LT4218: ADVANCED TOPICS IN COMPUTATIONAL LINGUISTICS

Effective Term
Semester B 2022/23

Part I Course Overview

Course Title
Advanced Topics in Computational Linguistics

Subject Code
LT - Linguistics and Translation
Course Number
4218

Academic Unit
Linguistics and Translation (LT)

College/School
College of Liberal Arts and Social Sciences (CH)

Course Duration
One Semester

Credit Units
3

Level
B1, B2, B3, B4 - Bachelor's Degree

Medium of Instruction
English

Medium of Assessment
English

Prerequisites
LT3233 Computational Linguistics

Precursors
LT3232 Computer Programming for Language Studies, LT3210 Electronic Publishing

Equivalent Courses
CTL4218 Advanced Topics in Computational Linguistics

Exclusive Courses
Nil

Part II Course Details

Abstract

This course aims at providing the opportunity for students to acquire knowledge about selected topics in computational linguistics and/or about the implementation of various natural language processing applications. At the discretion of the lecturer, the course will focus on topics selected from a wide range of language processing subtasks and application systems, exemplifying the issues and challenges in computer processing of speech and language.

Course Intended Learning Outcomes (CILOs)

	CILOs	Weighting (if app.)	DEC-A1	DEC-A2	DEC-A3
1	Give an adequately comprehensive account of the range of NLP applications and areas of potential development in commercial and industrial sectors.		x	x	x
2	Take part in in-depth discussions of the theoretical and practical issues in selected CL and NLP topics.		x	x	x
3	Critically compare and contrast different approaches to selected NLP subtasks and evaluate performance of various NLP applications discover and evaluate solutions for specific tasks.		x	x	x

A1: Attitude
Develop an attitude of discovery/innovation/creativity, as demonstrated by students possessing a strong sense of curiosity, asking questions actively, challenging assumptions or engaging in inquiry together with teachers.

A2: Ability
Develop the ability/skill needed to discover/innovate/create, as demonstrated by students possessing critical thinking skills to assess ideas, acquiring research skills, synthesizing knowledge across disciplines or applying academic knowledge to real-life problems.

A3: Accomplishments
Demonstrate accomplishment of discovery/innovation/creativity through producing /constructing creative works/new artefacts, effective solutions to real-life problems or new processes.

Teaching and Learning Activities (TLAs)

	TLAs	Brief Description	CILO No.	Hours/week (if applicable)
1		Lectures to explain the issues and challenges, as well as approaches and implementations, for selected NLP subtasks and application systems; hands-on experience on selected applications and system performance evaluation.	1, 2, 3	
2		Reading of lecture notes and recommended book chapters and/or papers.	1, 2, 3	

3		Teacher-facilitated class/ group discussions.	1, 2, 3	
4		Demonstration of selected applications.	1, 2, 3	

Assessment Tasks / Activities (ATs)

	ATs	CILO No.	Weighting (%)	Remarks (e.g. Parameter for GenAI use)
1	Assignments and/or quizzes on theoretical and practical issues of selected topics.	1, 2, 3	50	
2	Participation in tutorial exercises and discussions on system implementation/ evaluation.	1, 2, 3	20	

Continuous Assessment (%)

70

Examination (%)

30

Examination Duration (Hours)

2

Assessment Rubrics (AR)

Assessment Task

1. Assignments

Criterion

Ability to apply methods in computational linguistics

Excellent (A+, A, A-)

High

Good (B+, B, B-)

Significant

Fair (C+, C, C-)

Moderate

Marginal (D)

Basic

Failure (F)

Not even reaching marginal levels

Assessment Task

2. Quizzes

Criterion
Ability to demonstrate competence in computational linguistics

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
3. Participation

Criterion
Ability to meaningfully engage in tutorial exercises and discussions on system implementation/evaluation

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Assessment Task
4. Examination

Criterion
Ability to demonstrate competence in computational linguistics

Excellent (A+, A, A-)
High

Good (B+, B, B-)
Significant

Fair (C+, C, C-)
Moderate

Marginal (D)
Basic

Failure (F)
Not even reaching marginal levels

Part III Other Information

Keyword Syllabus

Natural language processing, Speech recognition and synthesis, Tagging and chunking, Parsing, Lexical semantics, Word sense disambiguation, Semantic role labelling, Paraphrasing, Summarization, Discourse and dialogue, Language generation, Machine translation, Information retrieval, Information extraction, Sentiment analysis and opinion mining, Question answering, Lexicon and ontology development, Treebank and corpus development, Evaluation methods

Reading List

Compulsory Readings

	Title
1	Manning, C.D. and Schutze, H. (1999) Foundations of Statistical Natural Language Processing. Cambridge, MA: The MIT Press.

Additional Readings

	Title
1	Allen, J. (1995) Natural Language Understanding. Redwood City, CA: Benjamin/Cummings.
2	Dale, R., Moisl, H. and Somers, H. (2000) Handbook of Natural Language Processing. New York: Dekker.
3	Gazdar, G. and Mellish, C. (1989) Natural Language Processing in Prolog: An Introduction to Computational Linguistics. Wokingham, UK: Addison-Wesley.
4	Grishman, R. (1986) Computational Linguistics: An Introduction. Cambridge, UK: Cambridge University Press.
5	Jurafsky, D. and Martin, J.H. (2009) Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition. Upper Saddle River, NJ: Prentice Hall.
6	Mitkov, R. (2003) Oxford Handbook of Computational Linguistics. Oxford: Oxford University Press.
7	Journal and conference papers at ACL Anthologyhttp://www.aclweb.org/anthology-index/