University of Northampton

MODULE INTRODUCTION

CSY3055 – Natural Language Processing

Dr Oluseyi Oyedeji

Module Overview

Module Title	Natural Language Processing
Module Code	**CSY3055**
Academic Year	2025/2026
Credits	20
Subject Area	Technology
Subject Field	Computing
Level	**6**
Module Delivery	3hrs Face-to-Face + 1hr online
Delivery Pattern	**4 hours/week (Lecture + Practical)**

Module Team

Module Leader:

Dr. Oluseyi Oyedeji,
BSc (Hons) MSc PhD (Comp. Sc) PhD (AI) AFHEA
Senior Lecturer in Computer Science
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Teaching: Systems Design
Natural Language Processing

Research: AI(Deep learning, LLM)
Image Processing

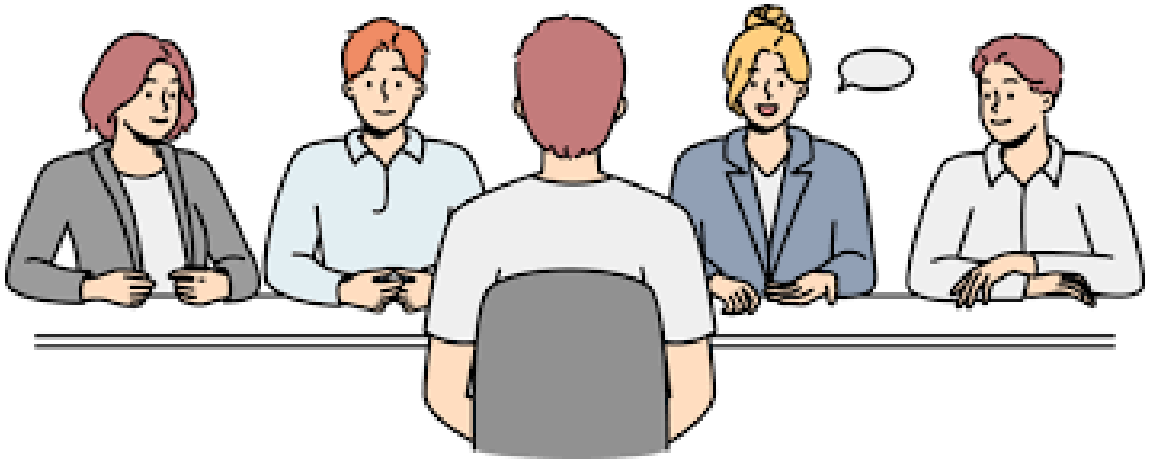
About Module

- **Linguistic foundations** (morphology, syntax, semantics, pragmatics)
- **Core NLP tasks**: tokenisation, POS tagging, parsing, embeddings
- Statistical and machine learning methods for text classification
- Neural language models (RNNs, LSTMs) and Transformers (BERT, GPT)
- **Modern applications** such as question answering, summarisation, topic modelling
- **Ethical and legal considerations** in NLP

Relevance of Module

One of the fastest-growing areas of AI and data science. Skills developed here are:

- Directly applicable in industry (*chatbots, search, information retrieval, speech recognition, LLMs*)
- Foundational for advanced study and **research in AI and ML**
- **Highly valued** by employers building data-driven and AI-powered applications



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Learning Outcomes

By the end of this module, you will be able to:

- **Explain and justify** fundamental *concepts and techniques of Natural Language Processing*.
- **Analyse, compare and select** the most appropriate methods and algorithms for building NLP driven solutions
- **Design, implement, evaluate and deploy** NLP-based models for given real-life scenarios
- **Analyse** the potential influence of **ethical, legal and environmental** issues involved in NLP
- Learning for Employability
- **Investigate and analyse** relevant resources, tools, and background information to be used in solving real-life problems
- **Communicate** ideas, concepts, and results effectively in a coherent manner appropriate to the audience

Learning Outcomes Summary.

You will be able to **preprocess text**, design models (traditional and neural), evaluate NLP systems, and reflect on ethical implications.

Assessments

- There will be various forms of **formative assessments** in the classroom which will **not count** towards your final grade but used to **check your progress** in the module
- However, we will have **2(two) major summative assessments** which will determine your **final grade** in this module:
  - ❑**AS1** (Proposal report, 40%)
  - ❑**Final Project** (report + artifact, 60%).

Assessments contd.

- **First Assessment - Proposal Report - (Week 7) – 40%**
  - ❑ **Due – 13th November 2025**
  - ❑ **1500 words**
  - ❑ Proposal for final project, including problem definition, literature review, methodology, objectives, and ethical considerations
- **Second Assessment – Final Project**
  - ❑ **Deadline: Jan 27th 2026**
  - ❑ 1500 words report + code/artifact + demonstration/viva
  - ❑ Implementation, evaluation, and reflection

Tip: begin working on it early. Even if you don't have all the answers, start exploring so you can integrate knowledge gained each week

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More details found in Assessment Brief

Weekly Schedule

Week	Topic
Week 1	Introduction to NLP
Week 2	Traditional Linguistic Methods
Week 3	Preprocessing & Text Analytics
Week 4	Classical ML for Text Classification
Week 5	Word2Vec & Word Embeddings
Week 6	Neural Language Models
Week 7	First Assessment
Week 8	Transformers & Attention
Week 9	Question Answering & Summarisation
Week 10	Topic Modelling
Week 11	Scaling & Deployment
Week 12	Recent Developments & LLMs
	Second Assessment

Learning Mode

- ***Lectures and labs*** every week (**4 hours weekly**).
- 3hrs face-to-face, 1hr online
- Example-driven learning (real world applications).
- Independent practice expected.

Expectations / Support

- **What we expect from you**
  - ❑ *Compulsory Attendance*,
  - ❑ *Participation*,
  - ❑ *Independent Lab Practice.*

- **What we will provide**
  - ❑ Teaching and Lab Support
  - ❑ Example solutions in the classroom
  - ❑ Feedbacks

Some Ground Rules

- **Communicate professionally** (*send email with student no. & module name*)
- **Respect peers & staffs** (punctuality, no disruptions)
- **Engage actively** (ask questions, use devices for classwork only)
- Academic integrity (your own work, no copying)
- **Take responsibility** (*attempt practicals, meet deadlines*)

Help and Support

- All **lecture slides**, **practical**, **solutions**, and **assessment briefs** will be uploaded weekly to **NILE**
- For module-related issues that can't wait until class, **send an email** to me:

oluseyi.oyedeji@northampton.ac.uk

- Ask questions during lectures or labs

“To understand language is to understand humanity. To teach machines language is to teach them to understand us.”

Good luck