

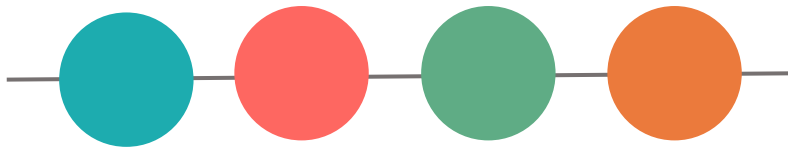
# Advancing the Commonwealth



## Annual Report

2015 - 2016





# Empowered by 4 initiatives



# 5 universities innovate together

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Written by Kelsey Kirland, 4-VA Assessment Coordinator and the 4-VA staff

# 4 Innovative Initiatives MAKE AN IMPACT



## COLLABORATIVE RESEARCH

- **110** students involved in original research, **116** faculty collaborators
- **72** research grants awarded, **\$922,189** invested in innovation in Virginia
- Over **7 million dollars** in external awards from 4-VA pilot grants
- More than **172** research grants awarded by 4-VA over the last 5 years



## COURSE REDESIGN

- Over **13,000** students impacted by course redesign, **145** faculty redesigners, and over **one million dollars** expected in student savings on textbook and course supply fees as a result of OER redesigns
- Chemistry interventions reduced the anticipated DFW rates by **2%** among at-risk students at JMU
- **31** redesign projects, **\$403,424** invested in student success across Virginia
- Over the last 5 years, more than **54** redesign efforts have been funded to support faculty development, large-scale STEM redesign, specialized course redesign, and OERs



## COURSE SHARING

- **18** shared courses provided by 4-VA this year to promote efficiencies, innovation, and student success across Virginia
- **9** courses were focused on STEM+ and **9** supported foreign languages
- **326** students enrolled in a shared course this year
- More than **64** shared courses have been hosted by 4-VA over the last 5 years, providing increased access and time to degree for almost **1,400** students



## DEGREE COMPLETION

- **\$114,041** supports adult degree programs and increasing student access to rewarding degrees
- **142** advisors attended a transfer student symposium and the RN to BSN program has over **233** total student enrollments
- 4-VA leaders are participating in the development of the **Online Virginia Network**
- 4-VA has invested almost **\$700,000** over the last 5 years in sustained efforts to increase access to higher education for all

# EXECUTIVE SUMMARY

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## Creating opportunities for external awards and advanced STEM degrees

### COLLABORATIVE RESEARCH

Over 72 research grants were awarded to faculty collaborating across the Commonwealth. With all 4-VA universities participating in research, the collaborative awarded more grants this year than ever before. 4-VA is proud to report that 91% of grants include undergraduate or graduate student researchers. Another positive outcome from this initiative is the development of pathways for well-trained and competent undergraduate students to pursue a Science, Technology, Engineering, or Math (STEM) related graduate program in Virginia.

Since 4-VA was founded, this initiative has supported more than 172 grants with over \$1.7 million in awards to Virginia faculty to pursue innovative pilot research projects. These small grants have resulted in a return on investment of over 7 million dollars, and counting, in awards from external granting agencies.

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## Focusing on faculty, students, and curriculum for high impact

### COURSE REDESIGN

4-VA supports the course redesign initiative through large scale redesign, individualized course redesign, and faculty development. This year, three large scale redesigns are taking place across chemistry, biology, and applied calculus curriculums. One department designed an approach to aid at-risk students in introductory chemistry by identifying them early, providing support, tracking performance on assessments, tutoring, and adding peer tutoring sessions. These interventions reduced the anticipated drop, fail, and withdraw (DFW) rates by 2% among at-risk students.

Twelve individual courses were redesigned for learner-centered pedagogies as well as for online learning. 4-VA supported five faculty development workshops and conferences focused on student learning. Lastly, eleven courses were redesigned to include Open Educational Resources (OERs). This was an exciting addition to the initiative this year. In total, 4-VA positively impacted over 13,000 students and 37 different courses.

# EXECUTIVE SUMMARY

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## Increasing access to foreign languages and innovative STEM courses

### COURSE SHARING

4-VA hosted 18 courses with 326 students enrolled in shared courses this year. A new STEM course was shared in Interprofessional Innovations and an Unmanned Aerial Vehicle (UAV) course was shared between JMU and ODU students. The UAV course was first piloted on JMU's campus in 2014-15. Two pilot courses were also created and designed to build capacity on campus for course sharing.

Foreign language courses continue to be an area of focus and success for this initiative. Hebrew and Persian were shared for the first time, further strengthening 4-VA's shared language offerings. GMU continues to offer Korean to JMU students in addition to a series of other language courses.

An online graduate engineering course was shared by VT with UVA students. This resulted from an identified need by the engineering department at UVA and the course sharing initiative was leveraged to provide these students with a course from VT. Nine of the 18 courses were related to STEM+ this year.

### DEGREE COMPLETION

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## Meeting high demand with degrees

GMU and JMU continue to support degree completion efforts for adult learners. The online classes in cyber security, computer science, technology and innovation, data analytics, and business technology are addressing the needs identified by the Governor to fill the 17,000 cybersecurity jobs that are currently vacant in Virginia.

The well established Registered Nurses (RN) to Bachelors of Science in Nursing (BSN) program at JMU continues to increase enrollments as more and more students are interested in the online adult degree program that has responded to changes in the nursing field.

The second annual Advising Symposium was held at GMU to bring together university advisors as well as Virginia Community College System (VCCS) counselors. The aim of the symposium is to improve communication and to create more efficient processes for transfer students.

# LETTER FROM THE EXECUTIVE DIRECTOR

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## A PRODUCTIVE YEAR

The 2015-16 academic year has been very productive for the 4-VA collaborative. The leadership of our campus coordinators and the 4-VA network has enabled us to support several strategic initiatives for the State Council of Higher Education for Virginia and the Governor's office. We are making great strides in meeting our mission of accomplishing more by working together.

The campus coordinators at VT and GMU made significant progress in our challenge to explore machine augmented learning and the associated questions of big data. ODU and GMU are working to develop a more robust network of online educational opportunities for students across the Commonwealth. JMU, ODU and GMU have successfully collaborated on a state-wide Unmanned Aerial Vehicle course that leveraged the strengths of each institution and the knowledge of industry leaders to provide unique, real-world experience to 60 students in an emerging industry.

The collaboration network of 4-VA allows all five institutions to share experience, progress, and processes that contribute to making the Commonwealth the best place for education, commerce, and innovation.

Nick Swayne

4-VA Executive Director

## **4-VA PROMOTES INNOVATION AND ADVANCES THE COMMONWEALTH**

4-VA is a collaborative partnership among five Virginia universities powered by 4 initiatives. 4-VA's mission is to promote collaborations that leverage the strengths of each partner university and improve efficiencies in higher education across the Commonwealth of Virginia.

4-VA carries out this mission by advocating unprecedented partnerships between faculty and departments to generate significant, innovative solutions to educational and real-world problems. Since 4-VA's inception, they have sponsored advancements in research, pilot courses, redesigned courses, shared courses, online programs, industry-focused adult degrees, new technologies, interventions, workshops, conferences and many other programs.

## **4-VA HISTORY**

In 2010, the presidents of George Mason University (GMU), James Madison University (JMU), the University of Virginia (UVA) and Virginia Tech (VT) combined forces with Governor McDonnell, other members of Virginia's government, and Cisco Systems, Inc. to launch 4-VA in response to three areas of Virginia's legislation:

1. The Governor's Higher Education Commission
2. The Governor's Commission on Economic Development & Job Creation
3. The Virginia Higher Education Opportunity Act of 2011, "Preparing for the Top Jobs of the 21st Century" (TJ21)

The focus on Science, Technology, Engineering, and Math (STEM) education and innovation to "better position Virginia to create jobs and grow the economy" led to a broad challenge for the universities that continues to guide the work of the growing collaborative.

Early growth gained momentum and 4-VA continued to expand in scope and further develop its infrastructure. In early 2015, 4-VA welcomed Old Dominion University (ODU) as its newest member. In the same year, 4-VA transferred management of the executive office to JMU in the Department of Information Technology.



# 4 INITIATIVES

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## INITIATIVES

Since 4-VA was funded in 2011, Campus Coordinators have worked to realize the goals of the collaborative through four main initiatives. Each university aligns the goals and efforts of their university with that of the collaborative. The partnership's strengths are evident in the commonality of goals reflected in 4-VA's mission and the strategic plan of participating universities.

Each initiative embodies one or more of the founding principles. Universities have developed a collaborative grants program to engage faculty. Campus Coordinators also advance the initiatives on a case-by-case basis by carefully selecting large scale projects or seeking out faculty who are interested in making an impact with innovation. Campus Coordinators work within each university to achieve 4-VA goals through unique projects that embrace the mission of the collaborative.

### 4-VA MISSION

#### Founding Principles

Increase the research competitiveness of the partner universities

Increase opportunities and enhance the success of students in STEM courses and programs

Define instructional models, including the clear definition of instructional costs

Significantly expand access for all Virginians to programs, preparing them for rewarding careers

### 4 INITIATIVES

#### A Mission in Action



# ADVANCING THE COMMONWEALTH

## ALIGNING 4-VA GOALS TO SCHEV'S STRATEGIC PLAN FOR HIGHER EDUCATION

4-VA attempts to work strategically with other state higher education associations, such as the State Council of Higher Education for Virginia (SCHEV), to further the interests of the Commonwealth. 4-VA's initiatives are strongly aligned with SCHEV's goals and the strategies outlined in the Virginia Plan for Higher Education.

The following pages highlight 4-VA projects and their alignment with SCHEV's goals.

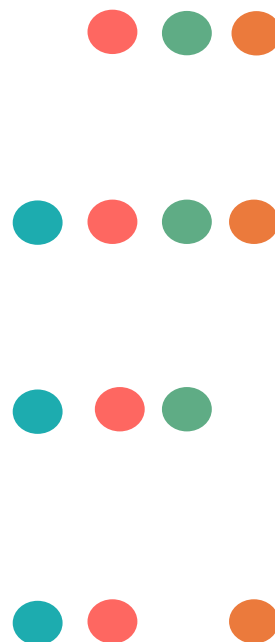
### 4-VA Initiatives



### SCHEV Goals

1	Provide Affordable Access for All
2	Optimize Student Success for Work and Life
3	Drive Change and Improvement through Investment and Innovation
4	Advance the Economic and Cultural Prosperity of the Commonwealth and its Regions

### 4-VA Alignment



# ADVANCING THE COMMONWEALTH

1

Aligns with SCHEV's strategic goals

2

Student Success

3

Improvement through Innovation

4

Economic Prosperity

## COLLABORATIVE RESEARCH

Broadly, the framework through which 4-VA's research grants are organized addresses Goal 3 of SCHEV's Virginia Plan for Higher Education, which describes "driv[ing] change and improvement through innovation and investment". This goal has a strategy to "cultivate innovations that enrich quality, promote collaboration and improve efficiency," and this is well addressed by 4-VA's research grants, which require collaboration with universities within the Commonwealth and promote innovation and research competitiveness.

The collaborative research initiative meets another strategy, by fostering excellence, scholarship, and diversity. **4-VA awardees come from a variety of backgrounds, are highly collaborative and collegial, and leverage 4-VA grants to further their scholarship and even bring in larger external grants.**

On a more granular level, an example of a 4-VA funded grant that addresses "cultivating innovations that enrich quality, promote collaboration and improve efficiency," is the work being done by Carl Dietrich. With a \$25,000 research grant at VT, Dietrich and his colleagues at GMU, JMU, and Radford, as well as his undergraduate student researchers, have continued their research into the Cognitive Radio Network Testbed. Dietrich was awarded \$700,000, part of a \$2.5 million White House Advanced Wireless Research Initiative, which is being led by the National Science Foundation as well as a \$600,000 award for infrastructure.

A second example is the undergraduate research team with GMU, UVA, and VT students led by 4-VA grantee, Tom Ewing at VT. This project connects topics of historical medicine and digital humanities. **The students' research has been showcased through forums and meetings with the National History Center, the American Historical Association, the Wilson Center, and the National Institute for Allergy and Infectious Diseases. Giving students research experiences addresses SCHEV Goal 2** by "strengthen[ing] curricular options to ensure that graduates are prepared with the competencies necessary for employment and civic life," as well as Goal 4, by "expand[ing] participation and engagement in public service and institutional service to the community".

# ADVANCING THE COMMONWEALTH

2

Aligns with SCHEV's strategic goals

1

Affordable Access

2

Student Success

3

Improvement through Innovation

4

Economic Prosperity

## COURSE REDESIGN

4-VA's approach to course redesign is dynamic, comprehensive, and has created many opportunities to strengthen STEM courses in higher education and beyond. As a result, this initiative promotes all of SCHEV's strategic goals.

4-VA hosted two biology articulation conferences in previous years. The conference brought K-12 teachers and university professors together to improve the matriculation of high school students into college. Thus, "improving the college readiness of all students" (Goal 1).

By redesigning the first two years of biology curriculum at JMU, 4-VA has increased student's ability to transfer credits in and out of the university. The **curricular changes reduced costs for parents and families in Virginia and increased students' access to higher education as matriculation improves.**

SCHEV's strategy to "enrich quality and improve efficiency" and to "increase on-time completion of certificates and degrees" can be displayed in another large scale redesign effort funded by 4-VA. Introductory chemistry at JMU had one of the highest drop, fail, and withdraw (DFW) rates at the university and challenged students early in their academic career. These struggles often deterred students from pursuing a STEM degree. The chemistry department designed an approach to aid at-risk students. In one year, these interventions reduced the anticipated DFW rates by 2% among at-risk students.

Both of these examples showcase 4-VA's investment in SCHEV's goals related to student success and improvement through innovation (Goal 2 and 3).

4-VA also believes that the improvement and advancement of STEM opportunities and degrees strongly contributes to Virginia's ability to "advance the economic & cultural prosperity of the Commonwealth and its regions" (Goal 4).

**As over 13,000 students in the Commonwealth were positively impacted by course redesign this year, 4-VA is working to create classroom environments that "build a competitive, future ready workforce".**

# ADVANCING THE COMMONWEALTH

## 3

Aligns with SCHEV's strategic goals

1 Affordable Access

2 Student Success

3 Improvement through Innovation

## COURSE SHARING

Since 4-VA was founded, the course sharing initiative has provided over 64 courses to almost 1,400 students. The initiative gives students an opportunity to take courses that they would otherwise not have access to, further promoting SCHEV's Goal 1 to provide access to all.

4-VA's work with shared courses aims to address strategies related to SCHEV's Goal 2 to "optimize student success for work and life," by contributing to the strategy for "increas[ing] on-time completion of certificates and degrees." For a period of time, VT was unable to offer a Chinese minor to STEM majors. Interested students took these courses elsewhere, potentially impacting their time to degree. With course sharing, Chinese classes are now accessible and this challenge was resolved.

**Lastly, the ability to leverage expertise and maximize resources across the Commonwealth by using telepresence, in many ways, represents an innovative teaching model that aims to improve efficiencies.** By leading the state in thinking about new instructional models, 4-VA is directly responding to SCHEV's call to "cultivate innovations that enrich quality, promote collaboration and improve efficiency" (Goal 3).

Two examples of SCHEV's Goal 3 are described below.

Industry expertise from a non-profit in Northern Virginia was shared with JMU and ODU students in an Unmanned Aerial Vehicle (UAV) course in fall 2015. This course brought specialized knowledge and new opportunities to the students and the robotics minor at JMU. GMU is now participating in the fall 2016 course.

An online graduate engineering course from VT was shared with UVA students when a need was identified by the engineering department at UVA. The course sharing initiative was leveraged to provide these students with a course from VT. This exchange maximized faculty time and improved the efficiency of course offerings.

With the STEMx-Lab at JMU, faculty and students are using technology in new ways to advance their work. **These innovative, applied pop-up courses were cited by *Inside Higher Education* in their November 2016 edition as a model for adding value in career readiness for students.**

# ADVANCING THE COMMONWEALTH



Aligns with SCHEV's strategic goals

1

Affordable Access

2

Student Success

4

Economic Prosperity

## DEGREE COMPLETION

4-VA's degree completion initiative aims to directly align with and further SCHEV's first and second goals that focus on adult access to higher education. 4-VA "provide[s] affordable access to all" by supporting and increasing adult degree completion efforts at 4-VA universities as well as at the state-level.

To this end, more than 50 adult degree courses have been created with 4-VA funds at JMU. **Many of the degree completion courses developed at GMU and JMU target the needs identified by the Governor to fill jobs and to increase the economic development in Virginia.**

An example of this is the Registered Nurses (RN) to Bachelors of Science in Nursing (BSN) program at JMU that was developed in response to local and regional needs. The Entrepreneurship module was created to support small businesses in the Commonwealth. These programs aim to help non-traditional students be competitive for rewarding careers. Specifically, the courses in cyber security, computer science, technology and innovation, data analytics, and business technology promote, SCHEV's Goal 4, to build a strong workforce.

**Another excellent example of a 4-VA project that addresses the need to "provide effective academic and student services infrastructures focused on persistence and completion" (Goal 2) is the Advising Symposium.**

The event between GMU and the Virginia Community College System is designed to increase communication and awareness of transfer student processes.

# FINANCIAL STATEMENT

## FINANCIAL SUMMARY

The table below includes 4-VA's financial statement for the 2015-16 fiscal year. This summary is a combination of the financial statements provided by each of the 4-VA universities.

<b>Initiatives</b>	<b>Amount</b>	<b>Percent of Subtotal</b>
Collaborative Research	\$922,189	52%
Course Redesign	\$403,424	23%
Shared Courses	\$129,000	7%
Degree Completion	\$114,041	6%
Supporting Initiatives	\$207,500	12%
Subtotal	\$1,776,154	

<b>Infrastructure and Resources</b>	<b>Amount</b>	<b>Percent of Subtotal</b>
Technology	\$746,367	62%
Operating	\$452,696	38%
Subtotal	\$1,199,063	

<b>4-VA Financial Statement</b>	<b>Amount</b>	<b>Percent of Total</b>
Initiative Subtotal	\$1,776,154	51%
Infrastructure and Resources Subtotal	\$1,199,063	35%
Anticipated Carryover	\$474,783	14%
Grand Total	\$3,450,000	

# SUCCESSSES

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“I work with many collaborators worldwide, but still I find there is tremendous value in fostering more local interactions. This program has worked out wonderfully for us and, I believe, achieved its goals with flying colors.”

4-VA Grantee

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“Because [our project] involves four major state universities representing three different regions within the Commonwealth, our collaboration enables us to have statewide impact with sustainable food initiatives involving research, teaching and learning, campus operations, and economic development.”

Andrew Wingfield

4-VA Sustainable Food Systems Symposium

## IMPACTFUL AND INNOVATIVE INITIATIVES

Over the past few years, 4-VA has developed capacity for collaboration on each campus. And as a result, **all 5 universities participated in the collaborative research initiative for the first time this year.** 4-VA was able to award 72 research grants, more than ever before, with the largest overall investment in previous years. 4-VA supported more course redesign projects than in previous years with 31 awards this year.

4-VA has also been successful in cultivating innovative initiatives on campus and then leveraging a particular project to be shared with other 4-VA schools. A great example of this are the new shared courses JMU has developed. Once piloted on campus, new courses are shared with other universities the following year. The courses are often specialized and innovative which illicit interest and collaboration.

The OER grants started at GMU may be another opportunity for 4-VA to scale this project across universities. This would leverage the current interest and resources that the Commonwealth has shown in open resources and could work in tandem with Open Virginia, a SCHEV advisory committee.

**4-VA has the potential to leverage and move forward innovative initiatives at the state-level.** 4-VA is also well positioned to work with other state groups, committees, and advisory groups to advance the Commonwealth.



# SUCCESSSES

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"I learned that we have endless resources... when our institutions join together around the table. We are stronger in numbers when we band together and tackle a common cause/problem. As we birthed ideas and shared stories it was amazing to watch how at one institution a concern/problem could be solved using another institution's resources."

4-VA Grantee

## MATURED COLLABORATIONS

4-VA has awarded research grants, shared courses, redesigned courses, and created opportunities for degree completion over the years. Seasoned Campus Coordinators are working together to improve and refine 4-VA processes on their respective campuses. As campus programs have matured, the **4-VA working group is interested in developing more collaborations across universities**. This goal further promotes the mission of collaborations that leverage the strengths of each partner university and improve efficiencies in higher education across the Commonwealth of Virginia.

4-VA has funded a number of faculty and staff pursuing this mission. In previous years, 4-VA supported a data management bootcamp sponsored by the libraries at VT and UVA. The bootcamp shared expertise across two universities in order to strengthen training for faculty and graduate students. Since then, **the project has grown beyond 4-VA. In 2014, the bootcamp grew to include all 5 4-VA universities and in 2015, it expanded to non 4-VA schools** including Virginia Commonwealth University (VCU) and the College of William & Mary. **This is an excellent example of a funded project through 4-VA that maximized the use of the telepresence spaces to share expertise by creating a bootcamp that reached more people and included a broader set of knowledge than what would be available at any one institution.**

Another example of collaborations to improve efficiencies is the Water forum lead by 4-VA grantee Paul Houser at GMU and his collaborators. The forum brought together faculty from other Virginia universities and participants developed substantial inter-departmental, inter-college, inter-university collaborations on large multi-disciplinary proposals, data sharing, observational networks, education, and outreach including linkages with governmental and private sector partners. A water data sharing portal was established to share all water data. This is now being expanded to include partners at VT and JMU.

A final example of 4-VA sponsored collaborations across universities is the soft matter symposium. In Fall 2012, a JMU faculty member, Dr. Feitosa, received 4-VA funding for "Bringing Together a Community of Soft Matter

# SUCSESSES

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89

faculty and students attended the fourth annual soft matter symposium at VCU in 2016

Researchers in Virginia". With this, he hosted a Soft Matter Symposium that has continued and grown each year. In 2014 VT hosted and UVA hosted the symposium in 2015. The soft matter community continues to grow as VCU hosted the symposium in 2016. This community of scholars in Virginia has strengthened as a result of 4-VA's initial support to connect faculty and foster collaboration. To this end, VT recently created a Center for Soft Matter and Biological Physics and a series of 4-VA research grants have resulted from collaborations started at the symposium.

It is clear, with the examples showcased above and the the upcoming 4-VA summits, that **4-VA has created many unique and diverse opportunities to address efficiencies and innovation in higher education.**

## LEVERAGING 4-VA TO RESPOND TO STATE-LEVEL ISSUES

The collaborative aims to organize itself to be able to support larger state-level needs, issues, and policies. This could be in the form of targeted grants, collaborative events, or specific initiatives. 4-VA is well positioned to bring together colleges and universities in order to advance leading issues in Virginia. By sharing local resources and expertise 4-VA can maximize resources at the state-level and identify gaps in current systems.

Through the courses offered, the research funded, and the conferences hosted, **4-VA is able to bring together industry, research, curriculum, and government leaders** who can work together to move forward in these areas and **help Virginia be on the forefront of these emerging technologies.**

Specifically, 4-VA would like to develop as a leader in bringing people together to advance Unmanned Aerial Vehicle (UAV) technology as well as Cyber Security and Big Data.

## REFINED PROCESSES

4-VA continues to work on barriers to collaboration. The collaborative also aims to increase the success of their mission as well as the experiences of 4-VA faculty and grantees. Some schools experienced funding receipt delays that extended the timeframe for configuring and distributing grant funding. The process is complicated and involves budget requests and transfers.

With the addition of a new grants system at UVA, the coordination of research grants between institutions continues to be a challenge though results do indicate real progress. Improvements for a streamlined grant process and cooperation between institutions are planned, but it remains a work in progress.

4-VA is hampered by the limited ability to implement STEM courses in the course sharing format, due to a

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**"4-VA provided an opportunity to work together, to reach out, and to connect with colleagues across universities."**

variety of reasons such as scheduling difficulties and generalized institutional resistance. The collaborative is developing better ways to engage faculty across universities to establish course sharing relationships and thus improve opportunities.

## **COLLABORATION ACROSS FIVE UNIVERSITIES**

Conducting collaborative efforts across five universities is a not a trivial task. This requires vast knowledge of university faculty and departments on campus. Campus Coordinators need to be engaged and involved on campus in a capacity that allows them to learn about upcoming issues or new ideas in order to share them with the 4-VA working group. Gauging interest for a project at each university can be challenging. This work is slow and requires substantial relationship-building both within and between institutions. Collaboration of this magnitude requires time, dedicated support, and resources from all university levels and stakeholders.



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# Collaborative Research

Increases Virginia's Research Competitiveness for  
External Funding



# COLLABORATIVE RESEARCH

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*To strengthen Virginia's competitive edge, 4-VA provides small-scale grants to pilot research teams collaborating across 4-VA universities. With access to this funding, faculty can build evidence to show that their projects will make valuable, impactful contributions to their fields, thereby increasing their chances of winning larger external grants.*

## SUMMARY

An important component of 4-VA's mission is improving research competitiveness within the Commonwealth by providing funding for faculty to engage in pilot research that can be used as a springboard for subsequent grants.

Across all 4-VA universities, the 2015-16 collaborative grants programs required collaboration with public universities in Virginia, community colleges, or community organizations. GMU, JMU, and UVA also prioritized the inclusion of undergraduate students in original research. Dissemination of research results (e.g., conference presentations, journal publications, outreach, open access projects, websites, and educational information) and pursuit of external funding are two important components of the research grant proposals that are awarded.

UVA implemented a robust grants program this year to complement existing efforts at GMU, JMU, and VT. ODU was able to provide complementary funds to faculty to participate in collaborative research. As a result, 4-VA was able to award 44 collaborative research grants. In an effort to honor and support these collaborative efforts, 28 complementary grants were awarded to Co-Principal Investigators of 4-VA collaborative research grants.

These grants support 116 faculty and 110 students in doing original research. 4-VA invested \$922,189 into research that could not be made possible without the collaborations between universities. Many of the grantees will use this project to apply for larger grants.

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# 72

research grants  
awarded to 4-VA  
faculty for collaborative  
pilot projects

# COLLABORATIVE RESEARCH

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## Mentorship and recruitment opportunities for graduate school



## Creating new research relationships and communities

### INITIATIVE IN ACTION

An example of the benefits from this initiative can be seen in the grant titled, "The Search for the Origins of Supermassive Black Holes" lead by faculty at GMU, JMU, and UVA. GMU was able to collect data on a sample of bulgeless galaxies using a very large array radio telescope. A portion of this data was analyzed using the expertise of faculty at JMU and the new radio data could only be processed with the expertise and equipment from UVA. Additionally, a goal of the grant was to create a potential pathway for well-trained and competent undergraduate students at JMU to pursue a graduate program at GMU or UVA. These students would have a clear head start in their research projects as a result of being involved with this opportunity.

A new faculty member at VT was able to build his research networks and capacity through 4-VA. With an upcoming grant deadline, Dr. Wang leveraged his departmental contacts to develop new collaborators at GMU and ODU for a grant titled, "Biological Nitrogen Removal of Stormwater: A 4-VA Collaborative Study". With the help of graduate and undergraduate students, they have developed a model for better understanding the removal of nitrogen from stormwater. This research opportunity will support them in writing an NSF grant in the fall of 2016. It has also fostered the interest in creating a new shared graduate course on stormwater removal that would combine faculty areas of expertise in civil engineering, physics, and environmental science.

### COLLABORATIVE VALUE

The collaborative research initiative brings researchers together across 4-VA institutions and beyond. 4-VA grants create opportunities for communication and collaboration that were not present before the initiative began. They also spark new ideas for research, increase external grant submissions, and develop research communities across institutions.

4-VA grants are viewed as an integral and vital contributor to faculty productivity in research and teaching. The impact on scholarship is evident as 4-VA grantees from this year and previous years reported over 250 planned and in-press presentations and publications.

# COLLABORATIVE RESEARCH

**\$7million**

and counting in external grants awarded to 4-VA faculty

Many grantees report being able to submit grant proposals to external agencies with the support of their pilot research. Eighty one percent of collaborative research grantees from 2015-16 indicate that they intend on applying for external funding. **Increasing the number of proposals faculty are able to submit is an important step to being awarded a larger grant especially in a time of declining federal support.**

At present, 4-VA collaborators reported over seven million dollars in external awards. Return on investment is determined based on the subsequent grants 4-VA faculty are awarded. The catalytic nature of 4-VA helps faculty build capacity for subsequent work and make connections with new research networks. The table below showcases some of the faculty that have received external grants as a direct or indirect result of their 4-VA grants.

Grantees also reported submissions to external agencies in which their decisions are pending. **These awards showcase the strong financial return on investment and a positive rate of success.**

Collaborations take time to mature and develop into strong proposals that result in larger financial rewards. With an established and mature grant program at all the 4-VA universities, the collaborative expects to see more external grants being awarded to 4-VA faculty as a direct or in-direct outcome of their projects.

## Select 4-VA Grants with External Awards

University	Grant title	Grant cycle	Collaborator	External awards	Awarding agency
VT	Efficient Measurement of Cognitive / Spectrum Sharing Radio and Network Performance	Fall 2014	JMU	\$1,300,000	NSF
GMU	The Mason Water Data Information System (MWDIS): Empowering water data sharing and discovery at George Mason University and beyond	Fall 2014	VT	\$440,000	Department of Interior and the National Fish and Wildlife Foundation



# COLLABORATIVE RESEARCH

University	Grant title	Grant cycle	Collaborator	External awards	Awarding agency
JMU	Virginia Trout Streams Research Collaboration	Fall 2012	UVA	\$112,000	Jeffress Foundation and Shenandoah National Park Trust
UVA	Kapitza Conductance of aluminum oxide/gallium nitride Interfaces	Winter 2013	JMU	\$250,000	Commonwealth Research Commercialization Fund and NSF RUI
JMU	Laboratory Techniques in Geology: Redesign of a STEM course to prepare students for graduate school and Employment	Fall 2013	VT	\$275,507	Yes, and here is the amount awarded: \$275,507 (Total to JMU and NVCC)
JMU	Manufacturing Innovation Through Sustainable Design	Fall 2014	VT	\$427,065	NSF
GMU	Investigating phage ecology: an interdisciplinary summer research experience for undergraduate and Governor's School high school students YR 2	Fall 2015	JMU	\$683,845	NSF and 2016 Training Award: HHMI SEA-PHAGES
JMU	Development of a Real-time Data Collection and Intervention Platform for Classrooms: The Rapid Assessment Platform and Intervention Delivery (RAPID) System (Scale Up)	Spring 2014	UVA	\$200,000	Raikes Foundation
JMU	Observational Signatures of Relativistic Black Hole Accretion in the Context of X-Ray Astrophysics	Fall 2015	GMU	\$82,786	National Aeronautics and Space Administration, Smithsonian Astrophysical Observatory
GMU	A search for the origin of super massive black holes	Fall 2014	JMU	\$73,720	NASA Grant
JMU	Effects of Preschool Attendance on Middle School Outcomes in Virginia	Spring 2013	VT	\$114,700	Virginia Department of Education

# COLLABORATIVE RESEARCH

## Impactful Outcomes

Research grants dynamically increase scholarly impact by enriching many facets of faculty research. Beyond the financial return on investment, faculty involved in collaborative research have reported many value added experiences such as new and strengthened research relationships with faculty, access to lab equipment, and funding for student researchers.

A full list of faculty reported areas of impact can be found below.

### BUILDING RELATIONSHIPS



Creating new research relationships and communities



Strengthening faculty relationships



Mentorship and recruitment opportunities for graduate school

### INCREASING ACCESS



Generating proposals and evidence for external awards



Sharing state-of-the-art equipment and maximizing resources



Addressing gaps in traditional funding

### SUPPORTING UNIVERSITIES



Involving undergraduate and graduate researchers



Promoting faculty research and scholarship



Streamlining proposals with flexible funds for productive research

# COLLABORATIVE RESEARCH

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## Increasing research competitiveness

**With a \$25,000 research grant, Carl Dietrich at VT and his colleagues at GMU, JMU, and Radford, as well as his undergraduate student researchers, have continued their research into the Cognitive Radio Network Testbed (CORNET).**

**Dietrich was awarded \$700,000 from the National Science Foundation. He also received a \$600,000 award for infrastructure.**

## LOOKING AHEAD

Collaborative research is one of 4-VA's strongest initiatives. Faculty connections made through research often lead to excitement for and interest in future projects that relate to 4-VA's course redesign and course sharing initiatives. As research collaborations continue to prosper, 4-VA anticipates an increase in these related projects.

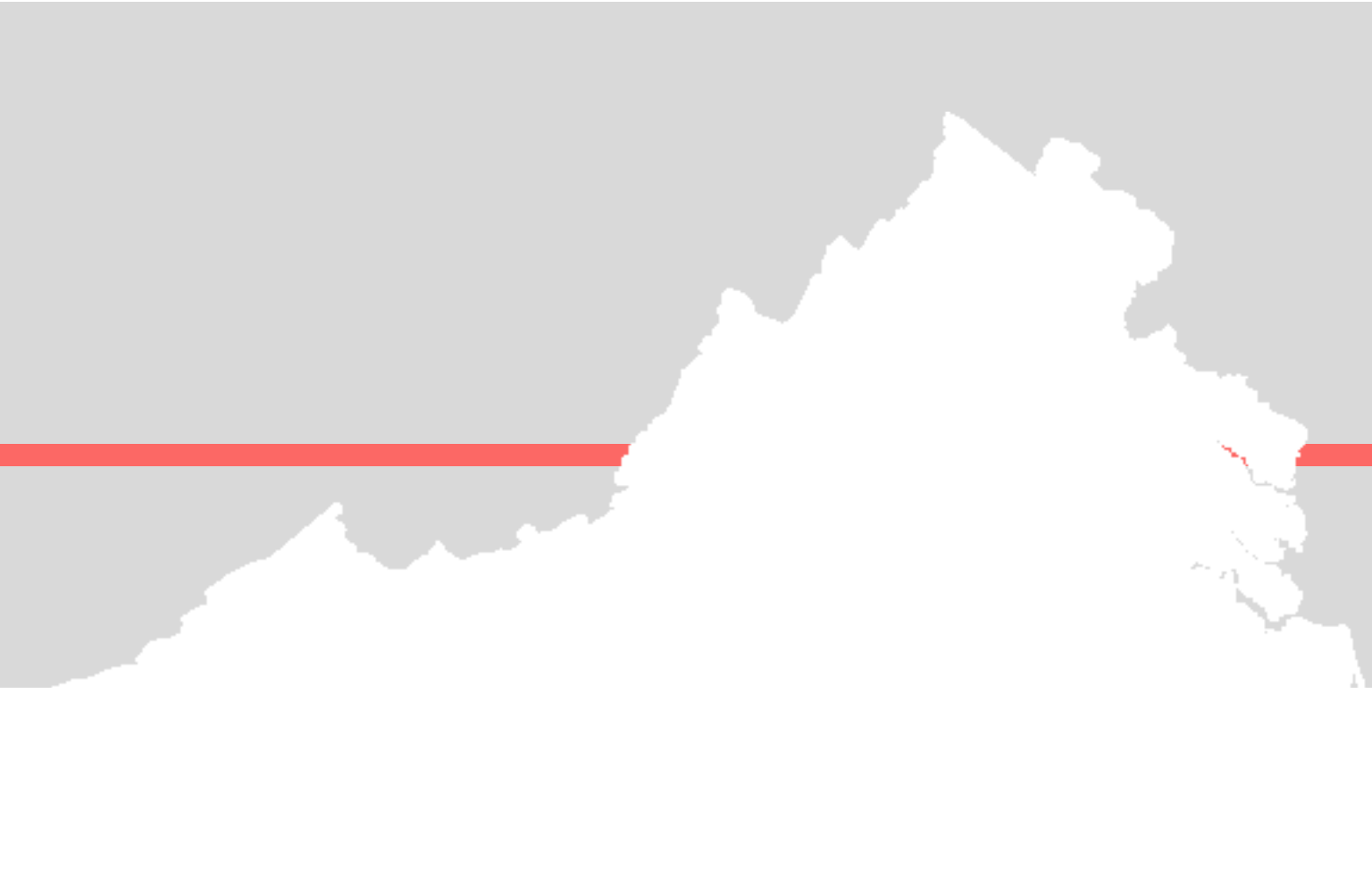
4-VA also expects an increased number of universities participating in the collaborative research initiative as universities expand their scope of potential partners for research. For example, JMU and UVA's 2016-17 collaborative grants programs encourage faculty to collaborate with organizations and universities across Virginia. As a result, this will increase the impact 4-VA can have across the Commonwealth.



2

# Course Redesign

Improves Student Access and Performance  
through Innovative Classroom Practices



# COURSE REDESIGN

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*Students experience the value of higher education when classes are accessible, engaging and inspiring. Through course redesign, 4-VA improves student performance and enhances the classroom experience through active learning, flipped classes, the integration of public data sets, and the use of open educational resources.*

## SUMMARY

Over the years, 4-VA has made targeted efforts to redesign courses in order to support the goals of defining instructional models, expanding access, and improving STEM success. In 2015-16, 4-VA invested \$403,424 into 31 course redesign projects. This work impacted over 13,000 students and over 145 faculty members.

4-VA supports the course redesign initiative in the following areas: faculty development, large-scale STEM course redesign, specialized course redesign, and Open Educational Resources (OERs).

## Faculty Development

4-VA supports teaching and learning conferences on campuses to promote the dissemination of best practices and innovative pedagogy. This year, 4-VA helped sponsor the Innovations in Teaching and Learning Conference at GMU in support of course redesign goals. The conference showcases pedagogy, teaching strategies, activities, assignments, tools, and technologies that faculty, and those supporting faculty in the classroom, are using to have a positive impact on the student learning experience across disciplines at the university level.

4-VA also supported four faculty development workshops to advance the course redesign initiative. Select faculty development workshops at 4-VA universities are open to all 4-VA faculty. One of these workshops is the jmUDESIGN at JMU, an intensive 5-day summer institute that provides faculty with the skills, knowledge, and support necessary to foster a learner-centered classroom environment. This workshop was made available to any faculty member at a public university in Virginia. Fifty-five faculty members attended from James Madison

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# 13,000

students impacted by course redesign projects

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Inspired by UVA's Course Design Institute, JMU created jmUDESIGN, a faculty development workshop. The workshop saw increased enrollment from 40 participants in 2015 to 55 participants in 2016. Participation from colleges in Virginia also increased

# COURSE REDESIGN

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University as well as Ferrum College, Virginia Western Community College, Rappahannock Community College, Thomas Nelson Community College, Northern Virginia Community College, Piedmont Virginia Community College, Germanna Community College, and Eastern Mennonite University.

4-VA is also funding the development of an online Course Design Institute (CDI) at UVA. The Center for Teaching Excellence has been developing an online program to increase faculty access to the face-to-face intensive CDI workshop offered over the summer. The program will facilitate faculty development, promote learner-centered design, and assess changes to course syllabi as a result of the workshop.

Lastly, 4-VA and the Jefferson Trust are funding the Ignite program at UVA. The program provides faculty who are new to UVA with the knowledge, skills, and supportive community they need to develop into exceptional teachers. In 2015-16, 33 Ignite Scholars were supported through the program. This investment in teaching excellence ultimately impacts thousands of students each year.

## Large-Scale STEM Course Redesign

Introductory Science, Technology, Engineering, and Math (STEM) courses are redesigned for increased student performance and technology-enhanced classroom activities. Redesign on this scale positively impacts student retention, time to degree, and program curriculum.

In previous years, 4-VA supported the redesign of freshman biology at VT as well as introductory physics and astronomy at GMU. This year, 4-VA is supporting three large scale course redesign in applied calculus, introductory chemistry, and introductory biology. The chemistry course redesign at JMU is benefiting over 210 at-risk undergraduate students. Targeted interventions and tutoring for these at-risk students is designed to lower the existing drop, fail, and withdraw rate of 30% for introductory chemistry. In one year, these interventions reduced the anticipated drop, fail, and withdraw rates by 2% among at-risk students.

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# +210

at-risk students  
impacted by redesign to  
improve DFW rates

# COURSE REDESIGN

The Biology department at JMU redesigned their core curriculum to better align with national standards, to improve transferability, and to increase student performance. They also redesigned the freshman lab experience to foster dynamic and authentic research experiences designed to develop students' interest in science early in their years of study. These changes will impact approximately 600 students taking introductory Biology each year.

Nucleus, a program designed to help faculty improve STEM education in large enrollment, introductory-level courses at UVA using research-based pedagogies and assessment, has been supported by 4-VA over the last three years. This year, a cohort of applied mathematics faculty redesigned Applied Calculus I, II, and III. The targeted redesign created a significant impact on the calculus curriculum as well as the 1,166+ students enrolled in these courses each year.

## Specialized Course Redesign

New courses are created or existing courses are redesigned with 4-VA support. Courses are redesigned to incorporate video-recorded lessons, problem-based learning activities, public data sets for research, applied math problems, etc. This year 4-VA funded 12 specialized course redesign projects.

Five course redesign grants were awarded at VT that will benefit up to 1,000 undergraduate students this year. These grants will foster redesigns for two engineering courses, two math courses, and one computer science course. **Four of the five courses are developing online materials and modules to increase enrollment and access to students.**

One example of a specialized course redesign is the thermodynamics course collaboration between JMU and GMU. The two professors used a flipped classroom approach in which lectures are recorded and made available online; while, class sessions are focused on problem solving. The course was offered to 54 undergraduate students at GMU and 35 students at JMU.

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**“Upon flipping the course, it was evident that students came to class more prepared, with more questions, and more motivated to engage in conversation and work-out problems.**

**This enthusiasm continued all semester.”**

**Dr. Karim Altaii**

**Thermodynamics course redesign**

# COURSE REDESIGN

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The Nucleus program at UVA supported the learner-centered redesign of two biology courses, one physics course, and one astronomy course that will benefit over 500 undergraduate STEM students.

## Course Redesign for Open Educational Resources (OERs)

Multidisciplinary courses are redesigned to incorporate existing, openly accessible materials or activities which can dramatically reduce the cost of textbooks and supplemental course materials. 4-VA faculty are also creating OERs that are used and assessed in their courses.

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# \$1,000,000

Over one million dollars expected in student savings on textbook and course supply fees as a result of OER redesigns

An OER request for proposals at GMU was a new addition to the grants offered through 4-VA. Grants up to \$5,000 were awarded to faculty to use existing OERs or to create an OER for their course. The OER grants were established in partnership with the Office of Digital Learning and the University Libraries. Eleven grants were awarded to faculty with \$42,000 invested in course redesign for OERs. As a result, these resources will be added to 19 courses which is estimated to impact 8,500 students and save approximately one million dollars in textbook and course supply fees.

The English department will offer at least one section of Advanced Composition that uses only OERs. English 302, Advanced Composition, fulfills the upper-level written communication requirement of the Mason Core. Because very few universities require this sort of discipline-aware Core composition course at the 300 level, few students can earn transfer credit for it. The inclusion of a “no-cost” course will be made possible by an OER database that is being developed for faculty and adjunct faculty who teach this core requirement.

The Honors program is using OERs to make a significant impact on their curriculum. Four of the research methods courses will include at least one section with an OER textbook. Therefore, each year, the proposed OER textbook will be used in thirteen to seventeen 25-student sections of foundational research methods classes in the Honors College.



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## 54+

course redesign  
projects supported by  
4-VA over the last 5  
years

### COLLABORATIVE VALUE

Through this initiative, 4-VA is able to foster dynamic and diverse impact through its multi-pronged approach to course redesign.

To further its impact, 4-VA stresses sharing course materials and information for the benefit of the Commonwealth. Grant recipients share information, best practices, and results through online websites, blogs, and social media. Many faculty submit their course redesign efforts to journals and give presentations at local, national, and international conferences that focus on higher education.

Faculty note that funding has given them more opportunities to think about their courses on a deeper level, to hire graduate assistants, and to build relationships with colleagues. Course redesign provides more time for course planning, development, and assessment.

### LOOKING AHEAD

In future years, Campus Coordinators would like to target more courses with high DFW rates. **Along this goal, VT began a strategic initiative in 2015-16 to explore and implement machine-assisted, data-informed learning and teaching across five courses over five years.** The proposed courses are in STEM subjects with high DFW rates. This initiative is in the exploration and discovery phase and is being discussed with 4-VA Campus Coordinators. It has the potential to impact many 4-VA goals.

4-VA also sees great potential in connecting departments across 4-VA to address commonly held issues. One area of consideration is to organize the instructional designers across the Commonwealth to share ideas, develop best practices for student success, and consider the potential of data-informed learning as a new course pedagogy. There may also be an opportunity to connect chemistry, physics, and biology faculty in an effort to shared recent course redesigns with other universities in Virginia.

## COURSE REDESIGN

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Moving forward, 4-VA aims to connect similar faculty and administrators in order to address commonly held issues and to create solutions for Virginia's higher education. **To this end, 4-VA anticipates hosting a summit for general education. The summit would bring together university leadership in this area in order to share best practices, discuss and address commonly held issues, and leverage 4-VA's network in Virginia to improve general education across the Commonwealth.**



# Course Sharing

Increases Student Access to Remote Expertise



# COURSE SHARING

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*Using remote access technologies, shared courses allow faculty to teach these courses to students in several different locations at once. By maximizing shared resources, course sharing provides students with greater access to the courses they need without spending extra time or money.*

## SUMMARY

Course sharing grants support faculty at 4-VA universities who are interested in sharing courses with other 4-VA partner universities. Grants require the support of the applicant's department and college. STEM-related classes and foreign language courses have been areas of particular strategic focus. Funding for these courses varies across universities.

This year, 18 courses were shared through 4-VA and 326 graduate and undergraduate students participated. Of these courses, nine were foreign language and nine were STEM. Additionally, a new STEM course was offered in Interprofessional Innovations and, for the first time, VT hosted a shared Hebrew course with GMU.

**Since 4-VA was founded, 64 shared courses have been offered and almost 1,400 students have benefitted.**

Highly specialized and innovative courses are piloted and designed to incorporate telepresence technology. Then courses are shared with 4-VA partner universities. In 2015-16, JMU piloted two shared courses; Integrated Math and Interdisciplinary Applied Robotics. Pilot courses provided an opportunity for 47 students to enroll in an innovative course.

Small stipends are used to support course sharing faculty and department activity. This stipend is valued by recipients and promotes interest in the new opportunities associated with course sharing and telepresence technology. The stipend recognizes the additional workload associated with remote office hours, conflicting academic calendars, and additional students. All shared courses include a defined assessment component. 4-VA awarded \$129,000 in faculty stipends and shared course supplies.

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# 326

students enrolled in a shared course

# COURSE SHARING

4-VA telepresence technology directly supports this initiative and 4-VA invests annually in Cisco technology support and maintenance.

The table below lists the 2015-16 courses shared across 4-VA universities.

## FALL 2015

Course Name	Course Level	Host University	Participating University
Elementary Portuguese I	Undergraduate	JMU	VT
Elementary Persian	Undergraduate	GMU	JMU
Introduction to Korean Language	Undergraduate	GMU	JMU
Japanese Grammar and Communication	Undergraduate	JMU	VT
Network Architecture Protocols	Graduate	VT	UVA
Population Ecology	Undergraduate	JMU	UVA

## SPRING 2016

Conversational Portuguese	Undergraduate	UVA	JMU
Elementary Portuguese	Undergraduate	JMU	VT
Intermediate Korean	Undergraduate	GMU	JMU
Intermediate Persian	Undergraduate	GMU	JMU
Introduction to Hebrew II	Undergraduate	VT	GMU
Political Science Simulations	Undergraduate	JMU	VT
STEM Outreach and Community Engagement*	Undergraduate	GMU	JMU
Unmanned Aerial Vehicle	Undergraduate	JMU	ODU

## SUMMER 2016

Teaching Hidden History	Graduate	GMU	ODU
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\*This course is taught at each university by independent faculty and telepresence is used selectively throughout the course to share best practices and select lectures

# COURSE SHARING

## INITIATIVE IN ACTION

An online graduate engineering course was also shared by VT with UVA. The course was initiated by a UVA faculty member who identified the need for a shared course and reached out to her colleagues at VT for support. With low enrollments at UVA, this faculty member was able to use 4-VA course sharing to maximize faculty resources at both universities.

For the second summer, GMU shared a graduate course in digital history. The course was shared with ODU this year and VT last year. Each student created an online module with digital artifacts designed to lead targeted audiences through a history lesson. GMU faculty hope to share the course with more universities next year.

This year ODU students were enrolled in a shared course with JMU. The Advanced robotics: Unmanned Aerial Vehicle (UAV) course leveraged industry expertise to provide students with a unique skill set and a hands-on lab experience. The robotics course focusing on UAV's with ODU was first piloted on JMU's campus in 2014-15.

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"I have had a great experience in Teaching Hidden History. The balance between in-person and online components was perfect for my schedule and workload. I hope to take more courses like this one in the future."

Graduate Student

Teaching Hidden History

## COLLABORATIVE VALUE

Despite the complexities involved with this initiative, **course sharing yields value by making great impact in concentrated areas.** Shared courses fulfill the critical need for languages not available at other institutions within the collaborative. Upper division language courses can maximize enrollment numbers by including students from 4-VA universities, thus increasing efficiency and access to students.

GMU continues to provide Korean courses to JMU. This relationship started when the Korean instructor left JMU and students were struggling to have access to Korean courses.

Piloting STEM courses has been successful in developing them for course sharing. Other STEM+ courses often result from pre-existing multi-university faculty

# COURSE SHARING

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As a result of the Unmanned Aerial Vehicles course, one student became employed at a start-up company that received \$500,000 from the Defense Advanced Research Projects Agency (DARPA) to further develop a concept conceived during the course.

connections. The population ecology course has been successfully shared for many years now because of the strong pre-existing faculty relationships.

As faculty collaborate on research projects, many of them become interested in sharing a course. For example, Dr. Cheng at VT and Dr. Feitosa at JMU received a 4-VA research grant to study soft matter. Through this, they have discussed creating an advanced physics course on soft matter. The shared course would be co-taught and co-developed. **4-VA hopes to see an increase in shared courses built on the relationships developed through collaborative research.**

## LOOKING AHEAD

4-VA is working to see increased course sharing engagement, both from a programmatic and student engagement perspective. Balancing student and faculty interest, resources, and scheduling is an ongoing challenge.

4-VA staff are continuously improving shared course processes and trying to create more efficiencies. **Campus Coordinators are actively soliciting STEM courses that leverage the telepresence technology as an experience that brings added value to the pre-existing outcomes of the course** in order to maximize the collaborative and interactive experience.

The collaborative is developing a strategy that provides more courses to Virginians by establishing a set of foreign language courses that will be routinely available for course sharing across 4-VA universities. This will foster greater enrollment numbers with courses posted on the registrar's system as well as, promote advanced planning which helps to address some of the challenges with scheduling, registrars, and recruitment.

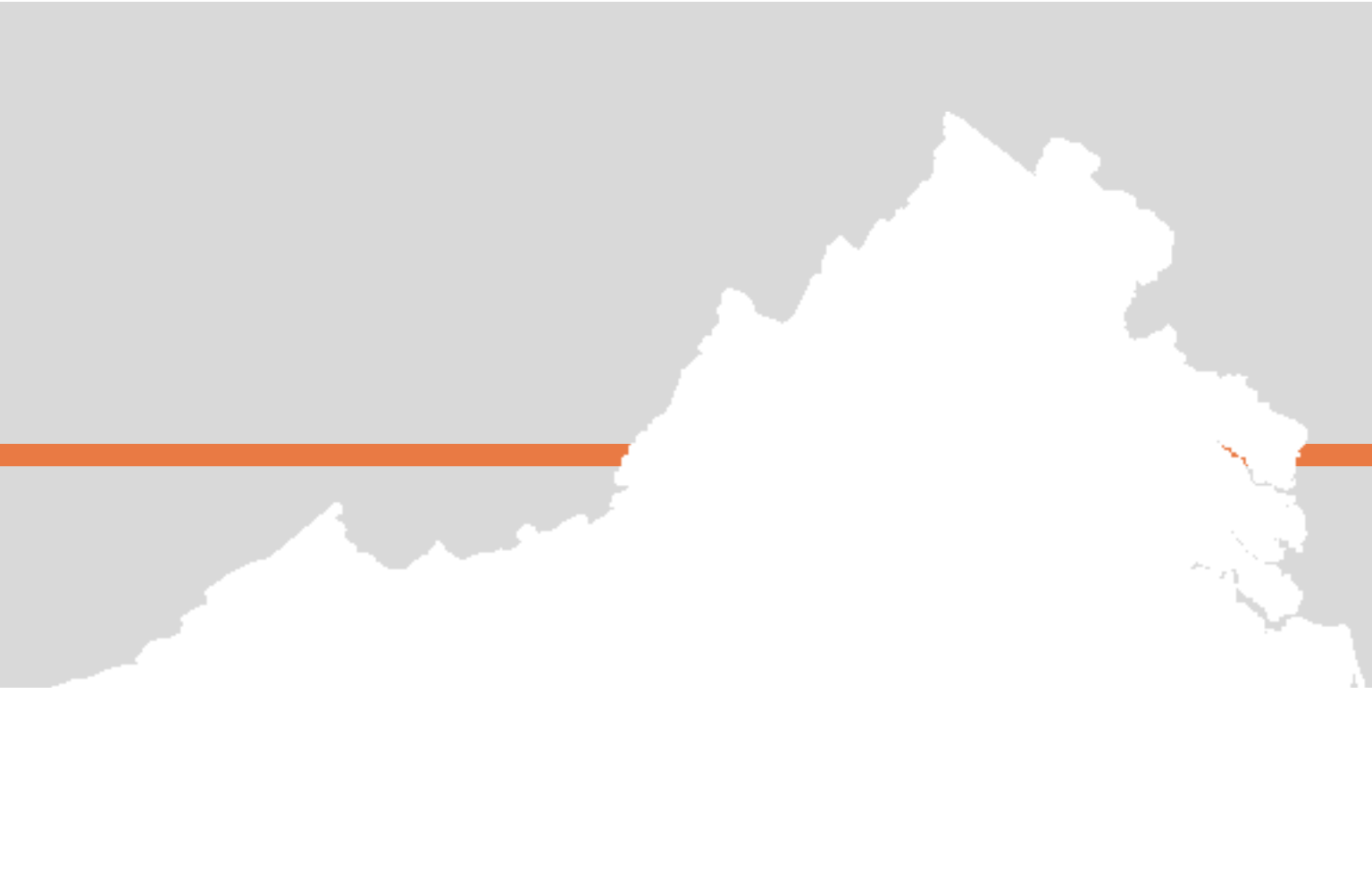
The collaborative agrees that there are more opportunities for collaboration and this can be expanded by dynamic and varied uses of technology. **4-VA aims to increase the use of telepresence technology as a means of connecting individuals across Virginia through the facilitation of premier discussions through lecture series or workshops.**



4

# Degree Completion

Expands Student Access to Degree Completion  
and Rewarding Careers





# DEGREE COMPLETION

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*The goal is to make it easier for community college graduates to earn bachelor's degrees from 4-VA universities by improving access to those degrees. Increasing online offerings, for example, allows traditional and adult students who can't commute to 4-VA universities to earn degrees and increase their employment opportunities.*

## SUMMARY

The degree completion initiative strongly aligns with 4-VA's goal to significantly expand access for all Virginians to programs preparing them for rewarding careers as well as the goal to increase opportunities and enhance the success of students in STEM courses and programs.

Through this, the collaborative aims to:

1. increase online delivery for Virginia citizens,
2. increase access to people who live in places where they cannot commute to a 4-year university, and
3. focus degree completion efforts on program areas with increased employment opportunities in Virginia.

The initiative also supports Top Jobs legislation and the role of universities in economic growth.

For over two years 4-VA has supported five academic degree programs and more than eight concentrations that advance degree completion programs. Degree completion work is advanced by GMU and JMU with an investment of \$114,041 this year. The work of each university is detailed below.

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**"Hosting the symposium has allowed us to share experiences, develop relationships, and begin the process of creating best practices for advising the transfer students."**

**Wayne Adams**

**Symposium organizer**

## George Mason University

For the second year, GMU sponsored the Mason Academic Advisor Network's. This is a daylong advising symposium that brought 152 Virginia Community College System (VCCS) faculty advisors, first year advisors, and transfer counselors together to increase communication and efficiencies in transfer processes. Forty-four percent of the attendants were from Northern Virginia Community College.

# DEGREE COMPLETION

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During the symposium, the participants set goals for the combined GMU and VCCS advising community, in order to improve the transfer student experience.

These goals included:

1. Foster and develop the lines of communication between GMU and VCCS advisors to strengthen the dissemination of accurate information that is provided to prospective students.
2. Provide a shared forum to begin collectively discussing transition issues experienced by students transferring to GMU from 2-year institutions.
3. Collectively understand the barriers experienced by transfer students that affect student persistence and retention rates.

In 2015-16 GMU gave continued support to the Bachelor of Applied Science program. 4-VA funding over the last three years, has provided degree completion programs in eight different concentrations through advisor and teaching support as well as marketing materials. **These concentrations are in cyber security, defense information systems technology, legal studies, technology and innovation,** human development and family science, defense information systems technology, conservation studies, and applied conflict analysis and resolution.

The Online Adult Student Information Service (OASIS) portal continues to be a resource for students looking to transfer course credit and estimate tuition costs as well as time to degree. GMU has supported this initiative since 2013 and refers students to the portal through the Patriot Advising Transfer Help Engine (PATH).

## James Madison University

Since 2012-13 the Office of Outreach and Engagement has partnered with 4-VA to help create classes for the Adult Degree Program as well as the Registered Nurses (RN) to Bachelors of Science in Nursing (BSN) program. With 4-VA support, the Center for Instructional

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**"Recently my employer made [a BSN] a requirement and this gave me the final push to enroll.**

**The online only aspect [is what I like most about the program] and the fact that a part-time track is offered so I can still work, have a family, got to school, and not get too overwhelmed."**

**Kiran Ahmand**

**Registered Nurse, enrolled in the adult degree program**

# DEGREE COMPLETION

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Technology facilitated training academies to teach faculty how to transition face-to-face courses to an online format.

Over the years 4-VA has sponsored the creation of 57 online courses designed for adult degree programs and modules. In 2015-16, 4-VA provided funding for five new courses including supplemental support for those courses. Degree completion courses were developed to support many areas of study including public policy and administration, business technology, entrepreneurship, sustainability, computer science, American studies, American literature, ethics and public administration, and nursing.

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**+100**

students enrolled in the Entrepreneurship module this year

The courses in business, business analytics, as well as innovation and entrepreneurship are thriving. **Ten entrepreneurship courses have been created to support small businesses in the Commonwealth with 100 students enrolled this year. The aim of the courses is to empower people to successfully run small businesses.** Course enrollments are increasing and non-traditional students are learning more about degree completion opportunities. Simultaneously, more faculty are coming on board to teach these online courses.

Another degree completion project is the 9th Period dual enrollment program in computer science. This program continues to provide professional development for K-12 educators and teach computer science at regional high schools. The program aims to increase the number of qualified high school computer science teachers and to offer dual enrollment computer science courses to high school students. Ninth period is another example of 4-VA aligning its projects and funding to be able to support the Governors' call in build cybersecurity capacity and skills sets within Virginia.

## COLLABORATIVE VALUE

Degree completion courses are developed in response to identified areas of high demand from local businesses and entrepreneurs. The largest demand in the Harrisonburg region was identified as the need for a program that would help non-traditional students

# DEGREE COMPLETION

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## 233

students enrolled in the  
RN to BSN program  
since fall 2013

transition from a RN to a BSN. Prior to 4-VA this program did not exist and the prospects of creating one would be a four to five year endeavor. The nursing program continues to be successful as enrollments have increased every year since the program was established with a total enrollment of 233 students from fall 2013 to fall 2016.

The degree completion courses are critical because they target economic development in the Commonwealth. The computer science courses provide data analytics skills required by small businesses (ex. network security).

**The online classes in cyber security, computer science, technology and innovation, data analytics, and business technology are filling the needs identified by the Governor to fill the 17,000 cybersecurity jobs that are currently vacant in Virginia.**

### LOOKING AHEAD

With sustained efforts, 4-VA intends to provide continued support for these courses and programs. ODU looks to be a strong contributor to degree completion and online learning.

Through the degree completion initiative, 4-VA has served as an excellent mechanism to pilot some revolutionary ideas to create a more efficient future for higher education. Some of this work has positively contributed to GMU and ODU collaborating on a statewide Online Virginia Network.

VT plans to engage in the degree completion initiative in the coming years through the exploration and implementation of data-informed learning strategies. Data-informed learning is an approach that enables institutions to tailor the presentation of course materials to each student's unique background and needs in a scalable fashion. A potential outcome of the VT initiative is a shared strategy for widely accessible, modular, adaptive courses on identified STEM bottleneck areas for the Commonwealth. By helping address issues with bottleneck courses, 4-VA can improve student's time to degree.

## TELEPRESENCE TECHNOLOGY

4-VA was founded in partnership with Cisco Systems, Inc. which provided the telepresence technology for shared courses. Each university has, at a minimum, two rooms fitted with Cisco telepresence technology that are used for course sharing. A three-screen Cisco-3210 classroom with 18 seats and a one-screen Cisco-1300 with six-to-eight seats provide state-of-the-art video conferencing and cutting edge learning technologies for students.

A portion of 4-VA funds are spent each year maintaining the technology. Expenses vary from school to school. The collaborative reported spending \$746,376 on technology and related activities including hardware maintenance, software licenses, software maintenance, and connectivity fees.

Excluding maintenance and updates to the telepresence classrooms, GMU, JMU, UVA, and VT reported no significant changes to the course sharing classrooms.

**Both the telepresence and WebEx technology have improved access and flexibility to the shared courses 4-VA supports. This technology expands the ability of students, faculty, staff, and administrators to collaborate globally at significantly lower costs than traditional travel.**

## CUTTING EDGE TECHNOLOGY

In 2015-16, ODU added telepresence classrooms using Cisco Endpoints with dual and single screen Profile 65's. Classrooms also include Cisco Jabber Video for the telepresence app, Cisco WebEx web conferencing, and Cisco Video Bridging. All funds for this project were provided by ODU.

In summer and fall of 2017, Information Technology Services at GMU will update the Cisco telepresence technology in two classrooms.

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These innovative, applied pop-up courses were cited by *Inside Higher Education* in their November 2016 edition as a model for adding value in career readiness for students.

## STEM LAB UPDATE

Last year JMU added a lab space that was designed to bring professors and students from different academic disciplines together to create, to teach new courses, and to share those courses with other 4-VA schools and industry partners. The lab supports 4-VA's mission to increase access to STEM courses as well as 4-VA's initiative for shared courses.

The STEMx-Lab has an integrated maker space and innovation studio that hosts numerous technologies and prototyping machines.

**The STEMx-Lab has generated interest around STEM courses and maker projects for both students and faculty.** The lab is used by individuals all over campus which brings traffic and attention to 4-VA and its mission. Telepresence technology in the STEMx-Lab has been used to facilitate shared courses. The maker technology has allowed students to create devices that are used directly in their coursework. For example, students in the Interprofessional Innovations course used the maker space to prototype their ideas.

# ASSESSMENT AND EVALUATION

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## IMPROVED REPORTING

This year the collaborative developed a central tracking system for 4-VA grants and projects. Additionally, university and grantee reports were streamlined and created to better track information over time. As a result, the collaborative will be able to collect better information from grantees and be able to have comprehensive programmatic data available throughout the year.

Case studies, a research design that involves an intensive study of one or more cases with multiple sources of evidence, are conducted at each of the 4-VA universities. Each case study focuses on a specific project that exemplifies strong collaborative value. The case studies richly describe the impact and outcomes of 4-VA collaborations on students, faculty, departments, universities, and Virginia.

This method is particularly well suited for the many unique and diverse projects supported by 4-VA to advance its mission.

The case studies as well as the grantee reports can be used to conduct an initiative analysis in order to broadly and deeply understand 4-VA's mission in action. All sources of data contribute to the three pronged approach that provides a comprehensive assessment of the goals and desires of the collaborative.

## SHARED ASSESSMENT

The Assessment Coordinator serves as a central connector of information across 4-VA universities and projects. Collecting information at this level allows the collaborative to better understand the collective impact of 4-VA. In addition to and in support of this, each 4-VA university is advancing assessment and evaluation activities on their campuses. Some examples of this include advisory committees, proposal evaluations and peer review, memorandums of understanding, grantee reports, grant expenditure tracking, and university self assessments. Lastly, evaluation of project outcomes and impact is a requirement of each 4-VA grant awarded to faculty.



# George Mason University



## COLLABORATIVE RESEARCH

- **19** research grants awarded, **\$237,348** invested in innovation in Virginia
- **14** of these are competitive grants awarded by GMU and **5** complementary grants awarded to GMU Co-PIs working on 4-VA projects at participating universities



## COURSE REDESIGN

- **11** OER grants awarded to faculty, **\$42,000** invested in student success, **19** courses and almost 9,000 students impacted by OERs
- Over **one million dollars** expected in student savings on textbook and course supply fees as a result of OER redesigns
- Supporting **1** teaching and learning conference and **1** specialized course redesign in Thermodynamics Engineering



## COURSE SHARING

- **6** shared courses hosted or received, **43** students enrolled, **\$9,000** invested in efficiencies, innovation, and student success Virginia
- GMU received a Hebrew course from VT. GMU offered a Korean course to JMU students in the fall to help support their foreign language program. Two Persian courses were also shared and offered for the first time this year.



## DEGREE COMPLETION

- **\$14,041** supports adult degree programs and increasing access to rewarding degrees
- **142** advisors attended the second annual transfer student symposium with VCCS counselors



## UNIVERSITY NARRATIVE

George Mason University (GMU) is an emerging and energetic Research I institution of higher learning, and 4-VA at GMU continues to focus on that spirit of innovation and possibility. Mason plans to produce 100,000 graduates within the next ten years and to serve as a catalyst for economic growth in the Commonwealth. 4-VA at GMU continues to provide resources and support for the BAS degree completion program for adult students, and is in the final stages of a statewide degree completion network with 4-VA partner Old Dominion.

GMU's commitment to "research of consequence" remains an essential component of 4-VA's agenda. Funding undergraduate researchers and increasing efficiencies in instructional delivery and design are critical to both 4-VA and GMU, highlighted by supporting grant funding for OERs.

## GOALS AND STRATEGIC FOCUSES FOR THE YEAR

Throughout the year 4-VA at GMU made specific efforts to:

- Develop more shared courses delivered in non-telepresence formats but shared between 4-VA member institutions. Examples are online, hybrid and utilization of HD videoconferencing, which is more flexible for the instructor. GAME399 UAV is another example of a non-traditional course shared with JMU, and in the spring semester of 2017 a Virtual Reality (VR) shared course will be offered.
- Award 14 OER (Open Educational Resources) grants in collaboration with the Office of Digital Learning and the University Libraries.
- Help to support development of a state-wide online network, in collaboration with ODU.
- Continue to establish streamlined processes for the 4-VA at GMU operational activities, such as grant processes and shared course planning and delivery.

## STRENGTHS

- 4-VA at GMU staff have a strong team approach to achieving goals and initiatives. They have begun a process of cross training to extend the knowledge base. A solid sense of community aids the program in communicating to 4-VA stakeholders.
- There is increased faculty interest in the 4-VA grant program; more faculty are applying for grants and seeking advice from the office as the visibility of 4-VA has increased on campus.
- The number of grants awarded and special initiatives has increased. The turnaround time has decreased for the processing of funds to support faculty research, so that faculty are notified and funding provided within 8 weeks. Grant organization codes are now under the umbrella of 4-VA Academic Activities, so that the fiscal year rollover can take place without added tax.

- 4-VA at GMU continues to support and enhance adult learning initiatives.
- 4-VA at GMU provides most of the courses shared through the collaborative, particularly in the foreign languages area.
- 4-VA at GMU awarded the first series of 11 OER grants that is expected to save students a million dollars in textbook fees each year in 19 different courses.

## CHALLENGES

- Staffing changes at GMU and JMU increased communication challenges for shared courses both delivered to and received from other institutions.
- Different goals at each institution make it challenging to consistently engage in collaboration.
- Work on 4-VA is in addition to other obligations, which makes consistent administration and timeliness a challenge.

## PLANNING PROCESS

GMU's planning process is centered in the Office of the Provost in conjunction with Instructional Technology Services (ITS). The Campus Coordinator and Deputy Campus Coordinator meet weekly to review regular progress and plan ahead. The Deputy Campus Coordinator works closely with ITS to discuss technology and shared course faculty needs and the shared course schedule. The 4-VA Advisory Board meets at least once each semester to review and discuss research proposals, utilizing a proscribed rubric.

In 2016, 4-VA at GMU began offering OER grants, and committed \$42,000. An advisory committee consisting of colleagues from the Office of Digital Learning and the University Libraries reviewed and discussed research proposals.

## GRANT PROCESS

Grant proposals are received by the 4-VA staff via email, and then disseminated to the GMU 4-VA Advisory Board. The board reviews each grant with a rubric that emphasizes the goals of 4-VA (see appendix for RFP form). The rubrics are tallied, and the campus coordinator makes the final decision based on the board results. Grant award recipients receive 4-VA funds through the creation of a budget code attached to GMU 4-VA. The Deputy Campus Coordinator has access to the grantee's budget activity.

If a grant award includes undergraduate research, a budgeted amount is given to the Office of Student Scholarship, Creative Activities and Research (OSCAR), GMU's program that supervises undergraduate research funding.

In this third year, the workflow was refined to accommodate the grant awards process in a timelier manner. There was a small time gap between creation of the grantee

subcodes and the funding of the grants, but the gap was significantly smaller this year. Regular communication with the Provost financial analysts, grantees and the Coordinator and Deputy Campus Coordinator improved the communication process this year.

**In 2015-16, 14 research proposals were received and 14 grants were awarded. Five complementary research requests were granted. Additionally, 12 OER proposals were received and 11 grants were awarded.**

## FUNDING

Funding for academic initiatives is provided automatically each year as a regular budget. Additional funds are negotiated through ITS. This process is informal and is usually handled through a simple email process.

## CHANGES FROM LAST YEAR

GMU started offering shared courses in HD teleconference rooms to accommodate an instructor who could not effectively teach in the telepresence classroom. 4-VA at GMU, in collaboration with the Office of Digital Learning and the University Libraries, sponsored the first series of OER grants.

## ADMINISTRATIVE PROFILE

Janette Muir, Associate Provost, Undergraduate Education and Academic Initiatives & Services, GMU 4-VA Campus Coordinator (in-kind): assembles the advisory board, manages overall operations and outreach, and distributes 4-VA funds.

Linda Lane Sheridan, GMU 4-VA Deputy Campus Coordinator (fully funded by 4-VA): coordinates shared courses, coordinates grant process, liaises with grantees, compiles annual reports.

Marcy Glover, Manager, Undergraduate Programs in the Office of the Provost (in-kind): assists the 4-VA team with events and provides budget support.

Tarra Morgan, Program Assistant (partially funded by 4-VA): supports the campus coordinator and deputy campus coordinator.

Cherie Galantis, Manager, Collaborative Video Technologies, Enterprise Infrastructure (in-kind): manages the Collaborative Video Technology team and resources.

Christina Sander, telepresence Specialist, Collaborative Video Technologies, Enterprise Infrastructure (in-kind): manages telepresence rooms and schedule, trains faculty/staff to teach in the telepresence rooms.

Casey Campbell, Engineer, Collaborative Video Technologies, Enterprise Infrastructure (in-kind): troubleshoots technical issues in the telepresence classroom.

## FINANCIAL SUMMARY

The table below includes the financial statement for the 2015-16 fiscal year. 4-VA funds are retained by the ITS department. A portion of these funds are then given to the 4-VA office. For the next annual report, GMU plans to include a breakdown of how the technology funds are used.

Initiatives	Amount	Percent of Subtotal
Collaborative Research	\$237,348	64%
Course Redesign	\$42,000	11%
Shared Courses	\$9,000	2%
Degree Completion	\$14,041	4%
Supporting Initiatives	\$67,500	18%
Subtotal	\$369,889	

Infrastructure and Resources	Amount	Percent of Subtotal
Technology	\$372,261	78%
Operating	\$107,850	22%
Subtotal	\$480,111	

4-VA Financial Statement	Amount	Percent of Total
Initiative Subtotal	\$369,889	44%
Infrastructure and Resources Subtotal	\$480,111	56%
Anticipated Carryover	\$0	0%
Grand Total	\$850,000	

## FUTURE DIRECTIONS

The proposed funding allocations for 2016-17 will be similar to the allocations designed for the 2015-16 budget. There will be an additional focus on degree completion and new technologies such as SCRYB that can support many 4-VA initiatives. Funding will also be given to Online Orientation software at GMU to further degree completion efforts and enhance experiences for transfer students.

In the upcoming year, GMU will spend less resources on the time intensive shared course model. Instead, they plan to provide support to collaborative summits on key areas such as cybersecurity, big data, and general education.

GMU hopes to work toward building a stronger 4-VA infrastructure and enhanced assessment processes. They plan to focus on new areas and directions within the 4-VA's goals. Specifically, they are interested in emerging technologies that will enhance the student experience. Additionally, GMU continues to work with the Online Virginia Network as it solidifies focus.

# GEORGE MASON UNIVERSITY

## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
Wind energy and watershed action partnership: YR 2 (KidWin Course)	Cynthia Smith	Assistant Professor	Environmental Science & Policy	Competitive Research	\$12,690	JMU
Mason water forum: YR 2	Paul Houser	Associate Professor	Geography & Geoinformation Science	Competitive Research	\$20,000	4-VA
Effect of temperature change on the erosion of soils	Burak Tanyu	Assistant Professor	Geotechnical and Geological Engineering	Competitive Research	\$20,000	VT
Energy education for Virginia preservice teachers	Cynthia Smith	Assistant Professor	Environmental Science and Policy	Competitive Research	\$8,764	JMU
Investigation of the mineralogy of a high-grade, metamorphic iron-formation	Julia Nord	Associate Professor	Atmospheric, Oceanic and Earth Sciences	Competitive Research	\$6,764	JMU
The search for the origins of supermassive black holes	Shobita Satyapal	Professor	Physics and Astronomy	Competitive Research	\$14,534	JMU, UVA
Teaching hidden history: A follow up grant	Kelly Schrum	Professor	Higher Education	Competitive Research	\$20,000	ODU
Brain computer interfaces	Nathalia Peixoto	Associate Professor	Electrical and Computer Engineering	Competitive Research	\$17,600	ODU
Bridging the STEM divide	Claudette Davis	Term Assistant Professor	Biology	Competitive Research	\$20,000	
Aspiring Scientists Summer Internship Program	Lance Liotta	Professor	Applied Proteomics and Molecular Medicine	Competitive Research	\$5,000	
Mapping Virginia's hidden world	Monique van Hoek	Associate Professor	Systems Biology	Competitive Research	\$18,950	ODU

## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
Rain project YR 2	Changwoo Ahn	Associate Professor	Environmental Science and Policy	Competitive Research	\$14,980	
Investigating phage ecology: an interdisciplinary summer research experience for undergraduate and governor's school high school students YR 2	Reid Schwebach	Assistant Professor	Biology	Competitive Research	\$18,950	JMU
Collaborative development of pre-service and in-service teachers to address STEM challenges through outdoor classroom learning	Thomas Wood	Associate professor	Conservation Studies	Competitive Research	\$16,150	JMU
Mechanical objects and the engineering learner	Aditya Johri	Associate Professor	Information Science and Technology	Complementary Research	\$5,000	VT
History of medicine, digital humanities, and data analytics	Alison Landsberg	Associate Professor	History, Art History, and Cultural Studies	Complementary Research	\$5,000	VT
Promoting nuclear and particle physics collaboration among Virginia colleges	Philip Rubin	Professor	Physics and Astronomy	Complementary Research	\$4,000	JMU
Biological nitrogen removal of stormwater: A 4-VA collaborative study	Changwoo Ahn	Associate Professor	Environmental Science and Policy	Complementary Research	\$4,940	VT, ODU
ME 221 thermodynamics	Colin Reagle	Associate Professor	Mechanical Engineering	Course Redesign	\$4,647	JMU
Spanish in context I and II	Alexia Vikis	Term Assistant Professor	Modern and Classical Languages	OER	\$4,000	
Advanced composition	Catherine E. Saunders	Term Assistant Professor	English	OER	\$8,000	
Practicum in engineering	Colin Reagle	Assistant Professor	Mech. Eng.	OER	\$3,000	
Introduction to health information systems	Farrokh Alemi	Professor	Health Administration and Policy	OER	\$2,000	

# GEORGE MASON UNIVERSITY

## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
Introduction to world history	Jane Hooper	Assistant Professor	Art History	OER	\$2,500	
General chemistry	Paul Cooper	Assistant Professor	Chem. & Biochem.	OER	\$2,500	
Solar system astronomy, stars and galaxies	Rebecca Ericson	Term Instructor	Phys. & Astro.	OER	\$2,000	
Introduction to graduate study for international students	Steven Harris-Scott	Term Instructor	Humanities/Prog Coord, Grad. Intl. and INTO Mason	OER	\$5,000	
Organic chemistry laboratory I and II	Suzanne Slayden	Associate Professor	Chem. & Biochem.	OER	\$5,000	
Environmental policymaking in developing countries	Younsung Kim	Assistant Professor	Environmental Science and Policy	OER	\$2,000	
Introduction to research methods I & II, research methods I & II	Zofia Burr	Dean	Honors College	OER	\$6,000	
Innovations in teaching and learning sponsorship	Kim Eby	Associate Provost of Faculty Development	Center for Faculty and Teaching Excellence	Redesign Workshop	\$1,000	
Travel/conference/supplies support 2015-16	Department Funds	NA	Modern and Classical Languages	Shared Course	\$4,000	
Wind energy and watershed action partnership: YR 2 (kidwin course)	Cynthia Smith	Assistant Professor	Environmental Science & Policy	Shared Course - Minimal, Special Projects	\$0	JMU
Introduction to Korean	Hye Young Shin	Adjunct Faculty	Modern and Classical Languages	Shared Course - Telepresence	\$1,000	JMU
Intermediate Korean	Jihye Moon	Adjunct Faculty	Modern and Classical Languages	Shared Course - Telepresence	\$1,000	JMU
Teaching hidden history YR 2	Kelly Schrum	Professor	Higher Education	Shared Course - Telepresence	\$0	ODU
Elementary Persian	Maziar Valamotamed	Adjunct Faculty	Modern and Classical Languages	Shared Course - Telepresence	\$1,000	JMU



## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
Intermediate Persian	Maziar Valamotamed	Adjunct Faculty	Modern and Classical Languages	Shared Course - Telepresence	\$2,000	JMU
Degree completion	Janette Muir	4-VA Campus Coordinator	4-VA Mason	Degree Completion	\$14,041	
SENCER conference support	Thomas Wood	Associate Professor	School of Integrative Studies	Supporting Initiatives	\$3,500	
SMSC sustainability 12.15 symposium	Andrew Wingfield	Associate Professor	Environmental and Sustainability Studies	Supporting Initiatives	\$6,000	4-VA
Sustainability fellow support	Daniel Sklarew	Associate Professor	Environmental Science and Policy	Supporting Initiatives	\$1,000	
Writing center support for STEM	Susan Lawrence	Director	Writing Center	Supporting Initiatives	\$57,000	



# James Madison University



## COLLABORATIVE RESEARCH

- **23** research grants awarded, **\$128,513** invested in innovation in Virginia
- **15** of these are competitive grants awarded by JMU and **8** are complementary grants awarded to JMU Co-PIs working on 4-VA projects at participating universities



## COURSE REDESIGN

- **6** redesign projects funded to support faculty development, large scale STEM redesign, and specialized course redesign
- **2** large-scale STEM redesign projects in introductory Biology and Chemistry, Chemistry reported a 2% reduction in drop, fail, and withdraw rates within one year of the implemented interventions
- **\$103,970** invested in student success
- Almost **1,500** undergraduate students impacted by redesign



## COURSE SHARING

- **12** shared courses were hosted or received, 1 new STEM course was offered and 2 pilot courses were offered
- The Unmanned Aerial Vehicle (UAV) course was shared with ODU spring 2016, first piloted on JMU's campus in spring 2015.
- **\$95,600** invested in efficiencies, innovation, and student success across Virginia
- **185** students enrolled in a shared course this year



## DEGREE COMPLETION

- **\$100,000** supports adult degree programs and increasing access to rewarding degrees
- **10** Entrepreneurship courses have been created to support small businesses in the Commonwealth with **100** students enrolled this year
- 4-VA sponsored the creation of **57** online courses designed for adult degree programs and modules over the last 5 years
- Over **233** students have enrolled in the RN to BSN program since fall 2013

## UNIVERSITY NARRATIVE

The goals of 4-VA at James Madison University (JMU) are strongly aligned with the overall goals of the collaborative to constantly provide new ways for students and faculty to collaborate and to increase access to STEM courses through course sharing. 4-VA at JMU supports the university mission of preparing students to be educated and enlightened citizens who lead productive and meaningful lives by giving students hands-on courses and real experience working in interdisciplinary teams. There is also strategic emphasis placed on innovation and collaboration with the idea that innovative collaborations will spark further partnerships and move 4-VA forward.

JMU focuses on improving opportunities for Virginians to complete a four-year degree by working closely with the Office of Outreach and Engagement to create online courses and modules that meet the needs of employers and citizens. JMU continues to support the pilot program (9th period) to simultaneously provide professional development for K-12 educators and teach computer science at regional high schools. The program grew in its third year to offer even more course offerings and will continue in a fourth year next spring.

JMU continues to place particular emphasis on the collaborative research goal through the collaborative mini and scale up grant program. The grant program also puts a strong emphasis on developing undergraduate research in order to increase retention rates in STEM disciplines.

JMU supported large-scale STEM course redesign programs this year in both biology and chemistry. Over 300 chemistry students and 600 biology students benefited from these targeted interventions. The redesign incorporated cohort building activities, tutoring sessions, research experience, and skill building into the curriculum.

## GOALS AND STRATEGIC FOCUSES FOR THE YEAR

Throughout the year 4-VA at JMU made specific efforts to:

- Pilot STEM courses with other 4-VA schools that were first developed on campus in the previous year. The creation of the JMU X-Labs has provided a space for STEM course sharing and experiential learning to take place. The X-Lab facility has had tremendous success in its first year of use. The UAV/drone course was piloted at JMU and shared in the spring with ODU; GMU is expected to join the course in fall 2016. From this course, multiple students were able to become familiar with the makerspace and go on to create other projects for real clients. As a result of this course, one student became employed at a start-up company that received \$500,000 from the Defense Advanced Research Projects Agency (DARPA) to further develop a concept conceived during this course.

# JAMES MADISON UNIVERSITY

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- Expand the use of the new STEM lab and increase faculty awareness of the opportunities the lab provides. There has been a University Innovation Fellows meet-up in the space that served to showcase the kind of work that is happening here at JMU. Non-traditional pop-up classes were offered to give students exposure and instruction on the 3-D printers, laser cutter, and other maker equipment that is available. These innovative, applied pop-up courses were cited by *Inside Higher Education* in their November 2016 edition as a model for adding value in career readiness for students.
- Support a redesign project with the biology and chemistry departments after analyzing the university's DFW rates. 4-VA used that data to inform and address the courses with high DFW numbers. Introductory biology and chemistry courses were redesigned and support structures were incorporated based on these data driven decisions.

## STRENGTHS

- The collaborative research initiative continues to grow and mature with many grantees reporting external awards yielding a high return on investment. Many new collaborations have been made possible by the grant program. JMU is proud to offer high levels of support to their grantees in order to ensure a strong and successful research collaboration.
- The STEMx-Lab has provided the space for hands-on learning to happen and has sparked incredible interest in STEM-related courses and projects for students and faculty on JMU's campus and beyond. It has given JMU the opportunity to truly share STEM courses such as the Advanced Robotics: Unmanned Aerial Vehicle (UAV) class, the Interprofessional Innovations class, and an applied math course.
- JMU has redesigned two introductory biology and chemistry courses through 4-VA and directly increased the success of intro level science students on campus.

## CHALLENGES

- A challenge experienced at JMU has been related to scheduling of academic calendars and class times with the other 4-VA schools. With these differing calendars and times that classes are normally offered it can create confusion and frustration for students and faculty and it can be difficult to communicate.
- Additionally, 4-VA resources are fairly centralized which provides the ability to schedule classes, telepresence equipment, room access, and stipend payment all from the 4-VA office. When working with other campuses these resources are distributed in a variety of departments which can create differences in flexibility as well as challenges in how 4-VA staff communicate to faculty and staff.

## PLANNING PROCESS

The 4-VA staff holds bi-weekly meetings between Dale Hulvey, Assistant Vice President of Information Technology (IT) and the IT staff to meet technological demands. Quarterly meetings with the Provost, Jerry Benson are held to discuss strategic direction and program updates. An annual strategic planning meeting was held and a Strengths, Weaknesses, Opportunities, and Threats (SWOT) analysis was conducted with various participants and stakeholders. The annual budget and project alignment to 4-VA goals is discussed with the Steering Committee and presented to JMU's President and Provost.

## GRANT PROCESS

The Request for Proposals (RFP) is distributed through a university email from the Provost's Office (see appendix for RFP form) as well as an email to former grant recipients. Grants are reviewed by the JMU steering committee who discusses options for funding. Merit review is accomplished through the collaborative partnership with faculty at the other 4-VA institutions.

**In 2015-16, 27 research proposals were received and 15 grants were awarded. Nine complementary research requests were granted.**

Most departments do not have the support staff to assist research faculty with processing expenditures from grant funding. These grants are also considered internal funding so they are not managed through JMU's Office of Sponsored Programs. Supporting faculty through the process of spending grant funds while following state rules is time consuming. The Deputy Campus Coordinator tries to educate faculty on how money is spent, reimbursed, and transferred and this process is challenging.

## FUNDING

The Campus Coordinator manages 4-VA funds from an account with Information Technology. An annual budget is produced and presented to the President and Provost. Most funding is kept in the 4-VA office so that 4-VA can assist with procurement and track expenditures.

## CHANGES FROM LAST YEAR

The biggest change this year was occupying Lakeview Hall and managing it as a new academic resource during the 2015-16 school year. Nick Swayne became Director of 4-VA in 2010 and has remained. Kai Brokamp left the role of Assistant Director in May 2016 and Kelsey Tate has filled that position. JMU continues to employ three students in the 4-VA office to assist with technology and program support.

## ADMINISTRATIVE PROFILE

Nick Swayne, 4-VA Director (in-kind): manages 4-VA recruitment of faculty for shared courses, promotes collaborative research opportunities, supports faculty on projects, and meets with stakeholders.

Kelsey Tate, Assistant Director (fully funded by 4-VA): manages collaborative research grant processes and budgets. Coordinates shared courses, reservations, and support of telepresence.

Kim Reedy, 4-VA at JMU Director of Communications (part-time funding by 4-VA): produces the 4-VA at JMU annual report magazine and maintains the 4-VA website.

Aaron Kishbaugh, STEMx-Lab Coordinator, (part-time funding by 4-VA): supports faculty and student innovation and management of JMU X-Labs.

Chris Ashley, Technology Assistant and student (funded by 4-VA): supports technology and programming in JMU X-Labs.

Claire Fulk, Student Assistant (funded by 4-VA): supports technology and programming in JMU X-Labs.

Dale Hulvey, Assistant Vice President for Information Technology (in-kind): oversees 4-VA budget activity and provides big picture support of 4-VA projects at JMU.

David Lamm, Network Manager (in-kind): supports videoconferencing technology and networks.

Jim West, Director of Classroom Technology (in-kind): serves as the liaison with innovation services.

## FINANCIAL SUMMARY

The table below includes the financial statement for the 2015-16 fiscal year.

Initiatives	Amount	Percent of Subtotal
Collaborative Research	\$150,000	25%
Course Redesign	\$120,000	20%
Shared Courses	\$100,000	16%
Degree Completion	\$100,000	16%
Supporting Initiatives	\$140,000	23%
Subtotal	\$610,000	



Infrastructure and Resources	Amount	Percent of Subtotal
Technology	\$150,000	63%
Operating	\$90,000	38%
Subtotal	\$240,000	

4-VA Financial Statement	Amount	Percent of Total
Initiative Subtotal	\$610,000	72%
Infrastructure and Resources Subtotal	\$240,000	28%
Anticipated Carryover	\$0	0%
Grand Total	\$850,000	

## FUTURE DIRECTIONS

The proposed funding allocations for 2016-17 will be similar to the allocations designed for the 2015-16 budget. The allocations are as follows: \$80,000 for degree completion, \$150,000 for collaborative research, \$80,000 for course redesign, \$28,000 for course sharing, and \$92,000 for higher education innovation initiatives.

Based on the successes of the STEMx-Lab, in the upcoming year, JMU hopes to both continue to devote resources and to focus even more on sharing piloted STEM courses such as the UAV course and Interprofessional Innovations. Additionally, 4-VA plans to add two to three new pilot courses including Hack 4 Defense, Virtual and Augmented Reality (VR/AR), 3D printing, Math and Entrepreneurship, and Provenance and Restoration of Mechanical Art.

JMU's goal is to generate Lean Launchpad endeavors. They hope that projects started by 4-VA in pilot and shared courses will give faculty and students opportunities to create profitable, scalable, and successful deliverables that can be used outside the classroom. The goal is to create the same return on investment for those projects that have been created through the collaborative research grants.

# JAMES MADISON UNIVERSITY

## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
Promoting nuclear and particle physics collaboration among Virginia colleges	Kevin Giovanetti	Professor	Physics	Collaborative Research	\$4,000	GMU
Ethanol chemistry on titania/gold model catalysts	Ashleigh E. Baber	Assistant Professor	Chemistry	Collaborative Research	\$5,000	VT
Revealing the current relation between stream acidification and fish species richness	Christine May	Associate Professor	Biology	Collaborative Research	\$4,900	UVA
Investigating the giant seebeck coefficient of manganese oxide powders as a function of particle size.	Costel Constantin	Assistant Professor	Physics and Astronomy	Collaborative Research	\$5,000	UVA
Using $\mu$ ct to study amphibian morphology and systematics	David McLeod	Assistant Professor	Biology	Collaborative Research	\$5,000	VT
Amplification of the electric contribution in infrared power generation	Giovanna Scarel	Associate Professor	Physics and Astronomy	Collaborative Research	\$5,000	ODU, JMU
Virginia-led consortium to develop an offshore wind workforce training capability for the U.S.	Jonathan Miles	Professor	Integrated Science and Tech	Collaborative Research	\$5,000	ODU, VT
Observational signatures of relativistic black hole accretion in the context of x-ray astrophysics	Keigo Fukumura	Assistant Professor	Physics	Collaborative Research	\$5,000	GMU
Improving transit bus operations using low cost bluetooth technology	Samy El-Tawab	Assistant Professor	Integrated Science and Technology	Collaborative Research	\$7,700	UVa
From liquid to STEAM: fostering interdisciplinary, engaged approaches to the study of water in international contexts	Seán McCarthy	Assistant Professor	Writing, Rhetoric and Technical Communication	Collaborative Research	\$5,000	Waterways Ireland, Ireland, University College Cork, Ireland, Old Dominion University, VA



# JAMES MADISON UNIVERSITY

## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
A collaborative digitization of the dora cline fechtmann archival collection at two Virginia universities	Deborah L. Gleason	Assistant Professor	Nursing	Collaborative Research	\$7,500	UVA
A Virginia collaborative effort to analyze genomes of recent whooping cough bacteria	Louise Temple	Professor	Integrated Science and Tech	Collaborative Research	\$7,500	UVA
Characterizing the role of flaviviruses in human cartilage arthralgia	Marta K. Bechtel	Associate Professor	Biology	Collaborative Research	\$20,000	SRI Biosciences (Harrisonburg)
Developing a collaborative teaching model through planning regional kidwind challenges at 4-VA universities: YR 2	Remy Pangle	Assistant Director	Wind Energy	Collaborative Research	\$5,000	GMU
A 4-VA collaborative interprofessional education proposal: innovations in collaboration across institutional silos	Erica Lewis	Assistant Professor	Nursing	Collaborative Research	\$4,000	VT, UVA, ODU
The search for the origins of supermassive black holes	Anca Constantin	Associate Professor	Physics	Complementary Research	\$5,000	GMU, UVA
The search for the origins of supermassive black holes	Anca Constantin	Associate Professor	Physics	Complementary Research	\$5,000	GMU
Collaborative development of pre-service and in-service teachers to address STEM challenges through outdoor classroom learning	Cindy Klevickis	Professor	Integrative Science and Technology	Complementary Research	\$3,750	GMU
Energy education for Virginia preservice teachers	David Slykhuis	Chair	Educational Foundations and Exceptionalities	Complementary Research	\$4,563	GMU

# JAMES MADISON UNIVERSITY

## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
A synthesis of two approaches to superstring phenomenology	Ilarion Melnikov	Assistant Professor	Physics	Complementary Research	\$5,000	VT
Pathogenic bacteria in a pristine ecosystem	Joanna Mott	Chair	Biology	Complementary Research	\$5,000	UVA
Investigation of the mineralogy of a high-grade, metamorphic iron-formation	Lance Kearns	Professor	Geology and Environmental Science	Complementary Research	\$3,600	GMU
Investigating phage ecology: an interdisciplinary summer research experience for undergraduate and governor's school high school students YR 2	Steven Cresawn	Associate Professor	Biology	Complementary Research	\$1,000	GMU
Biology redesign	Joanna Mott	Chair	Biology	Course redesign	\$40,000	
4-VA Thermodynamics Course design	Karim Altaii	Professor	ISAT	Course Redesign	\$9,970	GMU
Chemistry tutoring support	Linette Watkins	Professor and Department Head	Chemistry and Biochemistry	Course redesign	\$29,000	
9th Period Summer workshop	Chris Mayfield	Assistant Professor	Computer Science	Redesign Workshop	\$20,000	
jmUDESIGN STEM workshop	Cara Meixner	Executive Director	Center for Faculty Innovation	Redesign Workshop	\$14,000	4-VA
Bio-transfer bootcamp	Joanna Mott	Chair	Biology	Redesign Workshop	\$5,000	
UAV: robotics course supplies 1.2	Kevin Giovanetti	Professor	Physics	Shared Course - Online	\$4,000	ODU
Political science simulations	Bernie Kausler	Associate Professor	Political Science	Shared Course - Telepresence	\$5,000	VT
Elementary Portuguese I	Lilian Feitosa	Instructor	Foreign Languages and Literatures	Shared Course - Telepresence	\$1,000	VT
Elementary Portuguese	Lilian Feitosa	Instructor	Foreign Languages and Literatures	Shared Course - Telepresence	\$1,000	VT

# JAMES MADISON UNIVERSITY

## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
Population ecology	Patrice Ludwig	Assistant Professor	Biology	Shared Course - Telepresence	\$1,000	UVA
Japanese grammar and communication	Yuho Nemoto	Instructor	Foreign Languages and Literatures	Shared Course - Telepresence	\$1,000	VT
Mindfulness and self-care in the helping professions: A shared course with JMU and GMU	Michele Kielty	Professor	Counseling	Shared Course - Telepresence	\$5,000	GMU
Interprofessional innovations	Erica Lewis	Assistant Professor	Nursing	New Shared Course	\$4,600	UVA
UAV: Applied robotics pilot course	Sean McCarthy	Assistant Professor	Writing, Rhetoric and Technical Communication	Pilot Course - Internal	\$4,000	NOVA Labs
UAV mechanical and electrical components	Kevin Giovanetti	Professor	Physics	Pilot Course - Internal	\$15,000	ODU
UAV industry instructor stipends	Briggs, Vo, and Pollet	Adjunct Faculty	NOVA Labs	Pilot Course - Internal	\$6,000	ODU
Applied math	Jim Sochacki	Professor	Mathematics	Pilot Course - Internal	\$5,000	
Virtual reality: graduate student stipend	Claire Fulk	Innovation facilitator	4-VA JMU	Pilot Course - Internal	\$15,000	GMU
Virtual reality equipment	Nick Swayne	4-VA Campus Coordinator	4-VA JMU	Pilot Course - Internal	\$28,000	GMU
Degree completion	Nick Swayne	4-VA Campus Coordinator	4-VA JMU	Degree Completion	\$100,000	
Student engagement (misc.)	Sam Prins	Associate Professor	Mathematics and Statistics	Supporting Initiatives	\$5,000	
STEMx-Lab and university innovation fellows	Nick Swayne	4-VA Campus Coordinator	4-VA JMU	Supporting Initiatives	\$100,000	



# Old Dominion University



## COLLABORATIVE RESEARCH

- **2** complementary research grants awarded, **\$10,000** invested in innovation in Virginia
- **7** ODU faculty are involved in **7** different 4-VA research projects this year; XiXi Wang in Civil and Environmental Engineering, Dean Krusienski in Electrical Engineering, Dipankar Ghosh in Mechanical and Aerospace Engineering, Yonghee Suh in History Education, Balša Terzić in Physics, Marty Kaszubowski from the Center for Enterprise Innovation, and David Gauthier in Biological Sciences
- Graduate and undergraduate students are involved in original research



## COURSE SHARING

- **2** shared courses provided by 4-VA this year
- **\$5,000** invested in efficiencies, innovation, and student success across Virginia
- **8** ODU students were enrolled in a shared course with JMU. The Unmanned Aerial Vehicle (UAV) course leveraged industry expertise to provide a unique skill set and a hands-on lab experience.
- ODU participated in a **new and innovative graduate course** with GMU called “Teaching Hidden History”.



## DEGREE COMPLETION

- ODU is working with GMU on the **Online Virginia Network**, a state funded endeavor, developed as a result of 4-VA partnerships as well as the university’s strong and established history in online education.

## UNIVERSITY NARRATIVE

After joining 4-VA in December, 2014, Old Dominion University (ODU) is committed to providing resources to support 4-VA's efforts in a variety of areas. Within course sharing ODU is interested in providing remote expertise in Graduate Nursing/VA Consortium, Cybersecurity of Critical Infrastructures, and foreign languages. ODU is also interested in sharing resources from their Center for Learning and Teaching and a Summer Institute web conference.

Course Redesign through distance learning will be supported through telepresence used for live connection between sites with WebEx and Adobe Connect. ODU has eight design teams building online programs that can also be used to support this initiative.

ODU also foresees a strong technology collaboration building between the universities. The university is committed to supporting and growing these efforts through telepresence system disaster recovery support, joint test environment for new telepresence systems and scheduling system, as well a providing support for bandwidth constraints and operating systems.

## GOALS AND STRATEGIC FOCUSES FOR THE YEAR

ODU's major goal was to become the fifth higher education institution in 4-VA. With the help of the 4-VA institutions and support of the management board, in 2014, ODU was able to successfully petition for and receive support in joining the 4-VA Collaborative.

ODU's goal for 2015-2016 is to obtain support funding for 4-VA initiatives. This goal is a continuation of ODU's goal in 2014 -2015. With funding ODU hopes to:

- Actively receive at least three courses from the 4-VA course sharing initiative
- Host at least one course for the 4-VA course share initiative
- Establish a research funding program similar to JMU's program providing start up grants and encouraging collaboration with other 4-VA institutions
- Provide support from the Center for Learning and Teaching for the course redesign efforts at ODU and across the 4-VA Collaborative
- Provide leadership to 4-VA efforts in degree completion

## STRENGTHS

- ODU collaborated with JMU to offer an UAV course this past spring and this fall. For the fall course, ODU brought approximately 12 student enrollments that made up two interdisciplinary teams. The fall course was intended to be a practical applications/problem solving interdisciplinary experience.
- ODU's added telepresence classrooms using Cisco Endpoints with dual and single screen Profile 65's, custom rooms are design based on Cisco C90, C40, C20, SX20 codecs. Classrooms also include Cisco Jabber Video for the telepresence app, Cisco WebEx web conferencing, and Cisco Video Bridging. All funds for this project were provided by ODU.

# OLD DOMINION UNIVERSITY

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- ODU continues to be an active participant in attending both the working group meetings as well as annual retreats hosted at JMU. All travel costs for four participants are paid through ODU as an investment in 4-VA.

## CHALLENGES

- 4-VA at ODU appreciates the \$50,000 in funding that was provided by 4-VA partner universities last year; however, this year ODU has not been provided any funding through 4-VA and thus limits their ability to fully contribute to the efforts of the initiative.
- No additional funding prevents ODU from funding faculty who request to participate in joint efforts.

## GRANT PROCESS

ODU supports complementary research grants with the funds awarded to them in 2014-2015. The grant review process is managed at the principle investigator's institution.

## FUNDING

ODU received \$50,000 in support in 2014-15. These funds were transferred from the 4-VA executive office account at GMU. A second request for 4-VA funding will be submitted to the Governor for consideration.

## CHANGES FROM LAST YEAR

One significant difference for ODU this year is the lack of funding via 4-VA. This limits the amount of involvement and collaboration ODU can provide to the overall efforts of 4-VA. ODU is actively involved in course sharing with the other university partners within 4-VA. Additionally, ODU built its own telepresence room using university funds in order to provide the most modern collaborative technological experiences.

## ADMINISTRATIVE PROFILE

Andy Casiello, Campus Coordinator, Associate Vice President for Distance Learning (in-kind): coordinates 4-VA initiatives, requests for funding, and builds capacity on campus.

James Shaeffer, Deputy Campus Coordinator, Founding Dean, College of Continuing Education and Professional Development (in-kind): assists in coordination of 4-VA initiatives, requests for funding, and builds capacity on campus.

Rusty Waterfield, Vice President for Administration and CIO (in-kind): consults on information technology and the MARIA collaboration.

# OLD DOMINION UNIVERSITY

Dean Claud, Director of New Online Program Development for the College of Continuing Education and Professional Development (in-kind): coordinates distance education and adult education and development for ODU.

Wayne Jones, Director of Network Technology and Operations (in-kind): coordinates information technology at ODU.

Morris Foster, Vice President for Research (in-kind): leads research initiatives at ODU.

Brian Payne, Vice Provost, Academic Affairs (in-kind): leads academic initiatives at ODU.

Miguel Ramlatchan, Assistant Vice President for Distance Learning (in-kind): serves as a distance learning engineering at ODU.

## FINANCIAL SUMMARY

The table below includes the financial statement for the 2015-16 fiscal year.

Initiatives	Amount	Percent of Subtotal
Collaborative Research	\$10,000	67%
Course Redesign	\$0	0%
Shared Courses	\$5,000	33%
Degree Completion	\$0	0%
Supporting Initiatives	\$0	0%
Subtotal	\$15,000	

Infrastructure and Resources	Amount	Percent of Subtotal
Technology	In-Kind	0%
Operating	\$0	0%
Subtotal	\$0	

4-VA Financial Statement	Amount	Percent of Total
Initiative Subtotal	\$15,000	30%
Infrastructure and Resources Subtotal	\$0	0%
Anticipated Carryover	\$35,000	70%
Grand Total	\$50,000	

## FUTURE DIRECTIONS

ODU has developed a proposed budget for 4-VA activities that reflects funding to address the four major goals and initiatives.

In the upcoming year, ODU will continue to maintain progress on the established goals and strengths of 4-VA on their campus. They are also focused on starting the 4-VA program on their campus.

ODU aims to increase the number of courses shared with 4-VA universities. They also hope to expand the variety of shared courses offered to students. Continued participation in collaborative research will be a goal for ODU faculty. ODU hopes to leverage 4-VA relationships to be able to enhance curriculum offerings and faculty research. ODU hopes to become a funded partner in 4-VA.



## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
Biological nitrogen removal of stormwater: A 4-VA collaborative study	Xixi Wang	Associate Professor	Civil and Environmental Engineering	Complementary Research	\$5,000	VT, GMU
Brain computer interfaces	Dean Krusienski	Associate Professor	Electrical and Computer Engineering	Complementary Research	\$5,000	GMU
Teaching hidden history: A follow up grant	Yonghee Suh	Assistant Professor	History Education/Social Studies	Complementary Research & Shared Course - Telepresence	\$5,000	GMU
UAV: Robotics Course Supplies 1.2	Tom Alberts	Professor	Mechanical & Aerospace Engineering	Shared Course - Online	\$0	JMU



# University of Virginia



## COLLABORATIVE RESEARCH

- **15** research grants awarded and **\$389,884** invested in innovation in Virginia
- **9** of these are competitive grants awarded by UVA and **6** are complementary grants awarded to UVA Co-PIs working on 4-VA projects at participating universities



## COURSE REDESIGN

- **7** redesign projects funded and **\$155,608** invested in student success
- **1** large scale redesign across the Applied Calculus curriculum and **4** specialized course redesigns in biology, physics, and astronomy
- Approximately **1,600** undergraduate students impacted by course redesign through the Nucleus program
- **33** faculty enrolled in the Ignite program, a program that provides faculty who are new to UVA with the knowledge, skills, and supportive community they need to develop into exceptional teachers.



## COURSE SHARING

- **2** shared courses were hosted or received
- A UVA faculty member used the 4-VA course sharing network to receive an **online engineering course** from VT. She did not have enough students to teach the course at UVA and leveraged 4-VA to maximize faculty resources.
- **13+** students enrolled in a shared course this year

## UNIVERSITY NARRATIVE

The University of Virginia (UVA) seeks to advance the goals of the collaborative by aligning 4-VA activities with the UVA Cornerstone Plan. The particular focus for 4-VA activities are aligned with the following pillars.

Four of the five Pillars of the Cornerstone Plan are clearly congruent with the goals of 4-VA and pillar four is a contributing factor to all 4-VA goals:

1. Enrich and strengthen the University's distinctive residential culture
2. Strengthen the University's capacity to advance knowledge and serve the Commonwealth of Virginia, the nation, and the world through research, scholarship, creative arts, and innovation
3. Provide educational experiences that deliver new levels of student engagement
4. Assemble and support a distinguishing faculty

## GOALS AND STRATEGIC FOCUSES FOR THE YEAR

Throughout the year 4-VA at UVA made specific efforts to:

- Engage more faculty in collaborative research and course redesign. In 2014-15, UVA organized the first 4-VA grant program for collaborative research. This resulted in over 20 proposals with funding provided to 9 grant projects.
- Move to a different model for course redesign. In the past, UVA invested in individual faculty who were interested in redesigning a large enrollment, introductory STEM course. Now efforts are focused on training faculty on how to design engaging courses. While this will still incorporate large enrollment, introductory STEM courses, UVA also feels that it will address two other important needs: sustainability and non-STEM courses.

## STRENGTHS

- Running the first 4-VA collaborative research program generated a lot of interest. There should be interest in next year's program.
- UVA moved from funding individual courses to funding faculty on how to design courses through the Ignite Program managed by the Center for Teaching Excellence.

## CHALLENGES

- UVA's grant program funded collaborative research at other institutions in the Commonwealth. Getting that process in place proved to be challenging. However, the process has been established.

# UNIVERSITY OF VIRGINIA

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- Archie Holmes has been promoted to Vice Provost for Academic Affairs which has put more demands on his time. A goal for the coming year is to hire an assistant vice provost for academic affairs who will work closely with him on 4-VA initiatives.

## PLANNING PROCESS

The planning process involves the Office of the Vice President for Research in collaborative research funding decisions and the Center for Teaching Excellence in course redesign funding decisions. This change allowed appropriate faculty involvement and oversight to be part of the process. These bodies made funding recommendations to the 4-VA Campus Coordinator who then made the final funding decisions.

## GRANT PROCESS

Grants proposal information was distributed to all faculty and staff at UVA (see appendix for RFP form). When the proposals were received, the Office of the Vice President for Research used an existing process to provide reviews. The 4-VA Campus Coordinator met with the reviewers to discuss their thoughts and recommendations. The 4-VA Campus Coordinator made final funding decisions. The university also received matching requests for projects at participating 4-VA schools and provided matching funds for UVA faculty.

**In 2015-16, 24 research proposals were received and 9 grants were awarded. Six complementary research requests were granted.**

Course redesign and innovation was conducted in the spring of 2016 with the Center for Teaching Excellence providing administrative support. The plan is to conduct a call for proposals once a year.

## FUNDING

The Campus Coordinator has full authority over and responsibility for 4-VA funds at UVA.

## CHANGES FROM LAST YEAR

Administrative personnel and 4-VA processes at UVA remain the same as they were in 2014-15.

## ADMINISTRATIVE PROFILE

Archie Holmes, 4-VA Campus Coordinator, Vice Provost for Academic Affairs (in-kind): serves as Campus Coordinator.

## FINANCIAL SUMMARY

The table below includes the financial statement for the 2015-16 fiscal year.

Initiatives	Amount	Percent of Subtotal
Collaborative Research	\$389,884	71%
Course Redesign	\$155,608	29%
Shared Courses	\$0	0%
Degree Completion	\$0	0%
Supporting Initiatives	\$0	0%
Subtotal	\$545,492	

Infrastructure and Resources	Amount	Percent of Subtotal
Technology	\$129,606	100%
Operating	\$0	0%
Subtotal	\$129,606	

4-VA Financial Statement	Amount	Percent of Total
Initiative Subtotal	\$545,492	64%
Infrastructure and Resources Subtotal	\$129,606	15%
Anticipated Carryover	\$174,902	21%
Grand Total	\$850,000	

## FUTURE DIRECTIONS

The proposed funding allocations for 2016-17 will be similar to the allocations designed for the 2015-16 budget. The focus of 4-VA funding will be on collaborative research and course redesign activities.

In the coming year, the aim is to expand the number of submissions and the number of funded proposals by reducing the amount of money per award.

UVA hopes to achieve more name recognition for 4-VA on their campus. Additionally, the university would like to be involved in more collaborative research activities with other institutions in the Commonwealth.

## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
Atlantic coast pipeline study	Andreas Clarens	Associate Professor	Civil and Environmental Engineering	Competitive Research	\$39,134	JMU
History of nursing in Alaska	Arlene Keeling	Distinguished Professor	School of Nursing	Competitive Research	\$36,669	JMU
Teen driver safety	Daniel Cox	Professor	Psychiatry and NB Sciences	Competitive Research	\$29,975	VT
Shelter-in-place structures	Earl Mark	Associate Professor	Architecture	Competitive Research	\$36,750	VT, Outdoor Classroom Project, BATH county schools
High-density li battery cathodes via freeze-casting	Gary Koenig	Assistant Professor	Chemical Engineering	Competitive Research	\$29,970	ODU
Pathogenic bacteria in a pristine ecosystem	Michael Pace	Professor	Environmental Science	Competitive Research	\$23,200	JMU
Genomic analysis of transmissible antibiotic resistance	Stephen Turner	Assistant Professor	Public Health Sciences	Competitive Research	\$57,500	JMU
Gel materials for pelvic brachytherapy	Timothy Showalter	Associate Professor	Radiation Oncology	Competitive Research	\$41,385	VT
3D bioprinted radiation research platform	Yuenan (Nancy) Wang	Associate Professor	Radiation Oncology	Competitive Research	\$38,000	VT
A collaborative digitization of the dora cline fechtmann archival collection at two Virginia universities	Linda Hanson	Project Coordinator	Bjoring Center for Nursing Historical Inquiry	Complementary Research	\$1,700	JMU
Improving transit bus operations using low cost bluetooth technology	Byungkyu Brian Park	Associate Professor	Civil and Environmental Engineering	Complementary Research	\$5,000	JMU
History of medicine, digital humanities, and data analytics	Christian McMillen	Professor	History	Complementary Research	\$5,000	VT

## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
Investigating the giant seebeck coefficient of manganese oxide powders as a function of particle size.	Joe Poon	Professor	Physics	Complementary Research	\$5,000	JMU
A Virginia collaborative effort to analyze genomes of recent whooping cough bacteria	Josh Eby	Assistant Professor	Medicine	Complementary Research	\$5,000	JMU
A 4-VA collaborative interprofessional education proposal: innovations in collaboration across institutional silos	John Owen	Clinical Assistant Professor	Nursing	Complementary Research	\$3,750	JMU, VT
Nucleus course redesign program	Michael Palmer	Managing Director	Center for Teaching Excellence	Course Redesign		
Ignite program	Michael Palmer	Managing Director	Center for Teaching Excellence	Redesign Workshop		
CDI online	Michael Palmer	Managing Director	Center for Teaching Excellence	Redesign Workshop		



# Virginia Tech



## COLLABORATIVE RESEARCH

- **11** research grants awarded, **\$124,957** invested in innovation in Virginia
- **4** of these are competitive grants awarded by VT and **7** are complementary grants awarded to VT Co-PIs working on 4-VA projects at participating universities



## COLLABORATIVE ENDEAVORS

- **\$10,000** supports bringing people together to advance the mission of 4-VA
- **2** grants were awarded to leverage resources across the Commonwealth



## COURSE REDESIGN

- **5** specialized course redesign projects were funded and **\$85,816** was invested in student success
- **2** engineering, **2** math, and **1** computer science course
- Approximately **1,000** undergraduate students impacted by redesign for online or flipped classroom learning



## COURSE SHARING

- **6** courses were hosted or received
- **\$15,000** invested in efficiencies, innovation, and student success across Virginia
- **3** courses were funded, a Hebrew course, an online engineering course, and a international security and conflict management course
- **67** students enrolled in a shared course this year



## UNIVERSITY NARRATIVE

The operation of 4-VA at Virginia Tech (VT) is managed by IT in coordination with the Provost's Office and academic units through the Technology-enhanced Learning and Online Strategies (TLOS) stakeholders committee. The committee provides input on and approval of proposed allocations and grants in addition to annually reviewing grant progress and outcomes report.

Funding for 4-VA grants at VT is intended to support activities that further the goals of both VT and the collaborative through three main grant pools that encompass the primary goals and activities of 4-VA. VT has a competitive research grant pool that is consistent with all of the schools' collaborative research grants, as well as course redesign grants.

A distinctive grant pool at VT is the collaborative endeavors pool. This includes funds for requests that are \$5,000 or less and represent collaborative endeavors between VT and other 4-VA schools. The funds are meant to address projects or collaborations that do not fit into any of the other grant categories but directly support the mission and goals of 4-VA. Examples of uses for these funds include the coordination and hosting of workshops, speaker series, summits, and symposia, as well as small-scale research projects across institutions.

## GOALS AND STRATEGIC FOCUSES FOR THE YEAR

Throughout the year 4-VA at VT made specific efforts to:

- Implement stakeholder approved changes to grant pools, including partnering with the TLOS Design and Develop (D&D) course design awards with the aim of reducing confusion and benefiting faculty participating in the 4-VA course redesign grants.
- Create a partnership between 4-VA course redesign and TLOS D&D, to include a joint submission process and 4-VA course redesign grantee participation in the D&D course design cohort and quality assurance process.
- Create the collaborative endeavors grant pool (total pool amount of \$75,000) that would fund the three following grant activities.
  - Shared courses
  - Complementary funding
  - Collaborative endeavors
- Require a collaboration component within the competitive research pool.
- Contribute to strengthening the shared course processes and overall program within 4-VA.
- Continue to address and improve budget processes.
- Align some portion of VT's 4-VA course redesign funds with the institution's goal and strategic focus of planning for and implementing personalized, machine-assisted adaptive learning.

## STRENGTHS

- 2015-16 continued efforts to grow a robust grants program, with transparent processes and rigorous documentation. For the grant cycle and for the purposes of awarding grants, peer review committees were formed, based off of past grantees. Rubrics with 4-VA goal-related criteria were provided to review committees and in-person meetings were held to normalize and develop a prioritized list of grantee awards.
- The collaborative endeavors grant pool was created and two awards were granted that facilitated collaborations across universities. One of these grants is a team of Virginia Tech faculty and students collaborating with at least four of the five 4-VA schools to plan and participate in a General Education summit. The collaborative endeavors grant pool has enabled an increase in VT's ability to partner with 4-VA schools, and sees this as an area for growth and increased involvement with 4-VA.
- VT originated their first shared courses this year: a Hebrew course using the telepresence classroom and an Engineering course hosted via WebEx.
- As a response to needs identified in 2014-15, a partnership was formed between the 4-VA course redesign grants and the TLOS D&D awards. A joint information session was held for all VT faculty. The course redesign grants had thirteen proposals, which was double the number of submissions from last year. A joint and peer reviewed process occurred for the recommendations of 4-VA course redesign awards, and 4-VA grantees participated in the D&D cohorts, thus contributing to increased and documented course quality assurance.
- In 2015-16, 4-VA at VT awarded over \$235,000 across 21 grants in three grant pools.

## CHALLENGES

- While VT was very successful with the course redesign/D&D partnership, because it was a first-time initiative, it was a rigorous and time-consuming process. VT needs to continue to refine the course redesign awarding process.
- VT will continue to clarify and develop course redesign funding and processes.
- VT will clarify and develop plans for adaptive learning and strategic initiatives for VT's 4-VA efforts.

## PLANNING PROCESS

The Campus Coordinators are responsible for administering and managing 4-VA grants. The TLOS Stakeholders Committee is actively involved in the program's planning process.

The committee has five responsibilities in the context of the 4-VA Collaborative:

1. Providing input on and approval of proposed grant funding allocations to each of the four VT 4-VA grant areas on an annual basis
2. Providing input on and approval of the 4-VA grant proposals and process for collaborative endeavors, shared courses, competitive research, and course redesign grants before each grant cycle
3. Approving recommended 4-VA grant recipients during each grant application cycle
4. Approving on an annual basis the continuation of funding for multi-year 4-VA grants
5. Annually reviewing and providing input on grant progress and outcome reports.
6. A structured, peer review committee of faculty help the Campus Coordinators review and provide feedback on competitive research and course redesign grants as part of the proposal review process. Where appropriate, other faculty and units at VT may also be consulted, as noted above. This will occur prior to grant approvals.

## GRANT PROCESS

The grant process begins with discussion and approvals from the TLOS Stakeholders Committee: allocations, timelines, descriptions, MOUs, evaluation rubrics, and any changes from the previous year are approved by the committee. The Request for Proposals (RFP) are announced on the TLOS Grants website (see appendix for RFP form). Proposal submissions are analyzed with evaluation rubrics. An example criteria is evaluating the levels of specificity, comprehensiveness, and alignment with 4-VA goals, ensuring that selected proposals are detailed, clearly articulated, innovative, well-conceived, and thoroughly developed.

When the grants are awarded, grantees are required to complete MOUs, including signatures of the grantees, the Grants Manager, and, in some cases, the department head. Grantees agree to the assessment requirements stated in the MOU.

**In 2015-16, 12 research proposals were received and 4 grants were awarded. Seven complementary research requests were granted. Additionally, 13 course redesign proposals were received and 5 grants were awarded. VT had two general collaborative endeavors proposals and accepted both of them.**

Funding processes have improved but are still cumbersome, and it takes a long time to be able to disburse funds to grantees.

## FUNDING

In order to internally request funds, IT submits a request to the Provost's Office, the Provost's Office approves the request and sends it to the Budget Office. The Budget Office then approves the request and sends funds to the Provost's Office, who then sends the request to IT. IT works with departmental units to configure access to funding for 4-VA awarded grants.

## CHANGES FROM LAST YEAR

Major changes for the 2015-2016 reporting cycle include changes to the creation of a new grant pool, impacting existing pools and amounts; the partnership between the course redesign pool and the TLOS Design and Develop (D&D) awards; and continued efforts to increase transparency and rigor for the grants management.

The 2015-16 year saw the implementation of the proposed Collaborative Endeavors grant pool. The total amount of funding for the collaborative endeavors pools is \$75,000.

Another major change for the 2015-16 year was the partnership between course redesign and TLOS D&D awards. The two pools shared a common information workshop and grant proposal process. It also provided increased structure for 4-VA course redesign grantees and ensured a higher level of quality for their redesigned courses.

The past year also saw continued dedication to sustaining transparency and rigor with the grant management, including a more formal peer review structure for the award recommendations. Additionally, rigorous reporting was provided to the Chief Information Officer and the Provost's offices, including links to submission packets, links to evaluation rubrics, links to completed review rubric and feedback entries, 4-VA leadership team recommendations, and accounting for funding requests.

Finally, in the 2015 academic year, the 4-VA Assessment Coordinator began working from the ODU campus with more regular visits to all universities in the collaborative. VT retained administrative/supervisory accountability, coordinating evaluation, and supervisory roles. Shared funding of this role is, as of the 2015-16 fiscal year, continues to be a developing conversation.

## ADMINISTRATIVE PROFILE

Dale Pike, Campus Coordinator (in-kind): responsible for providing oversight of 4-VA activities and focuses on strategic directions.

Teggin Summers, Deputy Campus Coordinator (in-kind): provides support for 4-VA activities and assists in the development of strategic directions.

Will Fox, Manger of Grants and Shared Courses (in-kind): oversees the grants program and shared course activities.

Kelsey Kirland, 4-VA Assessment Coordinator (fully funded by 4-VA): advances assessment and reporting for the entire collaborative.

John Krallman, IT Finance Director (in-kind): assists with oversight of 4-VA finances.

Cindy Kelley, 4-VA Finance Director (in-kind): oversees 4-VA finances.

Cindy Keister, Web Designer in Instructional Design (fully funded by 4-VA): assists with 4-VA web presence and serves as 4-VA's contribution to the Instructional Design group, which contributes staff time and expertise to course redesign efforts.

Dan DeGraff, VNOC Technician (fully funded by 4-VA): serves as 4-VA's contribution to the Technology and Operations group, which contributes staff time and expertise to running 4-VA technical operations.

Technology and Technical Operations staff - Computer Systems Chief Engineer/Field Engineer, VNOC Network Architect, VNOC Supervisor/Lead Engineer, VNOC operators, DMS Director/Manager, DMS Customer Accounts Manager, Distance Learning Classroom Support Supervisor, Distance Learning Classroom Support Technicians, Computer/Multimedia Systems Engineers (in-kind): provides technical oversight and support for 4-VA technical operations.

## FINANCIAL SUMMARY

The table below includes the financial statement for the 2015-16 fiscal year. Changes in spending for the year included the decision to not fund as many course redesign grants and instead allot a certain amount of funds to be used for exploration and facilitation of machine-assisted, data-informed learning and teaching.

Initiatives	Amount	Percent of Subtotal
Collaborative Research	\$124,957	53%
Course Redesign	\$85,816	37%
Shared Courses	\$15,000	6%
Degree Completion	\$0	0%
Collaborative Endeavors	\$10,000	4%
Supporting Initiatives	\$0	0%
Subtotal	\$235,773	
Infrastructure and Resources	Amount	Percent of Subtotal
Technology	\$94,500	27%
Operating	\$254,846	73%
Subtotal	\$349,346	



<b>4-VA Financial Statement</b>	<b>Amount</b>	<b>Percent of Total</b>
Initiative Subtotal	\$235,773	28%
Infrastructure and Resources Subtotal	\$349,346	41%
Anticipated Carryover	\$264,881	31%
Grand Total	\$850,000	

## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
Building capacity for general education collaboration across the commonwealth	Stephen Biscotte	Coordinator for General Education	Office of the Provost	Collaborative Endeavors	\$5,000	GMU, JMU, ODU, UVA
Collaboration on efficient measurement of cognitive/spectrum sharing radio and network performance (base)	Carl Dietrich	Associate Professor	Electrical and Computer Engineering	Collaborative Endeavors	\$5,000	GMU
A synthesis of two approaches to superstring phenomenology	Lara Anderson	Assistant Professor	Physics	Competitive Research	\$15,000	JMU
Biological nitrogen removal of stormwater: A 4-VA collaborative study	Zhiwu (Drew) Wang	Assistant Professor	Civil and Environmental Engineering	Competitive Research	\$24,957	GMU, ODU
History of medicine, digital humanities, and data analytics	Tom Ewing	Professor	History	Competitive Research	\$25,000	UVa, GMU
Mechanical objects and the engineering learner	Diana Bairaktarova	Assistant Professor	Engineering Education	Competitive Research	\$25,000	GMU
3D bioprinted radiation research platform	Weiwei Deng	Associate Professor	Mechanical Engineering	Complementary Research	\$5,000	UVA
Effect of temperature change on the erosion of soils	C. Guney Olgun	Assistant Professor	Civil and Environmental Engineering	Complementary Research	\$5,000	GMU
Ethanol chemistry on titania/gold model catalysts	John R. Morris	Professor	Chemistry	Complementary Research	\$5,000	JMU
Gel materials for pelvic brachytherapy	Timothy Long	Professor	Macromolecules and Interfaces	Complementary Research	\$5,000	UVA
Shelter-in-place structures	Tom Martin	Professor	Electrical and Computer Engineering	Complementary Research	\$5,000	UVA
Teen driver safety	Justin M. Owens	Sr. Research Associate	Virginia Tech Transportation Institute	Complementary Research	\$5,000	UVA

## 2015-16 GRANT AWARDS

Grant title	Investigator	Position title	Department	Grant category	Funds awarded	Partner institution
Using µct to study amphibian morphology and systematics	Cao GuoHua	Assistant Professor	Biomedical Engineering and Mechanics	Complementary Research	\$5,000	JMU
Numerical models CS3414	Yang Cao	Associate Professor	Computer Science	Course Redesign	\$11,742	UVA
Spatial visualization ENGE 1354	Diana Bairaktarova	Assistant Professor	Engineering Education	Course Redesign	\$39,142	
STAT 2004; Introductory statistics	Ronald Fricker	Professor	Statistics	Course Redesign	\$8,949	
STAT 3615; Biological statistics I	Anne Driscoll	Assistant Professor	Statistics	Course Redesign	\$8,949	
Theory of structures CEE 3404	Victoria Mouras	Assistant Professor	Environmental and Civil Engineering	Course Redesign	\$17,032	
ECE/CS 5565 network architecture and protocols	Liguang Xie	Graduate Student	Electrical and Computer Engineering	Shared Course - Online	\$5,000	UVA
Introduction to Hebrew	Ester Hallerman	Adjunct	Foreign Languages and Literatures	Shared Course - Telepresence	\$5,000	GMU
IS 4004 senior seminar in international studies seminar topic - international security & conflict management	Yannis Stivachtis	Associate Professor	Director of International Studies	Shared Course - Telepresence	\$5,000	JMU



## FUTURE DIRECTIONS

The proposed funding allocations for 2016-17 will be similar to the allocations designed for the 2015-16 budget. The allocations are as follows: \$75,000 for collaborative endeavors, \$100,000 for collaborative research, \$250,000 for course redesign, \$50,000 for strategic initiatives.

In the upcoming year, VT will explore ways to leverage 4-VA's mission and goals to seed exploration and discovery of machine-assisted, data-informed learning and teaching in ways that will benefit both VT, all of the 4-VA institutions, and the Commonwealth of Virginia. The university will work collaboratively and work to disseminate their understandings through blog posts, collaborative events, and scholarly publications.

VT will also consider how to best foster innovation around 4-VA goals by investing in strategic initiatives and related infrastructure, while operating fully within the spirit of 4-VA.

Goals and measures of success for the 2016-17 year at VT include 4-VA's contribution to the exploration and discovery of machine-assisted, data-informed learning and teaching, both in terms of understanding what it can look like at VT and how it might be approached collectively from all across the Commonwealth. Some specific measures for success would include 4-VA funds for TLOS personnel to travel to schools that are highly engaged with adaptive learning, 4-VA sponsored workshops that bring in adaptive learning experts and have measurable objectives as workshop goals, and 4-VA facilitation of institutional conversations around the subject of adaptive learning across multiple schools.

Additional measures for success include increased number of collaborative endeavors grants and continued transparency regarding grant processes. 4-VA aims to support additional university-related strategic initiatives.

# CONTACT INFORMATION

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# Appendix

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## 2015-16 Mason 4-VA Research Grants



The 4-VA Collaborative is a program that involves George Mason, James Madison University, Old Dominion University, University of Virginia, and Virginia Tech. 4-VA's mission is to promote inter-university collaborations that leverage the strengths of each partner in order to accomplish much more than any individual university could achieve alone.

4-VA strives to:

1. Define instructional models, including the clear definition of instructional costs,
2. Significantly expand access for all Virginians to programs preparing them for rewarding careers,
3. Increase research competitiveness, and
4. Increase opportunities for and enhance the success of students in Science, Technology, Engineering, and Mathematics (STEM) courses and programs

The Mason 4-VA Research Grants Program is designed to advance these goals with specific grant initiatives that also enhance the priorities and interests of Mason. To this end, Mason 4-VA has identified two RFP categories for Academic Year 2015-2016:

1. **Competitive Research Grants** are intended to improve research competitiveness within the Commonwealth and at Mason by providing funding for faculty to engage in pilot research focused on 4-VA goal areas that could be used as a springboard for subsequent, major federal grants. Collaboration with a researcher at one of the 4-VA partner institutions is required, as is active dissemination of the research findings. Research proposals could also directly lead to course redesign. Funding amounts are expected to range from \$5,000 to \$20,000 per grant, not including complementary funding that may be supplied by partner institutions.
2. **Complementary Endeavors** – Mason faculty involved in proposals with other 4-VA institutions will be eligible to apply for **complementary funding of up to \$5,000** to support cross university collaborative work. A **Complementary Funding Request Form** is available on the Mason 4-VA website.

### Deadlines:

- For Completed Application: **October 1**
- For Award Notification: **December 1**
- For Completion of MOU for Awarded Grants: **January 1**

### Who May Apply:

Grants are only available to full-time faculty or administrative faculty who have been with Mason for at least two years. Faculty who have received previous 4-VA grants may be eligible for additional funds, provided regular progress reports have been submitted to the Mason 4-VA Office.

**Required materials:**

1. Cover Sheet with title, unit, and signatures (see final page of this form).
2. Statement, no more than three pages, that gives the rationale for the research grant and addresses each of the following questions.
  - How does your grant proposal address the goals of 4-VA? Please provide a project summary and identify what initiatives are being addressed.
  - Who is involved in your grant proposal? **All participants must be listed and their role in the grant delineated, including researchers from other institutions.**
  - What is the nature of your collaboration? **Projects that extend to at least one of the other 4-VA institutions will be given funding priority.**
  - What will your measures or indicators for success be with this project? *Active dissemination is expected to be a major project component. To be competitive for funding, projects should have a defined dissemination plan for the 4-VA community that includes ongoing project updates and dissemination of findings.* For example, 4-VA grant recipients are encouraged to submit a presentation proposal to the annual *Innovations in Teaching and Learning Conference*.
  - What roles, if applicable, will be available to graduates or undergraduates to participate in this research grant and how will they be selected? **NOTE:** OSCAR will directly receive any funds designated for undergraduate researchers.
3. Timeline for developing, implementing, and assessing the project. Projects that do not have articulated strategies for assessing success, or outcomes will not be considered.
4. Budget and budget justification that clearly describes the funding needed. Please break your budget down into the categories listed below. Depending on state funding, and successful reported results, projects may be extended for up to 2 years.

	Spring 2016	Summer 2016	Fall 2016
<b>Faculty Stipends</b>	\$	\$	\$
<b>Graduate Student Stipends</b>	\$	\$	\$
<b>Undergraduate Pay</b>	\$	\$	\$
<b>Materials (list)</b>	\$	\$	\$
<b>Other (list)</b>	\$	\$	\$

**Grant Process Timeline:**

1. The primary investigator (PI) submits a grant proposal in PDF form to Linda Sheridan, the Deputy Campus Coordinator at [lsherid2@gmu.edu](mailto:lsherid2@gmu.edu).
2. Submitted proposals are reviewed by the Mason 4-VA Advisory Board.
3. The 4-VA Campus Coordinator finalizes grant approvals.
4. Grantees are notified of outcomes.
5. Grantees complete the 4-VA MOU for their grant.
6. Funds for approved grants are released to the grantee(s) and grant work is permitted to commence.
7. Grantees comply with reporting and accountability requirements of MOU throughout the duration of the grant.

PROPOSAL REVIEW RUBRIC - RESEARCH GRANTS 2015-2016											
Rate the following on a scale of 1 to 5 with 5 indicating strong agreement											
PI	PROPOSAL TITLE										
											Meets 1 or more of the goals of 4-VA
											Collaboration with other campus programs or 4-VA institutions
											Involvement of graduates/undergraduates in proposal
											Provides clear rationale for pilot research and dissemination plan
											Budget Request is commensurate with proposal expectations
											Overall quality of proposal
											TOTAL
											Continuation Grant - evidence of success and rationale for continuation provided (July 2015 Reports in GRANT PROPOSALS 2016 Folder)



## Mason 4-VA 2016 Request for Proposals Course Redesign: Using Open Educational Resources



Mason 4-VA, in collaboration with the University Libraries and Mason Online, introduces a Request for Proposals regarding Open Educational Resources (OER). This pilot project is focused on innovative course redesign that reconsiders the materials currently used with the intent purpose to integrate digital materials. Courses of particular interest are those that: 1) have high enrollment numbers, 2) are required courses for majors, 3) count in the Mason Core, or 4) carry high textbook costs.

**Open Educational Resources** are defined as "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge." *Open Educational Resources. The William and Flora Hewlett Foundation, 2016.*

Redesigning courses to include open educational resources can:

- reduce the cost of instruction for students
- improve teaching and learning outcomes
- create student economic opportunity through open access to quality educational resources

### **Who May Apply:**

Mason full-time faculty that teach high demand, highly populated courses. Adjunct faculty may apply as part of a team. For example, a group proposal may contain an adjunct instructor and full-time faculty from a department.

### **Grant Amounts:**

Competitive grants will be awarded ranging from \$1500-\$5000, depending on the nature of the work and the level of team collaboration.

**NOTE: Mason Publishing Group**, a department of the University Libraries, is available to aid faculty in developing OER textbooks or workbooks as a part of this pilot project. Telephone: (703) 993-3636, [publish@gmu.edu](mailto:publish@gmu.edu).



**Required materials:**

1. Cover sheet with title, unit, and signatures (see final page of this form).
2. Statement, no more than two pages, that gives the rationale for the OER grant and addresses each of the following questions.
  - How will your OER grant proposal meet the criteria for an innovative, accessible OER course?  
Please provide a project summary and identify what initiatives are being addressed.
  - Who is involved in your grant proposal? All participants must be listed and their role in the grant delineated.
3. What will your measures or indicators for success be with this project? ***Completed OER course proposals should have an initial offering date of either Fall 2016 or Spring 2017 semester.***
4. Timeline for developing, implementing, and assessing the project. Projects that do not have articulated strategies for assessing success, or outcomes will not be considered.

**For additional information:**

Contact Associate Provost, Janette Kenner Muir, Mason 4-VA Coordinator, [jmuir@gmu.edu](mailto:jmuir@gmu.edu).

**Deadlines:**

- Completed application: **March 18, 2016**
- Award notification: **April 4, 2016**
- Funds distributed: **Summer, 2016**

**Submit proposal electronically to:**

Linda Sheridan, Deputy Coordinator, Mason 4-VA  
[Lsherid2@gmu.edu](mailto:Lsherid2@gmu.edu)

## **4-VA Grant Program: Request for Proposals** Collaborative Research Grant Fall 2015 RFP at James Madison University

### **General Information:**

4-VA is a collaborative of five universities in the Commonwealth of Virginia that are working together to realize Virginia's goals for higher education. The group is the result of a collaboration undertaken by industry, government, and university presidents at George Mason University, James Madison University, Old Dominion University, University of Virginia, and Virginia Tech. 4-VA's mission is to promote inter-university collaborations that leverage the strengths of each partner university in order to accomplish much more than any individual university could achieve alone. The legislation creating 4-VA explains that it was established:

*...to utilize emerging technologies to promote collaboration and resource sharing to increase access, reduce time to graduation and reduce unit cost while maintaining and enhancing quality. Instructional talent across the four institutions will be leveraged in the delivery of programs in foreign languages, science, technology, engineering and mathematics. It is expected that funding will be pooled by the management board as required to support continuing efforts of the 4-VA priorities and projects.*

4-VA strives to:

1. Define instructional models, including the clear definition of instructional costs
2. Significantly expand access for all Virginians to programs preparing them for rewarding careers,
3. Increase research competitiveness, and
4. Increase opportunities for and enhance the success of students in Science, Technology, Engineering, and Mathematics (STEM) courses and programs

### **Guidelines**

The purpose for awarding 4-VA grants is to support faculty efforts that contribute to 4-VA initiatives related to research and instruction. Specific goals involve 1.) encouraging collaboration among faculty in developing research capacity and partnerships, 2.) developing shared courses and 3.) redesigning existing courses. Other proposals that demonstrate innovative approaches relevant to the 4-VA project will also be considered. Potential outcomes include:

- Collaborative Research Projects
- Shared Courses
- Redesigned Courses

### **Aims of 4-Va Collaborative Research Grants**

The aim of JMU 4-VA collaborative research grants is to invest in innovative ideas that not only impact James Madison University's campus but have the potential for future funding and collaborations beyond campus. The program aims to combine the interests and expertise of faculty from multiple 4-VA institutions to increase their research competitiveness and capacity. Potential outcomes include:

- Original research
- Creating new partnerships
- Events/conference that bring together researchers on common subjects
- Future funding and competitive research

### **Funding Information**

4-VA at JMU plans to award funds totaling \$150,000 each fiscal year. These funds will be awarded in the form of mini-grants which will range from \$1,000-\$5,000, or scale-up grants which will go up to \$20,000. In order to be considered for a scale-up grant faculty must have either previously received a mini-grant from 4-VA or show evidence of their capacity to take existing research to the next level.

## Complementary Funds

Complementary funds can be requested (up to \$5,000) from the other 4-VA Institutions as long as a collaborator is located there. If you are interested in requesting complementary funds contact the 4-VA Assistant Director at [brokamkm@jmu.edu](mailto:brokamkm@jmu.edu) or (540)568-7170

## Funding Priorities

4-VA at James Madison University encourages projects to focus on funding priorities of the program but it is not a required aspect. Funding priorities include:

- Incorporate undergraduate and graduate student researchers into the project
- Create and/or strengthen partnerships across the Commonwealth
- Projects that show a strong plan of future funding from other resources

## Screening Criteria

1. Grants are open to James Madison University faculty. Faculty may name staff as Co-PIs.
2. Applicant must obtain departmental chair support especially when departmental resources are utilized.
3. Projects must contain an aspect of collaboration.

## Evaluation Criteria

1. Alignment of proposal to 4-VA funding priorities
2. Alignment of proposal to 4-VA screening criteria
3. Strength and evidence of collaboration with 4-VA institutions or other partners in the commonwealth
4. Potential for strategic impact
5. Innovation in research
6. Sustainability
7. Alignment with institutional goals

## Proposal Format

Proposals should be double spaced, 12 point – Arial font, PDF file (saved, not scanned) and include the following:

1. Project Summary (1-2 pages)
  - a. Title
  - b. Director (PI)
  - c. Partners/Collaborators (if known or partner institutions if not known)
  - d. Type of Grant. What initiative(s) are being addressed
2. Narrative (1-3 pages)
  - a. Project activity summary
  - b. Research questions
  - c. Research plan (framework/methods/phases/specific approach)
  - d. Assessment plan
  - e. Outcomes and deliverables
3. Timeline
4. Budget
5. Proposals that involve JMU departmental resources or release time will require approval from the appropriate academic unit head.

## Submission Deadlines

Grant applications are accepted at any time. Specific deadline dates will be announced for each funding cycle – funding decisions and an award ceremony will be scheduled twice a year– Fall and Spring– subject to available funds. Please complete the form listed here and attach your proposal to the form—

<http://www.formpl.us/form/0B4JWVSZ8joeUUXd2SGdEMWJpRDg/>

Submit questions to the JMU 4-VA Director at [swaynedd@jmu.edu](mailto:swaynedd@jmu.edu). Only grants submitted through the procedure listed above will be considered for funding.

## Expectations

1. Grantees must participate in yearly 4-VA assessment activities (survey)
2. Upon completion of an awarded 4-VA grant, awarded but unused 4-VA grant funds may be requested for use in other teaching or research activities based on two conditions:
  - a. First, the request must be made within one year of the completion of the grant
  - b. Second, the original grant must have been completed in good standing
3. Any publication or product resulting from activity assisted by the JMU 4-VA grants should include the following statement:

“This work was supported by the 4-VA Collaborative at James Madison University”

## Legal and Ethical Considerations

Depending on your project, certain federal, state, and university grant rules and regulations may apply. For further information regarding these rules, contact John Hulvey, Director of Sponsored Programs Accounting and Administration, at [hulveyjd@jmu.edu](mailto:hulveyjd@jmu.edu). If you believe your project will result in patentable work, you should discuss requirements and policies with the Director of the Office of Technology Transfer, Mary Lou Bourne ([bourneml@jmu.edu](mailto:bourneml@jmu.edu)), MSC 4904.

A number of ethical practice review protocols are required for some research activities. If you have questions about the requirements that may apply to your project, contact JMU's IRB Compliance Officer, Carolyn Strong at [strongcd@jmu.edu](mailto:strongcd@jmu.edu) or 8-6872.

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If you have questions or would like more information or clarification on this RFP or 4-VA initiatives, please contact the 4-VA Campus Director at [swaynedd@jmu.edu](mailto:swaynedd@jmu.edu) or (540)568-6093

## **4-VA Grant Program: Request for Proposals**

### Collaborative Research Grant Spring 2016 RFP at James Madison University

#### **General Information:**

4-VA is a collaborative of five universities in the Commonwealth of Virginia that are working together to realize Virginia's goals for higher education. The group is the result of a collaboration undertaken by industry, government, and university presidents at George Mason University, James Madison University, Old Dominion University, University of Virginia, and Virginia Tech. 4-VA's mission is to promote inter-university collaborations that leverage the strengths of each partner university in order to accomplish much more than any individual university could achieve alone. The legislation creating 4-VA explains that it was established:

*...to utilize emerging technologies to promote collaboration and resource sharing to increase access, reduce time to graduation and reduce unit cost while maintaining and enhancing quality. Instructional talent across the four institutions will be leveraged in the delivery of programs in foreign languages, science, technology, engineering and mathematics. It is expected that funding will be pooled by the management board as required to support continuing efforts of the 4-VA priorities and projects.*

4-VA strives to:

1. Define instructional models, including the clear definition of instructional costs
2. Significantly expand access for all Virginians to programs preparing them for rewarding careers,
3. Increase research competitiveness, and
4. Increase opportunities for and enhance the success of students in Science, Technology, Engineering, and Mathematics (STEM) courses and programs

#### **Guidelines**

The purpose for awarding 4-VA grants is to support faculty efforts that contribute to 4-VA initiatives related to research and instruction. Specific goals involve 1.) encouraging collaboration among faculty in developing research capacity and partnerships, 2.) developing shared courses and 3.) redesigning existing courses. Other proposals that demonstrate innovative approaches relevant to the 4-VA project will also be considered. Potential outcomes include:

- Collaborative Research Projects
- Shared Courses
- Redesigned Courses

#### **Aims of 4-Va Collaborative Research Grants**

The aim of JMU 4-VA collaborative research grants is to invest in innovative ideas that not only impact James Madison University's campus but have the potential for future funding and collaborations beyond campus. The program aims to combine the interests and expertise of faculty from multiple 4-VA institutions to increase their research competitiveness and capacity. Potential outcomes include:

- Original research
- Creating new partnerships
- Events/conference that bring together researchers on common subjects
- Future funding and competitive research

#### **Funding Information**

4-VA at JMU plans to award funds totaling \$150,000 each fiscal year. These funds will be awarded in the form of mini-grants which will range from \$1,000-\$5,000, or scale-up grants which will go up to \$20,000. In order to be considered for a scale-up grant faculty must have either previously received a mini-grant from 4-VA or show evidence of their capacity to take existing research to the next level.

## Complementary Funds

Complementary funds can be requested (up to \$5,000) from the other 4-VA Institutions as long as a collaborator is located there. If you are interested in requesting complementary funds contact the 4-VA Assistant Director at [tatekm@jmu.edu](mailto:tatekm@jmu.edu) or (540)568-7170.

- Your grant must not depend on the complementary funds to be approved as they are not guaranteed
- Complementary funds can only be used for expenses at the requesting institution. Ex. If you request complementary funds from Virginia Tech, they must pay for activities at Virginia Tech.
- Complementary funds are requested by designating in the submission form. Please make sure your budget has two different tracks, one that shows the hosted funds and one that shows the complementary funds

## Funding Priorities

4-VA at James Madison University encourages projects to focus on funding priorities of the program but it is not a required aspect. Funding priorities include:

- Incorporate undergraduate and graduate student researchers into the project
- Create and/or strengthen partnerships across the Commonwealth
- Projects that show a strong plan of future funding from other resources

## Screening Criteria

1. Grants are open to James Madison University faculty. Faculty may name staff as Co-PIs.
2. Applicant must obtain departmental chair support especially when departmental resources are utilized.
3. Projects must contain an aspect of collaboration.

## Evaluation Criteria

1. Alignment of proposal to 4-VA funding priorities
2. Alignment of proposal to 4-VA screening criteria
3. Strength and evidence of collaboration with 4-VA institutions or other partners in the commonwealth
4. Potential for strategic impact
5. Innovation in research
6. Sustainability
7. Alignment with institutional goals

## Proposal Format

Proposals should be double spaced, 12 point – Arial font, PDF file (saved, not scanned) and include the following:

1. Project Summary (1-2 pages)
  - a. Title
  - b. Director (PI)
  - c. Partners/Collaborators (if known or partner institutions if not known)
  - d. Type of Grant. What initiative(s) are being addressed
2. Narrative (1-3 pages)
  - a. Project activity summary
  - b. Research questions
  - c. Research plan (framework/methods/phases/specific approach)
  - d. Assessment plan
  - e. Outcomes and deliverables
3. Timeline
4. Budget
5. Proposals that involve JMU departmental resources or release time will require approval from the appropriate academic unit head.

## Submission Deadlines

Grant applications are accepted at any time. Specific deadline dates will be announced for each funding cycle – funding decisions and an award ceremony will be scheduled twice a year– Fall and Spring– subject to available funds. Please complete the form listed here and attach your proposal to the form—

<http://goo.gl/y8Xo3T>

Submit questions to the JMU 4-VA Director at [swaynedd@jmu.edu](mailto:swaynedd@jmu.edu). Only grants submitted through the procedure listed above will be considered for funding.

## Expectations

1. Grantees must participate in yearly 4-VA assessment activities (survey)
2. Upon completion of an awarded 4-VA grant, awarded but unused 4-VA grant funds may be requested for use in other teaching or research activities based on two conditions:
  - a. First, the request must be made within one year of the completion of the grant
  - b. Second, the original grant must have been completed in good standing
3. Any publication or product resulting from activity assisted by the JMU 4-VA grants should include the following statement:

“This work was supported by the 4-VA Collaborative at James Madison University”

## Legal and Ethical Considerations

Depending on your project, certain federal, state, and university grant rules and regulations may apply. For further information regarding these rules, contact John Hulvey, Director of Sponsored Programs Accounting and Administration, at [hulveyjd@jmu.edu](mailto:hulveyjd@jmu.edu). If you believe your project will result in patentable work, you should discuss requirements and policies with the Director of the Office of Technology Transfer, Mary Lou Bourne ([bourneml@jmu.edu](mailto:bourneml@jmu.edu)), MSC 4904.

A number of ethical practice review protocols are required for some research activities. If you have questions about the requirements that may apply to your project, contact JMU's IRB Compliance Officer, Carolyn Strong at [strongcd@jmu.edu](mailto:strongcd@jmu.edu) or 8-6872.

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If you have questions or would like more information or clarification on this RFP or 4-VA initiatives, please contact the 4-VA Campus Director at [swaynedd@jmu.edu](mailto:swaynedd@jmu.edu) or (540)568-6093

## Evaluation Criteria:

- How well does this proposal align to 4-VA funding priorities?
- Please rate the strength of collaboration with other 4-VA institutions evident in this proposal.
- How would you rate the potential for strategic impact of this proposal?
- How would you rate the innovation in technology of this proposal?
- How would you rate the innovation of teaching evident in this proposal?
- How would you rate the innovation of learning evident in this proposal?
- How would you rate the innovation in research evident in this proposal?
- Please rate the strength of collaboration with other programs on campus evident in this proposal.
- How would you rate the sustainability of this proposal?
- How well does this proposal align with our institutional goals?



## 4-VA Research Grants Program

*Requests for Proposals for Academic Year 2015-2016*

### Background

The 4-VA Collaborative is a program between Virginia Tech, James Madison University, University of Virginia, Old Dominion University, and George Mason University whose mission is to promote inter-university collaborations that leverage the strengths of each partner university in order to accomplish much more than any individual university could achieve alone.

These grant programs seek to increase the prevalence and intensity of research collaboration between institutions within the Commonwealth; increase funding awarded to Virginia faculty and Universities; increase scholarly impact of Virginia faculty and Universities; and increase student participation in original scholarship, especially those from diverse backgrounds and at non 4-VA institutions.

There are two different research funding mechanisms available for Academic Year 2015-2016.

1. **Collaborative Research Grants** are intended to improve research competitiveness within the Commonwealth by providing funding for faculty teams to engage in pilot research which could be used as a springboard for subsequent external funding (e.g., federal or foundation grants). **Proposals involving only one faculty member will not be considered; collaboration with researchers at another university or research institution in Virginia is strongly encouraged, but not required.** If the collaboration involves another 4-VA partner institution, additional complementary funding of up to \$5,000 per partner institution may be requested from that institution.

It is anticipated that **\$200,000** will be awarded during the 2015-2016 academic with average awards between **\$20,000** and **\$30,000** (maximum which can be requested is **\$60,000**). Funding can be requested for up to two years.

2. **Catalyst Research Grants** are intended assist UVa faculty in completing the work needed to establish new research collaborations within the Commonwealth, improve competitiveness for future research funding opportunities, or increase the scholarly impact of the faculty member's current and future research and scholarly activities. If the work involves another 4-VA partner institution, additional complementary funding of up to \$5,000 per partner institution may be requested from that institution.

It is anticipated that **\$50,000** will be awarded during the 2015-2016 academic with average awards between **\$3,000** and **\$5,000** (maximum which can be requested is **\$6,000**). Funding can be requested for up to two years.

All areas of research and scholarship are eligible for these research grants. For the 2015-2016 Academic Year, proposals focused on IT/cyber security and data analytics are especially encouraged.

### Application Eligibility

These research grants are open to all UVa faculty. Faculty may name staff or graduate students as Co-PIs and are encouraged to include undergraduate and graduate students on their research teams.

### Proposal Submission Instructions

Each proposal must contain the following:

- A title page which includes the proposed project title, a list of the project team (e.g., PI, Co-PIs, other team members), a project summary which provides an overview for the project and how the work ties

University of Virginia 1

## 4-VA Research Grants Program

### *Requests for Proposals for Academic Year 2015-2016*

into the 4-VA goals outlined in the Background, and a clear indication to which program the proposal is being submitted (Collaborative Research or Catalyst Research) (1 page max)

- A Research proposal which includes a justification for the research proposed, what research questions will be pursued, which approaches/methods will be used, what are the anticipated outcomes, a project management plan and timeline, (4 pages max). For each of the two grants programs, some additional information is required:
  - For **Collaborative Research Grants**, discuss how the research team assembled will work together to meet the project goals and how you plan to use results of this work in subsequent, major federal grant proposals.
  - For **Catalyst Research Grants**, discuss how the proposed activities will help the PI/team establish new research collaborations within the Commonwealth, become more competitive for future research funding opportunities, or increase the scholarly impact of their current and future research activities. If a team is involved in this proposal, discuss how the research team assembled will work together to meet the project goals.
- A plan to disseminate the results on this work, both during and after funding. Active dissemination, especially to 4-VA partners and other universities within the Commonwealth, is expected. (1 page max). This could include ongoing project updates and dissemination of findings via publications or other means (e.g., via a broadly accessible online media platform)
- References, if applicable (1 page max)
- A Summary Budget which outlines the major expenditures and justification, if appropriate. **Note that indirect costs do not need to be included.** If additional complimentary funding is being requested, please denote that here as well as how that money will be used to support the proposed work (2 pages max).
- 2-page CV or Biosketch for all PIs and Co-PIs (2 pages max)
- Letter of support of department chair or the equivalent.

Submit the above items in the order listed in one PDF file using this naming convention: PI last name-first initial\_4VA.pdf (Example: Smith-J\_4VA.pdf). Margins must be one inch and font size not less than 11. Please upload your package here: <http://www.virginia.edu/vpr/upload.html>, select 4VA from the drop down menu, no later than **4PM October 15, 2015**. Extensions to this deadline will not be made. Proposals which do not include all of the above will not be reviewed. Proposals for the Collaborative Research proposal which come from one faculty member will not be reviewed.

### **Proposal Evaluation and Timeline**

Applications for both grant programs are due by October 15<sup>th</sup>, 2015. It is expected that all funding decisions will be made by December 1<sup>st</sup>, 2015 with funding available starting in January 2016.

Proof of IRB certification (if appropriate) is required before funding. If the proposed research is exempted from IRB requirements, a brief written explanation will need to be provided.

## 4-VA Research Grants Program

*Requests for Proposals for Academic Year 2015-2016*

### **Additional Reporting Requirements**

Continued funding of the 4-VA program requires the member institutions to demonstrate how the funding provided allows the collective to accomplish much more than any individual university could achieve alone. As a result, all grantees who are awarded funding are required to comply with 4-VA assessment, reporting, and accountability requirements. These include:

- An interim report is to be completed at halfway through the project. A brief one-page report template will be provided.
- The final report must be completed by grant recipients at the conclusion of the project. A template will be provided to faculty a month before the report deadline.
- Awardees may be asked to meet face-to-face with the Assessment Coordinator during or after your grant in order to learn more about your work. The 4-VA Assessment Coordinator is:

Kelsey Brunton  
kelseychurchbrunton@vt.edu  
540-820-2571

After funding, awardees will be emailed for up to five (5) years to see if this funding lead to other research products (e.g., publications, conference presentations, or external funding requests/awards).

### **Questions and Comments**

Any questions about this Request for Proposals should be directed to:

Archie Holmes  
Vice Provost for Educational Innovation & Interdisciplinary Studies  
Professor of Electrical and Computer Engineering  
University of Virginia  
[ah7sj@virginia.edu](mailto:ah7sj@virginia.edu)

You can also sign up for this RFP's listserve (4va-researchrfp-1516 available at [lists.virginia.edu](http://lists.virginia.edu)) which will be used to provide announcements and answers to questions which are applicable to all proposers.

## 4-VA Grants Program: Requests for Proposals for Academic Year 2015-2016

### RFP Summary

The 4-VA Collaborative is a program between Virginia Tech, James Madison University, University of Virginia, Old Dominion University, and George Mason University. 4-VA's mission is to promote inter-university collaborations that leverage the strengths of each partner university in order to accomplish much more than any individual university could achieve alone. The legislation creating 4-VA explains that the collaborative was established:

*...to utilize emerging technologies to promote collaboration and resource sharing to increase access, reduce time to graduation and reduce unit cost while maintaining and enhancing quality. Instructional talent across the four institutions will be leveraged in the delivery of programs in foreign languages, science, technology, engineering and mathematics. It is expected that funding will be pooled by the management board as required to support continuing efforts of the 4-VA priorities and projects.*

4-VA strives to:

1. Define instructional models, including the clear definition of instructional costs,
2. Significantly expand access for all Virginians to programs preparing them for rewarding careers,
3. Increase research competitiveness, and
4. Increase opportunities for and enhance the success of students in Science, Technology, Engineering, and Mathematics (STEM) courses and programs

The Virginia Tech 4-VA Grants Program has been designed to advance these goals via specific grant initiatives that also advance the priorities and interests of Virginia Tech. To this end, 4-VA at Virginia Tech has identified two RFP categories for Academic Year 2015-2016:

1. **Competitive research grants** are intended to improve research competitiveness within the Commonwealth and at Virginia Tech by providing funding for faculty to engage in pilot research focused on 4-VA goal areas that could be used as a springboard for subsequent, major federal grants. Collaboration with a researcher at a minimum of one 4-VA partner institution is required, as is active dissemination. 4-VA partner institution faculty involved in proposals will be eligible for complimentary funding of up to \$5,000 per partner institution involved. Funding amounts are expected to range from \$5,000 - \$25,000 per grant, not including complimentary funding that may be supplied by partner institutions.
2. **Collaborative endeavors:** small grants (typically \$5,000 or less) that support faculty interested in creating collaborative opportunities with 4-VA partner institutions. Grant proposals should be consistent with and intended to further 4-VA goals. Examples include course sharing, a speaker series, consortia or conference creation, and more. Grantees working with partner institutions will be eligible for complimentary funding of up to \$5,000 per partner institution involved.

## Competitive Research Grant RFP

An important component of 4-VA's mission is improving research competitiveness within the Commonwealth by providing funding for faculty to engage in pilot research that could be used as a springboard for subsequent, major grants (e.g., NSF, NIH). This aim is consistent with the aims for research and innovation articulated in *The Plan for a New Horizon*. 4-VA at Virginia Tech has further articulated a preference for grants that promote or relate to as many of the other three 4-VA aims as possible (instructional models, access, STEM success). Proposals are required to involve at least one cross-institution collaboration with a 4-VA partner institution. 4-VA partner institution faculty involved in proposals will be eligible for complimentary funding of up to \$5,000 per partner institution involved. Grantees who are awarded funding will complete an MOU and be required to comply with 4-VA assessment, reporting, and accountability requirements. Please note, funding priority will be given to faculty who have not received 4-VA funding previously.

### Deadlines and Information

#### Deadlines:

- **For application:** October 1
- **For award outcome notification:** December 1
- **For completion of MOU for awarded grants:** January 1

**Who may apply for a 4-VA grant:** 4-VA grants are open to all Virginia Tech faculty. Faculty may name staff or graduate students as Co-PIs and are encouraged to include undergraduate and graduate students on their research teams.

**Funding information:** Funding amounts are expected to range from \$5,000 - \$25,000 per grant, not including complimentary funding that may be supplied by partner institutions.

#### Contacts for questions or assistance:

4-VA Grant Manager: Teggin Summers  
4-VA Assessment Coordinator: Kelsey Brunton

### Application Instructions

Submit a proposal with the following information:

1. Proposed Project Title
2. Research team (PI, Co-PIs, other team members)
3. Project summary
4. Justification (merit/need)
5. Research questions
6. Anticipated outcomes
7. Dissemination plan
  - a. *NOTE: Active dissemination is expected to be a major project component. To be competitive for funding, projects should have a defined dissemination plan for the 4-VA community that includes ongoing project updates and dissemination of findings (e.g., via a broadly accessible online media platform) and broader higher education community*
8. Budget (NOTE: Should include fringes for salary requests)
9. Proof of IRB certification (if not in place, must be obtained and proof provided prior to the commencement of the grant). If unneeded, explain why.
10. General project management plan and timeline
  - a. *NOTE: See the Competitive Research Grant MOU for detail on required assessment components that should be factored into your timeline. For example, Grantees must participate in assessment activities and produce an annual report*
11. Alignment to grant program and 4-VA aims
  - a. Please explicitly describe how your project supports the 4-VA Goal of advancing research competitiveness
  - b. Please explicitly describe how your project involves collaboration with a 4-VA partner institution(s)
  - c. Please describe in detail how your project relates to other 4-VA Goals and how outcomes or evidence will be used to demonstrate progress on these goals
12. A list of any additional sources of funding for this research
13. References (if applicable)

#### NOTES:

- There is no required template for proposals, but all RFP categories must have explicit headers within the proposal document
- Graphics may be used
- There is no length requirement
- Projects may be eligible for ongoing funding with appropriate agreed upon progress and reporting
- Unused funds will be returned to 4-VA

## Supporting Documentation to be made available on website:

- Scoring rubric
- Grant MOU

## Competitive Research Grant Process (Internal, not part of RFP)

1. The primary investigator (PI) submits a grant proposal to the grant manager via the application portal
2. Submitted proposals are sent to peer reviewers. Depending on the nature of the proposal, the grant manager will, also, seek guidance with other university units that are relevant to the proposed activities
3. The grant manager compiles the suggestions and feedback from the peer reviewers and uses the information to guide recommendations for grant receipt
4. The 4-VA Campus Coordinator finalizes grant approvals
5. The 4-VA Campus Coordinator notifies the TLOS Stakeholders Committee of recommended grants
6. Grantees are notified of outcomes
7. Grantees complete the 4-VA MOU for their grant
8. Funds for approved grants are released to the grantee(s) and grant work is permitted to commence
9. Grantees comply with reporting and accountability requirements of MOU throughout the duration of the grant

## Collaborative Endeavors RFP

Collaborative Endeavors funding comes in the form of small grants (typically \$5,000 or less) that support faculty interested in creating collaborative opportunities with 4-VA partner institutions. Grant proposals should be consistent with and intended to further 4-VA goals. Examples include course sharing, speaker series, consortia or conference creation, and more. Grantees working with partner institutions will be eligible for complimentary funding of up to \$5,000 per partner institution involved. Faculty are also eligible for collaborative endeavor funding of up to \$5,000 if they are part of a 4-VA grant at one of the partner institutions. Grantees who are awarded funding will complete an MOU and be required to comply with 4-VA assessment, reporting, and accountability requirements. Proposals will be assessed by Virginia Tech 4-VA personnel based on alignment with 4-VA goals, priorities, and potential impact. Department head approval may be requested by the 4-VA Grants Program based on the scope of proposals. Please note, funding priority will be given to faculty who have not received 4-VA funding previously.

### Deadlines and Information

#### Deadlines:

- **Deadline for application:** Ongoing until pool is depleted
- **Deadline for award outcome notification:** one month after submission
- **Deadline for completion of MOU for awarded grants:** one month after award notification

**Who may apply for a 4-VA grant:** Collaborative endeavor grants are open to all Virginia Tech faculty

**Funding information:** Grants are anticipated to be \$5,000 or less, not including contributions from partner institutions

#### Contacts for questions or assistance:

4-VA Grant Manager: Teggin Summers

4-VA Assessment Coordinator: Kelsey Brunton

### Application Instructions

Submit a proposal with the following information:

1. Proposed Project Title
2. Team member information
  - a. Director (PI)
  - b. Collaborators/Partners
3. Project summary
4. Budget
  - a. NOTE: Should include fringes for salary requests
5. Alignment to 4-VA aims
6. A list of any additional sources of funding for this research
7. References (if applicable)

#### NOTES:

- There is no required template for proposals, but all RFP categories must have explicit headers within the proposal document
- Graphics may be used
- There is no length requirement
- Unused funds will be returned to 4-VA

#### Supporting Documentation to be made available on website:

- Grant MOU

#### Collaborative Endeavor Grant Process (Internal, not part of RFP)

1. A faculty member submits a grant proposal to the grant manager via email
2. The grant manager makes an approval/rejection recommendation to the Virginia Tech 4-VA Campus Coordinator based on alignment with 4-VA goals, priorities, and potential impact.
3. The 4-VA Campus Coordinator finalizes grant approvals
4. The 4-VA Campus Coordinator notifies the TLOS Stakeholders Committee of recommended grants
5. Grantees are notified of outcomes
6. Grantees complete the 4-VA MOU for their grant
  - a. NOTE: department head approval may be requested by the 4-VA Grants Program based on the scope of proposals
7. 4-VA Virginia Tech personnel work with faculty recipients to transfer funds
8. Funds for approved grants are released to the grantee(s) and grant work is permitted to commence
9. Grantees comply with reporting and accountability requirements of MOU throughout the duration of the grant

## COLLABORATIVE RESEARCH REVIEW RUBRIC

Reviewers will be asked to evaluate each component of the proposal application, as well as the proposal’s overall fit with the program, using a common scoring rubric. Reviewers will independently read and evaluate each proposal. As part of the review of all applications, reviewers will be asked to prioritize proposals for funding within each category. Reviewers are asked to disclose potential conflicts of interest and recuse themselves from review of proposals that may constitute a conflict.

### Scoring Criteria

Quality Indicator	Description
4 = Very Good	The response is specific and comprehensive. There is complete, detailed, and clearly articulated information as to how the criteria are met. The ideas presented are innovative, well-conceived and thoroughly developed.
3 = Good	The response is reasonably comprehensive and includes sufficient detail. It contains many of the characteristics of a response that is very good even though it may require additional specificity, support or elaboration in places.
2 = Fair	The response is non-specific and lacks focus and detail. The response addresses some of the selection criteria, but not all. Some ideas presented are sound, but others are not responsive to the purpose of the RFP and the 4-VA Collaborative. Additional information is needed in order to be reasonably comprehensive and meet the criteria of a response that is good.
1 = Poor	The response does not meet many criteria; provides inaccurate information or provides information that requires substantial clarification as to how the criteria are met; lacks meaningful detail; demonstrates lack of preparation; or otherwise raises substantial concerns about the applicant’s understanding of the issue in concept and/or ability to meet the requirement in practice.
0 = No Evidence	The response does not address the criteria or simply re-states the criteria.

### Review Criteria for Competitive Research Grant Proposals

Competitive research grants are intended to improve research competitiveness within the Commonwealth and at Virginia Tech by providing funding for faculty to engage in pilot research that could be used as a springboard for subsequent, major federal grants. 4-VA at Virginia Tech expects to offer no fewer than four of these grants and no more than twenty in a given academic year. The expected minimum allocation is \$5,000. The expected maximum allocation is \$25,000

Specific Alignment to Grant Program Requirements	<ul style="list-style-type: none"> <li>Collaboration with partner institution</li> <li>Furthering research competitiveness within the Commonwealth</li> <li>Work to be done/ overview/ summary of project</li> <li>Justification (merit/need for this research)</li> <li>Research Questions</li> </ul>
Section Evaluations	<ul style="list-style-type: none"> <li>Anticipated outcomes, intellectual contribution, impacts, and/or deliverables</li> <li>Dissemination Plan</li> <li>Budget</li> <li>Proof of IRB certification (or explanation why IRB is not needed)</li> <li>General project management plan and timeline</li> <li>Supports 4-VA goal of defining instructional models</li> </ul>
Proposal Multipliers: Alignment to 4-VA Goals	<ul style="list-style-type: none"> <li>Supports 4-VA goal of expanding access to programs that prepare students for rewarding careers</li> <li>Supports 4-VA goal of increasing STEM success</li> </ul>
	<p>Subjective Rank out of all proposals in this group/Prioritization for funding</p> <p>This column offers reviewers the opportunity to provide a prioritization of grant proposals independent of the automatically calculated numerical outcomes of their review. Justification for the subjective rank, if it differs significantly from the numerical outcomes, should be provided in the “Comments” column, along with any other proposal commentary.</p>



# IMAGE CREDITS

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Group by parkjisun from the Noun Project  
Client by Alex Kwa from the Noun Project  
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ProjectBank by Creative Stall from the Noun Project  
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