

Identification	Subject (code, title, credits)	Computational Linguistics
	Department	English Language and Literature
	Program (undergraduate, graduate)	MA graduate
	Term	Fall, 2026
	Lecturer	Muhammad Imran, PhD.
	E-mail:	Imran.muhammed@khazar.org
	Phone:	+923007131472
	Classroom/hours	
	Office hours	
Prerequisites	Introduction to Linguistics (recommended); no prior programming experience required	
Language	English	
Compulsory/Elective	Compulsory	
Required textbooks and course materials	1. Jurafsky, D., & Martin, J. H. (2024). Speech and Language Processing (3rd ed. draft). 2. Bird, S., Klein, E., & Loper, E. (2009). Natural Language Processing with Python. O'Reilly Media. 3. MacEnery, A. M., & Hardie, A. (2012). <i>Corpus linguistics: method, theory and practice</i>. Cambridge University Press.. 4. Gries, S. Th. (2021). Statistics for Linguistics with R: A Practical Introduction. De Gruyter Mouton. 5. Additional lecture slides, short readings, demonstrations, and guided practical activities supplied by the lecturer.	
Course website	-	
Course Description	This course introduces Computational Linguistics, the study of how computers can represent, process, analyze, and generate human language. The course begins with basic concepts such as language data, algorithms, coding, and corpora, and gradually introduces text processing, regular expressions, tokenization, part-of-speech tagging, parsing, sentiment analysis, machine translation, speech technology, and large language models. Emphasis is placed on understanding the linguistic principles behind computational tools, evaluating their outputs, and applying simple no-code or low-code techniques to language data.	

Course objectives	Upon successful completion of this course, students will be able to: • Introduce students to the basic concepts, terminology, and applications of Computational Linguistics. • Explain how computers represent language as digital data and how linguistic information can be processed automatically. • Develop basic familiarity with corpora, text annotation, regular expressions, and introductory natural language processing tools. • Enable students to interpret the results of common computational-linguistic tasks without requiring advanced programming skills. • Introduce the relationship between linguistics, artificial intelligence, machine learning, and language technologies. • Develop critical awareness of accuracy, bias, ethics, privacy, and limitations in computational language applications. • Prepare students to conduct a small, manageable corpus or text-analysis project.		
Learning outcomes	• Define Computational Linguistics, Natural Language Processing, corpus, algorithm, model, and annotation. • Distinguish between rule-based, statistical, and neural approaches to language processing. • Identify the main stages involved in preparing and processing digital text. • Use basic no-code or beginner-friendly tools to explore a small corpus or collection of texts. • Explain tokenization, normalization, stemming, lemmatization, part-of-speech tagging, and parsing in simple terms. • Interpret basic outputs such as word frequency, concordance lines, collocations, sentiment scores, and classification results. • Discuss the uses and limitations of machine translation, speech recognition, chatbots, and large language models. • Evaluate computational-linguistic results critically with attention to linguistic accuracy, bias, ethics, and reproducibility. • Complete and present a small introductory computational-linguistics project.		
Teaching methods	Lecture		+
	Group discussion		+
	Seminar		+
	Course paper		
	Presentation		+
Evaluation	Methods	Date/deadlines	Percentage (%)

	Midterm Exam		35
	Activity		5
	Class Participation		5
	Language attitudeProject		15
	Final Exam		40
	Total		100

Assessment/Policy		Dear MA student, welcome to the exciting world of Computational Linguistics! Your active participation and engagement are crucial to the success of this course. Don't be afraid to ask questions, share your thoughts, and challenge ideas. By actively participating, you can earn up to 10 points, which will contribute to your overall grade. As part of this course, you will have the opportunity to delve into a research paper on a topic of your choice in agreement with the lecturer. Your presentation of this paper can earn you a substantial 15 points, further enhancing your performance in this course. These components total 25 points, with the remaining 75 points attainable through your performance in the midterm and final exams. Our policy emphasizes the importance of attendance, punctuality, and academic integrity. By attending classes regularly, being punctual, and upholding high standards of academic honesty, you are not only setting yourself up for success in this course but also for your future career in linguistics and discourse studies. We trust that you will approach this course with enthusiasm and an eagerness to learn, ensuring a rewarding and enriching experience for yourself and your peers. Let's embark on this journey of discourse exploration together, dear student! Success awaits you!	
Artificial Intelligence (AI) Policy		Students are permitted to use artificial intelligence (AI) tools, including generative AI applications, to support their learning, brainstorming, idea development, language improvement, and revision, unless the use of AI is explicitly restricted for a particular assignment or assessment. AI should be used as a learning support tool rather than a substitute for students’ own thinking, analysis, and academic work. Students are responsible for the accuracy, originality, and academic integrity of all submitted work. Any use of AI that contributes substantially to an assignment should be appropriately acknowledged or cited, where required. Students should critically evaluate AI-generated information because such tools may produce inaccurate, incomplete, or misleading content. Students must not use AI tools to generate or complete an assignment when the instructor has explicitly prohibited their use. Submitting AI-generated content as entirely the student’s own work, without appropriate acknowledgment, may be considered a violation of academic integrity. Students are also expected to comply with all assignment-specific instructions regarding the acceptable and unacceptable uses of AI.	
Tentative Schedule			
		Midterm and Final exams. (35/40 points)	
Tentative Schedule			
Week	Date/Day (tentative)	Topics	Textbook/Assignments /Reading

1		Introduction to the course What is Computational Linguistics? Course aims, expectations, applications, and basic terminology	Lecture material; introductory reading
2		Language and computers Human language as data; text, speech, symbols, encoding, files, and basic digital literacy	Lecture material; guided activity
3		Basic computational thinking Algorithms, rules, patterns, data, models, input/output, and why computers make mistakes	Lecture material; simple demonstrations
4		Corpora and language data What is a corpus? Types of corpora, sampling, metadata, representativeness, and ethical data use	McEnery & Hardie; corpus activity
5		Preparing text for analysis Cleaning, normalization, sentence splitting, tokenization, stop words, stemming, and lemmatization	Bird et al.; practical activity
6		Words and frequency Word lists, frequency, keywords, concordance lines, word clouds, and interpreting quantitative patterns	Corpus tool demonstration
7		Regular expressions and pattern matching Very basic pattern matching for finding words, forms, and linguistic structures	Guided worksheet; practical activity
8		Midterm Examination	
9		Grammar and part-of-speech tagging Words, grammatical categories, tagging, ambiguity, and tagger errors	Lecture material; guided demonstration
10		Syntax and parsing Phrases, dependency relations, constituency, parsing, and simple tree representations	Lecture material; visual examples
11		Meaning and lexical relations Word sense, semantic similarity, collocation, distributional meaning, and embeddings	Jurafsky & Martin; demonstration
12		Text classification and sentiment analysis Document classification, sentiment, topic identification, training data, and evaluation	Lecture material; practical activity
13		Machine translation and speech technologies Machine translation, automatic speech recognition, text-to-speech, uses, and limitations	Lecture material; demonstrations

14		Chatbots, large language models, and ethics Generative AI, prompts, hallucination, bias, privacy, authorship, and responsible use	Lecture material; critical discussion
15		Student project presentations Presentation of small corpus/text-analysis projects; feedback and final review	Project presentation
16		Final Examination	