

# Ling 251A: Topics in phonology: Learning models of exceptionality

Winter

Instructor: Claire Moore-Cantwell

MW 12:30-1:50, Bunche 2150

## General Info

INSTRUCTOR: Claire Moore-Cantwell

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OFFICE HOURS: MW 2:00-3:00, Campbell 2126b

## Description

In this proseminar, we will explore computational models of how exceptional forms are learned in phonology. We will explore five constraint-based theories of exceptionality: Lexical listing, Lexical indexation, UR constraints, Representational Strength Theory, and Gradient Symbolic Representations. We will examine existing learning models for each of these theories, and compare their behavior. We will ask what a learning model can tell us about the theory itself, and what the goals are of different approaches to modeling of the learning process. The course will be hands-on. You will use existing software to run your own learning simulations, implement your own versions of existing algorithms, and possibly even implement your own learning algorithms. Prior programming experience is required, but prior experience with learning algorithms is not.

**Prerequisites:** *Programming experience and Ling 201A, or instructor permission.*

**Software:** We will use:

- Excel Solver (Instructions for install [here](#) )
- The Gradient Lexicon and Phonology Learner (GLaPL), available at: <https://github.com/clairemoorecantwell/GLaPL>
  - In order to use GLaPL, you will need to be able to run python commands
  - I recommend using Anaconda, available [here](#)

## Requirements

- Class Discussion and Perusall: Use code MOORE-CANTWELL-NGF6L on perusall.com to get access to this course on Perusall. This is a platform where you can read and comment on the papers before each class period. Enrolled students should submit at least three comments on each paper, but non-enrolled attendees are encouraged to submit comments as well. Please submit all comments by 11:59pm on the day before class.
- Homework & Presentations: I will assign several homeworks throughout the course (maximum one per week). If you are enrolled in the class, you must complete the homework before the class on which it is due. Most homeworks will involve (a) programming or using existing python code to run simulations, and (b) presenting your findings to the class. You may present in any format that suits you, but preparing a brief handout or slides is encouraged.
- Final Project: If you are taking the proseminar for 4 units, you must turn in a final paper presenting findings or analysis related to the course material. You should turn the paper in by Friday of finals week.

## Accommodations Note

If you have a disability or ongoing medical condition, and require accommodations for this course, you should contact the Centre for Accessible Education (CAE), <https://www.cae.ucla.edu>. Other concessions can be made in this course in order to fully support you as a student and as a person. **Please let me know as soon as possible** if you need to miss class or assignments because of reasons such as physical illness or injury, mental health concerns, religious observance, work to support yourself or a family member, or caretaking responsibilities. For foreseeable conflicts, such as religious observance, you must notify me in advance, preferably at least one week in advance. For unforeseeable conflicts, like illness, injury, mental health concerns, or sudden changes in job/caretaking schedule, let me know as soon as possible.

Topic	Target readings
Models of exceptionality; Phonological learning	<a href="#">Wolf (2011)</a> ; <a href="#">Jarosz (2019)</a>
Types of exceptional patterns	<a href="#">Zimmermann (2020)</a> slides, <a href="#">Mayer et al. (2022)</a> , <a href="#">Finley (2010)</a> , <a href="#">Nevins (2011)</a> , <a href="#">Zimmermann (2019)</a>
Learning to list complex forms	<a href="#">Zuraw (2000)</a> excerpts; <a href="#">Tessier (2009)</a> ; <a href="#">Zuraw et al. (2021)</a>
Learning lexically indexed constraints	<a href="#">Pater (2010)</a> , <a href="#">Hughto et al. (2019)</a> , <a href="#">Coetzee (2009)</a> , <a href="#">Moore-Cantwell and Pater (2016)</a>
Learning URs/ UR constraints	<a href="#">Pater et al. (2012)</a> , <a href="#">O’Hara (2017)</a> , <a href="#">Wang and Hayes (2022)</a> poster
Learning RST	GLaPL manual
Learning problems: Frequency Matching	<a href="#">Zymet (2019)</a> , <a href="#">O’Hara (2020)</a>
Learning problems: Lexical frequency effects	<a href="#">Smith and Moore-Cantwell (2017)</a> , <a href="#">Morgan and Levy (2016)</a> , <a href="#">Jarosz (2022)</a> slides
Learning problems: Marginal Contrast	<a href="#">Scobbie and Stuart-Smith (2008)</a> , <a href="#">Martin et al. (2022)</a> , <a href="#">Peperkamp et al. (2010)</a>

## References

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- Sarah Finley. Exceptions in vowel harmony are local. *Lingua*, 120(6):1549–1566, 2010. doi: <https://doi.org/10.1016/j.lingua.2009.10.003>.
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- Charlie O’Hara. How abstract is more abstract? learning abstract underlying representations. *Phonology*, 34:325–345, 2017. doi: 10.1017/S0952675717000161.
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