

数据科学与大数据技术专业培养方案

Undergraduate Program of Data Science and Big Data Technology

I. 专业介绍 Introduction

数据包括数值、文字、图形、图像、语音、视频、多媒体等资料。计算机技术，互联网技术的发展导致一切都被记录，一切都被数字化。上至国家政治经济，下至个人吃穿住行，几乎都在直接或间接的被互联网技术影响乃至支配。因而，每时每刻各种数字设备都会不断产生大量新的数据，“大数据”是“数据化”趋势下的必然产物。如何利用这些数据获取更强的决策力、洞察力和流程优化能力就是摆在世人面前的一个亟待解决的问题-----“数据科学和大数据技术”专业应运而生。其主要研究对象是“大数据”，研究目的则是通过对大数据的研究，获取对“现实世界”进行预测、洞见、解释或决策的能力；研究的手段则需要以数据统计、机器学习、数据可视化等理论为基础；包括数据预处理、数据管理、数据计算等主要环节。会涉及数据获取、数据加工、数据分析、结果评估、数据展示等整套理论和方法。该专业在互联网大数据时代具有不可替代的作用。

Data includes data such as numerical value, text, graphics, images, voice, video, multimedia and so on. With the development of computer and Internet technology, everything is recorded and digitized. From national politics and economy to personal life, almost all of them are directly or indirectly influenced and even dominated by Internet technology. As a result, all kinds of digital devices will produce a large number of new data at every moment. "Big data" is the inevitable product of the trend of "data". How to use these data to obtain stronger decision-making power, insight and process optimization ability is an urgent problem to be solved in front of the world -- "Data Science and Big Data Technology" specialty emerged at the historic moment. Its main research object is "big data". Its purpose is to acquire the ability to predict insight, explain or make decisions about the "real world" through the study of big data. The means of research need to be based on data statistics, machine learning, data visualization and other theories, including data preprocessing, data management, data calculation and other key links. It will involve a whole set of theories and methods such as data acquisition, data processing, data analysis, result evaluation, data display and so on. This major plays an irreplaceable role in the era of Internet big data.

专业代码：080910T

Program Code: 080910T

专业名称：数据科学与大数据技术

Program Name: Data Science and Big Data Technology

II. 培养目标 Objectives

本专业培养德、智、体、美、劳全面发展，具有良好的面向大数据应用的数学、统计学和计算机等学科基础理论与知识，掌握大数据科学的基本理论、方法和技能，熟悉工科大数据应用相关实际问题背景，具备大数据应用分析技能，能够从事大数据分析、大数据

系统开发和大数据处理相关工作，“理工融合，理论基础扎实”的复合型、应用型人才。

This major trains all-round development of morality, intelligence, good physique, standards of aesthetic and passion on work. Students should master good basic theory and knowledge of mathematics, statistics and computer for big data application, and masters the basic theory, methods and skills of big data science as well as to familiar with the background of practical problems related to big data application in engineering. Students should have the skills of big data application analysis, and can be engaged in big data analysis and mining, and the skills on data system development and large data processing related work. Students will be the compound, application-oriented talents of "integration of science and technology with solid theoretical basis".

III. 专业毕业要求

1. 要求具有扎实的数学基础

其中包括以数学分析、高等代数、解析几何为代表的几门必要的一些数学课程内容，领略和学习重要的基本数学方法、思想，获得必要的数形相结合的数学思维模式和一定的数学抽象能力。掌握以数学建模、数值分析、运筹学为代表的几门应用数学课程内容，具备用数学方法分析和解决自然科学、社会科学及工程技术中的实际问题的能力。

2. 要求具有扎实的统计基础

通过概率论、数理统计等相关课程的学习，获取研究自然界的不确定现象及其服从的某种统计规律的能力，具备熟练掌握相应的统计软件的能力。

3. 要求具有扎实的计算机应用基础

必须具备基本编程能力、数据结构与算法设计、数据库操作与设计能力。

4. 要求具有大数据分析处理能力

其中包括可熟练的进行数据获取和管理能力；能够对数据进行分析、加工、访问和一定的数据展示能力；大规模数据处理能力和一定的跨领域分析能力。

5. 要求具备本科生必要的其它现代科学知识

其中包括物理学知识、交通运输概论、经济学原理、生命科学导论、哲学概论、知识经济与创新等通识类课程的知识。

6. 要求完成必要的专业实践环节

除了必须完成课程内的上机作业之外，还必须完成三个短学期的实习和最后一个学期的毕业论文(设计)。其中，毕业论文（设计）需具备一定的大数据分析基本知识综合运用能力，或具备较高的科学素养和一定的创新能力。

7. 要求具有有效的沟通与交流能力

其中包括人际交往能力、团队合作能力、外语交流、科研论文的阅读和写作、文献的查找检索、熟练阅读专业英语资料。

8. 要求具有良好的人文素质

其中包括拥有正确的立场、观点和信仰。拥有高尚道德品质和法制意识、一定的文化素养和文学艺术修养。要求有健康的身体素质和心理素质。

Graduation Requirements

1. A solid knowledge of mathematics

Students need to have a solid mathematical foundation, which includes several necessary mathematics courses, such as mathematical analysis, advanced algebra and analytic geometry. They

need also to comprehend and learn important basic mathematical methods and ideas, and obtain the necessary mathematical thinking mode of combining numbers and figures and certain mathematical abstraction ability. Furthermore, it is also needed by students to grasp the contents of several applied mathematics courses represented by mathematical modeling, numerical analysis and operational research, and have the ability to analyze and solve practical problems in natural science, social science and engineering technology by mathematical methods.

2. A solid statistical basis

Through the study of probability theory, mathematical statistics and other related courses, students can acquire the ability to study uncertain phenomena in nature and some statistical laws obeyed, and have the ability to master the corresponding statistical software skillfully.

3. A solid computer application foundation

Students must have basic programming ability, data structure and algorithm design, database operation and design ability.

4. Bag data analysis and processing capabilities

These include skilled data acquisition and management capabilities, the ability to analyze, process, access and display data, large-scale data processing capabilities and a certain cross-domain analysis capabilities.

5. Other modern scientific knowledge necessary for Undergraduates

It includes knowledge of general courses such as physics, transportation, economics, life science, philosophy, knowledge economy and innovation.

6. Complete the necessary professional practice links

In addition to the on-line homework in the course, three short Semesters of internship and the final Semester of graduation thesis (design) must be completed. Among them, graduation thesis (design) should have a certain ability of comprehensive application of basic knowledge of large data analysis, or have a higher scientific literacy and a certain degree of innovation ability.

7. Effective communication and communication skills

These include interpersonal skills, teamwork skills, foreign language communication, reading and writing scientific research papers, searching literature, and skilled reading of professional English materials.

8. Good humanistic quality

These include having the right standpoint, views and beliefs. It has noble moral character and legal consciousness, certain cultural accomplishment and literary and artistic accomplishment. It requires healthy physical and psychological qualities.

IV. 学制与学位 Duration and Degree

学制: 4 年

Duration: Four years

学位: 理学学士

Degree: Bachelor of Science

V. 主干学科与主干课程 Main Subject and Main Course

主干学科: 数学

Main Subject: Mathematics

主干课程：数学分析、高等代数、解析几何、概率论、常微分方程；数理统计、数据分析、数据挖掘、神经网络与深度学习、数据可视化分析；程序设计与算法语言、数据结构与算法、数据库原理与设计。

Main Course: Mathematical Analysis, Advanced Algebra, Analytic Geometry, Probability Theory, Ordinary Differential Equations, Mathematical Statistics, Data Analysis, Data Mining, Neural Network And Deep Learning, Data Visualization Analysis, Computer Language and Programming, Data Structure and Algorithm, Database Principle and Design.

VI. 毕业学分基本要求 Basic Requirements of Credits for Graduation

课程体系 Curriculum System		学分要求 Credits Requirements						小计 Subtotal
		必修 Compulsory		限修 Distributional Electives		选修 Free Electives		
		理论 Theory	实践 Practice	理论 Theory	实践 Practice	理论 Theory	实践 Practice	
公共基础课程 Public Basic Courses	思想政治类 Ideological Politics Courses	15	2					17
	军事类 Military Courses	2	2					4
	外语类 Foreign Language Courses	6		2				8
	体育类 Physical Education Courses		4					4
通识教育课程 General Education Courses	核心通识课 Core General Education Courses			4				4
	新生研讨课 Freshman Seminar	2						2
学科与专业基础课程（含实验） Discipline and Specialty Foundational Courses（Including Experiments）	数学与自然科学基础课 Foundational Courses on Mathematics and Natural Science	6	2					8
	专业基础课 Professional Foundational Courses	30	1					31
专业课程（含实验） Specialized Courses（Including Experiments）	专业核心课程 Specialized Core Course	49	10					59
	专业限修课程 Specialized Restricted Courses			3	3			6

实习实践教学 Practice Courses	基本技能训练、实习实训、综合课程设计、社会与文化素质实践、毕业实习与毕业设计 Basic Skills Training, Practical Training, Integrated Curriculum Design, Social and Cultural Quality Practice, Graduation Internship and Graduation Design		10					10
多元化课程 Diversified Courses	跨学科课程、美育专业类课程、学科竞赛类课程、其它个性化选修课程等 Interdisciplinary Courses, Aesthetic Education Courses, Subject Competition Courses, other Personalized Elective Courses, etc			6				6
创新创业实践 Innovation and Entrepreneurship Practice	创新创业训练计划项目、个性化实验、学科竞赛、创新讲座等 Innovation and Entrepreneurship Training Program, Personalized Experiments, Subject Competition, Innovation Lectures, etc		2					2
必修环节 A Compulsory Part	大学生综合素质提升、学生体质达标测评 Comprehensive Quality Improvement Courses for College Students, Assessment of Students' Physical Fitness							0
总计 Total								161

VII.课程设置细化表 Course Programs Table

公共基础课程 Public Basic Courses 共 33 学分，其中必修 31 学分，限修 2 学分，选修 0 学分 A total credits of 33, including 31 for compulsory courses, 2 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class Practice Credits	开课学期 Semester	开课学院 School	支撑毕业要求指标点 Indicators which Support Graduation Requirements	备注 Notes
思想政治类 Ideological Politics Courses	思想道德与法治 Ideological and Moral Education and the Rule of Law	必修 Compulsory	3	0.4	第 2 学期 2Nd Semester	马克思主义学院 School of Marxism	5-8	

思想政治类 Ideological Politics Courses	中国近现代史纲要 Conspectus of Chinese Modern History	必修 Compulsory	3	0.4	第 1 学期 1St Semester	马克思主义 学院 School of Marxism	5-8	
	马克思主义基本原理 The Basic Principles of Marxism	必修 Compulsory	3	0.4	第 4 学期 4Th Semester	马克思主义 学院 School of Marxism	5-8	
	毛泽东思想和中国特色社 会主义理论体系概论 Introduction to Mao Zedong Thought and Theoretical System of Socialism with Chinese Characteristics	必修 Compulsory	3	0.4	第 5 学期 5Th Semester	马克思主义 学院 School of Marxism	5-8	
	习近平新时代中国特色社 会主义思想概论 Outline of Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era	必修 Compulsory	3	0.4	第 6 学期 6Th Semester	马克思主义 学院 School of Marxism	5-8	
	形势与政策 I Situation and Policy I	必修 Compulsory	0	0	第 1 学期 1St Semester	马克思主义 学院 School of Marxism	5-8	
	形势与政策II Situation and Policy II	必修 Compulsory	0	0	第 2 学期 2Nd Semester	马克思主义 学院 School of Marxism	5-8	
	形势与政策III Situation and Policy III	必修 Compulsory	0	0	第 3 学期 3Rd Semester	马克思主义 学院 School of Marxism	5-8	
	形势与政策IV Situation and Policy IV	必修 Compulsory	0	0	第 4 学期 4Th Semester	马克思主义 学院 School of Marxism	5-8	
	形势与政策 V Situation and Policy V	必修 Compulsory	0	0	第 5 学期 5Th Semester	马克思主义 学院 School of Marxism	5-8	
	形势与政策VI Situation and Policy VI	必修 Compulsory	0	0	第 6 学期 6Th Semester	马克思主义 学院 School of Marxism	5-8	
	形势与政策VII Situation and Policy VII	必修 Compulsory	0	0	第 7 学期 7Th Semester	马克思主义 学院 School of Marxism	5-8	
	形势与政策VIII Situation and Policy VIII	必修 Compulsory	2	0	第 8 学期 8Th Semester	马克思主义 学院 School of Marxism	5-8	
军事类 Military Courses	军事理论 Military Theories	必修 Compulsory	2	0	第 1 学期 1St Semester	武装部 Security Office	5-8	
	军事技能 Military Skills	必修 Compulsory	2	2	短 1 学期 Short Semester 1	武装部 Security Office	5-8	
外语类 Foreign Language Courses	英语 I College English I	必修 Compulsory	2	0	第 1 学期 1St Semester	外国语学院 School of Foreign languages	5-8	

外语类 Foreign Language Courses	英语 II College English II	必修 Compulsory	2	0	第 2 学期 2Nd Semester	外国语学院 School of Foreign languages	5-8	
	通用学术英语 English for General Academic Purposes	必修 Compulsory	2	0	第 3 学期 3Rd Semester	外国语学院 School of Foreign languages	5-8	
	职场英语 Workplace English	限修 Distributional Elective	2	0	第 4 学期 4Th Semester	外国语学院 School of Foreign languages	5-8	限选 1 门, 2 学分 Limited to 1 course, 2 credits
	交际与文化视听说 Viewing, Listening & Speaking in English -- Communication & Culture							
	语言、文化与翻译 Language, Culture and Translation							
	英语公共演讲 Public Speaking in English							
体育类 Physical Education Courses	体育 I Physical Education I	必修 Compulsory	1	1	第 1 学期 1St Semester	体育部 Dept. of Physical Education	5-8	
	体育 II Physical Education II	必修 Compulsory	1	1	第 2 学期 2Nd Semester	体育部 Dept. of Physical Education	5-8	
	体育 III Physical Education III	必修 Compulsory	0.5	0.5	第 3 学期 3Rd Semester	体育部 Dept. of Physical Education	5-8	
	体育 IV Physical Education IV	必修 Compulsory	0.5	0.5	第 4 学期 4Th Semester	体育部 Dept. of Physical Education	5-8	
	体育健康课程 I Diversified Physical Education Courses I	必修 Compulsory	0.5	0.5	第 5 学期 5Th Semester	体育部 Dept. of Physical Education	5-8	
	体育健康课程 II Diversified Physical Education Courses II	必修 Compulsory	0.5	0.5	第 6 学期 6Th Semester	体育部 Dept. of Physical Education	5-8	
通识教育课程 General Education Courses 共 6 学分, 其中必修 2 学分, 限修 4 学分, 选修 0 学分 A total credits of 6, including 2 for compulsory courses, 4 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
核心通识课 Core General Education	“交通天下”通识课程 General Studies on Transportation	限修 Distributional Elective	4		2-8 学期 2-8 Semester	全校 The whole school	5-8	
新生研讨课 Freshman Seminar	数学素养训练 Mathematics Literacy Training	必修 Compulsory	2		第 1 学期 1St Semester	数学学院 School of Mathematics	5-8	
学科与专业基础课程 (含实验) Discipline and Specialty foundational Courses (Including Experiments) 共 39 学分, 其中必修 39 学分, 限修 0 学分, 选修 0 学分 A total credits of 39, including 39 for compulsory courses, 0 for distributional electives and 0 for free electives								

课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
数学与自然科学 基础课 Foundational Courses on Mathematics and Natural Science	大学物理 BI College Physics BI	必修 Compulsory	3		第 2 学期 2Nd Semester	物理科学与技术学院 School of Physics	1	
	大学物理实验 I College Physics Experiments I	必修 Compulsory	1	1	第 2 学期 2Nd Semester	物理科学与技术学院 School of Physics	1	
	大学物理 BII College Physics BII	必修 Compulsory	3		第 3 学期 3Rd Semester	物理科学与技术学院 School of Physics	1	
	大学物理实验 II College Physics Experiments II	必修 Compulsory	1	1	第 3 学期 3Rd Semester	物理科学与技术学院 School of Physics	1	
专业基础课 Professional Foundational Courses	数学分析 I Mathematical Analysis I	必修 Compulsory	5		第 1 学期 1St Semester	数学学院 School of Mathematics	1	
	数学分析 II Mathematical Analysis II	必修 Compulsory	5		第 2 学期 2Nd Semester	数学学院 School of Mathematics	1	
	数学分析 III Mathematical Analysis III	必修 Compulsory	5		第 3 学期 3Rd Semester	数学学院 School of Mathematics	1	
	高等代数 BI Advanced Algebra I	必修 Compulsory	4		第 1 学期 1St Semester	数学学院 School of Mathematics	1	
	高等代数 BII Advanced Algebra II	必修 Compulsory	4		第 2 学期 2Nd Semester	数学学院 School of Mathematics	1	
	解析几何 Analytic Geometry	必修 Compulsory	4		第 1 学期 1St Semester	数学学院 School of Mathematics	1	
	程序设计与算法语言 Computer language and Programming	必修 Compulsory	4	1	第 2 学期 2Nd Semester	数学学院 School of Mathematics	3	
专业课程（含实验） Specialized Courses (Including Experiments) 共 65 学分，其中必修 59 学分，限修 6 学分，选修 0 学分 A total credits of 65, including 59 for compulsory courses, 6 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
专业核心课程 Specialized Core Course	常微分方程 ODEs(Ordinary Differential Equations)	必修 Compulsory	4		第 3 学期 3Rd Semester	数学学院 School of Mathematics	1	
	复变函数 Complex Analysis	必修 Compulsory	4		第 4 学期 4Th Semester	数学学院 School of Mathematics	1	
	概率论 Probability Theory	必修 Compulsory	4		第 3 学期 3Rd Semester	数学学院 School of Mathematics	2	

专业核心课程 Specialized Core Course	数理统计 Mathematical Statistics	必修 Compulsory	4	1	第 4 学期 4Th Semester	数学学院 School of Mathematics	2	
	数据结构与算法 Data Structure and Algorithm	必修 Compulsory	3		第 3 学期 3Rd Semester	数学学院 School of Mathematics	3	
	数据库原理与设计 A Database principle and design A	必修 Compulsory	4	1	第 4 学期 4Th Semester	数学学院 School of Mathematics	3	
	Python 编程技术 Programming Python	必修 Compulsory	3	1	第 3 学期 3Rd Semester	数学学院 School of Mathematics	3	
	网络爬虫程序设计 Web crawler and programming	必修 Compulsory	2	1	第 7 学期 7Th Semester	数学学院 School of Mathematics	3	
	数学建模方法及应用 Mathematical Modeling	必修 Compulsory	4	2	第 5 学期 5Th Semester	数学学院 School of Mathematics	1,4	
	数值分析 Numerical Analysis	必修 Compulsory	4		第 5 学期 5Th Semester	数学学院 School of Mathematics	1,4	
	运筹学基础 Foundation of Operations Research	必修 Compulsory	3		第 6 学期 6Th Semester	数学学院 School of Mathematics	1,4	
	模糊数学及其应用 Fuzzy Mathematics and Its Applications	必修 Compulsory	3		第 6 学期 6Th Semester	数学学院 School of Mathematics	1,4	
	数据分析 Data Analysis	必修 Compulsory	4		第 5 学期 5Th Semester	数学学院 School of Mathematics	1,2,4	
	数据挖掘 Data mining	必修 Compulsory	3	1	第 5 学期 5Th Semester	数学学院 School of Mathematics	4	
	Hadoop 大数据开发技术 Development Technology of Hadoop in Big Data	必修 Compulsory	3	1	第 5 学期 5Th Semester	数学学院 School of Mathematics	2,4	
	神经网络与深度学习 Neural Network and Deep Learning	必修 Compulsory	4	1	第 6 学期 6Th Semester	数学学院 School of Mathematics	4	
	数据可视化分析 Data Visualization Analysis	必修 Compulsory	3	1	第 6 学期 6Th Semester	数学学院 School of Mathematics	4	
专业限修课程 Specialized Restricted Courses	数据科学现代数学基础 (泛函、拓扑、图论、最优化) Basis of Modern Mathematics in Data Science	限修 Distributional Elective	3		第 4 学期 4Th Semester	数学学院 School of Mathematics	1,4	限修 6 学分 Distributional Elective 6 credits
	数据挖掘实用案例分析 Case Analysis of Data Mining Application	限修 Distributional Elective	3	1	第 7 学期 7Th Semester	数学学院 School of Mathematics	4	
	时间序列分析 Time Series Analysis	限修 Distributional Elective	3		第 6 学期 6Th Semester	数学学院 School of Mathematics	1,2	
	实变函数 Real Analysis	限修 Distributional Elective	4		第 5 学期 5Th Semester	数学学院 School of Mathematics	1	
实习实践教学 Practice Course 共 10 学分，其中必修 10 学分，限修 0 学分，选修 0 学分 A total credits of 10, including 10 for compulsory courses, 0 for distributional electives and 0 for free electives								

课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
基本技能训练、实习实训、综合课程设计、社会与文化素质实践、毕业实习与毕业设计 Basic Skills Training, Practical Training, Integrated Curriculum Design, Social and Cultural Quality Practice, Graduation Internship and Graduation Design	编程实践 Programming Practice	必修 Compulsory	2	2	短 1 学期 Short Semester 1	数学学院 School of Mathematics	3	
	数据库与程序设计实践 Database Design Practice	必修 Compulsory	2	2	短 2 学期 Short Semester 2	数学学院 School of Mathematics	3	
	大数据工程实践 Big Data Project Practice	必修 Compulsory	2	2	短 3 学期 Short Semester 3	数学学院 School of Mathematics	4	
	本科毕业论文 Bachelor's Degree Thesis	必修 Compulsory	4	4	第 8 学期 8Th Semester	数学学院 School of Mathematics	1-8	
多元化课程 Diversified course 共 6 学分，其中必修 0 学分，限修 6 学分，选修 0 学分 A total credits of 6, including 0 for compulsory courses, 6 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
美育专业类课程 Aesthetic Education Specialty Courses	全校美育专业类课程 Aesthetic Education Specialty Courses of University	限修 Distributional Elective	2		第 2-8 学期 2-8 Semester	全校 The whole school	4	限修 6 学分 Distributional Elective 6 Credits 按照《西南交通大学多元化课程修读指导手册》执行。 Follow the 《Instruction manual of diversified courses of southwest Jiaotong University》
学科竞赛类课程 Subject Competition Courses	全校学科竞赛课程 Subject Competition Courses of University		2	1	第 2-8 学期 2-8 Semester	全校 The whole school	4	
跨学科课程 Interdisciplinary Course	全校跨学科课程 Interdisciplinary Course of University		2	1	第 2-8 学期 2-8 Semester	全校 The whole school	4	
	移动数据挖掘 Mobile Data Mining		2	1	第 7 学期 7Th Semester	数学学院 School of Mathematics	4	
个性化选修课程 Personalized Elective Courses	全校个性化选修课程 Personalized Elective Courses of University		2	1	第 2-8 学期 2-8 Semester	全校 The whole school	4	

创新创业实践 Innovation and Entrepreneurship Practice 共 2 学分，其中必修 0 学分，限修 2 学分，选修 0 学分 A total credits of 2, including 2 for compulsory courses, 0 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
创新创业训练计划项目、个性化实验、学科竞赛、创新讲座等 Innovation and Entrepreneurship Training Program, Personalized Experiments, Subject Competition, Innovation Lectures, etc	课外创新实践 Extracurricular innovation practice	限修 Distributional Elective	2	2	第 2-8 学期 2-8 Semester	数学学院 School of Mathematics	1,4	按照《西南交通大学创新实践学分认定与管理办法》规定执行 By Credit Recognition and Management of Innovative Practice in Southwest Jiaotong University
必修环节 A compulsory part 共 0 学分，其中必修 0 学分，限修 0 学分，选修 0 学分 A total credits of 0, including 0 for compulsory courses, 0 for distributional electives and 0 for free electives								
课程类型 Course Type	课程名称 Course Name	课程性质 Nature of Course	总学分 Credits	课内实践学分 In-class practice credits	开课学期 Semester	开课学院 School	支撑毕业要求 指标点 Indicators which Support Graduation Requirements	备注 Notes
大学生综合素质提升、学生体质达标测评 Comprehensive Quality Improvement Courses for College Students, Assessment of Students' Physical Fitness	大学生综合素质提升（第二、第三课堂） Comprehensive Quality Improvement Courses for College Students (The Second and Third Classroom)	必修 Compulsory	0	0	1-8 学期 1-8 Semester	校团委 Communist Youth League Committee	4-8	
	学生体质达标测评 Assessment of Students' Physical Fitness	必修 Compulsory	0	0	秋季学期 fall Semester	体育部 Dept. of Physical Education	4-8	
学分总计 Total Credits			161					