

DESERT BOTANICAL GARDEN

Internship Description

JOB TITLE: Evolutionary and Conservation Genetics Intern

DEPARTMENT: Research, Conservation, and Collections

REPORTS TO: Evolutionary and Conservation Genetics Lab Manager and relevant Research Botanist(s)

STATUS: Unpaid part-time position. Minimum of nine (9) hours per week, with some flexibility to align with specific academic programs.

PURPOSE OF POSITION:

The Desert Botanical Garden is a major cultural institution in the Phoenix metropolitan area with a multi-faceted mission: conservation, education, research and exhibition of desert plants. It welcomes 315,000 visitors annually – roughly 50% local and 50% tourists.

The Research, Conservation, and Collections (RCC) Department is tasked with understanding and conserving the desert's unique plant life, and revealing intricate relationships that exist among the plants, environments and people in our desert region. We gain our knowledge through investigations conducted in four areas of research: conservation biology, plant systematics and evolution, ecology and ethnobotany. We achieve conservation outcomes through our "Garden to Global" conservation strategy, which includes convening the Central Arizona Conservation Alliance and active engagement in the International Union for Conservation of Nature.

The RCC Department at the Desert Botanical Garden offers year-round internships for undergraduate students, graduate students, and recent graduates interested in Evolutionary and Conservation Genetics. The internship is offered at least one time a year during one of the following three-month periods: spring (January to April), summer (May to July) and fall (August to December).

The Evolutionary and Conservation Genetics Intern will work with members of the RCC team on projects concerned with evolutionary relationships or conservation/population genetics of plants. The research activities conducted as part of the internship should be integral to the intern's course of study and future educational and career goals, as described in the intern's self description of their learning objectives (see "To Apply" below).

The purpose of the internship experience is to provide the intern with the opportunity to apply classroom knowledge to real work experience, develop valuable contacts in the field by networking with professionals, evaluate his or her commitment to the field while it is still relatively easy to change, identify technical and/or theoretical competencies that need further development, develop motivation, independence, and self-confidence, observe and develop the values/ethics of professionals, and assume professional responsibilities and substantive tasks.

DUTIES & RESPONSIBILITIES:

Current projects

- Investigate evolutionary relationships among southwestern plant species
- Document population and conservation genetic diversity in southwestern plant species
- Explore the use of low coverage genomic data, including whole plastomes, for answering questions about plant evolution

Scientific concepts

- DNA structure and amplification
- Chloroplast structure
- Tools used to study genetic variation in plant species
- Analysis of DNA sequence data
- Population genetic theory

Tasks, Activities, and Deliverables

- Learn proper sampling from herbarium specimens and documentation of plant materials used for genetic studies
- Become familiar with routine lab protocol including maintenance of the laboratory space and equipment
- Maintain records of supplies, samples (plant tissues, DNA), and daily activities in the lab
- Carry out flow cytometry, DNA extraction, PCR amplification, gel electrophoresis, sample quantification, and/or preparation and submission of samples for microsatellite genotyping, Sanger sequencing, and/or next-generation sequencing
- Conduct post-processing/bioinformatics of molecular data, such as editing DNA sequences, scoring genotype data, and/or compiling and managing data matrices
- Assist with dissemination of research results through presentations, publications, reports, and popular literature by preparing summaries of research methods, and/or tables and figures

Evaluation

- Meet weekly to set goals for tasks to be accomplished and check on status of previous goals
- Go over strengths and weaknesses observed in the lab setting
- Discuss problems encountered and how they were resolved
- Perform a mid-term and end of term evaluation using the Garden's performance evaluation system

JOB REQUIREMENTS:

This internship should be considered by an advanced active or recently graduated student. This student should be interested in the use of genetic and genomic approaches for understanding plant evolution and conservation, should have completed all entry-level biology coursework and should have some lab experience, preferably working with micropipettes. Interns can receive credit through the appropriate programs at their institution.

TO APPLY:

Please send a cover letter outlining your qualifications, desired learning objectives for the internship, and how these objectives relate to your course of study or future goals; a resume/C.V.; and names and contact information for two references to Shannon Fehlberg sfehlberg@dbg.org and Kim McCue kmccue@dbg.org by April 23 to be considered for a Summer 2017 intern position.