

Opportunity Title: USDA-ARS Internship in Molecular Biology and Bioinformatics

Opportunity Reference Code: USDA-ARS-PW-2023-0174

Organization U.S. Department of Agriculture (USDA)

Reference Code USDA-ARS-PW-2023-0174

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A complete application consists of:

- An application
- Transcripts – [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 8/4/2023 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) located in Albany, California.

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 of the agency is to provide global leadership in agricultural discoveries through scientific excellence.

Research Project: The project is focused on the development of a web-based computer program, STAR Primer, for automatically generating DNA primers used in two new polymerase chain reaction (PCR) techniques, named semi-thermal asymmetric reverse PCR (STARP) and Nested Loop PCR (NL-PCR). In this project, the participants will first learn the STARP and NL-PCR principle and protocols recently developed in a mentor's program, then will be involved in developing a graphical user interface (GUI), coding, and deploying the program by closely collaborating with the mentor scientists. The participants will test the program for the automatic generation of DNA primers used to amplify the genes and their linked DNA markers for resistance to wheat diseases and insects, The participants will also collaborate with mentor scientists in preparing program manuals and manuscripts for publication in scientific journals.

Learning Objectives: As a result of this training the participants will improve their skills in molecular genetics, genomics, computational biology, bioinformatics, and/or computer programing.



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Mentor: The mentor for this opportunity is Steven Xu (steven.xu@usda.gov). If you have questions about the nature of the research, please contact the mentor.

Anticipated Appointment Start Date: May 2023. 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.

Citizenship Requirements: This opportunity is available to U.S. citizens, Lawful Permanent Residents (LPR), and foreign nationals. Non-U.S. citizen applicants should refer to the [Guidelines for Non-U.S. Citizens Details](#) page of the program website for information about the valid immigration statuses that are acceptable for program participation.

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 ORISE.ARS.PacificWest@orau.org and include the reference code for this opportunity.

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

Preferred Skills/Experience:

- Knowledge of computer science, bioinformatics, and molecular biology.
- The successful candidate should be a college student at junior or senior level that has completed core courses in the computer sciences, bioinformatics, and molecular biology, including programming languages, data structure, software development, computer architecture, general biology, genetics and genomics, data science. Additional coursework in bioinformatics and prior experience in web page design and programming using JAVA and Python are preferred.

Eligibility Requirements

- **Degree:** Currently pursuing a Bachelor's Degree.
- **Discipline(s):**
 - **Computer, Information, and Data Sciences** ([6](#))

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- **Life Health and Medical Sciences** ([9](#) )