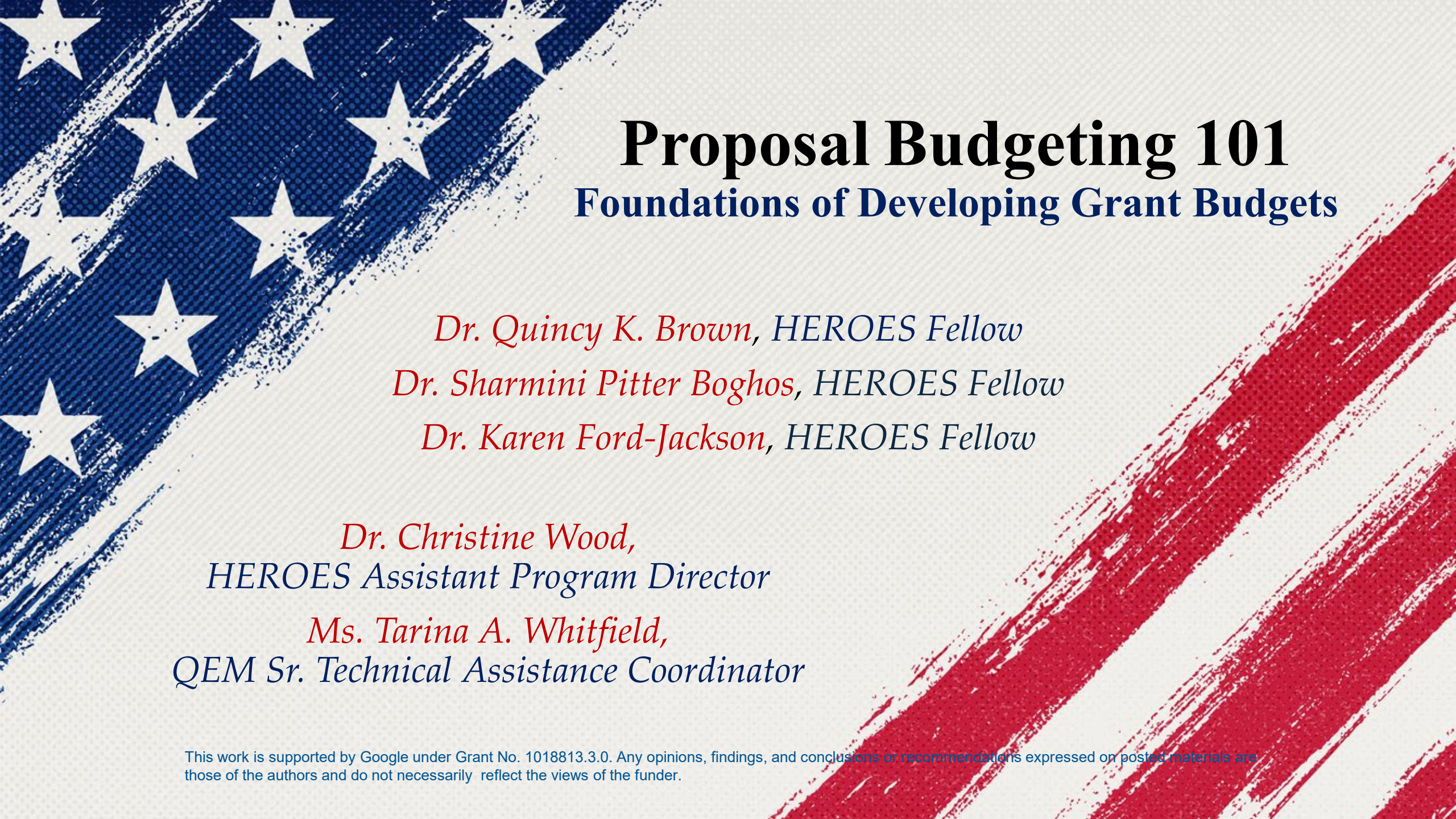


A stylized American flag graphic with white stars on a blue field in the top left and red and white stripes in the bottom right.

Proposal Budgeting 101

Foundations of Developing Grant Budgets

Dr. Quincy K. Brown, HEROES Fellow

Dr. Sharmini Pitter Boghos, HEROES Fellow

Dr. Karen Ford-Jackson, HEROES Fellow

*Dr. Christine Wood,
HEROES Assistant Program Director*

*Ms. Tarina A. Whitfield,
QEM Sr. Technical Assistance Coordinator*

Agenda

01 *Introductions – QEM, HEROES, Presenters*

02 *Ice Breakers – Christine Wood*

03 *Budget Development – Quincy K. Brown*

04 *Terminology & Formulas - Tarina Whitfield & Christine Wood*

05 *Exploring the Generic Budget - Tarina Whitfield & Christine Wood*

06 *Tools and Resources*

07 *Q & A*

About QEM Network

Established in 1990, QEM Network works with individuals, organizations, and institutions across the country to coordinate and energize efforts to improve the education of domestic talent in science, technology, engineering, and mathematics (STEM) fields. We are dedicated to advancing domestic talent participation in STEM disciplines throughout the nation through capacity building, student professional development, faculty development and research.

For more than 30 years, QEM has been a national catalyst for STEM education transformation and research capacity building. Currently, the QEM network serves nearly 900 colleges and universities and reaches more than 8,000 individuals nationwide.



QEM HEROES - Hiring Experienced Researchers to Optimize Ecosystems in STEM

Hiring Experienced Researchers to Optimize Ecosystems in STEM (Research-HEROES) is a national capacity development and technical assistance initiative launched by the Quality Education for Minorities (QEM) Network to strengthen research and development ecosystems at less-resourced colleges and universities, particularly Minority-Serving Institutions (MSIs) and community colleges.

All HEROES services are FREE, FREE, FREE!!!!

Those services include:

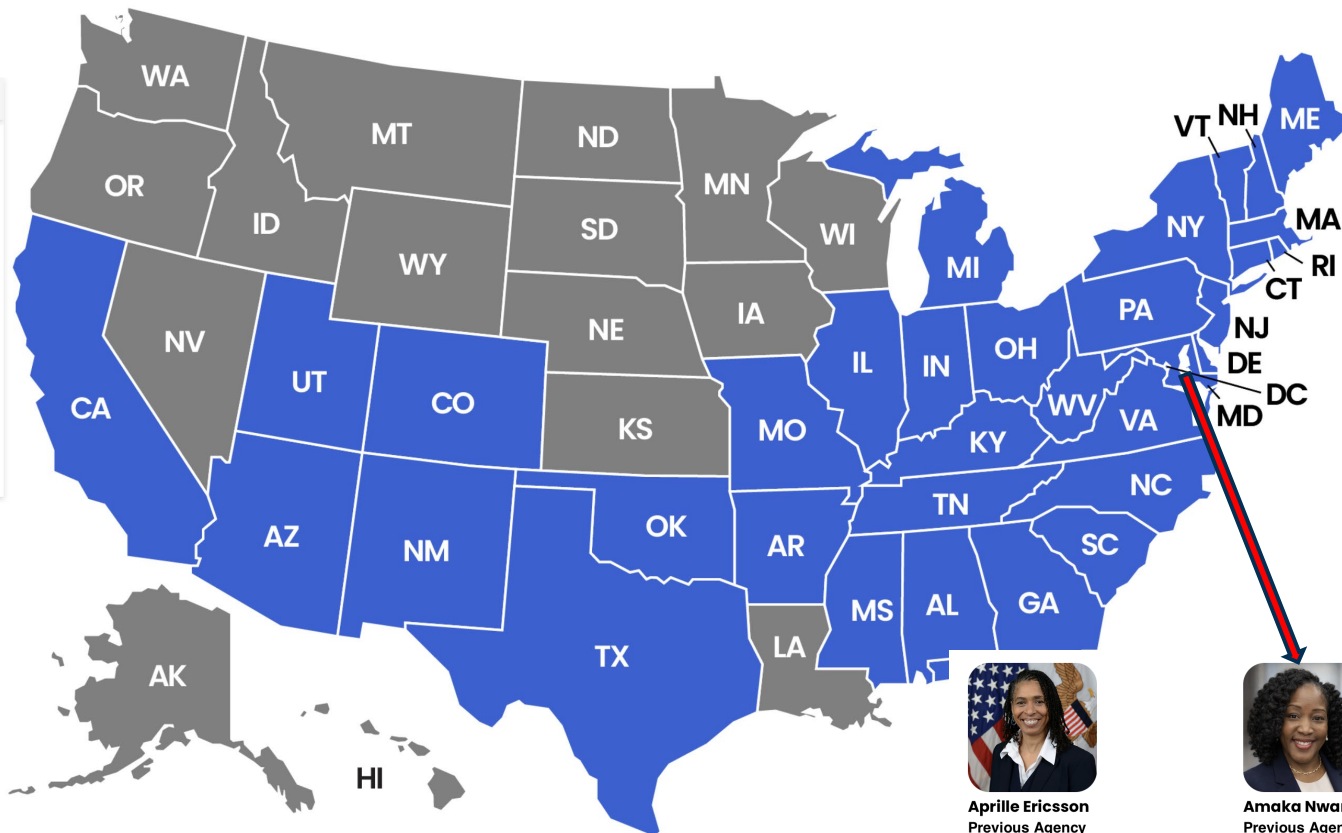
- Grant proposal development assistance and guidance
- On-site and virtual workshops and trainings
- One-on-one technical assistance sessions
- Weekly informational webinars
- Conference attendance as speakers





Select a State

- Alabama
- Alaska
- Arizona
- Arkansas
- California
- Colorado
- Connecticut
- Delaware
- District of Columbia



HEROES Fellows serve 34 states. Visit the QEM website to find out how to meet a Fellow in your state.



QEM HEROES

Check out our weekly HEROIC Podcast to discover more about the QEM Fellows!



HEROES
RESEARCH



Aprille Ericsson
Previous Agency

- NASA
- DOD

Words That Define My Expertise

- Aerospace and Defense Technologies
- STEM Education
- Space Science

State/Region of Service

CT / MA / MD / ME / NC / NH / NY / RI / VA / VT

[Contact Me](#)



Amaka Nwankwo
Previous Agency

- USAID
- State Dept
- CDC

Words That Define My Expertise

- Epidemiology
- Data Science
- Public Health
- STEM
- Research

State/Region of Service

MD / NJ / PA / VA

[Contact Me](#)



Joseph Isaac
Previous Agency

- National Science Foundation (NSF)

Words That Define My Expertise

- STEM
- Education
- Connector

State/Region of Service

DE / MD

[Contact Me](#)



Emily Davis
Previous Agency

- National Institutes of Health (NIH)

Words That Define My Expertise

- Program Management
- Professional Development
- Workshop Facilitation

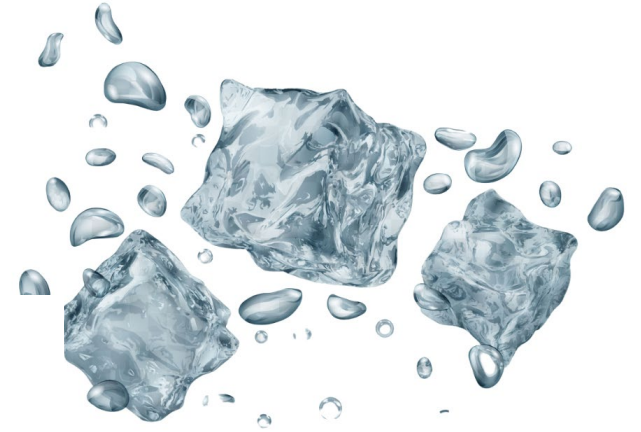
State/Region of Service

MD / PA

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Ice Breaker



HEROES

Budgeting Fundamentals

Grant Lifecycle

Budgets are important in all phases!!!!

- Pre-Award: Funding Opportunities & Application review
- Award: Award decisions and notifications
- Post-Award: Implementation, Reporting, Close Out



The Big Picture: Review to Understand

Required	Essential for Effort	Nice to Have	Not Allowed
• Activities, including outreach, engagement, curriculum development, etc. • Deliverables, including materials, reports, etc. • Partnerships • Travel, including conferences, meetings, etc..	• Research, including equipment, publishing costs • Outreach/Engagement • Teaching/Learning • Travel, including conferences • Personnel, course buy-out, summer support, students	• Travel (could be in this category) • Equipment (could be here)	• Food (except certain conditions) • Alcohol



Big Picture Example: Required

Partnerships, required only for NSF TTP-P proposals (Suggested length: 1–2 pages)

- Identify the NSF-Catalyzed Partner(s) and the unique strengths and capabilities they bring to the collaboration. Discuss their specific roles in the project.
- Describe how each NSF-Catalyzed Partner (a) catalyzes and accelerates technology translation development toward productization / commercialization.
- How will the research tasks be identified, prioritized, and acted upon?
- Provide an assessment plan with a combination of quantitative data and qualitative assessments to measure growth and gauge the success of the NSF-Catalyzed Partnerships in translating academic research and technologies into commercial and societal use.



Big Picture Example: Essential To Effort

Proposals submitted to the STEM K–12 program may focus on learning or instruction in any field(s) of STEM (science, technology, engineering, or mathematics) and may involve a variety of contexts in which teaching and learning take place, including formal education (pre-K to 12) and informal learning environments. The program also supports projects that identify and address salient issues involved in translating research into educational practice for any STEM field, as well as projects that leverage insights from educational practice to drive fundamental research.

What are **participant support costs**?

Participant support costs are direct costs related to individuals who take part in a specific activity, event or program. The participant support costs can be contributed to the individuals through stipends, subsistence allowances and travel and registration fees during the qualifying event.



Big Picture Example: Not Allowed

iv. General purpose equipment, i.e., equipment whose use is not limited to research/research education, including information technology equipment and software, **is not eligible** for support under this FOA.

However, an application may include a request for computers (i.e., laptops, desktops, tablets, mobile devices, and computer software) to be used in research and research-related education programs, as long as they meet the criteria in paragraph 3.a.iii above. The purpose and use of such equipment must be fully justified, itemized, and listed under the equipment category, “material/supplies.”

vi. No cost may be requested for **user fees, maintenance agreements, or extended warranties.**



Funders Have Priorities and Goals Too



Example from DoD/HBCU MI Solicitation: "The [named program]... aims to

- (a) enhance research and education programs in scientific and engineering disciplines **critical to the national security functions of DoD**;
- (b) enhance the capacity of HBCUs/MIs to **participate in DoD research programs and activities**; and
- (c) increase the **number of graduates** in the fields of STEM.

Start With Clear Scope and Constraints

- Define the project/proposal **scope**
- Identify **constraints**
 - Time (deadlines, milestones)
 - Budget (hard cap, funding rounds)
 - Resources (personnel, facilities, equipment)



Build A Work Structure to Organize Cost

- Create a **Work Breakdown Structure** (WBS)

Break the project into deliverables and work packages

- Map to a **Cost Breakdown Structure** (CBS)

Assign costs to WBS elements (labor, materials, equipment, subcontractors, overhead)

- Align with Project Budget with the **Project Timeline and Funding Schedule**



Choose a Budgeting Approach

- **Bottom-up budgeting**

Best for detailed, high-fidelity estimates; when you know most costs at the work-package level

- **Top-down budgeting**

Good for early-stage proposals or high-level constraints; faster but less precise

- **Parametric/ratio-based budgeting**

Uses historical data and unit rates; scalable for similar projects

- **Rolling-wave budgeting**

Allocate budget in detail for near-term activities; forecast future periods at a higher level

- **Recommended practice**

- Start with a high-level top-down constraint, then refine with bottom-up estimates where possible
- Maintain a calibrated contingency and management reserve



Estimate Costs Accurately

- Gather **data sources**

Historical project data, vendor quotes, market rates, inflation adjustments, labor rates

- Apply **estimation techniques**

- Analogous estimation (historical projects)
- Bottom-up estimation (detail by activity)
- Parametric estimation (unit costs, productivity rates)
- Expert judgment and third-party quotes

- Include **direct and indirect costs**

- Direct, e.g. labor, materials, equipment, subcontractors
- Indirect/overhead, e.g. facilities, utilities, management reserve

- **Review and validate**

Sign-offs by stakeholders (MOU or Letter of Support/Collaboration as necessary)



Key Terminology



Key Terminology



Pop Quiz

Unspent funds carried forward into a subsequent budget period, if allowed

Carryover

Required non-federal contribution to total project costs

Cost Share

Allowable, reasonable, and allocable costs of employee compensation that are consistent with organizational policy, such as leave, insurance, and pensions

Fringe Benefits



Key Terminology



Pop Quiz

Costs not directly tied to a single project but necessary for operations

Indirect Cost

Allows for a one-time extension of a project's end date (typically up to 12 months) to complete approved work without additional funding

No-Cost Extension

Federally negotiated rates to pay for employee benefits

Negotiated Fringe Benefit Rate



Key Terminology



Pop Quiz

Entity receiving a portion of the award to carry out programmatic work

Subrecipient

Funds not committed by the end of a budget period

Unobligated Balance



Primary Formulas



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Primary Formulas



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QEM Network Resource Hub

For Access go to the QEM Network website

Join QEM Network

Join our mailing list to receive information regarding our free professional and proposal development workshops.

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QEM Network Impact & Participants' Success

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QEM National Webinar...

Research Data

QEM Instructors

EveryLearnerEveryWhere

TRUE TO OUR MISSION

We are committed!

QEM seeks to put into practice the recommendations in the QEM Action Plan by working with individuals, organizations, and institutions around the country to help coordinate and energize efforts to improve the education of domestic talent, particularly in science, technology, engineering, and mathematics (STEM) fields.

Comments

Post

Tools & Resources



NSPAA Budget Session Resources

- [Generic Budget Template – Grants.gov](#)
- [Percent of Time & Effort to Person Months Conversion Table – National Institutes of Health](#)
- [Calculating Person Months - Univ. of Connecticut](#)
- [Terminology – Grants.gov](#)
- [Terminology – National Institutes of Health](#)
- [Grants Systems](#)



A stylized, painterly representation of the American flag, featuring a blue field with white stars and red and white stripes, rendered in a soft, watercolor-like style.

Q
&
A



HEROES
RESEARCH

Thank You

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twhitfield@qem.org



[QEM Events Page](#)



[HEROES Web Page](#)



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