

# CSCI-544

## Introduction to Natural Language Processing

Spring 2012

### Class Details

**Time:** Tuesdays and Thursdays at 2:00

**Location:** WPH106

The sister course, CS 562, [Statistical Natural Language Processing](#) (also known as Empirical Methods in NLP), is offered in the Fall semesters. You can take these two courses in either order.

### Instructors:

[Eduard Hovy](#)

[Zornitsa Kozareva](#)

### TA:

Dirk Hovy

### Guest Lecturer:

David Traum, ICT

### Textbooks

- Daniel Jurafsky and James Martin. [Speech and Language Processing](#), 2nd edi., Prentice Hall, 2008.
- Christopher Manning and Hinrich Schütze. [Foundations of Statistical Natural Language Processing](#), MIT Press, 1999.
- James Allen. [Natural Language Understanding \(2nd ed\)](#), Addison Wesley, 1994.
- Ian H. Witten and Eibe Frank. [Data Mining: Practical Machine Learning Tools and Techniques \(3rd ed\)](#), Morgan Kaufmann, 2005.
- Steven Bird, Ewan Klein, and Edward Loper. [Natural Language Processing with Python - Analyzing Text with the Natural Language Toolkit](#), O'Reilly Media, 2009.

### Classes from Previous Years

Syllabi and materials from previous years. Since those pages are no longer maintained, there is no guarantee of completeness.

- [Spring 2010](#)
- [Spring 2011](#)

### Schedule

Date	Instructor	Lecture
January 10	Hovy	Introduction to NLP ( <a href="#">notes</a> )
January 12	Hovy	Semantics: Representations and Ontologies ( <a href="#">notes</a> )
January 17	Hovy	Generation 1: Overview and Realization by Phrasal Expansion ( <a href="#">notes</a> )
January 19	Hovy	Generation 2: Probabilistic Realization ( <a href="#">notes</a> ) <a href="#">Assignment 1</a> is out <b>Due date: Sun, Feb 12!</b>
January 24	Hovy	Generation 3: Text Structure ( <a href="#">notes</a> ) ( <a href="#">slides</a> )
January 26	Hovy	Generation 4: Macro and Microplanning for NLG ( <a href="#">notes</a> )
January 31	Kozareva	Information Extraction ( <a href="#">slides</a> )
February 2	Kozareva	Classification Algorithms: Decision Trees, k-NN ( <a href="#">slides</a> )
February 7	Kozareva	Classification Algorithms: Perceptron. Features. Introduction to Weka ( <a href="#">slides</a> )
February 9	Kozareva	Name Entity Discrimination, Clustering ( <a href="#">slides</a> ) <a href="#">Assignment 2</a> is out
February 14	Kozareva	Semantic Class Learning ( <a href="#">slides</a> )
February 16	Kozareva	Graph Algorithms: Application to Semantic Class Learning ( <a href="#">slides</a> )

February 10	Kozareva	Graph Algorithms. Application to Semantic Class Learning. ( <a href="#">slides</a> )
February 21	Kozareva	Assignment 2 Overview ( <a href="#">slides</a> )
February 23	Kozareva	Question Classification ( <a href="#">slides</a> )
February 28	Kozareva	Textual Entailment ( <a href="#">slides</a> ). Download <a href="#">Homework#2 Test Data</a>
March 1	Kozareva	Paraphrase Acquisition ( <a href="#">slides</a> ) <b>Assignment 2 Due Date is Today!</b>
March 6	Kozareva	Attribute Extraction from Query Logs, Web Documents and Wikipedia <a href="#">"Low-cost Supervision for Multiple-Source Attribute Extraction"</a> , Joseph Reisinger and Marius Pasca <a href="#">"Weakly-supervised Acquisition of Open-Document Classes and Class Attributes from Web Documents and Query Logs"</a> , Marius Pasca and Benjamin Van Durme
March 8	David Traum	Introduction to Dialogue Systems ( <a href="#">slides</a> ) <a href="#">Assignment 3</a> is out <a href="#">Download data for Assignment 3</a>
March 13		Spring Break
March 15		Spring Break
March 20	Hovy	Pragmatics: Generator Control ( <a href="#">notes</a> )
March 22	Kozareva	Event Extraction and Reordering <a href="#">Unsupervised Learning of Narrative Event Chains</a> <a href="#">Unsupervised Learning of Narrative Schemas and their Participants</a> <a href="#">Learning Script Knowledge with Web Experiments</a>
March 27	Kozareva	Deciphering Substitution Ciphers - Sujith Ravi and Kevin Knight. <a href="#">Attacking decipherment problems optimally with low-order n-gram models</a> . In Proceedings of Conference on Empirical Methods in Natural Language Processing (EMNLP), pages 812-819, 2008 - Sujith Ravi and Kevin Knight. <a href="#">Learning phoneme mappings for transliteration without parallel data</a> . In Proceedings of Conference of the North American Chapter of the Association for Computational Linguistics - Human Language Technologies (NAACL/HLT), pages 37-45, 2009 - Sujith Ravi and Kevin Knight. <a href="#">Minimized models for unsupervised part-of-speech tagging</a> . In Proceedings of the Joint Conference of the 47th Annual Meeting of the Association for Computational Linguistics and the 4th International Joint Conference on Natural Language Processing of the Asian Federation of Natural Language Processing (ACL-IJCNLP), pages 504-512, 2009 - Sravana Reddy and Kevin Knight. <a href="#">What We Know About The Voynich Manuscript</a> . In Proceedings of the ACL Workshop on Language Technology for Cultural Heritage, Social Sciences, and Humanities. ( <a href="#">slides</a> )
March 29	Kozareva	<a href="#">Sentiment, Reviews and Regression Analysis</a> <b>Assignment 3 Due Date is Today!</b>
April 3	Hovy	Applications 1: Information Retrieval <a href="#">notes</a>
April 5	Hovy	Applications 2: Text Summarization <a href="#">notes</a>
April 10	Hovy	Applications 3: Machine Translation I <a href="#">notes</a>
April 12	Hovy	Applications 4: Machine Translation II <a href="#">notes</a>
April 17	Hovy	Applications 5: Speech Recognition <a href="#">notes</a>
April 19	Hovy	A New Model of Semantics
April 24	Hovy	Topics in Psycho- and Neurolinguistics <a href="#">notes</a>
April 26	Hovy and Kozareva	Closing