

**Opportunity Title:** USFS Forest Tree Biology Internship  
**Opportunity Reference Code:** USDA-USFS-2021-0210

**Organization** U.S. Department of Agriculture (USDA)

**Reference Code** USDA-USFS-2021-0210

**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 package 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. Selected candidate must provide proof of completion of the degree before the appointment can start. Click [Here](#) for detailed information about acceptable transcripts.
- A current resume/CV
- Two educational or professional recommendations. At least one recommendation must be submitted in order for the mentor to view your application.

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

**Application Deadline** 8/25/2021 3:00:00 PM Eastern Time Zone

**Description** *\*Applications will be reviewed on a rolling-basis.*

**USFS Office/Lab and Location:** A research opportunity is available with US Forest Service (USFS), Pacific Southwest Research Station located in Davis, California.

At the heart of the U.S. Forest Service's mission is their purpose. Everything they do is intended to help sustain forests and grasslands for present and future generations. Why? Because their stewardship work supports nature in sustaining life. This is the purpose that drives the agency's mission and motivates their work across the agency. It's been there from the agency's very beginning, and it still drives them. To advance the mission and serve their purpose, the U.S. Forest Service balances the short and long-term needs of people and nature by: working in collaboration with communities and our partners; providing access to resources and experiences that promote economic, ecological, and social vitality; connecting people to the land and one another; and delivering world-class science, technology and land management.

**Research Project:** The project is to understand fundamental biological and genetic regulation of adaptation in trees, as they relate to both applications for forest industries and for management of natural forests. The appointment activities include training in wet laboratory techniques for molecular biology and genomics, including cloning of gene sequences,



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construction of recombinant DNA constructs, transformation of trees using tissue culture, isolation of DNA and RNA from complex tissues, construction of next-generation sequencing libraries, plant histology, microscopy, and analysis of histological images of wood tissues. Each technique will be demonstrated and discussed in terms of underlying technical considerations such as the actual chemistry of nucleic acid isolation. The participant will then gain hands on experience with each technique by processing samples for actual experiments. The participant will also receive training in the establishment and measurement of long term field studies to understand the impacts of silvicultural treatments on plantation survival and growth. The participant will receive training in how to analyze results from experiments, including statistical analysis of genomic data using the R programming language.

**Learning Objectives:** The overall learning objective is to prepare the participant for career in the biological sciences through direct training and experience in complex research projects. The participant will also participate in regular laboratory meetings, will eventually present their results in lab meetings, and also participate in weekly plant biology research seminars at the University of California Davis.

**Mentor:** The mentor for this opportunity is Andrew Groover ([Andrew.t.groover@usda.gov](mailto:Andrew.t.groover@usda.gov)). If you have questions about the nature of the research please contact the mentor.

**Anticipated Appointment Start Date:** August 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 extended for an additional year upon recommendation of USFS 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 USFS. Participants do not become employees of USDA, USFS, DOE or the program administrator, and there

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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 [USForestService@orise.orau.gov](mailto:USForestService@orise.orau.gov) and 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, statistics or computer programming
- Laboratory practical experience (e.g. chemistry lab, microbiology lab)
- Hands-on experience in an actual research lab or field-based experiments
- Experience with plant histology
- An interest in being outdoors

Ability to walk at least one mile with 20 pounds would be needed to access field sites.

**Eligibility Requirements**

- **Degree:** Bachelor's Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Environmental and Marine Sciences** (5 👁)
  - **Life Health and Medical Sciences** (13 👁)