业学生在修读年限 4-6 年内，修满教学计划规定的学分，并达到以下基本要求后，方可毕业:

1. 具有扎实的自然科学基础，较好的人文、艺术和社会科学基础；热爱中国共产党，热爱社会主义祖国，掌握马列主义、毛泽东思想、习近平新时代中国特色社会主义理论，具有科学的世界观、正确的人生观和价值观以及高尚的道德品质，德、智、体、美全面发展；

2. 系统地掌握本专业领域宽广的理论基础知识，主要包括化学、电工及电子技术、固体物理、材料科学基础、材料分析方法、高分子材料、量子力学、半导体器件等基础知识；

3. 具有本专业领域所必须的专业知识，包括新能源材料与器件基础、材料计算学、材料制备及性能、器件设计及制备等；

4. 具有本专业必需的材料制备、器件制作与表征技能，包括计算、材料制备、性能测试、文献检索及计算机应用能力；掌握英语且达到四级以上，具备英语论文的写作能力；

5. 具有在太阳能电池材料与器件、有机发光材料与器件及储能材料与器件等专业领域所必需的专业知识，熟悉其应用，了解新能源材料与器件的科学技术发展趋势；

6. 具有终身学习的能力，富有创新意识和较高的综合素质；具有健康的体魄和一定的军事基本知识、基本技能，达到国家规定的《大学生体育合格标准》和军事训练标准，养成终生锻炼身体的习惯。

This program is designed to help students have the capacities and knowledge as follows:

1. The students should grasp the fundamental knowledge of natural science, attainment in humanities and art, cooperative and organizational skills. Being patriotic, supporting the Communist Party of China and

socialism, possessing a profound understanding of Marxism, Mao Zedong thoughts, Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era, having a scientific world outlook, a positive outlook on life and values, holding noble moral characters. They are also expected to be emotionally and physically healthy with all-round development of morality, intelligence, physique and aesthetics.

2. The students are expected to grasp the basic theories about materials science and related disciplines, including chemistry, electrical and electronic technology, solid state physics, material science foundation, material analysis method, polymer materials, quantum mechanics, semiconductor devices, etc.

3. The students are supposed to have a good command of fundamental knowledge in the fields of new energy sources, materials and devices, materials, computing, materials preparation and performance, device design and fabrication, etc.

4. The students are supposed to master the basic skills in material synthesis and characterization, be able to do documentary research, data query, learn English and reach the level of band four, and be able to write a scientific paper in English.

5. The students should master the fundamental knowledge about solar cell materials and devices, organic light-emitting materials and devices, and energy storage materials and devices, knowing about the applications and the development trend of new energy materials and devices.

6. The students are expected to develop the awareness of lifelong learning, and have the spirit of innovation. The should be sound in physique and acquire proper military theory and basic skills, meeting the requirements in National Physical Standard for College Students and develop the habit of doing exercise on a regular basis.

三、主干学科

Ⅲ. Core Disciplines

化学、物理学、材料科学与工程

Chemistry, Physics, Materials Science and Engineering

四、主干课程

Ⅳ. Main Courses

高等数学、大学物理、无机化学、仪器分析、有机化学、物理化学、结构化学、材料科学与工程基础、电化学基础原理、储能技术、功能材料、无机材料合成化学、材料表征技术、材料物理性能学、纳米材料，薄膜材料与器件、光电子技术

Advanced Mathematics, College Physics, Inorganic Chemistry, Instrumental Analysis, Organic Chemistry, Physical Chemistry, Structure Chemistry, Fundamentals of Materials Science and Engineering, Fundamentals of Electrochemistry, Energy Storage, Functional Materials, Synthesis of Inorganic Materials, Analytical Techniques of Materials, Physical Properties and Micro-structure of Materials, Nano materials

五、学制及学位

Ⅴ. Schooling System & Degree Granting

学制 4 年

Four Years

工学学士

Bachelor of Engineering

六、学分要求

Ⅵ. Total Credit

164 学分

164 Credits

七、课程设置及学分比例

Ⅶ. Course Settings and Percentage of Credits

课程类别 Course Catalogue		学分及比例 Credits and Percentage			
		学分 Credits	小计 Subtotal	占总学分比例 Ratio in total Credits	小计 Subtotal
通识教育模块 Liberal Studies Courses	通识教育必修课 Liberal Studies Compulsory Courses	42	54	25.6%	32.9%
	通识教育选修课 Liberal Studies Elective Courses	12		7.3%	
学科基础模块 Disciplinary Foundation Courses	相关学科基础课 Related Disciplinary Foundation Courses	17.5	60.5	10.7%	36.9%
	本学科基础课 Disciplinary Foundation Courses	43		26.2%	
专业课程模块 Specialized Courses	专业核心课程 Specialized Core Courses	13	22	7.9%	13.5%
	专业方向课程 Specialized Orientation Courses	4.5		2.7%	
	专业拓展课程 Specialized Development Courses	4.5		2.7%	
专业技能模块 Professional Skills Courses	必修课 Compulsory Courses	14.5	14.5	8.8%	8.8%
	选修课 Elective Courses	0		0.0%	
实践模块 Practice Work	必修课 Compulsory Courses	13	13	7.9%	7.9%
合计 Total		164		100%	
说明 Notes	1. 专业必修课（包含专业核心课程和学科基础课）共 28 门,双语课程 0 门，全英语课程 1 门。 2. 专业选修课共 14 门，其中专业方向课 7 门。专业拓展课 7 门。学生应从专业方向课中至少选修 4.5 学分，从拓展课中至少选修 4.5 学分。 3. 实验课程共 10 门，其中独立开设的实验课 8 门，既有理论又有实验的课程 2 门，含综合性、设计性实验的课程 4 门，占实验课程总数的 40%。 4. 本专业实践教学内容包括实践教学模块和其他课程模块中的实践教学内容，实践教学环节学分占总学分的比例为 28.1%。 1. There are 28 specialized compulsory courses, including 1 English-taught course, and no bilingual course is offered.. 2. There are 14 specialized elective courses in total, including 7 specialized orientation courses and 7 specialized development courses. Undergraduates should obtain at least 4.5 credits in total by taking specialized orientation courses and 4.5 credits by taking specialized development courses. 3. There are 10 experimental courses in total including 8 independent experimental courses, 4 theoretical and designable experimental courses which take up 40% of the total experimental courses. 4. The practice teaching of this specialty includes the practice work and other practice contents in the experimental courses. The total practice teaching content accounts for 28.1% of the total credits.					

八、新能源材料与器件专业本科教学计划表

Ⅷ. Teaching Scheme for Material Chemistry Undergraduate Candidates

（一）通识教育模块（54 学分）

（Ⅰ）Liberal Studies Courses (54 credits)

1. 通识教育必修课（42 学分）

1. Liberal Studies Compulsory Courses (42 credits)

课程编码 Courses Code	课程名称 Courses Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
1711021	思想道德修养与法律基础 The Ideological and Moral Cultivation and Fundamentals of Law	1	3	45	18	3	考试 Exam.
1711022	中国近现代史纲要 Outline of Modern and Contemporary Chinese History	1	3	45	18	3	考试 Exam.
1711023	马克思主义基本原理概论 Principles of Marxism	3	3	45	18	3	考试 Exam.
1711024	毛泽东思想和中国特色社会主义理论体系概论 Mao Zedong Thoughts and Theory of the Socialism with Chinese Characteristics	4	5	72	36	4	考试 Exam.
1711005-1711011	形势与政策 1-7 The Current Situation and Policy(1-7)	1-7	2				考查 Quiz
2011001	人文科技艺术专题 Topics on Humanities, Science & Arts		1	18		2	考查 Quiz
0211012	大学语文 College Chinese	2	2	36		2	考试 Exam.
1211044	计算机基础（理工科） Fundamentals of Computer (for Science Specialties)	1	2	27	18	2	考试 Exam.
1211045	VB 程序设计（理工科） VB Programming (for Science Specialties)	2	3	36	36	2	考试 Exam.
0411046	大学外语（一）（含听力） College English 1	1	3	36	36	4	考试 Exam.
0411047	大学外语（二）（含听力） College English 2	2	3	36	36	4	考试 Exam.
0411048	大学外语（三）（含听力） College English 3	3	3	36	36	2	考试 Exam.
0411049	大学外语（四） College English 4	4	2	36		2	考试 Exam.
0411050	外语综合应用能力培训 Integrated Skills of Foreign Languages	4	1		36		
1011039	大学体育（一） Physical Education 1	1	1		36		考试 Exam.
1011040	大学体育（二） Physical Education 2	2	1		36		考试 Exam.
1011041	大学体育（三） Physical Education 3	3	1		36		考试 Exam.
1011042	大学体育（四） Physical Education 4	4	1		36		考试 Exam.
1611043	创新创业理论与实践 Theory & Practice of Innovation and Entrepreneurship	3	2	36		2	考查 Quiz

2. 通识教育选修课（12 学分）

2. Liberal Studies Elective Courses（12 credits）

通识教育选修课共 12 学分，详见《陕西师范大学通识教育选修课课程方案》。

Undergraduates will obtain 12 credits by taking liberal studies elective courses, see *Liberal Studies Elective Courses Scheme of Shaanxi Normal University.*

（二）学科基础模块（60.5 学分）

（Ⅱ）Disciplinary Foundation Courses (60.5 credits)

1. 相关学科基础课（17.5 学分）

1. Related Disciplinary Foundation Courses (17.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
0521005	高等数学（二）—1（理） Advanced Mathematics(Ⅱ) -1 (for Science Specialties)	1	4	72		5	考试 Exam.
0521006	高等数学（二）—2（理） Advanced Mathematics(Ⅱ) -2(for Science Specialties)	2	4	72		4	考试 Exam.
3521003	大学物理（上） College Physics (I)	2	3	54		4	考试 Exam.
3521004	大学物理（下）及实验 College Physics (II) and Experiments	3	3.5	54	18	5	考试 Exam.
3521002	线性代数与概率 Linear Algebra and Probability	3	3	54		4	考试 Exam.

2. 本学科基础课（43 学分）

2. Disciplinary Foundation Courses (43 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
3522001	无机化学（上） Inorganic Chemistry (I)	1	3	54		4	考试 Exam.
3522002	无机化学（下） Inorganic Chemistry (II)	2	3	54		4	考试 Exam.
3522033	基础有机化学 Fundamental Organic Chemistry	3	3.5	64		5	考试 Exam.
3522034	材料科学与工程基础 Fundamentals of Materials Science and Engineering	5	3.5	64		5	考试 Exam.
3522029	实验室安全与规范 Laboratory Safety and Regulation	1	0.5	10		2	考查 Quiz.
3522030	材料科学与工程专业导引 Introduction to Materials Science and Engineering	1	0.5	10		2	考查 Quiz.
3522008	物理化学（上） Physical Chemistry (I)	3	3	54		3	考试 Exam.
3522009	物理化学（下） Physical Chemistry (II)	4	3	54		3	考试 Exam.
3522037	仪器分析及实验 Basic Instrumental Analysis	5	3.5	36	54	3	考试 Exam.
3522038	固体物理学 Solid State Physics	6	3	54		3	考试
3522043	电工电子学基础 Fundamentals of Electrics and Electronics	4	2.5	46		3	考试
3522044	电化学基础原理 Fundamentals of Electrochemistry	4	2.5	46		3	考试
3522045	高分子化学与物理基础 Basic Polymer Chemistry and Physics	3	2.5	46		3	考试 Exam.
3522039	材料物理性能学 Physical Properties of Materials	4	2.5	46		3	考试 Exam.
3522013	无机化学实验（上） Fundamental Experiments in Chemistry (I)	1	1.5		54	4	考试 Exam.
3522014	无机化学实验（下） Fundamental Experiments in Chemistry(II)	2	1		36	4	考试 Exam.
3522046	基础有机化学实验 Experiments in Fundamental Organic Chemistry	3	1.5		54	4	考试 Exam.
3522040	物理化学实验（含结构） Experiments in Physical /Structural Chemistry	4	2.5		90	4	考试 Exam.

（三）专业课程模块（22 学分）

（Ⅲ）Specialized Courses (22 credits)

1. 专业核心课程（13 学分）

1. Specialized Core Courses (13 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
3541029	半导体物理与器件 Semiconductor Physics and Device	6	2.5	46		3	考试 Exam
3541029	储能技术 Energy Storage Technology	5	2.5	46		3	考试 Exam
3541027	光电子技术 Optoelectronic Technology	6	2.5	46		3	考试 Exam
3541030	薄膜材料与制备技术 Thin Film Materials Preparation and Technology	6	2.5	46		3	考试 Exam
3541013	材料表征技术 Material Characterization Techniques	5	3	54		3	考试 Exam

2. 专业方向课程（4.5 学分）

2. Specialized Orientation Courses (4.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
3542019	锂离子电池及超级电容器 Lithium ion batteries and supercapacitors	6	1.5	28		2	考查 Quiz
3542020	燃料电池材料与器件 Fuel Cell Materials and Devices	5	1.5	28		2	考查 Quiz.
3542021	半导体光电化学 Semiconductor Photoelectrochemistry	6	1.5	28		2	考查 Quiz.
3542022	光伏材料与器件 Photovoltaic materials and devices	5	1.5	28		2	考查 Quiz.
3542023	纳米材料学 Nanometer Materials Science	6	1.5	28		2	考查 Quiz.
3542024	纳米光子学 Nanophotonics	5	1.5	28		2	考查 Quiz.
3542025	热电材料与器件 Thermoelectric Materials and Devices	6	1.5	28		2	考查 Quiz.
说明 Notes	1. 专业方向课程共 7 门。 2. 专业必须选修够 4.5 学分。 1. There are 7 specialized orientation courses. 2. Undergraduates in New Energy Materials and Devices specialty should obtain at least 4.5 credits.						

3. 专业拓展课程（4.5 学分）

3. Specialized Development Courses (4.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
3543016	有机光电材料与器件导论 Introduction of Organic Optoelectronic Materials and Devices	5	1.5	28		2	考查 Quiz
3543017	二维原子晶体材料与器件 Two-dimensional Atomic Crystal and Device	6	1.5	28		2	考查 Quiz
3543018	稀土发光材料 Rare Earth Luminescent Materials	7	1.5	28		2	考查 Quiz
3543019	液晶材料 Liquid Crystal Materials	5	1.5	28		2	考查 Quiz

3543020	光电检测技术 Optoelectric Detection Technology	6	1.5	28		2	考查 Quiz
3543021	传感材料与技术 Materials and Technologies of Sensors	7	1.5	28		2	考查 Quiz
3543022	胶体化学与界面 Colloid Chemistry and Interface	7	1.5	28		2	考查 Quiz
说明 Notes	1. 专业拓展课程共 7 门。 2. 新能源材料与器件专业必须选修够 4.5 学分。 1. There are 7 specialized development courses in New Energy Materials and Devices specialty. 2. Undergraduates in New Energy Materials and Devices specialty should obtain at least 4.5 credits.						

（四）专业技能模块（14.5 学分）
（Ⅳ）Professional Skills Courses (14.5 credits)

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
3545003	新能源材料与器件综合实训 Comprehensive Training of New Energy Materials and Devices	6	2.5		90	8	考试 Exam.
3546004	新能源材料制备与器件组装 New Energy Materials Preparation and Device Assembly	5	2.5		90	8	考试 Exam.
3544014	微结构与物理性能实验 Experiments in Physical Properties and Micro-structure of Materials	5	1.5		54	8	考试 Exam.
3546005	新能源器件设计与制造工艺 Design and Fabrication Technology of New Energy Devices	7	6		12 周		考查 Quiz
3541006	研究方法与学术论文写作 Research Approach and Academic Dissertation Writing	6	1	18		2	考试 Exam.
3541025	新能源材料与器件专业英语 Professional English in New Energy Materials and Device	4	1	18		2	考试 Exam.

（五）实践教学模块（13 学分）
（Ⅴ）Practice Work（13 credits）

课程编码 Course Code	课程名称 Course Name	开课学期 Semester	学分 Cre.	讲授学时 Teaching Hrs.	实验/实践学时 Experiment/ Training Hrs.	周学时 Weekly Hrs.	考试方式 Evaluation
2650101	军事理论与训练 Military Theory and Military Training	1	1				考查 Quiz
3550017	必读书目阅读 Required Readings		1				考查 Quiz
3550032	专业见习与实习 Professional Visits	1-7	4				考查 Quiz
3550021	专业实践与社会调查 Professional Practice and Social Survey		1				考查 Quiz
3550022	科研训练 Scientific Research Training	3-6	1				考查 Quiz
1750013	大学生就业指导 College Students' Employment Guidance	6	1				考查 Quiz
3550033	毕业论文（设计） Graduation Thesis (Design)	7-8	4				考查 Quiz