

# 安全工程专业 2019 版本本科培养方案

## Undergraduate Education Plan for Specialty in Safety Engineering (2019)

专业名称	安全工程	主干学科	安全科学与工程
Major	Safety Engineering	Major Disciplines	Safety Science and Engineering
计划学制	四年	授予学位	工学学士
Duration	4 Years	Degree Granted	Bachelor of Engineering

### 最低毕业学分规定

#### Graduation Credit Criteria

课程性质 Course Nature	课程分类 Course Classification	通识教育课程 Public Basic Courses	专业教育课程 Specialized Courses	个性课程 Personalized Course	集中性实践教学环节 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses		29	66	\	31	\	170
选修课 Elective Courses		9	19	6	\	10	

### 一、培养目标与毕业要求

#### I Educational Objectives & Requirement

##### (一) 培养目标

本专业旨在对接国家公共安全与应急管理重大战略需求，为交通、能源、建筑、化工、消防等行业的企事业单位以及政府应急管理部门培养安全技术开发、安全生产监察监管及应急管理的高级安全工程技术人才。学生应具备城市与工业安全、工程安全与防护、职业卫生与环境安全、安全信息化与应急管理等方面的研究设计、系统开发、安全管理、监察监理与安全教育培训技术服务等知识和技能，具有良好的科学素养与创新能力、实践能力、国际化能力和终身学习能力。

毕业生通过 3-5 年实际工作的锻炼，预期达到：

- (1) 具有良好的人文社会科学素养，较强的社会责任感和安全职业道德；
- (2) 具备注册安全工程师的基本素质和能力，能够利用科学原理、专业知识和现代工具设计、分析、研究、评价和解决安全领域复杂工程问题，成长为安全工程及相关领域的技术骨干或管理人才；
- (3) 具有良好的沟通和表达能力，能够独立或团队协作开展职业活动，并具备一定的国际视野；
- (4) 具有终身学习能力，能够在安全工程领域保持竞争力并适应职业发展。

#### Educational Objectives

This major aims to meet the major strategic needs of national public safety and emergency management, and train senior safety engineering technical talents for safety technology development, safety production supervision and emergency management for enterprises and institutions in transportation, energy, construction, chemical industry, fire protection and other industries as well as government emergency management departments. Students should have the knowledge and skills of research and design, system development, safety management, supervision and safety education and training technical services in urban and industrial safety, engineering safety and protection, occupational health and environmental safety, safety informatization and emergency management, and have good scientific literacy and innovation ability,

practical ability, international ability and lifelong learning ability.

Through 3-5 years of practical work, graduates should have the basic quality and ability of registered safety engineer, and are expected to achieve:

1. Solid foundation in science and engineering; qualified foundation in humanities and social sciences and, meanwhile possess good humanism quality, strong societal responsibility and professional ethics, healthy body and mind, and good safety awareness.
2. Have the ability to solve practical problems in industrial safety, engineering safety and other industries by using the theories and technical methods related to safety science and engineering, and have systematic training in safety design and production, safety evaluation and emergency management, safety monitoring and information technology.
3. Qualified foundation in Oral communication and written expression; have good team awareness and cooperation spirit, and have a certain international vision.
4. Have life-long learning ability, and keep up with the theoretical frontier, application prospect and latest development trend of international safety science and engineering, as well as the development status of related industries in the field of safety engineering.

## (二) 毕业要求

本专业毕业生应获得以下几个方面的知识和能力:

- (1) **工程知识:** 具有从事安全工程工作所需的数学、自然科学、工程基础知识以及安全工程的基本原理和方法, 并能够将这些知识运用于解决工业、建筑、能源等领域中关于安全分析、安全评价、安全技术等方面的复杂工程问题;
- (2) **问题分析:** 能够针对工业、建筑、能源等领域中的复杂安全问题, 合理应用数学、自然科学和安全科学基本原理, 对危险因素、事故模式等问题进行识别和表达, 并通过文献研究分析调研相应的安全方案, 以获得有效的结论;
- (3) **设计/开发解决方案:** 掌握安全领域复杂工程问题的基本设计方法和技术, 能够针对工业、建筑、能源等领域的复杂安全问题, 综合考虑社会、法律、经济、文化及环境因素, 设计安全检测、安全设施、人机界面等方面的系统、部件、单元或流程, 并能在设计环节体现出创新意识;
- (4) **研究:** 能够基于安全相关的科学原理和科学方法, 针对工业、建筑、能源等领域的复杂安全问题, 分析其内在的物理、化学、生物等方面的内在机理, 并开展科学研究, 包括文献调研、实验设计、数据分析, 并通过综合分析得出合理有效的结论;
- (5) **使用现代工具:** 了解安全领域常用的现代仪器、信息技术及其他工具 and 软件的使用原理和方法, 能够针对工业、建筑、能源等领域复杂安全问题, 开发、选择与使用恰当的仪器设备、信息技术、软件工具等现代工具, 能够实现复杂安全问题进行安全预测与模拟, 并理解其结论的局限性;
- (6) **工程与社会:** 了解安全生产相关法律法规、标准体系框架, 掌握风险辨识分析、评价和控制的方法和理论, 能够基于安全工程相关背景知识进行合理分析、评价安全工程实践和复杂安全工程问题解决方案对社会、健康、安全、法律以及文化的影响, 并理解应承担的责任;
- (7) **环境和可持续发展:** 具有强烈的安全环保意识和社会责任感, 理解安全问题对环境、社会和经济的重要性, 并能够评价工业、工程领域的复杂安全问题对环境、社会可持续发展的影响;
- (8) **职业规范:** 具有良好的身体素质、心理素质, 以及文化修养、社会道德和责任感等人文素养, 能够在安全工程实践中理解并遵守安全工程职业道德和规范, 具备较强的安全意识, 自觉履行安全职责。
- (9) **个人和团队:** 具备团队合作精神, 能够在多学科背景下的团队中承担个体、团队成员以及负责人的角色。
- (10) **沟通:** 能够就安全工程问题与业界同行及社会公众进行有效沟通和交流, 包括撰写报告和设计文稿、陈述发言、清晰表达或回应指令。并具备一定的国际视野, 能够熟练运用英语在跨文化

背景下进行安全工程技术方面的表达、沟通和交流。

- (11) **项目管理:** 理解并掌握安全工程管理基本原理与经济决策方法, 并能在多学科环境下应用于安全检查、安全评价、安全管理等项目中
- (12) **终身学习:** 具有自主学习和终身学习的意识, 实时掌握安全工程领域的前沿问题, 有不断学习和适应发展的能力。

### **Graduated Requirements**

The graduates should master the knowledge and abilities as following:

1. Engineering knowledge: Natural science knowledge and some Humanistic and social science required by engaging in safety engineering work. Master solid foundation knowledge in safety engineering, and have the knowledge about status and trend of this major. Be able to solve the complex issues of design, research, examine, assessment, supervision, management, etc. using the knowledge above.
2. Problematic analysis: be able to identify and demonstrate the complex issues of engineering industries including chemistry, mining, construction, etc., by utilizing Mathematics, Natural Sciences and Principles of Safety Science.
3. Design/explore the solutions: Specifically to the complexity of safety issues in industry and engineering, the graduates should be able to identify, evaluate, inspection, manage the hazards by considering the factors of social, laws, economics and environment; furthermore, the design, debug, applications of the safety system, the investigation and analysis of accidents with creativity should be also required.
4. Research: Have the ability to analyze complex issues of industry and engineering by using principles of safety science; have the potential to research on these safety issues using induction and deduction methods including experiments design, data analysis, and literature review to gain rational and effective conclusions.
5. Apply the modern facilities: to aim at complicated safety issues of industry and engineering, be able to explore, choose and utilize numerical technologies, visional reality techniques, modern facilities and information technologies to predict and simulate the complex safety issues and understand the limitations of the conclusions.
6. Engineering and society: be able to rationally analyze, evaluate the effects of practice and solutions of safety issues on society, health, safety, laws and culture, and furthermore to understand the taken responsibilities.
7. Environment and sustainability: understand the significance of safety issues to the environment, society and economics; be able to analyze the effects of safety issues of industry and engineering on the sustainability of environment and society.
8. Professional morality: possess good physical quality, psychological quality, and cultural cultivation, social morality and responsibility; be able to understand and obey the professional morality and criteria with strong safety awareness.
9. Individuals and team: be able to play multiple roles as an individual, team member, and team leader with strong teamwork spirits.
10. Communication: be able to communicate with peers and social public for safety issues in terms of writing reports, design manuscripts, giving presentations with clear expressions and responses; Furthermore, the graduates should possess international views with English abilities to express, communicate the safety engineering issues.
11. Project management: understand and master the principles of engineering management and methodology of economic decisions to apply on the multi-disciplines.
12. Lifelong learning: be able to conduct self-study and lifelong learning; master the frontier issues of safety engineering fields; be able to continuous learning and adapt the development.

附：培养目标实现矩阵

	培养目标 1	培养目标 2	培养目标 3	培养目标 4
毕业要求 1		✓		
毕业要求 2		✓		
毕业要求 3		✓		
毕业要求 4		✓		
毕业要求 5		✓		
毕业要求 6	✓			
毕业要求 7	✓			
毕业要求 8	✓			
毕业要求 9			✓	
毕业要求 10			✓	
毕业要求 11			✓	
毕业要求 12				✓

## 二、专业核心课程与专业特色课程

### II Core Courses and Specialty Courses

#### (一) 专业核心课程 Core Courses

安全系统工程、安全人机工程、职业安全卫生、燃烧与爆炸学、安全检测与监测、风险分析与安全评价。

Safety Systems Engineering, Safety man-machine Engineering, Occupational Safety and Health, Combustion and Explosion, Safety Detection and Monitoring Technology, Risk Analysis and Safety assessment.

#### (二) 专业特色课程 Specialty Courses

工矿通风与除尘、防火防爆工程、爆破工程、公共安全应急与管理、建筑工程安全、灾害防治理论与技术、安全信息系统、矿山安全工程。

Mine Ventilation and Dedusting, Fire Prevention and Protection, Blasting Engineering, Public Safety and Emergency Management, Construction Safety, Calamity Prevention Theory and Technology, Safety Information System, Mine Safety Engineering.

附：毕业要求实现矩阵：

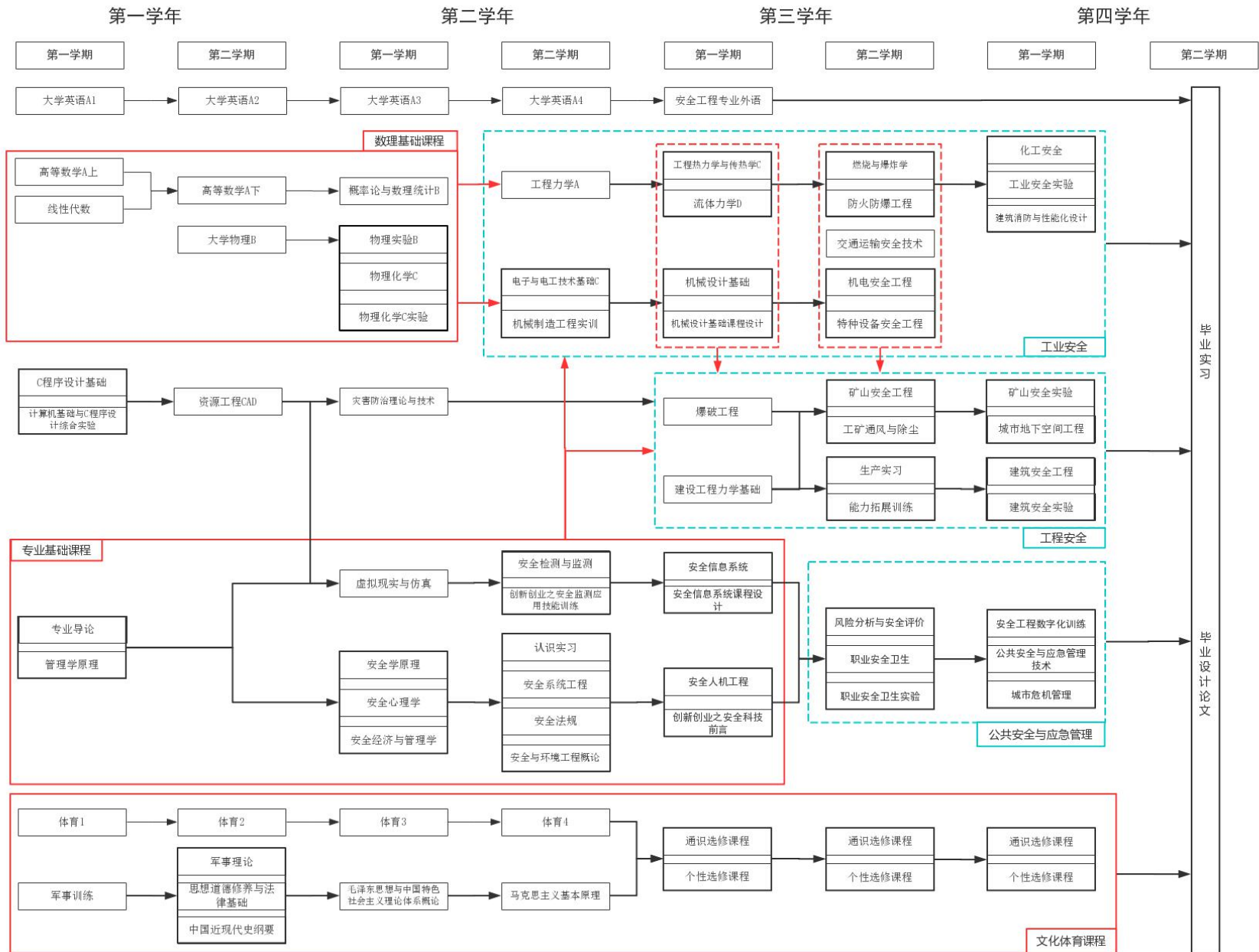
专业核心课程	专业特色课程	课程名称	安全工程专业毕业要求											
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
		思想道德修养与法律基础							✓	✓				
		中国近现代史纲要						✓	✓					
		毛泽东思想和中国特色社会主义理论体系概论					✓	✓	✓					
		马克思主义基本原理					✓		✓					
		军事理论							✓					
		体育								✓				
		大学英语									✓		✓	
		C 程序设计基础			✓		✓							

专业 核心 课程	专业 特色 课程	课程名称	安全工程专业毕业要求													
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)		
		计算机基础与 C 程序设计综合实验			✓		✓									
		高等数学 A	✓	✓												
		专业导论	✓								✓					
		线性代数	✓	✓												
		概率论与数理统计 B	✓	✓												
		物理化学 C	✓													
		物理化学 C 实验				✓	✓									
		大学物理 B	✓													
		物理实验 B				✓	✓									
		电工与电子技术基础 C	✓													
		资源工程 CAD			✓		✓									
	√	灾害防治理论与技术	✓	✓												
		管理学原理													✓	
		安全经济与管理学	✓		✓				✓						✓	
		安全心理学			✓			✓								
		虚拟现实与仿真					✓									
		机械设计基础			✓											
		工程力学	✓			✓										
	√	工程热力学与传热学	✓			✓										
		流体力学	✓			✓										
		安全学原理	✓							✓						
	√	安全检测与监测			✓		✓									
	√	燃烧与爆炸学	✓	✓		✓										
	√	安全信息系统			✓		✓									
		建设工程力学基础	✓	✓		✓										
	√	安全人机工程		✓	✓	✓		✓								
	√	风险分析与安全评价	✓	✓				✓	✓							
	√	职业安全卫生			✓	✓		✓	✓							
	√	安全系统工程	✓	✓				✓								
		机电安全工程	✓	✓												
		特种设备安全	✓	✓												
		创新创业之安全科技前沿			✓								✓		✓	
		安全工程专业外语											✓		✓	

专业 核心 课程	专业 特色 课程	课程名称	安全工程专业毕业要求											
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	√	公共安全与应急管理技术		√									√	
		城市危机管理											√	
		化工安全	√	√										
		安全与环境工程概论						√	√					
	√	爆破工程		√	√									
	√	防火防爆工程	√	√		√								
	√	工矿通风与除尘			√									
	√	矿山安全工程	√	√										
	√	建筑工程安全	√	√										
		城市地下空间工程	√											
		交通运输安全技术	√	√										
		建筑消防与性能化设计		√	√									
		安全法规						√	√					
		军事训练								√	√			
		认识实习						√	√	√	√			√
		机械制造工程实训					√		√					√
		机械设计基础课程设计			√									
		职业安全卫生实验				√	√		√					
		工业安全实验				√	√							
		建筑安全实验				√	√							
		矿山安全实验				√	√							
		生产实习		√							√	√	√	√
		创新实践之安全监测应用技能训练					√			√				
		安全信息系统课程设计			√		√							
		安全工程数字化训练			√		√							
		毕业实习								√	√	√	√	√
		毕业设计（论文）		√	√	√	√					√	√	√

### 三、课程教学进程图

### III Teaching Process Map



#### 四、理论教学建议进程表 IV Theory Course Schedule

(一) 通识教育必修课程 General Education Required Courses									
课程编号 Course Number	课程名称 Course Title	学分Crs	学时分配 Including					建议 修读学期 Suggested Term	先修课程 Prerequisite Course
			总学时 Tot hrs.	实验 Exp.	上机 Ope- ration	实践 Prac- tice	课外 Extra- cur		
4220001110	思想道德修养与法律基础 Morals, Ethics and Fundamentals of Law	3	48			8		2	
4220002110	中国近现代史纲要 Outline of Contemporary and Modern Chinese History	2	32					2	
4220003110	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 Socialism with Chinese Characteristics	4	96			32		3	
4220005110	马克思主义基本原理 Marxism Philosophy	3	48			8		4	
1060003130	军事理论 Military Theory	1	32				16	2	
4210001170	体育1 Physical Education I	1	26					1	
4210002170	体育2 Physical Education II	1	34					2	
4210003170	体育3 Physical Education III	1	34					3	
4210004170	体育4 Physical Education IV	1	34					4	
4030002180	大学英语1 College English 1	3	60				12	1	
4030003180	大学英语2 College English II	2	44				12	2	大学英语1
4030004180	大学英语3 College English III	2	44				12	3	大学英语2
4030004180	大学英语4 College English IV	2	44				12	4	大学英语3
4120335170	C程序设计基础 Fundamentals of Computer Program Design(C)	2	32					1	
4120336170	计算机基础与C程序设计综合实验 Foundations of Computer and C language programming experiments	1	32	32				1	
小 计 Subtotal		29.0	640.0	32.0	0.0	48.0	64.0		
(二) 通识教育选修课程 General Education Elective Courses									
(四) 专业教育选修课程 Specialized Elective Courses									
人文社科类 Arts and Social Science Courses		要求至少取得9个学分，且必须选修艺术体育类课程中的艺术类相关课程并取得至少2个学分，在创新创业类课程中至少选修一门课程，在人文社科类或经济管理类课程中至少选修一门。							
经济管理类 Economy and Management Courses									
科学技术类 Science and Technology Courses									
艺术体育类 Art and Physical Education Courses									



课程编号 Course Number	课程名称 Course Title	学分Crs	学时分配 Including					建议 修读学期 Suggested Term	先修课程 Prerequisite Course
			总学时 Tot hrs.	实验 Exp.	上机 Ope- ration	实践 Prac- tice	课外 Extra- cur		
(三) 专业教育必修课程									
Basic Disciplinary Required Courses									
4060275130	专业导论 Introduction to Materials Physics	1	16					1	
4050229110	线性代数 Linear Algebra	2.5	40					1	
4050063110	高等数学A上 Advanced Mathematics	5	80					1	
4050064110	高等数学A下 Advanced Mathematics	5	80					2	高等数学上
4050463130	大学物理B Physics	5	80					2	
4050224110	物理实验B Physics Lab.	1	32	32				3	大学物理
4060465170	安全学原理 Safety Principle	2	32					3	
4050058110	概率论与数理统计B Probability and Mathematical Statistics	3	48					3	
4200256120	物理化学C Physical Chemistry	4	64					3	
4200382170	物理化学实验C Physical Chemistry Experiment	0.5	16	16				3	
4060388150	安全经济与管理学 Safety Economics and Management	2	32					3	
4100012110	电工与电子技术基础C Fundamentals of Electrical Engineering & Electric Technology	4	64	10				4	
4050071110	工程力学A Engineering Mechanics	4	64	4				4	
4060505170	安全检测与监测A Safety Detection and Monitoring	3	48			16		4	
4060467170	安全系统工程B Safety System Engineering	2.5	40			8		4	
4060506170	安全人机工程A Safety Man-Machine Engineering	2.5	40	8				5	
4080061110	机械设计基础 Foundation of Machine Design	3.5	56	6				5	
4050136110	流体力学D Mathematical Physics Equation	2	32	6				5	
4090014110	工程热力学与传热学C Engineering Thermodynamics and Heat Transfer	3	48	8				5	
4060466170	创新创业之安全科技前沿 Safety Engineering Frontier	1	16					5	
4050679170	建设工程力学基础 Fundamental Mechanics of Construction Engineering	3	48				4	5	
4060400130	燃烧与爆炸学 Combustion and Explosion	2.5	40	8				6	
4060470170	风险分析与安全评价 Risk Analysis and Safety Assessment	2	32	8				6	

课程编号 Course Number	课程名称 Course Title	学分Crs	学时分配 Including					建议 修读学期 Suggested Term	先修课程 Prerequisite Course
			总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur		
4060435150	职业安全卫生 Occupational Safety and Health	2	32	8				6	
小 计 Subtotal		66	1080	114	0	24	4		
(四) 专业教育选修课程 Specialized Elective Courses									
4060128110	资源工程CAD(B) Resource Engineering CAD	2	32	24				2	
4060445170	虚拟现实与仿真 Virtual Reality and Simulation	2	32	16				3	
4060507170	灾害防治理论与技术A Calamity Prevention Theory and Technology	3	48					3	
4060324130	安全心理学 Safety Psychology	2	32			8		3	
4060508170	安全与环境工程概论 Introduction of Safety and Environmental Engineering	2	32					4	
4060008110	安全法规 Safety Law	2	32					4	
4060471170	安全信息系统B Safety Information System	2	32	16				5	
4060472170	安全工程专业英语 Specialized English of Safety Engineering	2	32					5	
4060411140	爆破工程D Blasting Engineering	2.5	40	8				5	
4060433150	防火防爆工程 Fire Prevention and Protection	2.5	40	8				6	燃烧与爆炸学
4060473170	工矿通风与除尘 Mine and Industry Ventilation & Dedusting	2	32			8		6	
4060474170	机电安全工程 electromechanical Safety Engineering	2	32					6	
4060509170	矿山安全工程 Mine Safety Engineering	3	48					6	
4060475170	特种设备安全 Speical Equipment Safety	1	16					6	
4060062110	交通运输安全技术 Transportation Safety	2	32					6	
4060510170	建筑消防与性能化设计 Building Fire Protection and Performance Design	2	32					7	
4060511170	建筑工程安全 Construction Safety	2.5	40					7	
4200317130	化工安全 Chemical engineering safety	2	32					7	
4060512170	城市地下空间工程 City Underground Engineering	2	32					7	
小 计 Subtotal		40.5	648	72	0	16	0		
修读说明：要求至少选修19学分。 NOTE: Minimum subtotal credits:19.									
(五) 个性课程 Personalized Electice Courses									

课程编号 Course Number	课程名称 Course Title	学分Crs	学时分配 Including					建议 修读学期 Suggested Term	先修课程 Prerequisite Course
			总学时 Tot hrs.	实验 Exp.	上机 Operation	实践 Practice	课外 Extra-cur		
4060477170	公共安全与应急管理技术 Public Safety and Emergency Management & Techniques	2	32					7	
4170057110	管理学原理 Management Principle	2	32					1	
4170485140	城市危机管理 Urban Crisis Management	2	32					7	
小 计 Subtotal		6	96	0	0	0	0		

修读说明：学生从以上个性课程和学校发布的其它个性课程目录中选课，要求至少选修6学分。  
NOTE: Students can select courses from above and the other personalized courses in catalog, and are required to obtain at least 6 credits.

## 五 集中性实践教学环节 V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	学分 Crs	周数 Weeks	建议修读学期 Suggested Term
1060002110	军事训练 Military Training	1.5	3	1
4060393140	认识实习 Practice of Engineering Cognition	1.5	1.5	4(暑期)
4060478170	创新实践之安全监测应用技能训练 Innovation Practice of Training on Safety Monitoring	2	2	4
4080151110	机械制造工程实训C Training on Mechanical Manufacturing Engineering	2	2	4
4080146110	机械设计基础课程设计 Course Design on Foundation of Machine Design	2	2	5
4060391150	安全信息系统课程设计 Course Design on Safety Detection and Monitoring	1	1	5
4060334130	生产实习 Practice of Specialty	2	2	6
4060513170	职业安全卫生实验 Experiments of Occupational Safety and Health	1	1	6
4060406130	能力拓展训练 Ability Development Training	1	1	6(暑期)
4060514170	工业安全实验 Experiments of Industrial Safety	1	1	7
4060515170	矿山安全实验 Experiments of Mining Safety	1	1	7
4060516170	建筑安全实验 Experiments of Construction Safety	1	1	7
4060414130	安全工程数字化训练 Digital Training of Safety Engineering	2	2	7
4060428130	毕业实习 Graduation Practice	2	2	8

课程编号 Course Number	课程名称 Course Title	学分Crs	学时分配 Including					建议 修读学期 Suggested Term	先修课程 Prerequisite Course
			总学时 Tot hrs.	实验 Exp.	上机 Ope- ration	实践 Prac- tice	课外 Extra- cur		
4060427130	毕业设计（论文） Graduation Thesis		10			15		8	
小 计 Subtotal			31			37.5			

## 六、其它要求

### VI Recommendations on Course Studies

《形势与政策》和《心理健康教育》课程为课外必修课程，分别计 2个和1个课外学分。

Situation & Policy (2 credits) and Mental Health Education (1 credit) are the required extracurricular courses.

学院教学责任人：陈先锋

专业培养方案责任人：刘艳艳

# 公共事业管理专业 2019 版本本科培养方案

## Undergraduate Education Plan for Specialty in Public Enterprise Management (2019)

专业名称	公共事业管理	主干学科	管理学
Major	Public Enterprise Management	Major Disciplines	Management
计划学制	四年	授予学位	管理学学士
Duration	4 Years	Degree Granted	Bachelor of Management

### 最低毕业学分规定

#### Graduation Credit Criteria

课程分类 Course Classification 课程性质 Course Nature	通识教育课程 Public Basic Courses	专业教育课程 Specialized Courses	个性课程 Personalized Course	集中性实践教学环节 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	30	65.5	\	23	\	171.5
选修课 Elective Courses	9	28	6	\	10	

### 一、培养目标与毕业要求

#### I Educational Objectives & Requirement

##### (一) 培养目标

(1) 具有国际视野、科技人文素养及跨学科知识，具备社会责任感、创新创业精神和职业道德，身心健康；

(2) 掌握现代公共管理与大数据理论、技术与方法，具有智慧城市与应急管理、大数据专业特色知识与技能，具备开放性思维、决策分析和实践协调能力；

(3) 熟悉有关的法律法规、方针政策和制度，善于利用数据科学针对经济、环境、法律、法规、安全等因素进行复杂问题分析求解与决策。

(4) 掌握必要的计算机应用技能，具有进行社会调查、数据收集和处理的能力，具备管理、数学、计算机等交叉学科基础，运用定量研究方法，进行统计分析的基本知识和能力；

(5) 掌握文献检索、资料查询的基本方法，有良好的团队意识和合作精神，成为具有一定科研工作能力和终身学习能力的复合型高级专门人才；

(6) 至少具备以下一项的专业特色能力：①掌握智慧城市与应急管理的理论与方法，以及相应的数据科学、区域开发、城市管理相关的理论知识，具备较强的智慧规划与开发、应急管理能力；②具备识别各类数据与信息特征，可运用大数据技术实现智慧城市管理。能在政府部门、社区及各类非政府组织、国内外大中型企业等单位从事与大数据公共管理相关的规划、开发及运维等业务工作。

The students awarded their bachelor degree of management shall have the capacities and knowledge as follows:

(1) Having global vision, scientific & humanistic quality, interdisciplinary knowledge, a sense of social responsibility, innovative and entrepreneurial spirit and professional ethics, physical and mental health;

(2) Grasp modern public management and big data theory, technology and methods, possess professional characteristic knowledge. Hold skills in Smart City & Emergency Management, and big data science, and open thinking, decision analysis and practical coordination capabilities;

(3) Being familiar with the relevant laws and regulations, policies and system. Being good at using data science to analyze and solve complex problems for economic, environmental, legal, regulatory, and security factors.

(4) Necessary computer application skills, basic knowledge and skills to conduct the social investigation, data collection and processing, apply the quantitative research method in the statics analysis, inter-disciplinary basis in management, mathematics, and computer science.

(5) Basic methods of literature review and data query, good senses of team spirit and cooperation, to be the high-level inter-disciplinary professional experts with the abilities to conduct scientific research and long-life education.

(6) Obtain at least one of the following characteristic abilities related to marketing:① the theories and methods of Smart City & Emergency Management, as well as corresponding knowledge of natural sciences and engineering technology, and ability of risk analysis and innovation & entrepreneurship management; ②abilities to identify various types of data and information features can be used to achieve smart city management using big data technology. On the whole, students can engage in security operations management, big data analysis related work in government departments, communities and various non-governmental organizations, large and medium-sized enterprises at home and abroad.

## (二) 毕业要求

(1) 具有科学素养、社会责任感和职业道德。具有较强的适应未来社会管理需求和从事企事业单位专业技术与管理工作的能力；

(2) 掌握数理逻辑分析方法及自然科学知识。能够通过社会调查获取决策分析数据，运用定性与定量分析研究方法，进行风险评估与危机预警的能力；

(3) 具有管理思维及公共行政能力。对现代公共事业发展趋势有深刻了解，能够胜任政府部门、事业单位、企业、社区及非营利组织机构的管理工作；

(4) 具有组织管理、人际交往能力。具备计划、组织、实施、协调和评价等方面的综合实践能力，具有较强的团队协作精神，掌握必要的管理沟通的能力；

(5) 具有文献检索、信息获取与计算机运用能力。能熟练掌握数据分析工具，具有应用管理信息系统、地理信息系统和现代网络技术的计算机应用技能的能力；

(6) 具有分析问题，解决公共管理实际问题能力。打下扎实的公共管理理论与大数据分析理论基础，熟悉智慧城市与应急管理管理的现实需求与发展现状，能够对复杂管理决策问题进行析、预测，能够从事大数据分析决策、城市应急管理决策以及创新创业管理工作；

(7) 具有智慧城市管理、应急管理、大数据应用专业基础与职业发展能力。具有面对复杂多变环境，识别危险与机遇，运用大数据分析开展城市管理工作；

(8) 具有国际交流与合作能力。能够与外国企业、国际组织进行交流的能力。具有自主学习和终身学习的意识和能力。

### **The Graduation Requirements:**

(1) Being the experts with the scientific literacy, social responsibility and ethics, the students are required to have the strong abilities to meet the requirements of future social risk management, and engage in the professional technical and management works

(2) Skilled in the methods of mathematical logic analysis and enriched in natural science knowledge, the students are able to use the qualitative and quantitative analysis methods to conduct the risk assessments and crisis early warning process by analyzing the data from social surveys and making the decisions.

(3) Endowed with management capacity, the students need to have a deep understanding of the development trends of modern public utilities, and be competent for the managerial work in the government agency, business agency, public communities and non-profit organizations.

(4) Skilled in social organization and interpersonal communication, one need to develop his/her integrated practical abilities in planning, organizing, implementing, coordinating and assessing, develop the strong team spirits, and grasp some necessary communication skills.

(5) Skilled in literature searching, information acquiring and computer utilizing, one is required to proficiently use data analysis tool, develop the computer application skills in the management information systems, geographic information systems and modern network systems.

(6) Owned the ability to analyze and solve the practical problems in public administration, one is required to lay a solid theoretical foundation of public administration and big data, familiarize the current demand and development status of Smart City & Emergency Management, ability to analyze and predict complex management decision problems, being able to engage themselves in Big data analysis decision, emergency response for city management and innovation & entrepreneur.

(7) Endowed with the professional basis on smart city management, innovation &

entrepreneurship management, big data application and development capacity in career, the students need to develop the abilities on dealing with complex and changing environments, identifying hazards and chances, using big data analysis, conducting city management.

(8) Endowed with the ability on international communication, completion and cooperation, the students need to develop their skills to communicate with the foreign corporations and international organizations. Endowed with the ability on consciousness of independent learning and lifelong learning, continuously learning and adapting to development.

附：培养目标实现矩阵

	培养目标1	培养目标2	培养目标3	培养目标4	培养目标5	培养目标6
毕业要求 1	√					
毕业要求 2		√				
毕业要求 3	√	√	√			√
毕业要求 4	√	√	√	√		
毕业要求 5		√	√	√	√	√
毕业要求 6				√		
毕业要求 7				√	√	√
毕业要求8		√	√	√	√	√

## 二、专业核心课程与专业特色课程

### II Core Courses and Characteristic Courses

#### (一) 专业核心课程

微观经济学、管理学原理、公共管理学、公共经济学、行政法与行政诉讼法、公共事业与大数据管理、公共组织财务管理、管理信息系统、创新创业与设计思维、公共政策决策与评价、当代政府与治理、社会科学研究方法。

方向 1 (智慧城市与应急管理): 应急物流与供应链管理、社会保障学、公共组织行为学、安全生产管理原理、公共项目评估、风险与韧性管理、灾害防治理论与技术、公共伦理与安全文化、交通安全分析与评价。

方向 2 (大数据公共管理): 数据结构、数据库原理与应用、高级应用程序设计 (JAVA)、随机过程、数据仓库与数据挖掘、大数据技术与应用。

**Core Courses:** Introduction to Specialty, Advanced Mathematics I , Microeconomics, Principle of Management , Advanced Mathematics II , Linear Algebra, Public Management, Public Economics, Probability and Mathematics Statistics , Administrative Law and Administrative Proceedings, Big Data Management in Public Business, Financial Management of Public Organizations, Management Information System , Design Thinking in Innovation & Entrepreneurship, Decision & Appraisal for Public Policy, Contemporary Government and Governance, Research Methods in Social Science.

Module 1-Smart City & Emergency Management: Emergency logistics and Supply Chain Management, Social Security, Public Organizational Behavior, Safety Production Management Theory, Public Project Evaluation, Risk and Resilience Management, Disaster prevention theory and technology, Public ethics and Safety Culture, Traffic Safety Analysis and Evaluation.

Module 2- Big Data & Management in Public Enterprise: Data Structure, Principles of Database System and Application, Advanced Applied Programming (JAVA) , Stochastic Process, Data Warehouse and Data Mining, Big Data Technology and Application.

#### (二) 专业特色课程

社会心理学、政治学原理、城乡规划概论、数字化业务与战略、人力资源开发与管理、统计学、地理信息系统、全球化与营销管理、互联网与大数据行为分析、智慧安全城市、数字政

务、公共基础设施开发与管理、文本分析与挖掘、项目管理。

方向 1（智慧城市与应急管理）：公共部门公共关系、灾害保险、危机与灾害应急能力综合评价、管理沟通与公文写作、灾害社会学、职业卫生评价与检测、安全生产法规与注册安全工程师、公共建筑消防安全评估、地下空间开发与利用。

方向 2（大数据公共管理）：凸优化、软件工程、智能计算、R 语言与统计、机器学习与模式识别、金融工程、系统工程、自然语言处理、运筹学、大数据可视化分析、云计算与服务计算。

**Characteristic Courses:** Social Psychology, Introduction to Urban and Rural Planning, Business and Strategy in Digital World, Human Resource Management and Development, Statistics, Geographical Information System, Globalization and Marketing Management, Behavioral Analysis in Internet & Big-data Context, Smart & Safe City, Digital Government, Public Infrastructure Development and Management, Text analysis and mining, Project Management.

Module 1- Smart City & Emergency Management: Principles of Political Science, Public Relations, Disaster Insurance, Comprehensive Evaluation of Emergency Response Capability in Crisis and Disaster, Management Communication and Official Document, Disaster sociology, Occupational Health Assessment and Testing, Safety Production and Certified Safety Engineer, Public Buildings on Fire Control Safety Assessment, Development and Utilization of Underground Space.

Module 2- Big Data & Management in Public Enterprise: Convex optimization, Software Engineering, Operating Research, System Engineering, R Language and Statistics, Machine Learning and Pattern Recognition, Financial Engineering, Natural Language processing, Intelligent Computing, Big Data Visualization, Cloud and Service Computing.

附：毕业要求实现矩阵：

专业 核心 课程	专业 特色 课程	课程名称	毕业要求								
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
		思想道德修养与法律基础	√								
		中国近现代史纲要	√								
		毛泽东思想和中国特色社会主义理论体系概论	√								
		马克思主义基本原理	√								
		军事理论	√		√						
		体育 1-4	√								
		大学英语 1-4	√								√
		Python 程序设计基础	√					√			
		专业导论			√						
		高等数学 B	√		√			√			
√		微观经济学 C	√					√		√	
√		管理学原理 A						√			
		线性代数							√		
√		公共管理学 A		√	√				√		
√		公共经济学 B			√						
		概率论与数理统计 B	√	√		√				√	
		行政法与行政诉讼法									
√		公共事业与大数据管理		√				√	√		
√		公共组织财务管理 C		√		√			√		
√		管理信息系统	√		√			√		√	



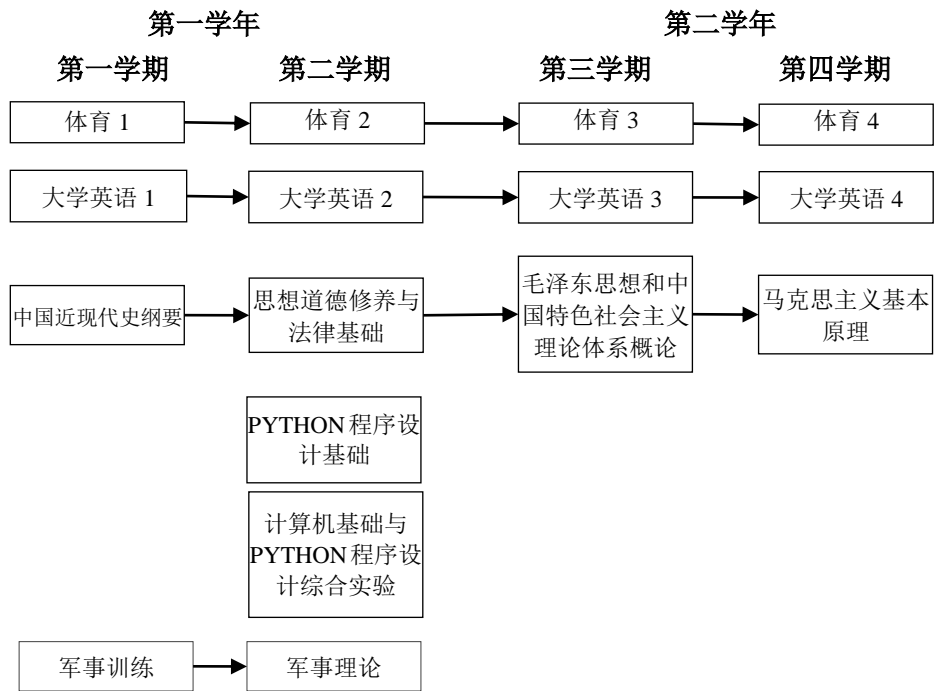
专业 核心 课程	专业 特色 课程	课程名称	毕业要求							
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
√		创新创业与设计思维		√				√	√	
√		公共政策决策与评价	√		√		√			
		当代政府与治理		√		√				
		社会科学研究方法				√		√		
		方向 1 必修课程：智慧城市与应急管理 Compulsory Curriculums for Module 1: Smart City & Emergency Management								
√		应急物流与供应链管理		√		√		√		
√		社会保障学 B								
√		公共组织行为学	√				√		√	√
√		安全生产管理原理 B		√	√			√		
√		公共项目评估			√			√		
√		风险与韧性管理		√			√			
√		灾害防治理论与技术	√			√	√		√	
√		公共伦理与安全文化		√	√			√	√	√
√		交通安全分析与评价		√			√		√	
		方向 2 必修课程：大数据公共管理 Compulsory Curriculums for Module 2: Big Data & Management in Public Enterprise								
√		数据结构	√		√	√	√			
√		数据库原理与应用	√		√				√	√
√		高级应用程序设计 (JAVA)			√		√		√	
√		管理信息系统	√		√		√			
√		随机过程		√		√	√	√		
√		数据仓库与数据挖掘				√				
√		大数据技术与应用		√	√			√	√	
		专业公共选修课程								
√		社会心理学 B								
√		政治学原理		√		√	√	√		
√		城乡规划概论	√		√		√			
√		项目管理		√			√			
√		数字化业务与战略	√							
√		人力资源开发与管理		√	√				√	
√		统计学	√			√				
√		地理信息系统				√	√			
√		全球化与营销管理			√			√		
√		互联网与大数据行为分析								
√		智慧安全城市								
√		数字政务		√		√		√		
√		公共基础设施开发与管理		√						
√		文本分析与挖掘			√	√				
		方向 1 选修课程：智慧城市与应急管理 Elective Curriculum for Module 1: Smart City & Emergency Management								
√		公共部门公共关系		√		√		√		√
√		灾害保险 C	√							
√		危机与灾害应急能力综合评价		√		√		√		

专业 核心 课程	专业 特色 课程	课程名称	毕业要求								
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
	√	管理沟通与公文写作		√							√
	√	灾害社会学			√	√					
	√	职业卫生评价与检测		√			√				
	√	安全生产法规与注册安全工程师			√			√			√
	√	公共建筑消防安全评估		√		√		√			
	√	地下空间开发与利用		√							√
	√	政治学原理			√	√					√
		方向 2 选修课程：大数据公共管理 Elective Curriculum for Module 2: Big Data & Management in Public Enterprise									
	√	凸优化				√					
	√	软件工程			√		√				
	√	运筹学	√								
	√	系统工程			√		√		√		
	√	R 语言与统计		√		√		√			√
	√	机器学习与模式识别			√		√				√
	√	金融工程		√							
	√	自然语言处理			√	√	√				√
	√	智能计算			√	√	√				√
	√	大数据可视化分析						√			
	√	云计算与服务计算					√	√			√

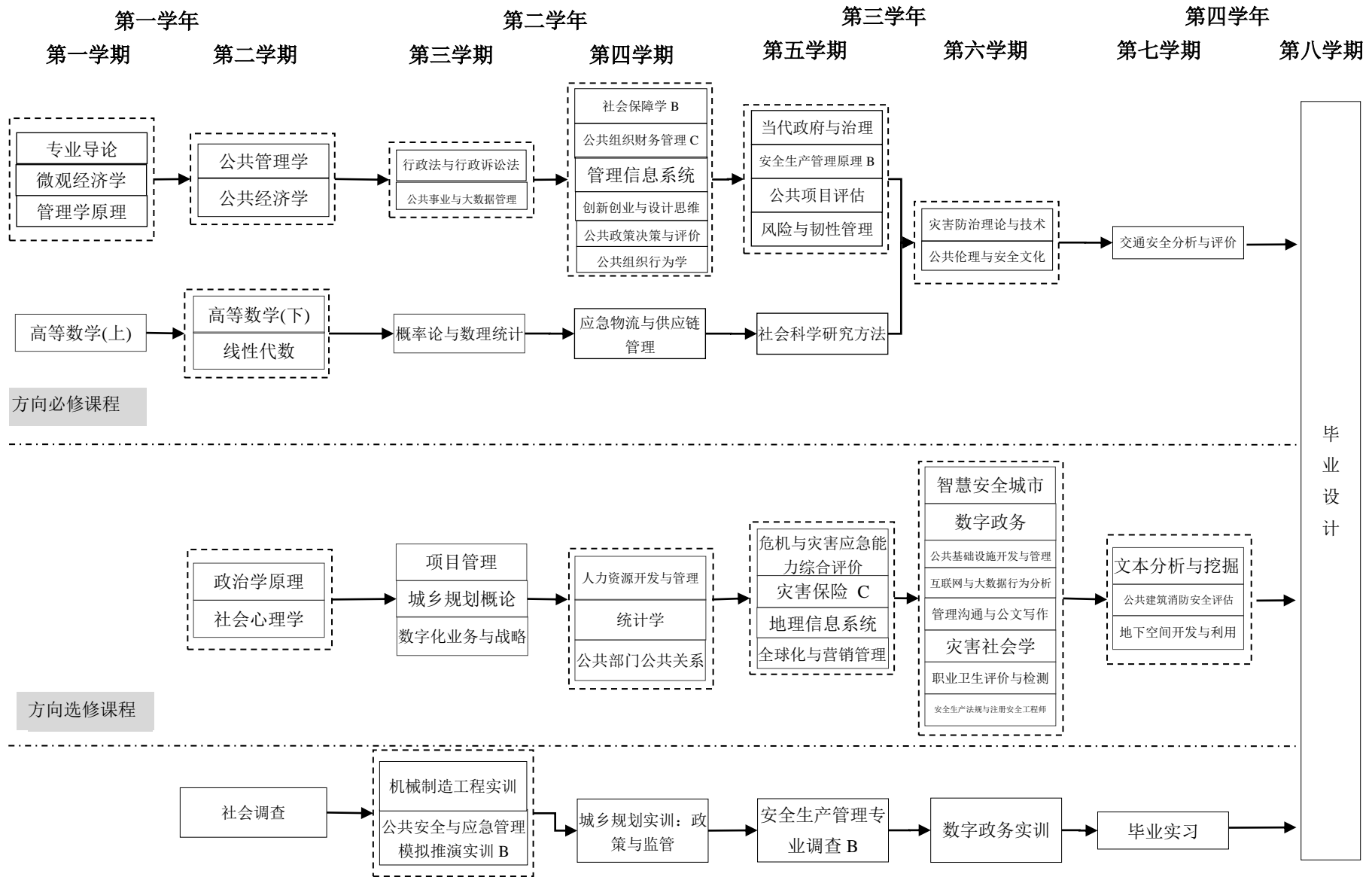
### 三、课程教学进程图

#### III Teaching Process Map

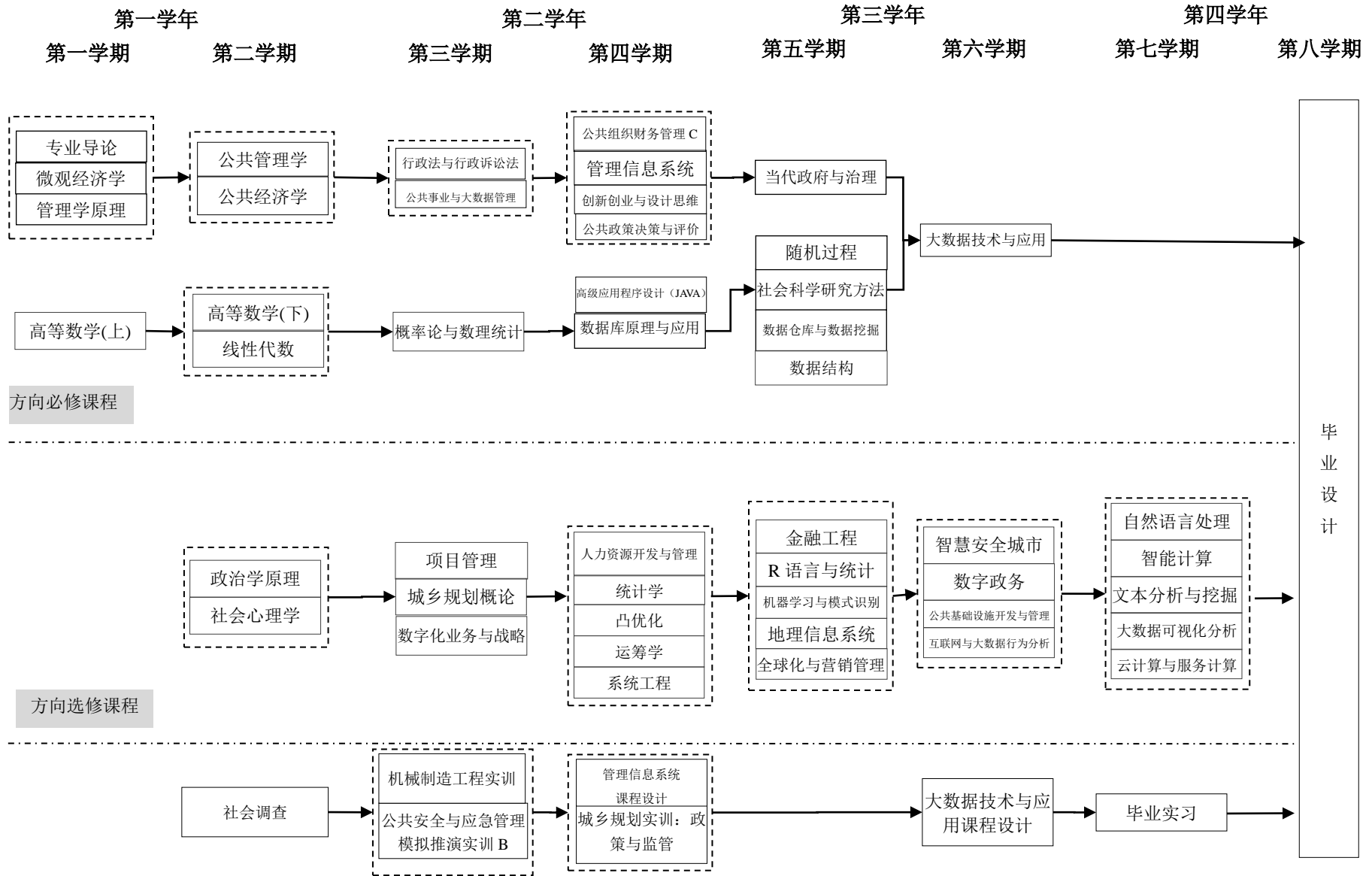
(一) 部分通识课程教学进程图 (各专业方向相同):



## 方向 1: 智慧城市与应急管理



## 方向 2: 大数据公共管理



**公共事业管理专业 2019 版本本科培养方案**  
**Undergraduate Education Plan for Specialty in**  
**Public Enterprise Administration(2019)**

**四、 理论教学建议进程表**

**IV Theory Course Schedule**

(一) 通识教育必修课程

General Education Required Courses

课程编号 Course Number	课 程 名 称 Course Title	学分 Crs	学时分配 Including					建议 修读 学期 Sugg ested Term	先修 课程 Prer equi site Cour se
			总学时 Tot hrs.	实 验 Exp	上机 Ope-r ation	实践 Prac- tice	课外 Extra -cur		
4220001110	思想道德修养与法律基础	2.5	48			8		2	
	Morals, Ethics and Fundamentals of Law								
4220002110	中国近现代史纲要	2.5	32					1	
	Outline of Contemporary and Modern Chinese History								
4220003110	毛泽东思想和中国特色社会主义理论体系概论	4.5	96			32		3	
	Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics								
4220005110	马克思主义基本原理	2.5	48			8		4	
	Marxism Philosophy								
1060003130	军事理论	2	32				16	2	
	Military Theory								
4210001110	体育 1	1	26					1	
	Physical Education I								
4210002110	体育 2	1	34					2	
	Physical Education II								
4210003110	体育 3	1	34					3	
	Physical Education III								
4210004110	体育 4	1	32					4	
	Physical Education IV								
4030002110	大学英语 A1	3	60				12	1	
	College English I								
4030003110	大学英语 A2	2	44				12	2	大学 英语 A1
	College English II								
4030004110	大学英语 A3	2	44				12	3	大学 英语 A2
	College English III								
	大学英语 A4	2	44						大学

	College English V								英语 A3
4120335170	PYTHON 程序设计基础	2	32					2	
	Fundamentals of Computer Program Design(PYTHON)								
4120336170	计算机基础与 PYTHON 程序设计综合实验	1	32		32			2	
	Fundamentals of Computer and Test of PYTHON Program								
小 计 Subtotal		30	638	0	32	48	52		
(二) 通识教育选修课程 General Education Elective Courses									
创新创业类 Innovation and Entrepreneurship Courses		要求至少取得 9 个学分，且必须选修艺术体育类课程中的艺术类相关课程并取得至少 2 个学分，在创新创业类和科学技术类课程中分别至少选修一门课程。 Students are required to obtain at least 9 credits, which must contain art courses of 2 credits from the category of Art and Physical Education Courses, at least one course from the category of Innovation and Entrepreneurship Courses and the category of Science and Technology Courses respectively.							
人文社科类 Arts and Social Science Courses									
经济管理类 Economy and Management Courses									
科学技术类 Science and Technology Courses									
艺术体育类 Art and Physical Education Courses									
(三) 专业教育必修课程 Basic Disciplinary Required Courses									
	专业导论	1	16					1	
	Introduction to Specialty								
4050065110	高等数学 B 上	5	80					1	
	Advanced Mathematics I								
4010548130	微观经济学 C	2.5	40					1	
	Microeconomics								
	管理学原理 A	3	48					1	
	Principle of Management								
4050066110	高等数学 B 下	5	80					2	
	Advanced Mathematics II								
4050229110	线性代数	2.5	40					2	
	Linear Algebra								
	公共管理学 A	2.5	40					2	
	Public Management								
	公共经济学 B	2.5	40					2	
	Public Economics								
4050058110	概率论与数理统计 B	3	48					3	
	Probability and Mathematics Statistics								
	行政法与行政诉讼法	2	32					3	
	Administrative Law and Administrative Proceedings								

	公共事业与大数据管理	2	32					3	
	Big Data Management in Public Enterprise								
	公共组织财务管理 C	3	48		16			4	
	Financial Management of Public Organizations								
	管理信息系统	3.5	56		16			4	
	Management Information System								
	创新创业与设计思维	2	32					4	
	Design Thinking in Innovation & Entrepreneurship								
	公共政策决策与评价	2.5	40					4	
	Decision & Appraisal for Public Policy								
	当代政府与治理	2	32					5	
	Contemporary Government and Governance								
	社会科学研究方法	2.5	40					5	
	Research Methods in Social Science								
	小 计 Subtotal	46.5	744	0	32	0	0		
方向 1 必修课程：智慧城市与应急管理									
Compulsory Curriculums for Module 1: Smart City & Emergency Management									
	应急物流与供应链管理	2	32					4	
	Emergency logistics and Supply Chain Management								
	社会保障学 B	2	32					4	
	Social Security								
	公共组织行为学	2	32					4	
	Public Organizational Behavior								
	安全生产管理原理 B	2	32					5	
	Safety Production Management Theory								
	公共项目评估	2	32				8	5	
	Public Project Evaluation								
	风险与韧性管理	2.5	40					5	
	Risk and Resilience Management								
	灾害防治理论与技术	2.5	40					6	
	Disaster prevention theory and technology								
	公共伦理与安全文化	2	32					6	
	Public ethics and Safety Culture								
	交通安全分析与评价	2	32					7	
	Traffic Safety Analysis and Evaluation								
	小 计 Subtotal	19	272	0	0	0	8		
方向 2 必修课程：大数据公共管理									



Compulsory Curriculums for Module 2: Big Data & Management in Public Enterprise									
	数据库原理与应用	3	48		16			4	
	Principles of Database System and Application								
	高级应用程序设计 (JAVA)	3	48		8			4	
	Advanced Applied Programming (JAVA)								
	数据结构	3	48					5	
	Data Structure								
	随机过程	3	48					5	
	Stochastic Process								
	数据仓库与数据挖掘	3.5	56		16			5	
	Data Warehouse and Data Mining								
	大数据技术与应用	3.5	56		16			6	
	Big Data Technology and Application								
小 计 Subtotal		19	304	0	56	0	0		
(四) 专业教育选修课程									
Specialized Elective Courses									
专业公共选修课程									
Fundamental Elective Curriculum for Specialty									
	社会心理学 B	2	32					2	
	Social Psychology								
	政治学原理	2	32					2	
	Principles of Political Science								
	城乡规划概论	2	32					3	
	Introduction to Urban and Rural Planning								
	项目管理	3	48		12			3	
	Project Management								
	数字化业务与战略	2	32					3	
	Business and Strategy in Digital World								
	人力资源开发与管理	2	32					4	
	Human Resource Management and Development								
	统计学	2.5	40					4	
	Statistics								
	地理信息系统	2.5	40		8			5	
	Geographical Information System								
	全球化与营销管理	3	48					5	
	Globalization and Marketing Management								
	互联网与大数据行为分析	3	48					6	
	Behavioural Analysis in Internet & Big-data Context								

	智慧安全城市	2	32					6	
	Smart & Safe City								
	数字政务	2	32	6				6	
	Digital Government								
	公共基础设施开发与管理	2	32					6	
	Public Infrastructure Development and Management								
	文本分析与挖掘	2	32		8			7	
	Text analysis and mining								
小 计 Subtotal		32	512	6	28	0	0		
方向 1 选修课程：智慧城市与应急管理									
Elective Curriculum for Module 1: Smart City & Emergency Management									
	公共部门公共关系	2	32					4	
	Public Relations								
	灾害保险 C	2	32					5	
	Disaster Insurance								
	危机与灾害应急能力综合评价	1	16					5	
	Comprehensive Evaluation of Emergency Response Capability in Crisis and Disaster								
	管理沟通与公文写作	2	32			8		6	
	Management Communication and Official Document								
	灾害社会学	2	32					6	
	Disaster sociology								
	职业卫生评价与检测	2	32					6	
	Occupational Health Assessment and Testing								
	安全生产法规与注册安全工程师	2	32					6	
	Safety Production and Certified Safety Engineer								
	公共建筑消防安全评估	2	32					7	
	Public Buildings on Fire Control Safety Assessment								
	地下空间开发与利用	2	32					7	
	Development and Utilization of Underground Space								
小 计 Subtotal		17	272	0	0	8	0		
方向 2 选修课程：大数据公共管理									
Elective Curriculum for Module 2: Big Data & Management in Public Enterprise									
	凸优化	4	64					4	
	Convex optimization								
	软件工程	2	32					4	
	Software Engineering								
	运筹学	3	48					4	
	Operating Research								

	系统工程	2	32					4	
	System Engineering								
	R 语言与统计	3	48					5	
	R Language and Statistics								
	机器学习与模式识别	3	48		8			5	
	Machine Learning and Pattern Recognition								
	金融工程	2	32					5	
	Financial Engineering								
	自然语言处理	2	32		16			7	
	Natural Language processing								
	智能计算	2	32					7	
	Intelligent Computing								
	大数据可视化分析	2.5	40		8			7	
	Big Data Visualization								
	云计算与服务计算	2	32		8			7	
	Cloud and Service Computing								
小 计 Subtotal		27.5	440	0	40	0	0		

修读说明：要求至少选修 28 学分。

NOTE: Minimum subtotal credits:28.

#### (五) 个性课程

#### Personalized Elective Courses

	公共安全科学导论	2	32					3	
	Introduction to Public Safety Science								
	大数据安全与治理	2	32		8			5	
	Big data security and governance								
	大数据传播与舆情分析	2	32					6	
	Big Data Media and Public Opinion Analysis								
小 计 Subtotal		6	32	0	0	0	0		

修读说明：学生从以上个性课程和学校发布的其它个性课程目录中选课，要求至少选修 6 学分。

NOTE: Students can select courses from above and the other personalized courses in catalog, and are required to obtain at least 6 credits.

#### 五、集中性实践教学环节

#### V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	学分 Crs	周数 Weeks	建议修读学期 Suggested Term
	军事训练	2	3	1
	Military Training			
	社会调查	1	1	2
	Social Survey			
	公共安全与应急管理模拟推演实训 B	1	1	3

	Simulation Training on Public Security and Emergency Management			
	机械制造工程实训 D	1	1	3
	Metal Techniques Practice			
	城乡规划实训：政策与监管	2	2	4
	Field Study: Policy and Regulation for Urban & Rural Planning			
	毕业实习	3	3	7
	Practice for Graduation			
	毕业论文	11	17	8
	Graduation Thesis			
方向 1 实践环节：智慧城市与应急管理 Practice Courses for Module 1: Smart City & Emergency Management				
	安全生产管理专业调查 B	1	1	5
	Enterprise Safety Management Training			
	数字政务实训	1	1	6
	E-government System Training			
小 计 Subtotal		23	30	
方向 2 实践环节：大数据公共管理 Practice Courses for Module 2: Big Data & Management in Public Enterprise				
	管理信息系统课程设计	1	2	4
	MIS Design			
	大数据技术与应用课程设计	1	1	6
	Course Design of Big Data Technology and Application			
小 计 Subtotal		23	31	
<b>六、其它要求</b>				
<b>VI Recommendations on Course Studies</b>				
1、《形势与政策》和《心理健康教育》课程为课外必修课程，分别计 2 个和 1 个课外学分。				
2、学生选修的通识选修课程和从学校发布的个性课程目录中选修的个性课程，要求与本专业培养方案内设置的课程内容不重复。				
1.Situation & Policy (2 credits) and Mental Health Education (1 credit) are the required extracurricular courses.				
2.The selected General Education Elective Courses and Personalized Elective Courses from the courses program by university must be different from the major undergraduate education plan in content.				
学院教学责任人： 陈先锋				
专业培养方案责任人：程斌武				

# 公共事业管理专业(大数据管理与安全方向)2019 版本本科培养方案

## Undergraduate Education Plan for Specialty in Public Utilities Management(Big Data Management and Safety)(2019)

专业名称	公共事业管理	主干学科	管理学
Major	Public Utilities Management	Major Disciplines	Management
计划学制	四年	授予学位	管理学学士
Duration	4 Years	Degree Granted	Bachelor of Management

### 最低毕业学分规定

#### Graduation Credit Criteria

课程分类 Course Classification 课程性质 Course Nature	通识教育课程 Public Basic Courses	专业教育课程 Specialized Courses	个性课程 Personalized Course	集中性实践教学环节 Practice Courses	课外学分 Study Credit after Class	总学分 Total Credits
必修课 Required Courses	30	65.5	\	23	\	171.5
选修课 Elective Courses	9	28	6	\	10	

### 一、培养目标与毕业要求

#### I Educational Objectives & Requirement

##### (一) 培养目标

(1) 具有综合理论素养和现代公共精神，身心健康，具备良好的敬业精神、社会责任感和职业道德，关注当代全球和社会问题；

(2) 掌握现代公共管理与大数据理论、技术与方法，具有公共安全与应急管理、大数据科学方面的专业特色知识与技能，具备开放性思维、决策分析和实践协调能力；

(3) 具有广博的人文社会科学知识，语言表达与写作能力强，熟悉有关的法律法规、方针政策和制度，善于利用数据科学针对经济、环境、法律、法规、安全等因素进行复杂问题分析求解与决策。

(4) 掌握必要的计算机应用技能，具有进行社会调查、数据收集和处理的能力，具备管理、数学、计算机等交叉学科基础，运用定量研究方法，进行统计分析的基本知识和能力；

(5) 掌握文献检索、资料查询的基本方法，有良好的团队意识和合作精神，成为具有一定科研工作能力和终身学习能力的复合型高级专门人才；

(6) 掌握公共安全与应急管理的理论与方法，以及相应的自然科学与工程技术知识，具备较强的风险决策分析与应急处置能力，能在政府部门、社区及各类非政府组织、国内外大中型企业等单位从事安全运营、大数据分析相关工作。

The students awarded their bachelor degree of management shall have the capacities and knowledge as follows:

(1) Proficiency in grasping the integrated theoretical knowledge, trained to be the complex high-level experts in great physical and mental health, who pay close attentions on the global and social issues with the modern public spirit, social responsibility and professional ethics.

(2) Capacity to apply the professional knowledge and skills in modern public management and big data with an open mind and capacity in decision analysis and practice coordination, on the basis of grasping the theory, skills and methods of modern public management and big data.

(3) Encyclopedic knowledge of humanities and social sciences, good language expression and writing ability, familiar with the relevant laws and regulations, policies and system. Being good at using data science to analyze and solve complex problems for economic, environmental, legal,

regulatory, and security factors.

(4) Necessary computer application skills, basic knowledge and skills to conduct the social investigation, data collection and processing, apply the quantitative research method in the statics analysis, interdisciplinary basis in management, mathematics, and computer science.

(5) Basic methods of literature review and data query, good senses of team spirit and cooperation, to be the high-level inter-disciplinary professional experts with the abilities to conduct scientific research and long-life education.

(6) Theories and methods of public safety and emergency management, and related technical knowledge of natural sciences and engineering, strong capabilities in risk decision analysis and emergency response capabilities. Being able to engage in security operations and big data analysis in government departments, communities and various non-governmental organizations, large and medium-sized enterprises at home and abroad.

## (二) 毕业要求

(1) 具有科学素养、社会责任感和职业道德。具有较强的适应未来风险、社会管理需求和从事企事业单位专业技术与管理工作的能力；

(2) 掌握数理逻辑分析方法及自然科学知识。能够通过社会调查获取决策分析数据，运用定性与定量分析研究方法，进行风险评估与危机预警的能力；

(3) 具有经济头脑、管理思维及公共行政能力。对现代公共事业发展趋势有深刻了解，能够胜任政府部门、事业单位、企业、社区及非营利组织机构的管理工作；

(4) 具有组织管理、人际交往能力。具备计划、组织、实施、协调和评价等方面的综合实践能力，具有较强的团队协作精神，掌握必要的管理沟通的能力；

(5) 具有文献检索、信息获取与计算机运用能力。能熟练掌握数据分析工具，具有应用管理信息系统、地理信息系统和现代网络技术的计算机应用技能的能力；

(6) 具有分析问题，解决公共管理实际问题能力。打下扎实的公共管理理论与大数据分析理论基础，熟悉公共安全与应急管理的现实需求与发展现状，能够对复杂管理决策问题的分析与预测，能够从事大数据分析决策、应急救援决策，以及城乡防灾减灾管理工作；

(7) 具有安全管理、大数据应用专业基础与职业发展能力。具有面对复杂多变环境，识别危险源，运用大数据分析，开展风险评估与预警工作，以及对各类安全事故以及突发灾害进行应急处置的能力；

(8) 具有国际交流、竞争与合作能力。具有国际化视野，能够与外国企业、国际组织进行交流的能力。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。

### **The Graduation Requirements:**

(1) Being the experts with the scientific literacy, social responsibility and ethics, the students are required to have the strong abilities to meet the requirements of future social risk management, and engage in the professional technical and management works

(2) Skilled in the methods of mathematical logic analysis and enriched in natural science knowledge, the students are able to use the qualitative and quantitative analysis methods to conduct the risk assessments and crisis early warning process by analyzing the data from social surveys and making the decisions.

(3) Endowed with the economic mind, management thinking and public administration capacity, the students need to have a deep understanding of the development trends of modern public utilities, and be competent for the administrative work in the government departments, institutions, corporations, communities and non-profit organizations.

(4) Skilled in social organization and interpersonal communication, the students need to develop their integrated practical abilities in planning, organizing, implementing, coordinating and assessing, develop the strong team spirits, and grasp some necessary administrative communication skills.

(5) Skilled in literature searching, information acquiring and computer utilizing, the students are required to proficiently use data analysis tool, develop the computer application skills in the management information systems, geographic information systems and modern network systems.

(6) Owned the ability to analyze and solve the practical problems in public administration, the students are required to lay a solid theoretical foundation of public administration and big data, familiarize the current demand and development status of the public safety and emergency management, ability to analyze and predict complex management decision problems, being able to

engage themselves in Big data analysis decision, emergency rescue decision and administration work of the disaster prevention and mitigation in urban or rural.

(7) Endowed with the professional basis on safety management, big data application and development capacity in career, the students need to develop the abilities on dealing with complex and changing environments, identifying hazards, using big data analysis, conducting risk assessment and early warning work, and emergency responding to various types of safety incidents as well as sudden disasters.

(8) Endowed with the ability on international communication, completion and cooperation, the students need to develop their skills to communicate with the foreign corporations and international organizations. Endowed with the ability on consciousness of independent learning and lifelong learning, continuously learning and adapting to development.

附：培养目标实现矩阵

	培养目标1	培养目标2	培养目标3	培养目标4	培养目标5	培养目标6
毕业要求 1	√					
毕业要求 2		√				
毕业要求 3	√	√	√			√
毕业要求 4	√	√	√	√		
毕业要求 5		√	√	√	√	√
毕业要求 6				√		
毕业要求 7				√	√	√
毕业要求8		√	√	√	√	√

## 二、专业核心课程与专业特色课程

### II Core Courses and Characteristic Courses

#### (一) 专业核心课程：

大数据管理与安全导论、数学分析（上）、微观经济学 C、数学分析（下）、公共经济学、公共管理学、线性代数、高级应用程序设计（JAVA）、概率论与数理统计、数据结构、公共事业管理概论、人力资源开发与管理、管理信息系统、凸优化、数据库原理与应用、数字商务与创新创业、数据仓库与数据挖掘、随机过程、机器学习与模式识别、管理研究方法、大数据技术与应用、大数据可视化分析。

Introduction to Big Data Management and Safety, Mathematical analysis I, Microeconomics, Mathematical analysis II, Public Economics, Public Management, Linear Algebra, Advanced Applied Programming (JAVA), Probability and Mathematics Statistics, Data Structure, Introduction to Public Utilities Management, Human Resource Management and Development, Management Information System, Convex optimization, Principles of Database System and Application, Innovation & Entrepreneurship in Digital Business, Data Warehouse and Data Mining, Stochastic Process, Machine Learning and Pattern Recognition, Management Research Methods, Big Data Technology and Application, Big Data Visualization.

#### (二) 专业特色课程：

大数据安全与治理、社交网络分析、物流与供应链管理、软件工程、运筹学、统计学、R语言与统计、危机与灾害应急能力综合评价、数值分析、金融工程、互联网与大数据行为分析、数字政务、智慧安全城市、大数据传播与舆情分析、项目管理、自然语言处理、文本分析与挖掘、云计算与服务计算。

Big Data Security and Governance, Social Network Analysis, Logistics and Supply Chain Management, Software Engineering, Operating Research, Statistics, R Language and Statistics, Comprehensive Evaluation of Emergency Response Capability in Crisis and Disaster, Numerical Analysis, Financial Engineering, Behavioural Analysis in Internet and Big-data Context, Digital Government, Smart Safe City, Big Data Dissemination and Public Opinion Analysis, Project Management, Natural Language

processing, Text analysis and mining, Cloud and Service Computing.

附：毕业要求实现矩阵：

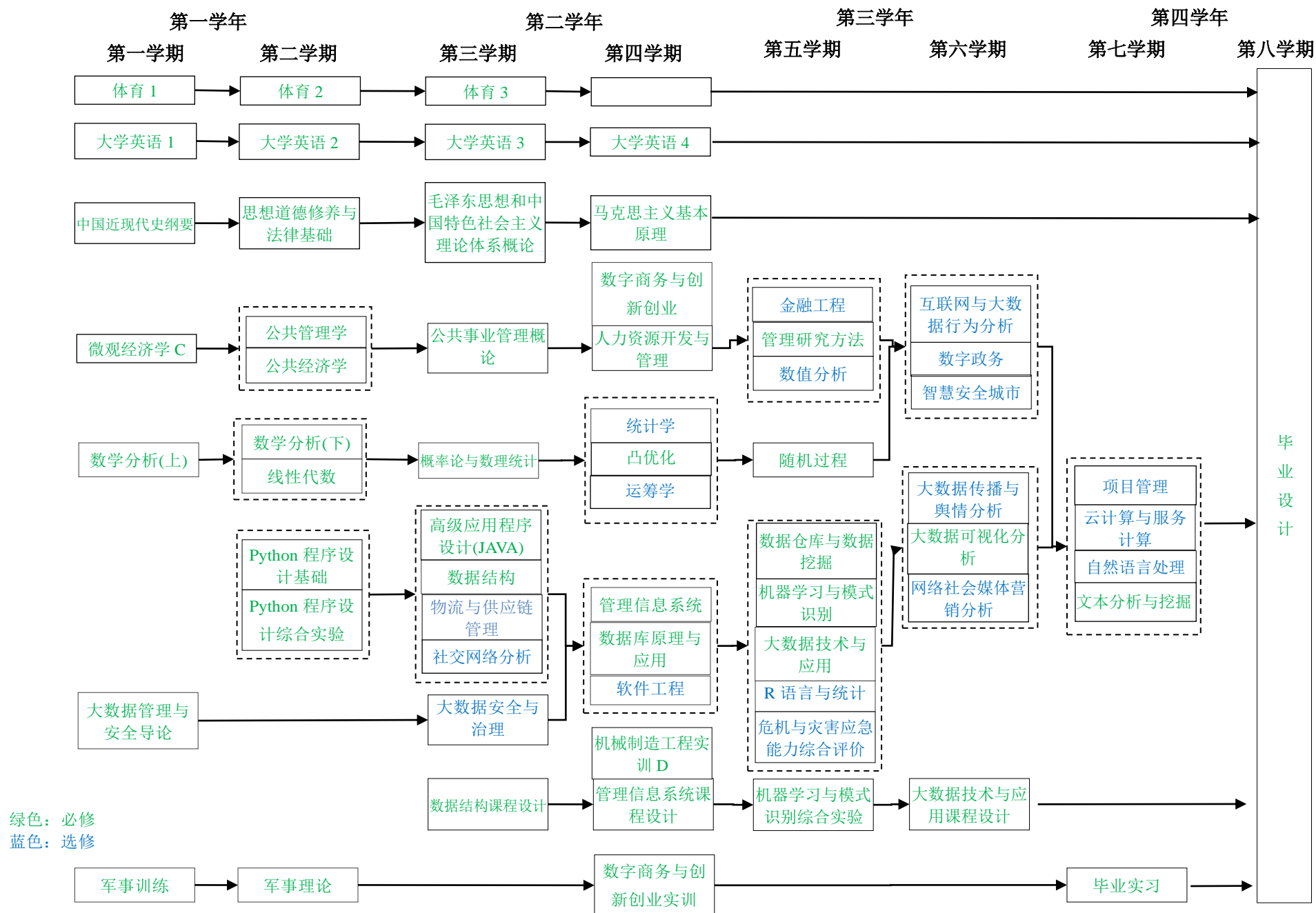
专业 核心 课程	专业 特色 课程	课程名称	大数据管理与应用专业毕业要求								
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
		思想道德修养与法律基础	√								
		中国近现代史纲要	√								
		毛泽东思想和中国特色社会主义理论体系概论	√								
		马克思主义基本原理	√								
		军事理论	√		√						
		体育 1-4	√								
		大学英语 1-4	√								√
		Python 程序设计基础	√					√			
√		大数据管理与安全导论			√						
√		数学分析（上）		√							
√		微观经济学 C			√	√					
√		数学分析（下）			√						
√		公共经济学		√							
√		公共管理学		√							
√		线性代数			√	√					
√		高级应用程序设计（JAVA）			√	√					
√		概率论与数理统计			√				√	√	
√		数据结构							√	√	
√		公共事业管理概论					√			√	
√		人力资源开发与管理					√				
√		管理信息系统		√				√		√	
√		凸优化		√			√	√			
√		数据库原理与应用		√			√			√	√
√		数字商务与创新创业			√			√	√	√	
√		数据仓库与数据挖掘			√			√			√
√		随机过程			√			√			
√		机器学习与模式识别			√			√	√	√	
√		管理研究方法		√	√				√	√	√
√		大数据技术与应用			√			√		√	



专业 核心 课程	专业 特色 课程	课程名称	大数据管理与应用专业毕业要求								
			(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	
√		大数据可视化分析		√					√		√
	√	大数据安全与治理				√			√		√
	√	社会网络分析			√	√	√				√
	√	物流与供应链管理			√	√	√				√
	√	软件工程			√	√	√				√
	√	运筹学			√	√	√				√
	√	统计学	√		√				√		
	√	R 语言与统计			√				√		
	√	危机与灾害应急能力综合评价						√	√		
	√	数值分析							√		
	√	金融工程						√	√		
	√	互联网与大数据行为分析								√	
	√	数字政务								√	√
	√	智慧安全城市			√	√	√				√
	√	大数据传播与舆情分析							√		√
	√	项目管理							√	√	√
	√	自然语言处理			√		√			√	
	√	文本挖掘与分析				√				√	√
	√	云计算与服务计算			√				√		

### 三、课程教学进程图

#### III Teaching Process Map



**公共事业管理专业(大数据管理与安全方向)2019 版本科培养方案**  
**Undergraduate Education Plan for Specialty in**  
**Public Utilities Management(Big Data Management and Safety)(2019)**

**四、 理论教学建议进程表**

**IV Theory Course Schedule**

(一) 通识教育必修课程

General Education Required Courses

课程编号 Course Number	课程名称 Course Title	学 分 Cr s	学时分配 Including					建议 修 读 学期 Sugg ested Term	先 修 课程 Prereq uisite Cours e
			总学时 Tothrs.	实验 Exp.	上机 Ope-r ation	实践 Prac- tice	课外 Extra -cur		
4220001110	思想道德修养与法律基础	2.5	48			8	2		
	Morals, Ethics and Fundamentals of Law								
4220002110	中国近现代史纲要	2.5	32				1		
	Outline of Contemporary and Modern Chinese History								
4220003110	毛泽东思想和中国特色社会主义理论体系概论	4.5	96			32	3		
	Introduction to Mao Zedong Thought and Socialism with Chinese Characteristics								
4220005110	马克思主义基本原理	2.5	48			8	4		
	Marxism Philosophy								
1060003130	军事理论	2	32				16	2	
	Military Theory								
4210001170	体育 1	1	26				1		
	Physical Education I								
4210002170	体育 2	1	34				2		
	Physical Education II								
4210003170	体育 3	1	34				3		
	Physical Education III								
4210004110	体育 4	1	32				4		
	Physical Education IV								
4030002110	大学英语 1	3	60				12	1	
	College English I								
4030003110	大学英语 2	2	44				12	2	
	College English II								
4030004110	大学英语 3	2	44				12	3	
	College English III								
4030004110	大学英语 4	2	44				12	4	
	College English IV								
4120335170	PYTHON 程序设计基础	2	32				2		
	Fundamentals of Computer Program								

	Design(PYTHON)								
4120336170	计算机基础与 PYTHON 程序设计综合实验	1	32		32			2	
	Fundamentals of Computer and Test of PYTHON Program								
小 计 Subtotal		30	638	0	32	48	64		
(二) 通识教育选修课程									
General Education Elective Courses									
创新创业类	Innovation and Entrepreneurship Courses	要求至少取得 9 个学分，且必须选修艺术体育类课程中的艺术类相关课程并取得至少 2 个学分，在创新创业类和科学技术类课程中分别至少选修一门课程，且须在科学技术类课程中选修一门安全应急教育课程。 Students are required to obtain at least 9 credits, which must contain art courses of 2 credits from the category of Art and Physical Education Courses, at least one course from the category of Innovation and Entrepreneurship Courses and the category of Science and Technology Courses respectively.							
人文社科类	Arts and Social Science Courses								
经济管理类	Economy and Management Courses								
科学技术类	Science and Technology Courses								
艺术体育类	Art and Physical Education Courses								
(三) 专业教育必修课程									
Basic Disciplinary Required Courses									
	大数据管理与安全导论	1	16					1	
	Introduction to Big Data Management and Safety								
	数学分析（上）	5	80					1	
	Mathematical analysis I								
4010548130	微观经济学 C	2.5	40					1	
	Microeconomics								
	数学分析（下）	5	80					2	
	Mathematical analysis II								
	公共经济学	2.5	40					2	
	Public Economics								
	公共管理学	3	48					2	
	Public Management								
4050229110	线性代数	2.5	40					2	
	Linear Algebra								
	高级应用程序设计（JAVA）	3	48		8			3	
	Advanced Applied Programming (JAVA)								
4050058110	概率论与数理统计	2.5	40					3	
	Probability and Mathematics Statistics								
	数据结构	3	48					3	
	Data Structure								
	公共事业管理概论	2	32					3	
	Introduction to Public Utilities								

	Management								
	人力资源开发与管理	2	32					4	
	Human Resource Management and Development								
	管理信息系统	3.5	56		16			4	
	Management Information System								
	凸优化	4	64					4	
	Convex optimization								
	数据库原理与应用	3	48		16			4	
	Principles of Database System and Application								
	数字商务与创新创业	3	48					4	
	Innovation & Entrepreneurship in Digital Business								
	数据仓库与数据挖掘	3.5	56		20			5	
	Data Warehouse and Data Mining								
	随机过程	3	48					5	
	Stochastic Process								
	机器学习与模式识别	3	48		8			5	
	Machine Learning and Pattern Recognition								
	管理研究方法	2	32					5	
	Management Research Methods								
	大数据技术与应用	4	64		24			6	
	Big Data Technology and Application								
	大数据可视化分析	2.5	40		8			7	
	Big Data Visualization								
小 计	Subtotal	65.5	1048	0	100	0	0		
(四) 专业教育选修课程									
Specialized Elective Courses									
	大数据安全与治理	2	32					3	
	Big Data Security and Governance								
	社会网络分析	2.5	40		4			3	
	Social Network Analysis								
	物流与供应链管理	2	32					3	
	Logistics and Supply Chain Management								
	软件工程	2	32		6			4	
	Software Engineering								
	运筹学	3	48					4	
	Operating Research								
	统计学	2.5	40					4	
	Statistics								
	R 语言与统计	3	48		16			5	
	R Language and Statistics								

	危机与灾害应急能力综合评价	1	16		1			5	
	Comprehensive Evaluation of Emergency Response Capability in Crisis and Disaster								
	数值分析	2	32					5	
	Numerical Analysis								
	金融工程	2	32					5	
	Financial Engineering								
	互联网与大数据行为分析	3	48		8			6	
	Behavioural Analysis in Internet and Big-data Context								
	数字政务	2	32		6			6	
	Digital Government								
	智慧安全城市	2	32					6	
	Smart Safe City								
	大数据传播与舆情分析	2	32					6	
	Big Data Dissemination and Public Opinion Analysis								
	项目管理	3	48		12			7	
	Project Management								
	自然语言处理	3	48		16			7	
	Natural Language processing								
	文本挖掘与分析	2	32		8			7	
	Text mining and analysis								
	云计算与服务计算	2	32		8			7	
	Cloud and Service Computing								
小 计 Subtotal		41	656	0	85	0	0		

修读说明：要求至少选修 28 学分。

NOTE: Minimum subtotal credits:28.

#### （五）个性课程

#### Personalized Elective Courses

	计量经济学	2	32					5	
	Econometrics								
	系统工程	2	32					6	
	System Engineering								
	智能计算	2	32		4			7	
	Intelligent Computing								
小 计 Subtotal		6	96	0	4	0	0		

修读说明：学生从以上个性课程和学校发布的其它个性课程目录中选课，要求至少选修 6 学分。

NOTE: Students can select courses from above and the other personalized courses

in catalog, and are required to obtain at least 6 credits.

#### 五、集中性实践教学环节

#### V Practice Schedule

课程编号 Course Number	实践环节名称 Practice Courses Name	学分 CrS	周数 Weeks	建议修读学期 Suggested Term
--------------------------	---------------------------------	-----------	-------------	-----------------------------

1060002110	军事训练	2	3	1
	Military Training			
	数据结构课程设计	1	2	3
	Course Design of Data Structure			
	管理信息系统课程设计	1.5	3	4
	MIS Design			
	机械制造工程实训 D	1	1	4
	Training on Mechanical Manufacturing Engineering D			
	数字商务与创新创业实训	1.5	2	4
	Innovation & Entrepreneurship Training in Digital Business			
	机器学习与模式识别综合实验	1	1	5
	Comprehensive Experiment of Machine Learning and Pattern recognition			
	大数据技术与应用课程设计	1	1	6
	Course Design of Big Data Technology and Application			
	毕业实习	3	3	7
	Practice for Graduation			
	毕业论文	11	17	8
	Graduation Thesis			
小 计 Subtotal		23	33	

#### 六、其它要求

##### VI Recommendations on Course Studies

##### VI Recommendations on Course Studies

1、《形势与政策》和《心理健康教育》课程为课外必修课程，分别计 2 个和 1 个课外学分。

2、学生选修的通识选修课程和从学校发布的个性课程目录中选修的个性课程，要求与本专业培养方案内设置的课程内容不重复。

1.Situation & Policy (2 credits) and Mental Health Education (1 credit) are the required extracurricular courses.

2.The selected General Education Elective Courses and Personalized Elective Courses from the courses program by university must be different from the major undergraduate education plan in content.

学院教学责任人：陈先锋

专业培养方案责任人：刘隽