

浙江科技学院数据科学与大数据技术专业培养方案

一、培养目标

本专业培养德、智、体、美全面发展，具备数据科学家和数据工程师的基本能力与素质的应用型专门技术人才。毕业生具有数据科学与大数据技术专业所必需的数学、统计学、计算机和人工智能等学科的基本理论知识；掌握数据获取、数据管理和数据挖掘的基本方法；掌握大数据存储相关的分布式数据库技术、大数据分析相关的统计软件、大数据挖掘相关的智能算法和编程语言；了解大数据应用领域和学科发展的前沿知识。毕业后能在金融、商业、电力、电信、医疗等各行业从事大数据分析和数据挖掘工作；也可进一步攻读应用统计、计算机等相关专业的研究生；也可自主创业数据公司，为企事业单位的决策提供数据分析服务。

本专业毕业生在毕业后5年左右应达到以下目标：科学文化素养、社会责任感、职业道德、沟通交流能力、团队协作能力等明显提升；能在大数据应用领域内充分展现才能并发挥应有作用；能熟练运用专业知识及技能独立开展大数据分析、大数据管理、大数据系统的开发工作，并能以技术或管理骨干的角色组织实施团队项目。

二、毕业要求

- 1、知识要求：具有良好的数理自然科学基础，扎实的信息科学基础；具有较好的人文社会科学、管理科学知识；熟练掌握大数据科学与技术核心专业知识和应用技术，主要包括多元统计分析、数值计算方法、最优化理论、数据获取技术、大数据分布式处理、数据挖掘技术、分布式数据库、数据可视化等。
- 2、能力要求：具备从事行业大数据分析、应用系统设计与实现的能力，特别在数据仓库设计、数据特征工程、数据挖掘算法设计、大数据分布式处理等方面，受到系统而严格的工程训练。同时，具备良好的工程项目交流、表达、组织、管理、协调与沟通的能力。
- 3、素质要求：有良好的道德修养，尊重生命、遵纪守法、诚信友善、乐于奉献；有高尚的民族精神，积极弘扬传统文化，热爱祖国，崇尚集体主义精神；有坚定的理想信念，拥护中国特色社会主义，贯彻科学发展观、和谐社会理论和“四个全面”思想。
- 4、了解数据科学的发展动态，掌握相关文献检索方法，具有基本的专业资料分析与综合的能力，良好的文档与科学论文撰写能力。
- 5、具有阅读外文文献和用外语进行简单交流的能力，具有一定的文学、哲学、历史、经济等人文社科知识及自然科学知识。
- 6、具有较强的创新创业精神和创新意识，具有自主学习和终身学习的意识，有不断学习和适应发展的能力。
- 7、具有一定的组织能力和良好的表达能力、较强的人际交往能力和团队合作能力。

三、毕业要求达成矩阵

毕业要求	指标点	相关教学活动	学生考核方式
毕业要求1	1.1 具有良好的人文素养、社会责任感和爱国敬业精神；具有诚信意识，注重职业道德，自觉遵纪守法。	大学始业教育、中国近现代史纲要、思想道德修养与法律基础、马克思主义基本原理概论、毛泽东思想和中国特色社会主义理论体系概论、形势与政策、思政社会实践等	课程平时考核及期末考核
	1.2 具有求真务实精神和严谨的科学素养。	各门专业课程的教学	
	1.3 具有良好的身体素质，健康的心理素质及良好的行为习惯。	军事理论及训练、体育健康训练、大学生心理健康教育等	课程平时考核及期末考核
	2.1 具有良好的数学及计算机基础，掌握数学软件、数值计算方法等基本知识。	数学分析、线性代数、常微分方程、概率论、数理统计、程序设计与算法语言、MATLAB与科学计算实验、运筹与优化、矩阵计算、数值计算方法、计算机组成原理、操作系统原理等	课程平时考核及期末考核

毕业要求2	2.2 掌握数据管理、统计学、数据分析与数据挖掘，机器学习的基本技能。	数据结构、数据库原理、数据分析、数据挖掘技术、多元统计分析、应用回归分析，机器学习原理与算法等	课程平时考核及 期末考核
	2.3数据工程方向学生应掌握大数据存储相关的分布式数据库技术、大数据分析相关的统计软件、大数据挖掘技术及软件开发相关技术。	计算机网络原理、分布式数据库原理与应用、大数据分布式处理、数据可视化、大数据分析和内存计算、数据导入与预处理、方法与应用、Java程序设计、Web程序设计、移动应用软件开发等	课程平时考核及 期末考核
	2.4 人工智能方向学生应掌握大数据存储于挖掘、机器学习、软件开发等相关技术	计算机网络原理、数字图像处理、模式识别与智能系统、人工智能、Java程序设计、Web程序设计、移动应用软件开发等	课程平时考核及 期末考核
毕业要求3	3.1 具有较强的分析、归纳、抽象、演绎推理、空间想象、科学计算等能力，并具有综合运用所学知识解决实际问题的能力。	2.1中的课程、各项实践、第二课堂、技术实习、毕业设计（论文）等	课程平时考核、 期末考核及答辩
	3.2 数据工程模块学生应具有一定的程序设计、数据处理、数据挖掘等能力；	2.3 中课程、行业大数据处理分析与处理、Linux系统实践、分布式计算实践、第二课堂、技术实习、毕业设计（论文）等	课程平时考核、 期末考核及答辩
	3.3人工智能模块学生应具有一定的程序设计、机器学习、模式识别等技能	2.4中课程、机器学习算法专项实验、Linux系统实践、第二课堂、技术实习、毕业设计（论文）等	课程平时考核、 期末考核及答辩
毕业要求4	具有文献检索、资料查询及运用现代信息技术获取相关信息的能力。	文献检索讲座、课程论文、第二课堂、技术实习、毕业设计（论文）等	答辩
毕业要求5	5.1 具有阅读外文文献和用外语进行简单交流的能力。	大学英语、工程师英语、英语等级考试、双语课程、技术实习、毕业设计（论文）等	课程平时考核、 期末考核及答辩
	5.2 具有一定的文学、哲学、历史、经济等人文社科知识及自然科学知识。	大学语文、自然科学拓展、人文素质拓展、经济与管理、艺术与美学、大学物理C+等	课程平时考核、 期末考核
毕业要求6	6.1 具有较强的创新创业精神和创新意识。	创业基础、大学生职业发展与就业指导及实践、各类学术创新论坛与讲座、创新性开放实验、学科竞赛、课外科技活动、创新创业实践、技术实习、毕业设计（论文）等	课程平时考核、 期末考核及答辩
	6.2 具有自主学习和终身学习的意识，有不断学习和适应发展的能力。	大学始业教育及各课程的学习指导等	
毕业要求7	具有一定的组织能力和良好的表达能力、较强的人际交往能力和团队合作能力	学科竞赛、课外科技活动、思政社会实践、学生社团、班级管理、志愿者活动等	

四、主干学科

数学、计算机科学与技术、统计学。

五、专业核心课程

数据库原理、最优化方法、多元统计分析、应用回归分析、机器学习原理与算法、计算机组成原理、数据仓库与数据挖掘、Java程序设计

六、主要实践环节

认识实习、课程设计、机器学习算法专项实验、技术实习、毕业设计(论文)等。

七、学制、学位及毕业学分要求

1. 学制：实行弹性学制，本科基本学制一般为4年，可提前1年毕业，最长不超过8年。
2. 授予学位：授理学学士学位。
3. 本专业毕业最低学分要求：178.5学分。

八、学分结构要求

课程设置及修读类型			学分及占比	
			学分	学分比例
理论教学环节 (不含 课内实验)	通识教育课	必修	38	21.29%
		选修	8	4.48%
	学科专业类基础课	必修	27.5	15.41%
	专业核心课(必修)		27	15.13%
	拓展复合课(选修)		30.5	17.09%
	小计		131	73.39%
实践教学环节	必修		47.5	26.61%
合计			178.5	100%

Undergraduates Program in Data Science and Big Data Technology

I. Educational Objectives

The specialty is designed to give students a solid understanding of mathematical knowledge, to grasp mathematical methods and software tools, mathematical modeling and numerical calculation, to master data management, data analysis and data mining skills, to master the applications of software design and development, data processing, financial information statistics, actuarial design and application, and so on the high-quality applied abilities. The training can qualify the students to work in various fields, such as the information industry, economic and financial, jobs like data processing and computing, application software development, financial market modeling and analysis, financial management and decision-making, as well as in science and technology, education and other departments engaged in teaching and research work. In addition, the students can further study for mathematics, computer, information, financial and other professional students.

After graduation 5 years, the students should achieve the following objectives: scientific literacy, social responsibility, occupation morality, communication ability, and teamwork ability have been improved significantly, can work in the various fields with good-developed abilities and play an important role, can skilled use of professional knowledge and work independently, and organize and implement the team projects as the role of technical or managerial backbone.

II. Graduation Requirements

1. To have a good humanities and social responsibility and patriotic spirit; to obtain integrity awareness, the occupation morality, consciously abide by the law; to achieve the pragmatic spirit and scientific literacy; to have good physical quality, psychological quality and good behavior habit.
2. To have the good foundation of mathematics and computer, mathematics software (MATLAB), the basic knowledge of mathematical modeling and numerical calculation method, to master the fundamental skills of data management, data analysis and data mining. For the students from Application software and data processing module, they should have the software development, data processing and other professional knowledge and skills, for the students from Financial actuarial and statistical analysis module, they should have economic and financial, actuarial, statistical and other professional knowledge and methods.
3. To have strong analysis, induction, abstraction, deductive reasoning, spatial imagination and scientific computing ability, and to have the ability to use the knowledge to solve practical problems. For the students from Application software and data processing module, they should have the ability of programming, software development, data processing, for the students from Financial actuarial and statistical analysis module, they should have the ability of information processing, design and application of actuarial, statistical analysis.
4. To have the ability of literature search, data query and the use of modern information technology to obtain relevant information.
5. To have the ability to read foreign literature and communicate in a foreign language, to have a certain knowledge of literature, philosophy, history, economy, etc..
6. To have a strong sense of innovation and entrepreneurship and innovation, to have independent learning and lifelong learning awareness, to have the ability to learn and adapt to the developing environment.
7. To have certain organization ability and good communication ability, good interpersonal skills and team cooperation ability.

III. Achievement Matrix of Graduation Requirements

Graduation Requirements	Indicators of Graduation Requirements	The Main Courses and Programs	Assessment
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Graduation Requirements 1	1.1 Have good humanistic quality, social responsibility and patriotic spirit, have integrity awareness and the occupation morality, and consciously abide by the law.	Induction of university life, Outline of Contemporary Chinese History, Fundamentals of Morality and Law, Introduction to Fundamental Principles of Marxism, Introduction to Mao Zedong's Thought and Theoretical System of Socialism with Chinese Characteristics, Situation and Policy, Ideological Social Practice, etc.	Course assessment and final assessment
	1.2 Have the spirit of seeking truth from facts and rigorous scientific literacy.	the teaching of various professional courses	
	1.3 Have good physical quality, healthy psychological quality and good behavior habits.	Military Theory and Training, Health Training, Mental Health Education for College Students, etc.	Course assessment and final assessment
Graduation Requirements 2	2.1 Have in depth knowledge of Mathematic and Computation, master software (MATLAB, etc.), and have the fundamental knowledge of mathematical modeling and numerical calculation methods, etc.	Mathematical Analysis, Linear Algebra, Probability Theory, Mathematical Statistics, Program Design and Algorithm Language, Matlab and Science Computing Experiment, Operations Research, Numerical Computation Method, Matrix Computations, Computer Organization and Architecture, Principle of Operating System etc.	Course assessment and final assessment
	2.2 Have the fundamental skills of data management, data analysis and data mining.	Data Structures, Database Principle, Data Analysis, Data Mining, Multivariate Statistical Analysis, Principle and Algorithm of Machine Learning, etc.	Course assessment and final assessment
	2.3 The students from data engineering module should have the skills related to big data storage related distributed database technology, big data analysis related statistical software, big data mining, and the skills of the related software development	Principles of Computer Network, Principle and Application of Distributed Database, Big Data Distributed Processing, Big Data Analysis and Memory Calculation, Data Visualization, Data Import and Processing, Java Programming, Web Programming, Development of Mobile Application Software, etc.	Course assessment and final assessment
	2.4 The students from artificial intelligence module should have the big data stored in mining, machine learning, software development and other related technologies	Principles of Computer Networks, Digital Image Processing, Pattern Recognition and Intelligent System, Introduction to Artificial Intelligence, Java Programming, Web Programming, Development of Mobile Application Software, etc.	Course assessment and final assessment
	3.1 Have the ability of strong analytical, inductive, abstract, deductive reasoning, spatial imagination, scientific computing, and apply the knowledge to solve practical problems.	courses in 2.1, projects, Extracurricular Teaching, Technology Practice, Undergraduate Thesis, etc.	Course assessment, final assessment, thesis oral defense

Graduation Requirements 3	3.2 Data engineering module students should have a certain degree of program design, data processing, data mining and other capabilities;	courses in 2.3, Industry Big Data Analysis and Processing, Practice of Linux System, Distributed Computing Practice, Extracurricular Teaching, Technology Practice, Undergraduate Thesis, etc.	Course assessment, final assessment, thesis oral defense
	3.3 For the students from Financial actuarial and statistical analysis module, have the ability of financial information processing, actuarial design and application, statistical analysis, etc.	courses in 2.4, Special Experiments on Machine Learning Algorithms, Practice of Linux System, Extracurricular Teaching, Technology Practice, Undergraduate Thesis, etc.	Course assessment, final assessment, thesis oral defense
Graduation Requirements 4	Have the ability of literature search, data query, and the technology to obtain relevant information.	Literature retrieval seminars, assignments, Extracurricular Teaching, Technology Practice, Undergraduate Thesis, etc.	thesis oral defense
Graduation Requirements 5	5.1 Have the ability to read foreign language documents and communicate in English.	College English, Engineer English, English proficiency test, Bilingual course, Technology Practice, Undergraduate Thesis, etc.	Course assessment, final assessment, thesis oral defense
	5.2 Have a certain knowledge of literature, philosophy, history, economy and other humanities, social science, etc.	College Chinese, Natural Science development, Economy and Management, Art and Resthetics, College Physics C, Physical Experiment of college B, etc.	Course assessment, final assessment, thesis oral defense
Graduation Requirements 6	6.1 Have strong entrepreneurial spirit and sense of innovation.	Entrepreneurial Fundamental, Career planning and guidance for college students practice, academic innovation forum and seminars, innovative open experiment, academic competitions, extracurricular activities of science and technology, technology innovation, Technology Practice, Undergraduate Thesis, etc.	Course assessment, final assessment, thesis oral defense
	6.2 Have the ability of independent learning, lifelong learning awareness, learning and adapting to development.	Induction of university life and guidens for various courses.	
Graduation Requirements 7	Have certain ability of organization, good communication skills, strong interpersonal skills, team working.	Competitions, extracurricular science and technology activities, ideological and political social practice, student associations, class management, volunteer activities, etc.	

IV. Major Disciplines

Mathematics, Computer Science and Technology, Finance

V. Core Courses

Database Principle, Optimization Methods, Multivariate Statistical Analysis, Principle and Algorithm of Machine Learning, Computer Organization and Architecture, Data Warehouse and Data Mining, Java Programming and so on.

VI. Internship and Practice

Cognition Practice, Integrated Course Design, Practice of Mathematical Modeling Training, Technology Practice, Undergraduate Thesis, and so on.

VII. Duration of Schooling, Degree and Credits Requirements for Graduation

1. Duration of Schooling: The duration of schooling is flexible, generally it lasts four years. The students can graduate one year in advance or within 8 years.
2. Degree Conferred: Bachelor's degree in Science
3. The Minimum Graduation Credits: 178.5

VIII. Credits Structure and Ratio:

The curriculum Provision and Study Type			Credits	Credits Ratios
Theory Teaching (Experiments excluded)	General Education Courses	Required	38	21.29%
		Optional	8	4.48%
	Discipline & Specialty Basic Courses	Required	27.5	15.41%
	Specialty Core Courses (Required)		27	15.13%
	Expand and Recombination Courses (Optional)		30.5	17.09%
	Subtotal		131	73.39%
Practice Teaching	Required		47.5	26.61%
Total			178.5	100%

课程设置与学时安排（表一）

专业名称：数据科学与大数据技术

课程类别	课程性质	课程代码	课程名称	学分	总学时	教学安排					考试学期	各学期周学时分配								备注	
						理论学时	实验学时	习题学时	研讨学时	课外学时		第一学年		第二学年		第三学年		第四学年			
												长1	长2	长3	长4	长5	长6	长7	长8		
						16周		16周		16周		16周		16周		16周		16周			
思政类	必修	2615A078	中国近现代史纲要 Outline of Contemporary Chinese History	2	32	24	2	2	4		2										
		2615A079	思想道德修养与法律基础 Fundamentals of Morality and Law	3	48	36	2	4	6		1	3									
		2615A080	马克思主义基本原理概论 Introduction to Fundamental Principles of Marxism	3	48	36	2	4	6		4			3							
		2615A081	毛泽东思想与中国特色社会主义理论体系概论 Introduction to Mao Zedong's Thought and Theoretical System of Socialism with Chinese Characteristics	4	64	48	4	4	8		3			4							
		26115201-26115204	形势与政策 Situation and Policy	2	32	32						长1-4讲座									
外语类	必修	5214A001	大学英语2-3 College English 2-3	6	96	80		8	8	96	1-2	3	3								实施分级教学
		5214A002	大学英语3-4 College English 3-4	6	96	80		8	8	96	1-2	3	3								
		5214A004	工程师英语1-2 Engineer English 1-2	4	64	44		10	10	64	3-4			2	2						
		5214A005	工程师英语1-2 Engineer English 1-2	4	64	44		10	10	64	3-4			2	2						
		1316A007-1316A010	体育1-4 Physical Education 1-4	4	144			144				1-4	2	2	2	2					
通识教育课程	必修	1012A112	大学物理 C College Physics C	4	64	36		18	10		2		4								
		3717A039	创业基础 Entrepreneurial Fundamental	2	32	32						1	2								
		5115A087	大学语文 College Chinese	2	32	10	6	4	12		1	2									
必修		2717A122	大学生心理健康教育 Mental Health Education for College Students	1	16	8		4	4		1	2									

课程设置与学时安排（表一）

专业名称：数据科学与大数据技术

课程类别	课程性质	课程代码	课程名称	学分	总学时	教学安排					考试学期	各学期周学时分配								备注					
						理论学时	实验学时	习题学时	研讨学时	课外学时		第一学年		第二学年		第三学年		第四学年							
												长1	长2	长3	长4	长5	长6	长7	长8						
						16周		16周		16周		16周		16周		16周									
		31117082-31117083	大学生职业发展与就业指导1-2 Career planning and guidance for college students practice 1-2	1	16	16								讲座			讲座								
素质选修课	8个学分必修,课程选修		至少选修8学分的通识教育选修类课程,其中至少选修6学分的除自然科学及工程技术之外的课程群	8	128	128										2	2	4						建议长2-长5选	
通识教育类课程小计				46	912	610	160	66	76	256		12.5	10.5	10	8.5	4	0.5								
学科专业基础课	必修	1029A911-1029A912	数学分析 Mathematic Analysis	10	160	120		30	10	160	1,2	6	4												
		1029A913	高等代数 Advanced Algebra	4	64	32		12	4	48	1	4													
		1029A914	数据科学与大数据技术导论 Introduction to Data Science and Big Data Technology	0.5	8	8						1	讲座												
		1029A915	矩阵计算 Matrix Computations	3	48	42		6		48	2		3												
		1029A916	离散数学 Discrete Mathematics	2	32	26		4	2	32	2		2												
		1029A917	常微分方程 Ordinary Differential Equations	2	32	24		6	2	32	3			2											双语
		1029A918	概率统计 Probability Theory and Mathematics Statistics	4	64	46		12	6	64	3			4											
		1029A919	数值计算方法 Numerical Computation Method	2	32	22	8		2	32	4				2										
		学科专业基础课小计				27.5	440	320	8	70	26	416		10.5	9	6	2	0	0	0	0				
		1039A911	程序设计与算法语言 Program Design and Algorithm Language	4	64	28	32	2	2	64	1	4													
		1039A912	计算机组成原理 Principle of Computer Organization	2.5	40	36	0		4	40	2		2.5												
		1039A913	数据结构 Data Structures	4	64	40	16	4	4	64	3			4											
		1039A914	数据库原理 Database Principle	3	48	30	16		2	48	4				3										

课程设置与学时安排（表一）

专业名称：数据科学与大数据技术

课程类别	课程性质	课程代码	课程名称	学分	总学时	教学安排					考试学期	各学期周学时分配								备注		
						理论学时	实验学时	习题学时	研讨学时	课外学时		第一学年		第二学年		第三学年		第四学年				
												长1	长2	长3	长4	长5	长6	长7	长8			
						16周	16周	16周	16周	16周		16周	16周	16周	16周	16周	16周	16周				
专业核心课		1039A915	机器学习原理与算法 Principle and Algrithm of Machine Learning	3	48	30	16		2	48	4				3							
		1039A916	最优化方法 Optimization Methods	4	56	38	8	6	4	56	5					5					1-12周	
		1039A917	多元统计分析 Multivariate Statistical Analysis	3	48	38	8		2	48	5					4					1-12周	
		1039A918	数据仓库与数据挖掘 Data Warehouse and Data Mining	4	64	40	20		4	64	6						4					
	专业核心课小计				27	432	280	116	12	24	432		4	2.5	4	6	6.5	4	0	0		
专业拓展	选修	1049B921	Java程序设计 Java Programming	3.5	56	38	16		2	56	2		3.5									
		1049B922	Web程序设计 Web Programming	2.5	40	22	16		2	40	4				2.5							
		1049B923	大数据分布式处理 Big Data Distributed Processing	4	64	28	32		4	64	4				4							
		1049B924	操作系统原理 Prinilpe of Operating System	2.5	40	36			4	40	5					3						1-13周
		1049B925	分布式数据库原理与应用 Principle and Application of Distributed Database	3	48	20	24		4	48	5					4						1-12周
		1049B926	大数据分析 and 内存计算 Big Data Analysis and Memory Calculation	4	64	28	32		4	64	5					5						1-13周
		1049B927	数据可视化 Data Visualization	2	32	14	16		2	32	6						2					
		1049B928	应用统计抽样 Applied Statistical Sampling	2	32	30			2	32	6						2					
		1049B929	回归分析理论与方法 Regression Analysis Theory and Method	2	32	22	8		2	32	6						2					
		小计				25.5	408	238	144	0	26	408		0	3.5	0	6.5	9.5	6	0	0	
专业拓展至少选修学分				21.5	344	186	136	0	22	344		0	3.5	0	6.5	9.5	2	0	0			
		1049B930	计算机网络 Computer Networks	2	32	28			4	32	6					2						

课程设置与学时安排（表一）

专业名称：数据科学与大数据技术

课程类别	课程性质	课程代码	课程名称	学分	总学时	教学安排					考试学期	各学期周学时分配								备注
						理论学时	实验学时	习题学时	研讨学时	课外学时		第一学年		第二学年		第三学年		第四学年		
												长	长	长	长	长	长	长	长	
						1	2	3	4	5		6	7	8						
		1049B931	云计算原理及应用 Principles and Applications of Cloud Computing	3	48	44			4	48	6						3			
		1049B932	移动应用软件开发 Development of Mobile Application Software	2	32	14	16		2	32	6						2			
		1049B933	区块链技术 Blockchain Technology	2	32	28			4	32	7							4		1-8周
		1049B934	大数据统计分析方法 Big Data Statistical Analysis Method	2	32	22	8		2	32	7							4		1-8周
		1049B935	行业大数据分析与应用 Big Data Analysis and Application	2	32	28			4	32	7							4		1-8周
		1049B936	数字图像处理 Digital Image Processing	3	48	30	16		2	48	6						3			
		1049B937	模式识别与智能系统 Pattern Recognition and Intelligent System	3	48	30	16		2	48	6						3			
		1049B938	自然语言处理 Natural Language Processing	2	32	28			4	32	6						2			
		1049B939	深度学习 Deep Learning	2	32	22	8		2	32	7							4		1-8周
		1049B940	人工智能 Artificial Intelligence	2	32	26			6	32	7							4		1-8周
小计				25	400	300	64	0	36	400		0	0	0	0	0	15	10	0	
专业复合至少选修学分				9	144	112	16	0	16	144		0	0	0	0	0	7	2	0	
专业拓展复合至少选修学分				30.5	488	298	152	0	38	488		0	3.5	0	6.5	9.5	9	2	0	
理论教学学分学时合计				131	2272	1508	436	148	164	1592		27	25.5	20	23	20	13.5	2	0	

实践教学安排（表二）

课程代码	所属模块	实践教学活动内容名称	学分	周或学时	按学期分配（周或学时）												备注
					第一学年			第二学年			第三学年			第四学年			
					长1	长2	短1	长3	长4	短2	长5	长6	短3	长7	长8		
31461014	公共实践	大学始业教育 Induction of university life	1	1	1周												
13461013		军事理论及训练 Military Theory and Training	3	3	3周												
13461015		体质健康训练 Health Training	0.5	16学时							2						
31463007		思政社会实践 Ideological Social Practice	2	2						2							
31467084		大学生职业发展与就业指导实践 Practice of career planning and guidance for college students	1	22													
1061A901	基础实验	MATLAB与科学计算实验 Matlab and Science Computing Experiment	1	32学时				2								1-16周	
1061A902	专业大实验	机器学习算法专项实验 Special Experiments on Machine Learning Algorithms	2	2							2 (16-17周)						
1061A903	专项设计	行业大数据分析处理 Industry Big Data Analysis and Processing	2	2									2			7-8周	
1051A901	基础实践	认识实习 Cognition Practice	1	1			1										
1061A904		统计软件 Statistical Software	2	2					2								
1061A905	专业实践	Linux系统实践 Practice of Linux System	2	2							2 (17-18周)						
1061A906		分布式计算实践 Distributed Computing Practice	2	2									2				
1053A901		技术实习 Technology Practice	9	9										9		10-18周	
1055A901		毕业设计（论文） Undergraduate Thesis	16	16											16	1-16周	
		第二课堂 Extracurricular Teaching (学科竞赛、创新创业实践等)	3														
合计			###														

数据科学与大数据技术专业课程地图


