



# E-STEM Education

Online course

中国学员请关注公众号 (CornellCEL) 获取课程中文详情。

**Read about the course and FAQs below.**

## Overview

E-STEM Education is designed for teachers and nonformal educators who want to help youth become scientifically literate, environmental citizens. Teachers will learn how to integrate environmental education into STEM classes such as biology and earth science, and non-formal educators will learn how to make science part of nature and environmental education programs. You will also learn about inquiry-based learning, project-based learning, and other active learning pedagogies, and apply what you learn to develop your own E-STEM lesson plans.

## Instructors

An experienced and dynamic team from Cornell University Civic Ecology Lab: Anne Armstrong (PhD Candidate), Marianne Krasny (Professor), Wanying Wu (Chinese language assistant), plus 10 Chinese language teaching assistants.

Course developers (video lecturers): Marianne Krasny, Yue Li, and Alex Kudryavtsev.

## Participants

Teachers, educational professionals, volunteers, parents, university students, and environmentally-concerned citizens from any country.

## Learning outcomes

Participants will:

1. Understand the connection between environmental education and science education.
2. Learn about different outcomes of E-STEM education.
3. Explore different learning approaches including problem-based, inquiry-based, project-based, and place-based learning.
4. Develop an E-STEM lesson plan for their classes, families or communities.
5. Participate actively in a global online community of E-STEM educators.

## Course Outline

### **Week 1: Introduction to E-STEM education**

Introduction  
Environmental Education  
Science Education  
Technology

### **Week 2: E-STEM Outcomes**

Systems Thinking  
Critical Thinking  
Research Skills  
Environmental Behavior

### **Week 3: Learning Approaches**

Problem-based Learning  
Project-based Learning  
Inquiry-based Learning

### **Week 4: E-STEM Partnerships**

Connecting across Disciplines  
Partnerships  
Connecting to Scientists

### **Week 5: Lesson Planning**

Teamwork  
Assessment  
Lesson Planning

## Webinars

*We provide one weekly webinars during the course. You can watch them live or the recorded version.*

## Dates

TBD.

## Workload

5 weeks (4-5 hours of work per week). During the last week, you will complete and submit a lesson plan.

## Certificates

Participants who complete the course are awarded a Cornell University certificate (PDF). Weekly assignments include lectures, readings, and discussion questions. Participants are required to participate in a minimum of one

course webinar in person or by watching one recorded webinar. Required course project is an E-STEM lesson plan.

## Educational approach

The course is based on two principles: (1) Learning is social: participants learn by discussing ideas and sharing resources; (2) Learning should lead to action: participants will apply course content to develop and implement an E-STEM lesson plan with their classes, families, or communities.

## Technology.

Edge edX for readings, pre-recorded lectures, and discussion questions (asynchronous). We will also use Facebook, WhatsApp, and WeChat for optional informal discussions and sharing. We will host one ZOOM webinar each week. Webinars will be recorded for participants unable to attend in person.

## Languages

The pre-recorded lectures will include both English and Chinese captions. Discussions will be in English. Participants are welcome to form study groups in different languages.

## Cost

**\$60 fee. Most participants pay this fee.**

Options available to pay a higher fee (\$120) to sponsor another student, or pay a lower or no fee if you are unable to pay or live in countries without internationally accepted payment systems (e.g., Afghanistan, Iran).

## FREQUENTLY ASKED QUESTIONS

### 1. What time(s) of the day will this course take place?

During the course time, we will release most of the course materials including pre-recorded video lectures, readings, and discussion questions every Monday morning (NY time). You can choose anytime during each week to review. We will also host one ZOOM webinar each week. Webinars will be recorded for participants unable to attend in person.

### 2. Why do you have three types of enrollment for different fees?

We are committed to creating equal access to the course materials and to instructor feedback regardless of where a student lives or his/her ability to pay. Students can pay a reduced fee or not pay if they live in a country that does not have a system to transfer funds to the U.S. (e.g., Afghanistan, Iran, Somaliland) or because the basic \$60 fee is beyond their reach (economic hardship). Most course participants pay \$60, which helps support our online courses. We depend on your course payment to pay our teaching staff, and we are grateful for your support!

### 3. If I pay \$120, can I link with the student I sponsor?

No, we would like to keep who pays and who doesn't pay anonymous. However, you will be able to connect with students from many different countries through the course social media and EdX Edge discussion board.

### 4. Can I sponsor more than one student?

Yes, we would be grateful for your support of other students, especially in developing countries, who otherwise cannot afford paying for this course.

### 5. What is the refund policy?

You may request a refund by Friday, July 9.

### 6. How long is the course?

This is a 5-week course with one additional week to complete the course project. The course project is a lesson plan. If you complete all required course assignments you will receive a Cornell Certificate.

### 7. Can I submit the course project in my native language?

We strongly encourage you to submit all assignments in English so that instructors and other students can give you feedback. But you can also submit your final project in Chinese or Spanish. We have teaching staff who speak these languages.

### 8. How will I receive course certificates?

You will receive your course certificate via email within one month after the end of the course.

### 9. What social media are used in this course?

We use optional Facebook, WhatsApp, and WeChat groups for participants and instructors to share ideas and resources. Only course participants can be part of these groups; please do not invite people outside this course.

10. **Can I share course materials with my colleagues and friends?**

You are NOT allowed to share, copy, distribute, or forward any materials from this course. They are only for your own learning.

If after reading above, you still have questions, contact us at [CivicEcology@cornell.edu](mailto:CivicEcology@cornell.edu)  
(Please write "E-STEM" in the subject line.)

## Support

The development of this online course was supported by the Tencent Foundation and The Nature Conservancy China.



© 2020 Civic Ecology Lab