

ESG 301 Sustainability of the Long Island Pine Barrens (Elective)

Course Catalog description:

The ecologically diverse Long Island Pine Barrens region provides a habitat for a large number of rare and endangered species and contains the local aquifer, but faces challenges associated with protection of a natural ecosystem that lies in close proximity to an economically vibrant urban area that exerts intense development pressure. In this course we consider the interaction of the ecological, developmental and economic factors that impact the Pine Barrens and the effectiveness of decision support systems and technological solutions in promoting sustainability.

3 credits

Pre- or Corequisite(s):

ESG 100 or CHE 131 or ESG 198 or GEO 101 or GEO 102; U3 or U4 status

Text(s) or other required material:

Course learning outcomes:

Understand basic concepts of soil and ground water
Understand the role of evolving land use patterns on environmental impact
Learn how remediation technologies play a role in limiting the impact of pollutants

Topics Covered:

Week 1. Introduction to Pine Barrens on Long Island and elsewhere
Week 2. The natural system – geology and soil
Week 3. The natural system – hydrology and climate
Week 4. The natural system – glacial retreat to pre-Columbian
Week 5. Effects of fire – natural and human
Week 6. Effects of forestry and farming
Week 7. Development – land use history and suburbanization
Week 8. Establishing protection of the central Pine Barrens
Week 9. Protection by governmental organizations (GOs) and non-governmental organizations (NGOs)
Week 10. Transfer of development rights and economic forces
Week 11. Nature of industrial and non-industrial pollutants
Week 12. Emergence of “green” manufacturing and pollution prevention technologies
Week 13. Computer based modeling, monitoring and decision support; Use of soil/groundwater remediation technologies
Week 14. Evaluating sustainability: wrap up

Class/ Laboratory Schedule, i.e. number of sessions each week and duration of each session:

ESG	301	LI Pine Barrens	LEC	1	TH	5:20 PM	8:10 PM
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Contribution of Course to **meet requirement of Criterion 5:**

ability to apply knowledge of math, engineering, and science (10%); ability to analyze and interpret data (5%); ability to design system, component or process to meet needs (5%); ability to function on multi-

disciplinary teams (20%); understanding of professional and ethical responsibility (25%); ability to communicate effectively (10%); broad education (10%); knowledge of contemporary issues (15%)

Relationship of course to program outcomes:

Person(s) who prepared this description and date of preparation: