

NSF ERC EARTH Postdoctoral Mentoring Plan

Postdoctoral (PD) mentoring will be provided through structured activities designed to prepare PDs to excel in their chosen career path, be it academia, industry, or government. Working in conjunction with the University of Kansas (KU) Postdoc Association, the University of Notre Dame (ND) and University of Maryland (UM) Offices of Postdoctoral Affairs, the University of Hawai'i Faculty Puwalu Research Forum, and the Lehigh University (LU) and the University of South Dakota (SD) Offices of Research, the EARTH team will provide the following mentoring for all PDs. This plan operates as the postdoctoral component of ENRICH MENTOR, EARTH's Early Career Mentoring Program within Impact and Belonging (IB), and uses its standardized tools, mentor–mentee matching, and assessment instruments.

Orientation and Career Counseling: Each PD will be onboarded through an orientation that will introduce the PDs to the resources at the different universities along with national resources, such as the National Postdoc Association. The orientation serves to also introduce the PDs to each other, the EARTH project team leadership, as well as the project goals. Consistent with ENRICH MENTOR, PDs will complete an Interest Survey capturing their professional goals, mentoring needs, and mentor preferences, and will be matched to a mentor from the shared Mentor Profile Directory. Each PD will develop an Individual Development Plan (IDP) that provides clear statements regarding project responsibilities, skills to be learned, research goals, and training and career goals, documented using the shared ENRICH MENTOR Goal-Setting Worksheet and Mentoring Agreement. The IDP is reviewed and updated at least annually.

Scientific, Technical, and Communication Skills: The PD roadmap can include such skills as grant writing, identification of key research questions, definition of objectives, description of approach and rationale, construction of a work plan, creation of timelines, preparation of budgets and justifications, management, mentoring, preparation of manuscripts, reports, proposals, and presentations. The PD will construct a roadmap based on their career goals: academics, industry, or government. PDs will present their work and provide technical updates in the style of their intended career.

Teaching and Mentoring Skills: PDs will receive guidance on improving their teaching and mentoring skills, including opportunities to mentor undergraduate and graduate students participating in the ERC.

Responsible Conduct of Research: Formal training of the PDs through online courses and interactive classroom sessions, available at the different institutions will ensure that proper reporting and research protection including intellectual property occurs. PD mentors will contribute to informal instruction on conflicts of interest, data acquisition and management, research misconduct, creating safe working environments and lab safety protocols, and federal and state regulations.

Professional Development and Networking: The combination of research institutions, industry, and government entities as part of an ERC provides unique networking opportunities not otherwise available.

Impact and Belonging (IB): EARTH cultivates a supportive environment where PDs experience belonging and psychological safety and collaborate effectively across diverse backgrounds and disciplines. Mentors also help PDs connect their work to EARTH's broader impact on the refrigerant-technology workforce and the communities it serves.

Success of Mentoring Plan: This will be assessed by tracking a PD's individual and collective progress toward their IDP, interviewing the PDs to assess satisfaction with the mentoring program, and tracking their progress toward their career goals after the project.