LNG420: COMPUTATIONAL LINGUISTICS

Dr. Dimitrios Ntelitheos

Time:	Monday/Wednesday 15:30-16:45
Venue:	C1 – 0026
Office hours:	Monday/ Wednesday 12:30-14:00
Email:	dimitrios_n@uaeu.ac.ae
Language of instruction:	English
Prerequisites:	LNG241 , LNG231 , LNG341

1. COURSE DESCRIPTION

This course is an introduction to computational linguistics. It assumes some basic familiarity with linguistics concepts but does not require the ability to program. We will be covering traditional foundations of computational linguistics areas such as automata and finite-state machines, finite-state transducers, context-free and extended context-free models of syntax, parsing, and semantic interpretation; corpora and corpus-based research; and some selection of application areas from among such topics as information retrieval or machine translation. Some of the concepts taught in class will be reinforced in practice by hands-on programming assignments using Prolog.

2. TEACHING METHODS

1. Lectures encouraging the participation of students.
2. Lab sessions where students practice creating code for computational applications of issues discussed during lectures.
3. In-class correction of exercises.

3. COURSE OBJECTIVES AND COURSE OUTCOMES

1. To provide students with a theoretically grounded introduction to contemporary work in Computational Linguistics.
2. To introduce standard methods for processing words and sentences (parsing and generation)
3. To introduce and develop an understanding of some key computational notions
4. At the end of the course the students should be able to: understand and be able to evaluate a range of approaches and algorithms for language processing in relation to various linguistic and computational issues and applications.

4. Students Responsibilities

1. Students must attend class regularly.
2. Students must do the readings before they come to class (ways to test this may be used)
3. Students are expected to actively participate to class discussions (this would count in the evaluation).
4. Students who have missed class for any reason are responsible for finding out what information has been missed and are encouraged to talk to the instructor and/or classmates.
5. Missed quizzes may be made up only in cases of emergency (family or medical; a note from a doctor is to be provided). Tests will not be made up otherwise.

5. Grading Scheme

1. Homework Assignments. These may involve doing exercises from the text, answering questions, or programming. For programs, students will turn in (a) a program listing, and (b) a trace of the code working successfully. Students are encouraged to work together, but every assignment must be completed by the student independently. 20%
2. Mid-term exam: 20%
3. Final exam: 30%
4. Two (2) take home projects 20%
4. Class Participation[1] 10%

6. Tentative Course Outline

Week 1: Introduction: Historical Background
Week 2: Prolog Tutorial1
Week 3: Prolog Tutorial2
Week 4: Prolog Tutorial3
Week 5: Prolog Tutorial4
Week 6: Finite State Automata1
Week 7: Finite State Automata2
Week 8: Midterm Review and Midterm
Week 9: Morphology and FSTs
Week 10: Grammars1
Week 11: Grammars2
Week 12: Parsing1
Week 13: Parsing2
Week 14: Corpora and Part of Speech Tagging

[1] Class participation means a lot more than attendance – you have to participate in class discussions, ask questions, and volunteer to tackle in-class analyses of data sets. However, while emergences do happen, please make every effort to be in class on time at each session as I will take roll (and don't forget to switch off your mobile phones!). A student who misses 5% of the class meetings allotted for the course will receive a warning, 10% a second warning and 15% will fail the course. Make up examinations: A make up examination can be scheduled only with the consent of the instructor and/or an official letter from a medical doctor or an official police report.

Week 15: Machine Translation
Week 16: Final Review and Practice

7. POLICIES

Academic Honesty: The United Arab Emirates University is committed to creating a learning environment that is honest and ethical. Academic dishonesty will not be tolerated at the UAE University. Academic dishonesty includes cheating[2], plagiarism[3] or any other attempt to gain an academic advantage in a dishonest or unfair manner.

8, TEACHING MATERIALS

Required Text

Jurafsky, Daniel and James H. Martin. 2009. *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition*. Second Edition. Prentice Hall.

References

Allen, J.F. 1994. *Natural Language Understanding*. Second Edition. Benjamin Cummings.

Covington, Michael A 1994. *Natural Language Processing for Prolog Programmers*. Englewood Cliffs, NJ: Prentice Hall.

Gazdar, G. and C. Mellish. 1989. *Natural Language Processing in Prolog*. Wokingham: Addison-Wesley.

Matthews, Clive. 1998. *An Introduction to Natural Language Processing Through Prolog*. Learning About Language Series. London: Longman.

9, GRADE DISTRIBUTION

90-100	A	4.0	70-74	C	2.0
85-89	B+	3.3	65-69	D+	1.3
80-84	B	3.0	60-64	D	1.0
75-79	C+	2.3	>64	F	0.0

[2] Cheating is deliberately attempting to or help someone gain marks or academic credit dishonestly (sharing or showing answers during an assessment, test or exam, copying from other students and presenting as own work or giving another student access to your work, or bringing to an assessment materials that are not allowed.

[3] Plagiarism is presenting another person's work as your own.