

Undergraduate Research in Network Analysis of Climate Change Studies in Ecology

This project is a spatiotemporal study using network analysis to identify how climate change is studied in ecology. It focuses on using keyword co-occurrence networks to identify links between certain topics and track how these topics are related in time and space. Students applying to this project are expected to take it on as their primary research project and will take the lead on it (i.e. if/when the project is published, they would be the first author). The immediate supervisor, Eliza Grames, is a second year PhD student whose research focuses on modeling sensitivity of songbirds to forest fragmentation.

Students applying to work on this project will be expected to have an understanding of, or be capable of self-teaching*, the following topics:

- graph theory, network properties, and linear models
- R or other open source statistical programming languages like Julia
- climate change / environmental science / conservation
- science writing / communication

*By self-teaching, I mean that if I give you a book on graph theory, you can work your way through it with some combination of past experience and googling things. Students with no experience whatsoever but who are quick learners are strongly encouraged to apply.

Students would be expected to:

- identify and download approximately 75,000 articles related to climate change in ecology from Web of Science
- code models that match search results based on preliminary work that has already been done
- fit model and interpret results using network analysis tools
- contextualize model within the field of climate change research in ecology

Currently, there is no funding for this project, so it is only available on a volunteer basis or for Independent Study credit. Students working on this project can expect:

- experience in a lab working on a statistical project
- advice from Eliza on coding in R
- input from Eliza and her committee members on analysis
- support for future research grant applications**
- advice on resume building and career planning

** underclassmen are especially encouraged to apply and have the opportunity to apply for funding through the UConn SURF program in the next cycle. A current student working as a field tech for me on a related project was recently awarded an IDEA grant through UConn for his work.

To apply, please send a one-page cover letter and a resume to eliza.grames@uconn.edu.

If you have questions, please contact eliza.grames@uconn.edu.