Teaching Statement

I am passionate about strengthening connections between linguistics and other cognitive sciences. I have taught in both Computer Science and Linguistics departments, and wherever I am teach, I strive to cultivate cross-disciplinary conversations and show the value of collaborative, interdisciplinary work.

There is a growing emphasis on experimental, computational, and fieldwork methodology in linguistics, and I believe that it is important to equip students with the methodological tools that they need to pursue innovative, exciting research. I am particularly passionate about making computational and statistical methods accessible to students who may not have had much previous exposure to quantitative methods. I think this is important both for improving the diversity of computational subfields and for enabling students from all backgrounds to pursue the research they care about.

I am also passionate about working closely with students, both inside and outside of the classroom. I prioritize getting to know my students: their goals, their aspirations, and their prior experiences. I find that being able to contextualize each student helps me adapt the course content to their needs and interests.

My teaching philosophy encompasses three core principles:

- **Interactive, participatory learning**: students should be active participants in classes; ideally, instructors should interact with every student in every class session.
- **Multidisciplinary learning**: integrating insights from other fields enriches student learning.
- **Fairer pedagogy through uncovering the hidden curriculum**: expectations and foundational assumptions should be made explicit. This helps students from diverse backgrounds to succeed.

1 First Year Seminar

I am currently teaching a first year seminar on Technology for Language Revitalization at UMass. This class, which I proposed and designed, addresses the practical and ethical considerations involved in designing technologies for language revitalization. It draws upon my experience as a Fulbright scholar, where I collaborated with First Nations communities on digital language learning resources.

The seminar explores the ways in which technology can both help and hurt revitalization efforts. We discuss ethical issues in research on minority languages, sustainability and preservation issues in the digital humanities, and the role of the internet in language change. In the final weeks, students will contribute to an ongoing digital language revitalization project for indigenous Mexican languages.

2 Programming Languages

In Fall 2018, I taught Programming Languages as an upper-level systems elective in the Mt. Holyoke CS department. Although my current research interfaces more with Natural Language Processing, as an undergraduate, I worked on programming languages for networks. I drew upon this experience and my experience studying PL at Swarthmore to re-design the Mt. Holyoke course.

I structured my course into four units. The first unit introduced students to functional programming and covered core PL concepts. The second unit was a multi-week project in which students wrote an interpreter for a subset of Scheme. Next came a unit that I called 'Programming Languages in the Wild', which highlighted less common kinds of programming languages: a probabilistic programming language (Figaro); a verification language (Dafny); and a DSL for deep learning (TensorFlow). This unit allowed me to relate the class's core concepts to my own research. In the final unit, students researched different programming languages and presented demos to their classmates.

I designed the course to be highly interactive: short portions of lecture time were interspersed with coding exercises. During these exercises, I was able to help students individually, gauge how well the class was understanding the material, and adapt my lecture accordingly.

I connected one of my students, Jenna Hammond, with CS professors at UMass so that she could pursue summer research in Programming Languages. Her project was recently submitted to AAAI.

3 Cognitive Modeling

In Fall 2017, I was the TA for Gaja Jarosz's Cognitive Modeling class. As part of my TAship, I developed and taught a weekly supplemental class for students who had little prior programming experience. A challenging aspect of designing this course was that students needed to gain skills very quickly for the first homework assignment. Many students came into the class having never written a function, but were able to successfully complete assignments such as implementing a probabilistic parsing algorithm.

In this "Python for Linguists" supplement, I covered core CS concepts as well as basic Python skills; to make it more engaging for the students, I tailored the in-class exercises to focus on natural language applications. For example, in my class on hierarchical data structures, I showed how tries can be used to implement a rudimentary auto-complete program. Courses like this are one way of broadening access to computational tools in a targeted, discipline-motivated way; students in this section were highly motivated because they understood that grasping these methods would help them in their own research.

I planned and developed all the materials for my section myself, which have since been incorporated into a stand-alone online Python for Linguists course.

4 TA experience

I have also helped teach two other linguistics classes at UMass as a TA: Introduction to Linguistic Theory and Language and the Brain. For Introduction to Linguistic Theory, I had a weekly review session, where I helped my students review and practice the course content. For Language and the Brain, I designed a new lecture for the course on Information Theory.

5 Teaching outside of the classroom

I believe that teaching does not take place during class time alone. I have sought out ways to build connections between departments and mentor students outside of the classroom as well.

As a way of strengthening ties between Linguistics and Computer Science at UMass, I organize a reading group on neural networks in linguistics. The group has proven to be a fruitful space for interdisciplinary discussion and is regularly attended by students and faculty from both CS and Linguistics.

I have also had the privilege of supervising undergraduate research assistants: Alicia LeClair, who worked with me in Spring 2017 on semantic fieldwork materials, and Tessa Patapoutian, who has been working with me since Spring 2019. I have been mentoring Tessa in experimental and computational methods for linguistics and am currently working with them on a neural network probe task on grounded language. I also recommended them for the internship at BBN Technologies that they received in Summer 2019.

6 Courses

I would be reach to teach undergraduate courses in Semantics, Pragmatics, Psycholinguistics, Computational Linguistics, and Field Methods, as well as introductory linguistics courses. At the graduate level, I could offer more advanced computational courses such as Cognitive Modeling, Natural Language Processing, and Deep Learning for Linguistics; graduate seminars on a range of topics in Semantics and Pragmatics; and graduate-level field methods and experimental / statistical methods classes. If there was appropriate interest, I could also teach interdisciplinary classes like Introduction to Cognitive Science and Data Science.

Figure 1: Summary of teaching experience

Course title	Course number	Enrollment	Role
Technology for Language Revitalization	HFA 191-A49	19	Instructor
Language Processing and the Brain	LING 412	32	TA
Programming Languages	CS 343 (Mt. Holyoke)	17	Instructor
Introduction to Linguistic Theory	LING 201	102 (34 in section)	TA
Cognitive Modeling	LING 692c	13	TA