

M.E. Rinker Sr. School of Building Construction
University of Florida
Gainesville, Florida 32611-5703 USA

ICM 6682 Construction Ecology & Metabolism SYLLABUS



Musée du Quai Branly in Paris

COURSE DESCRIPTION

This course has the objective of determining how to apply ecological theory and developments in industrial ecology to create what has often been described as Ecological Design for the built environment. Although Ecological Design or Ecologically Sustainable Design has been one of the key aspects of sustainable construction or green building, upon closer examination, contemporary approaches lack any true understanding of or incorporation of ecological principles, research, approaches, or key ideas. This course examines the major schools of thought in present day ecology to determine what can be applied either as model or metaphor for green buildings. The new discipline of Industrial Ecology, which applies ecology to industrial operations such as manufacturing, is examined for approaches that can be applied to Ecological Design. The work of architects attempting to apply ecology in their work will be examined to determine the state of environmentally friendly buildings being created using current approaches. Throughout the course subsidiary issues of materials, energy, water,

land use, and the integration of the natural and built environments will be examined. Specific directions will be provided during the course several weeks prior to the Due Date.

GENERAL DIRECTIONS

The reading assignments in are keyed to books, papers, the textbook, or Environmental Building News (EBN). When the assignment is to **Read** the reference, it is intended that you gain a thorough understanding of the book, paper, or other material. **Scan** means to obtain a cursory understanding or familiarity with the subject matter of the assignment. **View** means that the student is to view the Powerpoint lecture or video.

COURSE MATERIALS

This course has one required textbook and the online monthly journal, *Environmental Building News*, is also used.

Textbook

Construction Ecology: Nature as the Basis for Green Building, C. Kibert, J. Sendzimir, and G. Guy, Eds., London: Spon Press, 2002. Available from amazon.com in hard copy or Kindle E-book.

Environmental Building News

There are two ways of accessing Environmental Building News:

(1) Through the UF Library e-journal system. Log to www.uflib.ufl.edu and log into the library system. Click on Online Journals in the catalog and search for Environmental Building News. When the www.buildinggreen.com website you will

have access to current and past issues of the journal.

(2) Log into the UF network using VPN and then go to www.buildinggreen.com and click on News to get to the current and previous issues.

COURSE ASSIGNMENTS

The following are the graded assignments for this course:

1. Quizzes: There are 12 Quizzes, one associated with each Module. Once you start a Quiz you have 30 minutes to complete it. (240 points)

2. Assignments: Each module has an Assignment that you must complete, a total of 12 Assignments. These are worth 100 points each.

3. Research Projects: There are two Research Projects, a Mid-Semester Research Project and an End-Semester Research Project

Grading: The final student grade will be a letter grade based on the percentage of the Total Points Achievable. The grades based on the percentage are as follows:

94-100	A
90-93.9	A-
87-89.9	B+
84-86.9	B
80-83.9	B-
77-79.9	C+
74-76.9	C
70-73.9	C-
67-69.9	D+
64-66.9	D
60-63.9	D-
< 60	E

Points Available:

- | | |
|---------------------------------|------------|
| 1. Quizzes: 12 x 20 points: | 240 points |
| 2. Assignments: 10 x 50 points: | 500 points |
| 3. Research Projects: | 400 points |

TOTAL POINTS: 1140 points

Attendance: There are no mandatory attendance requirements for this course.

Grading Method: Grading will be based foremost on the quality of the written and oral submissions and presentations by the students, to include organization, graphics/models, grammar, spelling, punctuation, originality, and attention to detail.

Instructor:

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COURSE MODULES

Module Theme

- Module 1 – Introduction
- Module 2 - Defining an Ecology of Construction
- Module 3 – Material Circulation, Energy Hierarchy and Building Construction
- Module 4 – On Complexity Theory, Exergy, and Industrial Ecology
- Module 5 – Applying Ecological Emergence to Design and Construction
- Module 6 – Ecological Dynamics and Adaptive Architecture
- Module 7 – Minimizing Waste Emissions From the Built Environment
- Module 8 – Industrial Ecology and The Built Environment
- Module 9 – Construction Ecology and Metabolism I
- Module 10 – Construction Ecology and Metabolism II
- Module 11 – Ecologic Analogues and Architecture
- Module 12 – Semester Research Paper and Presentation