

RII Track-1: Consortium for Research on Environmental Water Systems Postdoctoral Researcher Mentoring Plan

The Montana Consortium for Research on Environmental Water Systems (CREWS) envisions crucial roles for postdoctoral researchers (“postdocs”) across projects and institutions. The postdoc-adviser relationship is the first professional collaboration for many new researchers and as such has the opportunity to be philosophically and operationally foundational. The CREWS postdoctoral mentoring plan recognizes this, and seeks to guide and direct postdocs towards the following objectives: 1) successful execution of CREWS research, 2) understanding the academic and managerial expectations, activities, and approaches associated with a position at a research university and beyond, and 3) developing the capacity to communicate science and its results to a broad array of audiences.

I) Postdoctoral advising: Primary and secondary advisers and committee oversight

To accomplish these objectives, each postdoc researcher will be advised by a CREWS faculty researcher in their same discipline who will serve as a primary mentor. In addition, a second ‘co-mentor’ will be identified to provide an interdisciplinary perspective and work collaboratively with faculty and student researchers associated with each postdoc’s program. The primary mentor will be the faculty hiring the postdoc. The secondary mentor will be chosen by the primary mentor and the postdoc, but the Postdoctoral Mentoring Committee (Project Director Callaway and co-PIs Downey, Ewing, Valett, Walker, is available for advice. Mentor selection will be based on postdoc career goals and interests as well as the willingness and availability of faculty mentors, and will not necessarily coincide with the role of advisor or supervisor to the postdoc. If a mentoring relationship does not meet expectations, the committee will review the situation and circumstance in order to identify potential solutions, including changing the secondary mentor.

II) Components of Postdoc mentoring: academic and non-academic opportunities

CREWS postdocs will develop interdisciplinary research skills and receive mentoring in i) responsible professional practices, ii) preparation of proposals, publications, and presentations, iii) collaboration and interdisciplinary training, iv) teaching and mentoring, v) science communication, and vi) career counseling for both academic and non-academic opportunities. Training will be implemented through involvement in all aspects of the project under the supervision of the primary mentor and interdisciplinary secondary mentor and focused efforts by the mentors to address these six fundamental areas organized around individual mentoring plans developed by the postdoc and mentors (see below).

i) Responsible Professional Practices: Postdocs will be included in all aspects of the project, and receive formal and informal training on all components of research including experimental design and implementation, fundamentals of the scientific method, field/laboratory techniques and safety, project management, and evaluation. Postdocs will be encouraged and expected to affiliate with one or more professional societies in their field, attend at least one professional meeting per year, and present at least one formal seminar per year.

ii) Preparation of Grant Proposals, Publications, and Presentations: CREWS postdocs will be expected to communicate research findings through peer-reviewed manuscripts and presentations at national meetings. Postdocs will receive guidance and feedback from CREWS faculty. Additionally, faculty will engage CREWS postdocs in pursuing extramural funding in a

manner that teaches the fundamentals for generating a competitive proposal, executing the administrative steps for proposal submission, and exposure to research management expectations. In particular, training efforts will focus on proposals that leverage CREWS research.

iii) Collaboration and Interdisciplinary Training: CREWS research teams include individuals from diverse backgrounds, disciplines, and institutions. Postdocs will learn effective collaboration practices through involvement with research teams under the guidance of faculty mentors. Postdocs and all team-members will also receive formal training in best practices for collaboration and team science at EPSCoR Annual Meetings (see Project Description, section 4.6) as guided by the CREWS collaboration plan.

iv) Teaching and Mentoring: CREWS research teams will range from undergraduate students to faculty researchers. This will present postdocs with formal and informal opportunities to mentor and teach graduate and undergraduate students under the guidance of the faculty research lead. Postdocs will also give guest lectures for undergraduate and graduate classes in their expertise. Postdocs will have regular opportunities to discuss and receive feedback from CREWS faculty.

v) Science Communication: Postdocs will participate in project outreach and have opportunities to present to youth and citizen audiences under the guidance of CREWS faculty researchers and communications professionals. They will receive formal training in outreach communication at EPSCoR Annual Meetings. Postdocs will also have the opportunity to contribute to the design of outreach and education materials in conjunction with the CREWS outreach and education team.

vi) Career Counseling: CREWS faculty will provide formal and informal career counseling to identify career paths and build the skill set and network to compete successfully for jobs. Career mentoring will include facilitation of networking opportunities, discussions about career paths, and feedback on job application materials (e.g., CVs, cover letters, teaching/research statements, and interview presentations) once per year during the postdoc's final two years of appointment.

III) Postdoctoral Individual Development Plan (IDP).

Central to the progression of postdoc training is the development of a personalized approach that specifies goals, objectives, activities, and results for each postdoctoral participant. Accordingly, an Individual Development Plan (IDP) will be generated by the postdoc and mentors at the beginning of each postdoc's appointment identifying goals, professional development needs, and expectations. The postdoc and mentors will meet quarterly to monitor progress and refine goals outlined in the IDP and document IDP progress with a written summary of the quarterly review that will be added to the postdoc's personnel file. On an annual basis, primary and secondary mentors will provide each postdoc a performance evaluation based on the quarterly summaries. If the mentors or postdoc determine that goals are not being met, the Postdoctoral Mentoring Committee described above will work with the postdoc to revise goals and develop different approaches to their goals.

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