

*Advanced topics and experimental design for CL*

**CSCE 6290: Advanced Topics in Human/Machine Intelligence**

**Wed, 6:30pm-9:20pm, DP 207A**

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Office hours: Tuesday/Wednesday 4-5pm, or email me for an appointment

**Course Description and goals:**

Computational linguistics (CL) is the scientific study of language from a computational perspective. Computational linguists are interested in providing computational models of various linguistic phenomena, as well as developing working components for systems that do automated processing of speech or language data. In addition to covering advanced/specialized topics in CL, students will gain experience in designing and executing scientific research in the field of CL/NLP. One of the primary outcomes of this course is for each student to complete a research project and prepare a paper suitable for submission to a relevant conference or workshop.

Our course goals include the following:

- Learn about advanced topics in the computational analysis of language
- Design and execute research in the field of computational linguistics
- Analyzing and understanding neural networks
- Develop skills in critical reading and presentation of scientific papers in CL

**Prerequisites:** Natural Language Processing, or consent of instructor. Students are expected to have intermediate to advanced programming ability – contact the instructor if you have questions about whether you meet the prerequisites.

**Mostly this will be a seminar-style course, in which students will read, present, and discuss scientific papers on a selection of topics in CL/NLP.**

No requirement to purchase texts. All the readings are available on ACL anthology.

**Canvas:** All assignments will be posted on Canvas, with all the details you need to complete them. I will also post slides from each class, and readings. Unless otherwise specified, please submit assignments via Canvas.

**Topics may include (but are not limited to):**

1. Multi-task learning
2. Bayesian deep learning
3. Issues in neural MT: Attention, Zero-shot MT
4. Analyzing and interpreting neural networks
5. Computational morphology
6. Parsing
7. Computational historical linguistics, dialectology, typology
8. Low-resource languages, domain adaptation, and transfer learning
9. Multi-lingual and cross-lingual word embeddings
10. Comparison, Evaluation, and Reproduction in NLP

## Course credit requirements and grading

1. 21% - 3 paper presentations (7% each).
2. 24% - 3 paper reviews: (8% each). To be submitted on Feb. 15<sup>th</sup>, Mar. 15<sup>th</sup>, Apr. 15<sup>th</sup>.
3. 5% - Discussion and classroom participation
4. 30% - Research project design and implementation, plus regular progress reports
5. 20% - Final paper on the research project, written in standard ACL style, ready to be submitted to a relevant conference or workshop. For example:
  1. ACL 2020 workshop deadlines are in May 2020. <https://acl2020.org/program/workshops/>
  2. EMNLP 2020 deadline is in May 2020.
  3. COLING 2020 Main conference deadline is April 9 2020  
[https://coling2020.org/pages/call\\_for\\_papers](https://coling2020.org/pages/call_for_papers)
  4. Shared Tasks:
    1. <http://sharedtask.duolingo.com/>

**Attendance & Participation:** Attendance is EXPECTED. Inform me if there is anything urgent.

**Linguistics Colloquia and COI Discovery Series Talks:** The Department of Linguistics and the College of Information each offer a series of talks from experts in the field. This semester we will have a particularly high density of talks from computational linguists. Please plan to attend these if at all possible – I'll be sure to announce the talks, and they will also appear on the course schedule.

**Class behavior (University policy):** Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Center for Student Rights and Responsibilities to consider whether the student's conduct violated the Code of Student Conduct. The university's expectations for student conduct apply to all instructional forums, including university and electronic classroom, labs, discussion groups, field trips, etc. The Code of Student Conduct can be found at [www.unt.edu/csrr](http://www.unt.edu/csrr)

**Academic Integrity** Please make sure that all the work you submit in this course is your own!!! It is your responsibility to know the definitions and consequences of plagiarism, cheating etc. as outlined in the Code of Student Conduct and Discipline, available in the Undergraduate Catalog and online at [http://catalog.unt.edu/content.php?catoid=5&navoid=244#Student\\_Standards\\_of\\_Academic\\_Integrity](http://catalog.unt.edu/content.php?catoid=5&navoid=244#Student_Standards_of_Academic_Integrity)

## Disability Accommodation Statement

“The University of North Texas makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide you with an accommodation letter to be delivered to faculty to begin a private discussion regarding your specific needs in a course. You may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the Office of Disability Accommodation website at <http://www.unt.edu/oda>. You may also contact them by phone at 940.565.4323.”

Students with any special needs or disabilities (including learning disabilities) should inform me of their needs as soon as possible so that proper accommodations can be made.

### **SEXUAL DISCRIMINATION, HARASSMENT, & ASSAULT**

UNT is committed to providing an environment free of all forms of discrimination and sexual harassment, including sexual assault, domestic violence, dating violence, and stalking. If you (or someone you know) has experienced or experiences any of these acts of aggression, please know that you are not alone. The federal Title IX law makes it clear that violence and harassment based on sex and gender are Civil Rights offenses. UNT has staff members trained to support you in navigating campus life, accessing health and counseling services, providing academic and housing accommodations, helping with legal protective orders, and more.

UNT's Dean of Students' website offers a range of on-campus and off-campus resources to help support survivors, depending on their unique needs: [http://deanofstudents.unt.edu/resources\\_0](http://deanofstudents.unt.edu/resources_0) . Renee LeClaire McNamara is UNT's Student Advocate and she can be reached through e-mail at [SurvivorAdvocate@unt.edu](mailto:SurvivorAdvocate@unt.edu) or by calling the Dean of Students' office at 940-565-2648. You are not alone. We are here to help.