

**SW 330 *The Living Biosphere: A New Look at Life on Earth***  
**Summer 2009**

The Living Biosphere meets on Saturdays from 9 to 4

Donna Jones Ilsley  
School for New Learning  
DePaul University  
150 West Warrenville Road  
Naperville, IL 60563-8473  
[djonesis@niu.edu](mailto:djonesis@niu.edu)  
Cell: 815-739-3686

Donna has been a member of the Visiting Faculty for the School for New Learning since 1998. Her Certificate of Advanced Study is from Syracuse University in Education. She has a Master's degree in International Studies (Communication, Development, Anthropology, Africa) from the School of International Service at the American University in Washington, D.C. Her doctoral research is in the field of adult education and women's studies. Currently, she also teaches in the Applied Behavioral Sciences program at National Louis University and for the Literacy Department at Northern Illinois University.

**Note:**

This course meets only five Saturdays. I do provide an opportunity for you to make up missed sessions by writing a short one-page paper for each missed class. Each paper should be written on the topic covered during the missed class. Please see Donna if you anticipate missing a session to work out any details.

**The Texts:**

**\*REQUIRED: *The Vanishing Face of Gaia: A Final Warning* by James Lovelock**

ISBN 0-19-521674-1 **Hardcover:** 288 pages

- **Publisher:** Basic Books (April 13, 2009)
- **Language:** English
- **ISBN-10:** 0465015492
- **ISBN-13:** 978-0465015498

***GAIA: The Practical Science of Planetary Medicine (This book is an excellent resource)***

By James Lovelock

2000 Gaia Books Limited

***An Atlas of Biodiversity: CHICAGO WILDERNESS, A Regional Nature Reserve***

**(Available through the Instructor)**

By Jerry Sullivan

2000 The Chicago Region Biodiversity Council

**Competencies**

S-4, S-2-D, S-3-C, H-1-X

(H-5 can be negotiated)

Students will be able to describe and explain connections among diverse aspects of nature. The course is an interdisciplinary study of the history of the environment. It uses the seminar format to examine interdependent web of life on the surface of the Earth.

### **Course Description**

This course will expose students to nature's dynamic synergy through a variety of integrative learning techniques, using modern technology, videos, group projects and provocative readings. Students will develop a strong understanding of Gaia theory and its place in contemporary natural science. This theory, proposed by the English chemist, James E. Lovelock, conceives the earth as a large interacting system of life, soil, atmosphere, and ocean. Earth is assumed to be a breathing biosphere in a symbiotic world. This course presents views of life for discussion, reflection and critique.

### **Learning Experience**

With over 6 billion people on earth, it is necessary to understand how we can create a sustainable environment. Research will include mapping out the role of an intricate feedback system on the planet; assessing the existence of clean water, peak oil, global warming/climate change and how we respond. Students will be asked to complete the assigned readings for each class, participate in class discussions and projects, contribute to the class through individual or group presentations, watch videos, investigate websites, listen to guest speakers, attend field trips and submit a written assignment.

**Criteria for assessment:** Students will use research and observation skills to develop ideas about the Gaia hypothesis. Their conclusions will be based on readings, class discussion, reflection, and research. Students can choose to demonstrate this competency with a portfolio comprising one of the following: a portfolio containing four activities, a 10-page paper, video, or Web site; and finally a presentation. All work must contain complete references within the body of any research using the MLA style and a Bibliography (Works Cited) page. The MLA style of citation is available on the Internet.

### **Competency Statements**

#### **BA-99**

**S-4** Can describe and explain connections among diverse aspects of Nature.

1. Describes one or more natural systems
2. Explains how parts of the system are interconnected
3. Demonstrates how such connections are found elsewhere in nature

Students demonstrate competence by articulating how exchange occurs among seemingly disparate parts of nature and how interconnection among systems is basic to nature and results in an integrated whole. A connection is the most important concept in this competence. All seemingly distinct parts of nature, including humans, are integrally connected to all other parts. Using James Lovelock's GAIA hypothesis that the Earth is self-regulating, students will attempt to view the Earth as a single physiological system. The Earth will be dissected and discussed as if it was a living entity. The multitude of connections among its chemistries, temperature and its inhabitants will be explored.

Students will understand a system as an entity comprising diverse but interrelated component. In this course students will examine the "Earth System" as a natural system according to the GAIA hypothesis. We will examine the interconnectedness of the four components of the "Earth System," the atmosphere, the hydrosphere, the solid earth, and the biota. Examples of topics to be explored are the following:

- A. The gases of the atmosphere
- B. Alternative energy development such as Solar and wind.
- C. The ozone level and the role of greenhouse gases
- D. The waters of the earth and the problem of scarcity
- F. The solid earth's - rocks, plate tectonics
- F. The ecosystems
- G. Humanity's effect on the earth

Through readings, lectures and projects students will discover connections such as:

- 1. Marine algae and its direct relation to cloud formation
- 2. Pine, Fir, and Hemlock trees that exchange important nutrients with the mushrooms growing beneath them
- 3. The exchange of carbon and oxygen with plant life and the atmosphere

Competency will be shown through class participation, written assignments, and presentations. This evidence will reveal the level of analysis in critical thinking.

**S-2-D** Can describe, categorize, and analyze the interactions and exchanges between living organisms and their physical environments.

- 1. Articulates the distinction between an organism and its environment
- 2. Describes the ways in which an organism relates to its environment
- 3. Categorizes and assesses two more interactions of an organism and its environment in terms of their effects on each other.

Students demonstrate this competence by examining ecological relationships and articulating the ways any living organism or group of organisms, including humans, exists within specific environments. Students may work on either the micro or macro level, and on either the individual or group level (the actions of amoebae seeking food or humans mining fossil fuel are equally appropriate possibilities). This competence differs from the required S Competence in that it is limited to the interaction of organisms and their environments.

Students will have the opportunity to examine the relationship between organisms and their environments. Suggested areas of study include the following:

- 1. The human relation to and impact on the environment
  - a. Carbon dioxide release
  - b. Acid rain
  - c. Deforestation
  - d. Disappearing coral reefs
  - e. Farm chemical runoff

- f. Melting glaciers
- 2. Bacteria and its interaction with life on earth
- 3. The ocean's microscopic plants and their use of carbon and salt for growth
- 4. Marine algae and its response to high salt content in the oceans

**S-3-C** Can understand the scientific and social dimensions of an environmental issue

- 1. Uses environmental science to understand a local, regional, or global environmental concern.
- 2. Demonstrates an understanding of the economic or social elements contained in an environmental problem.

Students demonstrate this competence by gaining an appreciation for the methods, models, and principles of environmental science or ecology. As humans strive to shape the environment, our actions have both beneficial and deleterious consequences, as well as unintended ones. In the most general sense, this competence directs the student to explore the relationship between society's actions and their consequences in the environment. Students will examine the human impact on the Earth System.

- 1. The human relation to and impact on the environment
  - A. Carbon dioxide release
  - B. Acid rain
  - C. Deforestation
  - D. Disappearing coral reefs
  - F. Farm chemical runoffs
  - F. Melting glaciers
- 2. Suggestions for "healing the planet" will be explored
  - A. Legislation by the US for the earth's health
  - B. UN meetings concerning the environment
  - C. The European Union and the United States efforts to reduce the emission of greenhouse gases
  - D. The 1997 Kyoto Protocol Agreement
  - E. Current remedies being used to contain human impact on the earth system

**H-5** Can analyze issues and problems from a global perspective.

- 1. Analyzes one or more global issues, problems, or opportunities facing the human race.
- 2. Explains how these issues affect individuals or societies in both positive and negative ways.

Students demonstrate competence by discussing such issues as how local communities deal with global concerns such as hunger, health, education, welfare, illiteracy, environmental issues, or infectious diseases. Or they might explore the impact of science and technology on people's lives worldwide. They may study world religions, literature of the arts as a means of better understanding other cultures. Students can fulfill the competence through courses independent learning pursuits that analyze one or

more aspects of global competence. International travel and work may also be helpful.

1. Articulates the concept of a global perspective
2. Analyzes an issue/problem from a global perspective.

Students demonstrate this competence by choosing an issue and analyzing it through the lens of a global perspective. A global perspective includes the ability to see the world is becoming increasingly interconnected and interdependent. Such perspective is the opposite of parochialism ("our way is the only way") and ethnocentrism ("our way is the best way"). International studies, travel and work experience in international setting will help fulfill this competence. Students will, through the investigation of the GAIA hypotheses, realize the impact environmental issues have upon world populations. Some topics to be studied include the following:

1. Global warming melting glacial highlands and exposing these highlands to Malaria, Dengue fever, and to the aegypti mosquitoes which spread disease.
2. The World Wide Fund's report that global warming could wipe out many species of plants and animals by the 21st century.
3. Developing Africa's energy resources with the environment as a priority.

Global connections affect our lives in many ways. Many local issues have worldwide implications, and none are merely matters of science or of economics or of politics. Some may have cultural or ethical or religious components as well. This competence invites students to explore and demonstrate these connections bearing in mind that if an issue is big enough to cross geographical borders, it is complex enough to cross disciplinary borders. Students will, through the investigation of GAIA Hypothesis, realize the impact environmental issues have upon the world population.

### **H-1-X – Communities and Societies**

**Examples:** Will define and evaluate how ecosystems affect society and conversely, how society affects ecosystems. Will define and evaluate certain ecological factors such as global warming, fresh water, peak oil, and/or sustainable development. Can explain the emergence, maintenance, or evolution of a society or community in regard to its environmental policy. Can describe and analyze the ecological and sustainable challenges faced by communities in urban, suburban, or rural areas. Give examples of how communities of people (NGOs, UN, Mayors of US cities) are working to resolve such as issues as peak oil, climate change, water scarcity, and pollution.

### **Directions for Written Assignments and Academic Integrity**

All written assignments should follow the accepted practices of Standard English grammar and usage. The paper and the journal should be typed and double-spaced. All references or works cited within the body of any research should be documented using the MLA style and include a Bibliography (Works Cited) page. We will uphold the university guidelines concerning academic integrity. These may be found in the Student Handbook or on the DePaul Web site.

## Criteria for Assessment

**Weekly journal** – Students are expected to keep a weekly journal reflecting attitudes toward the planet while participating in this course. How have your ideas toward the Earth changed? Are you changing your life in any way to assist GAIA? Journals can be in any form, written, video, pictures, music, etc. If written or typed, entries must be three to four paragraphs or a full page for each reflection session. At least eight entries of your desired medium should be turned in: eight pages, eight songs, eight poems. There is flexibility if you choose the video or picture/collage option. Please discuss your final decision with the instructor.

**Classroom participation** will involve reflective conversations with other members of the class to work out the questions with the readings and the meaning of our individual experiences. It will also include weekly online blackboard discussions. Topics will be provided.

## DePaul University Academic Integrity Policy

DePaul University is a learning community that fosters the pursuit of knowledge and the transmission of ideas within a context that emphasizes a sense of responsibility for oneself, for others and for society at large. Violations of academic integrity, in any of their forms, are, therefore, detrimental to the values of DePaul, to the students' own development as responsible members of society, and to the pursuit of knowledge and the transmission of ideas. Violations include but are not limited to the following categories: cheating; plagiarism; fabrication; falsification or sabotage of research data; destruction or misuse of the university's academic resources; alteration or falsification of academic records; and academic misconduct. Conduct that is punishable under the Academic Integrity Policy could result in additional disciplinary actions by other university officials and possible civil or criminal prosecution. Please refer to your Student Handbook or visit <http://studentaffairs.depaul.edu/homehandbook.html> for further details.

### Incomplete:

*Unfinished work or work requiring revision will be given an Incomplete (IN) grade. In order to qualify for the IN, students must have regularly attended class, and must have completed three-fourths of assignments.*

*In order for a student to have an incomplete (IN) grade granted in this course, there must be a significant extenuating circumstance evidenced by the student (e.g., medical and/or significant personal issues). The student will need to initiate and file an SNL Incomplete grade contract before the final session of the course to receive an incomplete grade. Students are strongly advised to review the university deadlines for withdrawal without tuition refund and the implications for financial aid and grades.*

**The Portfolio:** *"The portfolio content can be as varied as the learner's imagination can capture"- John Willetts.* Every student will select **four** (4) of the following six activities **OR** instead of a portfolio may choose **one** (1) of the projects described in 7, 8 or 9. **No matter what the choice, a final presentation must be done.**

**The Portfolio - Choose four:**

1. The State of the Ark - four (4) page inquiry paper. Articulate and connect issues related to the status of the earth system. The earth system comprises diverse but interrelated parts. The earth system functions as a complex whole. The components of the earth system are the atmosphere, the hydrosphere (oceans), the solid earth, and the biota (all living organisms). Use a variety of sources to support your inquiry into the status of one or more of the components of the earth system.

2. Site visit: Report on a visit to an organization such as Morton Arboretum, from the context of the competence statements that you've developed for the portfolio. The report will be at least two pages in length and involve a critical reflection of what you learned as a result of your visit. Include works cited (brochures, books, etc.) and/or interviews with personnel in a Bibliography page.

3. Media viewing and virtual site visits: Report on six of the following. They may be of the same media or differing: Internet searches, films, plays, or exhibits that relate to your topic and its perspective. One to Two paragraphs on each viewing or visit are required. Include citations and a Bibliography page.

4. Create or gather drawings, photographs, cartoons, headlines and/or artifacts to illustrate your topic. Include a Bibliography page for gathered research.

5. Prepare your own charts and graphs or other visuals that support or refute the perspective and context of the competencies. Include a Bibliography page for prepared work.

6. Create a brochure for environmental action appropriate to the competence statements developed for the course. If appropriate, provide a Bibliography page of works referenced.

**OR Choose One:**

\*7 Prepare a video/DVD or an audiotape/CD that develops/explains GAIA, its perspectives, and its effects. Provide a Bibliography page for all research referenced in the video or audio tape.

\*8. Prepare a Web site that articulates the findings of the research. You may choose the topic. It must be relevant to the GAIA theory. Cite any references. Provide a Bibliography link.

\*9 Prepare a 10-page paper. It will be a research paper in which you critically examine an aspect of your choice from the Gaia theory in light of your readings, research, and personal reflection. Please use at least five sources, which will be listed in a Bibliography page.

***The presentation*** can be made alone or in collaboration with others. It can reflect the thoughts revealed in your Portfolio project. The assessment will strive to embody the four qualities of clarity, integrity,

flexibility, and empathy.

### SESSION AGENDAS

- First Class: Introductions and discussion of the syllabus  
Assumptions about the Earth - open forum discussion  
Discussion of topics and the GAIA theory  
Blackboard discussion in the computer lab  
Review of main Gaia web sites and using search engines.  
The Scientific Method and Classification  
View the Five Kingdoms video  
Review Dorian Sagan's Five Kingdoms handout  
Small group reading of Introduction and Chapter One  
Small groups report back and discuss readings.  
Assignment: Read Chapters Two, Three, and Four of **GAIA**  
And pages 1 through 31 of **An Atlas of Biodiversity**  
Come prepared to discuss the topic contained in your envelope.
- Second Class: Discussion of Chapters Two, Three, Four  
Student and facilitator tag team discussion of the oceans, gases, and planetary metabolism  
Video  
Planetary Life and Symbiosis with video  
Portfolio Discussion  
Assignment: Read Chapters Six of **GAIA**  
And pages 32 through 49 of **An Atlas of Biodiversity**  
**DISCUSS MORTON TRIP FOR NEXT SESSION**
- Third Class: Ecosystem Tour with Jim Marshall  
Open Lab at Morton (microscopes or computers)  
Lunch – Sack Lunch or you can purchase a lunch at the Visitor’s Center.
- Fourth Class: Discussion of Chapters Six  
Deep Ecology and Video  
“Affluenza” video and “Beyond Affluenza” (time permitting)  
Discussion of Ecosystem and Humanity’s Footprints  
1:00 pm Field Trip to the Conservation Foundation in Naperville  
with Jim Kleinwachter  
Assignment: Read Chapter Eight of **GAIA**  
And pages 50 through 59 of **An Atlas of Biodiversity**
- Fifth Class: Presentations  
Evaluations, Review, and Assessments

### **For Students Who Need Accommodations Based on the Impact of a Disability**

Students who feel they may need an accommodation based on the impact of a disability should contact the instructor privately to discuss their specific needs. All discussions will remain confidential.

To ensure that you receive the most appropriate accommodation based on your needs, contact the instructor as early as possible in the quarter, preferably within the first week of class, and make sure you have contacted:

- PLS Program (for LD, AD/HD) at 773-325-4239 in the Schmidt Academic Center, room 220 or;
- The Office for Students with Disabilities (for all other disabilities) at 773-325-7290, DePaul University Student Center, room 307.

### **Chronic Illness Initiative**

The Chronic Illness Initiative (CII) provides access to higher education for students disabled by chronic illnesses that unpredictably increase and decrease in severity such as chronic fatigue syndrome, rheumatoid arthritis, lupus or illnesses requiring frequent hospitalizations. At SNL, staff and faculty are compassionate and committed to helping CII students achieve their educational goals. Contact CII at [CII@depaul.edu](mailto:CII@depaul.edu).

### **Writing Help**

For help with organizing your ideas, grammar, citing sources, avoiding plagiarism, sample SNL assignments and much more, see the [Writing Guide for SNL Students](http://snl.depaul.edu/writing/index.html) at <http://snl.depaul.edu/writing/index.html>. For on-campus and online tutoring, see the [DePaul University Writing Centers](http://condor.depaul.edu/~writing/) at <http://condor.depaul.edu/~writing/>.

[In addition, consider adding the Writing Centers' syllabus supplement available here <http://condor.depaul.edu/~writing/html/fac/supplements.html>]

