Opportunity Title: USDA-ARS Crop Genetic Analysis Internship
Opportunity Reference Code: USDA-ARS-2021-0236

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-2021-0236

How to Apply

Connect with ORISE...on the GO! Download the new ORISE GO mobile app in the Apple App Store or Google Play Store to help you stay engaged, connected, and informed during your ORISE experience and beyond!

A complete application consists of:

- An application
- Transcript(s) – For this opportunity, an unofficial transcript or copy of the student academic records printed by the applicant or by academic advisors from internal institution systems may be submitted. All transcripts must be in English or include an official English translation. Click here for detailed information about acceptable transcripts.
- A current resume/CV, including academic history, employment history, relevant experiences, and publication list
- Two educational or professional recommendations

All documents must be in English or include an official English translation.

Application Deadline 12/3/2021 3:00:00 PM Eastern Time Zone

Description

***Applications may be reviewed on a rolling-basis.**

ARS Office/Lab and Location: A research opportunity is available with the U.S. Department of Agriculture (USDA), Agricultural Research Service (ARS), Corn Insects and Crop Genetics Research Unit located in Ames, Iowa.

The Agricultural Research Service (ARS) is the U.S. Department of Agriculture's chief scientific in-house research agency with a mission to find solutions to agricultural problems that affect Americans every day from field to table. ARS will deliver cutting-edge, scientific tools and innovative solutions for American farmers, producers, industry, and communities to support the nourishment and well-being of all people; sustain our nation's agroecosystems and natural resources; and ensure the economic competitiveness and excellence of our agriculture. The vision the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: This research opportunity will be part of the SoyBase and Legume Clade Database ARS research project, within the Corn Insects and Crop Genetics Research Unit. The participant will collaborate with unit scientists and support staff to (1) collect, organize, and integrate genetic and genomic data for soybean and other legume crops; (2) use genetic and genomic data to enable better understanding of the genetic basis for agronomic traits in soybean and other legume crops; and (3) help to maintain and develop SoyBase (https://soybase.org) and the Legume Information System (https://legumeinfo.org), the USDA's genetics and genomics databases for the soybean and other legume crop and model legume species.

The participant will identify and catalog genes and genomic regions associated with

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important traits in legume crops (e.g. soybean, common bean, chickpea), and test for corresponding genes and regions between different legume species. The question to be asked in this project is: do important agronomic traits correspond through their evolutionary histories? For example, are regions associated with seed size in soybean related (in terms of sequence similarity and evolutionary history) with regions associated with seed size in common bean?

To address this question, the participant will use on-line computational tools developed in the SoyBase and Legume Clade Database project, and will read and process new literature, to identify and test regions of interest in several crop species. This will be a valuable learning experience for the participant and will provide the USDA-ARS project with useful feedback about computational tools and methods, as well as helping to build a catalog of genomic regions that can be used by plant breeders to produce improved crop varieties.

Learning Objectives: The participant will learn biology associated with traits that are the focus of study, as well as statistical and computational methods used in the analysis. There are opportunities for discovery science related both to the underlying trait biology, and to the computational and analytical methods.

Opportunities for professional development will include interactions with breeders and other researchers working on legume biology, through existing and planned collaborations; and to a broader swath of plant- and computational-biologists at research meetings and seminars.

Mentor(s): The mentor for this opportunity is Steve Cannon (steven.cannon@usda.gov). If you have questions about the nature of the research please contact the mentor(s).

Anticipated Appointment Start Date: 2021. Start date is flexible and will depend on a variety of factors.

Appointment Length: The appointment will initially be for one year, but may be renewed upon recommendation of ARS and is contingent on the availability of funds.

Level of Participation: The appointment is full-time.

Participant Stipend: The participant will receive a monthly stipend commensurate with educational level and experience. **A budget for travel and/or virtual meeting attendance will be provided.**

Citizenship Requirements: This opportunity is available to U.S. citizens only.

ORISE Information: This program, administered by ORAU through its contract with the U.S. Department of Energy (DOE) to manage the Oak Ridge Institute for Science and Education (ORISE), was established through an interagency agreement between DOE and ARS. Participants do not become employees of USDA, ARS, DOE or the program administrator, and there are no employment-related benefits. Proof of health insurance is required for participation in this program. Health insurance can be obtained through ORISE.

Questions: Please visit our Program Website. After reading, if you have additional questions about the application process please email USDA-ARS@orau.org and

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include the reference code for this opportunity.

Qualifications

The qualified candidate should be currently pursuing or have received a bachelor's degree in one of the relevant fields.

Preferred skills:

- Coursework in genetics and statistics
- Ability to critically read scientific literature in genetics
- Experience working in a Unix command-line environment

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Bachelor's Degree.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** (5 👁)
  - **Life Health and Medical Sciences** (8 👁)