

Industrial Ecology Graduate Certificate Program Course Requirements

The Industrial Ecology Certificate program consists of 15 credit hours.

Students should take one course from each of the five core areas (five classes total):

PROGRAM IN INDUSTRIAL ECOLOGY CORE COURSE (REQUIRED)

- NRE 557/CEE 586: Industrial Ecology (3 credits)

SYSTEM ANALYSIS AND SUSTAINABILITY (CHOOSE ONE)

- NRE 501.087: Technology and Community Sustainable Development (3 credits)
- NRE 514/EHS 572: Environmental Impact Assessment (2 credits)
- NRE 523: Ecological Risk Assessment (3 credits)
- AOSS 467: Biogeochemical Cycles (3 credits)
- NRE 550/STRAT566: Systems Thinking for Sustainable Development and Enterprise
- MECHENG 589: Sustainable Design of Technology Systems
- NRE 597: Environmental Systems Analysis
- NRE 573: Environmental Footprinting and Input-Output Analysis
- EHS 672: Life Cycle Assessment: Human Health and Environmental Impacts

ENERGY SYSTEMS (CHOOSE ONE)

- NRE 615: Renewable Electricity and the Grid
- NRE 574/PUBPOL 519: Sustainable Energy Systems
- NRE 567: Transportation Energy and Climate
- CEE 567: Energy Infrastructure Systems

ENVIRONMENTAL POLICY AND ECONOMIC ANALYSIS (CHOOSE ONE)

- NRE 475: Environmental Law
- NRE 513/STRAT 564 & 565: Strategy for Sustainable Development
- UP 532: Sustainable Development: Resolving Economics and Environmental Conflicts
- NRE 686/PUBPOL 563: The Politics of Environmental Regulation
- NRE 527/BE 527: Energy Markets and Energy Politics
- EHS 508: Principles of Risk Assessment
- NRE 570 & NRE 501.060/059: Environmental Economics: Quantitative Methods and Tools and one other Environmental Economics Topics Course**
*** NRE 570 and NRE 501.060/059 (topical courses) are half term courses. Taking NRE 570 and either 501.060/059 is considered one full-time PIE course*
- NRE 668/ECON 661: Advanced Natural Resource Economics
- NRE 669/ECON 662: Environmental Energy and Resource Economics
- ECON 437: Energy Economics and Policy

EXPERIENTIAL LEARNING REQUIREMENT (CHOOSE ONE ACTIVITY TO BE APPROVED BY ONE OF THE CO-DIRECTORS)**

- Participate in Sustainability without Borders projects
- Sustainability internship
- Other to be defined with program directors

***One additional course from the above list can be taken to fulfill experiential learning requirement, if approved by one of the co-directors.*