

Course Syllabus

INFO 400/590: ENVIRONMENTAL POLICY HEALTH & DESIGN

Indiana University, Spring 2018

T 2:30 – 3:45, BH 204

Instructor: Dana Habeeb

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OVERVIEW Cities today are facing some of the most difficult environmental health challenges in modern society. This course is designed to provide students with an understanding of how science, policy, and design impact environmental health by examining a range of topics from conservation, air quality, water quality, climate change, and food systems. The class aims to equip students with the conceptual and analytical tools needed to assess and mitigate the impacts of urbanization on people's health and environment. Integrating the disciplines of environmental informatics, environmental science, and urban policy - the class will explore ways to leverage information and communication technologies to design connected, healthy and sustainable communities with the goal of making cities and citizens more resilient to future environmental problems.

The class is structured as both a discussion course and as a practicum. In the discussion component, readings, lectures, and group discussions explore a range of topics in the areas of environmental health, policy, and design. Discussions and student presentations focus on explorations of "green" design principles and the use of innovative information and communication technologies that seek to minimize the environmental impacts of urbanization. For each substantive area of the course, readings and lectures focus on the science, policy, health, and design aspects of a major resource issue within an urban context and discuss current design and technological approaches implemented to alleviate environmental challenges.

The practicum component of the course consists of a group project which leverages knowledge and skills gained in the course to develop innovative sustainable solutions to environmental problems. Integrating principles of science, policy, and design behind environmental planning and health, the projects will sharpen students' technical skills enhancing their ability to creatively and collaboratively tackle challenging environmental problems.

EVALUATION Students will be evaluated on three sets of tasks including discussion participation, , 2 in-class exams, and a semester long group project. A description of each requirement and its relative weighting in grading follows. Also, please note that students will be expected to demonstrate a familiarity with the assigned readings and will be evaluated based on their comprehension of these readings.

Class Participation. Students' participation will be evaluated in terms of their familiarity with the assigned readings during class, class discussions, attendance and in class assignments. **(10%)**

Exam: Two exams will be administered to provide students with an opportunity to demonstrate mastery of the concepts and tools presented in readings and lectures. **(30%)**

Project: Students will engage in a semester long group project. The project is based on the EPA P3 - People, Prosperity and the Planet- grant. The P3 grant is a student design competition for sustainability. The objective of the project is for each team of students to develop an innovative sustainable solution to an environmental problem. The students will submit multiple items throughout the semester with the two main items being a poster and a report based on the guidelines of the P3 application. The class will present their poster at the SICE project symposium **(60%)**

TEXTS: Course materials, are available as PDF files on Canvas

COURSE OUTLINE

1. Introduction to Environmental Planning

January 9: Tuesday: Introduction and Overview

January 11: Thursday: The State of Environmental Planning

Orr, D. 1994. "What is Education For?" *Earth in Mind: On Education, Environment, and the Human Prospect*. Washington, DC: Island Press, 7-15

Wilson, E.O. 1995. "Is Humanity Suicidal?" In *People, Penguins, and Plastic Trees*, Eds. Christine Pierce and Donald VanDeVeer (Wadsworth Publishing Company, Detroit), 34-39

Diamond, J. 2005. *Collapse: How Societies Choose to Fail or Succeed*. London: Viking, 486-499)

January 16: Tuesday: Principles of Sustainability

Nebel, B. & R. Wright. 1998. *Environmental Science*. New Jersey: Prentice Hall: 27-40

Nebel, B. & R. Wright. 1998. *Environmental Science*. New Jersey: Prentice Hall: 72-77

Nebel, B. & R. Wright. 1998. *Environmental Science*. New Jersey: Prentice Hall: 81-104

Randolph, Chapter 2: *Environmental Planning for Sustainability*, 27-53

January 18: Thursday: Project Ideation (In class exercise)

January 23: Thursday: Market Orientation to Environmental Planning

Baird, C. (1994). "Conservation Values and Ethics." In *Principles of Conservation Biology*, Eds. Gary

Meffe and Ronald Carroll (Sinauer Associates: Sunderland, MA), 24-35

Norgaard, Richard (1994). "Ecology, Politics, and Economics: Finding the Common Ground for Decision Making in Conservation." In *Principles of Conservation Biology*, Eds. Gary Meffe and Ronald Carroll (Sinauer Associates: Sunderland, MA), 439-455

Costanza, R. et al. (1997). "The Value of the World's Ecosystem Services and Natural Capital."

Ecological Economics 25: 3-15

Kelman, S. (1995). "Cost-Benefit Analysis: An Ethical Critique." In *People, Penguins, and Plastic*

Trees, Eds. Christine Pierce and Donald VanDeVeer (Wadsworth Publishing Company, Detroit),

384-390

January 25: Thursday: Policy Orientation to Environmental Planning – SICE Career Fair

Stone, C. (1995). "Should Trees Have Standing? Toward Legal Rights for Natural Objects." In *People, Penguins, and Plastic Trees*, Eds. Christine Pierce and Donald VanDeVeer (Wadsworth

Publishing Company, Detroit), 113-125

McHarg, Ian (1969 – 25Th Anniversary Edition, 1992). "A Step Forward." *Design with Nature*, New York: John Wiley & Sons, 31-41

January 30: Tuesday: Design Orientation to Environmental Planning

Hough, Michael. 1995. *Cities and Natural Processes*. New York: Routledge, 5-25

Randolph, Chapter 5: Environmental Data and Geospatial Analysis, 107-142

1. Urban Greenspace and Wildlife Management

February 1: Thursday: Conservation Biology and Classification Systems

Randolph, Chapter 10: Landscape and Urban Ecology, Urban Forestry, & Wetlands, 317-341

Randolph, Chapter 11: Wildlife Habitats, & Urban Biodiversity, 364-374

February 6: Tuesday: Land Conservation and Wildlife Management

Randolph, Chapter 11: Wildlife Habitats, & Urban Biodiversity, 388-400

Randolph, Chapter 15: Land Conservation for Sustainability, 529-563

February 8: Thursday: Corridor Design and Greenspace Strategies

Randolph, Chapter 11: Wildlife Habitats, & Urban Biodiversity, 374-387

III. Wetlands, Runoff, and Water Quality Management

February 13: Tuesday: Wetlands Ecology & Stream Hydrology

Randolph, Chapter 10: Landscape & Urban Ecology, Urban Forestry & Wetlands, 342-354

Randolph, Chapter 7: Water & Land Use: Stream Flow, Flooding and Runoff Pollution, 186-199

Randolph, Chapter 7: Water & Land Use: Stream Flow, Flooding and Runoff Pollution, 213 - 234

February 15: Thursday: Water Pollution Control

Daniels, T. & K. Daniels (2003). *The Environmental Planning Handbook*. Planners Press:

Washington, DC: 99-124

Avery, T. & G. Berlin. 1992. *Fundamentals of Remote Sensing and Airphoto Interpretation*. New

York: MacMillian Publishing Co, 1-19

February 20: Thursday: Water Responsive Design

Randolph, Chapter 8 Stormwater Management and Watershed Restoration, 247-289

February 27: Tuesday: Exam I

March 1: Thursday: In Class Work Session

1. Air Quality Planning

March 6: Tuesday: Atmospheric Structure and Air Pollution Formation

Lovelock, J. 2006. *The Revenge of Gaia*. New York: Basic Books, 39-47

Nebel, Bernard & Wright, Richard (1998). *Environmental Science*. New Jersey: Prentice Hall: 371-384

March 8: Thursday: Class Pin-Up

March 13 & 15: Spring Break – Enjoy!

March 20: Tuesday: Air Pollution Control

Daniels, T. & K. Daniels (2003). *The Environmental Planning Handbook*. Planners Press: Washington, DC: 128-149

EPA. *Frequently Asked Questions about Air Permits*. Region 9

March 22: Thursday: In Class Work Session

March 27: Tuesdat: Urban Form and Air Quality

Beatley, T. 2000. *Green Urbanism*. Washington DC: Island Press, 109-135

1. Energy and Climate Change

March 29: Thursday: Oil, Energy, and Thermodynamics

Nebel, B. & R. Wright. 1998. *Environmental Science*. New Jersey: Prentice Hall: 55-66

Georgescu-Roegen, Nicholas 1993. "The Entropy Law and the Economic Problem." In *Valuing the Earth: Economics, Ecology, Ethics*, Eds. Herman Daly and Kenneth Townsend (MIT Press, Cambridge), 75-88

Lovelock, J. 2006. *The Revenge of Gaia*. New York: Basic Books, 66-105

April 3: Tuesday: Greenhouse Effect and Climate Policy

Burroughs, W. 2001. *Climate Change: A Multidisciplinary Approach*. Cambridge University Press:Cambridge: 10-31

Agenda 21: Chapter 7 – Promoting Sustainable Human Settlement Development.
Found on the

[www.http://earthwatch.unep.net/agenda21/7.php](http://earthwatch.unep.net/agenda21/7.php) (Links to an external site.)
[Links to an external site.](#)

April 5: Thursday: Climate Responsive Design

Stone, Brian. 2005. "Physical Planning and Urban Heat Island Formation." In *Smart Growth and*

Climate Change, Ed. M. Ruth (Island Press, Washington DC), 326-350

VI: The Emerging Urban Ecology

April 10: Tuesday: Moving from Green Buildings to Green Neighborhoods

Randolph, Chapter 16: Design with Nature for People, 564-600

April 12: Thursday: In Class Work - Poster Draft Due

April 17: Tuesday: Urban Symbiosis in Agriculture and Industry

Hough, Michael. 1995. *Cities and Natural Processes*. New York: Routledge, 189-218

April 18: Wednesday: SICE Project Symposium

April 19: Thursday: Symposium Recap and Exam Review

April 24 & 26: Project Meetings

FINAL EXAM: Thursday May 3rd from 5-7 pm in our normal classroom