

**2020/21 UEA Bachelor's Degree Programme (Taught in Chinese)**

**Xi'an Jiaotong University**

**Financial Engineering**

*\* The information below is extracted from the curriculum for current Chinese students at the university, which will be adjusted for international students according to relevant requirements as appropriate. Therefore, please refer to the curriculum used in the year of entry as the final curriculum.*

**1. Program Overview**

University/School: School of Economics and Finance, Xi'an Jiaotong University

Major: Financial Engineering

**2. Teaching Outcomes**

The programme aims to develop high-level talent in finance with the following competencies:

- Solid foundation in economics, finance, investment theory, mathematics and computer science;
- Ability for developing, designing and applying new financial tools and transaction methods;
- Able to offer innovative solutions and strategies for finance;
- Analytical skills for financial market and business;
- Able to work for financial product design, development and application, and risk management;
- International vision, practical skills and professional competence.

**3. Key Disciplines**

Key discipline: Economics

Relevant disciplines: Management Science and Engineering

**4. Duration, Awarding Degree and Graduation Requirement**

Duration: 4 years

Awarding degree: Bachelor of Economics

Requirement of graduation: For graduation, students should complete all modules with 149 credits and practice with 8 credits as required in the curriculum, passing the PE test. Students, who have met the criteria as required by the university regulation on undergraduate student registration and degree awarding, will be awarded with degree certificate.

## 5. Curriculum System

### 1) General Education Modules

#### (1) Mathematics and Basic Science: 31.5 credits

MATH294107	Advanced Mathematics I-1	6.5 credits
MATH294307	Advanced Mathematics I-2	6.5 credits
MATH294207	Liner Algebra and Analytic Geometry	4 credits
COMP250605	College Computer Science I	3 credits
COMP251205	Python Data Processing	2.5 credits
PHYS260309	College Physics III	4 credits
MATH201507	Economics Mathematics Modeling	2 credits
MATH200907	Probability Theory and Mathematical Statistics	3 credits

#### (2) General Subject Foundational Modules: 29.5 credits

ECND310119	Micro Economics	4 credits
ECND310219	Macro Economics	4 credits
STAT370119	Econometrics	3.5 credits
ACAU421308	Fundamental Accounting	3 credits
STAT370519	Statistics	2.5 credits
FINA340319	Finance	2.5 credits
TREC362619	Management	2 credits
TREC362719	Industrial Economics	2.5 credits
INTE352919	International Trade	2.5 credits
FINA340219	Public Finance	3 credits

### 2) Subject Modules

#### (1) Subject Core Modules: 14.5 credits

FINA430119	The Binomial Asset Pricing Model	2 credits
FINA430219	Continuous-Time Models	2 credits
FINA430319	Stochastic Process	1 credit
FINA430419	Fixed Income Securities	2 credits
FINA430519	Programming in Java	1.5 credits
FINA430619	Algorithm And Data Structure	2 credits
FINA441919	Computational Finance	2 credits
FINA430819	Corporate Finance	2 credits

#### (2) Subject Optional Modules: 16 credits

##### A. Optional modules for all directions

FINA542519	Financial Big Data Application	2 credits
FINA542319	Matlab and Financial Toolbox Application	2 credits

FINA542919	Techniques and Methods of Quantitative Investment	2 credits
FINA420219	Finance Market	2 credits
FINA420319	Management and Management of Commercial Banks	2 credits
FINA420619	International Finance	2.5 credits
FINA531519	Financial Risk Management	2 credits
FINA521519	Bank Accounting	2.5 credits
FINA531619	Internet Finance	2 credits
ECND512319	China Economy Overview	2 credits
ECND512719	International Investment	2 credits

#### B. Direction 1

FINA542219	Cases in Financial Engineering	2 credits
STAT471219	Time Series Analysis	2 credits
FINA532119	Futures and Derivatives Investment Analysis and Practice	2.5 credits

#### C. Direction 2

FINA442119	Securities investment: Theory and Practice	2 credits
FINA532219	Personal Finance	2 credits
ECND512619	Selected Topics for Financial Analysts	2 credits

Notes: Optional subject modules include two parts, i.e., optional modules for all directions and optional modules for the chosen direction. Generally, there are two directions for students to choose. At least 12 credits are required for optional modules for all directions and at least 4 credits are required for optional modules for the chosen direction.

### 3) *Practice*

MILI100254	Military Skill Training	2 credits
MPRA200152	Metal Working Practice II	1 credit
JZSJ900219	Professional Practice I	1 credit
SCTR200119	Research Training	1 credit
JZSJ900119	Project Design	2 credits
JZSJ900319	Professional Practice II	3.5 credits
GRDE900100	Graduation project (Thesis)	10 credits

Notes:

#### (1) Professional Practice

##### 1) Professional Practice I

Scheduled in the summer of Semester 4, it aims to develop students' understanding about real-world economic issues, inspiring and fostering students' ability and interest in studying subjects in relation to economics. Students are required to carry out practice individually before studying the subject, and after the practice, students

should submit materials such as report about practice, feedback from the hosting company/organization and daily record for practice. All materials should be submitted within the first week of Semester 5 for assessment.

## **2) Professional Practice II**

Upon completion of Year 3, according to arrangement of the department, students should make use of the summer holiday for professional practice individually or in groups. After the practice, materials such as report about practice, feedback from the hosting company/organization and daily record for practice should be prepared for submission. Preparation and arrangement for the practice will be completed in the last two weeks prior to the final exams at the end of Semester 6. Materials for the practice should be submitted within the first week of Semester 7 for assessment.

## **(2) Graduation Project (Thesis)**

Students are required to confirm about thesis title and proposal from the mid of Semester 7. Supervisors will be assigned by the School according to directions of the thesis. Thesis outlines will be produced through discussions between the students and supervisors. Students will then start internship in line with the thesis requirement to improve the thesis preparation during the process. By the end of May in Semester 8, students should finish writing of the thesis, and in mid of June, students should participate in thesis defense and assessment in the Department/School.

## **(3) Practice**

### **1) Military Skills Training**

Military skills training will be organized after new student registration.

### **2) Metal Working Practice II**

Metal working practice is compulsory for all students within the university. Advised by teachers, students will have one-week practice at the engineering workstation in the university to gain basic understandings about mechanical manufacturing and techniques. The assessment will be undertaken by the engineering workstation.

### **3) Research Training**

Research training includes discussions on hot topics in the area, exchange of views and ideas, information search skills etc. Students will apply what they have learnt into basic thesis writing, with an emphasis on basic writing methods, information search and use of references, and thesis formatting etc. Students will take research training in the short semester following Semester 4.

### **4) Project Design**

Scheduled in the short semester following Semester 6, project design aims to improve students' comprehensive practical ability. Teachers will offer different topics for students to choose, and the projects are required to be real, comprehensive and technical. Each student should complete the whole project, either on his/her own or in groups of 2-5 students, depending on the level of difficulty. Each team should have clear allocation of responsibilities for collaboration, and each team member should

provide report for assessment, and project progress will be checked weekly.

**4) Practice: 8 credits**

Student department will set the requirement of 8 credits and implementation plan.

**5) Module Requirement**

- In principle, students can take no more than 27 credits each semester; students who have achieved more than 75 credits in previous semester can take 2 more credits.
- The total hours for practice (experiment in class) is 1140, equivalent to 35.5 credits, accounting for 21.4% of total credits.

Appendix 1: Curriculum

Appendix 2: Teaching Plan

## Appendix 1:

## Curriculum

Module Type	Module Code	Module Title (in Chinese)	Module Title (in English)	Credit	Hours	Teaching	Experiment	Computer	Practice	Compulsory /Optional	Semester	School	Teaching Language (Chinese/English/Bilingual/Other)	
Public Modules	MLMD100114	Morality & Politics	思想道德修养与法律基础	Moral and Legal Education	3	48	48	0	0	0	Compulsory 13 credits	School of Marxism	Chinese	
	MLMD100214		中国近现代史纲要	Outline of Modern Chinese History	2	32	32	0	0	0			1-1, 2-1, 3-1, 4-1	Chinese
	MLMD103014		毛泽东思想和中国特色社会主义理论体系概论	An Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese characteristics	4	64	64	0	0	0			1-1, 2-1, 3-1, 4-1	Chinese
	MLMD191914		马克思主义基本原理概论	Basic Principles of Marxism	3	48	48	0	0	0			1-2, 2-2, 3-2	Chinese
	MLMD192014		形势与政策	Situation and Policy	1	28	28	0	0	0			1-1 至 4-1	Chinese
	MIL1100554	National Defense	国防教育	National Defense Education	2	32	32	0	0	0	Compulsory 2 credits	1-1, 1-2	Military Training	Chinese
	PHED109050		体育-1	Sports-1	0.5	32	32	0	0	0	Compulsory 2 credits	1-1, 2-1	PE	Chinese
	PHED109150		体育-2	Sports-2	0.5	32	32	0	0	0		1-2, 2-2		Chinese
	PHED109250		体育-3	Sports-3	0.5	32	32	0	0	0		1-1, 2-1		Chinese
	PHED109350		体育-4	Sports-4	0.5	32	32	0	0	0		1-2, 2-2		Chinese
	College English	Comprehensive English			Compulsory 2 credits						Compulsory 8 credits	1-1	School of Foreign Languages	Chinese
		Development English			Compulsory 2 credits							1-2		Chinese
		Subject English			Compulsory 4 credits							2-1, 2-2, 3-1, 3-2		Chinese
Foundational General Education				Any optional modules under Foundational General Education 6 credits Core modules under Foundational General Education 6 credits, totally 12 credits										
Subtotal for General Education				Compulsory 25 credits, optional 12 credits, totally 37 credits										
Mathematics & Foundational Science	MATH294107	高等数学 I -1	Advanced Mathematics I -1	6.5	110	98	0	12	0	Compulsory 31.5 credits	1-1	School of Mathematics	Chinese	
	MATH294307	高等数学 I -2	Advanced Mathematics I -2	6.5	110	98	0	12	0		1-2		Chinese	

Module Type	Module Code	Module Title (in Chinese)	Module Title (in English)	Credit	Hours	Teaching	Experiment	Computer	Practice	Compulsory /Optional	Semester	School	Teaching Language (Chinese/ English/ Bilingual/ Other)
Modules	MATH294207	线性代数与解析几何	Liner Algebra and Analytic Geometry	4	64	64	0	0	0		1-1		Chinese
	COMP250605	大学计算机 I	College Computer Science I	3	56	40	16	0	0		1-1	Computer Teaching Center	Chinese
	COMP251205	Python 数据处理	Python Data Processing	2.5	48	32	0	16	0		1-2		Chinese
	PHYS260309	大学物理 III	College Physics III	4	64	64	0	0	0		1-2	School of Science	Chinese
	MATH201507	经济数学建模	Economics Mathematics Modeling	2	36	28	8	0	0		2-2	School of Mathematics	Chinese
	MATH200907	概率论与数理统计	Probability Theory and Mathematical Statistics	3	50	46	0	4	0		2-1		Chinese
Subtotal for Mathematics & Foundational Science Modules				Compulsory 31.5 credits, totally 31.5 credits									
Subject Foundational Modules	ECND313119	微观经济学	Micro Economics	4	64	64	0	0	0	Compulsory 29.5 credits	2-1	School of Economics and Finance	Chinese
	ECND313019	宏观经济学	Macro Economics	4	64	64	0	0	0		2-2		Chinese
	STAT370119	计量经济学	Econometrics	3.5	64	48	16	0	0		3-1		Chinese
	ACAU421308	会计学	Fundamental Accounting	3	48	48	0	0	4		2-1		Chinese
	STAT370519	统计学	Statistics	2.5	48	40	8	0	4		2-2		Chinese
	FINA340319	金融学	Finance	2.5	48	40	8	0	12		2-2		Chinese
	TREC362619	管理学	Management	2	32	32	0	0	0		2-1		Chinese
	TREC362719	产业经济学	Industrial Economics	2.5	48	40	8	0	4		3-1		Chinese
	INTE352919	国际贸易学	International Trade	2.5	40	40	0	0	4		3-1		Chinese
FINA340219	财政学	Public Finance	3	48	48	0	0	30	3-1	Chinese			
Subtotal for Subject Foundational Modules				Compulsory 29.5 credits, totally 29.5 credits									
Subject Core Modules	FINA430119	离散时间金融	The Binomial Asset Pricing Model	2	32	32	0	0	0	Compulsory 14.5 credits	3-1	School of Economics and Finance	Chinese
	FINA430219	连续时间金融	Continuous-Time Models	2	32	32	0	0	0		3-2		Chinese
	FINA430319	随机过程	Stochastic Process	1	16	16	0	0	0		3-1		Chinese
	FINA430419	固定收益证券	Fixed Income Securities	2	32	32	0	0	0		3-2		Chinese
	FINA430519	计算机程序设计	Programming in Java	1.5	32	24	8	0	0		3-1		Chinese
	FINA430619	算法与数据结构	Algorithm And Data	2	32	32	0	0	0		3-2		Chinese

Module Type	Module Code	Module Title (in Chinese)	Module Title (in English)	Credit	Hours	Teaching	Experiment	Computer	Practice	Compulsory /Optional	Semester	School	Teaching Language (Chinese/English/Bilingual/Other)			
			Structures													
	FINA441919	计算金融	Computational Finance	2	40	32	8	0	0		4-1		Chinese			
	FINA430819	公司理财	Corporate Finance	2	32	32	0	0	0		4-1		Chinese			
Subtotal for Subject Core Modules				Compulsory 14.5 credits, totally 14.5 credits												
Subject Optional Modules	FINA542519	Optional Modules for All	金融大数据应用	Financial Big Data Application	2	40	32	0	8	0	Optional 12 credits	3-2	School of Economics and Finance	Chinese		
	FINA542319		Matlab 及金融工具箱应用	Matlab and Financial Toolbox Application	2	40	32	8	0	4		3-2		Chinese		
	FINA542919		量化投资技术与方法	Techniques and Methods of Quantitative Investment	2	32	32	0	0	8		3-2		Chinese		
	FINA420219		金融市场学	Finance Market	2	32	32	0	0	0		3-1		Chinese		
	FINA420319		商业银行经营与管理	Management and management of commercial banks	2	32	32	0	0	0		3-1		Chinese		
	FINA420619		国际金融学	International Finance	2.5	40	40	0	0	0		3-2		Chinese		
	FINA531519		金融风险管理	Financial Risk Management	2	32	32	0	0	0		3-2		Chinese		
	FINA521519		银行会计	Bank Accounting	2.5	40	40	0	0	0		3-2		Chinese		
	FINA531619		互联网金融	Internet Finance	2	32	32	0	0	0		3-2		Chinese		
	ECND512319		中国经济概论	China Economy Overview	2	32	32	0	0	0		4-1		Chinese		
	ECND512719		国际投资	International Investment	2	32	32	0	0	0		3-2		Chinese		
	FINA542219		Direction 1	金融工程案例	Cases in Financial Engineering	2	32	32	0	0		0		Optional 4 credits	3-2	Chinese
	STAT471219			时间序列分析	Time Series Analysis	2	36	28	8	0		0			3-1	Chinese
	FINA532119			期货及衍生品投研实务	Futures and Derivatives Investment Analysis and Practice	2.5	40	40	0	0		8			3-1	Chinese
FINA442119	Direction 2	证券投资理论与实务	Securities investment: Theory and Practice	2	36	28	0	8	0	4-1	Chinese					
FINA532219		个人理财	Personal Finance	2	32	32	0	0	4	3-2	Chinese					
ECND512619		CFA 专题	Selected Topics for	2	32	32	0	0	4	4-1	Chinese					



Module Type	Module Code	Module Title (in Chinese)	Module Title (in English)	Credit	Hours	Teaching	Experiment	Computer	Practice	Compulsory /Optional	Semester	School	Teaching Language (Chinese/ English/ Bilingual/ Other)
			Financial Analysts										
Subtotal for Subject Optional Modules				Optional 16 credits, totally 16 credits									
Practice	MIL1100654	军训	Military Skill Training	2	32	32	0	0	0	Compulsory 20.5 credits	1-1	Military Training	Chinese
	MPRA200152	金工实习 II	Metal Working Practice II	1	32	0	32	0	0		1-3	Engineering Workstation	Chinese
	JZSJ900219	专业实习 I	Professional Practice I	1	40	0	40	0	0		2-3	School of Economics and Finance	Chinese
	SCTR200119	科研训练	Research Training	1	32	0	32	0	0		2-3		Chinese
	JZSJ900119	项目设计	Project Design	2	64	0	64	0	0		3-3		Chinese
	JZSJ900319	专业实习 II	Professional Practice II	3.5	160	0	160	0	0		3-3		Chinese
	GRDE900100	毕业设计 (论文)	Graduation project (Thesis)	10	640	0	640	0	0		4-2		Chinese
Subtotal for Practice				Compulsory 20.5 credits, totally 20.5 credits									
Total				149 credits (compulsory 121 credits, optional 28 credits)									

Appendix 2:

**Teaching Plan**

Semester 1: 1-1			Semester 2: 1-2			Short Semester (1): 1-3		
Module Code	Module Title	Credit	Module Code	Module Title	Credit	Module Code	Module Title	Credit
PHED109050	PE-1	0.5	PHED109150	PE-2	0.5	MPRA200152	Metal Working Practice II	1
MLMD100114	Moral and Legal Education	3	MLMD100214	Outline of Modern Chinese History	2		Basic Skills Training	0
MATH294207	Linear Algebra and Analytic Geometry	4	PHYS260309	College Physics III	4			
MATH294107	Advanced Mathematics I-1	6.5	MATH294307	Advanced Mathematics I-2	6.5			
COMP250605	College Computer Science I	3	COMP251205	Python Data Processing	2.5			
MILI100254	Military Skills Training	2	MILI100154	National Defense Education	2			
Total	Compulsory 21 credits		Total	Compulsory 19.5 credits		Total	Compulsory 1 credit	
<p>* Situation and Policy is offered this semester; credits will be awarded upon completion from 1-1 to 4-1.                      * Optional and core modules for General Education will be offered starting from this semester.                      * Modules of 2 credits should be taken this semester.                      * The total number of credits for this semester is 21-27 credits.</p>			<p>* Modules of 2 credits for Development English should be taken this semester.                      * The total number of credits for this semester is 19.5-25.5 credits.</p>			<p>* Basic skills training is or intensive learning for application of English. See details released by Registry.                      * The total number of credits for this semester is 1 credit.</p>		

Semester 3: 2-1			Semester 4: 2-2			Short Semester (2): 2-3		
Module Code	Module Title	Credit	Module Code	Module Title	Credit	Module Code	Module Title	Credit
PHED109250	PE-3	0.5	PHED109350	PE-4	0.5	SCTR200119	Research Training	1
PHED101850	An Introduction to Mao Zedong Thought and the Theoretical System of Socialism with Chinese characteristics	4	MATH201507	Economics Mathematics Modeling	2	JZSJ900219	Professional Practice I	1
STAT292207	Probability Theory and Mathematical Statistics	3	MLMD100414	Basic Principles of Marxism	3			
ECND310119	Micro Economics	4	ECND310219	Macro Economics	4			
MAGT421308	Fundamental Accounting	3	STAT370519	Statistics	2.5			
TREC362619	Management	2.5	FINA340319	Finance	2.5			
Total	Compulsory 18-19 credits		Total	Compulsory 15.5-16.5 credits		Total	Compulsory 2 credits	
<p>* Modules of 1-2 credits in subject English should be taken this semester. * The total number of credits for this semester is 18-25 credits.</p>			<p>* Modules of 1-2 credits in subject English should be taken this semester. * 6 credits of optional modules in General Education should be achieved by the end of the semester. * 6 credits of core modules in General Education should be achieved by the end of the semester. * The total number of credits for this semester is 15.5-22.5 credits.</p>			<p>* The total number of credits for this semester is 2 credits.</p>		

Semester 5: 3-1			Semester 6: 3-2			Short Semester (3): 3-3		
Module Code	Module Title	Credit	Module Code	Module Title	Credit	Module Code	Module Title	Credit
STAT370119	Econometrics	3.5	FINA430219	Financial Engineering 1: Continuous-Time Models	2	JZSJ900319	Professional Practice II	3.5
TREC460219	Industrial Economics	2	FINA441919	Computational Finance	2	JZSJ900119	Project Design	2
INTE352919	International Trade	2.5	FINA430519	Programming in Java	1.5			
FINA340219	Public Finance	3						
FINA430119	Financial Engineering 1: The Binomial Asset Pricing Model	2						
FINA430319	Stochastic Process	1						
FINA430419	Fixed Income Securities	2						
FINA430619	Algorithm And Data Structures	2						
Total	Compulsory 19-20 credits		Total	Compulsory 6.5-7.5 credits		Total	Compulsory 5.5 credits	
<p>* Modules of 1-2 credits in subject English should be taken this semester.  * Students can make his/her own study plan for optional modules according to the curriculum and credit requirement.  * The total number of credits for this semester is 19-24 credits.</p>			<p>* Modules of 1-2 credits in subject English should be taken this semester.  * Students should take modules of at least 8 credits in College English.  * Students can make his/her own study plan for optional modules according to the curriculum and credit requirement.  * The total number of credits for this semester is 6.5-26.5 credits.</p>			<p>* The total number of credits for this semester is 5.5 credits.</p>		

Semester 7: 4-1			Semester 8: 4-2		
Module Code	Module Title	Credit	Module Code	Module Title	Credit
FINA430819	Corporate Finance	2	GRDE400119	Graduation Project (Thesis)	10
MLMD100514	Situation and Policy	1			
Total	Compulsory 3 credits		Total	Compulsory 10 credits	
<p>* Students can make his/her own study plan for optional modules according to the curriculum and credit requirement.</p> <p>* Students should achieve 12 credits for Optional Modules for all.</p> <p>* Students should achieve 4 credits for Optional Modules for certain direction.</p> <p>* Situation and Policy is delivered from 1-1 to 4-1.</p> <p>* The total number of credits for this semester is 3-11.5 credits.</p>			<p>* Students should achieve at least 149 credits by the end of this semester, including: at least 25 credits for public modules; at least 6 credits for general education optional modules; at least 6 credits for general education core modules; 31.5 credits for compulsory modules in mathematics and foundational science; 29.5 credits for subject foundational modules; 14.5 credits for subject core modules; at least 16 credits for subject optional modules; 20.5 credits for practice.</p> <p>* The total number of credits for this semester is 10 credits.</p>		