

PSYCHOLOGY 4230 Summer 2007
Dynamic Ecological Systems in Human Change

W; 10am-1pm, BUC 105

Instructor: Dr. Alan Fogel (ht <http://www.psych.utah.edu/lab/somatics/>)

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Required texts: Please bring the book and/or copies of the research papers to class with you on the days in which readings are assigned!

1. Capra, F. (1996). The web of life: A new scientific understanding of living systems. New York: Anchor Books.
2. Supplementary readings available at Marriott Library **electronic reserve** for printing; these readings will be marked with **(E)** in the syllabus.

Grading distribution:

1. 2 Exams @ 150 each	300
2. Term Project	250
3. 10 Short papers/participation @ 45 each	450

Total	1000

Lower limit for grades: A (930), A- (900), B+ (870), B (830), B- (800), C+ (770), C (730), C- (700), D (600)

Course objectives:

- Acquire basic knowledge about Chaos and Dynamic Systems theories.
- Appreciate how these theories apply to a wide range of phenomena, and most especially to human development.
- Apply these theories to an understanding of your own psychological development.
- Develop skills in written expression through papers and projects.
- Develop skills in oral expression through class recitation.

Course Outline

Day	Topic	Assignments
5/16	Introduction	
5/23	Ecology: The original system	- Web of life, Chapt. 1, 2, 3, 4 - Swentzell, R. (1993). Mountain form, village form: Unity in the pueblo world. In <i>Ancient land, ancestral places</i> . Museum of New Mexico Press. (E)
5/30	The earth, life, Gaia, and self systems	- Web of life, Chapt. 5, 6, 7, 8, and 9
6/6	A theory of living systems; relationships	- Web of life, Chapt. 10, 11, 12 & epilogue
6/13	Dynamic systems research; genetics and environment	- HD in the 21st C., preface & Chapt. 23; & Part 1, choose 3 chapt (E)
6/20	Child and family; And Exam 1	- HD in the 21st C., Part 2, choose 3 chapt (E)
6/27	Social and physical environment; Mental health	- HD in the 21st C., Part 3, choose 3 chapt; Part 4, choose 3 chapt (E)
7/4	Independence Day	No class

7/11	Relationships, health, and physiology	-Hofer, M. (1984). Relationships as regulators: A psychobiologic perspective on bereavement. <i>Psychosomatic Medicine</i> , 46, 183-197. (E) - Schore, A. (1997). Early organization of the non-linear right brain. <i>Development and Psychopathology</i> , 9, 595-631. (E) -Bell, I. et al. (2002) Integrative medicine and systemic outcome research, <i>Archives of Internal Medicine</i> , 162, 133-140. (E)
7/18	Relationships and creativity	- Hamilton, C. (2004). Come together: The mystery of collective intelligence. <i>What is Enlightenment?</i> , May-July, 3-26. (E) - Smuts, B. (2001). Encounters with animal minds. <i>Journal for the Study of Consciousness</i> , 8, 293-309. (E)
7/25	Back to ecology And Exam 2	- Butz, M. et al. (1995). Cross-cultural chaos. In R. Robertson & A. Combs (Eds.), <i>Chaos theory in psychology and the life sciences</i> . NJ: LEA (E) - Abram, D. (1995). The ecology of magic. In T. Roszak et al., (Eds.) <i>Ecopsychology</i> . San Francisco: Sierra Club Books. (E)
8/1	Term project reports	No new readings and no homework

- Last day to **add** classes is May 29.
- You can **drop** classes through May 23, and they will not appear on your transcripts.
- You can **withdraw** from classes, but will be held responsible for tuition, through June 22. A "W" will appear on your transcript for these courses.

Reading assignments and class discussions:

Each class session is worth **45 points** of credit, based on a short paper (2-3 pages), prepared in advance of class, in response to **two** of the study questions assigned for that day (see Study Question section of this document). These study questions are based on the reading assignments. It is recommended that you attempt to answer all of the study questions for that day, not only the two you are assigned to write about. This is because you will be better prepared for class discussions and also because the exams (see below) will be based on all the study questions. **You only need to read as much as necessary to answer the study questions.** Of course, you can read more if interest or time permits. Hard copies of papers must be turned in: no e-copies will be accepted.

Please bring your books and copies of the other reading assignments to class with you because instructor input and class discussion will evolve around these study questions assigned for that week.

I expect you to attend every class session unless there is an emergency such as illness. You can make up missed class by turning in the written assignment for that day. To receive credit for missed classes, simply turn in the paper that was due for that day. Except when negotiated with the instructor, all make-ups must be received by the instructor **no later than one week following the class that you**. You can receive up to the full 45 points for make-ups, however **no more than 2 missed classes across the entire semester** will be allowed to be made up in this manner.

Grading Criteria for Study Question Papers

- Correct grammar and spelling
- Integrate knowledge from book (or relevant readings), and if required by the question, with own experiences, thoughts, and ideas

- No copying from book – if there is a long section from the book you like, please paraphrase it. Short quotes are fine as long as quoted and referenced.
- No specific format to follow – just keep paper fluent and on topic. Also, develop your thoughts and ideas so that the reader understands how you arrived at your point of view.

Exams:

There will be **two exams**. The **first** will cover the material assigned up to the day before the exam, and the **second** will cover the material for the entire semester. Each exam will be composed of essay questions similar to the ones assigned as study questions but not exactly the same. Exam question may ask for integration and application of the study questions. **The grading criteria for the exams is exactly the same as for the weekly study question papers.** If you've kept up with the weekly assignments, you should have little trouble with the exams. **You may use your notes and books for all exams.**

You will have the opportunity to re-write those sections of the exam that need improvement. Re-writes for the first exam must be turned in no later than one week after you receive your graded exam. Re-writes for the second exam will be due during final exam week. **Up to full credit may be earned with a re-write.**

Term Project:

The term project is a demonstration, reading, group exercise, or performance that illustrates the principles of dynamic systems theory, in particular: attractor, self-organization, emergence, bifurcation, non-linearity (butterfly effect), phase shift, stability and change, and/or fractal. You should prepare a class presentation lasting about 15-20 minutes. It can be a work of visual or graphic art, video or photography, poetry or literature, dance or music, mathematics or computer modeling. It can be done outside of class or actually carried out during the class. It can be a group exercise that you arrange and set up involving fellow students. During or after the presentation, you will explain how your presentation illustrates the concepts of the class and why you chose the particular medium. Please discuss your idea for a project with the instructor prior to the due date. All presentations will occur during class on August 1.

Equal Access

The University of Utah seeks to provide equal access to its programs, services and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the instructor and to the Center for Disability Services, 162 Olpin Union Building, 581-5020 (V/TDD). CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in alternative format with prior notification.

Academic Honesty and Plagiarism

Plagiarism is a serious form of academic misconduct. No credit will be given to plagiarized work in this class. As defined by the University of Utah Student Handbook:

“Plagiarism’ means the intentional unacknowledged use or incorporation of any other person's work in, or as a basis for, one's own work offered for academic consideration or credit or for public presentation. Plagiarism includes, but is not limited to, representing as one's own, without attribution, any other individual's words, phrasing, ideas, sequence of ideas, information or any other mode or content of expression. “

STUDY QUESTIONS
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How to use these study questions

The study questions are intended to facilitate integration of the reading assignments and to prepare you for your exams. You will be assigned **two questions** on which to write your study question paper (2-3 pages, double spaced), due on the day on which the readings are assigned. Different students will be assigned to different questions, so that all the questions will be answered for each class.

Capra: The web of life

Chapter 1

1. What is meant by a **paradigm shift**?
2. Define **deep ecology**.
3. Explain the meaning of the table on p. 10.
4. What is the **ethical** position of deep ecology?

Chapter 2

1. What is meant by the tension between **holism** and **mechanism**?
2. What was the contribution of the romantic movement to ecology?
3. What is meant by the statement, p. 29, "systems cannot be understood by analysis"?
4. What is the meaning of the word "ecology" and how was it defined by Haeckel? Where did the word "biosphere" come from?

Chapter 3

1. List the key criteria of systems theories.
2. What is process thinking?
3. What are the major concepts of general systems theory?

Chapter 4

1. What is cybernetics?
2. Define negative and positive feedback and give examples.
3. What was the impact of cybernetics on society and on models of human cognition?

Chapter 5

1. What is the importance of pattern and the tension between the study of substance and of form?
2. What are the characteristics of self-organization?
3. What is a dissipative structure and how is it a source of order?
4. Define autopoiesis and give examples.
5. What is the Gaia hypothesis? Discuss the ideas for and against this hypothesis.

Chapter 6

1. What is classical science? What was Newton's achievement?
2. What is non-linearity? Iteration?
3. What is a phase space trajectory?
4. Define: attractor, chaos, butterfly effect, bifurcation, fractal, complex numbers, Julia set (Don't panic, just get the general idea as best you can).

Chapter 7

1. Define pattern of organization, structure, and life process. How are they linked to autopoiesis, dissipative structure, and cognition?
2. What does it mean to say the world is composed of relationships?

Chapter 8

1. What is the relationship between **nonequilibrium**, **nonlinearity**, and **irreversibility**?
2. How does **indeterminacy** enter into systems? What does this have to do with **bifurcations**?

Give an example.

Chapter 9

1. What is the difference between organisms and societies?
2. Define **self-bounded**, **self-generating**, and **self-perpetuating**. How are these concepts illustrated by Gaia?
3. What is **structural coupling**? Give an example.
4. What is the relation between **structural change**, **creativity**, and **development**?

Chapter 10

1. What is the systems view of **evolution** and how does it differ from earlier views?
2. What is the importance of **coevolution** and **symbiosis**?

3. How is the human mind different from the mind of other living things on the earth?

Chapter 11

1. What is the importance of the metaphor of the **breath**?
2. How does the **Santiago theory** of cognition differ from the cognitive science view of cognition as representation? What does the theory mean by **bringing forth a world** rather than representing the world?
3. What is **development** from this perspective? What is **information** from this perspective?
4. What are the limits of computers?
5. What is **cognitive immunology** and its relation to the **psychosomatic network**?

Chapter 12

1. What is Maturana's definition of **communication**?
2. What is the importance of **language**?
3. Why is **consciousness** social and embodied?
4. How do you interpret the section on the **human condition**?

Epilogue

1. What is the author proposing here? Do you agree? How do you see your role in this process?

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Fogel et. al., Human Development in the 21st Century

Based on the chapters you chose to read for each day, write a 2-3 page essay of your thoughts or reactions.

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Other readings (Identified by authors)

Swentzell

1. Describe the pueblo people's philosophy of life and their relationships with nature.
2. Link this description to Abram's ideas and to deep ecology.
3. What does it mean to say, p. 144, "We are many beings at once. We are not only human."? Have you ever had such experiences at any time in your life?
4. In the poem "Trementina," what is the mindset that is at odds with Pueblo thought?

Hofer

1. What is the relationship between infant separation, sensory deprivation, and adult bereavement?
2. What are the co-regulatory (social and physiological) aspects of these processes?

Russek & Schwartz

1. What is the author's concept of energy?
2. Explain the 5 dynamical energy systems hypotheses and their expression in energy cardiology.
3. What are the implications of these hypotheses for alternative medicine?

Hamilton

1. What does the author mean by collective consciousness?
2. What is the relation of the group to the individual?
3. What is the author's view of dialogue?
4. How can these phenomena affect global change?

Smuts

1. What are the author's views on relationships with animals, both as a group and as individuals, and how does this related to the ideas of DST?
2. What is the author's view of Mind. Self, and Connection with others?

Bell

1. What is CAM? What is integrative medicine?
2. How are these related to different world views and to DST?
3. What is the author's view on process vs. outcome research?
4. ... on integrative vs. reductionistic outcome research?

Butz

1. How does the author define chaos?
2. What is link between chaos and mythology?
3. ...and Taoism?
4. ...and psychotherapy?
5. ...and native American beliefs?

Abram

1. Why do traditional magicians live near the edge of a village?
2. Explain why the gods of traditional cultures are not **transcendent** above reality but embedded within the sensuous and psychological aspects of reality.
3. What is the meaning of **spirit** in traditional culture? What does it mean to say that non-human things, even rocks, are intelligent? Have you ever had an experience at any time in your life that led you feel this?
4. How are the ideas in this reading related to the concept of **deep ecology**?