

Plastics: Impact and Action

Online course syllabus • Cornell University's Civic Ecology Lab



Plastics influence every part of our lives – from packaging and clothing to transportation and health. This course examines the global plastic system and equips participants to design meaningful actions that reduce plastic pollution. Using systems thinking, we will explore the plastic lifecycle, governance approaches, community initiatives, and creative solutions. Participants will apply concepts in their own contexts through an action plan that can be implemented in schools, organizations, communities, or cities.

Who is this course for?

- **Community leaders & volunteers** — Mobilize neighbors, inspire collective action, and advance stewardship projects that reduce plastic waste and build healthier communities.
- **Nonprofit staff & educators** — Design impactful education programs, campaigns, and policy initiatives that resonate with diverse audiences.
- **Organizations & cities** — Implement organizational changes, launch clean-up and reuse programs, and shape city-level policies that address plastic pollution.
- **K–12 teachers** — Integrate plastics and sustainability topics into science, civics, or art classes while meeting learning standards.
- **University students & early-career professionals** — Build a portfolio project, grow your network, and explore careers at the intersection of plastics, sustainability, and community change.

Learning goals

By the end of this course, participants will be able to:

1. **Apply** systems thinking to describe the plastic lifecycle, global plastic flows, and environmental and health impacts.
2. **Evaluate** the feasibility and effectiveness of governance strategies such as bans, recycling, and extended producer responsibility.
3. **Develop** and implement a locally relevant action project to reduce plastic pollution.
4. **Reflect** critically on your intervention and outcomes, and share your insights with peers.
5. **Participate** actively in a global online community of educators, leaders, and citizens committed to tackling plastic waste.

Tangible course outcomes

Different participants will derive different benefits, including:

- **Action-ready plan** — Draft a plastics action plan or strengthen an existing initiative for your organization, school, or community.
- **Ecosystem & community impact** — Explore how clean-ups, reuse, and organizational changes reduce plastic waste and support stewardship and policy-making.
- **Professional network** — Connect with a global cohort of educators, students, and leaders working to reduce plastic pollution.
- **Cornell certificate** — Earn a digital certificate verifying 25 professional development hours.

Course outline, sample topics

Week 1: The Global Plastic System

A brief history of plastics
Intro to systems thinking
Plastic from start to finish
Plastic pollution overview
Plastic and environmental justice

Week 2: Plastic Impacts

Plastics and climate change
Macro plastic impacts
The rise of microplastics
Aquatic plastic pollution
Litter cleanups

Week 3: Plastic Governance

Extended Producer Responsibility
Recycling
Bag bans
Biodegradable, compostable, & bio-based plastics
Astroturfing and greenwashing

Week 4: Creativity in Action

Repurposing
Reuse and repair
Circular and sharing economies
The art of plastic waste
Thinking outside the plastic system

After Week 4, course participants will have two weeks to finish and submit a 1-page summary of the action they design – and take, if possible – to intervene in their local plastic pollution system; the final project for this course.

Certificate Requirements

To earn a digital certificate, complete weekly discussions, post comments for peers, participate in at least one webinar (live or recorded), and submit a capstone Action Plan by the deadline. The capstone reflects our philosophy of putting concepts into practice and aims to create tangible benefits in schools, communities, organizations, or cities by linking ideas such as stewardship, equity, governance, and creativity to real outcomes in reducing plastic pollution. The certificate reflects 25 hours of engagement. If you seek professional development credit, you may share this syllabus with your organization to verify rigor and applicability.

Tips for Success

Finish assignments on time; communicate proactively with peers; choose a capstone project that directly addresses plastic pollution in your context; share your experiences and ideas even if you are new to plastics education or action; center equity and inclusion in your project design and participation; and link course concepts to local data, pilot initiatives, or community campaigns.