

BSC

APPLIED

MATHEMATICS

应用数学

XJTLU | BSC APPLIED MATHEMATICS

CAREERS

A BSc Applied Mathematics degree provides access to a wide range of rewarding career paths. Graduates are highly valued in the job market and are employed as analysts, modellers, data scientists, statisticians and managers in industries such as finance, information technology, biotechnology, consultancy, and in government.

Many of our graduates choose to continue their studies at postgraduate level in the areas of applied mathematics, pure mathematics, financial engineering, mathematical modelling, data science, machine learning, actuarial science and statistics. An increasing number of our graduates go on to further studies at renowned universities overseas such as Harvard University and the University of Pennsylvania in the USA and the University of Cambridge and Imperial College London in the UK.

2+2 STUDY Available

ATTENDANCE Full time

DURATION Three or four years

QUALIFICATION XJTLU BSc Applied Mathematics

SCHOOL School of Science

University of Liverpool BSc Applied Mathematics (hons,4+0) BSc Mathematics(hons,2+2)

Xi'an Jiaotong-Liverpool University 西交利物浦大学

BSC APPLIED MATHEMATICS

Mathematics underpins much of the modern world and is fundamental to science, technology, business and finance. In the BSc Applied Mathematics programme you will study essential mathematical topics as well as a range of applications. The programme emphasises versatile mathematical modelling techniques and offers a wide selection of optional modules, allowing you to follow your individual interests and career plans.

KNOWLEDGE AND SKILLS

By the time you graduate from the BSc Applied Mathematics, you will have:

- A solid understanding of the core areas of mathematics including analysis, linear algebra, differential equations and statistics
The ability to reason clearly and critically, and to construct mathematical arguments,
The ability to analyse a mathematical problem and select appropriate tools to solve it
The ability to construct and assess mathematical models for real-world problems
Research experience gained through the completion of a final-year research project
The ability to communicate mathematical information and ideas in English to both specialist and non-specialist audiences

WHY SHOULD I STUDY APPLIED MATHEMATICS AT XJTLU?

- Join a vibrant learning environment of around 700 undergraduate students
Learn from expert mathematicians, trained in globally respected universities and engaged in research on a broad range of topics
Gain experience in mathematical modelling and observe how mathematics can be used to make an impact in the world.

Enjoy the flexibility to choose modules to suit your individual interests from different application areas of mathematics, including finance, statistics and physics

- Get the chance to undertake the Visiting Study Abroad Programme during Year Three. We have exchange programmes with prestigious partners: Michigan State University (USA), and University of New South Wales (Australia)
Benefit from XJTLU's location in the Suzhou Industrial Park, where there are opportunities to undertake internships at a variety of multinational companies and financial and technological institutions
Earn two degrees: an XJTLU degree from the Chinese Ministry of Education and a globally recognised degree from the University of Liverpool, a member of the Russell Group of leading UK universities

MODULES

YEAR ONE

UK degrees are three years long whereas in China they are four, therefore we do accept students with certain qualifications directly into Year Two, which is the start of the main academic programme. Most students, however, enter into Year One, which provides you with a range of interesting modules, language classes and core skills for your degree.

YEAR THREE

Compulsory modules:

- VECTOR FIELDS: THEORY AND APPLICATIONS
ORDINARY DIFFERENTIAL EQUATIONS AND CONTROL
COMPLEX FUNCTIONS
NUMERICAL ANALYSIS
PARTIAL DIFFERENTIAL EQUATIONS

Optional modules:

- INTRODUCTION TO FINANCIAL MATHEMATICS
STATISTICAL DISTRIBUTION THEORY
CLASSICAL MECHANICS
METRIC SPACES
INTRODUCTION TO OPERATIONAL RESEARCH

YEAR TWO

Compulsory modules:

- INTRODUCTION TO PROGRAMMING IN JAVA
ADVANCED LINEAR ALGEBRA
INTRODUCTION TO PROBABILITY AND STATISTICS
ANALYSIS 1
INTRODUCTION TO THE METHODS OF APPLIED MATHEMATICS
DYNAMIC MODELLING
ANALYSIS 2
INTRODUCTION TO ABSTRACT ALGEBRA

YEAR FOUR

Compulsory modules:

- FINAL YEAR PROJECT

Optional modules:

- GEOMETRY OF CURVES AND SURFACES
RISK MANAGEMENT
POPULATION DYNAMICS
QUANTUM MECHANICS
APPLIED PROBABILITY
MATHEMATICAL MODELS OF SOLIDS AND FLUIDS
RELATIVITY
FUNCTIONAL ANALYSIS
OPTIMISATION THEORY



应用数学

数学是众多学科、技术和工程学的基础。数学分析和建模广泛应用于生命科学、社会科学、商业和金融等领域。作为数学领域的一类分支，应用数学专业为学生提供数学基础课程和数学建模技能的理论指导和实践探究。

知识与技能

毕业生将获得以下几个方面的知识和能力：

- 掌握数学分析、线性代数、微分方程、统计学等数学核心领域的基本理论和基本方法
- 能够理性思考、批判，建构数学论证
- 能够分析数学问题并找到合适的工具去解决问题
- 能够构建、评估数学模型，熟练运用数学定量分析方法分析现实世界中的问题
- 通过完成毕业设计论文获得项目研究的经验
- 熟练运用英语与专业及非专业领域的人士进行数学信息及观点的交流

专业特色

- 拥有超过700名在校本科生，学习环境活跃
- 师从数学专家，在收到国际认可的学府中接受训练，并参与多样课题的研究中
- 积累数学建模知识并观察数学建模如何影响世界
- 专业结构设置多元化，包括金融、运筹学、物理等研究领域，学生可以根据自己的学习兴趣自由选择相应的课程
- 提供高质量的、面向本科生的海外名校交流生项目。学生可在大学第三年赴美国密歇根州立大学或澳大利亚新南威尔士大学学习交流
- 西交利物浦大学位于全球最具竞争力的经济开发区——中国-新加坡苏州工业园区，地理位置优越，科技与教育处于领先地位，为学生在金融和技术单位以及跨国公司提供实习机会
- 毕业生可获得中国教育部认可的西交利物浦大学学位和国际认可的利物浦大学学位

就业

毕业生就业渠道广泛，可以从事统计员、分析师、建模师等职业。此外，他们在电信、金融、生物科技、政府部门、商务和咨询等诸多领域都能占有一席之地。毕业生也可选择继续深造，硕士热门专业包括纯数学、应用数学、金融数学、数据科学、人工智能、数学建模、精算学、金融工程、统计学等。越来越多的毕业生选择继续深造，并被美国哈佛大学、宾夕法尼亚大学和英国剑桥大学、帝国理工学院等国外知名大学录取。

课程

第一学年

在英国，本科阶段学习学制三年，而中国本科阶段学制为四年。因此，对于已获得相应学时、证书的学生，在我校可以直接升入二年级进行专业学习；大多数学生则是进入一年级学习，包括众多有吸引力的课程，语言课程以及专业学习相关的核心技能学习。

第三学年

核心课程：
复变函数 (MTH219)
常微分方程和控制 (MTH212)
向量字段: 理论和应用 (MTH207)
数值分析 (MTH208)
偏微分方程 (MTH210)

选修课程：
金融计算基础 (MTH202)
运筹学导论 (MTH203)
统计分布定律 (MTH206)
经典力学 (MTH209)
度量空间 (MTH224)

 开始时间 2021年09月	 学院 理学院
 2+2 留学模式 可选	 学位证书 西交利物浦大学 数学与应用数学 (理学学士)
 学制 四年	利物浦大学 BSc Applied Mathematics (hons,4+0)
 学习地点 苏州	BSc Mathematics(hons,2+2)
 教学形式 全日制	

第二学年

核心课程：
高等线性代数 (MTH107)
数学分析I (MTH117)
概率与统计入门 (MTH113)
JAVA 编程导论 (CSE105)
数学分析II (MTH118)
抽象代数导论 (MTH122)
应用数学方法导论 (MTH106)
动态建模 (MTH108)

第四学年

核心课程：
毕业设计 (MTH301)

选修课程：
应用概率论 (MTH302)
风险管理 (MTH305)
人口动力学 (MTH307)
泛函分析 (MTH310)
曲线和曲面几何 (MTH315)
最优化理论 (MTH318)
固体和流体的数学模型 (MTH308)
量子力学 (PHY301)
相对论 (PHY302)

BSC APPLIED MATHEMATICS 应用数学

Mathematics underpins much of the modern world and is fundamental to science, technology, business and finance. In the BSc Applied Mathematics programme you will study essential mathematical topics as well as a range of applications. The programme emphasises versatile mathematical modelling techniques and offers a wide selection of optional modules, allowing you to follow your individual interests and career plans.

Through studying mathematics you will acquire highly flexible skills that will last a lifetime, including strong analytical abilities, problem-solving skills and an appreciation of the importance of logical reasoning. You will also develop computational proficiency and learn how mathematical modelling can be used to analyse real-world problems. These skills are vital to many industries and are highly sought-after by employers.

数学支撑着现代世界，是科学、技术、商业和金融的基础。应用数学专业为学生提供数学基础课程和数学建模技能的理论指导和实践探究。本专业注重培养通用数学建模技巧，根据学生的个人兴趣及职业计划提供多样性的课程选择。

通过学习数学，学生将获得使你收益一生的高度灵活的技能，包括高水平的数据分析能力，解决问题能力以及逻辑推理能力。学生将发展计算效率，学习如何将数学建模应用到分析真实世界的问题中。

XI'AN JIAOTONG-LIVERPOOL UNIVERSITY 西交利物浦大学

Xi'an Jiaotong-Liverpool University is an international joint venture university founded by Xi'an Jiaotong University in China and the University of Liverpool in the United Kingdom. As an independent Sino-foreign cooperative university, it captures the essence of both prestigious parent universities and is the first and only one of its kind approved by the Ministry of Education in China.

西交利物浦大学是经中国教育部批准，由西安交通大学和英国利物浦大学合作创立的，具有独立法人资格和鲜明特色的新型国际大学。