LING 351: Language Technology and Large Language Models
Fall 2025
TuTh 2:00-3:15 p.m.
EAS 1310

Instructor
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- Office Hours: TuTh 3:30-4:30 in-person, or Zoom by appointment

Course description
This course explores the interaction between language and technology, from the invention of writing systems to modern tools that process and generate language using large language models. While not a technical course in natural language processing (NLP), it may serve as a potential gateway to more implementation-focused studies, as students will learn basic text processing skills in Python. The primary focus is on the linguistic and conceptual understanding underlying language technologies. No prior programming experience is required.

Course objectives: By the end of this course, students will be able to:
- Understand the relationship between language and technology within socio-historical contexts
- Understand the value of data-driven approaches to solving language-related problems
- Understand key challenges in the development and use of language technologies
- Process text data in Python using basic techniques (e.g., tokenization, lemmatization)
- Conduct basic experiments with large language models (e.g., prompt engineering) to explore their applications
- Read research articles on the use of NLP in the (1) humanities, (2) social sciences, (3) language studies, and (4) the impact of LLMs, with an emphasis on conceptual understanding
- Identify a domain where language plays a central role and brainstorm ideas for applying language technologies in that context

Class attendance policy: This course takes place in EAS 1310 in person. Attendance is required.

Course website: Course materials will be made available via myCourses. Announcements will made through myCourses and/or email. Information about assignments and grades, etc., will be made available there throughout the Semester.

Materials (*Notes:* All books are available as pdf. Detailed information will be posted on myCourses):
- Bird, S., Klein, E., & Loper, E. (2009). *Natural Language Processing with Python: Analyzing Text with the Natural Language Toolkit* [NLTK].
- Glass, I., Dickinson, M., Brew, C., & Meurers, D. (2024). *Language and Computers* (2nd edition) [LC].
- PDF links of academic articles

Final grading components [number × points]:

- Exercises [4 × 10]: 40%
- Assignments [2 × 10]: 20%
- Paper presentations [2 × 5]: 10%
- Online exam 30%
    - Midterm [1 × 15] 15%
    - Final [1 × 15] 15 %
- Detailed information on each assignment (e.g., questions, guidelines, submission instructions, and scoring rubrics) will be posted on myCourses.

Final grading: At the end of the semester, percentage grades will be converted to letter grades according to the following scale: 93-100% = A; 90-92.99% = A-; 87-89.99% = B+; 83-86.99% = B; 80-82.99% = B-; 77-79.99% = C+; 73-76.99% = C; 70-72.99% = C-; 60-69.99% = D; <60.00% = F.

Late policy:

- **2-hr grading window:** Any assignment submitted online will automatically have a 2-hour grading window. This will be applied by the system, and no action is required from students.
- **Late penalty:** Late assignments will incur a 10% deduction per day, for up to 5 days (e.g., 1 day late = 10% off). After 5 days, the assignment will receive a grade of zero.
- **Extenuating circumstances:** Whenever possible, please request an official document that can prove the circumstances—this allows me to accommodate you fairly while respecting your privacy. If that is not possible, contact me as soon as you can. Extensions are generally not granted retroactively.
- **Online exams:** No extensions will be granted for online exams to ensure fairness. However, students who are officially approved for extended time accommodations will receive them.

Use of AIs: Students are welcome to use AIs for assignments. However, I strongly encourage you not to copy or accept content uncritically. In other words, critical thinking and responsible use of these tools are essential. Students are expected to disclose how they used AIs in completing their work. AI use is not permitted for online exams; violations will result in penalties.

Writing consultation: Communicate with the instructor directly or use the resources offered by the Writing Commons: https://www.rit.edu/writing/writing-commons-overview.

Weather: In the case of extremely inclement weather, check myCourses. If I am ever unable to come to campus, I will announce it as soon as possible (at least one hour before the class), plus there will be alternative instructions and assignments.

Statement of academic accommodations: RIT is committed to providing academic accommodations to students with disabilities. If you would like to request academic accommodations such as testing modifications due to a disability, please contact the Disability Services Office. Contact information for the DSO and information about how to request

accommodations can be found at www.rit.edu/dso. After you receive academic accommodation approval, it is imperative that you contact me as early as possible so that we can work out whatever arrangement is necessary.

Statement on Title IX: RIT is committed to providing a safe learning environment, free of harassment and discrimination as articulated in our university policies located on our governance website. RIT's policies require faculty to share information about incidents of gender-based discrimination and harassment with RIT's Title IX coordinator or deputy coordinators when incidents are stated to them directly. The information you provide to a non-confidential resource which includes faculty will be relayed only as necessary for the Title IX Coordinator to investigate and/or seek resolution. Even RIT Offices and employees who cannot guarantee confidentiality will maintain your privacy to the greatest extent possible.

If an individual discloses information during a public awareness event, a protest, during a class project, or advocacy event, RIT is not obligated to investigate based on this public disclosure. RIT may however use this information to further educate faculty, staff and students about prevention efforts and available resources.

If you would like to report an incident of gender based discrimination or harassment directly you may do so by using the online resources: https://www.rit.edu/fa/compliance/title-ix-home#title-ix-team.

Academic integrity statement: As an institution of higher learning, RIT expects students to behave honestly and ethically at all times, especially when submitting work for evaluation in conjunction with any course or degree requirement. The Department of English encourages all students to become familiar with the RIT Honor Code:
https://www.rit.edu/academicaffairs/policiesmanual/p030
and with RIT's Academic Integrity Policy:
https://www.rit.edu/academicaffairs/policiesmanual/d080.

Emergencies: In the event of a University-wide emergency course requirements, classes, deadlines and grading schemes are subject to changes that may include alternative delivery methods, alternative methods of interaction with the instructor, class materials, and/or classmates, a revised attendance policy, and a revised semester calendar and/or grading scheme. Please familiarize yourself with this set of RIT documents: https://www.rit.edu/emergency-information.

Tentative outline

Week	Date	Topic	Readings	Due (**Friday**, 11:59 pm)
1	8/26	Introduction, Encoding	[LC] Ch.1	
	8/28	Writer's aids: Spelling errors	[LC] Ch.2.1-2.3	
2	9/2	Writer's aids: Grammar errors	[LC] Ch.2.5-2.8	
	9/4	Computer-assisted language learning	[LC] Ch. 3	
3	9/9	Text as data	[LC] Ch. 4.1-4.3	
	9/11	Python tutorial 1		Exercise 1
4	9/16	Python tutorial 2		
	9/18	Python tutorial 3		Exercise 2
5	9/23	Python tutorial 4		
	9/25	Python tutorial 5		Exercise 3
6	9/30	Word vectors	[LC] Ch. 4.4	
	10/2	Text classification	[LC] Ch. 5	Student presentation topics submission
7	10/7	Searching; Midterm review	[LC] Ch. 6	
	10/9	Midterm	[LC] Ch. 7	Midterm exam (Online)
8	10/14	**Fall break (No class)**		
	10/16	Machine translation	[LC] Ch. 8	
9	10/21	Dialogue systems	[LC] Ch. 8.3	
	10/23	Building a chatbot		Exercise 4
10	10/28	Prompt engineering		
	10/30	Paper presentation (Papers 1, 2)		
11	11/4	Paper presentation (3, 4)		
	11/6	Paper presentation (5, 6)		
12	11/11	Paper presentation (7, 8)		
	11/13	Paper presentation (9, 10)		Assignment 1
13	11/18	Paper presentation (11, 12)		
	11/20	Paper presentation (13, 14)		
14	11/25	Paper presentation (15, 16)		
	11/27	**Thanksgiving break (No class)**		
15	12/2	Paper presentation (17, 18)		
	12/4	Final wrap-up		Assignment 2
16	12/9	**Reading day (No class)**		
	12/11	**No class**		Final exam (Online) **(December 12, Friday)**

Notes. This is a tentative schedule and is subject to change, if needed, for the benefit of students. The instructor's slides will serve as the primary source for students to follow the class. If necessary, more specific reading materials will be updated during the semester.