ᕮ UNIBETSEDÅT GUAHAN

University of Guam
College of Liberal Arts and Social Sciences
Division of English and Applied Linguistics

LN440 Topic: Linguistics and Artificial Intelligence (AI)

Fañomnåkan (Spring) 2025
TTH 4-5:20

Instructor: Dr. Hyun-Jong Hahm (In IPA: [hjəndʒoŋ ham])
Office: EC 216B
Office Hours: T-TH 2-4
E-mail: hhahm@triton.uog.edu
(N.B. When emailing me, always *start with "LN440" in the subject line.*
Otherwise, I do not guarantee that I will read your email.)
Office Phone: 735-2737 (Only in emergency!)

Moodle: ▨▨▨▨▨▨▨▨▨▨▨▨

I. PREREQUISITE

LN 300 must be completed with a grade of "C" or better.

II. COURSE DESCRIPTION

This course introduces students to the intersection of linguistics and artificial intelligence (AI). Students will explore fundamental concepts of AI, understand its relationship to linguistics, and gain introductory knowledge of computational linguistics and natural language processing (NLP). The course assumes no prior programming or technical knowledge and is designed to equip students with foundational skills and critical insights into the field.

III. STUDENT LEARNING OBJECTIVES

COURSE SLOS	PROGRAM SLOS	INSTITUTIONAL SLOS
By the end of this course, students will be able to		
Define artificial intelligence (AI) and explain its relationship to linguistics	• Understand the concepts, structures, and functions of human languages • Describe the aesthetic, rhetorical, structural, and multicultural qualities of literary texts, as well as critical and historical approaches to those texts	• Demonstrate mastery of critical thinking and problem solving • Demonstrate responsible use of knowledge, natural resources, and technology • Demonstrate effective oral and written communication
Identify core areas of linguistics relevant to AI, including phonetics, phonology, morphology, syntax, semantics, and pragmatics	• Understand the concepts, structures, and functions of human languages • Describe the aesthetic, rhetorical, structural, and multicultural qualities of literary texts, as well as critical and historical approaches to those texts	• Demonstrate mastery of critical thinking and problem solving • Demonstrate responsible use of knowledge, natural resources, and technology • Demonstrate effective oral and written communication
Describe fundamental NLP tasks such as tokenization, parsing,	• Understand the concepts, structures, and functions of human languages • Describe the aesthetic, rhetorical, structural, and multicultural qualities of	• Demonstrate mastery of critical thinking and problem solving • Demonstrate responsible use of knowledge, natural resources, and

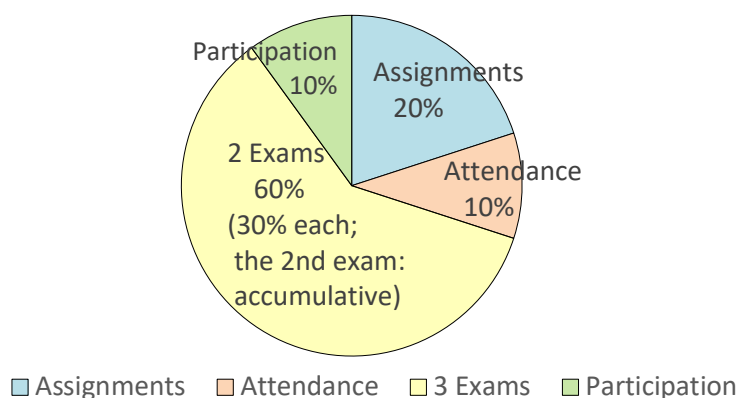| part-of-speech tagging, and sentiment analysis	literary texts, as well as critical and historical approaches to those texts	technology • Demonstrate effective oral and written communication
Analyze linguistic corpora and parsed language data	• Understand the concepts, structures, and functions of human languages • Conduct and incorporate substantive research using discipline appropriate techniques, methodologies, and environments (digital or non-digital), producing or locating valid data and source materials; documenting properly to avoid plagiarism	• Demonstrate mastery of critical thinking and problem solving • Demonstrate responsible use of knowledge, natural resources, and technology • Demonstrate effective oral and written communication
Describe the basic processes involved in computational linguistics and how it contributes to AI development	• Understand the concepts, structures, and functions of human languages • Describe the aesthetic, rhetorical, structural, and multicultural qualities of literary texts, as well as critical and historical approaches to those texts	• Demonstrate mastery of critical thinking and problem solving • Demonstrate responsible use of knowledge, natural resources, and technology • Demonstrate effective oral and written communication
Reflect on emerging trends and consider how linguistics might shape the future of AI technologies	• Conduct and incorporate substantive research using discipline appropriate techniques, methodologies, and environments (digital or non-digital), producing or locating valid data and source materials; documenting properly to avoid plagiarism • Describe the aesthetic, rhetorical, structural, and multicultural qualities of literary texts, as well as critical and historical approaches to those texts	• Demonstrate mastery of critical thinking and problem solving • Demonstrate responsible use of knowledge, natural resources, and technology • Demonstrate effective oral and written communication
Recognize ethical challenges, including bias and fairness, in AI and NLP systems	• Conduct and incorporate substantive research using discipline appropriate techniques, methodologies, and environments (digital or non-digital), producing or locating valid data and source materials; documenting properly to avoid plagiarism	• Demonstrate mastery of critical thinking and problem solving • Demonstrate responsible use of knowledge, natural resources, and technology • Demonstrate effective oral and written communication

IV. COURSE TEXTBOOKS

Recommended textbook:
Daniel Jurafsky and James H. Martin. 2025. *Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition with Language Models*, 3rd edition. Online manuscript released January 12, 2025. https://web.stanford.edu/~jurafsky/slp3.

Supplemental readings will be provided via the Moodle course page.

V. GRADING

Participation 10%
Assignments 20%
2 Exams 60% (30% each; the 2nd exam: accumulative)
Attendance 10%

☐ Assignments   ☐ Attendance   ☐ 3 Exams   ☐ Participation

Course grade:

Highest	Lowest	Letter
100.00 %	97.00 %	A+
96.99 %	93.00 %	A
92.99 %	90.00 %	A-
89.99 %	87.00 %	B+
86.99 %	83.00 %	B
82.99 %	80.00 %	B-
79.99 %	70.00 %	C
69.99 %	60.00 %	D
59.99 %	0.00 %	F

UW:	Unofficial withdrawal assigned by Registrar (which is considered F and is given when a student stops attending classes and does not submit/file required documents)
W:	Withdrawal assigned by Registrar (when a student stops attending classes and submits/files required documents)

VI. REQUIREMENTS AND EXPECTATIONS

A. ATTENDANCE:
- *Attendance is vital*. Students who miss class sessions are responsible for all materials explained and/or distributed in class sessions *on their own*.
- You are allowed 3 absences (including both f2f and online classes). Two tardies are equivalent to one absence. Each additional absence will lower your final grade by 2 points. However, 7 or more absences result in failing the course.

B. DUE DATES AND FORMAT:
- No early or late assignments or exams will be accepted at all.
- Assignments are due before class and submitted on Moodle.
  - o All assignments must be **typed**.
  - o Do not send me the link to the file. Submit the actual file.
  - o The file format must be docx (**not pdf**) to be able to provide comments easily.
  - o The **file name** must be in the following format: **LN440-HW#-YourName** (e.g., LN440-HW3-Hahm.docx).
  - o In the body of your assignment, ensure that you include the course number (LN440), the assignment number (e.g., HW3), your name, and the submission date at the top of the first page.

C. REQUIRED SKILLS, MATERIALS, AND OTHER RESOURCES:

This class is a F2F/OLL hybrid course. For online classes, there are certain skills and equipment needed as well as other resources such as Internet access. Here are some things you will need in order to take this class:

Reliable access to a computer with Internet access. The UOG campus has free wifi for student use. Many coffee shops also have WIFI hotspots.

A desktop or laptop computer is highly recommended. Talk to your college and/or computer center to see whether they have laptops available for rent. CLASS, College of Liberal Arts and Social Sciences, has some laptops for rent as well.

The computer should also have the following:
- Mozilla Firefox browser with Cookies enabled and the Pop-up Blocker disabled. Firefox is the most compatible browser for use with UOG Moodle. If your web browser is not working properly, try to use another. Thus, it's a good idea to download different web browsers in your computer.
- MS Word, PowerPoint, and adobe pdf reader (or writer) to read, edit, or create documents and presentations for this class. Contact the UOG Computer Center to ask about Office365 which includes these Microsoft products. It may be included with your official GoTriton email account.

D. PARTICIPATION AND CLASS ETIQUETTE/ NETIQUETTE (ONLINE ETIQUETTE):

Participation is very important in this class. In class, speak up, ask questions, discuss related matters, and confirm your understanding. ***Extra credit may be given for excellent participation.*** However, *more participation points will be underlined deducted if you don't have proper etiquette*:

- Don't leave the room during class, unless absolutely necessary.
- Cell phones and internet use are not permitted.
- Respect each other's right to express ideas and be respectful of others while expressing your ideas.

E. PLAGIARISM:
- The term "plagiarism" includes, but is not limited to, the use, by paraphrase or direct quotation, of the published or unpublished work of another person or **AI** without full and clear acknowledgment. It also includes the unacknowledged use of materials prepared by another person, agency, or **AI** engaged in the selling of term papers or other academic materials.
- Cheating or asking others for answers during the exam is also a form of plagiarism since it involves using unauthorized materials, resources, or assistance to present work or answers as one's own, which constitutes intellectual dishonesty.
- Cases of plagiarism are referred to the Student Discipline and Appeals Committee. In this course this penalty for plagiarism is no credit for the assignment or failure in the course.

VII. TENTATIVE COURSE SCHEDULE
- This schedule may change during the semester depending on how quickly you grasp the ideas, along with many other factors.
- This is a hybrid course, which combines face-to-face (F2F) classes and long distance/online learning (OLL). Most classes will be F2F. OLL classes will be announced during the semester.
- FYI, here is the University Academic Calendar.

Week	Topics and Important dates
1	• Course Introduction and Orientation; Syllabus overview • **HW1: due 1/30, before class**
2-4	Unit 1 Fundamentals of AI and Natural Language Processing (NLP) • Introduction to AI and Linguistics • Definitions and key concepts of AI • The historical connection between linguistics and AI • Computational Approaches to Languages (Regular expressions, Language modeling) • Neural Network • Large Language Models (LLM) • Supervised vs. Unsupervised Learning
5-7	Unit 2: AI Applications in Linguistic Subfields • Morphology and Tokenizer in AI, POS Tagging • Syntax and Parsing in AI • Semantics and Meaning Representation in AI
8	• Q&A session and Exam #1
9-12	Unit 3: Exploring NLP Tools and Techniques • Speech Recognition in AI • Machine Translation • Text Mining, Text Classification • Sentiment Analysis • Text Classification • Pragmatics and Conversational AI
13-14	Unit 4: Ethics and Future of AI in Linguistics • Ethics, Bias and Fairness in AI • Misinformation and AI • Language Diversity and AI • AI Application in Society
15	• Q&A session and Exam #2 • Extra credit paper submission (optional): May 15
No Class	• Mar. 6: Charter Day • Mar. 17-21: Spring Break

VIII. EEO/ADA Statement

The University is committed to providing an inclusive and welcoming environment for all members of our community. Federal and local laws protect the University community from any act of sex discrimination. Such acts violate the essential dignity of our community members. If you need assistance with EEO (Equal Employment Opportunity) and/or Title IX concerns, please contact the Director of EEO/ADA &TITLE IX Office at 671-735-2244, 671-735-2971, TDD 671-735-2243 or eeo-ada@triton.uog.edu.

For individuals covered under the ADA (Americans with Disabilities Act), if you are a student with a disability requiring academic accommodation(s), please contact the Student Counseling and Advising Service Disability Support Services Office to discuss your confidential request. A Faculty Notification letter from the Disability Support Services/Student Counseling and Advising Service Accommodation counselor will be provided to me. To register for academic accommodations, please contact or visit Sallie S. Sablan, DSS counselor in the School of Education, office 110, disabilitysupport@triton.uog.edu or telephone/TDD 671-735-2460.