

Opportunity Title: Toxicology Database Support

Opportunity Reference Code: EPA-NSSC-0006-10

Organization U.S. Environmental Protection Agency (EPA)

Reference Code EPA-NSSC-0006-10

How to Apply Click [HERE](#) to apply.

Description The EPA National Student Services Contract has an immediate opening for a full time Toxicology Database Support position with the Office of Research and Development at the EPA facility in Research Triangle Park, NC.

The Office of Research and Development at the EPA supports high-quality research to improve the scientific basis for decisions on national environmental issues and help EPA achieve its environmental goals. Research is conducted in a broad range of environmental areas by scientists in EPA laboratories and at universities across the country.

What the EPA project is about

The Center for Public Health and Environmental Assessment (CPHEA) provides the science needed to understand the complex interrelationship between people and nature in support of assessments and policy to protect human health and ecological integrity. Within CPHEA, the Health and Environmental Effects Assessment Division (HEEAD) develops scientific assessments on human health or environmental risk of chemicals or stressors to inform EPA programs and regions, producing a portfolio of assessment products that serve different programmatic needs.

The Integrated Risk Information System (IRIS) is the EPA's repository for human health effect reference values. In assessing the potential for health risk from exposure to specific chemicals, Toxicological Reviews are developed using a well-vetted process (<https://www.epa.gov/iris/basic-information-about-integrated-risk-information-system#process>) which are guided by recommendations from the National Academies of Science and EPA's Science Advisory Board.

The Health Assessment Workspace Collaborative (HAWC - <https://hawcproject.org/>) is a software tool developed to store health effects data used in human health risk assessments and in the development of advanced dose-response modeling; EPA uses a version of the software located on a limited-access server. The same data being used in chemical-specific assessments are also being combined with other similar data to analyze across multiple lines of comparison to better understand the determinants of risk from exposure to chemicals.

The Reference Value database (RefValueDB) project will develop a data clearinghouse from existing data sources from both within NCEA, from other parts of the Agency and from outside sources. Reference Values are developed by a number of organizations to provide an exposure level on which some risk management decision can be made. Different reference values are developed to serve the mandate for the organization deriving the value whether it be occupational values for the Occupational Safety and



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Health Administration (OSHA) or a Reference Dose (RfD) developed by the EPA to protect the general public. The goal of this project is to link to all of the authoritative organizations developing reference values to ensure the most up-to-date versions of their values are available to decision makers when the need arises, such as in an emergency situation.

The Health and Environmental Research Online (HERO - <http://hero.epa.gov/>) database provides an easy way to access and influence the scientific literature behind EPA science assessments. The database includes more than 600,000 scientific references and data from the peer-reviewed literature used by EPA to develop its regulations for the following: Integrated Science Assessments (ISA) that feed into the NAAQS review, Provisional Peer Reviewed Toxicity Values (PPRTV) that represent human health toxicity values for the Superfund, and the Integrated Risk Information System (IRIS), a database that supports critical agency policymaking for chemical regulation. These assessments supported by HERO characterize the nature and magnitude of health risks to humans and the ecosystem from pollutants and chemicals in the environment. Other literature search and systematic review tools being used in HEEAD and likely to involve the chosen candidate includes SWIFT-Review and Distiller. SWIFT is an acronym for "Sciome Workbench for Interactive computer-Facilitated Text-mining" (<https://www.sciome.com/swift-review/>) which assists with problem formulation and literature prioritization. DistillerSR (<https://www.evidencepartners.com/products/distillersr-systematic-review-software/>) is a tool used to quickly screen collections of literature to identify the most relevant studies for use in a particular assessment.

What experience and skills will you gain?

As a team member, you will provide guided evaluation of relevant scientific literature, extract data from selected studies, and perform data analysis support via selected chemical-specific project pages in HAWC to support IRIS Assessment work. Similar work will also be performed to support the RefValueDB project. The team member will also interact with staff working on the HERO project as needed to perform those other tasks. The team member will work with other members of HEEAD's team to quality control entered data and perform downstream analysis. The team member will be a member of a multi-disciplinary research team.

Data curation and analysis will include:

- Performance of data entry into HAWC and RefValueDB;
- Quality control of entered data (data entered by third parties);
- Running automated data quality tests;
- Utilizing existing and developing new analysis tools for exploring and visualizing data;
- Developing scripts to provide reports on data; and
- Assisting to develop models that explore the relationship between variables in the dataset to explore which are determinants of risk.

Technical responsibilities will include:

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- Supporting the Quality Assurance functions and responsibilities of the IRIS Program by following established QA procedures and protocols to ensure that all health effects data generated or used by NCEA is scientifically sound, legally defensible, and of known and acceptable quality for their intended uses and
- Reviewing scientific literature on the health effects of chemicals present in the environment and prepare data summaries in support of IRIS human health assessments. This may include identifying characteristics of individual toxicology or epidemiology studies that can influence determination of study quality, assisting with documentation of literature searches and search strategies, conducting library research, performing data entry, developing summary tables that present key information on study design and results from individual epidemiology and toxicology studies, developing tables of comments on draft IRIS assessments and summaries of comments, organizing and formatting scientific information consistent with standard IRIS templates, and generating various graphical presentations for health effects data (including figures generated from Excel spreadsheets or GraphPad).

Communications-related responsibilities will include:

- Participate as a member of a multi-disciplinary research team;
- Interact with other members of the development team as well as EPA scientists;
- Document code and database development efforts; and
- May be asked to present work performed as a poster at a scientific conference.

Qualifications Required Knowledge, Skills, Work Experience, and Education

- Demonstrated education and/or experience in toxicology and/or biology;
- A working knowledge of in vivo toxicology studies;
- A working knowledge of relational databases;
- Strong written, oral and electronic communication skills;
- Proficiency with Microsoft Office applications (i.e., Excel, PowerPoint, Word, Outlook); and
- Excellent proof reading and editing skills.

Desired Knowledge, Skills, Work Experience, and Education

- Expertise in MySQL database management, MS-Excel and/or MS-Access.

Location: This job will be located EPA's facility in Research Triangle Park, NC.

Salary: Selected applicant will become a temporary employee of ORAU and will receive an hourly wage of \$23.37 for hours worked.



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Hours: Full-time.

Travel: Occasional overnight travel may be required.

Expected start date: The position is full time and expected to begin October 2023. The selected applicant will become a temporary employee of ORAU working as a contractor to EPA. The contract renews each May through 2025.

For more information, contact EPANSSC@orau.org. Do not contact EPA directly.

- Eligibility Requirements**
- **Citizenship:** LPR or U.S. Citizen
 - **Degree:** Any degree .
 - **Discipline(s):**
 - **Chemistry and Materials Sciences** ([1](#) )
 - **Life Health and Medical Sciences** ([2](#) )

Affirmation I certify that I am at least 18 years of age; a recent graduate with at least a Bachelor's degree in biology, toxicology, chemistry, or a closely related field of study from an accredited university or college within the last 24 months; a citizen or a Legal Permanent Resident of the United States of America; and not a current employee of EPA ORD or the spouse or child of an EPA ORD employee.

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