

SCALING UNDERGRADUATE RESEARCH AT VCU: Equitable Engagement in Transformative Learning

QEP Proposal: REAL RESEARCH – Undergraduate Research and Mentored Scholarship

I. Abstract

The focus of this QEP Proposal is increasing research-based transformative learning opportunities at scale for all students with a targeted investment in early research engagement for first-year, transfer, and students from underrepresented and underserved backgrounds. Prioritizing investment in early research exposure programs and curricular innovation would equitably distribute student engagement in undergraduate research experiences. Investing in the professional development of our teaching and research faculty and our graduate “near-peer” mentors will ultimately determine the success of the initiative. The goal is increased participation of faculty and students at all levels of the undergraduate curriculum while prioritizing the equitable distribution of research opportunities available to our large, diverse student community. These are investments that are specific to our goals as an institution, and which serve our unique community.

To formalize the vibrant, but decentralized culture of undergraduate research at Virginia Commonwealth University, we are proposing expansion of existing programs and development of several new ones. Critical to scaling UR at VCU is the development and implementation of an integrative **REAL RESEARCH PIPELINE** of curricular and co-curricular experiences that is cohesive, multi-disciplinary, and iterative in its advancement of student research progression along three phases of learning and skill development:

1. **EARLY EXPLORATION** through focused and creative inquiry.
2. **ADVANCEMENT** through undergraduate research programs, internships, assistantships, vertically-integrated projects (VIPs), and curricular undergraduate research experiences (CUREs).
3. **CULMINATION** in student mastery of research and scholarship involving curricular and/or co-curricular experiences, and including a process of guided reflection and research presentation/dissemination.

PIPELINE PROGRESS: Students engaged in Early Exploration and Creative Inquiry courses (Focused Inquiry, CUREs, VIPs) advance into undergraduate research apprenticeships (Research Fellowships, Scholarships, Internships, Work Study Research Assistantships), and ultimately scale the pipeline into campus research training programs and national training and scholarship programs. While designed for equitable and iterative engagement, it is expected that some students will “level up” through the pipeline at different rates of readiness. The REAL RESEARCH PIPELINE must provide flexibility for faculty innovation and student access. **REAL RESEARCH ALIGNMENT:** As students progress along the pipeline, they will “level up” their REAL engagement culminating in reaching the REAL graduation requirement at REAL levels 3 and 4.

II. Institutional Alignment

QUEST 2028 – Recalibration

Diversity Driving Excellence: Historically, undergraduate research programs have been designed to engage the most “high-achieving” students and those already positioned to self-select for and succeed in these “boutique” learning experiences. Rates of underrepresented student (UR) participation in high impact practices, including undergraduate research, are lower than those of their non-UR counterparts. This is also demonstrated among students who are categorized as “underserved”, to include students of color, first-generation, Pell-eligible, and transfer student populations (Finley & McNair, 2018). We propose a model for equitable scaling that encourages self-selection by all students, and prioritizes engagement for those who have been historically underserved and excluded from these

transformative learning opportunities. Further, our model aims to advance excellence by expanding engagement of our diverse talent pool of students in national research training and scholarship programs.

Student Success: Undergraduate research is a high-impact activity for retaining students in baccalaureate programs (Foertsch et al., 2000; Russell et al., 2007; Sweat et al., 2013), while also fostering the advancement of students onward into graduate and professional study (Eagan et al., 2013; Willis et al., 2018). A study conducted by UROP and IRDS indicates successful outcomes (*Data captured between 2010-2016, VCU averages are from 2016):

- Timely Graduation:
 - UROP, 4 years or less=80% VCU avg. = 45%
 - UROP, 6 years= 99% VCU avg. = 62%
- Average Final Cumulative GPA: UROP = 3.60 VCU= 2.93
- Retention rate of nearly 100%
- 93% of UROP alumni enter graduate or professional school

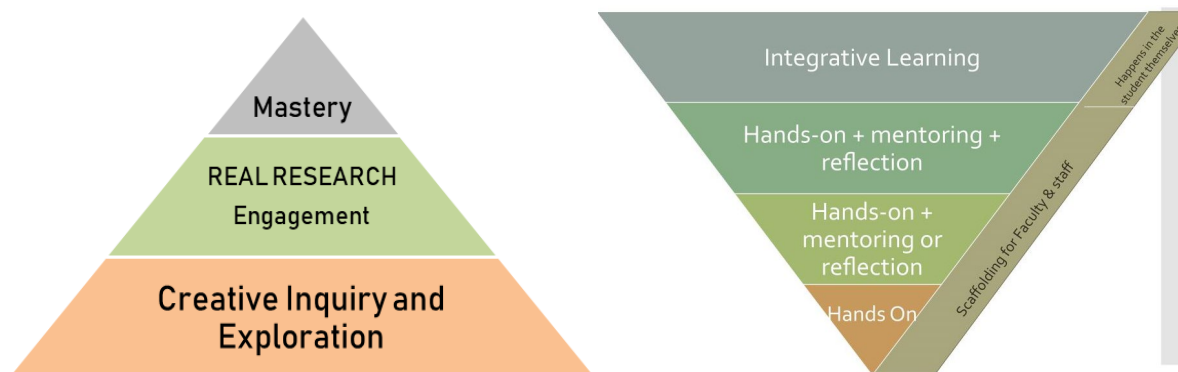
VCU UROP-specific programs currently demonstrate engagement of students of color at 45% and first-generation students at 40%.

Research & Innovation Addressing Societal Challenges: We propose support for scaling development and implementation of curricular and co-curricular research experiences that align with the **ONE VCU Strategic Research Priorities Plan**, emphasizing inquiry and engagement focused on five initiatives: 1. [Enriching the Human Experience](#) 2. [Achieving a Just and Equitable Society](#) 3. [Optimizing Health](#) 4. [Supporting Sustainable Energy and Environments](#) 5. [Creating a Culture of Collaboration](#)

Collaboratively Creating a Thriving RVA for All People: As an urban public R1 research institution with a focus on student engagement in experiential and community-engaged learning and research, VCU is well-positioned to leverage its already community-engaged faculty in addition to its UROP and Service-Learning offices to collaborate on community-engaged research projects and inquiry-based learning around local issues, questions, and problems. It is highly important that these projects are conducted **with communities as partners**, not simply conducted **on or about** communities. [What is Community-Engaged Research \(CEnR\)?](#)

REAL Initiative – Learning Alignment

1. Align student research initiatives across academic units and experiences with a strategic focus on equitable and iterative advancement along the REAL RESEARCH pipeline.
2. Provide the infrastructure to support and assess increased and equitable engagement of undergraduates in transcriptable curricular and co-curricular REAL RESEARCH experiences and programs during the academic year and summer.
3. Integrate the REAL RESEARCH pipeline with [VCU REAL’s 4-level graduation requirement](#) pathway and [Integrative Learning](#) outcome.



The VCU REAL Council's Work Group for Assessment and Data Analytics conducted an experiential learning assessment pilot in spring semester of 2021 in collaboration with VCU IRDS. The [results of the pilot](#) indicated a number of demonstrable learning outcomes associated with AAC&U's Integrative Learning outcome as well as career-readiness themes.

III. Student Learning and Success

Demonstrated Student Success Outcomes

Engagement with undergraduate research has demonstrated success across a range of outcomes including retention, timely graduation, academic success, and advanced education. See Section II. under "Student Success", for VCU UROP-specific success outcomes.

Additionally, undergraduate research is correlated with discipline-specific competencies as well as psychosocial gains in students' self-reported conceptions of confidence, self-efficacy, project ownership, sense of belonging, and identity as emerging scholars (Dolan, 2016; Ghee et al., 2016; Linn et al., 2015; Rosier, et al., 2014).

Proposed QEP Student Learning Outcomes

REAL RESEARCH - EARLY EXPLORATION – Students will:

SLO 1: Understand how knowledge is generated and disseminated through research and systematic inquiry in disciplinary and/or transdisciplinary contexts, and comprehend the importance of research to society.

SLO 2: Explore ways to engage in a REAL RESEARCH experience in curricular and co-curricular formats.

REAL RESEARCH – ADVANCEMENT – Students will:

SLO 3: Ground the concepts, practices, results, and impacts of (disciplinary/transdisciplinary) research within a broader context (social, cultural, public health, economic, etc.).

SLO 4: Under the guidance of a mentor or REAL RESEARCH educator, engage with a research question, problem, or scholarly creative project:

- Analyze and reflect upon central assumptions, evidence, and ethical considerations
- Identify a process of inquiry and systematic investigation
- Carry out a project, inquiry, or systematic investigation

REAL RESEARCH – CULMINATION – Students will:

SLO 5: Engage with guided reflection, make connections and synthesize knowledge across the curriculum, co-curriculum, and one's own lived experiences.

SLO 6: Disseminate the findings of their project, inquiry, or systematic investigation through publication, presentation, or portfolio.

IV. Project Goals and Outcomes

Project Goals	Outcomes
1. QEP-Supported Curriculum: Integration of Research into the Curriculum	Metric: QEP Curriculum Development Program implemented to provide training and funding support for faculty enhancement of existing undergraduate courses or to develop new courses that incorporate inquiry-based pedagogy or research practicum training. Metric: Annual increase in enrollment in new or enhanced curricular additions formally integrated (not Special Topics) within units and departments, meeting all 4 REAL levels.
2. QEP-Supported Mentored Research	Metric: Provide enhanced training and funding support for faculty and near-peer graduate mentors. Allocate additional resources in the form of a budget increase for equitable student funding via centralized grants and fellowships. Scaling of Work Study Research Assistant Program. Metric: Annual increase in REAL RESEARCH student engagement in co-curricular programs and internships.
3. QEP-Supported Alignment with REAL RESEARCH PIPELINE and Assessment Protocol	Metric: Implementation of a guided reflection co-curriculum so student researchers can reach REAL Level 3 and 4 graduation requirement, without accruing additional cost to participate. Asynchronous modules accessible to students/mentors in Canvas. Metric: Annual increase in REAL RESEARCH students meeting REAL graduation requirement.

V. Partners

As an institution-wide initiative, we foresee the establishment of formal and strategic partnerships across units and campuses, a number of which are already in place.

1. **Faculty:** Faculty represent the most critical partners for this QEP initiative. Without faculty mentorship in research experiences and leadership in curricular design, undergraduate research would not exist at VCU. It is critical that faculty are engaged in both the design and ownership of this QEP.
2. **Graduate Students:** Graduate students have historically been underacknowledged as impactful facilitators of undergraduate engagement in research experiences, particularly in their roles as “near-peer” mentors to students engaged in a first-time research experience under the supervision of faculty PIs. An important component of this QEP is ensuring that graduate students are both formally acknowledged and strategically supported as critical members of the student research learning community.
3. **Campus Models of Success:** We are fortunate to have curricular and co-curricular models of success at VCU: [Spit for Science](#), [Phage Lab](#), [Vertically Integrated Projects](#), [Richmond’s Historic Cemeteries](#), [Introduction to Mathematical Biology](#) and others all demonstrate the long-running success of curricular undergraduate research experiences at VCU. Additionally, there are [internal and externally-sponsored research training and fellowship programs](#) that provide models for co-curricular undergraduate research engagement on our campus, including programs specifically aimed at transfer students, students of financial need, first-generation students, and students from underrepresented backgrounds.

4. **Academic Units and Leadership:** Unit deans will play a central role in supporting the integration of research and problem-based learning experiences in both curricular and co-curricular experiences. It is imperative that leadership provide flexibility, professional development, and mechanisms of support for faculty from University College/Focused Inquiry and those formally recognized as REAL RESEARCH educators to develop new research experiences. Likewise, the Office of the Provost (Academic Affairs), the REAL office (REAL Council), the Graduate School, and the Office of the Vice President for Research (SRPP Advisory Council) should collaborate with academic units to support common goals outlined in the QEP and address any shared challenges to its implementation and sustained success.
5. **Student/Faculty Support Units:** In addition to UROP, the, Undergraduate Research Advisory Committee, and the Center for Teaching and Learning Excellence: campus Directors of Undergraduate Research Training Programs, the National Scholarship Office (NSO), YouFirst at VCU, the Office of Service Learning, Education Abroad, Career Services, Student Success and Advising are all critical partners. The above offices are longtime collaborators with UROP and have frequently worked together to address shared challenges and achieve common goals through student recruitment and engagement initiatives, as well as resource-sharing and funding mechanisms.

VI. Timeline

Faculty, Educator, and Graduate Mentor Support

Year 1 – Year 2

- Begin faculty development activities and programming in collaboration with CTLE and academic units, OVPRI Responsible Conduct staff, University College/Focused Inquiry, REAL RESEARCH educators, VIP director/faculty team leaders, and educators of current curricular (CUREs) models
- Expansion of prospective REAL RESEARCH models via curricular innovation programming focused on scaling of original research projects into targeted courses
- Develop and formalize graduate mentor program in partnership with VCU Graduate School and academic units. Develop transcriptable credentialing of graduate mentors.
- Develop Training Grant Proposal prep program in collaboration with OVPRI Research Development office.
- Institutional reporting implemented.

Year 3 – Year 4

- Full implementation of new cohort of REAL RESEARCH educators and curricular/co-curricular offerings at REAL Levels 3 and 4.
- Graduate mentoring program fully implemented, undergraduate mentorship is now formally transcriptable for graduate mentors.
- Training Grant Proposal Prep Academy fully-implemented
- Hit benchmark checkpoints for student and faculty engagement, or recalibrate as needed.

Ongoing

- Review of benchmarks and metrics, recalibrate programming and long-term goals as needed.

Individualized Research Fellowship/Internship Support

Year 1 – Year 2

- Expansion of VCU Fellowships for Undergraduate Research program. Fellowship areas of inquiry aligned with 5 initiatives of ONE VCU Strategic Research Priorities Plan.
- Expansion of Work Study Research Assistant Program (to be rebranded as VCU Emerging Scholars Program).
- Recalibrate formal partnership with National Scholarships Office to expand pipeline for national/international programs and awards.
- Fellowships program already at REAL Level 4. Level up Emerging Scholars Program to Level 4.
- Institutional reporting implemented.

Year 3 – Year 4

- Full implementation of newly expanded Fellowships program. Aligned with SRPP areas and cross-recruitment/student matching with SRPP Faculty/PI annual awardees is fully implemented.
- Emerging Scholars Program is formally transcriptable at REAL Level 3 or 4.
- Increase of student engagement from VCU programs to national scholarships and training programs is benchmarked and measurable at institutional level.
- Hit benchmark checkpoints for student and faculty engagement, or recalibrate as needed.

Ongoing

- Review of benchmarks and metrics, recalibrate programming and long-term goals as needed.

Central Office Infrastructure Support

Year 1 – Year 2

- Recruit and hire Assistant Director of Undergraduate Research Programming
- Recruit and hire Office Coordinator
- Identify adequate, student-facing space for Office of Undergraduate Research and Creative Inquiry
- Formalize FTE status for fiscal and HR operations related to UGR student hiring and faculty funding mechanisms
- Recalibrate Undergraduate Research Advisory Council as QEP working body.
- Recalibrate Undergraduate Research Ambassadors program.

Year 3 – Year 4

- Office support staff fully centralized.
- Physical office is full operational and accessible to students and faculty.
- Undergraduate Research Advisory Council is reconstituted as a QEP working body with faculty/staff across representative units.
- Undergraduate Research Ambassadors receive REAL Level 4 status as “Peer Leaders”.

Ongoing

- Review of benchmarks and metrics, recalibrate programming and long-term goals as needed.

Celebration and Outreach Support

Year 1 – Year 2

- Expansion of [VCU Research Weeks](#), focus on transdisciplinary collaboration and 5 initiatives of SRPP. Cross-pollination of faculty, graduate, and undergraduate events. Host graduate, professional, and career recruiters.
- Alignment with VCU “UN-“ branding campaign, development of undergraduate research sub-brand.
- Revision and recalibration of undergraduate research websites.
- Expansion of award-winning [Auctus: the Journal of Undergraduate Research and Creative Scholarship at VCU](#).

Year 3 – Year 4

- VCU Research Weeks is fully implemented, Auctus Talks program implemented (collaboration with Graduate School 3MT competition).
- VCU hosts annual Network for Undergraduate Research in Virginia ([NURVa](#)) conference.
- Undergraduate Research “UN-“ brand is implemented.
- Undergraduate Research websites are fully updated. Language and Opportunities are aligned across units/departments.
- Auctus editorial experiences are now formally transcriptable at REAL Level 3 or 4.

Ongoing

- VCU hosts National Conference on Undergraduate Research ([NCUR](#))
- Auctus opens up for national submissions.
- Review of benchmarks and metrics, recalibrate programming and long-term goals as needed.

Assessment Support

Year 1 – Year 2

- Recruit and hire Director of QEP Assessment
- Collaborative alignment between QEP Director and QEP working body.
- REAL RESEARCH rubrics formalized and completed.
- UGR institutional assessment protocols developed and piloted.

Year 3 – Year 4

- Establishment of QEP Assessment Academy
- Assessment protocols in place, learning artifacts collected and reviewed for new REAL RESEARCH cohorts.

Ongoing

- Review of benchmarks and metrics, recalibrate programming and long-term goals as needed.
- Submission of QEP programming and assessment practices to national conferences and symposia.
- Application submitted for [AURA award](#).

VII. Budget

Year 1	Year 2	Year 3	Year 4	Year 5	Total
Faculty, Educator, and Graduate Mentor Support*					
\$258,637	\$389,679	\$509,679	\$509,679	\$499,679	\$2,167,353
Individualized Research Fellowship/Internship Support*					
\$111,750	\$176,550	\$252,600	\$252,600	\$252,600	\$1,046,100
Central Office Infrastructure Support*					
\$294,301	\$276,301	\$276,301	\$276,301	\$281,301	\$1,404,505
Celebration and Outreach Support*					
\$43,648	\$41,877	\$46,107	\$49,336	\$50,336	\$231,303
Assessment Support*					
\$143,539	\$159,581	\$159,581	\$169,581	\$159,581	\$791,863
Y1 Total	Y2 Total	Y3 Total	Y4 Total	Y5 Total	Overall Total
\$851,875	\$1,043,988	\$1,244,268	\$1,257,497	\$1,743,428	\$5,641,124

*This budget projection includes a number of support mechanisms and staffing already currently in place and presupposes departmental/unit investment as well as central and external/sponsored funding. Full programmatic descriptions and an itemized budget will be provided if this proposal warrants further consideration.

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