

NLP for Good: Societal Applications (A005872)

Course size *(nominal values; actual values may depend on programme)*

Credits 5.0 **Study time 150 h**

Course offerings in academic year 2026-2027

A (semester 2) English Gent

Lecturers in academic year 2026-2027

Lefever, Els	LW22	lecturer-in-charge
Hoste, Veronique	LW22	co-lecturer

Offered in the following programmes in 2026-2027

	crdts	offering
Bachelor of Arts in Applied Language Studies: a combination of at least two languages(main subject Dutch, English, Language Technology)	5	A
Bachelor of Arts in Applied Language Studies: a combination of at least two languages(main subject Dutch, French, Language Technology)	5	A
Bachelor of Arts in Applied Language Studies: a combination of at least two languages(main subject Dutch, German, Language Technology)	5	A
Preparatory Course Master of Arts in Multilingual Communication: a combination of at least two languages	5	A
Preparatory Course Master of Arts in Translation: a combination of at least two languages	5	A

Teaching languages

English

Keywords

NLP for Good, machine learning, natural language processing

Position of the course

Artificial intelligence has evolved into a powerful technology for addressing some of the greatest challenges of our time, such as healthcare, climate change, and social inequality. In this course, we explore how Natural Language Processing (NLP) can be applied to use cases with clear societal relevance. Through a range of "NLP for good" case studies, we examine how language technology can contribute to analysing, understanding, and supporting complex societal issues.

Contents

In this course, we work with capita selecta, each focusing on a specific NLP application with societal impact. For each use case, we provide a theoretical introduction, followed by project work in which students develop their own system or analyse and evaluate an existing one. Wherever possible, we make use of shared task benchmark datasets and relevant research data.

Some examples of "NLP for good" applications that may be covered in the course include:

- automatic detection of unwanted or harmful language in social media and online interactions (e.g. hate speech, cyberbullying, offensive language, stereotypes);
- automatic analysis of subjective information in text (e.g. sentiment analysis, emotion detection, argumentation mining);
- automatic analysis and categorisation of medical and health-related data, with attention to applications that contribute to patient empowerment (e.g. classification of headache complaints, translating specialised terminology into accessible lay terminology, NLP for mental healthcare);
- developing machine learning systems for low-resourced languages and varieties;
- applications related to inclusive, transparent, and responsible AI, with particular attention to bias, representation, and the societal consequences of building and

deploying NLP systems.

Initial competences

Basic knowledge about NLP, Python and machine learning.

Final competences

- 1 Students have basic knowledge of and insight into Natural Language Processing (NLP) and into the ways in which NLP methods can be applied to use cases with societal impact.
- 2 Students have the necessary practical knowledge and skills to develop, analyse, and evaluate NLP systems, ranging from data collection and annotation to modelling, evaluation, and the critical interpretation of results.
- 3 Students are able to use benchmark datasets and relevant research data in a scientifically sound manner for the development and evaluation of NLP applications.
- 4 Students are able to reflect critically on the ethical and societal issues related to NLP and artificial intelligence, in particular with regard to bias, representation, inclusion, transparency, and the impact of such systems on users and society.
- 5 Students are able to independently elaborate an NLP use case with societal relevance and to clearly report and justify the methodological choices, results, and limitations involved.

Conditions for credit contract

Access to this course unit via a credit contract is unrestricted: the student takes into consideration the conditions mentioned in 'Starting Competences'

Conditions for exam contract

This course unit cannot be taken via an exam contract

Teaching methods

Seminar, Lecture, Independent work

Extra information on the teaching methods

lecture, seminar, independent work.

Class will not be recorded, as the majority of the course consists of individual exercises and project work, making recordings ineffective. Individual exceptions can be made for students with special status (provided 'class recordings' are relevant accommodations).

Study material

Type: Slides

Name: slides

Indicative price: Free or paid by faculty

Optional: no

Language : English

Available on Ufora : Yes

References

- Daniel Jurafsky & James Martin, "Speech and Language Processing. An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition" (ed3)
- Emily M. Bender & Alex Lascarides, "Linguistic Fundamentals for Natural Language Processing" (2020)

Course content-related study coaching

Discussion forum

Assessment moments

end-of-term and continuous assessment

Examination methods in case of periodic assessment during the first examination period

Oral assessment

Examination methods in case of periodic assessment during the second examination period

Oral assessment

Examination methods in case of permanent assessment

Participation, Assignment

Possibilities of retake in case of permanent assessment

examination during the second examination period is possible

Extra information on the examination methods

First session:

- Presence and participation in class (10%)
- Assignment (40%)
- Oral exam including a discussion on the assignment and assessment of theoretical knowledge (50%)

Second session:

- Assignment (50%)
- Oral exam(50%)

Calculation of the examination mark

A combination of continuous assessment (50%) and end-of-term evaluation (50%).

First exam session: To pass, the student must achieve an overall average of 10 out of 20 or higher, with a minimum score of 40% on both the continuous and end-of-term components. If the minimum score is not obtained for either component, the student can receive a maximum final score of 9 out of 20 for the course.

Second exam session: Both components must be retaken. To pass the course, the student must again achieve an overall average of 10 out of 20 or higher, with a minimum score of 40% on both components. If the minimum score is not achieved for either component, the maximum final score remains 9 out of 20.

Facilities for Working Students

Class attendance is strongly recommended.

Limited possibility of feedback via e-mail, restricted to answering specific questions