

EPSCoR • GUAM ECOSYSTEMS COLLABORATORIUM CORALS OCEANS (GECCO)

GRADUATE RESEARCH ASSISTANTSHIPS

The Guam EPSCoR program at the University of Guam is funded by a five-year, \$20 million grant from the National Science Foundation's Established Program for the Stimulation of Competitive Research. The program aims to develop a research program that helps ensure the sustainability of coral reef ecosystems in the face of environmental change. Guam EPSCoR aims to situate Guam as a premier research and STEM (Science, Technology, Engineering and Mathematics) education hub bolstering sustainability, economic development, and informed decision-making by engaging communities in 21st-century science.

In addition to its research goals, Guam EPSCoR seeks to increase the number and diversity of students who choose STEM careers by engaging students in its **Graduate Research Assistantship (GRA)** program. The GRA program is a three-year long program open to select graduate students applying/enrolled in UOG master's program seeking research opportunities with Guam EPSCoR faculty. Student research training and tasks may include field work to investigate coral reefs, utilize oceanographic instruments in studies of coastal systems, conduct research in genetics and genomics, or document and investigate patterns of regional biodiversity. Ideal candidates are self-motivated, well organized, and have research interests related to the objectives of the Guam Ecosystems Collaboratorium for Corals and Oceans.

The University of Guam and Research Corporation of the University of Guam are Equal Opportunity Employers that have received NSF funding to broaden the participation of underrepresented students in STEM fields. As such, the GRA Program remains open to all qualified students, but women, minorities, and students with disabilities are particularly encouraged to apply.

ELIGIBILITY:

- Must be a U.S. citizen and/or permanent resident of Guam; or non-immigrant alien admitted into Guam under the Compacts of Free Association
- Cumulative GPA of at least 3.0 in undergraduate studies or 3.25 in master's program
- Enrolled, accepted or pending acceptance into UOG master's program

BENEFITS:

- Research experience and training
- Faculty/Researcher mentoring
- Annual stipend of up to \$18,000
- Tuition waiver of up to twelve (12) credits per semester. Not to exceed thirty-six (36) credits over a period of three (3) years.
- Travel opportunities

DIRECTIONS: Complete this application for the Guam EPSCoR Graduate Research Assistantships. Please do not change the format. Complete form with **Adobe Reader**. Attach essay and transcript.

APPLICATION SUBMISSION:

1. Begin communicating with preferred advisors regarding assistantships.
2. Email completed documents* to Guam EPSCoR at epscorgas@triton.uog.edu. PDF format only.
Application Form Personal Statement/Abstract Transcripts (unofficial accepted)
3. Two letters of reference sent directly from your references to hammonds@triton.uog.edu. PDF format.
4. Allow three (3) business days for confirmation of receipt of application packet and references.

*Email Subject: EPSCoR GRA Application - Last Name, First Name

SPACE IS LIMITED

DUE DATE: March 31, 2021 by 5:00PM (ChST)

Notification of acceptance will be April 14th, 2021.

Late Applications may be considered up to UOG Registration deadline pending availability of positions

PROGRAM START DATE: August 16, 2021

FOR MORE INFORMATION, CONTACT:

Sho J. Hammond, Program Associate

 hammonds@triton.uog.edu

 (671) 735-0301/09

 www.gamepscor.uog.edu

   @GuamEPSCoR

GRADUATE RESEARCH AREA/ADVISOR



POPULATION GENOMICS OF REEF-ASSOCIATED INVERTEBRATES

Sarah Lemer, Ph.D. 

 lemers@triton.uog.edu

Species and population resilience to changing environments depend on genetic diversity and connectivity. Connectivity between islands and archipelagos can facilitate population maintenance and re-population following severe disturbances. In this objective we will apply seascape genomics approaches to reef-associated invertebrates with different life histories, pelagic larval durations and habitat preferences across Micronesia. We will correlate population genomic data (RAD-Seq and Genome re-sequencing) with experimental manipulations (RNA-Seq) and ocean current patterns to derive models of migration and better understand the impacts of climate change on invertebrate distribution in Micronesia.



CORAL POPULATION GENOMICS

David Combosch, Ph.D. 

 comboschd@triton.uog.edu

The Island Evolution Lab (IEL) is interested in basic and applied evolutionary questions in island settings. We are using genetic and genomic approaches (RAD-Seq, RNA-Seq and Genome re-sequencing) in combination with field work, observations, collections, and experimental manipulations to address original questions in population genetics, phylogenetics, phylogeography and molecular ecology to inform conservation, management and restoration. Within the EPSCoR GECCO framework, we are responsible for all things Coral Population Genomics, with a particular focus on local adaptations and regional connectivity.



POPULATION GENOMICS AND BIOGEOGRAPHY OF NATIVE DIADROMOUS FAUNA

Daniel Lindstrom, Ph.D.

 dlindstrom@triton.uog.edu

My research focuses on diverse native aquatic taxa that show one of three diadromous life history patterns (catadromy, anadromy or amphidromy) which demand that they spend part of their life stages in both fresh and marine waters with abilities to disperse long distances at sea. They are represented by teleost fishes, decapod shrimp and nerite snails that spend part of their life in the streams of southern Guam and other regional high islands. We will be collecting from various watersheds on Guam and elsewhere to elicit population structure and biogeographical patterns using various genetic techniques with a range of specificities depending on species.



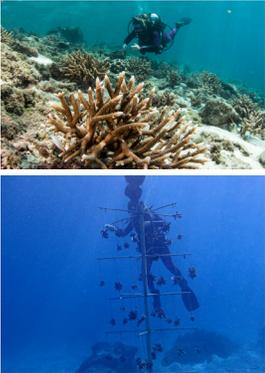
ECOLOGY AND GENETIC DIVERSITY OF RED ALGAE ON TROPICAL REEFS

Tom Schils, Ph.D.

 tschils@triton.uog.edu

Seaweeds are some of the most abundant and ecologically important organisms on tropical reefs. Crustose calcifying red algae (CCRA) are a group of seaweeds that deposit limestone just like stony corals. Certain CCRA are indicators for healthy reef systems as they are important ecosystem engineers and provide essential recruitment substrates for various invertebrate organisms. Other CCRA are protagonists of ecosystem transitions related to reef degradation. We use an integrated approach to study the diversity, ecology, and population genetic structure of CCRA communities in Guam and Micronesia.

GRADUATE RESEARCH AREA/ADVISOR



CORAL ECOLOGY: PHENOTYPIC TRAITS OF REEF RESILIENCE

Laurie Raymundo, Ph.D. 

 lraymundo@triton.uog.edu

Globally, corals are experiencing environmental change and anthropogenic impacts faster than ever before in their evolutionary history. My work centers on developing coral restoration techniques for Guam’s coral reefs that optimize success. This involves understanding both environmental and genetic factors impacting both ocean nursery culture and out-planting survival and reestablishment. These factors include water quality, depth and flow, temperature, disease, recruitment, interactions with other organisms, and population-level genetic diversity.



CORAL MOLECULAR ECOLOGY

Bastian Bentlage, Ph.D.

 bentlageb@triton.uog.edu

Corals represent complex organisms comprised of a host, photosynthetic symbiont’s, and a complex community of bacterial and fungal micro-organisms that all interact with each other in determining the response of corals to environmental change. Understanding these interactions involves characterizing the diversity of this symbiotic community and understanding their physiological responses to environmental stimuli. Students will rely on field and wet-lab experiments to investigate how the coral host-symbiont community is affected by environmental change. Metabarcoding and genomics as well as gene expression studies will be used to generate datasets that will be analyzed using data intensive bio-informatics approaches.



COASTAL OCEANOGRAPHY AND BIOLOGICAL-PHYSICAL INTERACTIONS

Atsushi Fujimura, Ph.D.

 fujimuraa@triton.uog.edu

Marine organisms and their environment interact in many ways. The research is twofold: describing environmental variables and investigating physiological response to the environment. Research methods include but not limited to: in-situ physical/chemical oceanographic observation, remote sensing, numerical modeling, benthic survey, in-situ and laboratory biological experiment, and measurement of biological parameters.



BIOREPOSITORY

Terry Donaldson, Ph.D.

 tdonaldson@triton.uog.edu

Students assigned to the Biorepository function essentially as curatorial assistants. In this role they will participate in the collection and curation of specimens, following iDigBio protocols, tissue preservation, whole organism preservation, photographic documentation, 2-D and 3-D scanning for digitization of images of whole organisms or structures, data base utilization and maintenance, analysis of data, assistance with manuscript preparation and maintenance of collections.

GUAM EPSCOR • GRADUATE RESEARCH ASSISTANTSHIP PROGRAM (GRA)

NAME: _____ DATE OF BIRTH: _____

CITIZENSHIP: USA Citizen/Permanent Resident Other: _____

BEST WAY TO CONTACT: _____ PHONE NUMBER(S): _____

EMAIL ADDRESS: _____

MAILING ADDRESS: _____

UNDERGRADUATE UNIVERSITY: _____

UNDERGRADUATE MAJOR(S)/MINOR(S): _____

UNDERGRADUATE CUMULATIVE GPA: _____ TRANSCRIPT ATTACHED: Official Copy Unofficial Copy

CURRENT M.S. STUDENT AT UOG?: Yes No Applied, pending acceptance

UOG TERM START (E.G. FA21): _____ PROSPECTIVE GRADUATION DATE: _____

GRADUATE PROGRAM: _____

GRADUATE CUMULATIVE GPA: _____ TRANSCRIPT ATTACHED: Official Unofficial None/Pending

HIGHEST EDUCATION LEVEL COMPLETED BY MOTHER/LEGAL FEMALE GUARDIAN: _____

HIGHEST EDUCATION LEVEL COMPLETED BY FATHER/LEGAL MALE GUARDIAN: _____

PREFERRED RESEARCH TRACK: _____ CONTACTED ADVISOR?: _____

ALTERNATE RESEARCH TRACK: _____ CONTACTED ADVISOR?: _____

DEMOGRAPHICS: Please select one option for each demographic question. Participation is optional (PND).

GENDER: Male Female Prefer not to disclose Other: _____

RACE: Black/African American Native American/Alaska Native Hispanic/Latino
 Hawaiian/Pacific Islander Asian White Other: _____
 Prefer not to disclose Race, please specify: _____

ETHNICITY: Hispanic or Latino Not Hispanic or Latino Prefer not to disclose

PERSON WITH DISABILITIES: Yes No Prefer not to disclose

Reset Demographics

REFERENCES: Please request two academic or professional references sent to hammonds@triton.uog.edu. Kindly provide the names, email addresses, and phone numbers for your references below.

REFERENCE 1 - NAME: _____

TITLE: _____ ORGANIZATION: _____

EMAIL: _____ PHONE NUMBER: _____

REFERENCE 2 - NAME: _____

TITLE: _____ ORGANIZATION: _____

EMAIL: _____ PHONE NUMBER: _____



ESSAY: Please provide a personal statement describing your research interest, experience, and why you would be an ideal candidate for the Guam EPSCoR GRA Program. You may attach statement. 500 word limit.

PERSONAL STATEMENT

HOW DID YOU FIND US: Please indicate how you discovered the EPSCoR Graduate Research Assistantship whether social media, email, other. Please provide details.

FUTURE TRACKING: Please suggest the best way we can reach you in the future. (For example, you might list family telephone numbers, emails, social media, and mailing addresses that are unlikely to change.)

TIME COMMITMENT: This program requires a commitment of approximately 20hrs/week throughout the year. Do you foresee any issues committing this time?

Yes No **Optional Note:** _____

SIGNATURE: Signature below indicates your interest in the Guam EPSCoR GRA Program and that the information provided in this application is accurate to the best of your knowledge.

Applicant Signature: _____ **Date:** _____

Kindly utilize the Adobe Digi-Sign Feature (Do not lock document after signing!). This will help us manage your information.

