**Natural Language Processing**

**Overview**

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| Level | 4 (Semester 7) |
| Duration | 4 weeks |
| Lectures | 10x40 minutes/week for 2 weeks |
| Practicals/tutorials | 5x2 hours/week for 3 weeks |

**Learning Outcomes**

* Knowledge and understanding of a range of theoretical and applied topics related to how computers interpret human language, including grammar formalisms and algorithms for parsing sentences, natural language semantics, text analytics using sentiment analysis, machine translation, and grammar checking
* Knowledge and understanding of how computers can generate human language.

**Syllabus**

* Formal linguistic models of English: word categories, sentence constituents, phrase-structure grammar rules, features. Modelling syntactic phenomena.
* Parsing: shift-reduce parsers, chart parsers, handling ambiguity, definite clause grammars.
* Semantics and pragmatics: meaning representations, reference, speech acts.
* Generation: Content determination, sentence planning, and realisation.
* Applications: grammar checking, machine translation, database interfaces, report generation, dictation.
* Speech: Hidden Markov Models, statistical language models, speech synthesis.