

# Curriculum Vitae

**Robert Laroche**

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## EDUCATION

University of Houston, Houston, Texas

Bachelor of Science

Major in Biology

Minor in Management

GPA (Overall): 3.916/4.000

GPA (In Major): 3.918/4.000

Graduation Date: December 2018

Rice University, Houston, Texas

Doctor of Philosophy

Ecology and Evolution Graduate Program

Start Date: May 2019

GPA: 4.000/4.000

## Relevant Course Work:

Undergraduate:

Honors Biology 1&2, General Chemistry 1&2, Organic Chemistry, Honors Genetics, Biochemistry, Biodiversity, Evolution, Cell Biology, General Chemistry Laboratory 1&2, Genetics Laboratory, and Biochemistry Laboratory.

Graduate:

Topics in Ecology: Processes in Microbial Ecology, Topics in Evolution: Ecological Speciation, Topics in Ecology: Ecology of Climate Change, Topics in Evolution: General Topics, Analysis and Visualization of Biological Data, Topics in Evolution: Plasticity

GRE Score:

Verbal Reasoning: **163/170** (93<sup>rd</sup> Percentile)

Quantitative Reasoning: **167/170** (91<sup>st</sup> Percentile)

## PUBLICATIONS

ACADEMIC

*Accepted:*

Duran, D. P., **Laroche, R. A.**, Gough, H. M., Gwiazdowski, R. A., Knisley, C. B., Herrmann, D. P., Roman, S. J., Egan, S. P. (2020). Geographic life history differences predict genomic divergence better than mitochondrial barcodes or phenotype. *Genes*. <https://doi.org/10.3390/genes11030265>

Titus, B. M., **Laroche, R.**, Rodríguez, E., Wirshing, H., & Meyer, C. P. (2020). Host identity and symbiotic association affects the taxonomic and functional diversity of the clownfish-hosting sea anemone microbiome. *Biology Letters*. <https://doi.org/10.1098/rsbl.2019.0738>

Titus, B. M., Benedict, C., **Laroche, R.**, Gusmão, L. C., Van Deusen, V., Chiodo, T., ... Rodríguez, E. (2019). Phylogenetic relationships among the clownfish-hosting sea anemones. *Molecular Phylogenetics and Evolution*. <https://doi.org/10.1016/j.ympev.2019.106526>

*Manuscripts Under Revision (Available Upon Request):*

**Laroche, R.A.S.**, Doan, T.M., Hanke, M.H. The influence of habitat characteristics of created oyster reefs on female oystershell mud crabs *Panopeus simpsoni*. **Journal of Crustacean Biology**.

#### OTHER PUBLICATIONS

Op-eds on the Rice Baker Institute Blog

- The Unspoken Threat of the Anthropocene (<http://blog.bakerinstitute.org/2020/03/05/the-unspoken-threat-of-the-anthropocene/>)
- The Ones the COVID-19 Relief (CARES) Bill Left Behind (<http://blog.bakerinstitute.org/2020/04/09/the-ones-the-covid-19-relief-cares-bill-left-behind/>)

#### RESEARCH EXPERIENCE

2019 Summer - Present. Graduate research in Dr. Scott Egan's Rice University evolution lab.

- Investigating the influence of biotic and abiotic factors on the dynamics of alternating reproductive tactics across generations of smallmouth bass (*Micropterus dolomieu*) in a pre-existing 10-year data set.

2018 Summer - Present. National Science Foundation Research Experience for Undergraduates at the American Museum of Natural History.

- Evolutionary, molecular, and systematic research on cryptic species of tropical sea anemones.
- Construction of the most robust phylogenetic dataset of Actinioidea
- First microbiome analyses of the clownfish-hosting anemone species

2017 Fall - Present. Research in Dr. Ricardo Azevedo's University of Houston computational evolution lab.

- Modeling the divergence of two lineages throughout Dobzhansky-Muller incompatibility driven speciation.
- Exploration of the properties of a novel Nk Model fitness landscape.

2017 Summer. Research focused study abroad trip to the Galapagos islands.

- Field surveys of dogs and sea lions to estimate population size and identify opportunity for potential transmission of disease via interspecies interaction.
- Recognition software-based identification and capture of green and hawksbill sea turtles to measure population movements and site return rates.
- Measurement of biomass within algae samples to determine the nutrient input of the algae and the relationship between the algae and ocean upwelling.
- Field surveys of tide pools to identify habitat characteristics most conducive of intertidal life.

2016 Summer. Summer Undergraduate Research Fellowship program at the University of Houston.

- Independent research on the influence of man-made oyster reef habitat characteristics on *Panopeus simpsoni* reproductive output.

2016 Summer. Research with Dr. Marc Hanke under the New Faculty Research Award grant.

- Field surveys of xanthid crabs for new species of Carcinonemertean worms.

### TEACHING EXPERIENCE

2021 Summer. Teaching Assistant for BioSciences Summer Research Institute

- Led discussions during a journal club organized for undergraduate students in summer research programs

2020, 2021 Spring. Teaching Assistant for Evolutionary Biology

- Presented multiple lectures and responded to questions on material throughout the course.
- (2021) Designed a final project to promote inquiry based learning as a component of the Inquiry-Based Learning Teaching Fellowship

### PRESENTATIONS

#### *Past Presentations*

2021. Oral Presentation. Is energetics or competition a stronger driver of the seasonal timing of reproduction by male smallmouth bass?

- January. Virtual Meeting, The Society for Integrative and Comparative Biology Annual Meeting

2020. Oral Presentation. The Influence of Energetics and Competition on Smallmouth Bass Reproductive Behavior.

- July. Virtual Meeting, Animal Behavior Society Virtual Conference

2020. Poster Presentation. Host identity and symbiotic association affects the genetic and functional diversity of the clownfish-hosting sea anemone microbiome.

- January. Austin, TX, The Society for Integrative and Comparative Biology Annual Meeting

2019. Poster Presentation. First characterization of the clownfish-hosting sea anemones microbiome across host and habitat.

- May. Houston, TX, 2019 Houston Regional Ecology and Evolution Symposium
- February. San Juan, Puerto Rico, Association for the Sciences of Limnology and Oceanography 2019 Aquatic Sciences Meeting: Planet Water Challenges and Successes
- January. Tampa, FL, The Society for Integrative and Comparative Biology Annual Meeting

2018. Oral and Poster Presentations. Phylogenetic relationships among the clownfish-hosting sea anemones.

- November. University of Houston, University of Houston System Board of Regents Meeting (selected from 300+ undergraduate researchers to present)

2018. Oral Presentation. Exploration of Kauffman's NK-model on a holey fitness landscape.

- November. University of Houston, Senior Honors Thesis public defense.

2018. Poster Presentation. Phylogenetic relationships among the clownfish-hosting sea anemones.

- October. University of Houston, Undergraduate Research Day

2018. Oral Presentation. Phylogenetic relationships among the clownfish-hosting sea anemones.

- October. Rice University, Gulf Coast Undergraduate Research Symposium
- August. American Museum of Natural History, 30<sup>th</sup> annual REU Biology Symposium

2016. Poster Presentation. The influence of habitat setting on *Panopeus simpsoni* reproductive output.

- December. New Orleans, LA, Restore America's Estuaries Summit
- October. University of Houston, Undergraduate Research Day
- September. University of Houston, Houston Scholars Showcase

2016. Oral Presentation. The influence of habitat setting on *Panopeus simpsoni* reproductive output.

- October. Rice University, Gulf Coast Undergraduate Research Symposium

## HONORS AND AWARDS

- 2021 Fall. Joe Davies Prize for Outstanding Service as a Teaching Assistant
- 2021 Spring. Texas Science Policy Fellowship
- Conducted policy research for memos and reports to legislators in support of SB 1353, which addresses inequities in vaccine distribution and which was subsequently signed into law
- 2021 Spring. Inquiry-Based Learning Teaching Fellowship
- 2019 Summer. University of Houston Outstanding Senior Honors Thesis Award
- 2019 Summer. 3<sup>rd</sup> Place Best Poster Presentation, Houston Regional Ecology and Evolution Symposium
- 2019 Summer. Worden Fellowship for the Ecology and Evolution Graduate Program at Rice University
- 2019 Summer. Rice University Academic Excellence Award
- 2018 Fall. Summa Cum Laude Graduate with University Honors and Honors in Major
- Student speaker at graduation ceremony
- 2018 Fall. Audience Favorite Poster Presentation Award, Undergraduate Research Day
- 2018 Summer. American Museum of Natural History NSF REU recipient
- 2018 Spring. University of Houston Goldwater Scholarship Campus Nominee
- 2018 Spring. Phi Beta Kappa Honors Society Member
- 2017 Spring. Albert Schweitzer Junior Fellowship
- 2017 Spring. University of Houston Udall Scholarship Campus Nominee
- 2016 Fall. Undergraduate Travel Fellowship
- 2016 Fall. Great Conversations Scholarship
- 2016 Summer. Selected for Smithsonian Summer Externship
- Externship Final Project and DC Experience, video links  
<https://www.smithsonianofi.com/blog/2016/06/30/university-of-houston-externship-final-projects/>
- 2016 Summer. Summer Undergraduate Research Fellowship
- 2016 Spring. Wayfinding Scholarship
- 2015-2018. Dean's Distinguished Scholars List
- 2015-2018. University of Houston Academic Excellence Scholarship
- 2015 Fall. PSLJ/Josie B Taylor Endow Scholarship
- 2015 Fall. Temple, TLL Endowed Leadership

## FUNDING (\$15,000+)

2021 Diana McSherry and Patrick Poe Research Award in Ecology & Evolutionary Biology.....	\$5,000
2021 Society for Integrative and Comparative Biology Meeting Charlotte Mangum Student Support .....	\$50
2020 Society for Integrative and Comparative Biology Meeting Charlotte Mangum Student Support .....	\$115
2019 Association for the Sciences of Oceanography and Limnology 2019 Meeting Student Volunteer Stipend .....	\$100
2018 American Museum of Natural History Undergraduate Research Travel Funding .....	\$2,285

2018	Society for Integrative and Comparative Biology Meeting Charlotte Mangum Student Support .....	\$115
2018	Houston Scholars Program Scholarship.....	\$5,000
2017	International Education Fee Scholarship.....	\$1,300
2016	Undergraduate Research Travel Fellowship.....	\$750
2016	Summer Undergraduate Research Fellowship Honors Houston Endowment .....	\$3,500

### RELEVANT SKILLS

#### *Computational skills/experience*

R, Python, Geneious sequence alignment, QIIME2 Microbiome Analyses, Stacks and ipyrad RADseq assembly programs, Amira 3D visualization and segmentation of CT scans, Stratovan Checkpoint landmarking, Sequoia pedigree reconstruction software

#### *Laboratory skills/experience*

Gel electrophoresis, Qiagen DNeasy DNA extraction, PCR, PCR Exosap cleanup, Cycle sequencing reactions, Sephadex gel cleanup, Ethanol precipitation, RADseq Library, Preparation, Sangar sequencing, Next generation sequencing

#### *Miscellaneous*

Scuba certified, Bilingual (French)

### SERVICE AND OUTREACH

#### *2021. Houston Zoo Collaboration*

- Aided in the identification of an unknown beetle species discovered by Zoo personnel

#### *2021. Houston Regional Ecology and Evolution Symposium*

- Organized a symposium of talks from undergraduate, graduate, post-doctoral and keynote faculty researchers in Ecology and Evolution from universities in the Houston area.
- Partnered with Springer Textbooks to provide prizes for outstanding talks

#### *2021. University of Houston 'Time Management in Graduate School' Panelist*

- Served as a panelist at a webinar for undergraduates involved in research

#### *2019-Present. Rice Ecology and Evolutionary Biology (EEB) Outreach (Co-head)*

- Developed lessons and activities to teach concepts in ecology and evolution
- Coordinated with local teachers to visit and present to K-12 classrooms.

#### *2019-Present. EEB Graduate Student Association Representative*

- Conveyed departmental concerns to university-wide graduate student association

#### *2017-2018. Albert Schweitzer Fellowship 2017-2018*

- Implemented health initiative addressing dietary challenges in low-income housing facilities
- Organized weekly discussions, workshops targeting resident's diet-related health concerns

#### *2016-2018. Cultivate, a Bonner Gardening Initiative (Project Founder and Head)*

- Designed and constructed sustainable gardens and orchards in low income areas to offer access to green spaces and fresh produce.

- Organized outreach events and workshops on sustainability and urban farming.
- Project highlighted as “Drive” in a University of Houston video series showcasing attributes of students: <https://www.youtube.com/watch?v=-oOw9qU1mCw>

*2015-2018. University of Houston Bonner Leader Program (Leadership Council, Data/Analytics Head)*

- Nationwide service-learning program requiring dedication of 10 hours of service a week (over 300 hours total)

*2015-2018. University of Houston Campus Kitchen Project (Founding Member, Executive Team Member)*

- Recovered and served over 30,000 pounds of excess food from campus dining halls to low income housing residents in
- Developed nutrition education and food waste outreach events on campus and in the Third Ward