

Concept Clearance

Branch: HSRB

Council Period: 202001

Concept Title: Occupational and Safety Training Education Programs In Emerging Technologies (R25)

Introduction

The Superfund Research Program (SRP) is recognized for its programs in emerging technologies to detect, characterize, monitor, and remediate hazardous substances at contaminated sites, to ultimately protect human health and the environment. The SRP has also had a strong focus on training the next generation of graduate and post-graduate professionals in both basic and translational research and training in environmental and occupational settings.

The SRP is mandated to establish and support training which may include: (1) short courses and continuing education for State and local health and environment agency personnel engaged in handling hazardous substances and other professionals involved in evaluating, managing and handling hazardous substances; and (2) graduate or advanced training in environmental and occupational health and safety and in the public health and engineering aspects of hazardous waste control. In addition, the SRP's 2015-2020 Strategic Plan states the importance of training the next generation of researchers and professionals and the development of new technologies and approaches to protect human health and the environment from the risks of hazardous substances. Over the past three decades, the SRP has met these mandates by contributing its support to the National Institute for Occupational Safety and Health (NIOSH)/Centers for Disease Control and Prevention (CDC) grant applications and to an SRP R25 Program (i.e., RFA RFA-ES-13-004 and RFA-ES-15-014) to provide interdisciplinary graduate training and continuing education in occupational safety and health areas of industrial hygiene, as well as other related occupational safety and health fields. The most recent RFA (RFA-ES-15-014) was released in 2015, and included the NIH R25 components of "Courses for Skills Development" and "Curriculum or Methods Development" on the occupational health and safety management practices in the areas of emerging technologies (e.g., emerging hazardous waste products, green chemistry, sustainable remediation, and detection technologies) to industrial hygienists and graduate students involved in the evaluation, management, and handling of hazardous substances. In addition, each R25 program was to collaborate with at least two other Higher Education Institutions to ensure the establishment of a consortium to enhance the depth and breadth of knowledge and experience for the participants within an R25 program.

Research Goals and Scope

The SRP intends to continue its R25 Program by developing a Funding Opportunity Announcement (FOA) for Institutes of Higher Education to develop research education programs on the health and safety management practices in the areas of emerging technologies. For this RFA, emerging technologies include green chemistry, sustainable remediation, detection technologies, disaster response, laboratory practices, and those processes resulting in emerging hazardous waste products. In addition to the "Courses for Skills Development" and "Curriculum or Methods Development" (i.e., both included in the previous RFA), the SRP will include the NIH R25 component of "Research Experiences" into the next FOA.

Courses for Skills Development will include web-based modules, short courses, continuing education, and full academic graduate courses. Other activities may include workshops, symposia, or a seminar series in health and safety management practices for emerging technologies. The format of the courses may involve a traditional in-person approach, online activities, or a hybrid of both approaches. Curriculum or Methods Development will include providing a foundation for new courses or be integrated into the existing curricula in the grantee institution and the development of novel instructional approaches (e.g. computer-based tools). It is also expected that the curriculum or methods developed be readily adaptable by researchers and professionals in the field of occupational and safety and health and industrial hygiene. Research Experiences are meant for intensive hands-on experience in research in the field of occupational health and safety management practices for emerging technologies for graduate students, postdoctorates, industrial hygienists, other professionals, and those involved in the training of other personnel and should provide research experiences and related training not available through formal NIH training mechanisms. The SRP has selected to add Research Experiences as a component to the R25 FOA because these experiences would reinforce a participant's intent to graduate with a science degree, prepare them for careers in research in health and safety management practices for emerging technologies, and/or increase practical knowledge in conducting laboratory work in emerging technologies, in a field that is continuously growing and where there is a need for more research on best practices. Under this FOA, the applicant will also be expected to collaborate with at least two other Higher Education Institutions. Such partnerships will involve the establishment of a consortium to enhance the depth and breadth of knowledge and experience for the R25 participants.

The above listed educational activities are intended to: 1) ensure that program participants become highly skilled in the research, handling, and detection of hazardous substances used in emerging technologies to support the needs of these developing fields; 2) create an infrastructure that supports education in handling of hazardous substances used in emerging technologies; and 3) ensure the dissemination of these educational courses, curricula, materials, and experiences to increase the number of well-trained industrial hygienists, graduate students, postdoctorates, and other professionals with the interdisciplinary skills required in these developing fields. These programs are also meant to expand and complement existing educational programs in occupational and safety and health and industrial hygiene.

This FOA for Occupational and Safety Training Education Programs in Emerging Technologies will contribute to a continued coordinated series of activities designed to enhance the visibility of the SRP and NIEHS interests and to stimulate research and educational efforts in the field of emerging technologies. Additional activities to be undertaken include the sponsorship of symposia at grantee meetings, applicable society annual meetings, the SRP Annual Meeting, and the development of workshops, publications, and webinars.

Mechanism and Justification

This funding announcement will utilize the R25 grant mechanism, which is defined by NIH as a mechanism to support the development of creative and innovative research education programs for the development of biomedical, behavioral, and clinical researchers, or for public education and outreach on health-related research to a variety of audiences. SRP has allocated \$1,500,000 annually for the support of up to 6 programs for up to 5 years.