Addressing STEM Workforce Needs in a Virtual World – How ATE Grants Can Help and Why You Should Apply

1:00 – 2:30 p.m. EDT

Wednesday, June 17, 2020
Welcome & Introductions

Jonathan Beck, Executive Director and PI
National Center for Autonomous Technologies
Northland Community and Technical College, MN

V. Celeste Carter, Lead ATE Program Director
National Science Foundation, VA

Kevin Cooper, PI, RCNET, Dean of Advanced Technology
Indian River State College, FL

Michele Norgren, Director and PI
VESTA National Center, MO
Dr. Celeste Carter, NSF Program Director
ATE Lead Program Officer
National Science Foundation
**Agenda**

1. **Introduction to the NSF ATE Program**
   - NSF – the agency
   - Opportunities for NSF ATE Grant Funding

2. **Virtual Teaching & Learning Strategies through ATE**
   - National Center for Autonomous Technologies
   - VESTA National Center
   - RC-NET

3. **ATE Proposal Resources**
   - Tips for Success
What is your current role at your institution?

A. Faculty  
B. Administrator  
C. Grant Writer  
D. None of the Above
Finding ATE

Search ATE or 18-571

NSF-FUNDED RESEARCH
Do more workers mean more work done?
FULL STORY

Advancing the Sciences | Funding & Supporting | Inspiring & Educating
The education of highly qualified science and engineering technicians for advanced-technology fields that drive the nation’s economy.

- **Community and Technical Colleges (2-yr IHES)** have leadership roles on all projects.
- Grades 7-12, 2yr- and 4-yr institutions can be supported. (Pathways)
- **Partnerships** with Industry and Economic Development Entities – Hiring Needs
ATE Program continued

Four Program Tracks

ATE Projects
Up to $600k, up to 3 yrs
except Adapt & Implement
$300-400K
Instrumentation Acquisition
$400-500K

Small Grants
For Institutions New to ATE
Up to $300K, 3-yr.

Targeted Research in Technician Education
From $150k, up to 2 yrs to $800k, up to 3 yrs

ATE Centers
Two Types

Center
Up to $7.5M
5 yrs

Resource Centers
Up to $1.65M
3 yrs

Deadline (All Tracks):
October 1, 2020
ATE Projects

Projects - up to $200,000 /yr. ($600,000 max.), 3yrs.

- Program Development, Implementation and Improvement;
- Professional Development for Educators;
- Curriculum and Educational Materials Development;
- Teacher Preparation;
- Small Grants for Institutions New to the ATE Program ($300K, 3-yrs.);
- Adaptation and Implementation (A&I); $300-400K, 2-3 yrs.);
- Instrumentation with Curriculum Updates; $400-500K, 2-3 yrs.)
- ATE-Coordination Networks (up to $600,000, 3 yr.)
National Center for Autonomous Technologies (NCAT)

Jonathan Beck
Principal Investigator & Director | National Center for Autonomous Technologies (NCAT)
Innovation Born in Surreal Times

• State of Education
  • Challenging
  • State of Evolution
  • Constantly Adapting
  • Implementing New Strategies
  • Integrating New Technologies
  • Then a Pandemic Hits Requiring Social Distancing Over Night

• ATE Community
  • Innovators and Change Agents
  • Constantly Seeking New Opportunities
  • Thinking Outside the Box
  • Promoting Collaboration
  • Existing Resources to HELP
NCAT - So Now What?

• NCAT Response
  • Plan for Everything or Pivot?
  • Unique Flexibility, Workshops, Camps and Competitions
  • Partners and Networks
What Options are Available?

- Webinar Series
  - Overview of Distance Delivery Modalities
  - VR for Social Engagement
  - Digital Content Development
  - Video Production
  - Content Packaging
Considerations and Planning

- **Equipment Supply**
  - In Demand
- **Access to Technology**
  - Video Capture Kits
- **Platforms for Delivery**
  - Level of complexity
Ancillary Benefits

• Engaging Students
  • Inspiring Curiosity
  • New Perspectives Increase Active Learning

• Student Recruitment
  • No Lab Tours but Here is What you Can Expect

• Reshaping Learning
  • Increase Collaboration and Simplify the Concepts

• Increased Exposure to Future Work Force Technology
  • The Future of Work is Changing, We Should Too
Thinking Long Term

- Enhanced Resources
- Improved Quality in Education
- Equity and Inclusion
- Additional Delivery Options
- Evaluation and Continuous Improvement
NSF ATE MINDSET

• Technology Complicates
• Technology Advances and Creates Opportunities
  • Technology Limits Access
  • Technology Enables New Ways to Learn
• Technology that Seems Strange Shouldn’t be Explored
• Technology Innovation is about Trying New Things
Questions?

This material is based upon work supported by the National Science Foundation under Grant No. DUE 1902574. Any opinions, findings, and conclusions or recommendations expressed in this material are those of the author(s) and do not necessarily reflect the views of the National Science Foundation.
Michele Norgren
Director and PI
VESTA National Center, MO
What’s in a Bottle of Wine?
$219.9 Billion!
The Wine IndustryBoosts the United States Economy

$219.9 Billion
Total Economic Impact

10,236 Wine Producers
in All 50 States

677,581 Vineyard Acres

1.7 Million Jobs

$75.8 Billion
in Annual Wages

43 Million
Tourist Visits

$17.7 Billion
Tourist Expenditures

$31.3 Billion
Total Taxes

$18.1 Billion
Federal Taxes

$13.2 Billion
State and Local Taxes

http://wineamerica.org/impact
Viticulture & Enology
Science & Technology Alliance

- **Industry-Guided Design** to Address the Workforce Needs of the U.S. Grape and Wine Industry

- **Recognizes the Accessibility Challenges** for Students Who are Generally Rurally Located and Travel-limited

- **First For-Credit Distance Education Program** in Viticulture, Enology and Wine Business Entrepreneurship

- **Industry-Validated Program** of Online Courses, Structured Field Experiences and Workshops Leading to Technical Certificates and AAS Degrees.
Rigorous and Comprehensive Educational Program

• 39 online courses
• 3 educational tracks – viticulture, enology, and wine business entrepreneurship.
• Multiple educational paths
  – Individual courses
  – Technical Certificate
  – Associate of Applied Science
• Curriculum that is industry driven and supervised by notable professors
  – Dr. Anne Fennell, South Dakota State University
  – Dr. Barry Gump, Florida International University
• Dedicated Instructional Designer
  – Dr. Nicholas Farha, Missouri State University
Infusing VESTA Courses with Workplace Hands-on Learning

• Field Practicums
  – Mentored Field Experiences Integrated into Viticulture and Enology
  – Apply Knowledge and Develop Critical Skills
  – Durations Aligned with Course Learning Objectives

• Workshops

• Virtual Vineyards and Wineries
  – Computer Simulations & Virtual Reality Models
  – Enable Real-World Problem Solving
Onsite Field Practicums

- Onsite field practicums
  - (over 600 industry partners in 41 states and 6 foreign countries.)
- Opportunity to work alongside industry mentors.
Innovative use of distance educational technologies

Synchronous and Asynchronous distance educational technologies.

Mobile compliant for the student on the go.
VESTA – has a National Foot Print for Viticulture and Enology Education

Partnership of 2- and 4-year Colleges and Universities in 19 States Across the U.S.

Enrollment of over 6,000 Since 2003
Students from 48 States, DC, and 12 Foreign Countries

600+ Mentor Wineries and Vineyards across the U.S. and 6 Foreign Countries
Thank You

QUESTIONS??

VESTA

VITICULTURE & ENOLOGY
SCIENCE & TECHNOLOGY ALLIANCE

NSF
Reintegration Post-COVID

Kevin Cooper, PI RCNET & Dean Advanced Technology @ IRSC
MISSION: RCNET is an NSF ATE CENTER. Established in 2011, RCNET’s mission is to make sure the demand for skilled nuclear technicians is met in a standardized and systematic way.

PARTNERSHIPS: RCNET is headquartered at Indian River State College in Fort Pierce, FL and is a consortium of of 100 industry, 55 academic, and 15 agency partnerships across the United States and 7 countries.

OUTCOMES: RCNET has become a viable workforce pipeline, largely due to an ever-expanding network. RCNET’s largest measure of success is the placement of over 3,000 program graduates in nuclear technician jobs at over 60 industry partner locations.
Common Program Details – Pre COVID-19

- Enrollment was ~ 24 - 48 FT students per school
- 80% in-person
- ~ 50% Hands on & 50% Lecture
- Embedded Industry Certifications
- Summer Internships
- Direct Outreach & Recruiting
Resources Thanks to ATE & the ATE Culture

- Network
- Tons of Online Resources
- Dynamic Personnel
- Dynamic Budgets
RCNET & IRSC’s Support

- Curriculum
- Continuity of Operations
- Marketing & Outreach
Online Curriculum Solutions & Support

• 18 Courses segmented into course leaning outcomes modules (or cartridges)
• Full Environmental Management A.S. Degree
• Built to Quality Matter Specifications for Blackboard.
• VR resources with hands on activities matching key industry training events
  • Tagging and Start Up Procedure
  • Maintenance Procedure
  • Event Response
Continuity of Operations

- Scheduling Advice
- Operating Procedures

1. The overall class is ~ 20 students broken into two 10 person blocks for staggered live training
2. ~70% of fundamental material online done as a whole class of 20 students
3. ~30% in person which equates to 1 live lab, lecture, group project every 2 weeks. This portion is staggered into two groups of ten and repeated by the faculty twice ~ once every 2 weeks.
4. The faculty receives 4 credits instead of 3 because they are doing ~ 30% more work (i.e. repeating the 30% two times)
Marketing & Outreach

- Academia went Online (K-12)
- Academia had trouble filling a daily agenda
Kevin Cooper
kcooper@irsc.edu
772-634-8095
Read the solicitation!
Choose right program track
Start early
Faculty-driven concept & work plan
Get help – avoid errors
  Program Officers
  Project/Center PIs

Be alert to guidelines

Proposals submitted need to be in compliance with both the ATE solicitation and the NSF Proposal & Award Policies & Procedures Guide (PAPPG) (NSF 20-1)

ATE Resources

- [www.atecentral.net](http://www.atecentral.net)
- [www.mentor-connect.org](http://www.mentor-connect.org)
- [www.Evalu-ate.org](http://www.Evalu-ate.org)
- [www.nsf.gov/ate](http://www.nsf.gov/ate)
Thank You & Contact Info

- AACC
- ate@aacc.nche.edu
- 202-416-4510