

**Opportunity Title:** USDA-ARS Influenza A Virus Postdoctoral Computational Biology Opportunity  
**Opportunity Reference Code:** USDA-ARS-MWA-2024-0349

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

**Reference Code** USDA-ARS-MWA-2024-0349

**How to Apply** *To submit your application, scroll to the bottom of this opportunity and click **APPLY**.*

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. 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.

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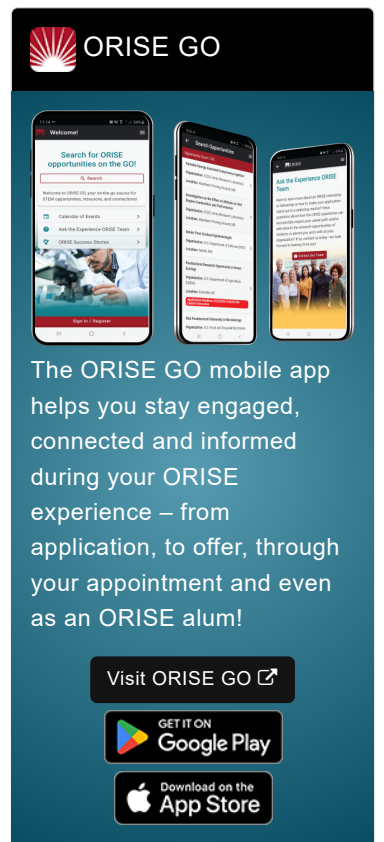
**Application Deadline** 1/24/2025 3:00:00 PM Eastern Time Zone

**Description** \*Applications are 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), National Animal Disease Center, Virus and Prion Research Unit, located in Ames, Iowa. For an introduction to the flu-crew at the National Animal Disease Center, please see: <https://youtu.be/kOJy8tFTuil>


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 participant will be involved in studying the evolutionary dynamics of influenza A virus (IAV) in swine and dairy cattle. This project is within the Intervention Strategies to Control Endemic and New and Emerging Influenza A Virus Infections in Swine project in the Virus and Prion Research Unit. Scientists in this unit maintain an IAV research program including investigation of virulence mechanisms, vaccinology, immunology, and virus evolution. The participant will be based on the National Centers for Animal Health campus that has a dynamic



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community of intramural scientists, postdoctoral fellows, graduate students, and research technicians.

The participant will use a range of phylogenetic methods to study how interspecies transmission, genomic reassortment, and farm production practices affect the evolution of endemic viruses and the emergence of novel influenza viruses with zoonotic potential. Using data provided by USDA influenza A virus surveillance systems: genetic evolution of IAV will be quantified; genetic predictors of influenza host range and virulence will be identified; the genetic and antigenic variability of endemic viruses will be studied; and epidemiologic patterns as IAV is transmitted among hosts and across landscapes will be quantified. An additional goal is the development of novel algorithms, bioinformatic tools or analytical pipelines that quantify the diversity of RNA viruses that may be deployed in online databases or interactive websites.

**Learning Objectives:** The participant will learn techniques in genomic epidemiology and machine learning to quantify drivers of IAV evolution using data generated from IAV surveillance in human and animal populations. The participant will have the opportunity to collaborate with multiple USDA ARS scientists and investigators within the University of Pennsylvania Center for Excellence in Influenza Research and Response (CEIRR) as part of the NIH NIAID CEIRR collaborative network (<https://www.ceirr-network.org/centers/penn-ceirr>). The participant will have the opportunity to attend local and/or national meetings and will be supported and encouraged to publish research dealing with the evolution and zoonotic potential of swine IAV.

**Mentor(s):** The mentor for this opportunity is Tavis Anderson ([tavis.anderson@usda.gov](mailto:tavis.anderson@usda.gov)). If you have questions about the nature of the research, please contact the mentor(s).

**Anticipated Appointment Start Date:** 2024/2025. 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

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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.Midwest@ornl.gov](mailto:ORISE.ARS.Midwest@ornl.gov) and include the reference code for this opportunity.

**Qualifications** The qualified candidate should be currently pursuing or have received a doctoral degree in the one of the relevant fields. Degree must have been received within the past five years or is anticipated to be received by 5/1/2025.

**Preferred skills:**

- Experience in disease ecology, evolutionary biology, virology, population genetics, molecular biology, or using quantitative approaches to study the evolutionary dynamics of infectious diseases
- Experience in the use of scripting languages (e.g. python, R, bash, perl)
- Experience in multivariate statistical analyses, including generalized linear mixed models, and/or variants of these methods
- Familiarity with phylogenetic methods and algorithms
- Strong oral and written communication skills
- Ability to effectively collaborate and perform with others

**Eligibility Requirements**

- **Degree:** Doctoral Degree received within the last 60 months or currently pursuing.
- **Discipline(s):**
  - **Computer, Information, and Data Sciences** ([6](#) 👁)
  - **Environmental and Marine Sciences** ([2](#) 👁)
  - **Life Health and Medical Sciences** ([21](#) 👁)
  - **Mathematics and Statistics** ([4](#) 👁)

**Affirmation** I affirm that:

I am a US Citizen, OR;

I am a non-US citizen currently living in the United States