

生物学-英文培养 (Biology)

Biology is a science that studies the species, structure, function, occurrence and development law of organisms at all levels of living systems, life phenomena and biological activity law, as well as the relationship between organisms and the surrounding environment. With the development of science and technology, biology has absorbed the achievements of mathematics, physics and chemistry, and gradually developed into an accurate, quantitative and in-depth science at the molecular level. Biology research tends to be multi-level, multi-scale, multi-field and multi-discipline integration, which generally reflects the characteristics from static analysis of life activities to dynamic comprehensive research. Especially, the development of bioinformatics and omics has strongly promoted the rapid development of biology. In the 21st century, biology will not only make great breakthroughs in the study of the nature of life, but also play an extremely important role in solving problems in many fields such as human health, energy, food and environment. With the rapid development of life science and biotechnology, biological industry is creating new economic growth points and developing into a pillar industry of national economy.

Biology of our university is a first-level discipline granting doctor's degree and master's degree. It is a first-class discipline in Zhejiang Province, with botany, cell biology, biochemistry and molecular biology, microbiology as its main work, and biopharmaceutical as its characteristic and dominant subject. There are zhejiang Key Laboratory of Silkworm Bioreactor and Biomedicine, Zhejiang Key Laboratory of Plant Secondary Metabolism Regulation, Zhejiang Academician expert Workstation and Zhejiang International Cooperative scientific Research Base. Our discipline focus on development trend and active field of life science, docking biological industry development in Yangtze river delta to the demand for innovative talents. To accelerate the high quality development of biological and pharmaceutical industry of Zhejiang Province, to build the highland of life health science and technology innovation, it has become an important base that could implement the high-level of scientific research, high-level talent training in the field of life science in Zhejiang Province, and it is able to provide intellectual and technical supports for the development of life and health industry.

I. Objectives

(1) Develop the friendship with People's Republic of China through learning and understanding the laws, system, society and culture, etc., of China.

(2) Promote the capability of scientific research and professional work in Biochemistry and Molecular Biology area.

(3) Master Chinese language, own the ability of using Chinese to read technical literature and professional exchange.

II. Research Areas

1. Biochemistry and Molecular Biology, molecular biology of silkworm baculovirus

2. Tumor cell biology and tumor targeting gene-viral therapy

We focus on the fields of development of novel drug for Cancer targeting Gene-Viral Therapy, molecular mechanism of cancer formation, development etc.

3. Ecology and botany, secondary botany metabolism

4. Biomaterials

5. Biological pharmacy and silkworm bioreactor

The main research focuses on genetic engineering pharmaceuticals, especially using silkworm pupae as a bioreactor. *B. mori* has been used as a bioreactor for the production of recombinant proteins using the BmNPV expression system. Baculoviruses do not infect vertebrate animals, and the system itself is safe. These features make the silkworm system an ideal expression and delivery package for producing medicinal proteins for oral administration. This expression system is inexpensive, convenient and produces large amounts of proteins. This system has been widely used to express recombinant proteins.

6. Enzymology and Proteomics

Applying Mass spectrometry-based proteomic technology to identify protein target or protein posttranslational modification that associate with disease, such as cancer biomarkers or bacterial effector proteins that mediate signal transduction of host cells. We have MALDI-TOF and LC-MS mass spectrometry in our lab.

7. Bioinformatics

8. Microbiology and botany virus

III. Length of Study

The normal study length for full-time research postgraduates is 3 years. Students who finish their courses ahead of schedule and attain the standards of degree conferment can, after approval, apply for the degree at an earlier time (not earlier than 2.5 years), while the maximum length of schooling is 4 years.

IV. Credit Requirements

The course-learning phase of the master's degree program adopts credit system. Students majored in science and engineering are required to take at least 32 credits, with at least 19 credits of degree courses. It is required to take at least one professional degree course or selective course across first-class disciplines. Language Requirements: HSK 3 or above.

V. Curriculum

Course Classification	Course Code	Course Name	Hour/Credit	Semester	Notes	
Degree courses	FL10015	The Outline of China*	36/2	1	(Entirely in English)	
	CC10009	Basic Chinese (I)	54/3	1	(For beginners of Chinese language among foreign graduate students)	
	CC10010	Basic Chinese (II)	36/2	2	(For beginners of Chinese language among foreign graduate students)	
	FL10026	English Writing of Academic Paper	16/1	1		
	IF10001	Education on China's National Conditions for International Students A	16/1	1		
	Major-related degree courses	BS11024	Advanced Cell Biology*	48/3	1	
		BS11025	Advanced Molecular Biology*	48/3	2	
		BS11026	Advanced Biochemistry*	48/3	1	
		BS11027	Advanced microbiology*	48/3	2	
	Non-degree courses	All optional courses in the university curriculum are open to students of this program.				
Others	Academic Seminar		/1	separated		
	Academic Report		/1	separated		
	Practical Training			Students are required to take at least 2 weeks practical training, participate in at least one social investigation, and write relevant report. Normally the training should be completed in the first academic year.		
	Thesis Proposal			The 3rd semester		

	Thesis Writing		The 3rd-6th semester
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C=Compulsory, O=Optional

* Students can decide whether to take this optional course or not according to their different research area.

VI. Dissertation Requirement

Dissertation for academic master degree is an important part of the program of the master degree students. The purposes of the dissertation include training the postgraduate students to undertake scientific research and professional technical activities, promotion of student's ability of scientific innovation, and problem shooting, analysis and solution. The postgraduate students will be encouraged to undertake the scientific research projects organized by the supervisors. The dissertation is assumed to have important academic or practical application values with novel scientific ideas. Following are important points which should be observed to guarantee the quality of the dissertation:

(1) The dissertation should put forwards novel scientific ideas on essential theory, calculation methods, testing technology and manufacturing processes, or solve some practice problem in technology or engineering with existed theory or new scientific and technical achievements. And the dissertation should have important academic or practical application values.

(2) The postgraduate students need to select a research direction when entering the school with the help of supervisors, and determine the research project for dissertation after searching the literatures and performing investigation, etc. and then complete the dissertation opening report during the third semester(generally during week 9 to 10).

(3) The postgraduate students should complete the dissertation independently under the instruction of supervisors.

(4) The postgraduate students should meet the needs of paper publishing before the oral defense of the dissertation according to the Requirement of Publishing Papers for Master Degree Students of Zhejiang Sci-Tech University.

(5) The dissertation should be edited and printed by the computers with the format referring to the Criterion of the Dissertation for Academic Master Degree of Zhejiang Sci-Tech University.

VII. Teaching Format

Supervisors or a supervising group of teachers will tutor the postgraduate students for academic master degree.

VIII. Graduation & Degree Conferment

Students who meet the standards of graduation, having completed the required courses, passed the examinations within the study duration, passed the Chinese Proficiency Test (HSK) and obtained the Level 3 Certificate and successfully defended their thesis, will be awarded the graduation certificate; those who meet the standards of academic degree conferment and are approved by the university academic degree evaluation committee, will be conferred the corresponding degree.

Signature of Program Director:

Signature of Director of School Academic Degree Committee:

Date: