

EE-608

**Deep Learning For Natural Language Processing**

Henderson James

Cursus	Sem.	Type
Computational and Quantitative Biology		Opt.
Electrical Engineering		Opt.

Language of teaching	English
Credits	4
Session	
Exam	Multiple
Workload	120h
<b>Hours</b>	<b>56</b>
Lecture	28
Practical work	28
<b>Number of positions</b>	<b>40</b>

**Frequency**

Every 2 years

**Remark**

Next time: Fall 2025

**Summary**

The Deep Learning for NLP course provides an overview of neural network based methods applied to text. The focus is on models particularly suited to the properties of human language, such as categorical, unbounded, and structured representations, and very large input and output vocabularies.

**Content****Models**

- Word embeddings
- LSTMs and CNNs for text
- Attention models
- Sequence-to-sequence models
- NN integration with decoding
- Multi-task learning

**Applications**

- Language modelling
- Machine translation
- Syntactic parsing
- Semantic parsing
- Dialogue systems

**Keywords**

Machine Learning, Natural Language Processing, Neural Networks.

**Learning Prerequisites****Required courses**

Undergraduate level probability, linear algebra, and programming.

**Recommended courses**

Courses on Machine Learning, Natural Language Processing (Human Language Technology, Computational Linguistics), or Artificial Intelligence would be useful.

**Learning Outcomes**

By the end of the course, the student must be able to:

- Identify appropriate deep learning architectures for different natural language processing tasks.
- Apply appropriate training and evaluation methodology to such models on large datasets using existing packages.

**Assessment methods**

Multiple.

**Resources****Moodle Link**

- <https://go.epfl.ch/EE-608>