

COURSE DESCRIPTION

Dept., Number	CSci 517	Course Title	Natural Language Processing
Semester hours	3	Course Coordinators	H. Conrad Cunningham, Professor Steven Schoenly, Associate Professor Emeritus

Current Catalog Description

Computer processing of natural language text at morphological, lexical, syntactic, and semantic levels; algorithms and procedures for sentence parsing and analysis; applications of natural language processing techniques.

Note: This course was last taught in Spring 2002 by a professor who is now retired.

Textbook

Daniel Jurafsky and James H. Martin, *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition*. Prentice Hall, 2000; ISBN 0-13-095069-6.

References

Course website: <http://www.cs.olemiss.edu/~sbs/517spring2002>

Terry Winograd, *Language as a Cognitive Process: Syntax*. Addison-Wesley, 1983.

Course Outcomes

Upon successful completion of this course, the students:

1. can apply various programming techniques for string processing;
2. know the concepts and terminology of natural language processing (NLP);
3. can apply the basic algorithms of NLP (e.g. stemming, parsing of English text);
4. know the basic concepts for applying NLP techniques in information retrieval and machine translation;
5. can present technical material on NLP orally.

Relationship between Course Outcomes and Program Outcomes

This is an elective course taken by computer science undergraduate and graduate students. The course outcomes contribute to the program outcomes as follows: (1) to (i); (2) to (a) and (j); (3) to (c); (4) to (a); and (5) to (f).

Prerequisites by Topic

Introductory automata and formal languages (CSci 311)

Major Topics Covered in the Course

1. String processing techniques (e.g. in Java)
2. Other string processing languages (e.g. Icon)
3. Philosophy of language, linguistics, computational linguistics
4. Morphological processing (e.g. stemming algorithms)
5. Lexical processing (dictionary lookup, lexicon design)
6. Pattern matching systems and concepts
7. Transition network representations of grammar
8. Context-free grammars and chart parsers
9. Augmented transition networks
10. Natural language generation
11. Machine translation
12. Natural language processing and information retrieval

Assessment Plan for the Course

This is an elective course taken by computer science undergraduate and graduate students. It was last taught in the 2002 Spring semester by a professor who is now retired. That offering had several library and programming assignments with related class discussions, 2 major projects with presentations, and a final examination. Outcomes 1-4 were assessed by aspects of all graded activities. Outcome 5 was assessed by the students' two project presentations and participation in class discussions. When this course is offered again in the future, the instructor of that new class will discuss, as appropriate and possible, the conduct of the Spring 2002 class with its instructor.

How Data in the Course are Used to Assess Program Outcomes (unless adequately covered already in the assessment discussion under Criterion 4)

This course was last taught in Spring 2002 by a professor who is now retired.

Estimate Curriculum Category Content (Semester hours)

Area	Core	Advanced	Area	Core	Advanced
Algorithms		1	Software design		
Data structures		1	Concepts of programming languages		1