

# **Educational Program for the Master of Environmental Science and Engineering (International Students)**

## **一、 Training Objectives**

1. Comply with the relevant laws and regulations in China and the academic ethics.
2. Hold integrated theoretical and professional knowledge in the field of environment and ecology, learn relevant experimental skills, and integrate theories and technologies of multiple disciplines, provide scientific ideas and technical services for solving ecological and environmental problems and sustainable development.
3. Graduated students could be competent in teaching, research, and management jobs in schools, research institutes, government departments, and environmental protection enterprises, and contribute to the national sustainable socioeconomic development and environmental protection.

## **二、 Research Area**

1. Environmental Pollution and Control Chemistry
2. Energy and Environment Catalysis
3. Integrated Environmental/Disaster Risk Assessment and Synergistic Safety Prevention and Control
4. Municipal Wastewater Reclamation and Storage
5. Environmental Pollution Control and Resource Utilization
6. Environmental Ecology and Wetland Conservation
7. Animal Ecology and Conservation Biology
8. Ecosystem Ecology and Soil Biology

## **三、 Academic Requirement**

The basic length of study is 3 years, and the maximum length of study is 4 years.

During the semester, one SCI paper must be officially published (with proof or online) as the first author, or meet the graduation requirements for domestic master's degree students in the School of Environment. Only those who meet the above conditions can apply for a master's degree.

## **四. Training Mode**

Master's degree training includes course study, thesis work, and practical activity.

- (1) The course study emphasizes the cultivation of graduate students' independent learning abilities and practical abilities. Students can reasonably arrange their study time according to their study plan and complete all the required credits before applying for the thesis defense.
- (2) The thesis work focuses on systematic and comprehensive research training for students and cultivates their ability to discover, analyze, and solve problems by comprehensively applying the knowledge they have learned. Through the formulation of the thesis work, the students will enter the thesis research state as early as possible.
- (3) Cultivate the ability of ecology graduate students to carry out practical fieldwork using laboratory and field experimental work, combine experiments with thesis, and carry out practical

education throughout the whole process of training.

2. Adopting a combination of mentors' guidance and collective training methods. Give full play to the leading role of mentors in the cultivation of students, guide and promote the personalized development of students; at the same time, give full play to the collective wisdom, and broaden the academic horizons of students.

## 五、Course Study

### 1. Credit Requirement

The total number of credits for master's degree students should not be less than 24 credits. The credit requirements for each category are as follows: 7 credits for public basic courses, 6 credits for disciplinary basic courses, 8 credits for professional backbone courses, and at least 3 credits for developmental direction courses.

### 2. Curriculum and Credit Distribution

**The list of curriculum**

Course Type	Course Code	Course Name	Semester	Period	Credit	Comment
Public Basic Courses		Survey of China	autumn		3	
		Public Chinese	autumn		4	
Disciplinary Basic Courses		Environmental Science Theory and Methods	autumn	36	2	Required Subject
		Environmental Engineering Technology and Methods	autumn	36	2	
		Ecological Theory and Methods	autumn	36	2	
Professional Backbone Courses		Environmental Chemistry and Risk Management	spring	36	2	
		Modern Water Treatment Technology and Case Analysis	spring	36	2	
		Population	spring	36	2	

		maintenance and community construction				
		Literature Reading and Review	autumn	18	1	
		Frontiers and Progress of Disciplines	autumn	18	1	
Development Direction Courses		Environmental behavior and toxic effects of pollutants	autumn	36	2	Elective Subject
		Environmental Catalysis	autumn	36	2	
		Natural Disaster Risk Assessment and Management	autumn	36	2	
		Modern Environmental Ecological Engineering	autumn	36	2	
		Wetland ecosystem functions and utilization	autumn	36	2	
		Animal Ecology and Adaptive Evolution	autumn	36	2	
		Soil Biodiversity and Ecological Processes	autumn	36	2	
Interdisciplinary Courses	Graduate students can choose interdisciplinary courses as credits for their development direction courses					

Note: 1) The Frontiers and Progress of Disciplines course takes the form of listening to

academic reports, and graduate students shall listen to academic reports no less than 6 times during the first three semesters of the academic year, and the counselors shall sign in to assess the attendance and submit the assignments at the end of the third semester.

2) Each department shall be responsible for the construction of the Disciplinary Basic Courses and Professional Backbone Courses; the construction of the Development Direction Courses shall be organized by the academic leaders of the team of the major, and the contents include theories of disciplines, research methods, and thesis writing, etc., which shall be undertaken by the team members together.

### **3. Individual Learning Plan**

Graduate students should develop an individual study plan under the guidance of their mentor. The individual study plan should be completed within three months of enrollment.

### **4. Teaching and Assessment Method**

The teaching method is a combination of lectures and seminars. The credits must be awarded by assessing and passing the courses.

The final examination is generally conducted in a closed/open-book manner for the Disciplinary Basic Courses; the Disciplinary Basic Courses, the Professional Backbone Courses, and the Development Direction Course are assessed in various ways such as book reports, laboratory reports, investigation reports, etc., and the final examination is conducted in the way of writing a course paper.

## **六、 Dissertation**

The thesis work focuses on guiding students to use scientific methods to solve practical problems, including literature review, proposal report, research progress report, and research review and thesis defense.

### **1. Thesis Proposal and Inspection**

The proposal is usually given during the first semester of graduate studies. 1-2 weeks before the proposal meeting, students are required to submit the proposal to their mentors for revision to finalization. The proposal report shall be conducted uniformly on a departmental basis.

The requirements for the proposal report should comply with the relevant regulations of the school, and the report time shall not exceed 15 minutes. All mentors should score and take the average score to determine whether the student has defended. For students who fail to pass the proposal, it is required to revise and reopen the proposal within a deadline (approximately mid-December). The reference scoring standards for preparing the thesis proposal for graduate students can be found in the "Graduate Management Rules of the School of Environment, Northeast Normal University".

## **2. Inspection**

The mid-term examination will be held at the end of the fourth semester. The college will organize the checking of the completion of the project by the mentor group (not less than 3 persons), and the sub-committee of degree evaluation of the college will carry out random checking and supervision.

The report shall be made in conjunction with the opening report and through PPT, and the reporting time shall not be more than 10 minutes. The main contents include the overview; the content, methods, and proportion of the completion; the results and innovations; the problems and solutions; and the next step plan and arrangement.

The average grade will be used as one of the bases for the evaluation of awards and merits. For the grading criteria of the mid-term examination, please refer to "Graduate Management Rules of the School of Environment, Northeast Normal University".

## **3. Thesis Defense**

The thesis is blindly examined outside the university, and those whose external examination meets the relevant regulations of the university are allowed to participate in the graduation defense. In the sixth semester, students will have their graduation defense by the regulations of the university and the department as a unit. All graduate students in the department and the mentors who are qualified to supervise graduate students must attend the defense. The average of the scores given by the teachers will be taken as the grade of the defense. All of the thesis will be externally examined. Failure to pass the defense will delay the graduation. The grading criteria for the graduation defense are listed in the "Graduate Management Rules of the School of Environment, Northeast Normal University".

## **七、Literature Reading**

1. First-year students are required to read at least 30 high-level English references on the topic and write a literature review report, which will be submitted to the faculty for evaluation.

2. The outline of the literature is suggested as follows: background and significance (importance, scientific value, application prospects); the current status of research in China and abroad (basic concepts and principles, review of the research status, and summary of the literature on the description of the problem and the solution); and references (the number of articles, the proportion of the literature published in the last three or five years, and the proportion of SCI records).

## **八、Practical Activity**

### **1. Academic Presentation**

Establish a regular academic reporting system and organize the "Master Forum" by the college. Graduate students must make a public academic presentation within the academic

institution within the length of their schooling, and the school require the graduate students to report the research progress in time. Take whether to make academic reports as one of the conditions for a graduate qualification review. Reward outstanding students, and serve as the basis for graduate evaluation.

## **2. Academic Exchange**

Encourage graduate students to participate actively in academic international conferences and make posters or conference reports.

This training program is aimed at international students majoring in Environmental Science, Environmental Engineering, and Ecology at the School of Environment, and will be implemented starting in 2023. If there is any contradiction with the relevant regulations of the higher-level unit, the relevant regulations of the higher-level unit shall be followed.