LIN4930/6932 All Computational Models are Wrong

T 11:45-1:40 & R 12:50-1:40
Room: Matherly Hall 0102
Fall 2025

Instructor:	Dr. Zoey Liu	**Office:**	Turlington 4109
Email:	liu.ying@ufl.edu	**Office Hour:**	TBD
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Course objectives

Computational linguistics comes in many flavors. In this seminar, we will survey advanced topics at the intersections of linguistic theories and computation, with extensions to multilingual natural language processing. The main theme is on **language variation and generalization**. This course will largely consist of paper discussions, mixed with lectures and a series of coding practices. In particular, we will read and discuss papers taking a combination of theoretical, functional, cognitive, and/or data-driven approaches to address questions about the representation and characterizations of language structures.

Prerequisite

There will be a number of coding sessions throughout the semester. Students are expected to have basic python programming background. That said, there will be no assignment involving coding; therefore students who are interested in the topics and just want to follow along with the coding sessions are also welcome. In summary, **all is welcome!**

Course website

Canvas will be used as the course website. All lecture materials will be posted on Canvas. Grades will be posted to the Canvas grade book.

Textbook & Readings

There is no required textbook for the course. Readings are divided into background readings and presentation readings. Both types of readings are required, but only the latter is for writing weekly reflections and will be presented and discussed in class. Weekly readings will be posed to Canvas two weeks in advance.

Attendance

Attendance is required. In general, students are responsible for all the material that is covered during class, even when their absence from class is excused. While in attendance, students are expected to actively participate. In case of absence from class, students are expected to download the corresponding materials from Canvas and ask a classmate what else they might have missed.

Paper discussion

Every week, there will be roughly two presentation readings for graduate students, and one for undergraduate students. Each reading will be assigned one discussion leader who will be primarily responsible for summarizing the reading and leading class discussion on the corresponding day.

Weekly reflections

Each week, students are expected to submit a short (2-paragraph) written response to each reading. These responses should NOT summarize the reading, but instead raise questions that would be appropriate for

discussion, or propose ideas to think about. The reflection for each paper is expected to be submitted by 3pm the day before the paper will be discussed. The instructor will then send a compilation of all the reflections to the assigned discussion leader(s) for them to draw on during class discussion.

Final project

Deliverables for the final project include discussion with the instructor for approval of final project, literature review, presentation of the final project, and its write-up.

For literature review (single-space, 5-6 pages for graduates, 3-4 pages for undergraduates), students will be asked to write on a topic of their own choice; the topic may or may not be relevant for their final project. It is encouraged that students lay out a (short) proposal for their final project in the literature review to highlight the contribution of their own work.

For the final project (single-space, 8-10 pages for graduates, 6-7 pages for undergraduates), preliminary results are encouraged, but are not required.

Note: Use of Artificial Intelligence (such as ChatGPT) to write any material submitted for this course is prohibited.

Grade breakdown

Attendance	5%
Paper discussions	10%
Coding practices	8%
Weekly reflections	35%
Final project	
Discussion with Instructor (due Nov 7)	2%
Literature Review (due Nov 21)	15%
Presentation	5%
Final write-up (due Dec 9)	20%

Grade scale

Information on current UF grades and grading policies can be found here.

A	93-100	A-	90-92.9	B+	87-89.9	B	83-86.9
B-	80-82.9	C+	77-79.9	C	73-76.9	C-	70-72.9
D+	67-69.9	D	63-66.9	D-	60-62.9	E	< 60

Academic Integrity

UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." On all work submitted for credit by students at the University of Florida, the following

pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, students are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If students have any questions or concerns, please consult with the Instructor or the TA.

Classroom Conduct

Students and faculty each have responsibility for maintaining an appropriate learning environment. Those who fail to adhere to professional behavioral standards may be subject to discipline. The Instructor pledges to treat each of the students with dignity, respect, and professional courtesy. Students are expected to do the same for the Instructor and for each other.

Accommodation Policies

Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center. Click here to get started with the Disability Resource Center. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Religious Observances

A student should inform the Instructor of religious observances that will conflict with class attendance, tests or examinations, or other class activities prior to the class or occurrence of that test or activity. The Instructor is obligated to accommodate students' religious observances. See policy details here.

Course Evaluations

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available here. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via here. Summaries of course evaluation results are available to students here.

Recording lecture content.

Students are allowed to record class lectures. However, the only allowable purposes of these recordings are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. Specifically, students may not publish recorded lectures without the written consent of the instructor. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. A recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil action and/or discipline the Student Honor Code and Student Conduct Code.

This course complies with all UF academic policies. For information on those polices and for resources for students, please see this link.

Course outline
Subject to change.

Week	Topics
Week 1	Class Introduction & Probability for Poets
Week 2	Bayesian Inference
	Language modeling
Week 3	Introduction to Information Theory
Week 4	Expectation-based Models of Sentence Processing
Week 5	Getting Surprised with *Surprisal*
Week 6	Dependency Locality Theory and its Applications to Sentence Production
Week 7	Applications of Information Theory to other Aspects of Language Typology
Week 8	Simple Vector Arithmetic, Feature Representation & Linear Classifier
Week 9	Linear Classifier
Week 10	The Tolerance Principle
Week 11	(Feedfirward) Neural Networks
Week 12	Feedforward & Recurrent Neural Networks
	Choose our own adventures for Week 14
Week 13	Human-like (?) Generalization in Machines
Week 14	Generalizations in Machines
Week 15	**Happy Turkey Week!**
Week 16	Final presentations