

LELA 300431 Computers and language

Professor Harold SOMERS

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office hours: Mondays 11.30–1.30

	Mon 10am Newman/G16	Fri 10am AlanTuring/G205
1. Introduction Sept 24, 28	Introduction, explanation of syllabus What makes language hard for computers?	Applications: overview
2. Phonetics Oct 1, 5	Speech recognition	Speech synthesis
3. Writing Oct 8, 12	Character sets, Unicode, input methods	Word processing, spell checkers, grammar checkers
4. Words Oct 15, 19	Dictionaries, Thesauri	WordNet
5. Morphology Oct 22, 23	Morphology	Tagging *
READING WEEK		
6. Syntax Nov 5, 9	Parsing I	Parsing II
7. Syntax, Semantics Nov 12, 16	Parsing III	Dialogue understanding
8. Pragmatics, Branches Nov 19, 23	Text generation, Cooperative responses	Psycholinguistics: language and AI
9. Branches Nov 26, 30**	Applied linguistics: CALL	Translation aids
10. Translation Dec 3, 7	Machine translation I	Machine Translation II
11. Information retrieval Dec 10, 14	Text retrieval; Summarization	Question answering, text mining

* This class rearranged due to absence: takes place Tuesday at 3pm in Hanson Room, Bridgeford Building

** This class lecture to be rearranged due to HS's absence

Assessment

Essay – 3000 word essay

due in at the start of the exam period (4pm Monday January 14th)

Titles:

- (a) Choose a particular NLP application, and explain the difficulties that natural language poses to the computer, and how (or whether) they are addressed.
- (b) How is the study of language relevant to NLP? Focus on one or two areas of NLP only.
- (c) Choose one branch of language study (eg historical, sociolinguistics, psycholinguistics, child language, applied linguistics, etc.) and discuss what role the computer, and in particular computational linguistics, could play.

Exam – 1hr 30min exam consisting of 50 multiple choice (or short phrase) answers.

Exam-coursework ratio is 50:50

Bibliography:

Mitkov, R. (ed.) *The Oxford Handbook of Computational Linguistics*, Oxford: OUP, 2004

Dale, R., H. Moisl & H. Somers (eds) *A Handbook of Natural Language Processing*, New York: Marcel Dekker, 2003

Allen, J., *Natural Language Understanding*, 2nd Edition, Redwood City, CA: Benjamin Cummings, 1994

Jurafsky, D. & J.H. Martin. *Speech and Language Processing*, Prentice-Hall, 2000

Manning, C. & H. Schütze, *Foundations of Statistical Natural Language Processing*, Cambridge, Mass: MIT Press, 1999