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Opportunity Title: Internship in Molecular Microbiology
Opportunity Reference Code: ERDC-EL-2020-0007

Organization U.S. Department of Defense (DOD)

Reference Code ERDC-EL-2020-0007

How to Apply Components of the online application are as follows:

- Profile Information
- Educational and Employment History
- Essay Questions (goals, experiences, and skills relevant to the opportunity)
- Resume (PDF)
- Transcripts/Academic Records - 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. Click here for detailed information about acceptable transcripts.
- 1 Recommendation(s)

Submitted documents must have all social security numbers, student identification numbers, and/or dates of birth removed (blanked out, blackened out, made illegible, etc.) prior to uploading into the application system.

If you have questions, send an email to **USACE@orise.orau.gov**. Please list the reference code of this opportunity in the subject line of the email.

Letter of Recommendation: While a letter of recommendation is not required to be considered, applicants are required to provide contact information for one recommendation in order to submit the application. Applicants are encouraged to request a letter of recommendation before submission as this may help reviewers have a better understanding of the applicant's qualifications and interests. If selected, a letter recommendation must be submitted on your behalf upon acceptance of the appointment.

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

Description The Engineer Research and Development Center (ERDC) conducts research for the Corps of Engineers and the Army. The Environmental Microbiology Team (EMT), located within ERDC's Environmental Laboratory, executes its research in a 3000 square foot modern research laboratory facility equipped with microbiological, molecular biology, genomics, and analytical equipment that includes: Agilent 1100 and 1260 HPLCs, Agilent 6100 LC-MS, Agilent 5890 GC and 6890 GC/MS, Dionex ICS 3000, Columbus Instruments Respirometry system, Cytosense Flow Cytometry system, Shimadzu UV1800 spectrophotometer, Olympus BX53/43 Epifluorescence Microscope, Biotek platereader, Biorad C1000

thermocyclers, BioRad Pulse Field Gel Electrophoresis (PFGE) system, Eppendorf DasBox mini bioreactor fermentation system, multiple PBR102-S Phenometrics Photo Bioreactor systems, French Press G-M™ High Pressure Cell Press, Coy anaerobic chamber, -80oC and -20oC freezers, Darwin Freeze-Thaw incubator, Nu-Aire biological hoods for handling Biosafety level 1 and 2 microorganisms, and a Getinge 522LS steam sterilizer. EMT also shares a common area resources containing the following equipment: QuantStudio 7 Flex Real-Time PCR, Illumina NextSeq and MiSeq sequencers, Applied Biosystems ABI 3100/3500 sequencers, BioRad Laser scanner, and incubation, cold storage, and -20oC storage rooms.

The candidate selected for this opportunity will participate in multiple projects focused on various aspects of molecular microbiology. Specific projects include expressing/manipulating synthetic pathways in E. coli and alternative non-model microbial hosts for purification and chemical analysis, accessing the fate and transport of genetic material in environmental matrices, and bacterial viability/functionality in 3D printed materials. Preferred candidate skills include: a) enriching, culturing, and characterizing non-model environmental microorganisms, b) designing, manipulating and incorporating synthetic DNA constructs into various bacterial chassis using molecular and genetic approaches and, c) performing high-throughput DNA sequencing with some demonstrated skill in bioinformatics analysis. The participant will acquire additional skills in developing and characterizing living materials composed of 3D-printed bacteria. The participant will gain experience through mentorship by senior lab personnel and principle investigators by participating in generation of publications, technical reports and presentations. Good communication, interpersonal, and writing skills are essential, as well as a willingness to work in a highly multidisciplinary environment.

Appointment Length

This appointment is a twelve month research appointment, with the possibility to be renewed for additional research periods. Appointments may be extended depending on funding availability, project assignment, program rules, and availability of the participant.

Participant Benefits

Participants will receive a stipend to be determined by **USACE.** Stipends are typically based on the participant's academic standing, discipline, experience, and research facility location. Other benefits may include the following:

- Health Insurance Supplement. *Participants are eligible to purchase health insurance through ORISE.*
- Relocation Allowance
- Training and Travel Allowance

Nature of Appointment

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The participant will not enter into an employee/employer relationship with ORISE, ORAU, DOD, or any other office or agency. Instead, the participant will be affiliated with ORISE for the administration of the appointment through the ORISE appointment letter and Terms of Appointment.

Qualifications PhD in Life Sciences with experience in molecular microbiological/genomic approaches and traditional microbial and analytical biochemical approaches.

Eligibility Requirements

- **Citizenship:** U.S. Citizen Only
- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Chemistry and Materials Sciences** (12)
  - **Communications and Graphics Design** (2)
  - **Computer, Information, and Data Sciences** (16)
  - **Earth and Geosciences** (21)
  - **Engineering** (27)
  - **Environmental and Marine Sciences** (14)
  - **Life Health and Medical Sciences** (45)
  - **Mathematics and Statistics** (10)
  - **Other Non-Science & Engineering** (2)
  - **Physics** (16)
  - **Science & Engineering-related** (1)
  - **Social and Behavioral Sciences** (27)