**PREP Research Associate Job Description –Community Resilience System Model IN-CORE Modeling**

This position is part of the National Institute of Standards (NIST) Professional Research Experience (PREP) program. NIST recognizes that its research staff may wish to collaborate with researchers at academic institutions on specific projects of mutual interest, thus requires that such institutions must be the recipient of a PREP award. The PREP program requires staff from a wide range of backgrounds to work on scientific research in many areas. Employees in this position will perform technical work that underpins the scientific research of the collaboration.

Despite significant progress in science, technology, guidance, and tools related to disaster-mitigation, natural, technological, and human-caused hazard events in the United States still result in significant direct and indirect costs in terms of lives lost, disruption of commerce and financial networks, properties destroyed, and the cost of mobilizing emergency response personnel and equipment. Community resilience, the ability to withstand the impacts of natural, technological, or human-caused hazards and recover community functions quickly, is a local and a national issue.

**Research Title:** Community Resilience System Model IN-CORE Modeling

**U.S. Citizen Preferred**

The PREP Research Associate will conduct collaborative research with researchers in the Community Resilience Group in the Engineering Laboratory at the National Institute of Standards and Technology (NIST). The PREP participant will conduct research on the project entitled Development of a First-Generation Community-Resilience Systems Model. Under this project, the PREP participant will contribute to a study exploring the joint use of the (NIST) Alternatives for Resilient Communities (NIST ARC) model and the IN-CORE model. NIST ARC employs mathematical programming methods to facilitate exploration of alternative solutions for increasing a community's resilience to natural hazards such as floods, tornados, and earthquakes.

The associate will set up and conduct the IN-CORE modeling for an earthquake case study involving Shelby County, TN that is subject to seismic hazards, consulting with NIST researchers.

**Key responsibilities will include but are not limited to:**

- Assembling model input data,
- Set up IN-CORE model runs
- Generate and evaluate the results.
- Disseminate their research through conferences and submission of peer-reviewed journal articles.
- Carrying out statistical analyses and interpretation of results,
- Determining methods to analyze complex data for validation,
- Co-authoring reports on results of analyses,
- Presenting results at internal meetings, and occasional meetings with external stakeholders,

- Ensuring that results, protocols, datasets, and documentation have been archived or otherwise transmitted to the larger organization.

**Qualifications**

- A BS in Civil Engineering or related technical field,
- Strong oral and written communication skills.
- US Citizens Preferred

**Privacy Act Statement**

**Authority:** 15 U.S.C. § 278g-1(e)(1) and (e)(3) and 15 U.S.C. § 272(b) and (c)

**Purpose:** The National Institute for Standards and Technology (NIST) hosts the Professional Research Experience Program (PREP) which is designed to provide valuable laboratory experience and financial assistance to undergraduates, post-bachelor's degree holders, graduate students, master's degree holders, postdocs, and faculty.

PREP is a 5-year cooperative agreement between NIST laboratories and participating PREP Universities to establish a collaborative research relationship between NIST and U.S. institutions of higher education in the following disciplines including (but may not be limited to) biochemistry, biological sciences, chemistry, computer science, engineering, electronics, materials science, mathematics, nanoscale science, neutron science, physical science, physics, and statistics. This collection of information is needed to facilitate administrative functions of the PREP Program.

**Routine Uses:** NIST will use the information collected to perform the requisite reviews of the applications to determine eligibility, and to meet programmatic requirements. Disclosure of this information is also subject to all the published routine uses as identified in the Privacy Act System of Records Notices: NIST-1: NIST Associates.

**Disclosure:** Furnishing this information is voluntary. When you submit the form, you are indicating your voluntary consent for NIST to use of the information you submit for the purpose stated.