



Community College Presidents' Initiative-STEM



ccpi-stem.org



NSF ATE CCPI-STEM PROJECT President's Role: Opportunities and Benefits

BACKGROUND INFORMATION

The National Science Foundation's Advance Technological Education program (NSF ATE) was initiated in 1997 by Congress to provide funding to community colleges in support of STEM education. With a focus on two-year Institutions of Higher Education (IHEs), the ATE program supports the education of technicians for the high-technology fields that drive our nation's economy. The ATE program has a track record of supporting community colleges to meet the nation's STEM workforce needs, providing over \$1.11 billion in support across the 25 year span (National Science Foundation, 2019). While community colleges' attention to STEM education has increased over the years, their effective use of available government financial support is still inadequate to address the workforce shortage. For the 2022 funding cycle, the ATE program awarded 390 grant submissions, supporting 206 distinct community colleges. Only 22% of eligible public community colleges are taking advantage of the NSF ATE funding opportunity, a percentage that needs to improve to address the national workforce issues.

CLARION CALL

There is a national clarion call to expand Community College involvement in NSF ATE grant awards. The National Science Foundation Board (2019) estimates that there are currently more than 16 million skilled technical jobs requiring an associate degree or similar level qualification, and the number of jobs requiring substantial STEM expertise has grown nearly 34% over the past decade. In addition to projected STEM labor shortages, there are significant racial and gender disparities in the technical workforce. African Americans make up 11% of the US workforce, but only 7% of all STEM workers. Hispanics are 17% of the workforce but only 7% of all STEM workers. Sixty-nine percent of all STEM workers are White. Women are underrepresented in several STEM occupations, particularly in computing and engineering jobs.

YOUR ROLE AS A PRESIDENT

What can you as President do to help pave the way to receive a successful NSF ATE grant award? Your role toward your institution receiving an NSF grant starts with awareness, followed by encouragement, support, and facilitation from beginning to end. The President's support of the planned project deliverables and the project development team is essential to the potential success of both the project proposal and post-award implementation. Writing and preparing an NSF proposal takes sizeable effort in time, teamwork, and support services. These proposals are strengthened with collaborations with other academic institutions, professional associations and/or business and industry. A successful NSF proposal requires institution-wide support, starting with the President. This means involving various institutional stakeholders at all levels:

- **TRUSTEES** - As your top-level of stakeholders, your Trustees need to understand the value and benefits of an NSF ATE grant award. Trustees also need to be enlightened about NSF funding and its benefits. Along with the new ventures that the NSF funding will enable, the prestige and recognition that your college will receive is coveted by many but awarded to few.



- **FACULTY** – Providing administrative support to faculty to generate ideas and corresponding activities for grant proposals in form of release time, lighter teaching load, or financial support during the summer can make the difference between robust grant creation and none. Even if the institution has a Grants Office and Grants Writer, the project idea, project initiation, planning and eventual implementation is in the purview of the faculty members. Praise and recognition of faculty initiatives in seeking external support can provide valuable encouragement and stimulus for faculty. Provide opportunities for faculty to attend conference to network and learn from other peers who are using grant funds at their institutions.
- **GRANTS OFFICE** – Many community colleges, especially smaller and rural community colleges either do not have a Grants Office or an adequate one. While the Grants Office will not write the proposal, it is instrumental in chaperoning it through the college bureaucracy, preparing a number of required forms, supplying necessary college data, and navigating the NSF site and the submission process. Smaller community colleges without an adequate Grants Office can collaborate with a larger college that has a strong Grants Office, utilizing its expertise. Consideration ought to be given to a regional or statewide approach; compensating peers from other institutions.
- **OTHER COLLEGE OFFICES** – Offices such as HR, accounting, procurement, institutional research (e.g., IRB), and marketing are essential to the preparation of the NSF proposal and to the implementation of the project once the award is received. Staff in these offices needs to know that the president of the college is strongly supportive of the NSF proposals and awards and should discover in advance what processes and support services will be needed to support a funded initiative.
- **BUSINESS and INDUSTRY** need to support of the grant prior to submission. With letters of support and commitment. The support could also include in-kind donations or contributions approved by the college administration. This support needs to continue through the life of the grant.

BENEFITS TO YOUR INSTITUTION

When a college receives an NSF award, it gains immediate prestige, national prominence, and enhanced visibility in the business community, four-year partners, and professional associations. The benefits and recognition to all stakeholders are significant, including:

WORKFORCE DEVELOPMENT

- Strong potential for partnerships with local and regional business and industry in areas of greatest economic impact.
- Visible impact on increased diversity of the current and future STEM workforce.
- Measurable improvement in upskilling current and future STEM workforce that is required by business and industry to remain competitive.

COMMUNITY IMPACT

- Creative collaborations with 9-12 secondary education systems, which add to the community college standing in the community and improvement in enrollment.



- High-demand pathways to baccalaureate programs and beyond that demonstrate to students and parents that a two-year college degree is part of a career pathway.
- National recognition of increased quality of education, observable to the community, business and industry, politicians, and four-year college partners.
- Opportunity to show additional college programs the importance of ATE funding to sustainable programs.

STUDENT ENROLLMENT, RETENTION, AND COMPLETION

- Leading-edge course content that attracts well qualified students to college programs.
- Clear pathways to excellent, well-paying, and satisfying jobs in high-demand STEM fields.
- Innovations in the classroom experience that aligns with current and future business and industry practices.

FACULTY DEVELOPMENT

- Cutting-edge professional development for faculty, the outgrowth of which is course and curricular revisions and the inclusion of industry standards.
- Grant-sponsored, faculty designed activities that assist in showcasing innovation while building capacity.
- Grant-crafted faculty externships where they learn from industry experts and practicing technicians.

FINANCIAL BENEFITS

- NSF awards can help colleges strengthen future academic and financial planning.
- Indirect costs generated from NSF awards provide a revenue stream that can be used as the college leadership sees fit.
- Specifically budgeted grant funds can be used to support faculty time, purchase equipment and instrumentation, and address other critical needs for two-year college technician education.
- NSF ATE proposals do not require cost sharing.
- Opportunities for new grant funds from NSF and other agencies based on merit.

YOUR ROLE AS AN ADVOCATE

Presidents and senior administrators have far-reaching contacts within their state, region, and across the nation. They need to work with state delegations and the federal government to support grant funding for community colleges. To be successful in securing grant funding, college leaders need to visibly advocate, encourage, and support all aspects of the NSF proposal preparation and project implementation, including:

- **DISSEMINATION** – Senior administrators need to be advocates and champions of their institution’s successful NSF projects. They also need to assist the dissemination efforts through their contacts and by empowering college’s marketing and publication departments to develop dissemination plans and fold them into the existing marketing calendar.
- **COLLABORATIONS** – Senior administrators should support a potential NSF project by paving ways to effective collaborations and partnerships with other colleges, industry, and/or



professional associations. Collaborations are essential to successful NSF proposals and their ultimate implementation.

- **SUSTAINABILITY** – Senior administrators need to work with deans, faculty and staff to ensure that the sustainable elements of the NSF award will be inculcated into the college ethos to the benefit of students and the STEM workforce.
- **CELEBRATIONS** – Senior administrators should provide positive assistance and support to the PIs and Co-PIs of the NSF grant by celebrating the college’s acquiring an NSF award as well as other major milestones during the life of the project.

EXTERNAL RESOURCES

Writing and preparing an NSF proposal is a time-intensive and demanding endeavor, especially for a faculty member who is inexperienced in this process. Without the support from the college’s Grants Office, faculty members may find the proposal preparation too daunting. College leaders need to point the faculty to the available resources that help in the proposal preparation. There are several national mentoring projects that provide mentoring support to faculty members during the NSF proposal preparation process. These projects differ in their formats, emphasis, time duration, and expectations. However, they are all extremely knowledgeable and have excellent track records.

AACC MentorLinks – This ATE project hosted at AACC is designed to help colleges develop or strengthen technician training programs in STEM fields through mentoring, professional development opportunities, and technical assistance. This year-long program provides mentors and disciplinary experts to assist the faculty teams.

<https://www.aacc.nche.edu/programs/mentorlinks/>

FORCCE-ATE, Fortifying Community College Education in STEM – This project hosted by Prince George’s Community College in MD is focused on faculty in IT, Cybersecurity, and computing disciplines. An intensive three-day workshop in June plus pre- and post-workshop mentoring delivered by expert mentor-coaches assists faculty teams to submit competitive NSF ATE grant proposals. <https://www.forcce-ate.org/>

MENTOR-CONNECT – A project hosted by Florence Darlington Technical College in SC in partnership with AACC offers a 9-month long mentoring program to STEM community college faculty to empower them to submit successful NSFATE proposals. It includes in-person workshops, online training and resources, Help Desk, and additional support after the proposal was submitted. <https://www.mentor-connect.org/>

MENTOR-UP - A project hosted by Canyons Community College in CA prepares STEM faculty to submit a successful NSF ATE proposal. An intensive 2.5-day workshop in June fortified with mentoring before and after the workshop prepares teams to submit successful NSF ATE grant proposal. <https://atementorup.org/>

PROJECT VISION – This NSF supported initiative hosted at Indian River State College in FL, helps colleges to discover and match innovative ideas with NSF funding opportunities, and to support STEM capacity building at each college. It focuses on smaller and rural colleges and colleges with newer presidents. Teams of 10 administrators, faculty and staff are mentored to submit successful ATE proposals in the future. <https://projectvis.org/>



SUMMARY

NSF ATE is essential to community colleges' innovation, creativity, and transformation. It provides funding for innovative ideas, faculty development, creative student recruitment, and transformation of an institution known for being solid to one known for its excellence. Community college senior administrators need to embrace these opportunities and encourage faculty and staff to seek NSF ATE funding.

Moraine Valley has been the recipient of multiple NSF grants and we have witnessed firsthand the significant impact this funding has made for our college in terms of faculty development, curriculum development, student access to high quality instruction and certifications in the field, and outreach to various community partners as the need for cyber knowledge and management grows. Therefore, I feel an obligation to inform and support other community college leaders with the opportunity to bring cyber education to their campuses.

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