



**E1 246 Jan 3:1**

## **Natural Language Understanding**

### **Instructor**

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### **Teaching Assistant**

Email:

**Department: CSA**

Course Time: TTh 2-3:30pm

Lecture venue: CDS 202

Detailed Course Page: <https://sites.google.com/site/2015e1246/>

## **Announcements**

### **Brief description of the course**

This course provides a modern and statistical perspective on natural language processing. The course will enable the student to: acquire fundamentals of language technology; understand, implement, and apply state-of-the-art techniques to novel problems involving natural language data; and be able to read and understand current research literature.

### **Prerequisites**

Prior experience with programming, data structures & algorithms is necessary. Prior exposure to machine learning will be helpful, although not mandatory.

### **Syllabus**

Morphology, Parts-of-Speech, Language Models, Word Sense Disambiguation, Anaphora Resolution, Finite State Transducers, Basics of Supervised and Semi-supervised Learning, Hidden Markov Models, EM Algorithm, Structured Prediction, CFG Parsing, Dependency Parsing, Discourse Processing, Lexical Semantics, Distributional Semantics, Representation Learning for NLP, Semantic Parsing, Knowledge Bases, Topic Models, Machine Translation, Information Extraction, Sentiment analysis.

## **Course outcomes**

This course provides a modern and statistical perspective on natural language processing. The course will enable the student to: acquire fundamentals of language technology; understand, implement, and apply state-of-the-art techniques to novel problems involving natural language data; and be able to read and understand current research literature.

## **Grading policy**

Midterm & Final Exams (2 x 15%), Two assignments (2 x 10%), Final Project (50%)

## **Assignments**

## **Resources**

Chris Manning and Hinrich Schütze, Foundations of Statistical Natural Language Processing, MIT Press, May 1999.

Emily Bender, Linguistic Fundamental for NLP, Morgan Claypool Publishes, June 2013.

Jurafsky D, and Martin J H, Speech and language processing: an introduction to natural language processing, computational linguistics and speech recognition, Pearson Education, 2003.

Allen J, Natural language understanding, Pearson Education, 2003.

Research Literature