ENV 201 – The Urban Environment Credits: 3

Course description: This course explores the social, cultural and technological forces that shape our contemporary cities. Students will understand the policies and preferences that gave rise to urban, suburban and exurban ecologies, and the ways in which these places might be made more sustainable. Using examples from around the world, the course exposes students to exemplars of place-based sustainability—from the level of the dwelling, through the neighborhood, and on to the metropolitan agglomeration. The course exposes students to urban ecology as a way of re-integrating nature into our cities, exploring concepts such as urban heat island mitigation and green infrastructure—rain gardens, green roofs, permeable pavements and Low Impact Development —as well as urban agriculture, community gardens, urban parks, and Brownfield remediation

Student outcomes/objectives.

Upon successful completion of this course, students will be able to:

1. Explain the similarities and differences between human ecology, industrial ecology, landscape ecology and urban ecology.
2. Estimate the impacts of people and their activities on cityscapes.
3. Argue how geology and geomorphology shaped the development of cities.
4. Discuss the issues and potential remediation techniques available to address issues related to urban soils.
5. Predict how environmental change will affect animals, plants and people in urban areas.
6. Differentiate a range of urban habitats including hard surfaces, vegetated surfaces and wetlands, urban flora and fauna.
7. Describe how some animals and plants provide health and well-being benefits for humans while others spread disease and cause humans other health and well-being issues.
8. Evaluate ecosystem service non-use valuation techniques and explain the advantages and disadvantages of each technique.
9. Criticize the role of urban design, urban planning and urban ecology in creating resilient cities.
10. Assess whether or not urban places can be self-sufficient in food, energy, water and social interaction.

Detailed outline of suggested topics.

Week	Topic
1st	• Introduction to the course • The context of urban ecology • Cities and ecology

2nd	• The context of urban ecology • Cityscapes: places for nature • Cities as systems
3rd	• The physical environmental factors affecting life in towns and cities • The urban atmosphere: weather, climate and air quality • Urban geomorphology and urban soils: knowing the ground you build on and which you cultivate
4th	• The physical environmental factors affecting life in towns and cities • Urban hydrology • Urban biogeochemistry
5th	• Urban habitats, plants and animals: species diversity in urban environments • Urban habitats
6th	• Urban habitats, plants and animals: species diversity in urban environments • Urban flora • Urban fauna
7th	**<u>Midterm Exam</u>** In class discussion of research papers
8th	• Values and uses of urban ecosystem services • Urban ecosystem services and the assessment of their values
9th	• Values and uses of urban ecosystem services • Contact with nature: human health and well-being
10th	• Values and uses of urban ecosystem services • Restoration ecology and creative conservation: local and regional collaboration *Submission of research paper outline*
11th	• Caring for the urban environment: progress towards sustainable, liveable cities: responsibilities and planning • Urban ecology stewardship
12th	• Caring for the urban environment: progress towards sustainable, liveable cities: responsibilities and planning • Adapting to change

13th	• Caring for the urban environment: progress towards sustainable, liveable cities: responsibilities and planning • The role of urban ecology in future cities
14th	Presentation of Research Papers and Review for Final Exam
15th	**Final Exam**

*Sample presentation topics:

- Urban Environmental Health Problems (inadequate household water, sanitation and indoor air pollution)
- City Regional Environmental Problems (ambient air pollution, inadequate waste management, pollution of rivers & lakes)
- Impact of Urban Activities on Human and Animal Habitats (ecological disruption, resource depletion, emission of acid precursors)
- Urban Environmental Justice (effectiveness of current policies)

Proposed student texts.

Urban Ecology: An Introduction by Ian Douglas & Philip James
ISBN-13: 978-0415538954
ISBN-10: 0415538955

Evaluation criteria and methods:

1. Midterm exam 25 points
2. Final comprehensive exam 35 points
3. Case Study (or research paper) (5pages) 20 Points
4. Presentation (individual) 15 points (rubric attached)
5. Participation & attendance 5 points