

BSC

PHARMACEUTICAL

SCIENCES

药 学

CAREERS

In addition to pursuing further education, pharmaceutical sciences graduates typically work in medicinal drug research and development, production management, marketing, drug synthesis, drug formulation, drug analysis, and drug quality control. The demand for pharmaceutical science talents from industry, medical institutions, scientific research institutes and government agencies has been expanding, inevitably broadening the career paths of some graduates. Potential career paths for graduates of pharmaceutical sciences include:

- postgraduate study in related programmes at XJTLU or other domestic/international first-tier universities;
- work at pharmaceutical companies in medicinal drug design, R&D, production, management, marketing, synthesis, preparation, analysis, inspection, quality control and more;
- work in medicinal drug analysis, inspection, quality management and supervision at certain public institutions (including those dealing with food and drug supervision and administration, disease control centres, community health institutions, public health departments, drug inspection, industrial and commercial administration and taxation);
- employment at universities or research institutes engaging in medicinal drug design, R&D analysis, and other scientific research; and work in hospitals, pharmacies, pharmaceutical factories and other institutions, including quality control testing of Traditional Chinese Medicine (TCM) preparations, clinical medicine, pharmaceutical sciences, and more.

MODULES

YEAR ONE

In the UK, undergraduate programmes typically last three years, whereas in China, they normally span four years. Accordingly, at Xi'an Jiaotong-Liverpool University (XJTLU), students who have already obtained the required credits and qualifications may be admitted directly into Year 2 of their chosen programme. The majority of students, however, enter Year 1, where they take foundation courses that include language training, basic mathematics, and subject-specific preparatory modules.

YEAR TWO  
Core Modules

- CHEMISTRY FOR PHARMACY
- KEY SKILLS FOR PHARMACEUTICAL SCIENCES
- FUNDAMENTAL BIOCHEMISTRY IN PHARMACY
- INTRODUCTION TO PHYSIOLOGY AND PHARMACOLOGY
- BIOLOGY FOR PHARMACY
- PRACTICAL MOLECULAR BIOLOGY FOR PHARMACY
- ARTIFICIAL INTELLIGENCE IN HEALTHCARE & PHARMACEUTICAL RESEARCH
- PHARMACEUTICAL LEADERSHIP: FROM CONCEPT TO MARKET
- THE BIOLOGY OF MICROBES
- INTRODUCTION TO EVOLUTION AND GENETICS

YEAR THREE  
Core Modules

- PHARMACEUTICS
- PHARMACEUTICAL ANALYSIS
- DRUG ACTION
- CLINICAL PHARMACY
- PRINCIPLES OF PHARMACOLOGY
- PRACTICAL PHARMACOLOGY

Optional Modules

- BIOPHARMACEUTICS AND BIOPHARMACEUTICAL TECHNOLOGY
- INTRODUCTION TO ARTIFICIAL INTELLIGENCE IN PHARMACY I
- INTRODUCTION TO REGULATION OF PHARMACEUTICAL AND BIOLOGICAL PRODUCTS
- INTRODUCTION TO PHARMACOECONOMICS
- INTRODUCTORY COMPUTATIONAL PHARMACY
- ADVANCED CHEMISTRY FOR PHARMACY
- KEY SKILLS FOR COMPUTATIONAL SCIENCES

YEAR FOUR

Core Modules

- MEDICINAL CHEMISTRY
- COMPUTER AIDED DRUG DESIGN
- REGULATORY SCIENCES AND PROJECT MANAGEMENT
- PRINCIPLES OF GXP
- FINAL YEAR PROJECT
- DRUG DELIVERY AND NANOMEDICINE
- MOLECULAR IMMUNOLOGY

Optional Modules

- INTRODUCTION TO CHEMISTRY MANUFACTURING AND CONTROLS
- INTRODUCTION TO QUALITY ASSURANCE FOR DRUGS AND BIOLOGICS
- INTRODUCTION TO ARTIFICIAL INTELLIGENCE IN PHARMACY II
- ADVANCED PHARMACEUTICAL ANALYSIS
- CELL BIOLOGY TECHNIQUES

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Welcome to the challenging and promising journey into the world of Pharmaceutical Sciences! This is a noble field that unlocks the secrets of life at the molecular level, crafts hope in the laboratory, and safeguards health through science. May we join hands in contributing wisdom and strength to enhance human health and well-being!



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KNOWLEDGE AND SKILLS

After four years of study, graduates of this programme will be able to demonstrate:

- Solid knowledge of chemistry, medical sciences, biology and applied statistics related to pharmaceutical sciences;
- Mastery of pharmaceutical sciences fundamentals, including basic theories and lab skills;
- Solid understanding of the application of pharmaceutical sciences in drug research and development (r&d), production, testing, drug administration and certain clinical aspects;
- Capability of working and conducting research in the pharmaceutical industry, including drug r&d, drug production, quality control, and aspects of management, including drug design and preparation, drug formulation, drug quality inspection and standard formulation, drug development management, and clinical use;
- Transferable skills including ability to work independently and as part of a team; time-management skills; and logical, critical, creative and reflective thinking skills.

WHY SHOULD I STUDY  
PHARMACEUTICAL SCIENCES AT XJTLU?

- Rigorous education and unique international perspective  
The academy develops talents by providing a solid theoretical knowledge base, excellent professional competencies, continuous self-development skills, a global vision, international competitiveness, and technical and management skills in order to provide scientific, technological and management services for the pharmaceutical industry in china and beyond.
- Curriculum that connects with industry  
The pharmaceutical sciences programme syntegrates government support, enterprise participation, and classroom learning and teaching to actively nurture skilled international talents who can meet industry demands. The programme fosters the cooperation of education, industry and government to continuously improve the curriculum and adjust the direction and content of scientific research. Meanwhile, by taking the advantage of xjtlu's global platform, the programme promotes the internationalisation of learning and teaching, scientific research and industry production.
- Sophisticated quality control system, strong foundations  
XJTLU combines the british higher education system's quality assurance standards with the chinese system's strong focus on foundational knowledge. This is the cornerstone of xjtlu's success, which guarantees the success of the pharmaceutical sciences programme.
- Broad employment prospects

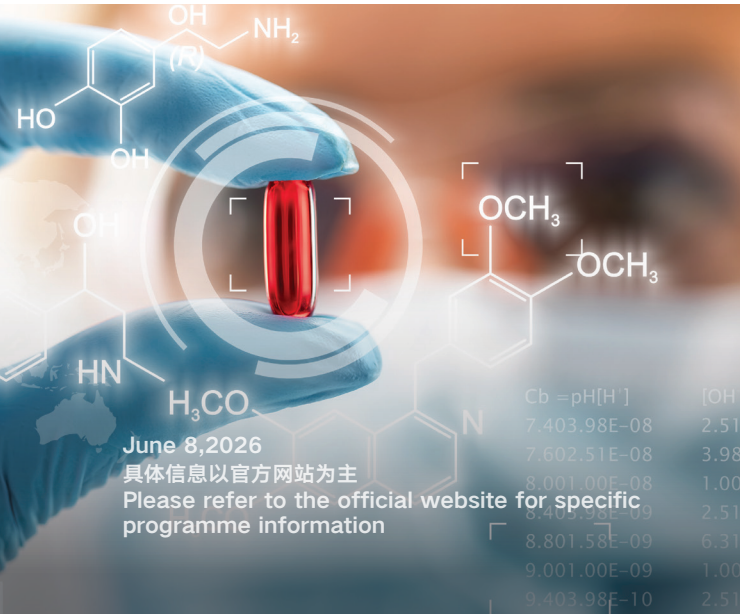
Our curriculum design and training provide graduates with a solid theoretical knowledge base, excellent professional competencies, continuous self-development skills and a wide choice of career paths. Graduates may continue their studies in china or internationally or work in pharmaceutical production, drug synthesis, pharmaceutical preparations, drug analysis, drug research and development, quality control and more.c vv

## 药学

欢迎开启充满挑战与机遇的药学之旅！药学，是一个在分子层面解码生命、在实验室创造希望、用科学守护健康的伟大领域。让我们携手，为增进人类健康福祉贡献智慧与力量！



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## 知识与技能

经过四年的系统学习，本专业毕业生将具备以下知识和能力：

- 具备扎实的与药学相关的化学、医学、生物学及应用统计学知识；
- 掌握丰富的药学基础知识、学科基本理论和实验技能；
- 熟悉药学科学在新药开发、药物生产、药物检验、药事管理及药物临床诸方面的应用；
- 具有从事药学工作与科学研究的能力，包括药物设计与制备、药物剂型设计、药品质量检验与标准制订、药事管理以及药物临床应用等；
- 具备诸多可转移技能，如独立工作能力，团队精神，时间管理能力，和逻辑性、批判性、创造性、及反思性思考能力等。

## 专业特色

- 严谨的办学理念和独特的国际视野：药学专业培养具备扎实的理论知识、过硬的专业技能和持续的发展能力，以及国际视野和国际竞争力的高级技术和管理人才，为国家的经济和社会发展提供科技和管理服务。
- 科学与市场对接的课程内容：借助“大健康产业”和“中国药谷”的战略契机，药学专业采用政府、企业、学校三方紧密合作模式，积极培养行业亟需的国际化实用型高端紧缺人才。同时，药学专业也必将通过与企业和合作，不断改革、完善课程设置，调整科研方向和内容，真正推动产学研联合，并通过西浦的国际化优势，不断地将教学，科研向国际化推进。
- 严格完善的教学质量控制体系：西浦已经逐步建立起一套相对完整、融合中英高等教育质量保证体系标准的质量保证机制。这个机制是药学专业成功的保证。
- 广阔的就业前景：科学的课程设置和训练必将赋予本专业毕业生以扎实的理论知识、过硬的专业技能和持续的发展能力，该专业就业空间广阔，包括国内、国际升学深造，以及药品生产、药物合成、药物制剂、药物检验、新药开发与质量控制等相关工作。

## 就业

除了升学深造外，药学本科毕业生的就业领域主要包括药品研发、生产、管理、营销，药物合成、药物制剂、药物检验、药物质量控制等。而且随着国家综合国力的提升，公众健康意识和需求的日益增强，企业、医院、科研院所和政府机构对药学人才的需求必将日益加剧，从而使毕业生的就业空间愈加广阔。具体来说，药学本科毕业生的就业方向包括：

- 选择本校或海内外名校相关专业继续深造
- 进入企业从事药品设计、研发、生产、管理、营销，以及药物合成、药物制剂、药物分析、药物检验、药物质量控制等工作
- 进入事业单位（食品药品监督管理局、疾病控制中心、社区卫生机构、检疫机构等公共卫生部门，以及药品监督管理局、稽查、工商、税务等部门）从事药物分析、药物检验，药物质量管理与监督工作
- 进入高校或研究所从事药物设计、研发、分析等科研类工作
- 进入医院、制药厂等从事中西药制剂、质量检测、临床药学等工作

## 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，对于已获得相应学分、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进行基础课学习，主要课程包括语言课程、基础数学课程和专业相关的预备课程。

### 第二学年

|                 |
|-----------------|
| 必修课：            |
| 药学基础化学          |
| 药物科学关键技术        |
| 基础药理学生物化学       |
| 生理与药理学导论        |
| 药学生物学           |
| 药学应用分子生物学       |
| 医疗健康和药物研发中的人工智能 |
| 医药行业领导力：从概念到市场  |
| 微生物生物学          |
| 进化与遗传学导论        |

### 第三学年

|        |
|--------|
| 必修课：   |
| 药剂学    |
| 药物分析   |
| 药物作用原理 |
| 临床药学   |
| 药理学原理  |
| 实用药理学  |

|                                                                                     |                       |                                                                                     |                                             |
|-------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------|---------------------------------------------|
|  | <b>开始时间</b><br>每年9月   |  | <b>学院</b><br>生命与自然科学学院                      |
|  | <b>2+2 留学模式</b><br>可选 |  | <b>学位证书</b><br>西交利物浦大学<br>药学                |
|  | <b>学制</b><br>四年       |  | <b>利物浦大学</b><br>BSc Pharmaceutical Sciences |
|  | <b>学习地点</b><br>苏州     |  | <b>教学形式</b><br>全日制                          |

### 选修课：

|             |
|-------------|
| 生物药剂与生物制药技术 |
| 药学中的人工智能简介I |
| 药品和生物制品监管简介 |
| 药物经济学简介     |
| 计算机辅助药学基础   |
| 高等药化学       |
| 计算机科学的关键技术  |

### 第四学年

### 必修课：

|           |
|-----------|
| 药物化学      |
| 计算机辅助药物设计 |
| 监管科学和项目管理 |
| GxP原则     |
| 毕业设计      |
| 药物输送和纳米医学 |
| 分子免疫学     |

### 选修课：

|               |
|---------------|
| 制药化学与生产控制简介   |
| 药品与生物制品质量保证简介 |
| 药学中的人工智能简介II  |
| 高等药物分析        |
| 细胞生物学技术       |

### BSc Pharmaceutical Sciences 药学

Humankind continuously seeks better health. For the past 30 years, the global pharmaceutical industry has experienced annual sales growth of 25-30%. China's increase in public health awareness and demand and increased attention from all levels of government have led to substantial growth in the gross output of the country's healthcare industry; medicinal drug production and research and development (R&D) have made rapid progress. As a result, more talents are needed for medicinal drug R&D, production, administration and management. Areas requiring more trained professionals include applied pharmaceuticals, new drug R&D, drug formulation, pharmaceutical analysis, pharmaceutical care and licensed pharmacy. The BSc Pharmaceutical Sciences programme is tailor-made for the pharmaceutical industry, connecting health sciences, chemistry, life sciences and statistics and ensuring the safety and effective use of medicinal drugs. As part of an international first-class research university, the BSc Pharmaceutical Sciences aims to nurture advanced technical and management talents with solid theoretical knowledge, excellent specialised competencies and continuous self-development skills, as well as an international outlook and global competitiveness. All the Academy's programmes aim to improve the overall well-being of humanity through a combination of international resources, promotion of high-profile international collaboration, attraction of talents, the fostering of increased research outcomes and the growth of industrial partnerships.

人类对健康的追求永无止境。近30年来，全球医药产业每年销售额以25-30%的速度增长。在我国，随着国家综合国力的提升，公众健康意识和需求的日益增强，以及各级政府对健康事业的日趋重视，国家医疗卫生行业总产值大幅增长，而药品生产、研发更是突飞猛进。这一现实召唤着更多的人才从事新药研发、药物生产、药品使用和管理，包括新药研发人才、药物制剂人才、药物分析人才、药学服务人才，以及执业药师等。学院药学专业贴合医药行业需求，包括健康科学、化学、生命科学和统计学等领域知识；旨在培养具备扎实的理论知识、过硬的专业技能、持续的发展能力、国际视野和国际竞争力的高级技术和管理人才，为国家的医药行业发展提供人才支撑。

