# Chissa-Louise Rivaldi

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## PROFESSIONAL SUMMARY

- Experienced researcher with a focus community dynamics and evolution, heavy implementation of computational biology, including statistical analysis of genetic data, automating pipelines, and utilizing high-performance computing clusters
- 8+ years of experience analyzing high-throughput sequencing data, including amplicon, genomic, and RNA-seq data
- Strong teaching record with knowledge in constructing curricula, lab management, diverse class expertise, mentoring experience, and comfort in translating highly complex scientific concepts to general and specialized audiences alike
- Demonstrated leadership in classroom instruction, laboratory environment, committee settings, and technical workshops

## EDUCATION

**University Of Notre Dame**                                                                                      Notre Dame, In
Doctor of Philosophy in Biological Sciences                                                         Fall 2015-Spring 2022
**University Of Texas At Tyler**                                                                                        Tyler, Tx
Master of Science in Biology                                                                              Fall 2013-Spring 2015
**University Of Texas At Austin**                                                                                    Austin, Tx
Bachelor of Science in Biology (Ecology, Evolution, & Behavior)                              Fall 2006-Spring 2009

## PROFESSIONAL EXPERIENCE

**University Of Notre Dame**                                                                                      Notre Dame, In
Graduate Research Assistant                                                                                 Spring 2016-Present
- Created pipelines to analyze and interpret multiple types of high-throughput sequencing (amplicon, RNA-seq, and RAD-seq)
- Used microbiome and amplicon data to determine relationships between hosts, bacteria, and eukaryotic microbes in the gut
- Determined effects of parasite presence, environmental variation, and anthropogenic factors in wild macaque microbiomes
- Mentored 8 undergraduate students, trained 15+ undergraduate and graduate students in bench and computational techniques

Rotating Graduate Research Assistant                                                                    Spring 2016 (rotation)
- Optimized pathway analysis of gene regulation to determine effects of knockout virulence factor in transcriptional data
- Synthesized research on varying pathogenicity associated with multiple protozoans to further inspect virulence factors
- Consulted with lab to develop future techniques in infectious disease and genetic sequencing data analysis and interpretation

Rotating Graduate Research Assistant                                                                        Fall 2015 (rotation)
- Performed maximum-likelihood phylogenetic analysis of olfactory and gustatory RNA gene sequences to elucidate niche adaptation, radiation, and speciation in fruit flies, leading to authorship in a resulting publication with 30+ citations to date
- Designed and implemented lab protocols for DNA extractions of yeast cultures and molecular identification of yeast strains

**University Of Texas At Tyler**                                                                                        Tyler, Tx
Graduate Research Assistant                                                                              Fall 2013-Spring 2015
- Developed a novel method in detecting closely related species using variation uncovered in mitochondrial genome analysis
- Introduced a new animal model to expand existing host-pathogen dynamics research in lab group, including a variety of genetic lab assays, computational skills, and techniques with a focus on mitochondrial genomics and amplicon data
- Mentored and trained undergraduate assistant in benchwork, assays, experimental design and scientific writing
- Implemented computational methods to analyze the bacterial community and mitochondrial genome of vectors

**University Of Texas At Austin**                                                                                    Austin, Tx
Research Assistant                                                                                     Summer 2009 – Summer 2013
- Modeled species distributions based on environmental and climatic variation for infectious disease pathogens, including vectors, reservoirs, and hosts, resulting in authorship of multiple publications which have collectively been cited 250+ times
- Incorporated geographic software to measure variation in the landscape and climate and amalgamate data for modeling
- Surveyed, developed, and applied effective field collection methods to determine the geographical extent of pathogen vectors
- Curated an open-source disease vector database of information associated with vectors, pathogens, reservoirs, and hosts

## TEACHING EXPERIENCE

**Data Intensive Biology Summer Institute**                                                                        Davis, Ca
*Next-Gen Sequence Analysis (multiple topics), Lead Instructor*                                            Summer 2019

*Next-Gen Sequence Analysis (multiple topics), Assistant Instructor*                                Summer 2018

**University Of Notre Dame**                                                                Notre Dame, In
*Introduction to Computational Genomics – Instructor*                                              Fall 2020
*Physiology Laboratory - Lab Instructor (Fall 2016-Spring 2016), Lead Lab Instructor (Fall 2017-Spring 2018), Instructor of Record (Spring 2019-Spring 2020)*
*Introduction to Computational Biology – Instructor/Teaching Assistant*                              Fall 2018
*General Biology II – Lab Instructor*                                                            Spring 2017
*Physiology Lecture – Teaching assistant*                                                          Fall 2015

**University Of Texas At Tyler**                                                                Tyler, Tx
*Anatomy and Physiology Laboratory – Lab Instructor*                                  Fall 2013-Summer 2015

## LEADERSHIP & SERVICE

**Communication in Science Conference- Chicago**                                              Chicago, IL
*Co-president*                                                                                August 2019
- Directed 10-member subcommittee to organize speakers, workshops, advertising, and accommodations for 40+ attendees
- Fundraised and managed $10,000+ budget to oversee financial duties, facilitate fund dispersal, and ensure tax documentation

*Science Policy Panel Organizer*                                                              August 2018
- Curated and moderated a panel of 3 science policy experts to emphasize the importance of effective scientific communication
- Managed travel, reimbursement, and documentation for speakers, including honorariums, meals, and presentation materials

**Science Policy Panel for Association of Women in Science**                                    Notre Dame, IN
*Organizer*                                                                                    April 2018
- Established panel of science policy experts to discuss career paths with graduate students for professional development
- Formed and directed subcommittee to advertise event, invite speakers, and accommodate travel/board for speakers
- Programmed speaker itineraries, including meetings with labs, student organizations, and networking meals on campus
- Acquired grant funds and successfully obtained a $3,000+ budget to cover all expenses, including catered lunch, for the panel

**Branch of EDAMAME at Notre Dame (BE@ND)**                                                    Notre Dame, IN
*Organizer*                                                                                    July 2017
- Secured $1,000 grant to facilitate workshop operations and created a network on campus for shared research interests
- Established first satellite workshop of Explorations in Data Analyses for Metagenomic Advances in Microbial Ecology (EDAMAME) for graduate students in need of instruction in microbiome sequence processing and community analysis
- Facilitated venue logistics, catering, and directed communication with instructors and organizers at flagship workshop

## SKILLS, CERTIFICATIONS, AWARDS & INVOLVEMENT

**Computational Skills**: Command line/bash scripting, Linux/Unix, High-performance cluster computing, R, including Bioconductor packages, python, data visualization, vector graphics, ArcGIS, Snakemake automation, Git/Github, pipeline development, multiple sequence alignment, variant calling workflows, microbiome analysis (Qiime, Mothur, Dada2, Usearch)
**Teaching Certifications and Awards:** Carpentries instructor –2018. Topics: Bash/Shell Scripting, Unix Environment, Text Wrangling, Introduction to R for Genomics; Outstanding Graduate Student Teaching Award – 2019. Kaneb Center for Teaching, University of Notre Dame; Award for Outstanding Teaching – 2015. University of Texas at Tyler.
**Involvement**: Biology Graduate Student organization, Graduate Students Against Racial Injustice at Notre Dame (founding member), Association of Women in Science, Science Olympiad at The Stanley Clark School, Trio program tutoring at Clay ISD