Research Training Programs in the Education Sciences

Assistance Listing Number (ALN): 84.305B

A Product of the National Center for Education Research

Letter of Intent Due:	July 21, 2022	https://iesreview.ed.gov/LOI/LOISubmit
Application Package Available:	June 30, 2022	https://www.grants.gov/
Application Deadline:	11:59:59 p.m. Eastern Time on September 8, 2022	https://www.grants.gov/
Possible Start Dates:	July 1 – September 1, 2023	
All applicants must also read the companion IES Application Submission Guide (http://ies.ed.gov/funding/pdf/FY2023_submission_guide.pdf) for information on how to prepare and submit applications electronically through Grants.gov.		

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Part I: Overview and General Requirements

A. Purpose of the Research Training Programs in the Education Sciences

The Institute of Education Sciences (IES) provides scientific evidence to improve education practice and policy and shares that evidence in a way that can be used by educators, parents, policymakers, researchers, and the public. Within IES, the National Center for Education Research (NCER) supports research focused on practices and policies that improve education outcomes and access to education opportunities for all learners from early childhood through adulthood, particularly those at risk of failure. The specific purpose of IES-supported training programs is to further the training of education researchers, including state and local education agency staff. In doing so, IES aims to increase the quality, accessibility, use, and relevance of education research.

In this request for applications (RFA), NCER invites applications for training projects that will contribute to its Research Training Programs in the Education Sciences (Research Training).

For FY 2023, IES is accepting applications for training under two programs:
- [Early Career Mentoring Program for Faculty at Minority-Serving Institutions](#) (Early Career Mentoring Program)
- [Methods Training in Data Science for Education Researchers](#) (Methods Training Program)

IES training programs prepare individuals to conduct rigorous education research supported by IES across its research competitions, advance knowledge within the field, and address issues important to education policymakers and practitioners. As part of the programs, IES supports –
- Training that adopts new approaches to find and mentor students and researchers from diverse backgrounds to encourage their entry into and success in education research careers
- Training that includes new ideas, approaches, and perspectives to address long-standing education issues
- Training that helps researchers, including state and local education agency research staff, acquire skills necessary to obtain, evaluate, and generate evidence needed for policy and programmatic decisions

IES aims to fund rigorous research that helps solve significant education problems and that is relevant to the teaching and learning needs of the diverse population of the United States. NCER's ability to support high-quality research depends on our ability to train and support talented researchers, statisticians, and evaluators that reflect this diversity. IES encourages principal investigators and personnel from all demographic backgrounds (https://ies.ed.gov/aboutus/diversity.asp). IES also encourages applications from minority-serving institutions.

Separate funding announcements are available on the IES website (https://ies.ed.gov/funding) that pertain to other discretionary grant competitions funded through the National Center for Education Research (https://ncer.ed.gov) and the National Center for Special Education Research (https://ncser.ed.gov). An overview of IES research grant programs is available at https://ies.ed.gov/funding/overview.asp.

All applications for the FY 2023 Research Training Programs are expected to provide training that supports researchers' understanding of and ability to use IES-wide Standards for Excellence in Education Research (SEER; https://ies.ed.gov/seer/), as applicable, when carrying out education research. These principles include -
- Pre-registering studies
- Making research findings, methods, and data available to others
- Addressing inequities in learners' opportunities, access to resources, and outcomes
- Identifying core intervention components
- Documenting intervention implementation and contrast to inform use in other settings
- Analyzing costs
- Focusing on outcomes meaningful to learners' success (learning outcomes, opportunities in education, or success from education)

- Facilitating generalization of study findings

B. General Requirements

1. Programs

Your application **must** be directed to one of the following training programs listed below and meet the requirements set out for each program as described in Part II to be sent forward for scientific peer review.

The **Early Career Mentoring Program** provides support to faculty employed by minority-serving institutions (MSIs) who are developing education research careers. The awards provide support for research (including salary for protected time to conduct research) and career development that includes training under the guidance of an experienced mentor or mentors. These researchers are expected to conduct independent research, take on leadership positions within research teams, and clearly communicate their findings to multiple audiences. For FY 2023, the Early Career Mentoring Program focuses on supporting exploratory education research.

The **Methods Training Program** funds programs to help current education researchers, including state and local education agency research staff, maintain and upgrade their research and analysis skills to conduct rigorous and relevant education research. For FY 2023, the Methods Training Program focuses exclusively on training in applying data science methods within education research. **Applications that propose to train in non-data science methods will not be accepted for review.**

2. Award Limits

Applications to the Research Training Programs competition **must** conform to the following limits on award duration and cost.

Program	Maximum Grant Duration	Maximum Grant Award
Early Career Mentoring Program	4 Years	$400,000
Methods Training Program	3 Years	$800,000

C. Getting Started

1. Technical Assistance for Applicants

IES provides technical assistance to applicants that addresses the appropriateness of project ideas for this competition and substantive issues concerning research training in the education sciences. IES program officers work with applicants though a variety of formats up until the time of Grants.gov submission. If you submit a letter of intent (LOI) on the IES Review webpage (https://iesreview.ed.gov/LOI/LOISubmit), a program officer will contact you regarding your proposed project. IES also provides funding opportunities resources, including webinars, (https://ies.ed.gov/funding/webinars/index.asp) that include advice on choosing the appropriate competition, grant writing, and submitting your application.

2. Eligible Applicants

For the Methods Training Program, IES provides funds to institutions that will establish training programs and independently recruit and train participants for those programs. For the Early Career Mentoring Program, IES provides funds to the institution of the principal investigator who submitted the application for this person's mentoring and research development. See Part II: Training Program Requirements for information about eligible institutions for the different types of training programs.

Broadening Participation in the Education Sciences[1]: IES is interested in broadening institutional participation in its research training programs. IES encourages applications from minority-serving

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[1] Section 114 of the Education Science Reform Act of 2002 charges IES with undertaking "initiatives and programs to increase the participation of researchers and institutions that have been historically underutilized in Federal education research activities of the

institutions (MSIs), alone or in combination with other institutions, that meet the eligibility criteria for this RFA. MSIs include Alaska Native and Native Hawaiian-Serving Institutions, American Indian Tribally Controlled Colleges and Universities, Asian American and Native American Pacific Islander- Serving Institutions, Hispanic-Serving Institutions, Historically Black Colleges and Universities, Predominantly Black Institutions, and Native American-Serving, Nontribal Institutions.

The Principal Investigator: The applicant institution is responsible for identifying the principal investigator (PI) on a grant application and may elect to designate more than one person to serve in this role. The PI is the individual who has the authority and responsibility for the proper conduct of the research, including the appropriate use of federal funds and the submission of required scientific progress reports. If more than one PI is named, the institution identifies these PIs as sharing the authority and responsibility for leading and directing the research project intellectually and logistically. All PIs will be listed on any grant award notification. However, institutions applying for funding must designate a single point of contact for the project. The role of this person is primarily for communication purposes on the scientific and related budgetary aspects of the project, and this person should be listed as the PI. All other PIs should be listed as co-principal investigators. See Part II: Training Program Requirements for any additional information regarding PI requirements for the different types of training programs.

3. RFA Organization and the IES Application Submission Guide

To submit a compliant, responsive, and timely application, you will need to review two documents:
1. *This RFA* – Use this to learn how to prepare an application that is compliant and responsive to the requirements: Part I provides an overview of the NCER Training Programs and sets out the general requirements for your grant application. Part II provides detail on the specific requirements of each training program. Part III provides information about general formatting and the other narrative content for the application, including required appendices. Part IV provides information on competition regulations and the review process. Part V provides **a checklist that you can use to ensure that you have included all required application elements to advance to scientific peer review.** Part VI provides the program codes that you must select from and enter the appropriate code in Item 4b of the SF 424 Application for Federal Assistance form.

2. *The IES Application Submission Guide* (http://ies.ed.gov/funding/pdf/FY2023_submission_guide.pdf) Refer to this for important information about submission procedures and IES-specific guidance and recommendations to help you ensure your application is complete and received without errors on time through Grants.gov.

We strongly recommend that both the PI and the authorized organization representative (AOR) read both documents, whether submitting a new or revised application.

4. Ensuring Your Application is Forwarded for Scientific Peer Review

Only compliant and responsive applications received before the date and time deadline are peer reviewed for scientific merit. The PI and the AOR should work together to ensure that the application meets these criteria.

(a) On-time submission
See the separate IES Application Submission Guide
(http://ies.ed.gov/funding/pdf/FY2023_submission_guide.pdf)
- Received and validated by Grants.gov no later than 11:59:59 p.m. Eastern Time on September 8, 2022

(b) Compliance
- Includes the **required project narrative** (see Part II)
- Adheres to all formatting requirements (see Part III)

Institute, including historically Black colleges or universities or other institutions of higher education with large numbers of minority students."

- Adheres to all page limit maximums for the project narratives and appendices. IES will remove any pages above the maximum before forwarding an application for scientific peer review
- Includes all **required appendices** (see Part III)
  - Appendix A: Dissemination Plan
  - Appendix B: Response to Reviewers (Resubmissions only)
  - Appendix C: Summary of Research and Training Projects (All applications)
  - Appendix D: Letters of Agreement from Training Partners

(c) Responsiveness
- Meets the **General Requirements** for all applications (see Part I:B)
- Meets the **Training Program Narrative Requirements** for the selected Training Program (see Part II)

D. Changes in the FY 2023 Request for Applications

All applicants and staff involved in application preparation and submission, whether submitting a new application or submitting a revised application, should carefully read all relevant parts of this RFA. Major changes to the FY 2023 RFA for the Research Training Programs in the Education Sciences (ALN 84.305B) competition are listed below and described fully in the relevant sections of the RFA.

- The Early Career Mentoring Program focuses on supporting exploratory research using a variety of research approaches by faculty employed by minority-serving institutions. The maximum award has been reduced to $400,000 (direct and indirect) to make clear IES interest in smaller scale projects (even below the maximum) that will support researchers' career development. The PI **must** have completed a doctoral degree or postdoctoral program no earlier than April 1, 2017 and no later than the start of the award period. The maximum page length for the Training Program Narrative has been increased to 25 pages.
- The Methods Training Program focuses exclusively on training in applying data science methods within education research.

Part II: Training Program Requirements and Recommendations

A. Applying to a Training Program

For the FY 2023 Research Training Programs, you **must** submit your application to one of the two research training programs. You must identify your chosen program on the SF-424 Application for Federal Assistance form (Item 4b) in the Application Package for this competition (see the IES Application Submission Guide, http://ies.ed.gov/funding/pdf/FY2023_submission_guide.pdf), or IES may reject your application as nonresponsive to the requirements of this RFA. IES **strongly encourages** you to contact the relevant program officer to discuss the appropriateness of your proposed program for submission under a specific training program topic.

The programs differ by eligible applicant institutions, eligible trainees, types of training opportunities, and expected outcomes.

Across all programs, **in order to be sent forward for scientific peer review, you must**
- **Meet the general requirements** outlined in Part I.B
- **Meet relevant program requirements** listed under Part II

For each training program, refer to the following:
- **The Purpose section** for the types of research training each training program supports
- **The General Requirements** section for the eligibility of applicants for both training programs as well as the eligibility of the PI and mentors for the Early Career Mentoring program
- **The Training Program Narrative Requirements section** for the specific content that you must address in the training program narrative in order to be sent forward for scientific peer review
- **The Award Limits section** for duration and cost maximums and additional parameters
- **The Recommendations for Strong Applications section** for recommendations to improve the quality of your application. IES asks the peer reviewers to consider these recommendations in their evaluation of the quality of your application. IES strongly encourages you to incorporate the recommendations into your project narrative and relevant appendices. Where appropriate, the RFA includes recommendations for training programs to support researchers to learn how to implement the SEER Principles (https://ies.ed.gov/seer.asp) to ensure that research is transparent, actionable, and focused on meaningful outcomes that have the potential to dramatically improve education.

Each program name is linked to the program page on the IES website, where you can find more information and view the abstracts of previously funded projects.

NCER's training programs aim to prepare participants to conduct the type of work that NCER supports through its research grant programs. Thus, NCER training programs **cannot prepare participants to conduct research primarily on students with or at risk for disabilities.** Such applications will be deemed non-responsive to this competition and will not be forwarded for peer review. NCER training programs may prepare fellows to conduct research that includes **subgroups of children, youth, or adults with or at risk for disabilities,** but such subgroups **must not be the primary focus** of the training program or research projects. The only exception to this is for training programs that prepare participants to conduct research on learners enrolled in or who would qualify for adult education programs with or at risk for disabilities.

If you are interested in preparing participants to conduct research **primarily on students with or at risk for disabilities from birth through K-12 or in postsecondary education**, you should refer to training grant programs run by the National Center for Special Education Research (https://ies.ed.gov/ncser/).

B. Early Career Mentoring Program for Faculty at Minority-Serving Institutions

Program Officer: Dr. Katina Stapleton (202-245-6566; Katina.Stapleton@ed.gov)

1. Purpose

The Early Career Mentoring Program for Faculty at Minority Serving Institutions (Early Career Mentoring Program; https://ies.ed.gov/funding/grantsearch/program.asp?ID=2117) supports grants that prepare faculty at minority-serving institutions (MSIs) to conduct high-quality education research that advances knowledge within the field of education sciences and addresses issues important to education policymakers and practitioners.

The Early Career Mentoring Program supports the mentoring and training of faculty at MSIs who are in the early stages of their academic careers. Each award will provide an individual Early Career MSI faculty member with support to conduct exploratory research (including salary for protected time to conduct research) as well as support for career development that includes training under the guidance of an experienced mentor or mentors.

> **Early Career Mentoring Program** prepares MSI faculty to conduct the type of research IES funds under its research grant programs and that is important to practitioners and policymakers. For this year, support will be provided to carry out exploratory research.

This program is part of IES's larger effort to develop a pipeline of talented education researchers who bring fresh ideas, approaches, and perspectives to addressing the issues and challenges faced by the nation's diverse students and schools. By awarding these grants to MSIs, IES seeks to prepare principal investigators (PIs) at MSIs to conduct the type of research IES funds in its research grant programs.

Every Early Career Mentoring project has two components:
- **Research Plan**: Early Career PIs are expected to both conduct research on an education issue important to practitioners and policymakers and develop a plan for future research that meets the requirements of IES research grant programs.
- **Career Development Plan:** Early Career PIs are also expected to develop and implement a career development plan to support their professional development as independent researchers.

For FY 2023, IES will consider only Early Career Mentoring grant proposals with research plans aligned with the Exploration project type, as described in the most recent Education Research grants program Request for Applications (ALN 84.305A; https://ies.ed.gov/funding/pdf/2022_84305A.pdf). Exploration research describes learner-, educator-, school-, and policy-level characteristics and identifies relationships between them and meaningful student education outcomes. Findings from exploration research point out potentially fruitful areas for further investigation from researchers, policymakers, and practitioners rather than providing strong evidence for adopting specific interventions or measurement tools. Exploration research should inform future work, such as the development or evaluation of potentially beneficial interventions or assessments or evaluation of education programs, policies, and practices to determine what works, for whom, and under what conditions. Exploration research can include quantitative or both quantitative and qualitive research and be used for multiple purposes including descriptive, correlational, and predictive research.

IES expects that projects under the Early Career Mentoring program will carry out similar types of exploration research as supported under the Education Research Grants program (ALN 84.305A) but smaller in size, scope, and complexity. The peer reviewers will be asked to keep in mind the expected smaller scale of these projects as they review your application.

PIs who complete an IES-funded Early Career Mentoring grant will have gained the skills necessary to carry out exploration research similar to an IES exploration project; the knowledge to inform a longer term research agenda; and the ability to communicate their research findings effectively to researchers, education

policymakers, practitioners, and the public. In addition, Early Career PIs will have built professional skills and networks that support working with other researchers, practitioners, policymakers, and other education stakeholders.

2. *General Requirements*

Applications under the Early Career Mentoring Program must meet the   requirements listed below for (a) Eligible Applicants, (b) Principal Investigator, and (c) Mentors. and in **Section 3. Training Program Narrative Requirements** to be sent forward for scientific peer review.

(a) Eligible Applicants
For the Early Career Mentoring Program, IES provides funds to the institutions of the principal investigators (PIs) who submitted the application for support of their research and career development. The Early Career Mentoring Program requires a minority-serving institution (MSI) to be the applicant. Specifically, the applicant institution must be a
- Minority-serving institution (MSI) located in the territorial United States that confers bachelor's, master's, or doctoral degrees in academic fields relevant to education

To qualify as an MSI for the purpose of the Early Career Mentoring Program, the institution must be eligible to receive assistance under sections 316 through 320 of part A of title III, under part B of title III, or under title V of the HEA. Information on eligibility under these authorities is available on the FY 2022 Eligibility Matrix at https://www2.ed.gov/about/offices/list/ope/idues/eligibility.html#el-ins. MSIs include Alaska Native and Native Hawaiian-Serving Institutions (ANNH), American Indian Tribally Controlled Colleges and Universities (TCCU), Asian American and Native American Pacific Islander-Serving Institutions (AANAPISI), Hispanic-Serving Institutions (HSI), Historically Black Colleges and Universities (HBCU), Predominantly Black Institutions (PBI), and Native American-Serving, Nontribal Institutions (NASNTI). Please note that institutions eligible only for the Department's Title III Part A Strengthening Institutions program (SIP) are not considered MSIs for the purpose of this competition unless they also meet the eligibility requirements for a specific MSI category.

(b) Principal Investigator (PI)
The PI is the individual who has the authority and responsibility for the proper conduct of the training, including the appropriate use of federal funds and the submission of required scientific progress reports.

The early career researcher **must** be the sole PI. No other PIs or Co-PIs may be identified.

The PI **must** have completed a doctoral degree or postdoctoral program no earlier than April 1, 2017 and no later than the start of the award period. Please note that IES will use the date on which the university granted the PI's doctoral degree. For example, if the PI's dissertation defense was on March 25, 2017 but the university granted the degree on April 2, 2017, the PI would be eligible to apply. Similarly, if the PI had a postdoctoral appointment that ended after April 1, 2017, the PI would be eligible to apply.

The PI **must** hold a tenure-track position or research scientist position (not a visiting faculty or adjunct position) at the applying MSI or must have accepted an offer for such a position to begin before the start of the award. In the latter case, the PI must include a letter of support in Appendix D from the future home institution indicating that an offer has been made and accepted. The position must be a regular, salaried position paid by the institution of higher education without a focus on training (not a postdoctoral fellowship).

The following eligibility criteria will not be used in determining responsiveness, but if an application is recommended for funding, the PI **must** meet the following criteria:
- The PI must be a citizen or permanent resident of the United States.
- The PI must not have served as a PI or Co-PI on a research grant from IES.

The PI is not required to have a degree in education to receive an Early Career Mentoring award provided that the focus of the research and mentoring is related to education. IES encourages PIs from a wide range of

disciplines related to education, such as—but not limited to—human development, psychology, sociology, counseling, political science, economics, statistics, and education technology.

All Early Career Mentoring PIs must have an ORCID iD (Open Researcher and Contributor ID, https://orcid.org/). If the PI does not have one at the time of grant award, the PI must create one during the first year of training. ORCID iDs are unique, persistent digital identifiers that distinguish individual investigators and can be used to connect researchers with their contributions to science over time and across changes of name, location, and institutional affiliation. These free identifiers are assigned and maintained by the non-profit organization ORCID.

(c) Mentors
Training must be provided under the guidance of at least one mentor. Applicants may have co-mentors depending on their training needs and location. One mentor should be designated as the primary mentor. The term mentors includes both primary and co-mentors.

Mentors may be from academic or nonacademic institutions, such as nonprofit and for-profit organizations or public and private agencies, that conduct rigorous education research.

At least one mentor (primary or co-mentor) must be at the PI's home institution.

Mentors must include only individuals who have not served as the PI's primary graduate school advisor, dissertation advisor, or postdoctoral supervisor. A faculty member who served on a dissertation committee but did not have a direct advisor-advisee relationship with the PI is eligible to serve as a mentor.

3. *Training Program Narrative Requirements*

The training program narrative **must** adhere to the formatting guidelines (see Part III.B) and be **no more than 25 pages**. If the narrative exceeds this page limit, IES will remove any pages after the 25th page of the narrative. The training program narrative **must** include five sections: Significance, Research Plan, Career Development Plan, Personnel, and Resources.

The narrative should clearly demonstrate the integration of your research and career development plan. Please note that the research and career development plans may influence one another bi-directionally, as the proposed research conducted may inform which skills need enhancement just as the training and mentoring will provide those needed skills to conduct successful research.

(a) Significance
The purpose of this section is to explain why it is important to study your research issue, address your research questions, and support your career development.

You **must** do the following**:**
- Discuss how the applicant institution meets the MSI requirement.
- Describe the education issue you will focus your research on and its relevance to education in the United States.
- Describe your research questions.
- Describe your need for career development.

(b) Research Plan
The purpose of this section is to describe your research design and methods and demonstrate how they will allow you to address your research questions. The exploration research you propose may (1) include quantitative, or quantitative and qualitative (that is, mixed methods) research; (2) provide descriptive, correlational, and/or predictive results; or (3) include primary data collection and analyses, secondary data analyses, meta- analyses, or some combination. In addition, you should describe how you will develop a plan for future research building on your proposed research. This plan may include future research that continues to be exploratory in nature, or it may include other types of research funded by IES such as the development and validation of measures, the development and piloting of interventions, and the evaluation of interventions.

Your proposed research should be commensurate with your experience. IES anticipates that certain aspects of the research plan will be less detailed than proposals submitted to other IES competitions and that there will be further development of these plans through the proposed training and mentoring. The aspects of the research plan that are less detailed should be those for which you propose to receive additional training and mentoring.

You **must** do the following**:**
- Describe research design, sample, key outcome measures, and data analysis procedures you will use to address your research questions.
- Describe the U.S. education setting of your research.
  - Education in the U.S. is delivered in a wide range of formal settings, such as center- based prekindergarten, public and private K-12 schools, community colleges, and 4- year colleges and universities. In addition, there are also formal programs under the control of education agencies that take place out of school including after-school, distance learning, online, and adult literacy programs run through community-based organizations. IES does not support research that is relevant only in informal contexts outside of education systems.
- Measure one or more of the following academic outcomes that reflect learning and achievement in content domains, as well as learners' successful progression through education systems:
  - For **prekindergarten –** school readiness outcomes, including pre-reading, language, vocabulary, early-STEM (science, technology, engineering, and/or mathematics) knowledge, English language proficiency, digital literacy, and social and behavioral competencies (including self-regulation and executive function) that prepare young children for school
  - For **kindergarten through Grade 12 –** learning, achievement, and higher order thinking in the academic content areas of literacy (including digital literacy), STEM, and social studies[2]; English language proficiency; career and technical education (CTE) attainment[3]; and progression through education systems as indicated by course and grade completion, retention, high school graduation, and dropout.
  - For **postsecondary education –** learning, achievement, and higher order thinking in postsecondary courses; and access to, persistence in, progress through, and completion of postsecondary education, which includes developmental education courses and bridge programs as well as programs that lead to occupational certificates, associate's, or bachelor's degrees (when appropriate, outcomes could also include success in the labor market, such as employment or wages)
  - For **adult education[4] –** achievement in literacy, English language proficiency, and numeracy, as well as access to, persistence in, progress through, and completion of adult education courses and programs including the full range of course and program types described in Title II of the Work Innovation and Opportunity Act of 2015 (when appropriate, outcomes could also include success in the labor market, such as employment or wages)

(c) Career Development Plan
The purpose of this section is to describe the process for mentoring and additional training. The Career Development should go beyond the typical career development activities expected of early career researchers, such as attending and presenting at conferences.

You **must** do the following:

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[2] Social studies outcomes are defined as a learner's understanding of government structures and processes and how to be an engaged and knowledgeable citizen through skills and knowledge in civics, citizenship, geography, history, and economics.
[3] CTE attainment is defined as an indicator of mastery of CTE content or skills such as CTE course grades or credits earned, technical skills, assessment scores, industry certification, or employment outcomes in a field related to the CTE training.
[4] For the purposes of this RFA, *adult education* refers to the system and authorized providers that serve learners at least 16-years old who are not enrolled in the standard K-12 system but are or could be preparing for, transitioning into, or currently enrolled in adult literacy programs, as defined in Title II, the "Adult Education and Family Literacy Act", of the 2015 Workforce Innovation and Opportunities Act (WIOA), such as Adult Basic Education, Adult Secondary Education, Integrated Education Training, Family Literacy, Integrated English Language and Civics.

- Describe your career development plan, including how mentoring and other educational opportunities will be used to extend your expertise.
- Describe how your career development activities will support or complement your Research Plan.

(d) Personnel
The purpose of this section is to describe the relevant expertise, responsibilities, and time commitments of the PI, mentor(s), and any other personnel.

You **must** do the following**:**
- Describe your expertise and experience to be the PI and carry out the Research Plan.
- Describe the expertise and experience of your mentor(s) (and any other personnel, such as consultants) to support you in completing your Research Plan and Career Development Plan.
- Specify the date on which you were granted your doctoral degree and (if applicable) the date you completed your postdoctoral program.
- Specify the names of your dissertation or graduate school advisor and (if relevant) your postdoctoral supervisor to demonstrate that the mentors have not served as your primary graduate school or dissertation advisor or postdoctoral supervisor.

(e) Resources
The purpose of this section is to describe the institutional resources to support the PI in successfully completing both the Research Plan (including disseminating the results) and the Career Development Plan.

You **must** describe the resources to support you in conducting the proposed project.

4. Award Limits

An Early Career Mentoring Program **must** conform to the following limits on duration and cost.

(a) Duration Maximums
The maximum duration of an Early Career Mentoring Program award is **4 years.**

(b) Cost Maximums
The maximum award for an Early Career Mentoring Program award is **$400,000** (total cost = direct costs + indirect costs). See the discussion of Indirect Cost Rate for training grants in Section IV.

5. Recommendations for a Strong Application

These recommendations are intended to improve the quality of your application, and the peer reviewers are asked to consider these recommendations in their evaluation of your application.

(a) Significance
Discuss the significance of the research you propose to conduct as part of the Early Career Mentoring Program (including both the overall issue you are studying and your research questions) for both U.S. education policy and/or practice. Discuss how your results will inform future education research including your own. If applicable, discuss how your proposed research will address the needs of learners from underrepresented communities or populations.

Exploration research describes learner-, educator-, school-, and policy-level characteristics and identifies relationships between them and meaningful student education outcomes. For the characteristics you are studying, describe the relationships you expect these factors to have with learner outcomes and the importance of those relationships. Identify aspects of the education setting, learners, and/or educators that may change the nature of the relationship between the characteristics and learner outcomes. Discuss how the characteristics you propose to study are under the control of U.S. education agencies.

Describe how your research will address education inequities such as by improving learner outcomes and/or their access to resources and opportunities (see the SEER principles regarding equity at https://ies.ed.gov/seer).

Exploratory research should inform future work, such as the development of potentially beneficial interventions or assessments or the evaluation of education programs, policies, and practices to determine what works, for whom, and under what conditions. Describe how the results of your proposed research will inform your future research agenda, be it further exploratory research, the future development of an intervention or assessment, or the evaluation of an education program, policy, or practice.

Describe the progression from your prior research to your proposed research. Discuss how your proposed research will prepare you for future independent research (including future submissions to the IES grant programs).

Describe your current levels of knowledge and skills and how your proposed career development activities will enhance your knowledge and skills, support your proposed research activities, and prepare you for future independent research.

Discuss how this Early Career Mentoring award will support and/or advance your career trajectory at your institution.

(b) Research Plan
Describe the exploratory aims of the research project and the research you will carry out to address your specific research questions. Describe how you will measure the learner-, educator-, school-, and/or policy-level characteristics that you will be focusing on. Discuss how you will identify the relationships between these characteristics and meaningful student education outcomes (see the SEER principles regarding meaningful outcomes at https://ies.ed.gov/seer).

Describe how your research plan is feasible within an Early Career Mentoring grant. Provide a level of detail that aligns with your expertise and proposed training activities. For example, if you propose to conduct your first meta-analyses, you might discuss your previous experience with systematic reviews and then describe what you need to learn to conduct a meta-analysis. Your discussion of the meta-analysis design should include how it is appropriate for your research questions, what you already know about using this method, and what you will need to learn to implement it (including how your mentors will assist you and how your Career Development Plan includes learning about using meta-analysis).

Describe your methodological approach(es), including whether you are using quantitative or quantitative and qualitative methods. If you are proposing several studies (that is, a mixed methods approach with a quantitative and a qualitative study or multiple quantitative studies), Discuss each one separately regarding its research design, sample, setting, measures, and data analysis. Note whether the studies are complementary or are addressing different research questions.

Describe if your research will provide descriptive, correlational, and/or predictive results and justify how these results will be useful for addressing your research questions.

Describe your sample, the population it represents, its size, and its relation to addressing the overall aims of the project.

Describe the setting in which your research will take place and ensure it matches IES requirements to work within formal education settings or in formal programs under the control of education agencies that take place out of school.

Describe the measures you will use to examine the characteristics you are focusing on and the learner outcomes. In addition, discuss the measures of any other factors you are examining because of their possible influence on this relationship between the characteristics and the outcomes. For all measures, discuss their reliability and validity for the intended purpose and population.

Detail your data analyses, the type of findings you will obtain from them, and how these findings will be used to address your research questions. For any statistical modeling, provide the model to be used and justify its use including how it will address the multilevel nature of education data and control for selection bias. Describe how you will determine whether the findings from your sample represent the larger population you

intend to study (see the SEER principle on Generalization at https://ies.ed.gov/seer/). Describe those aspects of your data analyses you already know how to do and those you intend to learn as part of your Career Development Plan.

When feasible, researchers should design studies that allow valid estimates to be calculated for different groups within the sample to improve our understanding of the extent to which policies, practices, and interventions yield varying outcomes for different groups, especially those groups that have been historically underserved (see the SEER principles regarding equity at https://ies.ed.gov/seer).

Provide a timeline for each step in your project including, where applicable, such actions as sample selection, data collection, data analysis, and dissemination. The timeline may be discussed in the training program narrative and/or presented in Appendix E.

Describe how you will develop your plans for future research building on your proposed research for this project. Note how future research might depend on the specific findings from the proposed work. Show any links between your past work, this proposed work, and potential future work.

(c) Career Development Plan
Describe three to five training goals and how the activities and mentors will help you reach these goals. These goals should guide the types of activities and mentoring proposed and should support you in carrying out the research project and in preparing you for the next steps in your research. They can address content expertise, methodological skills, and/or professional skills (such as, grant writing).

Specify how the mentors will guide you through the process of refining and implementing your research plan and assist you with the developing your plan for future research. Also describe how your mentors will aid you in acquiring new expertise and guide your development as a scholar. Examples of mentoring activities include regular meetings (primary mentors are expected to communicate with PIs at least once per month); review of your career development plan; review of your research as it progresses; and additional guidance that will be useful for your development as a scientist, including reviews of manuscripts for publication, development of grant applications, and development of a plan to disseminate results to a wide range of audiences.

Describe a plan for coordinating mentoring activities among the mentors if there are co-mentors.

Describe your planned training activities and specify whether they are campus-based or external to your home institution. For example, these might include a summer institute, a grant-writing workshop, and/or an advanced statistical course.

Describe how your career development plan will equip you to meet the SEER principles (https://ies.ed.gov/seer) that are relevant to your research.

Describe how the content and timing of activities in your career development plan are integrated with the research plan. A timeline may be discussed in the training program narrative and/or presented in Appendix E.

(d) Personnel
Describe your qualifications to be the PI, specifying your accomplishments and experience in education research and with the education issue and the population of learners that your research addresses.

Specify the percent of time and calendar months per year (academic plus summer) you will devote to the project. Explain how you will have time to conduct your proposed research and accomplish your training plan given your other responsibilities as a faculty member. IES anticipates that you will allocate a minimum of 20 percent and maximum of 50 percent of calendar year time to your research training project, with the specific amount depending on your course load, other faculty responsibilities, and other sources of salary funding.

Describe the qualifications of your mentors, their proposed roles in training, and how their experience and expertise align with your proposed exploratory research project and career development plan.
- Identify which mentor is the primary mentor if there is more than one mentor.

- If proposing multiple mentors, include mentors with a variety of areas of expertise. For instance, one mentor may have expertise in the relevant content area and the other may have expertise in another aspect of your proposed research plan, such as the statistical methods.
- Specify a mentor at your home institution who can help guide your career development there (for example, by helping you navigate the institution's procedures for grant submission and grant management) as well as provide additional content and/or methodological expertise.
- Describe your mentors' prior experiences mentoring early career researchers (including faculty or postdoctoral fellows).
- Describe your mentors' areas of expertise and how they relate to the education issue(s) and learner population(s) you will be studying and the research methods you will use in your Research Plan. Include a description of the relevant education research projects they have conducted (**a summary of these projects must be provided in Appendix C**).

Describe the time commitments of your mentors for your project.
- Describe the anticipated number (and length) of meetings per month as well as the amount of time to be devoted to other mentoring activities (such as reviewing your career development plan, manuscripts for publication, grant applications, research materials, and dissemination products).
- Specify their percent effort over a 12-month calendar year. Their effort should be commensurate with the mentoring activities and reflect the time they will actually devote to the project (including any donated time). IES anticipates that your mentors' combined time commitment to the project will be at least 5% per calendar year.

Describe other personnel (if applicable), including their proposed roles, qualifications, and time commitments. Other personnel, such as consultants, can be used to provide support on specific aspects of your research plan or to fill gaps in your mentorship and training (for example, by providing consultation on statistical analyses). These personnel should have unique and specific roles that are different from those served by the mentors.

For all personnel, describe their experience disseminating research findings to a range of audiences, including in peer-reviewed scientific journals as well as publications or materials aimed at policymaker and practitioner audiences.

(e) Resources
Describe your institution's capacity to support early career researchers in managing grants and monitoring spending.

Describe your institution's experience supporting early career researchers through training workshops, seminars, and/or discussion groups with senior researchers.

Describe any facilities, such as computers or labs, and resources provided by your institution that are relevant for the successful completion of the project.

Describe your access to resources available at your mentor's institution, if different from your own, to support your research, your training, or both.

Describe your plans for acquiring any resources that are not currently accessible, will require significant expenditures, and are necessary for the successful completion of the project, such as equipment, test materials, curricula, or training materials.

Describe your resources, including access to specific offices and organizations, to carry out your plans to disseminate results as described in the required dissemination plan in Appendix A.

6. *Additional Budget Parameters and Application Requirements*

The following requirements for Early Career Mentoring Program applications will not be used in determining responsiveness to the RFA, but applications recommended for funding will be required to adjust their budgets, if necessary, to meet these requirements before receiving grant funds.

The budget should include the costs of conducting the proposed research and executing the career development plan. This may include such costs as research and administrative staff salary, consultants, research supplies and equipment, software, participant compensation, collecting or obtaining data (including local travel), statistical services (including personnel and computer time), and registration for training workshops or institutes.

The budget may also include the following:
- Up to 50 percent of the PI's salary to be used for academic year support and/or summer salary and related fringe benefits.
- Up to $10,000 per year for mentors
    - If there are co-mentors, the sum allocated for mentors should be divided among all the mentors based upon their role in the project. The total amount of grant funds used for mentors cannot exceed $10,000. Institutions may have different ways for allocating funds to mentors. Mentors may be compensated using honoraria, salary including fringe benefits, or through cost sharing or in-kind contributions. Regardless of compensation method, the federal government contribution cannot exceed $10,000. In-kind contributions and cost sharing are allowed but are not required and they are not taken into consideration during the review of the application, nor do they influence the funding decision.
- Funding for travel, including to the annual IES PI Meeting, for the PI or mentor(s) to meet, for professional research conferences, and for specialized training workshops available through other entities (such as summer institutes in methodology or statistical analysis)

Grant funds must not be used for the following:
- Facility construction, renovation, or maintenance
- Support for graduate students beyond their direct work on the grant (for example, grant funds should not be used to support graduate student research or travel to conferences)
- Mentors' research

C. Methods Training in Data Science for Education Researchers

Program Officer: Dr. Lara Faust (202-245-6532; Lara.Faust@ed.gov)

1. Purpose

The Methods Training Program (https://ies.ed.gov/ncer/projects/program.asp?ProgID=82) supports training of current education researchers to expand and upgrade their methodological skills. Education researchers include individuals located in colleges and universities and research organizations and firms, as well as individuals working in state and local education agencies, education-focused organizations, and companies that have developed and deployed education related products and services. Supported training should respond to the ongoing development and adaptation of methods concerning the design of education studies, data collection, data analysis, and practical interpretation of the results of analyses.

Training can be provided through a variety of formats. You should justify why the format you choose will provide participants with the knowledge and skills they are expected to learn and the practice necessary to use them. Formats may be in-person and/or virtual. Formats used in previous training projects include short workshops, short courses, and extended courses. They have included lecture, demonstration, hands-on application, mentoring and consultation, prework, homework and long-term assignments. The proposed number of participants should strike a balance between reaching as large an audience as possible while supporting each participant adequately and equitably. Previous training programs have included 12 to 50 participants per workshop/course and have conducted 2 to 8 workshops during the life of the project. In addition, projects are expected to make their training resources available to wider audience beyond those directly participating.

For FY 2023, the Methods Training Program is focused exclusively on providing training in applying data science methods within education research. Education researchers have increasing access to multiple data sources and data science methods will provide them with the ability to access and analyze these data. These data sources include traditionally used education administrative datasets and census data collections (many of which have become larger, more detailed, and cover more years of a learner's life or school's existence) as well as non-census datasets collected or funded by federal agencies available in agency, university, and commercial repositories. They also include new sources of data, such as digital learning platforms (generating both instructional and process data), electronic student information systems, business systems, smartphones, social media, websites, and digitized data from classroom and personal sensors. And they include data sources that were previously difficult to use, such as unstructured text (in print or online), images, and video, that new technologies can convert into data that can be analyzed.

The data provided from these sources, sometimes called "big data", may have a variety of characteristics that will influence what research questions may best be addressed, how the data should be analyzed, and how the findings should be interpreted. There is no common definition for big data, and different categorizations of the data are used. For example, data can be categorized using the "V" categorization, where the 3 Vs (volume, velocity, variety) stress the size, speed of accumulation, and different types or structures of the data while the 5 Vs add veracity and value.

These characteristics pose unique challenges for obtaining, using, analyzing, interpreting, and presenting big data. Data science methods have been and are being developed to address these challenges and education research has yet to fully take advantage of them. These methods include but are not limited to
- Database access and transformation – querying databases (for example., SQL) and extracting data from new data structures (e.g., JSON) to create usable data files
- Dataset sampling and validation – sampling high-dimensional or large records to create derivative datasets that can be analyzed within a reasonable amount of time and computing power (the validity of these samples must be checked)
- Feature extraction – creating education-relevant data elements through transformations, aggregations, and other techniques which can be done both through manual mapping applying theory and using automated techniques

- Machine learning – identifying patterns within data using automated processes that may include unsupervised (no outcome variable) or supervised methods and parametric (assume normal distribution) or non-parametric approaches (these methods need to be check for algorithmic bias)
- Data visualization – leveraging existing or developing new approaches to visualizing data for validating or communicating data
- Natural language understanding – extracting meaning from natural language responses to identify common elements within a body of text (for example, named entity recognition) or to predict outcomes (such as automated scoring)

Big data and the use of data science methods also pose three additional challenges for use in education research.

- Many of the big data sources were not designed to provide data for scientific analysis, unlike data collected during research. As a result, education researchers need to attend to big data's reliability, validity, and representativeness and how these may change over time in both the users providing the data and the data collection processes.
- Researchers need to consider additional privacy protections as big data may contain sensitive information about individuals and organizations and de-identification of the data may not provide enough protection. Additional privacy issues may arise if persons did not know or give permission for the data to be collected.
- Two types of equity concerns should be addressed when using data science methods. First, data science methods can replicate and even magnify existing human biases that are encoded within data. Second, giving the underlying knowledge needed to use data science methods and their rapid ongoing development, data science methods could end up only being used by a narrow range of researchers and research institutions that does not represent the field of education research and practice.

IES seeks to promote greater understanding of big data and wider use of data science methods in the education sciences by persons engaged in different research activities including

- Education researchers who may apply data science methods in their own research
- State and local education agency personnel and postsecondary institutional researchers who may use data science methods to develop evidence for their program and policy decisions
- Developers and disseminators of education interventions who may incorporate data science methods into their interventions or use them to evaluate the use and impact of their interventions
- Data scientists interested in working in the education sciences but unfamiliar with how data science methods can fit within an education research framework

IES does not expect that any single training project can address the wide variation in types and sources of data, data science methods, and potential users and their purposes for using these data and methods. IES seeks to fund a variety of data science training projects each with its own approach for increasing the use of data science methods in the education sciences. For example, you might focus on understanding an underused data source in education research and how data science methods could be applied to it. Alternatively, you might focus on a specific data science method and how it can be applied to multiple data sources. Or you might start with a research issue or question of interest to education researchers and practitioners and focus on the relevant data sources to address that issue and the data science methods that could be applied to those data sources. Furthermore, you might tailor your training to a specific type of participant, or you might offer multiple forms of the training or some type of pretraining to teach those having different purposes for using data science methods and potentially different preparation for learning them. IES does not have a preference for the approach you take but does require you to justify your approach based on who is being trained, what they are being trained in, what they should be able to do after training, and how these newly trained persons are expected to contribute to education research and practice.

IES expects that all training projects will address the equitable use of and access to data science methods. All methods training projects will provide training on how existing biases can occur in the data and data science methods included in the training and how to identify, reduce, and remove or offset these biases. In addition, methods training projects will recruit qualified participants with diverse backgrounds and from diverse

institutions to ensure that data science methods are available for use by those currently underrepresented in the education sciences.

2. *General Requirements*

Applications under the Methods Training program **must** meet the requirements listed below for (a) Eligible Applicants and in **Section 3. Training Program Narrative Requirements** to be sent forward for scientific peer review.

(a) Eligible Applicants
Applicants located in the territorial United States that have the ability and capacity to conduct training in the use of data science methods in education research are eligible to apply.

An applying institution may submit multiple applications to the Methods Training Program if they are substantively different from one another and have no overlaps in key personnel.

3. *Training Program Narrative Requirements*

The project narrative **must** adhere to the font guidelines (see Part III.B) and be **no more than 20 pages**. If the narrative exceeds this page limit, IES will remove any pages after the 20th page of the narrative. The project narrative **must** include four sections: Significance, Research Training Plan, Personnel, and Resources.

(a) Significance
The purpose of this section is to describe the approach you will take in your data science methods training project and justify how this approach will increase the use of data science methods in education research and contribute to improvements in education research and practice.

You **must describe** the following:
- The data to be used and why it would be considered "big data"
- The specific data science methods you will provide training on and why these methods are uniquely suited to the data you will use
- The intended participants in your training program

(b) Research Training Plan
The purpose of this section is to describe the training to be provided along with recruitment for and outcomes of the training.

You **must describe** the following:
- A recruitment plan
- The content, format, and activities provided by your training
- A plan for determining the success of your training

(c) Personnel
The purpose of this section is to describe the relevant expertise of your training team, the responsibilities of each team member, and the time commitments of each team member.

You **must provide** the following:
- A description of all key personnel on the project team, including the PI, any Co-PIs, and other trainers
- Identification of the experts in specific data and data science methods who will provide the training
- Letters of Agreement from key training personnel in Appendix D that describe their role in the training program

The application will be considered non-responsive to the RFA if the application proposes to hire unnamed methods experts after the grant is received.

(d) Resources
The purpose of this section is to describe both how you have the institutional capacity to complete a project of this size and complexity and your access to the resources you will need to successfully complete this project.

You **must describe** the institutional resources of both the primary applicant institution and any subaward institutions.

4. *Award Limits*

A Methods Training Program **must** conform to the following limits on duration and cost.

(a) Duration Maximums
The maximum duration of a Methods Training Program is **3 years.**

(b) Cost Maximums
The maximum award for a Methods Training Program is **$800,000** (total cost = direct costs + indirect costs). See the discussion of Indirect Cost Rate for training grants in Section IV. Programs may use funds to develop and disseminate training materials in addition to providing the training directly to participants.

5. *Recommendations for a Strong Application*

These recommendations are intended to improve the quality of your application, and the peer reviewers are asked to consider these recommendations in their evaluation of your application.

(a) Significance
In this section, you should justify your proposed data science training by describing how the training will increase the use of data science methods in education research and how the newly trained persons are expected to contribute to education research and practice. To this end, you should describe who is being trained, what they are being trained in, what they should be able to do after training, and how these newly trained persons are expected to contribute to education research and practice. When applicable, note which SEER principles (https://ies.ed.gov/seer.asp) are aligned with the focus of the training.

Describe the data you will use in the training, how it aligns with the description of "big data", why its preparation and/or analysis requires data science methods, and how its analysis can contribute to education research and practice.

Detail the specific data science methods that the training will teach, how they are suited to the data to be used in the training, and their importance to improving education research and/or the use of research in education practice. Note if these methods can be applied to other types of data not covered in the training that can contribute to education research.

Describe the type of participants you will recruit, noting their field of work and existing skills and expertise.
- Justify why this is an important group to train.
- Discuss the importance of the data science methods for the work of the expected participants and how they are expected to contribute to education research and practice when using the methods they will learn.
- Note the number of participants who will be trained and whether there will be one or several cohorts.

Provide a conceptual framework that ties together the training needs of the participants to be recruited, the training to be provided, the specific skills and knowledge that participants will acquire, and how the skills and knowledge will improve participants' ability to carry out their work.

Identify any existing sources from which potential participants could currently obtain the training you propose. If such sources do exist, justify the unique value of your training program.

Methods Training grants should seek to increase the knowledge and skills of education researchers and practitioners to an extent that benefits the field. *IES does not expect that participants will become experts in the material taught*. Specify in the application the anticipated level of proficiency the participants will attain by the end of the training. Provide a rationale for that level of proficiency being both useful in the field and attainable through the proposed training.

(b) Research Training Plan
    (i)   Recruitment Plan, Eligibility Requirements, and Selection Criteria
Discuss how the recruitment plan addresses the type of participants you intend to recruit, as described in the Significance section.
- Participants are expected to have at least a bachelor's degree, some familiarity with social science research and some training in statistics, and a strong interest in the education sciences as demonstrated by either their current employment or ongoing studies toward a masters or doctorate in a related field. Participants with experience working as a data scientist who lack training in the social sciences may be accepted as participants but are expected to have training in statistics and demonstrate a strong interest in working in the education sciences.
- Eligibility is limited to citizens or permanent residents of the United States.

Discuss strategies—consistent with constitutional and statutory limitations—for recruiting individuals from groups that are underrepresented in the field of education research (racial/ethnic minorities, first in their families to graduate college, veterans, and individuals with disabilities, etc.). Note any plans to train researchers at MSIs.

Describe the eligibility criteria for participants and the application process. Example application criteria and materials can be provided in Appendix E.

Describe the selection criteria, how they will be applied to the applicants, and who will make the decisions regarding admission to the training. Discuss how you will make the selection process fair, manage potential bias (explicit and implicit), and avoid any appearances of conflict of interest. Your proposed screening and scoring templates can be included in Appendix E.

Identify the number of participants who will take part in the training and the timing of their participation. Provide a timeline (either in this section or Appendix E) delineating when the expected recruitment and training of the participants will take place. Methods Training projects can start between July 1, 2023, and September 1, 2023.

    (ii) Training Content, Format, and Activity Types
Describe the specific content to be taught. You might organize your discussion of content based on the approach you are taking to the training program. For example, if you are organizing the training around a specific data source then the content could involve understanding the data source, how to obtain and organize the data, the methods to analyze the data, and how to interpret the results from the methods. Or, if you are focusing on a specific data science method or set of methods, then the content could include understanding how to use the methods which would include the types of data they apply to. Opportunities to apply the content to real data (provided by the training and/or brought by the participants) should be included. Content to cover could include –
- Generating research questions appropriate for using data science methods and clarifying the differences and relationships between theory-driven and data-driven research
- The data sources to be covered by the training, the types of data they include, the data science methods that can be applied to them, and the reasons for doing so
- Understanding the specific data source and its data and how to use the data correctly in research
- Using scientific coding workflow techniques for robust and replicable research (e.g., how to access large complex datasets; how to extract relevant datasets – manual or automated; how to validate, explore, and summarize the data; how to carryout data visualization and communication of findings)
- The data science analytical method or methods included in the training. Examples of methods include
  - Machine learning techniques

- o Sequential process mining and clustering/classification
- o Network and graph analysis
- o Methods for untraditional data formats (e.g., text, images, videos) such as basic text analysis, natural language processing, and convoluted neural network analysis
- The specific software to be used for each method and how participants will learn to use it
- Data security, privacy, and ethical issues associated with the use of data science methods such as consent, direct and indirect data de-identification, and Common Rule applications
- Avoiding and mitigating the possibility of replicating existing societal biases when using the data science methods being taught (e.g., avoiding algorithmic bias and providing transparency for the data and method used)
- Providing a broader view of using data science methods in education research, showing where this training fits into that view, and identifying next steps for participants to build on this training

Justify the proposed content you will teach and the emphases placed on each component based on the type of participants you will train and what you are preparing them to do. For example, when training education agency staff on how to better analyze their own data, you may emphasize understanding data sources, and the approach you take may differ if the training focuses on administrative data that are familiar to the participants versus using data from a new, unfamiliar digital learning platform or student information system. Similarly, if you are training data scientists who have limited social science training, you may need to focus more on how to use data science methods within an education research framework.

Describe the training format you will use. Methods Training projects can use a variety of formats, and you should justify why the format you choose will provide participants with the knowledge and skills they are expected to learn and the practice necessary to use them. Formats may be in-person and/or virtual. Examples of formats used in other training projects include:
- One-time extended sessions (e.g., workshops from 3 days to 2 weeks)
- Multi-year extended sessions
- Ongoing sessions (e.g., similar to a short or regular course)
- Combinations of extended and ongoing sessions (sometimes mixing in-person with virtual sessions)
- Sessions or meetings at which participants present their work and receive comment on it
- Prework or pre-sessions to prepare some or all participants for the main training
- Ongoing opportunities for the participants to consult with the experts

Describe the specific training activities you will use, the content to be taught by each activity, and how each activity will develop the participants' knowledge and skills. IES expects training programs to include hands-on practice with the methods taught using real data and project-focused learning. Describe how the activities are organized to reflect adult learning theories. Identify who will lead each activity and how long it will last. Examples of activity types used in other methods training projects include –
- Lectures and readings
- Demonstrations of applying a method
- Small group or individual assignment to apply a method to a data source to address a preset research question
- Having trainers work with individuals or small groups to understand and apply methods
- Participant application of a method to their own research project and data with trainer's support
- Participants presenting their research to the group and receiving training or mentor feedback
- Development of future research ideas and/or proposals by participants and trainers

Examples or supporting information regarding content, format, and activities can be provided in Appendix E.

(iii) Tracking Program Success
Discuss how you will identify the strengths and weaknesses of participants upon their entry to the program and how you will tailor the training accordingly.

Describe both short-term and medium-term measures you will use to determine whether participants can and are using the knowledge and skill taught in their post-training work and in the fields of education research and practice.

Describe how you will obtain formal feedback from both trainers and participants (current and former) that can be used to improve the training.

Describe how you will monitor the dissemination of training content and activities that you make available to persons who the training was designed for but who cannot attend the training, as described in your Dissemination Plan in Appendix A.

Describe how you will estimate the cost of training per participant, including recruitment costs.

(c) Personnel
Describe the PI's qualifications and experience for managing a data science methods training grant.

Briefly describe the following for each key personnel:
- Qualifications and how these contribute to the approach taken by the data science methods training project
- Roles and responsibilities within the training project
- Percent of time and calendar months per year to be devoted to the training project
- Previous experience providing training for current education researchers

Discuss how the combined expertise of the key personnel reflects the overall approach taken to provide training on data science methods and the specific content, format, and activities to be provided by the training project.

Remember that key personnel can be on only one Methods Training application for FY 2023.

(d) Resources
Describe your institutional capacity and experience to manage a grant of this kind.

Describe your access to resources available at the primary institution and any subaward institutions.

Describe your plan for acquiring any resources that are not currently accessible, will require significant expenditures, and/or are necessary for the successful completion of the project (for example, software, equipment, test materials, curriculum, or training materials).

Include Letters of Agreement in Appendix D from all institutions and trainers that will take part in the training.

Describe your access to any data sets that you will require for training purposes. Include letters of agreement, data licenses, or existing Memoranda of Understanding (MOU) in Appendix D to document that you will be able to access the data for your proposed use.

Note any ongoing or recently completed Methods Training grants led by key personnel on your application related to the training to be provided (these are to be detailed in your Appendix C).

Describe the success of any previous Methods Training grants you or the other key personnel have had from IES (see also Appendix C) and describe any lessons learned incorporated into your application.

Describe the resources you have and will obtain to implement your dissemination plan, as described in Appendix A, to provide opportunities for non-participants to have access to your training content and activities. For example, previous Methods Training projects have
- Made videos of key activities and posted them on the project's website or other platforms
- Posted training activities or materials on the project's website

- Released posts, briefs, monographs, working papers or published articles on key issues in using data science methods aimed at the needs of the training participants
- Developed training modules and made them freely available so that other qualified persons can teach with them
- Developed an online course based on the training materials and open to a wide audience
- Established an ongoing user group so that participants can continue to collaborate and allowing others with similar interests to join

6. Additional Budget Parameters and Application Requirements

The following requirements for the Methods Training applications will not be used in determining responsiveness to the RFA, but applications recommended for funding will be required to adjust their plans and budgets, if necessary, to meet them before receiving grant funds.

The budget must include potential costs of accommodations for trainees with disabilities, for example, a sign language interpreter and/or assistive listening devices. These costs should be reasonable given the duration and format of the training and should be budgeted for each training.

Under the Methods Training program, you will have to certify that your training participants and your support of them meet the following requirements. Grant funds expended in ways that do not meet these requirements will be disallowed, and your institution will have to return such expended funds.

(a) Participant Characteristics
Training participants must be citizens or permanent residents of the United States.

Participants' work must be relevant to education in the United States.

(b) Participant Support Costs
Participant support costs include all direct costs for items such as stipends or subsistence allowances, travel allowances, and registration fees, or similar expenses paid to or on behalf of trainees (but not training grant personnel) in connection with the training. They must be excluded from the IDC calculations.

Methods Training participants and their institutions cannot receive financial recompense for attending a training program.

Participants' lodging and per diem can be covered by the grant but must not exceed federal government reimbursement rates for place and time of year (see https://www.gsa.gov/portal/category/21287). Grant funds cannot be used for lodging, travel, and per diem for local training project staff.

Participants are expected to cover their own travel costs with the following exceptions:
- Reasonable travel costs for state and local education agency personnel attending the training can be covered by the grant.
- Training participants can have their travel costs covered by the grant if they have been accepted to the training but lack travel funding. If your application is funded, you will need to work with your program officer to ensure reasonable and equitable provision of travel support.

In general, training grant funds may not be used to pay for food. However, under limited circumstances grant funds may be used to cover the costs of working lunches for attendees of training activities. If you are proposing to use grant funds for working lunches, you should include a clear description of the work to be accomplished during the meal as well as the per person cost. IES will determine whether these working lunch costs are allowable if the grant is awarded. If allowed, the cost of these working lunches must be subtracted from any per diem provided to participants. Grant-supported staff taking part in these working lunches must directly pay for them or have the cost subtracted from their per diem if they are receiving one. Other meals or snacks should not be included in the grant budget.

Part III: Preparing Your Application

A. Overview

The application contents—individual forms and their PDF attachments—represent the body of an application to IES. IES encourages you to refer to the IES Application Submission Guide (http://ies.ed.gov/funding/pdf/FY2023_submission_guide.pdf) for additional information about preparing to submit your application and ensuring your application is sufficient.

B. General Formatting

To ensure that reviewers can read your application and that all applicants have similar expectations for length and space, IES specifies the following formatting conventions. Adherence to type size and line spacing requirements is necessary so that no applicant will have an unfair advantage by using small type or by providing more text in their applications. These requirements apply to the PDF file as submitted, unless otherwise specified. In order for an application to be compliant and sent forward for review, the applicant should ensure that each narrative section follows both the page limit maximums and the formatting guidelines below unless otherwise specified.

1. Page and Margin Specifications

For all IES grant applications, a "page" is 8.5 in. x 11 in. on one side only with 1-inch margins at the top, bottom, and both sides.

2. Page Numbering

Add page numbers using the header or footer function and place them at the bottom or upper right corner for ease of reading. For the Early Career Mentoring program, the Training Program Narrative is limited to a maximum of 25 pages. For the Methods Training program, the Training Program Narrative is limited to a maximum of 20 pages. The page limits for Appendices are described below under Part C: Appendices and apply to both the Early Career Mentoring program and the Methods Training program.

3. Spacing

Text must be single spaced.

4. Type Size (Font Size)

Type must conform to the following three requirements:
- The height of the letters must not be smaller than a type size of 12 point.
- Type density, including characters and spaces, must be no more than 15 characters per inch (cpi). For proportional spacing, the average for any representative section of text must not exceed 15 cpi.
- Type size must yield no more than 6 lines of type within a vertical inch.

You should check the type size using a standard device for measuring type size, rather than relying on the font selected for a particular word processing/printer combination. The type size used must conform to all three requirements. Small type size makes it difficult for reviewers to read the application; consequently, the use of small type will be grounds for IES to return the application without scientific peer review. Adherence to these requirements also is necessary to ensure that no applicant will have an unfair advantage by using smaller type or line spacing to provide more text in the application.

As a practical matter, if you use a 12-point Times New Roman font without compressing, kerning, condensing, or other alterations, and use footnotes sparingly, if at all, the application will typically meet these requirements. Readability should guide your selection of an appropriate font and your use of footnotes.

5. Citations

Use the parenthetical author-date style for citations (see for example the American Psychological Association, 2020) rather than numeric citations that correspond to the reference list.

6. Graphs, Diagrams, and Tables
IES encourages you to use black and white in graphs, diagrams, tables, and charts. If color is used, you should ensure that the material reproduces well when printed or photocopied in black and white.

Text in figures, charts, and tables, including legends, may be in a type size smaller than 12 point but must be readily legible.

C. Required and Optional Appendices
The required training program narrative that is described for each training program (see <u>Part II: Training Program Descriptions and Requirements</u>) is followed by several appendices. Some of these appendices are required, and some are optional. When you submit your application through Grants.gov, you will create a single PDF file that *contains the training program narrative and all required and optional appendices* and include it as an attachment in the application package. Include appendices in alphabetical order and simply skip an appendix if it is not required for your application or if you choose not to include the optional appendices. See the IES Application Submission Guide (<u>http://ies.ed.gov/funding/pdf/FY2023_submission_guide.pdf</u>) for more information about preparing and submitting your application using the required application package for this competition through Grants.gov (<u>https://www.grants.gov/</u>).

The project narrative and appendices are critical parts of the IES application because they include the substantive content that will be reviewed for theoretical and practical significance and scientific merit.

1. Appendix A: Dissemination Plan (Required)

You **must** include Appendix A after the project narrative. Appendix A **must** meet the general formatting guidelines and be **no more than three pages**. If Appendix A exceeds this three-page limit, IES will remove any pages after the 3rd page of the appendix before it is forwarded for scientific peer review.

(a) Dissemination Plan
The dissemination plan is intended to demonstrate that the training you are proposing to conduct will be disseminated in a way to reach other members of your intended audience that are unable to attend the training sessions provided under this grant. Your dissemination plan should include the following:
- Identify the audiences that you expect will most likely benefit from your research (Early Career Mentoring projects) or training (Methods Training projects) such as institutional researchers, state or local education agency staff, junior or senior academic researchers, education practitioners, parents and students.
- For Early Career Mentoring projects, discuss the different ways in which you intend to reach these audiences through the publications, presentations, and products you expect to produce.
- For Methods Training projects, discuss the different ways in which you intend to reach members of these audiences who will not be able to attend the training sessions you intend to hold. Describe how the materials, presentations, and products you expect to develop will be made more widely available. Note whether these materials will be updated on a regular basis.

2. Appendix B: Response to Reviewers (Required for Resubmissions)

If your application is a resubmission, you **must** include Appendix B. If your application is one that you consider to be new but that is similar to a previous application, you should include Appendix B. Appendix B **must** meet the general formatting guidelines and be **no more than three pages**. If Appendix B exceeds this page limit, IES will remove any pages after the third page of the appendix before it is forwarded for scientific peer review. Note that an application that was previously submitted to a different topic within this competition or to another IES grant competition is still considered a resubmission.

Use Appendix B to describe how the revised application is responsive to prior reviewer comments. If you have submitted a somewhat similar application in the past but are submitting the current application as a new application, you should use Appendix B to provide a rationale explaining why the current application should be considered a "new" application rather than a "resubmitted" application.

This response to the reviewers is the only information that may be included in Appendix B; all other material will be removed prior to review of the application.

3. Appendix C: Summary of Research and Training Projects (Required)

Appendix C **must** meet the general formatting guidelines and be **no more than 15 pages**. If Appendix C exceeds this page limit, IES will remove any pages after the 15th page of the appendix before it is forwarded for scientific peer review. In Appendix C, you must provide the information requested according to the training topic area.

Each training program has specific guidelines for the information to be included Appendix C. See below for the guidelines for each program. These are the only materials that may be included in Appendix C; all other materials will be removed prior to review of the application.

(a) Early Career Mentoring Program

Include a summary table of ongoing (and recently completed) education research projects that the principal investigator has conducted in addition to education research projects conducted by the proposed mentor(s) that are relevant to the PI's research and career development plans with the following for each project:

- PI and other key personnel
- Brief description, including the topic addressed and methods used
- Funding source
- Duration
- Outcomes and products

(b) Methods Training Program

Include a summary table of the ongoing (and recently completed) research and training projects of the PI and/or Co- PIs that are related to the training to be provided. In the table, include the following for each project:

- Principal investigator and other key personnel involved in the project
- Brief description of the research project
- Funding source
- Duration of the project
- Outcomes and products of the project

If the PI or any key personnel on this application have had or currently have an IES-funded Methods Training Program grant, include a summary table that contains the following information:

- Title of the training program grant
- Number of participants admitted to the training program
- Research methods learned by participants
- Participant rating of the training program
- Results from follow-up with participants on their use of the material taught
- The outcomes and products

4. Appendix D: Letters of Agreement (Required)

There is **no recommended page length** for Appendix D. Include in Appendix D the Letters of Agreement from any institutional partners and individual trainers who will take part in the training program. Letters of Agreement should include enough information to make it clear that the author of the letter understands the nature of the commitment of time, space, and resources to the training program that will be required if the application is funded. Applicants for the Methods Training topic may also include data licenses and Memorandums of Understanding (MOUs) in Appendix D.

(a) Early Career Mentoring Program

IES requires including letters from the following:

- All mentor(s)
- All institutions that will take part in the training

- Consultants (if applicable)
- Any partners, such as schools or districts
- Those who hold access to necessary data including letters of agreement, data licenses, or the existing MOU in documenting access to any data sets to be used in the training

(b) Methods Training Program
IES requires including letters from the following:
- All key training personnel
- All institutions that will take part in the training
- Those who hold access to necessary data including letters of agreement, data licenses, or the existing MOU in documenting access to any data sets to be used in the training

These are the only materials that may be included in Appendix D; all other material will be removed prior to review of the application.

5. *Appendix E: Examples of Training and Assessment Materials (Optional)*

Appendix E **must** meet the general formatting guidelines and be **no more than 15 pages**. If Appendix E exceeds this page limit, IES will remove any pages after the 15th page of the appendix before it is forwarded for scientific peer review. Include in Appendix E examples of training-related materials and tables/charts that support the training program narrative.

Appendix E may include, for example, a project timeline, self-assessments used to identify fellows' or participants' strengths, weaknesses, and/or interests; syllabi, descriptions of course/training activities and course modules; descriptions of mentoring activities or seminars; participant evaluation forms.

These are the only materials that may be included in Appendix E; all other material will be removed prior to review of the application.

D. Other Narrative Content

In addition to the training program narrative (see Part II: Training Program Requirements and Recommendations) and required and optional Appendices (see above), you will also prepare a project summary/abstract and a bibliography and references cited to include as file attachments in your application. See the IES Application Submission Guide (http://ies.ed.gov/funding/pdf/FY2023_submission_guide.pdf) for more information about preparing and submitting your application using the required application package for this competition on Grants.gov (https://www.grants.gov/).

1. *Project Summary/Abstract*

You must submit the project summary/abstract as a separate PDF attachment.

We recommend that the project summary/abstract be one-page long and include the following information:

(a) Early Career Mentoring Program
- **Title:** Distinct, descriptive title for the Early Career Mentoring project
- **Topic:** The RFA (Research Training Programs in the Education Sciences) and the program to which you are applying (Early Career Mentoring Program)
- **Purpose:** A brief description of the purpose and significance of the research plan and the career development plan
- **Research Plan:** A brief description of the research plan including research questions/hypotheses, sample, intervention (if applicable), measures, and data analysis plan
- **Career Development Plan:** A brief description of the proposed training and mentoring activities.

(b) Methods Training Program
- **Title**: Distinct, descriptive title for the Methods Training project

- **Topic:** The RFA (Research Training Programs in the Education Sciences) and the program to which you are applying (Methods Training Program)
- **Purpose:** A brief description of the purpose and significance of the research training plan.
- **Research Training Plan:**
  - A brief description of the proposed training and its purpose
  - The expected number of individuals to be recruited and length of their training

Please see online summary/abstracts (https://ies.ed.gov/funding/grantsearch) of previous and current training grants for examples of the content to be included in your summary/abstract.

2. *Bibliography and References Cited*

You must submit the bibliography and references cited as a separate PDF attachment in the application package. We do not recommend a page length for the bibliography and references cited. You should include complete citations, including the names of all authors (in the same sequence in which they appear in the publication), titles of relevant elements such as the article/journal and chapter/book, page numbers, and year of publication for literature cited in the project narrative.

3. *Human Subjects Narrative*

You **must** submit an exempt or non-exempt human subjects narrative as a separate PDF attachment in the application package. We do not recommend a page length for the human subjects narrative. See *Information About the Protection of Human Subjects in Research Supported by the Department of Education* (https://www2.ed.gov/policy/fund/guid/humansub/hrsnarrative1.html) for a brief overview of principles, regulations, and policies which affect research involving human subjects in research activities supported by the U.S. Department of Education.

Note that the Revised Common Rule is now in effect with changes that will affect Institutional Review Board (IRB) review of your proposed research protocol if your training program is conducting research as part of the training (see "Note" below). Take care to address how changes to exemption and continuing review procedures and the use of a single IRB will be addressed should your application be recommended for funding.

The U.S. Department of Education does not require certification of IRB approval at the time you submit your application. However, if an application that involves non-exempt human subjects research is recommended for funding, the designated U.S. Department of Education (Department) official will request that you obtain and send the certification to the Department within 30 days of the formal request from the Department.

4. *Biographical Sketches for Key Personnel*

You **must** submit a biographical sketch (an abbreviated CV plus information about current and pending support) for each person named as key personnel in your application. You may also submit biographical sketches for consultants (optional). Each biographical sketch with current and pending support information **must be no more than five pages in length**. If a biographical sketch exceeds this page limit, IES will remove any pages after the fifth page before it is forwarded for scientific peer review.

Biographical sketches are submitted as separate PDF attachments in the application package. IES strongly encourages applicants to use SciENcv (http://www.ncbi.nlm.nih.gov/sciencv/) where you will find an IES biosketch form. IES will accept the SciENcv format for your biographical sketch even though it does not adhere exactly to our general formatting requirements. You may also develop your own biosketch format. If you use SciENcv, the information on current and pending support will be entered into the IES biosketch template. If you use your own format, you will need to provide this information in a separate table.

The biographical sketch for the principal investigator, each co-principal investigator, other key personnel, and consultants (if included) should show how members of the project team possess training and expertise commensurate with their specified duties on the proposed project, for example by describing relevant publications, grants, and research experience.

Provide a list of current and pending grants for the principal investigator, each co-principal investigator, and other key personnel, along with the proportion of their time, expressed as percent **effort over a 12-month calendar year**, allocated to each project. Include the proposed IES grant as one of the pending grants in this list.

Part IV: Competition Regulations and Review Criteria

A. Funding Mechanisms and Restrictions

1. Mechanism of Support

IES intends to award cooperative agreements pursuant to this Request for Applications. Through the terms of the cooperative agreements, grantees will work with IES to plan and implement their activities.

2. Funding Available

Although IES intends to support the programs described in this announcement, all awards pursuant to this Request for Applications are contingent upon the availability of funds and the receipt of meritorious applications. IES makes its awards to the highest quality applications as determined through scientific peer review, regardless of program.

The size of the award depends on the program and scope of the training program. Please attend to the duration and budget maximums set for each training program in [Part II: Training Program Requirements](). IES will not make an award exceeding the relevant maximum grant duration and/or award amount as set out below.

3. Special Considerations for Budget Expenses

(a) Indirect Cost Rate
U.S. Department of Education policy (34 CFR 75.562 (c)(2)) limits indirect cost reimbursement on a training grant to the recipient's actual indirect costs, as determined by its negotiated indirect cost rate agreement, or 8 percent of a modified total direct cost base, whichever amount is less. For the purposes of this competition, a modified total direct cost base is defined as total direct costs less stipends, tuition and related fees (including fellows' benefits), and capital expenditures of $5,000 or more. Questions about indirect cost rates should be directed to the U.S. Department of Education's Indirect Cost Group
https://www2.ed.gov/about/offices/list/ocfo/fipao/icgindex.html.

Institutions, both primary grantees and sub-awardees, not located in the territorial U.S. cannot charge indirect costs.

(b) Meetings and Conferences
If you are requesting funds to cover expenses for hosting meetings or conferences, please note that there are statutory and regulatory requirements in determining whether costs are reasonable and necessary. Please refer to the Office of Management and Budget's (OMB's) Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance), 2 CFR, §200.432 Conferences (https://www.ecfr.gov/cgi-bin/text-idx?SID=dcd3efbcf2b6092f84c3b1af32bdcc34&node=se2.1.200_1432&rgn=div8).

Federal grant funds cannot be used to pay for alcoholic beverages or entertainment, which includes costs for amusement, diversion, and social activities. In general, federal funds may not be used to pay for food. A grantee hosting a meeting or conference may not use grant funds to pay for food for conference attendees unless doing so is necessary to accomplish legitimate meeting or conference business. You may request funds to cover expenses for working meetings, such as working lunches; however, IES will determine whether these costs are allowable in keeping with the Uniform Guidance Cost Principles. Grantees are responsible for the proper use of their grant awards and may have to repay funds to the Department if they violate the rules for meeting- and conference-related expenses or other disallowed expenditures.

4. Program Authority

20 U.S.C. 9501 et seq., the "Education Sciences Reform Act of 2002," Title I of Public Law 107-279, November 5, 2002. This program is not subject to the intergovernmental review requirements of Executive Order 12372.

5. Applicable Regulations

Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance) codified at CFR Part 200. The Education Department General Administrative Regulations (EDGAR) in 34 CFR parts 77, 81, 82, 84, 85, 86 (part 86 applies only to institutions of higher education), 97, 98, and 99 and 2 CFR 3485. In addition, 34 CFR part 75 is applicable, except for the provisions in 34 CFR 75.100, 75.101(b), 75.102, 75.103, 75.105, 75.109(a), 75.200, 75.201, 75.209, 75.210, 75.211, 75.217, 75.219, 75.220, 75.221, 75.222, and 75.230.

B. Additional Award Requirements

1. Pre-Award

(a) Clarification and Budget Questions
Applications that are being considered for funding following scientific peer review may be required to provide further information on their proposed research training activities (see [Part II](#)) before a grant award is made. For example, you may need to update letters of agreement from any participating departments/schools or partners reaffirming commitment to participating in the training program and proposed cost-sharing (if applicable). For Methods Training grants, you may be asked for additional detail regarding your recruitment plan or proposed training. For Early Career Mentoring grants, you may be required to provide greater detail regarding your proposed research plan or career development plan. If significant revisions to the project arise from these information requests, they will have to be addressed under the original overall budget.

(b) Assessment of Past Performance
IES considers the applicant's performance and use of funds under a previous federal award as part of the criteria for making a funding decision. Performance on previous Department of Education awards is considered as is additional information that may be requested from the applicant, including compliance to the IES Public Access Policy (applicable for all grants funded from 2012 to present; https://ies.ed.gov/funding/researchaccess.asp).

2. Post Award

(a) Compliance with IES Policy on Public Access to Data and Results
IES requires all grantees to submit the electronic version of peer-reviewed scholarly publications to ERIC (https://eric.ed.gov/), a publicly accessible and searchable electronic database of education research that makes available full-text documents to the public for free. This public access requirement (https://ies.ed.gov/funding/researchaccess.asp) applies to peer-reviewed, original scholarly publications that have been supported (in whole or in part) with direct funding from IES, although it does not apply to book chapters, editorials, reviews, or non-peer-reviewed conference proceedings. **As the designated representative for the grantee institution, IES holds the principal investigator responsible** for ensuring that authors of publications stemming from the grant comply with this requirement. The public access requirement applies to any author who receives finical support from a training grant, **including training personnel, fellows, and participants**.

The author's final manuscript is defined as the final version accepted for journal publication and includes all modifications from the peer review process. Submission of accepted manuscripts for public accessibility through ERIC is strongly encouraged as soon as possible **but must occur within 12 months of the publisher's official date of publication.** ERIC will not make the accepted manuscripts available to the public prior to the end of the 12-month embargo period, unless specified by the publisher.

The ERIC website includes a homepage for the Grantee and Online Submission System (https://eric.ed.gov/submit/), as well as a Frequently Asked Questions page (https://eric.ed.gov/?granteefaq). During the submission process, authors will submit bibliographic information from the publication, including title, authors, publication date, journal title, and associated IES award number(s).

(b) Special Conditions on Grants
IES may impose special conditions on a grant if the grantee is not financially stable, has a history of unsatisfactory performance, has an unsatisfactory financial or other management system, has not fulfilled the conditions of a prior grant, or is otherwise not responsible.

(c) Attendance at the Annual IES Principal Investigators Meeting
The PI is required to attend one meeting each year (for up to 3 days) in Washington, DC with other IES grantees and IES staff. The project's budget should include this meeting. Should the PI not be able to attend the meeting, she or he may designate another person who is key personnel on the research training team to attend.

C. Overview of Application and Scientific Peer Review Process

1. Submitting a Letter of Intent

Letters of intent (LOIs) are submitted online at the IES Peer Review Information Management Online (PRIMO) system (https://iesreview.ed.gov/LOI/LOISubmit). **Select the Letter of Intent form for the topic under which you plan to submit your application**. The online submission form contains fields for each of the seven content areas listed below. Use these fields to provide the requested information. The project description should be single-spaced and is recommended to be no more than one page (about 3,500 characters). The LOI is non-binding and optional but strongly recommended. If you submit an LOI, a program officer will contact you regarding your proposed research. IES staff also use the information in the LOI to identify the expertise needed for the peer review panels and to secure a sufficient number of reviewers to handle the anticipated number of applications.

Elements of a Letter of Intent:
- Descriptive title
- Research Training Program that you will address
- Brief description of the proposed training program
- Name, institutional affiliation, address, telephone number, and email address of the principal investigator and any co-principal investigators
- Name and institutional affiliation of any key collaborators and contractors
- Duration of the proposed project (attend to the Duration maximums for each Training Program)
- Estimated total budget request (attend to the Budget maximums for each Training Program)

2. Resubmissions and Multiple Submissions

If you intend to revise and resubmit an application that was submitted to one of IES's previous competitions but that was not funded, you must indicate on the SF-424 Application for Federal Assistance Form in the Application Package (see IES Application Submission Guide, http://ies.ed.gov/funding/pdf/FY2023_submission_guide.pdf) that the FY 2023 application is a resubmission (Item 8) and include the application number of the previous application (an 11-character alphanumeric identifier beginning "R305" entered in Item 4a). Prior reviews will be sent to this year's reviewers along with the resubmitted application. You **must** describe your response to the prior reviews using Appendix B: Response to Reviewers. Revised and resubmitted applications will be reviewed according to this FY 2023 Request for Applications.

If you submitted a somewhat similar application in the past and did not receive an award but are submitting the current application as a new application, you should indicate on the application form (Item 8) that the FY 2023 application is a new application. In Appendix B, you should provide a rationale explaining why the FY 2023 application should be considered a new application rather than a revision. If you do not provide such an explanation, then IES may send the reviews of the prior unfunded application to this year's reviewers along with the current application.

You may submit applications to more than one of the IES FY 2023 Training Grant programs so long as you meet the requirements below.

- An institution may submit multiple applications to the Early Career Mentor Program as long as the PI is different for each application and there is no overlap in mentors.
- An institution may submit multiple applications to the Methods Training Program if they are substantively different from one another and have no overlap in key personnel.

If an institution submits multiple applications that violate one of the above conditions, IES will determine whether and which applications will be accepted for review and/or will be eligible for funding.

3. *Application Processing*

Applications must be submitted electronically and received no later than 11:59:59 p.m. Eastern Time on September 8, 2022 through the internet using the software provided on the Grants.gov website https://www.grants.gov/. You must follow the application procedures and submission requirements described in the IES Application Submission Guide (http://ies.ed.gov/funding/pdf/FY2023_submission_guide.pdf) and on Grants.gov https://www.grants.gov/web/grants/applicants/apply-for-grants.html.

After applications are fully uploaded and validated at Grants.gov, the U.S. Department of Education receives the applications for processing and transfer to the IES Peer Review Information Management Online (PRIMO) system (https://iesreview.ed.gov/). PRIMO allows applicants to track the progress of their application via the Applicant Notification System (ANS).

Approximately 1 to 2 weeks after the application deadline, invitation emails are sent to applicants who have never applied to IES before to create their individual PRIMO ANS accounts. Both the PD/PI and the AOR will receive invitation emails. Approximately 4 to 6 weeks after the application deadline, all applicants (new and existing ANS users) will begin to receive a series of emails about the status of their application. See the IES Application Submission Guide (http://ies.ed.gov/funding/pdf/FY2023_submission_guide.pdf) for additional information about ANS and PRIMO.

Once an application has been submitted and the application deadline has passed, you may not submit additional materials or information for inclusion with your application.

4. *Scientific Peer Review Process*

IES will forward all applications that are compliant and responsive to this Request for Applications to be evaluated for scientific and technical merit. Scientific reviews are conducted in accordance with the review criteria stated below and the review procedures posted on the IES website (https://ies.ed.gov/director/sro/application_review.asp) by a panel of experts who have substantive and methodological expertise appropriate to the program of research and Request for Applications.

Each compliant and responsive application is assigned to one of the IES review panels (https://ies.ed.gov/director/sro/peer_review/reviewers.asp). Applications are assigned to panel according to the match between the overall expertise of reviewers on each panel and the content and methodological approach proposed in each application.

At least two primary reviewers will complete written evaluations of the application, identifying strengths and weaknesses related to each of the review criteria. Primary reviewers will independently assign a score for each criterion, as well as an overall score, for each application they review. Based on the overall scores assigned by primary reviewers, IES calculates an average overall score for each application and prepares a preliminary rank order of applications before the full peer review panel convenes to complete the review of applications.

The full panel will consider and score only those applications deemed to be the most competitive and to have the highest merit, as reflected by the preliminary rank order. A panel member may nominate for consideration by the full panel any application that he or she believes merits full panel review but that would not have been included in the full panel meeting based on its preliminary rank order.

5. Review Criteria for Scientific Merit

The purpose of IES-supported research is to contribute to solving education problems and to provide reliable information about the education practices that support learning and improve academic achievement and access to education for all students. The specific purpose of IES-supported training programs is to support this contribution by furthering the training of education researchers and policymakers. In doing so, IES aims to increase the quality, accessibility, use, and relevance of education research. IES expects reviewers for all applications to assess the following aspects of an application in order to judge the likelihood that the proposed training program will have a substantial impact on that purpose. Information pertinent to each of these criteria is described in <u>Part II: Training Program Requirements and Recommendations</u>.

(d) Significance
Does the applicant provide a compelling rationale for the significance of the training program as defined in the Significance section for the program under which the applicant is submitting the application? Does the applicant address the recommendations described in the Significance section for the training program under which the applicant is submitting the application?

(e) Research Plan (Early Career Mentoring Program applications only)
Does the applicant address the recommendations for the training plans described in the Research Plan section?

(f) Research Training Plan (Methods Training Program applications only)
Does the applicant address the recommendations for the training plans described in the Research Training Plan section?

(g) Career Development Plan (Early Career Mentoring Program applications only)
Does the applicant address the recommendations described in the Career Development Plan section for the Early Career Mentoring Program?

(h) Personnel
Does the description of the personnel make it apparent that the principal investigator and other key personnel possess appropriate training and experience and will commit sufficient time to competently implement the proposed training?

(i) Resources
Does the applicant have the facilities, equipment, supplies, and other resources required to support the proposed activities? Do the commitments of each partner show support for the implementation and success of the project?

(j) Dissemination
Does the application address pertinent recommendations described in <u>Appendix A: Dissemination Plan</u>? Does the applicant present a dissemination plan that is tailored to audiences that will benefit from the findings and reflect the purpose of the project?

6. Award Decisions

The following will be considered in making award decisions for responsive and compliant applications:
- Scientific merit as determined by scientific peer review
- Performance and use of funds under a previous federal award
- Contribution to the overall program of research training described in this request for applications
- Ability to carry out the proposed research training within the maximum award and duration requirements
- Availability of funds

Part V: Compliance and Responsiveness Checklist

Only compliant and responsive applications will be forwarded for scientific peer review. Use this checklist to better ensure you have included all required components for compliance and that you have addressed all general and project narrative requirements for responsiveness.

Compliance	
	Have you included a project narrative?
	Do the project narrative and other narrative content adhere to all formatting requirements (Part IV.B)?
	Do the project narrative and other narrative content adhere to all page maximums as described in the RFA? IES will remove any pages above the maximum before forwarding an application for scientific peer review.
	Have you included the following required Appendices? • Appendix A: Dissemination Plan • Appendix B: Response to Reviewers if you are resubmitting an application • Appendix C: Summary of Research and Training Projects • Appendix D: Letters of Agreement from Training Partners
Responsiveness	
	Have you identified a single Training Program for your application?
	Do you meet the Eligible Applicants requirement for your chosen topic?
	Does your Training Program Narrative include the required sections? Did you describe the elements required for each section?

Required Training Program Narrative Elements		
	Early Career Mentoring Program	**Methods Training Program**
Significance	• Status of applicant institution as an MSI • The education issue to be focused on and its relevance to education in the United States • Research questions to be addressed • Need for further career development of the PI	• The specific data science methods you will provide training on • The sources of data these methods are to be used with • The intended participants in your training program
Research Plan	• Research design, sample, key outcome measures, and data analysis procedures • U.S. education setting of your research • Measures of academic outcomes	N/A
Research Training Plan	N/A	• A recruitment plan • The content, format, and activities provided by your training • A plan for determining the success of your training
Career Development Plan	• Career Development Plan including mentoring and education opportunities • Connection between Career Development Plan and Research Plan	N/A
Personnel	• Expertise of the PI, mentor(s), and (if applicable) other personnel • Date you were granted your doctorate and (if applicable) the date you completed your postdoctoral program • Names of your dissertation or graduate school advisor and (if applicable) your postdoctoral supervisor	• A description of all key personnel on the project team, including the PI, any Co-PIs, and other trainers • Identification of the experts in specific data and data science methods who will provide the training • Letters of Agreement from key training personnel in Appendix D that describe their role in the training program
Resources	• Resources to support you in conducting the proposed project	• Institutional resources of both the primary applicant institution and any subaward institutions

Part VI: Program Codes

Applications to the **Education Research Training Grant program (ALN 84.305B)** are submitted under a single topic. You must enter the appropriate topic and project type code in Item 4b of the SF-424 Application for Federal Assistance form (see the IES Application Submission Guide, http://ies.ed.gov/funding/pdf/FY2023_submission_guide.pdf, for more information about this form). For example, an application to the Education Research Training Grants program (ALN 84.305B) under the Early Career Mentoring Program for Faculty at Minority-Serving Institutions topic should have the code "NCER-Early Career" entered in the field for Item 4b.

Topics	Codes
Early Career Mentoring Program for Faculty at Minority-Serving Institutions	NCER-Early Career
Methods Training for Education Researchers	NCER-Methods