Short-Term Research Education Experiences to Attract Talented Students to Biomedical Informatics/Data Science Careers and Enhance Diversity (R25)

Kickoff Meeting

**NLM Extramural Programs
National Institutes of Health**

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Background

NLM Strategic Plan Goal 3: Build a workforce for data-driven research and health
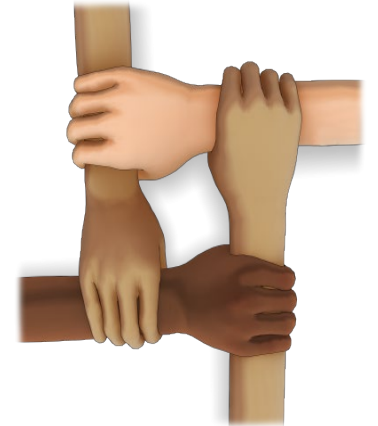
- R25 program addresses a training need to develop a pipeline of diverse future scientists interested in biomedical informatics and data science research

- NLM supports innovative research and development in biomedical informatics and data science

- Biomedical informatics and data science draw upon many fields, including mathematics, statistics, information science, computer science and engineering, and social and behavioral sciences

Diversity

- **Diversity in research**
  - Diverse teams outperform homogenous teams
  - Scientists and trainees from diverse backgrounds bring different perspectives, creativity, and individual enterprise to address scientific problems
- **Benefits of a diverse scientific workforce**
  - Fosters scientific innovation
  - Enhances global competitiveness
  - Contributes to robust learning environments
  - Improves the quality of the researchers
  - Advances the benefit potential for underserved populations
  - Enhances public trust

NLM R25 Program Objectives

- *To support* educational activities that encourage undergraduates/post-bacs/masters students, including those from groups underrepresented in biomedical and behavioral sciences, to pursue training and careers in biomedical informatics and data science

- *To promote* **diversity** by supporting the increased participation and retention of trainees from underrepresented backgrounds

- *To increase* **the pool** of future research investigators from diverse backgrounds and facilitate career advancement and/or transition of participants to the next step in their scientific careers

Program Outcomes

- **Increased admissions** into graduate programs among trainees in research mission areas relevant to NLM

- **Enhanced participation** of persons from diverse backgrounds in the biomedical informatics research workforce who can bring their unique experiences, perspectives and innovation to addressing disease and the public's health and/or the ethical or social implications of biomedical informatics research

- **Other outcomes**: completion of undergraduate and graduate degree programs, and achievement of research funding, e.g., NLM fellowship or career development awards

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Mentorship

- Quality mentorship is critical to the recruitment and retention of scientists

- Mentoring and other educational activities should be conducted at each collaborating institution to maximize the program's impact

- Programs and research experiences should provide mentoring and education in other critical skills in addition to research

  - Leadership
  - Scientific writing and presentation skills
  - Training in rigor and reproducibility
  - Time management

Program Participants/Trainees

- Each site should establish student selection criteria that will ensure a highly qualified pool and a diverse group of trainees

- Students from fields as engineering, mathematics, computer science, physics, chemistry, biology, psychology, sociology, public health and other relevant academic disciplines with an interest in in biomedical informatics and/or data science should be encouraged to participate

Evaluation Plan

- Each site should establish an evaluation plan for activities supported by the award

- Evaluation plans should include a logic model and include both process and outcome measures

  - Specify baseline metrics (e.g., numbers, educational levels, and demographic characteristics of participants), and measures for short or long-term research education success

- Institutions are encouraged to obtain participant feedback to help identify weaknesses and to provide suggestions for improvement

Goals and Milestones

- Every site should establish a training program website by at least February 2023
  - We can feature and link from the NLM website
- Every site should establish an application process and recruitment strategy to ensure diversity
- All sites should start accepting applications by February/March 2023
- Sites are encouraged to work together and not compete for candidates to ensure recruitment goals are met

Next Steps

- Opportunity for collaboration:
  - NLM T15 University-based Biomedical Informatics and Data Science Research Training Programs
    - Supports predoctoral and postdoctoral training for research careers in biomedical informatics and data science

- R25 Follow Up Meeting: six months

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