



From: Faculty Research Development Office
Office of the Vice President for Research

Subject: Limited Competition: NIH Enhancing Science, Technology, Engineering, and
Math Educational Diversity (ESTEEMED) Research Education Experiences

Date: August 23, 2023

Dear UNM Researchers,

The overarching goal of this R25 program is to support educational activities that encourage individuals from diverse backgrounds, including those from groups underrepresented in the biomedical and behavioral sciences, to pursue further studies or careers in research.

With this program, the National Institute of Biomedical Imaging and Bioengineering (NIBIB) focuses on early preparation of undergraduate students in bioengineering or STEM fields relevant to NIBIB's scientific mission. Applicants should recruit participants from diverse backgrounds, including those from groups underrepresented in biomedical and behavioral sciences. Participants should be interested in pursuing a Ph.D. or M.D./Ph.D. degree and a research career integrating engineering and the physical sciences with medicine and biology. Upon completion, participants will be expected to enter an honors program that prepares STEM students for doctoral programs in biomedical research fields. Only institutions with honors programs open to juniors and seniors and that promote STEM and entrance into a Ph.D. program are eligible to apply.

Important Eligibility Considerations (from the solicitation):

The PD(s)/PI(s) should have a background in bioengineering or a closely related field in engineering or the physical/computational sciences and should have demonstrated experience in the applications of these fields in medicine and/or biology. The PD(s)/PI(s) should be capable of providing both administrative and scientific leadership to the development and implementation of the proposed program. The PD/PI will be expected to monitor and assess the program and submit all documents and reports as required.

The applicant institution must be an accredited public or non-profit private school that grants baccalaureate degrees in engineering or the physical/computational sciences. The institution must either have a bioengineering or biomedical engineering department (or concentration/track) or must have a critical mass of faculty with background in above areas and experience in the application of engineering and the physical/computational sciences in medicine and/or biology. At the time of application, the applicant institution must have an honors program promoting graduate studies and open to students in their junior and senior years.

Programmatic Approach of the ESTEEMED Program

ESTEEMED seeks to facilitate the transition to college by providing research and educational experiences to early-stage undergraduates and to interest them in pursuing further studies as in bioengineering or other STEM fields relevant to NIBIB's scientific mission. The overarching goal is for student participants to pursue a doctoral degree and a subsequent research career in

bioengineering or NIBIB-relevant field. To accomplish this goal, this FOA will support educational activities with a primary focus on:

- **Research Experiences:** Provide hands-on exposure to bioengineering research or physical/computational sciences research within the scope of NIBIB's scientific interest.
- **Courses for Skills Development:** Provide preparation for hands-on exposure to research for freshmen and sophomores. At a minimum, this preparation must include a summer bridge program (or summer bootcamp) for incoming freshmen and additional activities during the freshman and sophomore academic years, including, but not limited to, seminars and/or workshops that enhance skills in the basic sciences, computation, and scientific communication as well as introduce students to the laboratory environment.

The program is open to incoming freshmen at the applicant institution or community college students starting their 1st or 2nd year if a collaboration with a community college is proposed. At the applicant institution, participation in ESTEEMED would begin with a Summer Bridge Program for incoming freshman and continue with 2 years of academic year activities followed by summer research experiences. Following the completion of the ESTEEMED program at the end of the summer after the sophomore year, participants are expected to join an honors program at the applicant institution that prepares students for graduate studies.

The ESTEEMED program is open to partnerships with community colleges. Proposed programs that focus on community college students must include all three required components (summer bridge, academic year activities for 2 years and summer research experiences for the following summers) and provide strong mentorship. Programs may be structured to hold any portion of the activities at the community college and/or the applicant institution, allowing students to either:

- participate for 1 year at the community college (1st or 2nd year), transfer to the applicant institution and continue ESTEEMED participation as a sophomore there, or
- participate in the ESTEEMED program for 2 years at the community college and then transfer to the applicant institution.

After completing the 2-year ESTEEMED program, students are expected to join an honors program and complete a bachelor's degree program at the applicant institution.

A program supported by this FOA must contain the following three elements:

1) Summer Bridge Program: A Summer Bridge Program is to occur before the start of the freshman year to prepare student participants, in bootcamp-style, for their first year of college. The bootcamp should introduce students to the ESTEEMED program and provide a review of basic topics and skills necessary for success. It must take place during the summer before the freshman year, last at least five weeks, emphasize basic sciences, computation, and science communication, and provide survival skills to help participants transition from high school to college, such as socialization/networking and strong time management and organizational skills. Summer Bridge Programs are encouraged to incorporate mentoring of incoming freshman participants by rising sophomores in the ESTEEMED program.

2. Academic Year Activities: In addition to continuing to emphasize basic sciences, computation, and science communication during the freshman and sophomore academic years, the Academic Year Activities should help participants maximize their academic performance and prepare them for summer research experiences and eventual entry into an honors program. Academic year activities should include courses, journal clubs, individual development plans for each participant, seminars/workshops, professional development programs, internal and external

speakers to introduce the students to different career paths, and participation in national scientific meetings. Activities such as workshops on scientific presentation and writing that promote scientific communication skills are highly encouraged.

3. Summer Research Experience: At the end of their freshman and sophomore years, participants are required to take part in hands-on summer research experiences that involve a defined research project and includes a final oral presentation and written report of their work. Research experiences can take place in an on-campus lab or can be an off-campus research experience in an academic/industrial or NIH/NIBIB research setting. Summer research experiences are expected to last at least 8 weeks or most of the summer.

Applications must also address the following two elements:

Mentoring

The research education supported by the ESTEEMED program is expected to provide not only technical expertise, but advice, individual coaching, professional development, and career guidance to the participants. As discussed in *[The Science of Effective Mentorship in STEMM](#)*, mentorship that recognizes a person's identity and sociodemographic background is critical for students in STEMM. Programs should ideally include mentoring by faculty, peers, and alumni, and encourage family engagement. For institutions with graduate degree programs, Ph.D. candidates may also participate as mentors.

Honors Program

In their junior and senior years, the students are expected to enter an honors program that promotes graduate study in STEM fields. The availability of the honors program makes it possible for ESTEEMED participants to have a full four years of research preparation throughout their undergraduate education. Applicants are therefore required to describe the ESTEEMED program, the honors program, and the conditions for ESTEEMED students to enter and remain in the honors program in their final two years of college. **A support letter from the honors program leader is required.**

This is a limited competition. **UNM may submit only ONE (1) application.** To apply, please submit a **200-word statement of interest via UNM's [InfoReady Review portal](#) by **NOON on September 12, 2023**** that includes a tentative project title, a brief description of your program plan, and the names and departments of all senior personnel. Should we receive more than one statement of interest, we will call for preproposals. Statements of interest are a mandatory first step, and no late submissions will be considered. Complete program details can be found at: <https://grants.nih.gov/grants/guide/pa-files/PAR-23-114.html>. The sponsor deadline for Letters of Intent is **December 17, 2024** and for full proposals, **January 17, 2024**.

Should you have any questions, please feel free to contact us at limited@unm.edu.

If you are affiliated with HSC, please contact HSC Limited Competition at HSC-Limited-Comps@salud.unm.edu for more information.