

## Natural Language Processing Course Tentative Schedule of Class Sessions and Assignments Fall 2015

Note on the optional textbook. *Speech and Language Processing*. Daniel Jurafsky & James H. Martin, 2<sup>nd</sup> ed. 2008. Prentice-Hall.

As of 2015, there are no versions, either 1<sup>st</sup> or 2<sup>nd</sup> edition, used or new, available on-line from Amazon at under \$100. If you are interested in seriously pursuing more details of core NLP, then you should buy the book and do the additional optional readings. However, if you're primarily interested in applying NLP text processing to some documents or text, then the information in the lectures and in the NLTK book is fine, and you do not need to spend the extra money or take the time to do the more detailed readings from the text.

### Week Date Topics and Assignments

1. 8/31 Course Overview and Introduction to NLP and the NLTK  
Readings: From the NLTK book (1st edition), read Chapter 0 and in Chapter 1, read sections 1.1 and 1.2 under the headings of Lists, Variables and Strings.
2. 9/8 Corpus Linguistics  
Optional Reading: Chapter 1 J&M either edition,
3. 9/14 N-gram Models and Analysis  
Readings: From the NLTK book (1st edition), read section 1.3 under the heading Frequency Distributions and skim through section 1.4 Back to Python of Chapter 1.  
Optional Readings: Sections 4.1 – 4.7 J&M, 2<sup>nd</sup> ed., Ch. 6 J&M, 1<sup>st</sup> ed.  
Ch. 2, J&M either ed.  
Church and Hanks paper  
Assign Homework 1: Corpus Statistics and Mutual Information
4. 9/21 Regular Expressions, Morphology  
Readings: J&M Morphology examples (available in Blackboard)  
Optional Readings: Ch. 3, J&M either ed.
5. 9/28 Part-of-speech Tagging  
Optional Readings: Ch. 5 J&M 2<sup>nd</sup> ed., or Ch. 8 J&M 1<sup>st</sup> ed.  
**Homework 1 Due at midnight 9/27.**  
Assign Homework 2.
6. 10/05 Context Free Grammars  
Optional Readings: Ch. 12 J&M 2<sup>nd</sup> ed., or Ch. 9 J&M 1<sup>st</sup> ed.
7. 10/12 Parsing, Statistical Parsing, Dependency Parsing  
Optional Readings: Ch. 13 J&M 2<sup>nd</sup> ed., or Ch. 10 J&M 1<sup>st</sup> ed.  
Optional reading: Joakim Nivre, Deterministic Dependency Parsing of English Text.
8. 10/19 Semantic Representations, Lexical Semantics, WordNet

Optional Readings: Ch. 17 J&M 2<sup>nd</sup> ed., or Ch. 14 J&M 1<sup>st</sup> ed.  
J&M 2<sup>nd</sup> ed. Sections 19.1-19.3 and 20-1 – 20-8,  
or J&M 1<sup>st</sup> ed. 16.1 – 16.2 and 17.1-17.2

**Homework 2 Due at midnight 10/18.**

9. 10/26 Semantic Role Labeling  
Readings/Videos: Machine Learning for NLP, Videos from Andrew Ng  
Optional Readings: J&M 2<sup>nd</sup> ed. Sections 19.4 and 20.9  
Assign Homework 3.
10. 11/02 Information Extraction, Summarization, and Machine Translation
11. 11/09 Information Retrieval, Question Answering  
Optional Reading: Ch. 23 J&M 2<sup>nd</sup> ed.  
(Preliminary) Topics for NLP Applications  
**Homework 3 due at midnight 11/15.**
12. 11/16 Sentiment Analysis  
Optional Readings: Ch. 22 J&M 2<sup>nd</sup> ed.  
Choose application topics.  
Assign Final Projects.  
  
11/23 No class – Thanksgiving Break
13. 11/30 Discourse Linguistics, Anaphora & Coherence  
Optional Readings: Ch. 21 J&M 2<sup>nd</sup> ed., or Ch. 18 J&M 1<sup>st</sup> ed.  
Finalize NLP application topics.
14. 12/07 Pragmatics, Dialogue Theory, Topic Modeling  
NLP Application Investigations due and results reviewed.  
Optional Readings: Ch. 24.1-24.3 J&M 2<sup>nd</sup> ed., or Ch. ?? J&M 1<sup>st</sup> ed.  
**NLP Application Reports due at midnight 12/07.**
15. **Final Projects due at midnight 12/18. (No Final Exam)**