

CURRICULUM VITAE

Jan 2021

CHISSA-LOUISE RIVALDI

PhD candidate

Department of Biological Sciences

University of Notre Dame

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EDUCATION

Graduate:

2015-present	University of Notre Dame	PhD Biology Lab: <i>Hollocher</i> <i>Thesis: TBD</i>
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2013-2015	University of Texas at Tyler -Tyler, Texas	M.S. Biology	Lab: <i>Bextine</i> <i>Thesis: Bacterial community and mitochondrial genome analysis of <i>Triatoma gerstaeckeri</i></i>
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Undergraduate:

2006-2009	University of Texas at Austin -Austin, Texas	B.S. Biology	Concentration: Ecology, Evolution & Behavior
2001-2006	McLennan Community College -Waco, Texas	A.A. Undeclared	

ACADEMIC APPOINTMENTS

Fall 2020	University of Notre Dame	Teaching Assistant: Introduction to Computational Genomics
Spring 2019- Spring 2020	University of Notre Dame	Instructor: Physiology Lab

Fall 2018	University of Notre Dame	Teaching Assistant: Intro to Biocomputing
Fall 2017- Spring 2018	University of Notre Dame	Head Lab Instructor: Physiology lab
Spring 2017	University of Notre Dame	Lab Instructor: General Biology II lab
Summer 2016	University of Notre Dame	Hesburgh Library: GIS Technical Assistant, Center for Digital
Spring 2016, Fall 2016	University of Notre Dame	Lab Instructor: Physiology lab
Fall 2015	University of Notre Dame	Teaching Assistant: Physiology lecture
2013-2015	University of Texas-Tyler	Lab Instructor: Anatomy and Physiology (1 & 2)
2009-2013	The University of Texas at Austin	Research Assistant: Integrative Biology

TEACHING CERTIFICATIONS

Software/Data Carpentry Instructor – Certified July 2018. Topics: Bash/Shell Scripting/ Unix Environment, Python, R.

POSTGRADUATE RESEARCH

Hollocher Lab, Department of Biological Sciences, University of Notre Dame, Principal Investigator: Dr. Hope Hollocher (joined lab March 2016)

- Population genetics of long-tailed macaques in Bali and Singapore
- Bioinformatics analysis of high-throughput sequencing data, including amplicon/microbiome, RNA-seq, and RAD-seq data
- Use of microbiome data to determine relationships between host and parasites
- Determine effects of parasite presence as well as diet related to anthropogenic factors in macaque populations

McDowell Lab, Department of Biological Sciences, University of Notre Dame, Research Advisor: Dr. MaryAnn McDowell (rotated October 2015-March 2016)

- Pathway analysis (MetaCore) to determine effects of knockout virulence factor from RNA-seq and microarray data
- Literature research on Leishmaniasis presentation in varying pathogenic

Leishmania species to further examine virulence factors

- Communicate results with bench scientists to develop future experimental design in human/sandfly/*Leishmania* spp. interaction, transmission, and control of Leishmaniasis

Syed Lab, Department of Biological Sciences, University of Notre Dame, Research Advisor: Dr. Zain Syed (rotated August 2015-October 2015)

- Bioinformatics analysis using Galaxy software for RNAseq sequences
- Gene sequence analysis of chemoreceptor genes to elucidate niche adaptation
- Maintain *Drosophila* colonies in lab
- Implement lab protocols for DNA extractions of yeast culture
- Implement lab protocols for molecular taxonomy identification (barcoding) of yeast samples (environmental and cultures)

Bextine Lab, Bextine Insect Genomics and Phytopathology Research Lab, Department of Biology, University of Texas at Tyler, Research Advisor: Dr. Blake Bextine (July 2013-May 2015)

Design and implement independent research projects.

- Organize and manage incoming specimens.
- Collect data from/perform various assays, including DNA extraction, gel electrophoresis, PCR analysis (rt, nested, traditional), 454 pyrosequencing assays, MiSeq. for mitochondrial genome analysis.
- Data analysis using R, Python, Blast, Geneious, Qiime, Mothur, Cytoscape, many others on multiple operating systems (Windows 7/8, Linux, OSX), and work in the command line.
- Analysis of bacterial communities-overall surveys and in respect to pathogen presence/absence.
- Educate and direct undergraduate/high school lab members.
- Write and review manuscripts detailing findings, submit for publication.

Sarkar Lab, Biodiversity and Biocultural Conservation Laboratory, Section of Integrative Biology, University of Texas at Austin, Research Advisor: Dr. Sahotra Sarkar (June 2009-June 2013)

- Development and application of effective field collection methods to survey the geographical extent of the *Triatoma* genus.

- Analyze and create species distribution models for several infectious disease vectors, reservoirs, pathogens, and hosts (*Triatoma*, *Neotoma*, *Lutzomia*, *Aedes* genera, Ixodidae family, *Trypanosoma*, *Borrelia*).
- Targeted diseases include American trypanosomiasis (Chagas Disease), Leishmaniasis, Lyme disease, Dengue fever.
- Extensive computer analysis using geographical interface software (ArcGIS) and maximum entropy modeling (MaxEnt) for spatial analysis of species.
- Maintenance of Disease Vector Database-open source database of location information for vectors, pathogens, reservoirs, and hosts of target research.

Meyers Lab, Section of Integrative Biology, Institute for Cellular and Molecular Biology, University of Texas at Austin, Research Advisor: Kelly Pierce (June 2012-present)

- Protocol development of maximum DNA yield from limited amount of chitinous tissue (Ixodidae family).
- DNA extraction, analysis of extraction success, PCR, gel electrophoresis, bloodmeal identification, sequencing analysis

Abbott Lab, Department of Entomology, University of Texas at Austin, June 2009

- Assisted with insect identification for military survey
- Assisted with lab maintenance

PEER-REVIEWED PUBLICATIONS

Hickner, P.V., **Rivaldi, C.L.**, Johnson, C.M., Siddappaji, M., Raster, G.J., Syed, Z. (2016). The making of a pest: Insights from the evolution of chemosensory receptor families in a pestiferous and invasive fly, *Drosophila suzukii*. *BMC Genomics*. 17.

Garza, M., Arroyo, T. P. F., Casillas, E. A., Sanchez-Cordero, V., **Rivaldi, C. L.**, & Sarkar, S. (2014). Projected future distributions of vectors of *Trypanosoma cruzi* in North America under climate change scenarios. *PLoS Negl Trop Dis*. 8(5).

Illoldi-Rangel, P., **Rivaldi, C.L.**, Sissel, B., Fryxell, R.T., Gordillo-Pérez, G., RodríguezMoreno, A., Williamson, P., Montiel-Parra, G., Sánchez-Cordero, V., Sarkar, S. (2012)

Species Distribution Models and Ecological Suitability Analysis for Potential Tick Vectors of Lyme Disease in Mexico. *Journal of Tropical Medicine*.

Sarkar, S., Strutz, S.E., Frank, D.M., **Rivaldi, C.L.**, Sissel, B., Sánchez-Cordero, V. (2010) Chagas Disease Risk in Texas. *PLoS Negl Trop Dis*. 4(10)

POSTERS

Fliotsos, Katrina; Gombash, Benjamin; **Rivaldi, Chissa**; Hollocher, Hope. Metabarcoding Characterization of the Macaque Microbiome for Gluten-Containing Diets. Fall Undergraduate Research Fair 2019. University of Notre Dame. October 31, 2019.

Zepf, Morgan; Mehlmann, Kristin; Gombash, Benjamin; **Rivaldi, Chissa**. Metabarcoding Analysis of Macaque Diets With Respect to Anthropogenic Environments. Fall Undergraduate Research Fair 2019. University of Notre Dame. October 31, 2019.

Rivaldi, C.L., Egan, B., Wilcox, J.J.S., Hollocher, H. Key Associations Between the Eukaryotic and Prokaryotic Gut Microbiomes of Long-Tailed Macaques in Southeast Asia. Poster presented at: Notre Dame Biological Sciences Retreat, January 11, 2019. Notre Dame, IN.

Egan, B., **Rivaldi, C.L.**, Wilcox, J.J.S., Hollocher, H. Investigating patterns of the gut microbiome in long-tailed macaques. Poster Presented at: Midwest Primate Interest Group, October 20-12, 2017, Northwestern University, Evanston, IL

Egan, B., **Rivaldi, C.L.**, Wilcox, J.J.S., Hollocher, H. Linking the Core Oral Microbiome and Gut Parasites in *Macaca fascicularis* from Singapore. Poster Presented at: Midwest Primate Interest Group, October 20-12, 2017, Northwestern University, Evanston, IL

Rivaldi, C.L., Egan, B., Wilcox, J.J.S., Hollocher, H. Population Genetics of Long-Tailed Macaques (*Macaca fascicularis*) through the Lens of the Microbiome. Poster Presented at: Midwest Primate Interest Group, October 20-12, 2017. Northwestern University, Evanston, IL

Mitchell, E.A., Williamson, P., Billingsley, P., Sarkar, S., **Rivaldi, C.L.**, Sissell, B., Allen, M.S. Phylogeography and Correlation Between Genetic and Geographical Distance in *Trypanosoma cruzi* and its Vectors of the Genus *Triatoma* in Texas. Poster presented at: The 63rd Annual James Steele Conference on Diseases in Nature Transmissible to Man; June 19-21, 2013; Houston, TX.

Greenlee, A., **Rivaldi, C.L.**, Bextine, B., Schuster, G., Henke, S. The effectiveness of different primer sets on detecting the presence of *Trypanosoma cruzi* in *Triatoma gerstaeckeri*. Poster presented at: The 62nd Annual Meeting of the Southwestern Branch of the Entomological Society of America and the Annual meeting of the Society of Southwestern Entomologists; February 24-27, 2014; San Antonio, TX.

Rivaldi, C.L., Powell, C., Greenlee, A., Schuster, G., Henke, S., Bextine, B. Identification of the gut microbiome of *Triatoma gerstaeckeri* using next generation sequencing. Poster presented at: The 62nd Annual Meeting of the Southwestern Branch of the Entomological Society of America and the Annual meeting of the Society of Southwestern Entomologists; February 24-27, 2014; San Antonio, TX-3rd place winner Master's Division.

PRESENTATIONS/CONFERENCES

Ecology seminar (BioFrass). Platyhelminths and the Microbiome. University of Notre Dame. October 2, 2020.

Midwestern Primate Interest Group Conference. Interactions Among Bacterial Communities and *Blastocystis* in the Gut of Long-Tailed Macaques in Southeast Asia. Northern Illinois University. October 5, 2019.

Ecology seminar (BioFrass). Interactions Among Bacterial Communities and *Blastocystis* in the Gut of Long-Tailed Macaques in Southeast Asia. University of Notre Dame. September 26, 2019.

Ecology seminar (BioFrass). Microbiomes of Long-Tailed Macaques in Southeast Asia: Community Structure and Examining the Characters Within. University of Notre Dame. April 5, 2019.

College of Science and Engineering – Joint Annual Meeting (COSE-JAM). Defining Characteristics and Community Structure of the Gut and Oral Microbial Communities of Long-Tailed Macaques (*Macaca fascicularis*) in Singapore. University of Notre Dame. December 7, 2018.

Midwestern Primate Interest Group Conference. Microbial Communities of Long-Tailed Macaques (*Macaca fascicularis*) in Singapore. IU Bloomington, Bloomington, IN, October 26-27, 2018.

Ecology seminar (BioFrass). The Microbiome of Long-tailed Macaques in Singapore and the Interactions with the Environment, University of Notre Dame, South Bend, IN. April 12, 2018.

Ecology seminar (BioFrass) - How Diet Affects Genomic Variation in Long-tailed

Macaques, University of Notre Dame, South Bend, IN. February 10, 2017.
Midwestern Primate Interest Group Conference
Northwestern University, Evanston, IL, October 20-21, 2017-Poster presentation
Michigan Meeting on Microbial Communities
University of Michigan, Ann Arbor, MI May 16- 18, 2016
Ecology seminar (BioFrass) – Rotations at Notre Dame, April 8, 2016
12th Annual University of Michigan Early Career Scientists Symposium (Topic:
community assembly)
University of Michigan, Ann Arbor March 12, 2016
Entomological Society of America (ESA) SW
Branch Tulsa, OK February 23-26, 2015 – *10
minute talk*
Entomological Society of America 2014, ESA National Conference
Portland, OR November 16-19, 2014 - *10 minute talk*
Entomological Society of America (ESA) SW Branch
San Antonio, TX February 24-27, 2014 – *presented poster*
Entomology 2013, ESA National Conference
Austin, TX November 11-14, 2014

WORKSHOPS & ADDITIONAL TEACHING

Library Carpentry. Network of the National Library of Medicine. Online. Instructor.
October 2020.
Bioinformatics Introductory Program Week (BIP Week). University of Notre Dame.
Instructor. July 2020.
Data Intensive Biology Summer Institute at UC Davis (DIBSI). University of
California at Davis. Lead Instructor. July 2019
Data Intensive Biology Summer Institute at UC Davis (DIBSI). University of
California at Davis. Teaching Assistant. July 2018
ComSciCon Chicago (Communication in Science Conference)
Northwestern University, Chicago, IL, August 26-27, 2017
Big Data Workshop (*Spark, Hadoop*)
XSEDE via University of Notre Dame, South Bend, IN, September 12-13, 2017
Environmental Genomics Workshop
Mt Desert Island Biological Laboratories, Bar Harbor, ME, July 8-15, 2017
Workshop in HTML & CSS
University of Notre Dame, South Bend, IN, October 4, 2017
Explorations in Data Analyses for Metagenomic Advances in Microbial Ecology

(EDAMAME) satellite

University of Notre Dame, South Bend, IN –Hosted by Michigan State

University, July 10-20 2016

RNAseq analysis workflow workshop – Hosted by Center for Resource Computing
and Genomics & Bioinformatics Core Facility (GBCF)

University of Notre Dame, South Bend, IN June 13-14, 2016

Data carpentry workshop (*SQL, R, OpenRefine*)

University of Notre Dame, South Bend, IN March 6-7, 2016

Software carpentry workshop (*Python, Git*)

University of Notre Dame, South Bend, IN November 4-5, 2015

Software carpentry workshop (*R, command line*)

University of TX at Arlington, Arlington, TX April 18-19, 2015

Texas Advanced Computing Center (TACC) Summer Supercomputing

Institute Austin, TX June 16-20, 2014

FELLOWSHIPS/AWARDS

Outstanding Graduate Student Teaching Award	\$100	University of Notre Dame – Kaneb Center for Teaching
MDI-BL Environmental Genomics Workshop (Scholarship)	\$3900	Mount Desert Island Biological Laboratories
REACT (Rapid Exposure to Advanced Computational Training) 2017	\$300	University of Notre Dame - Environmental Change Initiative (ECI), The Eck Institute for Global Health (EIGH), and the Genomics and Bioinformatics Core Facility (GBCF)
Department of Biological Sciences 2017	\$300	University of Notre Dame
Graduate School Professional Development 2017	\$500	Downes Memorial Fund, University of Notre Dame
Graduate Student Fellowship 2014-15	\$2,500	University of Texas at Tyler

New Graduate Fellowship
2013-2014

\$1,000

University of Texas at Tyler

COMMUNITY INVOLVEMENT, OUTREACH, and SERVICE

- Peer Review for PLOS ONE.
- Guest Panelist for The LEAH Project. December 2, 2020.
- Member of Association of Women in Science (AWIS),
University of Notre Dame, 2015-present
 - Professional Development Chair, 2017-2019
- Speaker Committee for ComSciCon-Chicago- August 26-27, 2018.
- Public Relations Committee member for Women in Science Conference (hosted by Association of Women in Science at Notre Dame) – October 4-5, 2018.
- Faculty Search Committee, Biological Sciences Department, Spring 2018.
- Recruitment Chair, 2017-2018, Biological Graduate Student Organization (BGSO@ND)
- Coach for Science Olympiad – The Stanley Clark Scholl – 2016-2019
- Panel Member at Girl Powered -Wawasee High School - October 7, 2017
- Speaker Committee member for Women in Science Conference (hosted by Association of Women in Science at Notre Dame) – September 30, 2016 - October 1, 2016
- Guest lecturer at Elkhart High School, December 6, 2016
- Research Experience for Undergrads (REU) Mentor (NSF) – Summer 2016
- Volunteer instructor at GALS (Girls Ambitious about Learning Science) Science Outreach – May 14, 2016
- Tutor – GET STEM (Kaneb Center) – Trio program – Clay Intermediate, January 2016-June 2016
- Volunteer at ND Robotics Day – April 10, 2016
- Judge at Northern Indiana Regional Science and Engineering Fair (NIRSEF) (Special Team V - on behalf of Science Policy Initiative at Notre Dame (SPI@ND), February 27, 2016
- Science Alive! at St. Joseph Public Library – presented and organized with the Biological Graduate Student Organization (BGSO@ND) January 25, 2016, February 4, 2017, February 5, 2018
- Member of Biological Graduate Student Organization, University of Notre Dame, 2015-present

- Recruitment Co-Chair, 2017-2018
- Member of Science Policy Initiative, University of Notre Dame, 2015-present
- Member of Biologists of Tyler, Texas (BOTT)-fundraising, represent at university functions – 2013-2015
- Member of Entomological Society of America, Student Affairs Committee (southwest branch), 2015
- Member of Entomological Society of America, Student membership (southwest branch), 2013-2015
- Guest presenter at Women in Science Day-Lady Bird Johnson Wildflower Center – September 25, 2011