

**M.E. Rinker Sr. School of Building Construction, University of Florida**

**DCP 6913 - International Sustainable Development**

**Instructor: Dr. Robert Ries**

**Syllabus**

Catalog Description	Provides an overview of international trends in reducing the environmental impacts of land development and construction. The course introduces basic sustainability principles, reviews ethical frameworks regarding sustainability, examines sustainability principles and decision-making frameworks, looks at sustainable design and construction practices, and covers international agreements in the field of sustainability.
Pre-requisites and Co-requisites	No pre-requisites and no co-requisites
Objectives	To provide an overview of international trends in reducing the environmental impacts of land development and construction, introduce basic sustainability principles, review ethical frameworks regarding sustainability, examine sustainability principles and decision-making frameworks, look at sustainable design and construction practices, and cover international agreements in the field of sustainability.
Instructor	Dr. Robert Ries M. E. Rinker, Sr. School of Building Construction University of Florida 311 Rinker Hall Gainesville, FL 32611 Email: <a href="mailto:rries@ufl.edu">rries@ufl.edu</a> ; Tel: +1 (352) 273-1150 <a href="http://www.bcn.ufl.edu/">http://www.bcn.ufl.edu/</a>
Teaching Assistant	None
Who to Contact:	<ul style="list-style-type: none"><li>• Any question on the course <b>lectures or related learning issues</b>: Contact Dr. Ries, by email.</li><li>• Any question on the <b>grading of quizzes or assignments</b>: Contact Dr. Ries, by email.</li><li>• Any question or issue with <b>class absences or late work</b>: Contact Dr. Ries by email.</li><li>• For communication, use the mail feature on the class website.</li></ul>
Class Schedule	8 weeks of weekly class meetings

- Class Website
  - Course materials and grades are available to students on a course website. See the following :  
<http://lss.at.ufl.edu/>
  - Log on using your gator link ID and password.
  
- Textbook and Materials
  - No required textbook.
  - Instructor will provide course notes available on class website.
  
- Software
  - Email and Internet capability is required.
  - Student assignments will routinely involve the use of the following applications:
    - Word processing
    - Spreadsheet
    - Graphic Software for sketches (occasionally)
    - Media player for recorded lectures.
  
- Submitting Assignments
  - Unless given other instructions, submit your work assignments using the Assignment Feature on the course website.
  - A 40% deduction will be imposed for assignments up to 24 hours late. Assignments more than 24 hours late will receive no credit.
  
- Grading
  - Approximate Grading Components:
    - Building Case study – Analysis 15%
    - Report and Presentation 40%
    - Participation in online discussion 15%
    - Quizzes and short answer questions 30%
  - Students are responsible for in-class activities such as quizzes and work assignments. Meeting deadlines is a key success factor.
  - Students will take quizzes using the assessment tools on the class website.
  - The Building Case Study Analysis and Report assignments will be graded based on the quality of writing, and comprehensiveness of the submission. The Building Case Study must be 500 words in length and the Report must be 1000 words in length. Papers must be your original work and must not have been submitted to other courses in any other educational institution.
  - Grading will be based foremost on the quality of the submissions.
  - All references must be fully specified at the end of each assignment and keyed into the written text by author, year, and page number(s) if the citation is a book. Spelling and grammar are also subject to evaluation and will be considered in the grading of the assignments.

- Students have flexibility in choosing a Report topic. Some of the potential subjects are:
  - Is wind power sustainable?
  - Is solar power sustainable?
  - Fair trade food products.
  - Electronic books vs. paper books
  - Computer manufacturing and recycling
  - Google and electricity use vs. knowledge
  - Does knowledge improve sustainability?
  - Can renewable energy meet the energy needs of the future?
  - Can renewable materials meet the material needs of the future?
  - Can biofuels meet the transportation needs of the future?
  - High tech solutions vs. appropriate tech solutions
  - Organic vs. conventional farming
  - GMO foods
  - Is recycling beneficial?
- Students should choose a topic and obtain the approval prior to any work on the assignment.
- Presentations will be graded based on the quality of the student's oral presentation and the quality of the graphics and written material supporting the presentation.

Grading Scale

- Course letter grades will be based upon the following grading scale.

93-100	A
90-92.9	A-
87-89.9	B+
83-86.9	B
80-82.9	B-
77-79.9	C+
73-76.9	C
70-72.9	C-
67-69.9	D+
63-66.9	D
60-62.9	D-
< 60	E

Library Resources for Distance Students

- The UF Library provides many technical journals and other references on-line for distance students.
- If you are off-campus and have a Gatorlink account, you can log directly into the UF library system at <http://www.uflib.ufl.edu> at the Remote Login label in the upper right corner.

Honesty Policy

- All students admitted to the University of Florida have signed a statement of academic honesty committing themselves to be

honest in all academic work and understanding that failure to comply with this commitment will result in disciplinary action. This statement is a reminder to uphold your obligation as a UF student and to be honest in all work submitted and exams taken in this course and all others.

#### Software Use

- All faculty, staff and students of the University of Florida are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We the members of the University of Florida community pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

#### General Directions:

- a. The Syllabus for DCP 6913 International Sustainable Development describes the requirements for each of the 8 weeks in this course, the student requirements, and the grading scheme. Each module is anticipated to require 8 hours of student work.
- b. Every module has assignments that may be comprised of readings, recorded lectures or video. These are to be reviewed in a detailed fashion or a cursory manner. When the assignment is labeled **Detailed**, 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.

## Course Modules:

### 1. Fundamentals Of Sustainable Development; Definitions of Principles and Components

- Environmental / Ecological Principles
- Economic Principles
- Social Principles

#### ➤ **Detailed Review:**

Recorded lecture

[NY Times: Simon vs. Ehrlich and Ethics](#)

[Backstory radio: Listen to The Forest Primeval, Roiling the Waters, Evicted from the "Wild", and Can we Still Call it Wilderness?](#)

#### ➤ **Scan:**

<http://www.naturalstep.org/>

[Dictionary of Sustainable Management Terms](#)

<http://www.gerrymarten.com/human-ecology/glossary.html>

[The history of ecosystem services in economics](#)

[Ray Anderson on Sustainability \(video\)](#)

[NY Times: native vs. non-native species](#)

### 2. Humans and Development

- Food and Agriculture
- Population / Health
- Tragedy of Commons
- Millennium Development Goals (MDG)

**Examples:** North America, Middle East, Africa, Europe, South America (Sao Paulo), China (Shanghai)

#### ➤ **Detailed Review:**

PowerPoint presentation or recorded lecture

Wall Street Journal article on Millennium Development Goals:

<http://online.wsj.com/articles/smart-aid-for-the-worlds-poor-1406326677>

World Bank Data Visualizer: <http://devdata.worldbank.org/DataVisualizer/>

FAOSTAT by Food and Agriculture Organization of United Nations (FAO):

<http://faostat3.fao.org/home/index.html>

Agro-MAPS by FAO:

<http://www.fao.org/landandwater/agll/agromaps/interactive/page.jsp>

➤ **Scan:**

[Sustainability and Resource Depletion: Survival Challenge for the 21st Century](#)

MDG monitor (Global and Country Progress): <http://mdgs.un.org/unsd/mdg/>

[UN Sustainable Development Goals](#)

UNDP Sustainable Development Goals:

<http://sustainabledevelopment.un.org/owg.html>

Millennium Ecosystem Assessment (MEA):

<http://www.millenniumassessment.org/en/index.html>

The World Resources Institute <http://www.wri.org/>

### 3. Climate Change and Energy

- The basics of the mechanism of climate change
- Effects of climate change
- Mitigation efforts being implemented and proposed
- The context of development in a changing climate
- The status and forecast of the energy use and efficiency policies worldwide
- Potential for renewable energy systems to meet energy needs

➤ **Detailed Review:**

Recorded lecture

[NY Times: Climate and environment basics](#)

[NY Times: Barriers to climate action](#)

Hoffert, M. I., Caldeira, K., Benford, G., et al. Advanced technology paths to global climate stability: energy for a greenhouse planet, Science 2002

[NY Times: Energy and food](#)

[NY Times: Attributional studies of the effects of climate change](#)

[NY Times: Weather and climate change](#)

Pacala, S., Socolow, R. Stabilization Wedges: Solving the Climate Problem, Science 2004

Stabilization wedges game <http://cmi.princeton.edu/wedges/game.php>

➤ **Scan:**

[NY Times: Carbon Tax](#)

[NY Times: IPCC report](#)

[NY Times: Case for action on climate change](#)

Intergovernmental Panel on Climate Change: <http://www.ipcc.ch>

Sierra Club Global Warming Campaign: <http://content.sierraclub.org/coal/solutions>

#### 4. Water Resources

➤ **Detailed Review:**

Recorded lecture

NY Times article on the cost of dams:

[http://www.nytimes.com/2014/08/24/opinion/sunday/large-dams-just-arent-worth-the-cost.html?partner=rss&emc=rss&\\_r=0](http://www.nytimes.com/2014/08/24/opinion/sunday/large-dams-just-arent-worth-the-cost.html?partner=rss&emc=rss&_r=0)

➤ **Scan:**

Ansar et al. Should we build more large dams? The actual costs of hydropower megaproject development. Energy Policy, Volume 69, June 2014

UN Water: <http://www.unwater.org/>

Pacific Institute: <http://www.worldwater.org/data.html>

Vital water graphics: <http://www.unep.org/dewa/vitalwater/index.html>

UNESCO: <http://www.unesco.org/new/en/natural-sciences/environment/water/wwap/facts-and-figures/>

Circle of Blue [\(video\)](#)

#### 5. Sustainable Construction and Green Building

○ Design concepts for energy efficient buildings

○ Worldwide efforts in Sustainable Construction

○ Future Trends for Sustainable Buildings

➤ **Detailed Review:**

Recorded lecture

[NY Times: Is greenhouse gas reduction in communities really that hard?](#)

[NY Times: Temperature and test results](#)

➤ **Scan:**

[Better Buildings Through Energy Efficiency: a Roadmap for Europe](#)

[FEMP/EERE Energy-efficient building design](#)

[Measurement Science Roadmap for Net-Zero Energy Buildings Workshop Summary Report, NIST, March 2010](#)

[Sustainable Building Technical Manual by Public Tech. Institute, US DOE, GBC, and EPA](#)

[Federal Research and Development Agenda for Net Zero Energy, High Performance Green Buildings](#)

New Buildings Institute LEED study: <http://www.newbuildings.org/>

[BDCMag White Paper on Sustainability 2003](#)

LEED-NC, Appendix A: LEED Rating System: U.S. Green Building Council

<http://www.usgbc.org/>

Project directory, sort by country: <http://www.usgbc.org/projects>

BREEAM <http://www.breeam.org/>

[Singapore green building assessment system](#)

EBN articles on low flow fixtures, composting toilets, and storm water and EBN's "Checklist for Environmentally Responsible Design & Construction": Search the articles on <http://www.buildinggreen.com/news/index.cfm>

[The Texas Rainwater Harvesting Handbook](#)

## 6. Business case for Sustainable Development/Built Environment

- Ecosystem Services
- Analysis of Green Building

### ➤ **Detailed Review:**

Recorded lecture

[The Value of the World Ecosystem Services \(Costanza 1997\)](#)

[Costing Green: A Comprehensive Cost Database and Budgeting Methodology](#)

Balmford, A., Bruner, A., Cooper, P., et al. Economic reasons for conserving wild nature, *Science* 2002

Langdon, D. [Cost of green revisited: Reexamining the feasibility and cost impact of sustainable design in the light of increased market adoption](#), 2007

Ries, R., Gokhan, N. M., Bilec, M., & Needy, K. L. (2006). [The economic benefits of green buildings: A comprehensive case study](#). *The Engineering Economist*, 51(3), 259-295.



➤ **Scan:**

Millennium Ecosystem Assessment (MEA):

<http://www.millenniumassessment.org/en/index.html>

[The Costs and Financial Benefits Of Green Buildings](#) (A Report to California's Sustainable Building Task Force, 2003)

[Green Building Costs and Financial Benefit \(by Gregory H. Kats\)](#)

CERES Principles: <http://www.ceres.org/about-us/our-history/ceres-principles>

World Business Council for Sustainable Development: <http://www.wbcsd.org>

Carbon Footprint Calculator from RMI: Green Footstep: <http://greenfootstep.org/>

7. The International Dimension of Sustainability

7.1 International Environmental Cooperation and Politics

7.2 Sustainability and Developed / Developing countries

7.3 Trade and Sustainable Development

➤ **Detailed Review:**

Recorded lecture

[NY Times: China-US climate agreement announcement \(video\)](#)

[NY Times: Obama on climate change](#)

[NY Times: Assistance with Climate Change Adaptation](#)

➤ **Scan:**

[Handbook for the International Treaties for the Protection of the Ozone Layer](#)

[Register of International Treaties and Other Agreements in the Field of the Environment](#)

The Intergovernmental Panel on Climate Change (IPCC) website: <http://www.ipcc.ch/>

UNFCCC climate change conferences (COPs):

<http://unfccc.int/meetings/items/6240.php>

UNFCCC Conference of the Parties (COP): <http://unfccc.int/bodies/body/6383.php>

The International Council for Local Environmental Issues: <http://www.iclei.org/>

United Nations Environment Programme: <http://www.unep.org/>

United Nations Development Program: <http://www.undp.org>

8. Student presentations, reports