Language as a Complex Adaptive System
LC 679 / GER 679 / SPAN 679 / JPNS 679 / FR 679 / LING 689 / ENGL 696

Course Goals
In this course, students will explore Complex Adaptive Systems (CAS) and Complexity Theory as they relate to various aspects of language. We will examine the properties of complex systems in interdisciplinary studies in a wide variety of research studies and then deepen our understanding of these properties in several areas of linguistics. In particular, we will focus on first and second language acquisition, historical linguistics, sociolinguistics, and the origins of language. Students will come away with both breadth and depth of knowledge on theoretical issues and be in a better position to focus on one or more of the properties of complex systems in their own areas of research. The course is meant to be exploratory in nature, so that students from various backgrounds might be able to expand their understanding of these phenomena while examining their own area of research in greater detail.

Some of the general issues that we will explore:
- what are the properties of complex adaptive systems?
- in what ways do these properties relate to phenomena in various fields of science?
- how does complexity theory allow us to explain phenomena in linguistics?
- what are the tools that we need to understand these phenomena?

Some of the issues related to subfields of linguistics that we will examine include:
- how do patterns of variation and change develop across a network of strong and weak ties?
- how might language have emerged without a centrally controlling agent?
- how does a child’s phonological system adapt and change in the earliest stages?
- to what extent do second language learners go through predictable patterns of development?
- what is the significance of cycles of change through which a language goes over time?
- how does language contact exponentially dampen or intensify linguistic change?
- do patterns of linguistic development (L1 or L2) exhibit orderly or disorderly behavior?

While investigating these issues, we will try to fulfill the following goals in this course:
- To become familiar with both macro- and micro-analyses of a specific topic in subfields of linguistics
- To become familiar with the application of new theoretical constructs in linguistics
- To engage in critical discussion and evaluation of previous research
- To develop effective research strategies
- To become more informed teachers of linguistics
- To strengthen cross-disciplinary connections
Grading

The breakdown of grading for this course is as follows:

- Participation and Attendance: 20%
- Article presentation/discussion: 20%
- Take-home Midterm: 20%
- Classroom assignments (5x): 10%
- Final Paper: 25%
- Paper consultation: 1%
- Research Questions: 2%
- Bibliography: 2%

Texts

Required:
- Online access to Blackboard to electronic articles.

Recommended but not required:

Course Policies and Assignments

- **Class participation** is 20% of your final grade and consists of participation and preparation. Your active participation in class is crucial, and it is important that you are prepared to discuss the readings and assignments each day in class. Active participation consists of asking questions, bringing up new points and engaging in meaningful, relevant discussion on the topics, generally, being an active part of the class.
- **Attendance** is expected and required in this course. If you are unable to attend for medical reasons or for family emergencies, etc., please contact Professor Sundquist via email (in advance of the class). You should find out from your fellow students what was missed on that day in class. If you have more than four unexcused absences from class over the semester, you will be unable to pass the course.
- **Article Presentation:** you will be asked to lead discussion on an article that the class will read. You will be asked to provide a brief summary, discussion questions, and comments. You may choose from articles on Blackboard that will be based on the research interests of the class members. Discussion should relate to the issues of research design and methodology. We will determine a more specific reading schedule after the first week of class.
- **Classroom assignments:** there will be five short homework assignments that you will be responsible for as part of classroom discussion and preparation. These are:
1. Explore a property of Complex Adaptive Systems in another scientific discipline. Sources for your information may be the internet or the Encyclopedia of Complexity and Systems Science (available online through Purdue Libraries). You are asked to prepare enough detail to be able to discuss your findings with and explain the property to your classmates for about 10-15 minutes in small groups.

2. View and prepare to discuss your reaction and summarize a video presentation on complexity in language on the Santa Fe Institute website http://www.santafe.edu/ [go to "Research", then "Videos", then search for "language"]

3. Find a conference on Complexity/Complex Adaptive Systems/Dynamic Systems online, and be prepared to report to the class more about the conference.

4. Complete computer simulations to model Complex Adaptive Systems (more information to come later).

5. Discuss your final paper's abstract with your fellow students in class for peer review.

   Final Research Project (with required preliminary steps): you will be asked to work on an original research project for the class that deals in some way with properties of complex, dynamic systems in an area of linguistics relevant to your interests. The stages of this project include three assignments that you will work on in preparation for submitting the paper at the end of the semester:
   - Paper consultation (required): a meeting to discuss research ideas; you will be asked to come speak with Prof. Sundquist about your research ideas during the week of September 30th. Please come with at least two concrete ideas.
   - A set of research questions and hypotheses (to be turned in by October 17)
   - A bibliography with at least 12 sources using APA style (due October 31)
   - A literature review
   - A methodology section
   - Results and discussion
   - An abstract (peer-reviewed in class)
   - A final, edited version with all sections of the paper (due during finals week)

Special Needs
If you have any special disability-related needs that may affect your performance in this course, please speak privately with your instructor prior to the end of the third week of classes.

Policy of Academic Honesty
The Department of Foreign Languages and Literatures requires the same high level of academic honesty and integrity Purdue University expects of its students. Therefore, you will be expected to turn in your own work without help from others, to acknowledge all sources of information you use in your assignments, and to maintain the same high level of honesty in all examinations. Cheating is not expected of any students, but in case a student violates the policy of academic honesty (i.e. cheats or commits plagiarism on any exams or other assignments), the student will receive a failing grade for the course. For further information regarding student conduct, see Sections II and III of Purdue University Regulations. All work for this class should reflect YOUR work.
Course Schedule

Unit ONE: Complexity Theory, and Complex Adaptive Systems

<table>
<thead>
<tr>
<th>Week 1</th>
<th>Assignment (due on day listed)</th>
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<tbody>
<tr>
<td>August 20</td>
<td>Introduction</td>
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<tr>
<td>August 22</td>
<td>Definitions of Complexity Read Mitchell Chapter 1, Larsen-Freeman Chapter 1</td>
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Week 2

| August 27 | Properties of Complexity Read Mitchell Chapter 2, Larsen-Freeman Chapter 2 |
| August 29 | Properties of Complexity Read Mitchell Chapter 3 & 4 |

Unit TWO: Introduction to Complexity & Language

Week 3

| September 3 | Complexity & Language Read Beckner et al (2009), Mitchell Ch. 5 |
| September 5 | Complexity & Language Read Larsen-Freeman Ch. 3, de Bot & Larsen-Freeman (2011) |

Week 4

| September 10 | Complexity & Language Read Mitchell 6 &7, Larsen-Freeman Ch. 4 |
| September 12 | Complexity & Language Read Holland (2012) |

Weeks 5 - 14

Units on L1 acquisition, L2 acquisition, language origins/evolution, historical, sociolinguistics (number of time spent on each unit will be dependent on student interest)