

Instructor: Mark Merlin, Professor, Biology Program,  
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Office Hours: 3:00-5:00 p.m., Wednesday & Friday, or by appointment

“The environmental crisis is an outward manifestation of a crisis of mind and spirit. There could be no greater misconception of its meaning than to believe it is concerned only with endangered wildlife, human-made ugliness, and pollution. These are part of it, but more importantly, the crisis is concerned with the kind of creatures we are and what we must become in order to survive.” (Lynton K. Caldwell)

The environmental awareness that has grown during the last several decades has changed how we as a species conduct our affairs on this planet. This awareness and sensitivity has evolved from knowledge of local effects on our environment through the use of chemicals such as DDT to a global consciousness of environmental impact affecting such factors as biodiversity and ozone integrity. While it is certainly an understatement to say that not all members of our species embrace an environmental ethic and will act within natural boundaries that preserve the Earth's ecological balance, the following is also true:

- a) Many individuals do understand what is at stake and will monitor and critique human activity;
- b) Our past actions have brought us to a point where natural consequences cannot be ignored.

Therefore, it is important that each of us understand and value what the *science of ecology* has to say regarding the nature of the Earth's web of life, how this biosphere interacts with the planet, and how *Homo sapiens* fits into and affects this world wide web. A scientifically literate and responsible citizen of the 21st century will need basic ecological information to interpret a variety of media information and make intelligent personal, economic and political decisions.

**Course objectives**, based on knowledge, skills, and values, include:

- 1 -- to increase your knowledge about basic ecological terminology and principles and the impact of humans on the environment;
- 2 -- to acquire skills in the critical analysis and evaluation of environmental issues and in communicating opinions and arguments to others; and
- 3 -- to value the examination of human activity within the Earth's ecosystems and considering the long-range consequences for habitats and societies.

**Grade Evaluation** is based on a mid-term exam (100 points), a final exam (200 points), written paper(s), 20 total pages in length and oral presentation of paper (200 points) for a total of 500 points. An evaluation of class participation (attendance/questions/answers) will also be used to help judge your final grade.

The specific nature and grading criteria of these course requirements will be elaborated on in class and through separate handouts. Letter grades are assigned according to the following criteria; A = 90% or better (450-500 points); B = 80-89% (400-449); C = 70-79% (350-399); D = 60-69% (300-349); and F = below 60% (299 or less); note + & - will also be determined, where necessary within the scale shown above.

I hope you find this course challenging, exciting and interesting. I also hope the topics covered stimulate your curiosity, enrich your understanding of environmental issues, intrigue you, but most of all make you THINK! Please get involved and participate in the class. I hope we all have an intellectually stimulating and enjoyable semester in this course.

**Textbooks:**

Gonick, L., 1996. *The Cartoon Guide to the Environment*. Publisher: HarperResource Paperback: 240 pages

Staples, G. & Cowie, R. (Editors). 2001. *Hawai'i's Invasive Species*. Mutual Publishing Paperback: 116 pages.

Worldwatch Institute (eds.). 2006. *State of the World 2006: The Challenge of Global Sustainability*. Norton & Company. Paperback: 244 pages.

Wilson, E.O. 2003. *The Future of Life*. Publisher: Vintage. ISBN: Paperback: 256 pages.

## BIOLOGY 310 - CLASS SCHEDULE – FALL 2006

### Topics and Readings

8/22 - Introduction to course objectives and requirements. Instructor's personal involvement in late 20th Century rise of "environmentalism."

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8/24 - The Major Environmental Issues of the 21<sup>st</sup> Century.

Readings "*The Cartoon Guide to the Environment*"

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8/29 – J-Curves, Human Population Growth, Human Resource Consumption Patterns,

Readings "*The Cartoon Guide to the Environment*

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8/31 - Short Term gains vs. Long Term losses, Tragedy of the Commons, Technological Fix.

Readings "*The Cartoon Guide to the Environment* (read all pages before mid-term exam) and Forward and Preface in *State of the World 2006*.

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9/05 – Some definitions and discussion of ecology. Energy flow and the cycling of matter. Key environmental issues and concepts. Some examples from the Hawaiian Islands.

Readings "*Ecology: An Introduction*" (class handout)

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9/07 – Rapa Nui (aka Easter Island or Isla de Pascua): Te Pito o Henua, a model for human impact of the environment?

Readings "*The Cartoon Guide to the Environment*" (pages 1-12) and "*The Tragedy of the Commons*" (class handout)

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9/12 – China, India, and the New World Order;

Readings *State of the World 2006*, pp. 3-23.

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9/14 – Rethinking the Global Meat Industry

Readings *State of the World 2006*, pp. 24-40.

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9/19 – Safeguarding Freshwater Ecosystems.

Readings *State of the World 2006*, pp. 41-60.

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9/21 – Cultivating Renewable Alternatives to Oil.

Readings *State of the World 2006*, pp. 61-77.

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9/26 – Shrinking Science: An Introduction to Nanotechnology.

Readings *State of the World 2006*, pp. 78-95

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9/28 – Curtailing Mercury's Global Reach.

Readings *State of the World 2006*, pp. 96-114.

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10/3 – Turning Disaster into Peacemaking Opportunities

Readings *State of the World 2006*, pp. 115-133.

**Biology 310 – Course Outline – Fall 2006 Continued**

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10/5 – Reconciling Trade and Sustainable Development

Readings - *State of the World 2006*, pp. 134-151

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10/10 – Building a Green Civil Society in China

Readings - *State of the World 2006*, pp. 152-1170

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10/12 – Transforming Corporations

Readings - *State of the World 2006*, pp. 171-190

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10/17 – **MID-TERM EXAMINATION**

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10/19 – The Sixth Extinction – Biodiversity Crisis

Readings. *The Future of Life*, xi – 41.

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10/24 – The Sixth Extinction – Biodiversity Crisis.

Readings. *The Future of Life*, pp. 42- 128

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10/26 – The Sixth Extinction – Biodiversity Crisis

Readings. *The Future of Life*, pp. 129-190.

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10/31 – The Biotech Century: Harnessing the Gene and Remaking the World & Patenting Life

Readings Class Handout.

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11/2 – Hawai'i's Invasive Species: Invasive Animals in the Hawaiian Islands.

Readings Hawai'i's Invasive Species, pp. 1-75.

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11/7 – **Election Day Holiday**

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11/9 – Hawai'i's Invasive Species: Invasive Plants in the Hawaiian Islands.

Readings Hawai'i's Invasive Species, pp. 76-99.

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11/11 – Presentations of Student Research Papers.

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11/16 – – Presentations of Student Research Papers.

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11/18 - Presentations of Student Research Papers.

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11/23 - **Thanksgiving Holiday**

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11/25 – Presentations of Student Research Papers.

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11/30 – Presentations of Student Research Papers.

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12/2 – Presentations of Student Research Papers.

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12/7 – Presentations of Student Research Papers.

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12/9 – Presentations of Student Research Papers.

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**Final Exam occurs on Thursday, December 14 from 2:15-4:15.**