

统计学专业培养方案

Undergraduate Program of Statistics

I. 专业介绍 Introduction

统计学是研究数据采集、分析和信息提取并为决策提供科学依据的一门学科，统计方法是各类高级人才必备的现代技术手段。统计学是统计学类专业的主流分支，主要通过利用概率统计相关理论建立数学模型，收集所观察系统的数据，进行量化分析、总结，做出推断和预测，为相关决策提供依据和参考。

它被广泛地应用在各门学科范畴中，从物理学和社会科学到工业工程，人文科学，包括被用来工商业及政府的情报决策之上。随着数字化进程加快和大数据时代的到来，统计学为人们从大量的数据中总结出随机发展规律，从而为后续的智能决策提供数理依据。

Statistics is a discipline that studies data collection, analysis and information extraction and provides scientific basis for decision-making. Statistical methods are the modern technical means necessary for all kinds of high-level talents. Statistics is the mainstream branch of statistics majors. It mainly establishes mathematical models by using the theory of probability and statistics, collects the data of the observed systems, conducts quantitative analysis, summarizes, makes inferences and predictions, and provides basis and reference for relevant decisions.

It is widely used in various disciplines, from physics and social sciences to industrial engineering, humanities, including intelligence decisions that are used in business and government. With the acceleration of the digitization process and the arrival of the era of big data, statistics for people to summarize the law of random development from a large number of data, thus providing a mathematical basis for subsequent intelligent decision-making.

专业代码：071201

Program Code: 071201

专业名称：统计学

Program Name: Statistics

II. 培养目标 Objectives

本专业培养具有良好的数学与管理学素养，掌握统计学的基本理论和方法，能熟练运用统计方法和统计软件分析和处理数据；具有扎实的数理统计理论基础、金融管理与风险评估基础知识，专长于应用统计方法对各类数据进行分析 and 处理的复合型、实用型高级专门人才。

毕业生能在企业、事业单位和经济、管理部门从事统计调查、统计信息管理、数量分析等开发、应用和管理的工作，或经过进一步深造能在科研、教育部门从事科学研究和教学工作。

This major has good mathematics and management literacy, masters the basic theories and methods of statistics, and is proficient in using statistical methods and statistical software to analyze and process data. It has a solid theoretical foundation of mathematical statistics, basic knowledge of financial management and risk assessment. The major would specialize and practical senior professionals who specialize in the application of statistical methods to analyze and handle with various types of data. Graduates can engage in the development, application and management of statistical surveys, statistical information management, quantitative analysis, etc. in enterprises, institutions and economic and management departments, or they can engage in scientific research and teaching in research and education departments through further study.

III.专业毕业要求 Graduation Requirements

掌握统计学的基本理论和基本方法，并能运用相关知识体系进行统计调查、计算机和统计软件、数据分析与统计建模等方面的基本训练。

(1) 知识结构要求

掌握数学分析、代数、几何等数学基本理论，为统计学专业学习打好基础。

掌握统计学的核心概念和基本知识体系，掌握应用概率、数理统计、应用统计、多元分析、回归分析、时间序列、非参数统计、金融统计、大数据处理技术，机器学习等专业基础知识。

能熟练应用统计软件包对数据进行统计分析，并解决相应实际问题的能力；至少掌握一门编程软件（如 R 语言，SAS，Matlab 或 Python 等）。

熟悉统计学在自然科学、人文社会科学、金融经济、工农商等各行业中所发挥的工具性作用。

熟练掌握一门外语，有较强的外语应用能力，掌握国内外文献检索及资料查询的基本方法；

了解统计学的理论前沿、应用前景和最新发展动态；了解统计学应用领域的相关知识，并通过实践课程完成相关工程案例分析。

能熟练运用计算机与现代信息工具从事科研、教学、统计应用、以及其他学科领域的研究开发工作。

(2) 能力结构要求：

具备数学和统计学的素养，拥有扎实的数学基础，受到较严格的统计学思维训练，熟练掌握基本统计理论，能熟练运用统计软件包进行统计计算分析随机数据，具备依据统计数据做预测和决策管理等方面的基本能力。包括：

具有较强的语言表达和写作能力。

具有统计调查、数据搜集、整理分析和撰写统计分析报告的能力。

能熟练运用统计方法和统计软件对数据进行分析、计算和建模。

能对相关领域的实际问题提炼和分析，进行统计建模与推断。

(3) 素质结构要求:

思想道德素质：热爱社会主义祖国，有为国家富强与民族振兴而奋斗的理想和责任感，具有良好的思想道德、敬业精神、健康的人生态度，具有科学严谨、求真务实的工作作风。具备良好的团队合作精神和。

文化素质：具有中华传统文化的道德美德，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。具有一定的音乐、美术、艺术的鉴赏力和高雅的品味。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。

科学素质：有较强的逻辑思维、辩证思维、形象思维的能力，有理性的批判意识，尊重客观事物发展的、科学的、务实的思维方法。掌握统计学的科学研究方法。了解专业发展的前沿问题和热点问题，有理性的批判意识；具备一定的多学科交叉的学习能力和思维方法。

身心素质：养成良好的体育锻炼习惯，接受必要的军事训练，达到国家规定的大学生体育和军事训练的合格标准。具有良好的体魄，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，坚忍不拔的毅力。

Master the basic theories and basic methods of statistics, and use the relevant knowledge systems for basic training in statistical surveys, computer and statistical software, data analysis and statistical modeling.

(1) Knowledge structure requirements:

Grasp the basic theories of mathematics, algebra, geometry, etc., and lay a solid foundation for the study of statistics.

Master the core concepts and basic knowledge systems of statistics, and master the basic knowledge of application probability, mathematical statistics, applied statistics, multivariate analysis, regression analysis, time series, non-parametric statistics, financial statistics, big data processing technology, machine learning and so on.

Proficiency in the application of statistical software packages to statistical analysis of data and the ability to solve practical problems; at least master a programming software (such as R language, SAS, Matlab or Python).

Familiar with the instrumental role played by statistics in various industries such as natural sciences, humanities and social sciences, financial economy, industry and commerce.

Proficient in a foreign language, have strong foreign language application ability, and master the basic methods of literature search and data inquiry at home and abroad;

Understand the theoretical frontiers, application prospects and latest developments of statistics; understand the relevant knowledge in the field of statistical applications, and complete relevant engineering case analysis through practical courses.

Proficiency in the use of computers and modern information tools for research and development in research, teaching, statistical applications, and other subject areas.

(2) Competency structure requirements:

Possesses mathematical and statistical literacy, has a solid mathematical foundation, is trained in strict statistical thinking, is proficient in basic statistical theory, and is proficient in using statistical software packages for statistical calculation and analysis of random data. Basic ability to make predictions and decision management based on statistical data. Include:

Strong language skills and writing skills.

Ability to conduct statistical surveys, data collection, collation and analysis, and writing statistical analysis reports.

Proficiency in the use of statistical methods and statistical software to analyze, calculate and model data.

Ability to refine and analyze practical problems in related fields for statistical modeling and inference.

(3) Quality structure requirements:

Ideological and moral quality: I love the socialist motherland, have the ideal and sense of responsibility for the country's prosperity and national rejuvenation, have a good ideological and moral, professionalism, healthy attitude towards life, and have a scientific, rigorous, realistic and pragmatic style of work. Have a good team and a spirit of cooperation.

Cultural quality: It has the moral virtue of Chinese cultural tradition, inherits and promotes the national spirit of the Chinese nation; has certain knowledge of humanities (wen, history, philosophy, etc.), understands Chinese traditional culture, and has a certain understanding of Chinese and foreign history and culture. . It has a certain appreciation of music, art, art and elegant taste. Have a strong sense of modernity, innovation and competition. Have self-control ability and be able to rationally handle the things that happen in life, feelings, work and study. Have a spirit of cooperation and be good at people.

Scientific quality: It has strong logical thinking, dialectical thinking, and image thinking ability. It has a rational critical consciousness and respects the development of scientific, pragmatic thinking methods of objective things. Master the scientific methods of statistics. Understand the frontier

issues and hot issues of professional development, have a rational critical awareness; have a certain multidisciplinary learning ability and thinking methods.

Physical and mental quality: Develop good physical exercise habits, accept necessary military training, and meet the national standards for college students' sports and military training. Have good physical fitness, healthy psychological quality, correct self-awareness, good interpersonal relationship, sound personality, good environmental adaptability; cultivate excellent temperament and character, strong will, perseverance and perseverance.

IV. 学制与学位 Duration and Degree

学制：四年

Duration: 4 Years

学位：理学学士（金融统计方向或授予经济学学士）

Degree: Bachelor of Science (or Bachelor of Economics)

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

主干学科：统计学

Main Subject: Statistics

主干课程：数学分析，高等代数，解析几何，概率论，数理统计，随机过程，时间序列分析，实用回归分析，多元统计，非参数统计，统计软件与应用，保险精算数学，金融数学，测度与概率基础，抽样调查与试验设计，可靠性统计，统计计算，市场调查与分析，大数据分析统计基础，大数据挖掘与机器学习。

Main Course: Mathematical analysis, higher algebra, analytic geometry, probability theory, mathematical statistics, stochastic processes, time series analysis, practical regression analysis, multivariate statistics, nonparametric statistics, statistical software and applications, insurance actuarial mathematics, financial mathematics, measure and probability basis, Sampling and experimental design, reliability statistics, statistical calculations, market research and analysis, statistical data base for big data analysis, big data mining and machine learning.

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						
		必修 Compulsory		限修 Distributional Electives		选修 Free Electives		小计 Subtotal
		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	6					12
	专业基础课 Professional Foundational Courses	29	2					31
专业课程 (含实验) Specialized Courses (Including Experiments)	专业核心课程 Specialized Core Course	29	6	4				39
	专业限修课程 Specialized Restricted Courses			12				12
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		16					16

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								157

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	3.1,3.2,3.3	
	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	3.1,3.2,3.3	
	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	3.1,3.2,3.3	

思想政治类 Ideological Politics Courses	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	3.1,3.2,3.3	
	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	3.1,3.2,3.3	
	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	3.1,3.2,3.3	
	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	3.1,3.2,3.3	
	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	3.1,3.2,3.3	
	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	3.1,3.2,3.3	
	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	3.1,3.2,3.3	
	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	3.1,3.2,3.3	
	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	3.1,3.2,3.3	
	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	3.1,3.2,3.3	
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	3.1,3.4	
	军事技能 Military Skills	必修 Compulsory	2	2	短 1 学期 Short Semester 1	武装部 Security Office	3.1,3.4	
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	1.5,2.1,3.2	
	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	1.5,2.1,3.2	

外语类 Foreign Language Courses	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	1.5,2.1,3.2	
	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	1.5,2.1,3.2	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	3.2,3.4	
	体育 II Physical Education II	必修 Compulsory	1	1	第 2 学期 2Nd Semester	体育部 Dept. of Physical Education	3.2,3.4	
	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	3.2,3.4	
	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	3.2,3.4	
	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	3.1,3.2,3.4	
	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	3.1,3.2,3.4	
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		第 2-8 学期 2-8 Semester	全校 The whole school	1.5,1.6,2.4, 3.2,3.3	
新生研讨课 Freshman Seminar	数学素养训练 Mathematical Literacy Training	必修 Compulsory	2		第 1 学期 1St Semester		1.5,1.6,2.4, 3.2,3.3	

学科与专业基础课程（含实验） Discipline and Specialty foundational Courses (Including Experiments) 共 43 学分，其中必修 43 学分，限修 0 学分，选修 0 学分 A total credits of 43, including 43 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	程序设计与算法语言 Program design and language	必修 Compulsory	4	4	第 2 学期 2Nd Semester	数学学院 School of Mathematics	1.3,1.7	
	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	1.4,2.4,3.3	
	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	1.4,2.4,3.3	
	大学物理实验I Test College Physics I	必修 Compulsory	1	1	第 2 学期 2Nd Semester	物理科学与技术学院 School of Physics	1.4,2.4,3.3	
	大学物理实验 II Test College Physics II	必修 Compulsory	1	1	第 3 学期 3Rd Semester	物理科学与技术学院 School of Physics	1.4,2.4,3.3	
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	1.1	
	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	1.1	
	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	1.1	
	高等代数 BI Advanced Algebra BI	必修 Compulsory	4		第 1 学期 1St Semester	数学学院 School of Mathematics	1.1	
	高等代数 BII Advanced Algebra BII	必修 Compulsory	4		第 2 学期 2Nd Semester	数学学院 School of Mathematics	1.1	
	解析几何 Analytic Geometry	必修 Compulsory	4		第 1 学期 1St Semester	数学学院 School of Mathematics	1.1	
	数学建模 A Mathematical Modeling A	必修 Compulsory	4	2	第 4 学期 4Th Semester	数学学院 School of Mathematics	1.4,1.6,2.3, 2.4	
专业课程（含实验） Specialized Courses (Including Experiments) 共 51 学分，其中必修 35 学分，限修 16 学分，选修 0 学分 A total credits of 51, including 35 for compulsory courses, 16 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		概率论 Probability Theory	必修 Compulsory	4		第 3 学期 3Rd Semester	数学学院 School of Mathematics	1.2,2.2,2.3	
		数理统计 Mathematical Statistics	必修 Compulsory	4	1	第 4 学期 4Th Semester	数学学院 School of Mathematics	1.2,2.2,2.3	
		随机过程 A Stochastic Processes A	必修 Compulsory	4		第 4 学期 4Th Semester	数学学院 School of Mathematics	1.2,2.2,2.3	
		时间序列分析 Time Series Analysis	必修 Compulsory	3	1	第 6 学期 6Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 2.2,2.3,2.4	
		多元统计 Multivariable Statistics	必修 Compulsory	3	1	第 6 学期 6Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 2.2,2.3,2.4	
		实用回归分析 Applied Regression Analysis	必修 Compulsory	3		第 5 学期 5Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 2.2,2.3,2.4	
		非参数统计 Nonparametric Statistics	必修 Compulsory	3	1	第 5 学期 5Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 2.2,2.3,2.4	
		大数据挖掘与机器学习 Big Data Technology and Machine learning	必修 Compulsory	3	2	第 7 学期 7Th Semester	数学学院 School of Mathematics	1.2,1.6,1.7, 2.4	
		实变函数 Functions of Real Variable	必修 Compulsory	4		第 5 学期 5Th Semester	数学学院 School of Mathematics	1.1,2.1,3.3	
		常微分方程 Ordinary Differential Equation	必修 Compulsory	4		第 3 学期 3Rd Semester	数学学院 School of Mathematics	1.1,2.1,3.3	
		复变函数 Complex Functions	限修 Distributional Elective	4		第 4 学期 4Th Semester	数学学院 School of Mathematics	1.1,2.1,3.3	限修 4 学分 Distributional Elective 4 credits
		泛函分析 B Functional Analysis B		4		第 6 学期 6Th Semester	数学学院 School of Mathematics	1.1,2.1,3.3	
专业限修课程 (方向) Specialized Restricted Courses	金融统计 Financial Statistics	金融数学 Financial Mathematics	限修 Distributional Elective	3	1	第 5 学期 5Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.2,2.3,	限修 12 学分 Distributional Elective 12 credits
		保险精算数学 Actuarial Mathematics		3	1	第 5 学期 5Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.2,2.3,	
		计量经济学 Econometrics		3	1	第 4 学期 4Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.2,2.3,	

专业限修课程 (方向) Specialized Restricted Courses	金融统计 Financial Statistics	可靠性统计 Reliability Statistics		3	1	第 6 学期 6Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.2,2.3,	
		大数据分析统计基础 Statistical Knowledge of Big Data		3	3	第 7 学期 7Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.2,2.3,	
		数据结构与算法 Data Structure and Algorithm		3	3	第 3 学期 3Rd Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.2,2.3,	
		市场调查与分析 Market research and analysis		3	3	第 3 学期 3Rd Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.2,2.3,	
	数理统计 Mathematical Statistics	测度与概率基础 Elements of Measure and Probability	限修 Distributional Elective	3		第 6 学期 6Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.1,2.3	限修 12 学分 Distributional Elective 12 credits
		统计计算 Computational Statistics		3	1	第 7 学期 7Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.1,2.3	
		抽样调查与试验设计 Sampling and Experimental Design		3	1	第 5 学期 5Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.1,2.3	
		可靠性统计 Reliability Statistics		3	1	第 6 学期 6Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.1,2.3	
		数据结构与算法 Data Structure and Algorithm		3	3	第 2 学期 2Nd Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.1,2.3	
		大数据分析统计基础 Statistical Knowledge of Big Data		3	3	第 7 学期 7Th Semester	数学学院 School of Mathematics	1.2,1.3,1.4, 1.6,2.1,2.3	

**实习实践教学
Practice Course**

共 16 学分，其中必修 16 学分；限修 0 学分，选修 0 学分

A total credits of 16, including 16 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	统计软件与应用 Software and Applied Statistics	必修 Compulsory	2	2	第 7 学期 7Th Semester	数学学院 School of Mathematics	1.3,1.4,1.7	
	数学软件与实践 Mathematical Software and Practice	必修 Compulsory	2	2	短 1 学期 Short Semester 1	数学学院 School of Mathematics	1.3,1.4,1.7	
	统计软件与实践 Statistical Software and Practice	必修 Compulsory	2	2	短 2 学期 Short Semester 2	数学学院 School of Mathematics	1.3,1.4,1.7	

	现场统计实践 Engineering Statistical Practice	必修 Compulsory	2	2	短 3 学期 Short Semester 3	数学学院 School of Mathematics	1.3,1.4,1.7	
	本科毕业论文 Bachelor's Degree Thesis	必修 Compulsory	8	8	第 8 学期 8Th Semester	数学学院 School of Mathematics	1.3,1.4,1.7, 2.1,2.2,2.3, 2.4	
多元化课程 Diversified course 共 6 学分，其中必修 0 学分，限修 0 学分，选修 6 学分 A total credits of 6, including 0 for compulsory courses, 0 for distributional electives and 6 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 2Nd-8Th Semester	全校 The whole school	3	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》
跨学科课程 Interdisciplinary Course	数据库原理与设计 B Database principle and design B		4	1	第 4 学期 3Rd Semester	数学学院 School of Mathematics	1.3,1.7,3.2, 3.3	
个性化选修课程 Personalized Elective Courses	数值分析 Numerical Analysis		4		第 4 学期 4Th Semester	数学学院 School of Mathematics	1.2,1.3,3.2, 3.3	
	拓扑学基础 Topology		4		第 4 学期 4Th Semester	数学学院 School of Mathematics	1.2,1.3,3.2, 3.3	
	近世代数 Modern Algebra		4		第 5 学期 3Rd Semester	数学学院 School of Mathematics	1.3,1.7,3.2, 3.3	
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 0 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
创新创业训练计划项目、个性化实验、学科竞赛、创新讲座等	全国大学生数学建模大赛 National mathematical modeling contest for college students	限修 Distributional Elective	1	1	第 1-8 学期 1-8 Semester			按照《西南交通大学创新实践学分认定与管理办法》规定

Innovation and Entrepreneurship Training Program, Personalized Experiments, Subject Competition, Innovation Lectures, etc	全国大学生统计建模大赛 National statistical modeling contest for college students		1	1				执行 By Credit Recognition and Management of Innovative Practice in Southwest Jiaotong University
	全国大学生数学竞赛 National mathematics competition for college students		1	1				
	全国大学生市场调查与分析大赛 National college student market survey and analysis competition		1	1				
	中国高校 SAS 数据分析大赛 SAS data analysis competition for Chinese universities		1	1				
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	第 1-8 学期 1St-8Th Semester	校团委 Communist Youth League Committee		
	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		
学分总计 Total Credits			157					