Department of Computer Science
State University of New York at Buffalo

CS 675: NATURAL-LANGUAGE UNDERSTANDING

Registration No.: 205096

Semester:	Spring 1994	Instructor:	William J. Rapaport
Time:	TTh 11 A.M.–12:20 P.M.	Office:	Bell 214
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TEXTS:

1. *Required*:

   Allen, James (1987), *Natural Language Understanding* (Menlo Park, CA: Benjamin-Cummings).

2. *Recommended*:

   (a) Grosz, Barbara J.; Sparck Jones, Karen; & Webber, Bonnie Lynn (1986) (eds.), *Readings in Natural Language Processing* (Los Altos, CA: Morgan Kaufmann).

   (b) Shapiro, Stuart C. (1992), *Common Lisp: An Interactive Approach* (New York: Computer Science Press/W. H. Freeman).

3. *On Reserve (at SEL/UGL?)*:

   Winograd, Terry (1983), *Language as a Cognitive Process* (Reading, MA: Addison-Wesley).

COURSE DESCRIPTION: This course will be an introduction to the field of Computational Linguistics. It is an appropriate sequel to CS 572, Introduction to Artificial Intelligence, or to an introductory graduate-level linguistics course. Topics to be covered will include some of the following: the nature of natural-language "competence" (by which I include both understanding *and* generation), basic syntactic parsing techniques (including augmented-transition-network grammars and deterministic parsing), semantic interpretation, and natural-language generation.

Although there will be no formal prerequisites (in particular, knowledge of a programming language will not be required), most students will either be graduate students in Computer Science who have had a graduate-level introduction to artificial intelligence, or graduate students in Linguistics, or graduate students in any of the other cognitive sciences (such as Philosophy, Psychology, CDS, Anthropology, etc.) who feel that their knowledge of either computer science or linguistics is sufficient for them to participate in the course. Permission of the instructor is required.

COURSE REQUIREMENTS: Class meetings will consist of brief lectures, general discussion, and discussion of assigned questions.

There are two main requirements:

1. You must *attend* virtually all classes, *actively participate* in class discussions, and *turn in all required assingments* on time. Due dates for assignments will be announced in class. Assignments will be collected and recorded, but not graded; they will serve as a focus for class discussions. (Therefore, no late assignments will be accepted.) There may be some small programming-project assignments; these will be team efforts.

2. There will be a *term project*. This will be a 10–15-page, "typed", double-spaced *report* (which may, but need not, include an appendix detailing a computational implementation).

   The report might be a review of the literature on some topic, a discussion of some topic not covered fully in class, a discussion of another topic of your choice, an implementation of an algorithm in one of the texts, or a team project (such as an implementation of a "full" NLU system, with each team member being responsible for a module), or a computational implementation of your choice. If several of you choose to work together on a team project, your report must include a statement clearly outlining each person's contribution. The final report for an implementation project must include an appendix (*beyond* the 10–15-page report itself) with *annotated* sample runs and the *commented* program code.

   Your topic must be approved by me in advance, and a proposal (perhaps in the form of an extended summary) of 6–8 "typed", double-spaced pages or—even better—a first draft must be turned in by Thursday, March 10.

   The term project is due on Thursday, May 5. Late projects will be accepted at a full-letter-grade-per-day discount (e.g., an A paper, 1 day late, gets a B, not an A-).

GRADING:

- To get a grade of A, A–, B+, B, B–, or C+, you must satisfy:
  - requirement 1 and
  - requirement 2 of A, A–, B+, B, B–, or C+ quality.
- You will get a grade of C, if you satisfy requirement 1 only.
- D = attendance only xor assignments only
- F = partial atendance only xor partial assignments only
- requirement 2 of x quality but requirement 1 of D quality := pred(x)
  (e.g, if you attend class regularly, do no assignments, but do a term paper of A quality, then your grade will be A–)
- No incompletes will be given!

TENTATIVE SCHEDULE

Jan 25–Feb 1:	Allen, Chs. 1–2, App. A, B
Feb 3–Feb. 10:	Allen, Ch. 3
Tuesday, Feb 8	**NOAM CHOMSKY Colloquium**
Feb 15–Feb 22:	Allen, Ch. 4
Wednesday, Feb 16	**GRAEME HIRST Colloquium**
Feb 24–Mar 3:	Allen, Ch. 5
Thursday, Mar 3	**CANDACE SIDNER Colloquium**
Mar 8–Mar 15:	Allen, Ch. 6
Mar 10:	TERM PROJECT PROPOSALS DUE
Mar 17–Mar 24:	Allen, Ch. 7
Mar 18:	LAST "R" DAY
Apr 5–Apr 12:	Allen, Ch. 8
Apr 14–Apr 21:	Allen, Ch. 9
Thursday, Apr 21	**SANDRA CARBERRY Colloquium**
Apr 26–Apr 28:	Allen, Ch. 17
May 3–May 5:	class presentation of projects (?)
May 5:	TERM PROJECTS DUE