



Course Specification

— (Bachelor)

Course Title: Natural Language Processing

Course Code: CS 463

Program: Computer Science

Department: Computer Science

College: College of Computer and Information Science

Institution: Majmaah University

Version: 2

Last Revision Date: 11 September 2023



Table of Contents

A. General information about the course:	3
B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods	4
C. Course Content	5
D. Students Assessment Activities	6
E. Learning Resources and Facilities	6
F. Assessment of Course Quality	7
G. Specification Approval	7



A. General information about the course:

1. Course Identification

1. Credit hours: 3 (3,1,0)

2. Course type

A. University College Department Track Others

B. Required Elective

3. Level/year at which this course is offered: (Level 9/10)

4. Course general Description:

This course introduce students to the fundamental concepts of natural language processing (NLP. It also help students to understand and practice the algorithms available for the processing of linguistic information and the underlying computational properties of natural languages. Wordlevel, syntactic, and semantic processing from both a linguistic and an algorithmic perspective are considered. The primary focus of the course will be on understanding various NLP tasks such as morphological analysis, language modelling, text classification, and word embedding.

5. Pre-requirements for this course (if any):

CS 270

6. Co-requisites for this course (if any):

N.A.

7. Course Main Objective(s):

The objectives of the course are: learn common processing tasks of NLP systems, understand Language modeling using N-Gram and neural network models, design Text classification using Naïve Bayes, logistic regression, neural networks, understand vector semantics and embedding, and apply NLP techniques in real applications.

2. Teaching mode (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	50%
2	E-learning		



No	Mode of Instruction	Contact Hours	Percentage
3	Hybrid <ul style="list-style-type: none"> Traditional classroom E-learning 		
4	Distance learning	30	50%

3. Contact Hours (based on the academic semester)

No	Activity	Contact Hours
1.	Lectures	45
2.	Laboratory/Studio	15
3.	Field	
4.	Tutorial	
5.	Others (specify)	
Total		60

B. Course Learning Outcomes (CLOs), Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
1.0	Knowledge and understanding			
1.1				
2.0	Skills			
2.1	CLO1: To learn common processing tasks of NLP systems	S4	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Assignments, Final Exam
2.2	CLO2: To understand Language modeling using N-Gram and neural network models	S4	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Assignments, Final Exam
2.3	CLO3: To design and implement a text classification	S2	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Assignments, Final Exam





Code	Course Learning Outcomes	Code of CLOs aligned with program	Teaching Strategies	Assessment Methods
	application using Naïve Bayes, logistic regression, neural networks.			
2.4	CLO4: To understand vector semantics and embedding	S4	Classroom + Lab based Teaching	Quiz, Mid Exam, Lab, Assignments, Final Exam
3.0	Values, autonomy, and responsibility			
3.1	CLO5: To apply NLP techniques into a real NLP applications	V1	Classroom + Lab based Teaching	Mini Project, lab assignments
3.2				
...				

C. Course Content

No	List of Topics	Contact Hours
1.	Introduction and Overview	8
2.	Regular Expressions, Text Normalization	8
3.	Minimum Edit Distance and Alignment	4
4.	N-gram Language Models	4
5.	Naive Bayes and Sentiment classification	4
6.	Text classification using logistic regression	4
7.	Vector Semantics and Embedding	4
8.	Neural Language Model I	4
9.	Neural Language Model II	4
10.	Part of Speech Tagging	4
11.	Deep Learning Architectures for Sequence Processing	4





12.	NLP Application I	4
13.	NLP Application II	4
Total		60

D. Students Assessment Activities

No	Assessment Activities *	Assessment timing (in week no)	Percentage of Total Assessment Score
1.	Quiz 1	4	10%
2.	Midterm Exam	8	20%
3.	Quiz 2	12	10%
4.	Min-Project	14	10%
5.	Lab Assignments	3,5,7,9	10%
6.	Final Exam	15	40%

*Assessment Activities (i.e., Written test, oral test, oral presentation, group project, essay, etc.).

E. Learning Resources and Facilities

1. References and Learning Resources

Essential References	Jurafsky and Martin, "SPEECH and LANGUAGE PROCESSING: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition", Third Edition, McGraw Hill, 2023.
Supportive References	Manning and Schütze, "Statistical Natural Language Processing", MIT Press; 1st edition (June 18, 1999), ISBN: 0262133601
Electronic Materials	
Other Learning Materials	

2. Required Facilities and equipment

Items	Resources
facilities (Classrooms, laboratories, exhibition rooms, simulation rooms, etc.)	Classrooms and laboratories
Technology equipment (projector, smart board, software)	PC with Windows/Linux OS, Projector, Smart Board google colab, Jupiter notebook, python interpreter
Other equipment (depending on the nature of the specialty)	



F. Assessment of Course Quality

Assessment Areas/Issues	Assessor	Assessment Methods
Effectiveness of teaching	Students, HoD	Indirect
Effectiveness of Students assessment	Instructor	Direct
Quality of learning resources	Instructor, Quality Unit	Direct
The extent to which CLOs have been achieved	Quality Unit	Direct
Other		

Assessors (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify))

Assessment Methods (Direct, Indirect)

G. Specification Approval

COUNCIL /COMMITTEE	COMPUTER SCIENCE DEPARTMENT
REFERENCE NO.	
DATE	

