

ADVANCE: A Community College and University Partnership Model for Expanding and Diversifying the Talent Pipeline to the Jobs of Tomorrow

Dr. Kenneth S. Ball P.E., George Mason University

Ken Ball is Dean of the Volgenau School of Engineering at George Mason University in Fairfax, Virginia. He received his BSME degree from Lehigh University, his MSME and PhD in mechanical engineering from Drexel University, and completed post-doctoral studies in applied mathematics at Brown University. He previously served as the L.S. Randolph Professor and Head of the Department of Mechanical Engineering at Virginia Tech from 2004-2012, and was Temple Foundation Endowed Faculty Fellow in Engineering and Professor of Mechanical Engineering at The University of Texas at Austin from 1989-2004.

Ken has been an active member of ASEE since 1992. He is currently the Campus Representative Coordinator for the Southeastern Section of ASEE, and has also served on the ASEE Constitution and Bylaws Committee. Ken is a member of the ASEE Engineering Deans Council Executive Board and its Public Policy Committee. Ken is a registered professional engineer in the State of Texas and a member of NSPE. He is also active in the Virginia Society of Professional Engineers, and is involved in legislative initiatives and public policy issues at both the state and local levels.

Ken is an Associate Fellow of AIAA and a Fellow of ASME. He served on the Executive Committee of the ASME Department Heads Committee from 2006-2012, and was Secretary and Vice-Chair Elect. He is an ABET Program Evaluator and a Commissioner on the Engineering Accreditation Commission. He also serves on the ASME Board on Education's Committee on Engineering Accreditation. In 2012, he was awarded the Edwin F. Church Medal by ASME for "eminent service in increasing the value, importance, and attractiveness of mechanical engineering education." He has published over 100 technical articles and has obtained funding in excess of \$20M for research projects and educational program development in engineering.

Dr. Oscar Barton Jr. P.E., George Mason University

Oscar Barton, Jr., Ph.D, P.E. is a Professor of Mechanical Engineering at George Mason University A native of Washington, D.C., Professor Barton received his B.S in Mechanical Engineering from Tuskegee (Institute) University, his M.S in Mechanical Engineering and Ph.D degree in Applied Mechanics from Howard University. Dr. Barton joined the faculty of Mechanical Engineering Department at George Mason University fall 2014, after completing a 22 year career at the U.S. Naval Academy. His research focuses on the development of approximate closed form solutions for linear self-adjoint systems, those that govern the responses of composite structures, and the analysis of dynamic systems. More recently, He has mentored numerous midshipmen through independent research projects and has directed two Trident Scholars, the Naval Academy's flagship research program. He has published over 50 journal and conference articles on these topics.

Dr. Barton is actively involved in curriculum development and program assessment. He chairs ASME Committee on Engineering Accreditation. He serves a Commissioner for Engineering Accreditation Commission of ABET, Inc. and was a program evaluator for 6 six years prior to joining the commission. Dr. Barton holds a professional engineering license in the State Maryland. He is a member of the Board of Education, ASME.

Dr. Sharon A. Caraballo, George Mason University

Sharon Caraballo is Associate Dean for Undergraduate Programs in George Mason University's Volgenau School of Engineering. The school's approximately 6,100 undergraduate students have a choice of 11 majors in the areas of engineering, computer science, information technology, and statistics. Her leadership in the development of the school's undergraduate programs draws from her extensive study and experience in forward-thinking higher education programs. She served as Clare Boothe Luce Professor of Computer Science at Georgetown University before joining the faculty of George Mason University

in 2004 as Associate Director of IT Undergraduate Programs. Caraballo was appointed Associate Chair of the Department of Applied Information Technology when the department was established in 2005. In 2007, she became Assistant Dean for Academic Affairs of the Volgenau School, with responsibility for marketing and recruitment for undergraduate programs, distance learning, enrollment analysis, and K-12 outreach. In this role, she also served as a Director of the Commonwealth Graduate Engineering Program (CGEP), a distance learning consortium among Virginia's public universities with engineering schools, and was State Chair of CGEP from 2008 to 2011. Caraballo currently holds the rank of Professor in the Department of Information Sciences and Technology. She is a member of the American Conference of Academic Deans, American Society for Engineering Education, and the Association for Computing Machinery, including its special interest groups on information technology education and computer science education. She also fosters the success of future applicants to the Volgenau School by serving on the Fairfax County Public Schools Career and Technical Education Advisory Committee.

Dr. Liza Wilson Durant, George Mason University

Liza Wilson Durant currently serves as the Associate Dean for Strategic Initiatives and Community Engagement in the Volgenau School of Engineering at George Mason University. Prior to her current appointment, she served as Department Chair and Associate Chair of the Sid and Reva Dewberry Department of Civil, Environmental and Infrastructure Engineering (CEIE). She received her BS and MS degrees from Cornell University and Stanford University respectively and her PhD in environmental engineering from the Johns Hopkins University. Her research interests include in situ bioremediation, the feasibility and economics of hazardous waste management and remediation, contaminant fate and transport in the environment, risk assessment and reduction, and environmental dispute resolution. She was twice awarded an American Association for the Advancement of Sciences Environmental Science and Engineering Fellowship. During her tenure as an AAAS fellow, she served as a science advisor to the US EPA in the National Center for Environmental Assessment and in the Immediate Office of the Assistant Administrator of the Office of Research and Development.

Dr. Michelle Marks, George Mason University

Dr. Michelle Marks is the Vice President for Academic Innovation & New Ventures at George Mason University. In this capacity she is responsible for identifying, launching, and sustaining educational initiatives that fulfill Mason's strategic plan and generate financial resources to support students, faculty, and the educational mission. Charged with creating accessible student pathways and bringing learning science innovations to campus, Dr. Marks is leading strategic partnerships designed to deliver online programming at scale, create pathway programming for international students, and support adult degree completion at Mason. She is also forging critical relationships with businesses, government, and education institutions to support the university's mission. Dr. Marks oversees Academic Innovation and New Ventures, the Office of Executive and Professional Education, Academic Initiatives and Services including the Registrar and Accreditation, the Office of Digital Learning, and Student Academic Affairs – Advising, Retention and Transitions. Dr. Marks previously served as the Vice Provost for Academic Affairs and Associate Provost for Graduate Education at Mason. As a Professor of Management in Mason's School of Business, Dr. Marks has spent her career researching organizational leadership development and teamwork. She has published studies illustrating the dynamic nature of the collaborative processes used by organizational teams and the critical roles of team leaders. In 2006, Dr. Marks was honored with the George Mason University Teaching Excellence Award and was the recipient of the Executive MBA Professor of the Year award in 2008 and 2011.

Ms. Angelina Jarrouj, George Mason University

Ms. Robin Rose Parker

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George Mason University (Mason) and Northern Virginia Community College (NOVA) have launched a new student experience model for community college students interested in pursuing a four-year degree. The ADVANCE program will eliminate the obstacles of an outdated transfer process, and replace it with a new NOVA-Mason experience that leads students through streamlined, guided program pathways toward bachelor's degree completion. ADVANCE aims to expand access to bachelor's degrees for a more diverse student population, including adult, first-generation, veteran, minority, and low-income students, while providing them with integrated career and advising support to ensure their success. ADVANCE may serve as a national model and can be readily adopted by other community colleges and four-year institutions. Many community colleges and four-year universities across the country have articulation agreements that guarantee transfer for students. ADVANCE not only guarantees transfer but also makes sure that every credit taken counts towards a bachelor's degree, that students graduate on time and at a lower cost to them, that their educational pathways lead to meaningful careers, and that they receive the support they need along their journey.

Introduction

For many years, community colleges have filled the gap left by traditional institutions and provided gateways to higher education and better socioeconomic outcomes for millions of low-income and disadvantaged populations. They are now entry points for over 40 percent of U.S. undergraduates who are seeking flexible and affordable education options that are better suited to the needs of a more diverse and non-traditional student body [1]. Lower tuition costs at community colleges can potentially save students who later transfer to a four-year institution more than 25 percent on the cost of a degree. Without these savings, many students would never consider going to college.

If the higher education system is to ensure the equality of opportunity for all Americans, more needs to be done to strengthen the community college to four-year institution transfer model. A recent report by New America [2] found that community colleges have been steadily chipping away at income disparities. Today more students are the first in their families to go to college, more are minorities, and more are adults and veterans. The accessibility and affordability of community colleges make these institutions the ideal foundation for creating pathways to economic success for these populations.

Community colleges have long been gateways to higher education for diverse student populations seeking flexible and affordable learning options. The current transfer models, however, often fail to lead students successfully toward bachelor degree completion. Too few students who want a four-year degree end up receiving one. Of those attending Northern Virginia Community College (NOVA), 80 percent enter saying that they want to earn a four-year degree, but only 20 percent of those students achieve that goal after six years. Across the United States, only 14 percent of community college students earn a bachelor's degree within six years of

enrollment [3]. This gap has implications for our regional and national economies. We expect that the ADVANCE program will lead to significant increases in the percentage of students who earn bachelor's degrees after beginning their higher education journey at a community college.

The nation's network of two-year community colleges, which totals just over 1120 institutions, was initially created to support the educational aspirations of those high school graduates interested in pursuing careers in the occupational and technical communities rather than directly entering into a four year university to pursue a bachelor's degree. Today, in addition to workforce development, community colleges are viewed as a platform for those seeking to further their educational pursuits by completing their studies at four-year institutions. The National Student Clearinghouse Research Center [4] reports that among students who completed their academic degrees at four-year institutions in the 2013-2014 academic year, 46% percent were previously enrolled at a two-year institution. With affordable, diverse offerings of programs from engineering to nursing, two-year community colleges have become attractive not only for traditional students, but also for non-traditional students, underrepresented minorities, and first generation college students who are unfamiliar with the collegiate academic landscape.

Today, this population of community college students has an average age of 28 and requires more financial assistance to support their academic pursuits than do their first-time, full-time counterparts. In addition, college students from underrepresented populations comprise a large percentage of community college students. 56 percent of Native American undergraduate students are enrolled at community colleges, as well as 52 percent of Hispanic American students, 43 percent of African American students, and 40 percent of Asian/Pacific Islander students [5].

Efforts to increase the pipeline of students into community colleges include dual enrollment programs, in which high school students complete college-level courses at a regional community college, and guaranteed admission agreements that assure students direct admission into a four-year institution if state-imposed criteria are met. While the benefits of both have been notable, recent evidence suggests that additional focus is necessary for these pathways to remain viable. Jenkins and Fink suggest that it is an institution's culture and practices that affect the success of students who complete a pathway program [3].

There are too many transfer obstacles for most community college students. Overall, the average student loses 43 percent of their credits in transfer. The 2-year public to 4-year public transfer student fares the best, but still loses an average of 22 percent of their credits [6]. While guaranteed admissions agreements secure college admission, they do not align curricula or address the lack of clarity around prerequisites. This can lead to wasted credits and money for students.

Mason and NOVA's ADVANCE program eliminates the aggravations and obstacles of an outdated transfer process by replacing it with streamlined, guided program pathways toward bachelor's degree completion. ADVANCE students will benefit from:

- Curricula designed to ensure that all credits transfer and that integrate workplace competencies and credentials.

- A strong success coaching model that provides personalized support to students at the start of their NOVA career through graduation at Mason.
- Reduced cost by eliminating extra coursework and reducing application costs.
- Co-located student services – physically and virtually.
- Experiential learning opportunities including apprenticeships, capstones, and internships.

NOVA and Mason have the largest transfer pipeline in the Commonwealth of Virginia with more than 3,100 students – nearly half of Mason’s starting class – transferring between our institutions each year. ADVANCE will leverage the success of our transfer relationships and expand access to thousands more students. We expect the number of transfer students from NOVA to grow significantly with the full implementation of the ADVANCE partnership.

Background

George Mason University and NOVA are co-located across the Northern Virginia region, with each institution having multiple campuses spanning a number of counties (Arlington, Fairfax, Prince William, Loudoun) and cities (Alexandria, Fairfax, Falls Church, Manassas, Manassas Park). Mason is the largest public research university in the Commonwealth of Virginia, with a student enrollment of more 37,316 in fall 2018. Mason offers over 210 degree programs at the undergraduate, master’s, doctoral, and professional levels. Mason is classified as an R1 (highest research activity) institution. The Volgenau School of Engineering at George Mason University has a total student enrollment of 7,874 (fall 2018) and offers 11 different bachelor’s degree programs, 17 master’s degree programs, and seven Ph.D. degree programs. These programs are offered by eight academic departments and a school-wide multidisciplinary unit, and include computer science, information technology, and cybersecurity engineering as well as the traditional engineering disciplines (engineering.gmu.edu).

Mason’s commitment to diversity is evident in our student outcomes, particularly for groups that traditionally have lower completion rates. Underrepresented minorities graduate at identical rates as their white peers, and our four-year graduation rate for community college transfer students (72 percent) is as good as our six-year graduation rate for undergraduates (71 percent). Our students thrive beyond Mason as well: 76 percent of our students are employed within six months of graduation and our graduates earn among the highest starting salaries compared to our Virginia public university peers.

Mason is a top-ranked institution in Virginia for campus diversity because we are intentional about welcoming students from various socioeconomic and racial backgrounds and life circumstances. Partly driven by growth in our Hispanic student population, our 2018 freshman class is the most diverse in our school's history, with minority students making up 54% of this incoming cohort. More adult learners are choosing Mason because of its flexibility and accessibility: we were recently ranked as the 6th best four-year college in the nation for adult learners.

NOVA, founded in 1964, is the largest community college in the Commonwealth of Virginia, and the second-largest community college in the United States, with an enrollment of more than 75,000 students (<https://www.nvcc.edu/about/>). It offers more than 160 degrees at the associate’s

level and certificate programs. In fall 2017, 1,912 students were enrolled in the A.S. program in engineering, 2,011 students were enrolled in the A.S. program in computer science, and 2,307 students were enrolled in the A.S. program in information technology (https://www.nvcc.edu/oir/_files/factbooks2013-2018.pdf). NOVA also offers an A.A.S. program in cybersecurity, which enrolled 1,189 students.

While a small number of NOVA students transfer to private institutions, the overwhelming majority of them transfer to public, in-state institutions. Mason is the most common in-state transfer destination for NOVA students, with a transfer rate that is higher than the rate of transfer from NOVA to all of the other Virginia public and private universities combined.

The NOVA-to-Mason transfer student population has the following attributes. The age distribution is: 57 percent are age 22 or younger, 33 percent are between the ages of 23 and 30, and 10 percent are over the age of 30. The average GPA for coursework completed at NOVA is 3.3 and the average number of credits that are transferred successfully is 61.8. The average time spent at NOVA before transferring is 2.7 years, and 53 percent of transfer students have earned an associate's degree. 41 percent of transfer students receive some type of federal grant aid, and there is no significant difference between Pell grant recipients and non-Pell grant recipients for the number of credits that are transferred. 11.5 percent of transfer students are working adults with an annual income of over \$30,000.

The ADVANCE Model

While 80 percent of students enter NOVA with the intention to obtain a bachelor's degree, only 20 percent actually do so after six years. NOVA also has a significant population of students who choose not to complete a bachelor's degree at Mason. The ADVANCE program hopes to capture many of these students to promote successful outcomes for students and to grow the overall transfer population. ADVANCE will include features that are attractive to non-traditional students who are likely working at least part time and may not live on campus.

ADVANCE accepted its first cohort of 129 students in 2018. The average student age is 22 and the average number of NOVA credits earned at the time of enrollment in ADVANCE is 12. Demographically, only 15 percent of the students in the first cohort self-identify as "White," while 18 percent identify as African-American, 15 percent identify as Hispanic, and 15 percent identify as being from "Two or more" groups.

The ADVANCE program was specifically designed to serve a diverse student population, including adult, first-generation, veteran, minority, and low-income students. Many of these students begin their higher education journey at a community college, for a variety of reasons. Financial considerations are an important factor in the decision to attend a community college. Higher education has long been an engine for promoting social progress and economic equity in America, helping set individuals on a path toward upward social mobility. Yet for all of its benefits, achieving a degree remains a challenge for millions of Americans, especially those from low-income and disadvantaged populations. Attainment rates for Hispanics and African Americans continue to lag behind those of whites, and with college prices having risen by an

average of 45 percent between 2005 and 2015, more of these students will continue to be left out of America's opportunities [7][8].

Across the U.S., current transfer models from community colleges to four-year institutions fail to lead to students successfully completing a bachelor's degree. There are many barriers to success, including misaligned admissions and financial aid policies, misaligned curricula and credit transfer policies, the inability to access financial aid, the lack of proper advising, and limited support for adults, veterans, and first-generation students. These barriers and others impede the transfer process, and undo many of the savings promised by an educational path that starts at a community college. Transfer students have to adhere to two sets of admissions and financial aid policies, and receive advising that is often conflicting from multiple people throughout their journey. A 2017 report by the U.S Government Accountability Office estimates that between the years 2004 and 2009, students lost an average of 43 percent of their credits when they transferred between institutions [9].

ADVANCE is a solution not just for students but also for the entire community of employers, companies and organizations in our region. The Northern Virginia region is booming, and even though NOVA and Mason constitute one of the largest educational systems anywhere in any city or region in the country, we are not producing enough talent to meet our economy's demands. The recent announcement by Amazon to locate a new headquarters in Northern Virginia (HQ2) will only exacerbate this situation.

Employers are key partners for us in the program, and employer engagement is crucial in helping us design a program that leads students to meaningful careers. We are designing program pathways in high demand fields based on job needs in our region. We are working together with employers to incorporate the skills and competencies they need into courses and aligning learning outcomes with those skills. We are also working together with employers to create relevant learning opportunities for students as they go through their pathways. Employers recognize the impact of ADVANCE on the tech pipeline and are investing in ADVANCE by providing scholarships to offset the difference in tuition rate between the two-year and four-year academic institutions.

ADVANCE also recognizes that the talent pipeline begins before students arrive to community college. High school outreach will be embedded into the program. The goal is to capture students early on as they begin thinking about college and careers and provide them with the relevant support and resources to get them on a clear path to a successful future. NOVA is already capturing more students from high schools in our area, and these high schools serve very diverse populations. Enrollment of recent Northern Virginia area public high school graduates increased by 10.4% from fall 2011 to fall 2015, while minority enrollment increased from 57.2% to 60.7% over that same period of time.

ADVANCE is a next-generation joint admissions program that will expand and diversify the viable talent pipeline to regional jobs. The program is designed to help thousands of transfer students, particularly adult, first-generation, underrepresented minority, and low-income learners, to persist in higher education through bachelor's degree completion, and to subsequently launch successful careers. Another objective of the program is to align student

learning with employer needs. For a student's educational journey to lead to success beyond college, their selected program pathway must equip them with learning outcomes that reflect workplace expectations.

ADVANCE will meaningfully engage employers in defining workforce competencies and learning outcomes that are desired by their industries and embed them into ADVANCE degree pathways. These competencies may be introduced in the academic program curricula through new or existing courses, or they may be part of new certifications and credentials that will be developed (both credit and non-credit) and validated by industry. These credentials and employer-validated competencies will ensure that students are prepared to excel in the workforce. The use of "stackable credentials" will also be explored.

ADVANCE Implementation

Providing streamlined, guided program pathways is an essential element of the ADVANCE partnership model. In the fall 2018 semester, we launched 21 degree pathways and have a total of 129 students currently enrolled. We expect a total of 300 students to be enrolled in ADVANCE by the end of this academic year. In the fall 2019 semester, we expect to have a total of 50 ADVANCE degree pathways. These pathways may be developed for any undergraduate major and will involve all of Mason's academic schools and colleges that offer bachelor's degrees, as well as an interdisciplinary Bachelor of Applied Science program that is managed centrally by the provost's office. Many classes and majors will be offered online to meet the needs of adult and working students. Table 1 shows the mapping between the NOVA associate's degree programs and the corresponding Mason bachelor's degree programs that are approved for the fall 2018 semester.

ADVANCE will reduce costs for its students by eliminating extra coursework and reducing application fees. ADVANCE saves students money by guaranteeing a community college tuition for the first two years, with no wasted credits as they transfer. This streamlined model promises to extend unprecedented access to these student populations. An ADVANCE student finishing with 120 hours pays \$15,900 less (30% less) than a four-year Mason student graduating with 120 hours.

Another goal of the ADVANCE program is for students to experience NOVA and Mason as one seamless institution. ADVANCE students will obtain a Mason ID card at the time that they enroll in the program (i.e. while NOVA students), giving them access to most signature experiences at both institutions. This will allow them to engage in student life at both NOVA and Mason, including student organizations, campus activities, athletic events, libraries, and student centers; participate in career fairs, workshops and employer networking events; and access health, safety, and well-being resources. Table 2 provides a partial list of Mason student services and resources that are available to NOVA students who are enrolled in the ADVANCE program. Unless otherwise noted, these services and activities are provided at no additional expense to the students.

Student Success Coaching

Student success coaching is a critical element of the ADVANCE program. A strong success coaching model has been developed that provides personalized support to students at the start of their NOVA career through graduation at Mason. The need for success coaching is witnessed by the fact that only 36 percent of U.S. college students believe that they will graduate with the skills needed to succeed in the workplace, and only 28 percent find academic advising useful in identifying career options [10]. Furthermore, it is very hard to navigate between two different college systems. Transfer students, many of whom are first-generation, do not have the support at home that other students have. ADVANCE students will have a coach from the very beginning who will help them to navigate their individual journeys toward bachelor's degree completion.

The ADVANCE success coaching model is designed to help students to map their educational paths in alignment with their career aspirations. It also supports their needs throughout their journey to graduation. Coaches are available to offer continuous academic and career advising, and to help students make changes to their path if they so choose. Coaches will advise students about specific courses and degree programs, refer them to practical learning opportunities, and connect them to mentors. By addressing any challenges that students may have, and by helping them to navigate their own journeys, coaches will keep students focused on degree completion and prepare them for success.

With this expanded role, success coaches will be able to help students develop their career maps and select a degree pathway, connect them to relevant learning and work-based experiences, and keep them focused on completion. Having dedicated staff who understand the holistic career/academic development journey of every student can have significant positive impact on a student's persistence and achievement.

Experiential Learning Opportunities

Opportunities for experiential learning, including apprenticeships, capstone design projects, and internships, are offered as part of the ADVANCE model. The ultimate goal of the degree pathway model that ADVANCE offers is to ensure that students are prepared for post-baccalaureate employment and success in the workplace. ADVANCE seeks to ensure that what students learn and experience in their educational journey reflects workforce realities. Mapped degree pathways that integrate industry-defined credentials and standards will leave no ambiguity for students regarding desired workforce competencies. By building in immersive experiential learning opportunities, students will better understand workplace expectations and prepare to transition successfully upon graduation.

As ADVANCE students progress through their degree pathways, we want to provide them with hands-on learning opportunities that align with their coursework and expose them to the actual workplace environment with all of its expectations. We will work together with employers on designing learning opportunities including internships, apprenticeships, cooperative programs, and capstone projects that will help them to succeed beyond the classroom.

ADVANCE students who are enrolled in an engineering or cybersecurity major also have access to a variety of additional extracurricular activities provided by the Volgenau School of Engineering. These diverse extracurricular offerings support student well-being and professional development. NOVA students can join the Mason student chapters of professional societies including ASCE, ASME, IEEE, and many more. There are more than 25 RSOs led by Mason's engineering students. For example, our ASCE student chapter holds general body meetings, tours, social events, resume workshops, career panels, and hosts a special civil engineering-specific career fair with more than 25 employers on the Mason Fairfax campus. By participating in professional society activities as first and second year students, NOVA students are setting the foundation for internships and full-time employment and will benefit from the support of senior engineering students who will mentor them through their transition to Mason in their third year. Outside of the ADVANCE program, NOVA students would not have access to professional engineering societies.

ADVANCE students will also have the opportunity to participate in extracurricular activities such as Mason's Engineers for International Development (EfID). As first and second year students, they can work side by side with upperclassmen, faculty members, and practitioner mentors to design multi-disciplinary infrastructure projects in developing countries. After transferring to Mason, they will be positioned to then serve on the traveling implementation teams and serve on the leadership of the EfID organization. ADVANCE sets young students up for leadership opportunities in the professional and other extracurricular organizations that fuel student engagement and quality of life at Mason. These activities are often cited by graduates as the most impactful experiences of college. Other activities include student competition teams, such as the Formula SAE, ASME's Human Powered Vehicle Challenge, ASCE's Steel Bridge or Concrete Canoe, and several other national and international competitions.

ADVANCE students also have opportunities to work with Mason faculty on research projects and assist in real-world, hands-on laboratory and field studies. Research provides a foundation for the advancement of critical thinking, project management and team skills as well as opportunities to practice oral and written communication skills. Early participation in research at Mason will enable ADVANCE students to prepare competitive proposals for funding their own research interests through Mason's Office of Student Scholarship, Creative Activities and Research upon transfer to Mason.

Challenges Faced

ADVANCE is an institutional priority for Mason and NOVA. Both of our presidents are strongly committed to the success of the program, which fulfills strategic goals for both our institutions. Having said that, given the complexity of the program, our institutions continue to work closely to overcome a number of challenges:

- Mason and NOVA have different cultures and are organized differently. This often presents a challenge in terms of identifying the appropriate points of contact at each institution and for making decisions.

- We have different systems for admissions and enrollment. For example, we use different student information systems for tracking students who come through our doors. For ADVANCE, we are working together to figure out how to align/integrate these technologies and are working to find the best solution to ensure that we are tracking students in a streamlined manner.
- We have different policies related to admissions, student life, financial aid etc. The goal of ADVANCE is to provide a seamless process for students and allow students to experience Mason and NOVA as one institution. For this to happen, we had to align some of our policies that otherwise would have created barriers for students. Examples of these policies are related to admissions requirements including the maximum number of credits a student can have before they transfer, GPA requirements, and what services/resources to make available for ADVANCE students (athletics, access to libraries, parking, health services, etc.).

To address the challenges posed by different institutional cultures, we have established cross-institutional working groups that include faculty and staff from NOVA and Mason to lead the launch of ADVANCE. Working groups meet regularly and are focused on specific areas including admissions, recruitment, and curricular pathways. In addition, Mason has provided opportunities for faculty and staff to learn about program updates and to provide feedback through town halls and other interactive forums. On a larger scale, we have held regular faculty summits (twice a year) to bring together faculty from NOVA and Mason to align curricula, discuss student needs, and develop specific program pathways. We keep the university community updated through our website, blogs, newsletters, etc. We are establishing an advisory council for ADVANCE that includes various stakeholders across our institutions to inform our program and provide expertise and input into the program design.

Concluding Remarks and Goal: Creating a national transfer model

ADVANCE is designed to respond to the needs of students and the workforce, with students and the economy as starting points, rather than following an institution-centered approach. It takes a holistic and integrative approach to student success and engages diverse stakeholders in supporting students throughout their educational journey. ADVANCE is unique in that it is tied strongly with regional economic demands and places student's needs at the center of its model, recognizing the challenges and opportunities that students face early on and throughout their educational path.

NOVA and Mason have a strong history of collaboration. Together we have built the largest transfer relationship in the Commonwealth of Virginia, with more than 3,000 students coming from NOVA to Mason every year. NOVA is the largest public, two-year institution in Virginia and Mason is the largest public research university in Virginia. Together, we have more than 100,000 students in our charge, representing a significant talent pipeline for the Washington, DC metropolitan region. NOVA and Mason have a responsibility to lead the way in finding solutions to the transfer problem, because we have one of the largest partnerships of this kind. Significant research has already been reported on the topic of transfer students. For example, see the

Transfer Playbook by the Aspen Institute: (<https://ccrc.tc.columbia.edu/media/k2/attachments/transfer-playbook-essential-practices.pdf>).

Mason and NOVA are relying on documented best practices to design and implement ADVANCE. We are drawing on these resources to design ADVANCE, with the goal of building a blueprint for Virginia and a transfer model that is scalable across the country. The impact on our nation will be profound if we can dramatically improve student success rates for the completion of bachelor's degrees by transfer students who begin their higher education at a community college. For engineering and computing fields specifically, the impact of enhanced transfer success rates on diversity, which has proven to be a great challenge, will also be enormous. Given the disproportionate numbers of underrepresented minority students who begin their higher education journeys at a community college, transfer student success could translate to a dramatic breakthrough in diversity and inclusion in our nation's engineering and computing workforce.

NOVA	Mason
Engineering A.S.	Volgenau School of Engineering
	1. Bioengineering B.S.
	2. Civil & Infrastructure Engineering B.S.
	3. Computer Engineering B.S.
	4. Cyber Security Engineering B.S.
	5. Electrical Engineering B.S.
	6. Mechanical Engineering B.S.
Business Administration A.S.	School of Business
	8. Management B.S. 9. Accounting B.S.
Nursing A.A.S.	College of Health and Human Services 10. Nursing B.S.N.
Science A.S.	College of Science
	11. Biology B.S. 12. Chemistry B.S.
	College of Humanities and Social Sciences
Social Sciences A.S. – Psychology Specialization	13. Psychology B.S.
Criminology & Criminal Justice A.S.	14. Criminology, Law & Society B.S./B.A.
Liberal Arts A.A. – Communication Studies Specialization	15. Communication B.A.
Hospitality Management A.A.S.	College of Education and Human Development
	16. Hospitality, Tourism & Events Management B.S.
	GMU Bachelor of Applied Science Programs
Cybersecurity A.A.S.	17. B.A.S. Cyber Security Concentration
Health Information Management A.A.S.	18. B.A.S. Health, Wellness & Social Services Concentration
Physical Therapist Assistant A.A.S.	
Respiratory Therapist Assistant A.A.S.	
Nursing A.A.S.	
Early Childhood Development A.A.S.	19. B.A.S. Human Development & Family Science Concentration
Information Systems Technology A.A.S.	20. B.A.S. Technology & Innovation Concentration
Business Management A.A.S.	
Marketing A.A.S.	
Paralegal Studies A.A.S.	21. B.A.S. Legal Studies Concentration

Table 1. Current Program Pathways – Fall 2018.

Mason services available to ADVANCE students
Libraries / Student Centers
Career Events
Disability Services
Transportation
Mason Academic Advising
Counseling Services – group counseling options and crisis counseling as deemed necessary
Student Engagement – Participation in Registered Student Organizations (RSOs), Mason athletic events and campus traditions, Center for the Arts events, other cultural events
Mason Recreation (<i>opt-in, fee per semester</i>)
Student Health Insurance (<i>opt-in, fee per year</i>)

Table 2. Mason student services and resources available to NOVA students enrolled in ADVANCE.

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