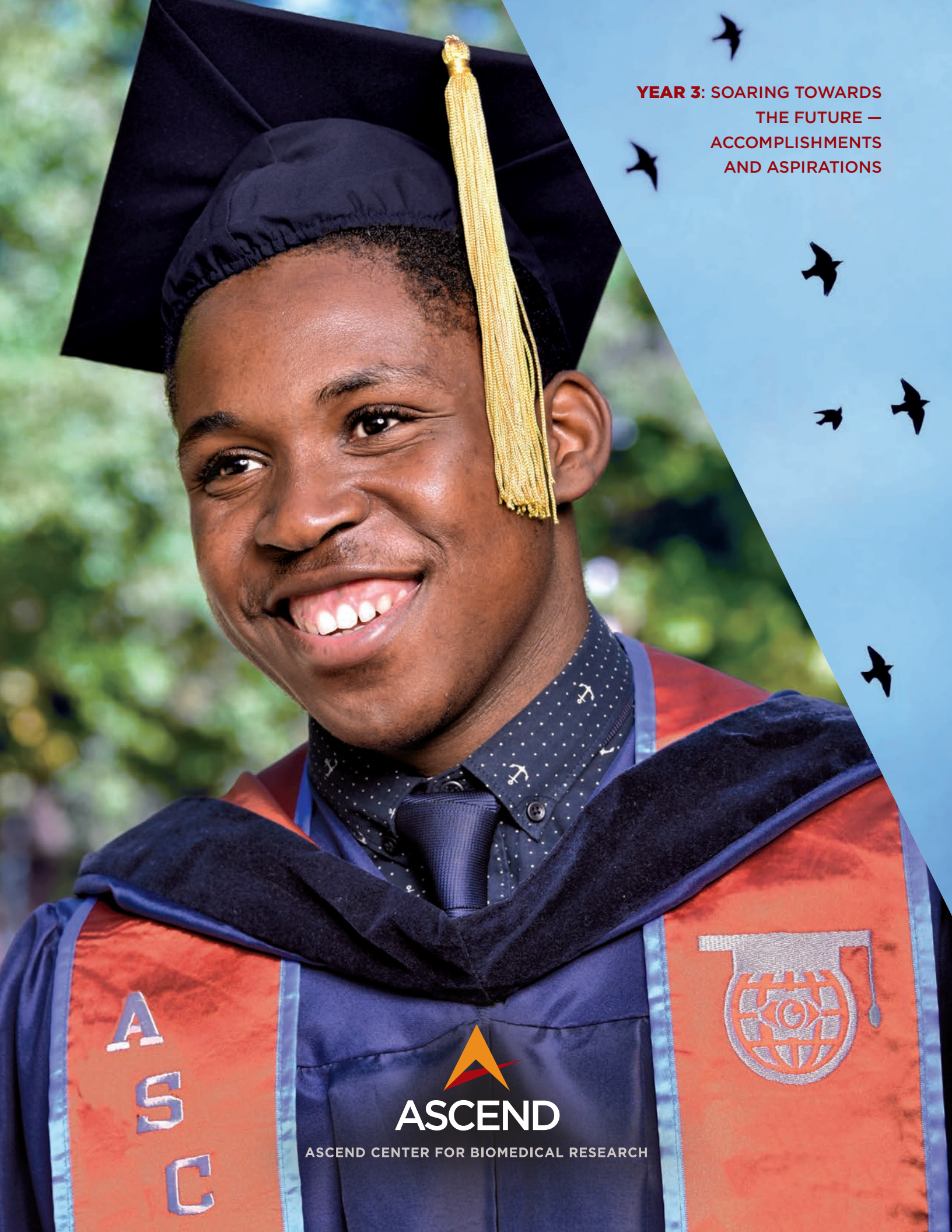


YEAR 3: SOARING TOWARDS THE FUTURE — ACCOMPLISHMENTS AND ASPIRATIONS

ASCEND

ASCEND CENTER FOR BIOMEDICAL RESEARCH

COVER: Kelly Boham, ASCEND Scholar and May 2017 MSU graduate.

High achievement always takes place in the framework of high expectation.

CHARLES KETTERING
American inventor, engineer, and businessman

Dr. David Wilson
President

Dr. Gloria Gibson
Provost and Senior Vice President
for Academic Affairs

Dr. Victor McCrary
Vice President for Research and
Economic Development

MESSAGE FROM THE MORGAN STATE UNIVERSITY ADMINISTRATION

This year, Morgan State University (MSU) celebrates its sesquicentennial. We are very proud of MSU's 150-year history, from its inception as the Biblical Centenary School, to its present status as a Carnegie-classified doctoral research institution.

This year was no exception in MSU's 'ascending trajectory.' In May 2017, the state legislature officially designated MSU as *Maryland's Preeminent Public Urban Research University*. With this designation, MSU affirms its commitment to research, particularly the overall research theme of urban sustainability and resiliency, dedicated to enhancing the lives of the people of Baltimore and to using research outcomes as an example for urban populations, globally.

We envision research as a vehicle not only to improve the lives of people and broaden the horizons of science, but also as an important tool to enhance the education of our students to meet future challenges. Both curiosity-driven and use-inspired research stimulates a students' innovative and creative prowess! Infusing student-centered research in MSU's pedagogy enriches our courses, engages our students, and increases their rates of retention, graduation, and graduate school admission in the STEM disciplines.

MSU's ASCEND program has been an integral part of this mission by establishing a model for student-centered research, working with faculty to design research-oriented courses with active-learning components, renovating physical spaces that enhance research and training collaboration between students and faculty, and providing funds for community-based participatory research and other pilot research projects.

Over the past three years, much has been accomplished. Many of the results will change Morgan State University, and its surrounding urban landscape, forever. But we shall not rest on our laurels. Our team will work together to make this great research institution even greater. We will be true to our motto: *Growing the Future, Leading the World*.

Dr. Farin Kamangar

Dr. Payam Sheikhattari

MESSAGE FROM THE PRINCIPAL INVESTIGATORS

It has been three years since Morgan State University won one of the National Institutes of Health Building Infrastructure Leading to Diversity (BUILD) awards.

A main mission of ASCEND, Morgan State University's BUILD, is to create a student-centered research program. Students created their own research center, where they propose new projects, learn from each other, and network (pages 4 to 7). In the Summer Research Institute and the ASCEND Scholars program, the students are asked to select research topics, design and conduct their own projects, and present the results at professional conferences. These activities are briefly described on pages 8 to 15.

Another mission of ASCEND is to strengthen the university's research infrastructure. To accomplish this mission, ASCEND offers research training for faculty, funds research pilot projects and community-based participatory research programs, purchases research equipment and renovates research facilities, and provides funding to design more research-oriented and student-centered courses (pages 16 to 23). These activities are synergistic with MSU's mission, as evidenced by strong support from the university administration (pages 24 to 27).

This report summarizes the past three years of ASCEND activities. We hope you enjoy reading it.


ANESTHESIA
The Victorian Poor Law
1 BC
2 BC
3 AD
4
1400's
5 1600's
6 1890
7
Smallpox vaccine
8 Yellow fever
early 1900
Red Cross
10 X-ray
1920s
1930s
11 Sigmund Freud
1917
12
Test
Test your intelligence
1940s
13 Personality Quiz
14
Diabetes Insulin
1950s
When life gives you MOLD, make PENICILLIN
Personality Quiz
Electro
16
17
1960s
18
Apa Ethical Stand
1970s
19
(1980s)
20
1960s
21
(1970s)
12 Steps
1970s
1978
9/25
Breonna
Amanda
Kiana
Destiny
Christine
Khalil
23
24
25
1970s
(1980s)
2000's
Year — 10/25
Order — 9/25
GROUP 3


Listening to Understand
SAY BACK WHAT YOU HEARD
CHECK IN PHRASE

STUDENT RESEARCH CENTER: WHERE STUDENTS BECOME RESEARCH LEADERS

My experience as a part of the Student Research Center has increased my professional skills, leadership ability, communication skills, and most importantly, created an aspiration for a career in biomedical research. If not for my involvement with this organization, I would not be the kind of student I am today.

— **JAMES GREEN**, SOPHOMORE BIOLOGY MAJOR,
STUDENT RESEARCH CENTER MEMBER, AND ASCEND SCHOLAR

James Green walked through the doors of Bladensburg High School like any other student, but he walked out as a graduate and scholar of the school's first Project Lead the Way (PLTW) program. Designed to expose minority students to careers in biomedical sciences, the PLTW program had a tremendous impact on Mr. Green who hadn't planned on a career in this field.

When he arrived at Morgan State University, his newly honed scientific mindset kicked in as he walked from department to department, chatting with department chairs and analyzing his potential fit with various majors. In the end, Mr. Green decided the study of biology had become a part of who he was and provided the challenge he relished.

Biology it was! How fortunate, then, that Mr. Green met Shamara Murphy, the Student Research Center (SRC) coordinator.

Becoming a member of the SRC exposed him to many opportunities, one of which was ASCEND's Summer Research Institute (SRI). "I spent three months working on my application," he said. "I knew this was a program that could potentially make a difference in my career path."

At the time of application, Mr. Green was leaning towards a career as a physician. But as a result of his experience in the SRI, he is now seriously considering a research career. He knows it won't be easy, but when life becomes difficult, he turns to a quote that reminds him of his own resilience: *Fate whispers to the warrior, "You cannot withstand the storm." And the warrior whispers back, "I am the storm." —unknown author.*

In the war against disease, biomedical science needs the type of research warrior that Mr. Green aspires to be.

BY THE NUMBERS

9 **CONCEPTS FUNDED OR HONORED BY THE 2017 HEALTH RESEARCH CONCEPTS COMPETITION**

How Amygdalin Could Save Lives: *Raquel Shortt / Dr. Kadir Aslan, Mentor*

Diverse Community Creation for Aging Neighborhoods: *Colleen Sagers / Dr. Mohammad Gharipour, Mentor*

Acceptability, Accessibility, Accommodation, Affordability, and Availability: Cross-Culture Perceptions and Attitudes Towards the Affordable Care Act: *Hamidah Famuditimi / Dr. Lorece Edwards, Mentor*

Analysis of Neuroglia in the Hippocampus of a Mouse Model of Rett Syndrome: *Amanda Fowler / Dr. Gloria Hoffman and Dr. Mary Blue, Mentors*

DIFFERENT BY DESIGN

The ASCEND Student Research Center is an innovative concept created as an alternative to a traditional research center. The SRC is led by students, and focuses first on the student researchers, each of whom may have vastly different scientific interests and skill levels. Students have the opportunity to individualize their projects and collaborate with the most appropriate mentors. The SRC offers multiple scientific pathways for students to explore.

The Student Research Center is an organization and a location, both shaped by students committed to its success. Early SRC members created a university-sanctioned club, recruited additional members and assumed leadership roles. Student input was essential for the renovation of the physical space located in Key Hall. As a hub for student engagement, the space offers ASCEND members a convenient spot to collaborate with faculty mentors, near-peer mentors and other like-minded students, as well as find information about internships and community-service opportunities.

CONFIDENCE TO COMPETE

In spring 2017, the SRC announced the first Health Research Concepts Competition (HRCC). Thirteen undergraduates worked with their faculty mentors to conceptualize a research project and enter the competition. Judges awarded $1000 each for the top two winning concepts and identified seven other concepts as meritorious. Selected projects may be funded further pending student completion of all requirements and faculty approval of the full research project.

BIOLOGY STUDENTS WIN HEALTH RESEARCH CONCEPTS COMPETITION

Rett Syndrome is a serious disorder caused by a random gene mutation on the X chromosome that significantly impairs a child's development. Most people have never heard of Rett Syndrome, but junior biology student Amanda Fowler has been studying it for some time. Her winning concept, *Analysis of Neuroglia in the Hippocampus of a Mouse Model of Rett Syndrome*, builds on her previous research in this area. Ms. Fowler will analyze glial changes in brain regions affected by Rett Syndrome, notably the cerebral cortex and amygdala. She is guided by her mentors, Dr. Gloria Hoffman (MSU) and Dr. Mary Blue (Kennedy Kreiger Institute).

Raquel Shortt, a senior biology major, won top honors with her concept titled *How Amygdalin Could Save Lives*. Amygdalin, a naturally occurring cyanogenic glycoside, occurs in the kernels of certain fruits and has exhibited negative effects on cancer proliferation *in vitro*. Ms. Shortt will carry out dual-stage isolation and quantitation of Amygdalin from apricot seeds via ultrasonication and reflux and use the active isolate in combination with alkaline water. The goal is to verify the effectiveness of Amygdalin and alkaline water, independently and in combination, against ovarian cancer cells *in vitro*. She is working under the guidance of Dr. Kadir Aslan (MSU).

Hamidah Famuditimi and Tyra Sellers working together in the SRC.

Acquiring Optimal Health Through Education: *Chikaodi Nwanegwo / Dr. Minli Liao, Mentor*

How Morgan State University Can Initiate Physical Activity Among College Students: *Ginikachi Eburuoh / Dr. Mohammad Gharipour, Mentor*

Examining the Relationship Between Litter and Solid Waste and Obesity Among Low-income Baltimore Residents: *Saudah Ahmad and Kiara James / Dr. Minli Liao, Mentor*

Reviving Baltimore's Jones Falls to Improve City Health: *David Couto / Dr. Mohammad Gharipour, Mentor*

Assessing the Correlation Between Types of Parenting Styles, Academic Achievement and Risky Behavior: *Shirley Green / Dr. Amber Hodges, Mentor*

SUMMER RESEARCH INSTITUTE: A CORNERSTONE OF ASCEND

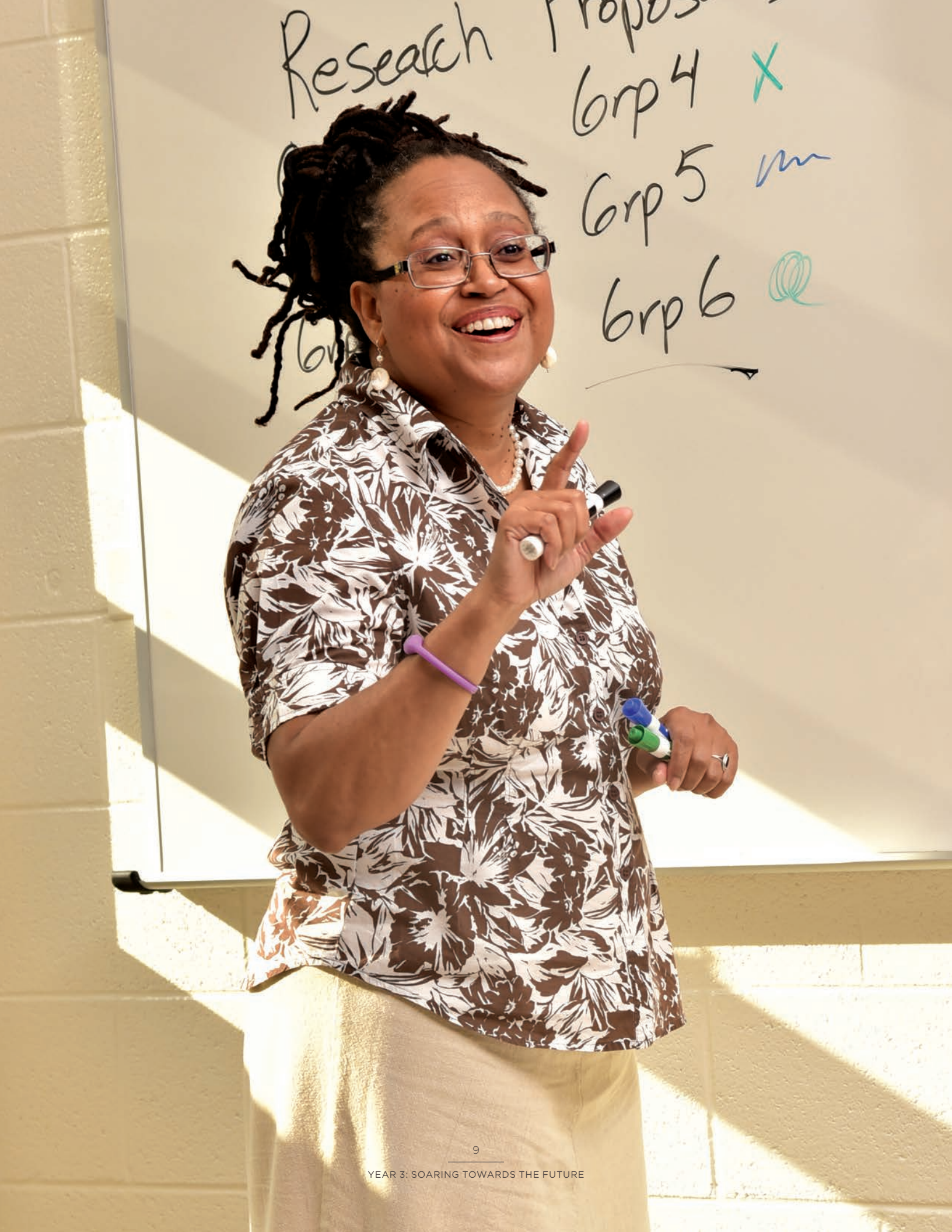
To conduct interdisciplinary research as an undergraduate is rare. The ASCEND Summer Research Institute provides that opportunity to a new generation of emerging scientists.

— **AVIS JACKSON**, PHD, PSYCHOMETRICS AND CO-DIRECTOR, SUMMER RESEARCH INSTITUTE

Avis Jackson has relied on various strategies to motivate her throughout her busy life. As a psychologist and a problem solver, she is innately interested in the variety of methodologies that individuals use to resolve issues and move forward. One consistent method she employs to maintain her own problem-solving momentum is self encouragement. Depending upon the circumstances, she has used several mantras, such as, "Failure is unavoidable on the road to success. Don't stop trying! Progress is more important than perfection." Her sage advice contributes to her own success as a quantitative researcher and also makes her a supportive and empathic co-director of the ASCEND Summer Research Institute (SRI). A non-traditional student who came to her research passion slightly later than some, Dr. Jackson employs her perspective to mentor and encourage the SRI researchers as they problem solve their own projects.

She recognizes how important it is for emerging scientists to be able to conduct real research early in their academic careers. In fact, her ability to conduct research throughout her academic career solidified her commitment to attending and remaining at Morgan. "The Psychology Department at Morgan State University has a long and rich history of training students to conduct research," she adds.

In working with this generation of SRI scholars, Dr. Jackson acknowledges that students often take full advantage of instant information, possibly gaining access to solutions before they've had time to think through the process. She believes the benefits of quick answers hide the value inherent in the effort, skill, and persistence that is the nature of scientific research. But she also sees an upside to the unprecedented access to knowledge that students enjoy. As new scientists, they will be able to participate in the development of so much more, so much faster, propelling science forward at an unprecedented pace.


Research
Grp 4
Grp 5
Grp 6

BY THE NUMBERS

83 **SUMMER RESEARCH INSTITUTE UNDERGRADUATE PARTICIPANTS FROM 2015–2017**.

14 **MAJORS REPRESENTED IN SRI FROM 2015–2017:** Biology, Chemistry, Civil Engineering, Computer Science, Electrical Engineering, Health Education, Medical Technologies, Nursing, Nutritional Science, Physical Education, Political Science, Psychology, Social Work, Sociology.

19 **PROPOSED SRI GROUP RESEARCH PROJECTS FUNDED FROM 2015–2017**, One proposal in revision with the potential of future funding.

SMART CHOICES

Summer in Baltimore is a time for beach trips, roller coasters, lemonade on the front stoop, and studying the effect of Tetrahydrocannabinol (THC) on the hippocampus and the amygdala of adolescent and adult rats. At least that's what one intrepid group of SRI students chose to do. Five additional student teams researched equally fascinating topics as part of the intense, immersive introduction to health research led by SRI co-directors Christine Hohmann, PhD and Avis Jackson, PhD.

For eight weeks, Drs. Hohmann and Jackson, five additional faculty mentors, and six near-peer mentors urge student researchers to ask basic, yet essential, questions. How do you define health? What are the elements of good basic research? How can science make a positive impact on everyday lives? Equipped with new knowledge and purpose, each student identifies a topic of personal interest and significance. As concepts become more concrete, students group into teams of four to six members to collaborate on a particular research question. Each team prepares a proposal that includes components of a viable research project: background and significance, objectives, methods, researchers and their roles, timeline, and identified mentors.

At the program's conclusion, each team publicly presents a fully developed research proposal that addresses a gap in knowledge in a specific field of biomedical research. The process is as fast and exhilarating as a roller coaster ride but not nearly so fleeting. In fact, teams judged to have viable proposals are expected to spend the next two years carrying out their research projects.

While research is the focus of the program, professionalism isn't far behind. With the guidance of Drs. Hohmann and Jackson, teams practice and polish their 15-minute presentations. They present their research proposals to Morgan faculty, senior administrators, family members, and representatives from partner institutions including Johns Hopkins University, University of Maryland at Baltimore, and Prince George's Community College. Presenters are expected to be clear, concise, and have sufficient knowledge to answer impromptu questions from the audience.

INTERDISCIPLINARY SCIENCE

These proposals were presented at the conclusion of the 2017 SRI.

- *The Prevalence of Depression and Anxiety in Collegiate Athletes*
- *The Effect of Tetrahydrocannabinol (THC) on the Hippocampus and the Amygdala of Adolescent and Adult Rats*
- *The Effects of Sleep Deprivation on Learning and Memory*
- *College African-American Male Freshmen and Their Media-Influenced Perceptions of Female Sexual Objectification*
- *Childhood Trauma and Social Interactions among College Students*
- *The Effect of Fluoxetine Use in Pregnancy on Fetal Cardiovascular Abnormalities in Rats*

The scope of SRI proposals was ambitious and spanned several disciplines, and the students were well prepared. With an aplomb belying their youth and relative inexperience, the teams presented their work with confidence to a diverse group of supporters. It was a summer well spent.

Jazzmyn Rodriguez checking tubing on the FPLC system (fast protein liquid chromatography) prior to performing an assay.

3 HANDS-ON TECHNICAL MODULES PERFORMED BY STUDENTS IN SRI: Western blotting for protein analysis, hair cortisol extraction and assay, and functional magnetic resonance imaging through a remote connection to the Center for Translational Neuroimaging at Northeastern University.

3 HIGHLY ADVANCED TECHNOLOGIES AVAILABLE FOR STUDENT TRAINING: BodyViz, functional MRI, and Biolucida®.

1 NEW EDUCATIONAL EXPERIENCE with the Patuxent Environmental & Aquatic Research Laboratory (PEARL), to learn about the importance of coastal ecosystems.

I learned not to underestimate myself and my ability to present my work. I learned that practice makes perfect, and now I am more confident as a student researcher.

— **DESHAWN COLLINGTON**, SENIOR PSYCHOLOGY MAJOR AND ASCEND SCHOLAR

There is an openness and honesty to Deshawn Collington that is both refreshing and meaningful to her research. Deshawn doesn't waffle when it comes to identifying what she isn't interested in — biology, for example — and is honest about her fears (public speaking). But you can tell right away that she will face her future with faith and confidence. She came to Morgan State University with an emerging interest in the sciences. After trying biology, she discovered psychology and her passion for behavior and health sciences bloomed. When she heard about the ASCEND program, she thought that might be a good way to learn if research was the field for her.

Apparently it was. Now, her research interests focus on sexual assault and prevention methods. Ms. Collington asserts that she didn't really know a lot about the topic herself, so she embarked on a self-education tour, reading extensive literature reviews and annotated bibliographies. Finally, with her ASCEND colleagues, she had the opportunity to conduct three research studies. Her team partnered with the Morgan Title IX office to administer surveys and use their data for the purposes of the study. She feels her knowledge on this subject has grown, but she is still learning.

Ms. Collington achieved one goal recently that challenged and rewarded her. She was accepted as an oral presenter at the Annual Biomedical Research Conference for Minority Students. Attacking her fear of public speaking with the time-honored method of practice, practice, practice, Ms. Collington was less nervous than she expected to be and her presentation went extremely well, resulting in an award for outstanding presentation. "It was a big accomplishment for me and a proud moment I will never forget." She was grateful her ASCEND family was there to support her and witness her success.

Ms. Deshawn Collington receives research guidance from Dr. Sherita Henry, ASCEND Program instructor.

BY THE NUMBERS

60 **STUDENTS ENROLLED IN ASCEND SCHOLARS PROGRAM** since the program's inception.

6 **MEMBERS OF ASCEND COHORT 1 GRADUATED** in 2017 with 4 accepted into graduate programs at Michigan State University, Duke University and University of Maryland. Programs include public health, physical therapy, social work, and psychology.

20 **ASCEND SCHOLARS HOLD LEADERSHIP ROLES** in university organizations (and one national organization).

COLLABORATIVE SCIENCE

What happens when 20 young scholars with majors as diverse as social work, chemistry, psychology, computer science, and biology are asked to work collaboratively on projects for two years? It's not a hypothetical question. It's a reality for ASCEND Scholars. ASCEND Scholars are a select cohort of students who study the principles and practices of health research with guidance from a committed team of Morgan State University faculty members and other academic partners. Scholars study theories of health behavior and examine the mandates of Healthy People 2020, the nation's 10-year plan for health promotion and disease prevention. They tie these goals to their own research projects to learn how they — as emerging scientists — can foster solutions to health problems.

FLEXIBILITY AND ACCOUNTABILITY

Dr. Jocelyn Turner-Musa, associate professor, chair of the psychology department, and director of the ASCEND Scholars program, identifies flexibility and accountability as essential elements in the program. She says faculty flexibility is key to meeting the challenge of training students from widely different fields of interest. "The language of a social worker is quite different from that of a cell biologist." So the program seeks to develop a common language and skill set for health research while keeping in sight the innovation that results from the students' interdisciplinary experiences.

Following their 2017 Summer Research Institute experience, Cohort 3 has begun their two-year term as ASCEND Scholars. They will dig deeper into the meaning and application of health research through a four-semester course called Prevention Science: Theory and Methods. Created by Dr. Turner-Musa and taught by Dr. Sherita Henry (also an SRI instructor), the course serves as a framework and a formal hub for the Scholars. "It's a one-stop shop for developing research skills and a professional science identity," says Dr. Henry. In addition, Cohort 3 will be the first group to undertake a new challenge. They will be charged with writing a Health Policy Brief, a concise statement of a health care issue designed to draw attention to a problem and to influence policy. The ASCEND Scholars will use this exercise to hone critical thinking, biomedical writing and public speaking skills. Students are accountable for their research and for articulating the goals and outcomes of their projects.

PROGRESS EACH YEAR

ASCEND Scholars find success during and after their two-year stints in the program. In Cohort 1, all teams completed the research projects they conceived and started in 2015. During their second summer of the program, all members of Cohort 2 found external internships in organizations that welcomed a diversity of interests. Many graduating Scholars move on to prestigious graduate schools as a result of their ASCEND experiences. The focus on accountability and flexibility has worked well for the ASCEND Scholars program, an immersive experience that is successfully shaping future leaders in biomedical research.

Dr. Jocelyn-Turner Musa, director of the ASCEND Scholars program.

3 **ASCEND SCHOLARS ATTENDED JOHNS HOPKINS UNIVERSITY** to complete a short course in Basic Laboratory Skills.

8 **ASCEND SCHOLARS PRESENTED AT THE 2016 ANNUAL BIOMEDICAL RESEARCH CONFERENCE FOR MINORITY STUDENTS (ABRCMS).** Students exhibited posters or made oral presentations.

5 **ASCEND SCHOLARS SERVED AS NEAR-PEER MENTORS** for the Summer Research Institute and the ASCEND Scholars program.

I saw how public health gave me the chance to make a greater impact in solving prevalent health problems around me, especially for underserved and vulnerable populations.

— **JUMMAI APATA**, MBBS, MPH, DOCTOR OF PUBLIC HEALTH STUDENT AT MORGAN STATE UNIVERSITY

Jummai Apata loves to dance. She sings in a church choir and loves to sketch and draw. Her enthusiasm for artistic expression is obvious and influences her research perspective. In art and science, she appreciates both the components that contribute to the big picture — and the big picture itself. Her favorite picture is the one that research data reveals when it is properly interpreted. Luckily for Morgan and the Baltimore community, Dr. Apata has finely-tuned analytic talents in addition to her creative mindset. Recently, she turned her attention to the data on smoking and its ill effects on underserved and poor populations. Smoking still remains the leading cause of preventable mortality in the United States.

A medical doctor trained in Nigeria, Dr. Apata volunteered with HIV/AIDS patients and solidified her interest in public health for underserved and vulnerable populations. As a DrPH candidate in Morgan State University's School of Community Health and Policy, she became the academic co-principal investigator for a community health initiative that trained former smokers as mentors to help current smokers end the habit. She teamed with Erica Goldman, Resident Services, Housing Authority of Baltimore City, community partners Brenda Ames and Maria Johnson from Communities Engaged and Advocating for a Smoke-free Environment (CEASE), and two interns, Afua Adusei (MSU) and Arian Azimi (University of Maryland). They used a specific location for their project – the Monument East Apartments in Baltimore City. Their goal was to reduce the rate of tobacco smoking among residents by using a peer mentoring approach. Residents who were former smokers were trained to recruit and mentor smokers using the CEASE smoking cessation curriculum. At the conclusion of the program, the team will track the number of residents who successfully quit smoking. Positive outcomes could include better health for the residents of Monument East as well as a valuable cadre of trained peer mentors.

The components of the research project — the data, researchers, mentors, students, and community members — fit together to provide a snapshot of one Baltimore community, and illustrate a compelling need for creative solutions to a persistent national health problem.

Jummai Apata discusses the smoking cessation project with MSU undergraduate intern Afua Adusei and the community Co-PI, Monument East Apartments Resident Services Coordinator Erica Goldman.

BY THE NUMBERS

23 **PROPOSAL IDEAS SUBMITTED** to ASCEND's Community-Based Participatory Research Program for funding consideration in the program's first year.

33 **EXTERNAL REVIEWS** of accepted proposals, by at least two academic or community experts per proposal.

15 **CBPR PROPOSALS ACCEPTED** for review by external experts in round one.

6 **CBPR PROJECTS FUNDED AT $20,000 EACH.** On completion of projects the grantees have the data they need to seek external funding.

A CHALLENGE TO COLLABORATE

What if local universities paired with community members to become more actively involved in solving health-related issues in their own communities? Wouldn't their personal investment increase the chances of positive long-term progress towards healthier lives for them and their neighbors? Indeed, that hope fuels the mission of ASCEND's Community-Based Participatory Research (CBPR) program. Noting that many contemporary health issues such as obesity, diabetes, cancer, and cardiovascular problems disproportionately affect vulnerable populations, ASCEND set out to create an infrastructure to support academic and community partnerships that connect research investigators from Morgan with committed community members. The teams work together to create high quality and impactful research projects that aim to improve the health and social welfare of neighborhoods.

ASCEND provides $20,000 grants that enable the teams to start, grow, and sustain their research endeavors. Significantly, teams must also include at least one Morgan undergraduate student in their project.

TEAM SUPPORT

In addition to funding, the CBPR participants receive proactive support from two ASCEND staff members: Gillian Silver, ASCEND's program manager and Payam Shekhattari, co-principal investigator of ASCEND. Both provide technical assistance, help potential grantees develop proposals, and assist with implementation. Ms. Silver helps to identify partners for both researchers and community members who have viable ideas but lack collaborators. A nine-member Community University Advisory Board (CUAB) oversees the CBPR initiative. Fusion Partnerships, Inc. serves as the fiscal agent to ensure equal representation of partners. The CUAB sets policy and makes recommendations for funding the research proposals. Every grant is reviewed and scored by at least two experts — an academician and a community member.

While various parties cooperate to create the infrastructure for CBPR, the real success of the program boils down to the research partners. Their efforts to reach across scientific disciplines and across communities reveal a broader context in which to view public health issues.

PROJECTS AND PROGRESS

The funded projects provide a snapshot of a variety of health-related community needs.

- *Smoking cessation in a public housing community*
- *Assessment of the health needs of former convicts upon reentry into the community*
- *Evaluation of a community-based literacy project*
- *Development of medical technologies to reduce health disparities*
- *Assessing nutrition outcomes in Head Start programs*
- *Conducting a community health asset and needs assessment*

CBPR prepares the grantees to seek external funding to continue their projects. While the financial support is obviously important to the collaboration, the passion for positive change is the real incentive. For those who truly want to make a difference, the words "what if" offer a challenge too enticing to resist.

Harry Brown (peer-mentor) measures the breath carbon monoxide levels and provides smoking cessation support to Clayton Stokes, Tonya Stokes, and Michael Oliver.

9 CBPR PROGRAM CUAB MEMBERS:

Raynard Baylor, Founder and President, New Day, Inc.

Ellis Brown, Director, Morgan Community Mile Initiative, Morgan State University

Jane Buccari, Community Advocate, Southwest Baltimore

Jayfus Tucker Doswell, President/CEO, The Juxtopia Group, Inc.

Farin Kamangar, Director, ASCEND Center for Biomedical Research, Morgan State University

Gia Grier McGinnis, Doctoral Candidate, Public Health Program, Morgan State University

Polly Riddims, Managing Partner, Fusion Partnerships, Inc.

Randolph Rowel, Associate Professor and Chair, Department of Behavioral Health Sciences, Morgan State University

Payam Sheikhattari, Co-Director, ASCEND Center for Biomedical Research, Morgan State University

The pilot program has reinvigorated my research and has inspired me to further explore this community health problem that impacts African American women.

— **TERRA BOWEN-REID**, PHD, ASSOCIATE PROFESSOR OF PSYCHOLOGY AT MORGAN STATE UNIVERSITY

Terra Bowen-Reid is an exemplary model of the Pilot Research Project Program (PRPP). First, she is committed to the PRPP goal of including undergraduate and graduate student scientists in her project, and secondly, she is focused on a recognized community health problem that is ultimately resolvable using both scientific and practical knowledge. Her research addresses the need for increased cervical cancer awareness among young African American women. Despite the increased awareness about human papillomavirus (HPV) vaccinations to prevent cervical cancer, past studies indicate that young African American women have lower vaccination rates and limited knowledge about the virus.

Dr. Bowen-Reid conducted a mixed-methods study to further explore the knowledge, health behaviors and sources of information about HPV and cervical cancer of young African American women. The sample consisted of 298 self-identified African American women between the ages of 18–26 recruited from Morgan State University. These women completed a battery of surveys. From this sample, eight participants scoring in the top percentile on the HPV knowledge assessment were selected for a follow-up focus group.

Preliminary findings from this study have been widely disseminated. Dr. Bowen-Reid is proud to say that "all the undergraduate student scientists used the data for their senior theses and also presented the findings at undergraduate scientific conferences, including the Annual Biomedical Research Conference for Minority Students."

Dr. Bowen-Reid presented the findings at the American Association for Cancer Research Conference and the American Psychological Association Convention. And true to form, she is also collaborating with a graduate student in the psychometrics program on qualitative data analysis and working on two manuscripts for publication.

Dr. Bowen-Reid is enthusiastic about her project. She says the opportunity to participate in the pilot program was inspirational and encouraged her to keep exploring her own interests. For Dr. Bowen-Reid, her collaborators, and the students she guides, PRPP offers success on many levels.

BY THE NUMBERS

62 **PILOT RESEARCH GRANT PROPOSALS** submitted by MSU faculty members 2015–2017.

197 **FACULTY AND COMMUNITY EXPERTS** reviewed ASCEND pilot research and CBPR proposals.

12 **GRANT-WRITING WORKSHOPS OFFERED** to MSU faculty applying for PRPP and CBPR grants. Topics included: Developing a Budget for Your Research Project, Formulating Research Specific Aims, and Responding to Review of Your Proposal.

A SHARED MISSION

Morgan State University has a vibrant research environment led by faculty members who are committed to both scientific discovery and student education. That's an essential combination. Talented researchers are not overnight sensations. ASCEND programs share a mission to guide students toward purposeful, applicable and sound science, and faculty mentors spend a great deal of time to comprehensively train students in research methodology and ethics.

PILOT RESEARCH PROGRAM ADDRESSES FACULTY NEEDS

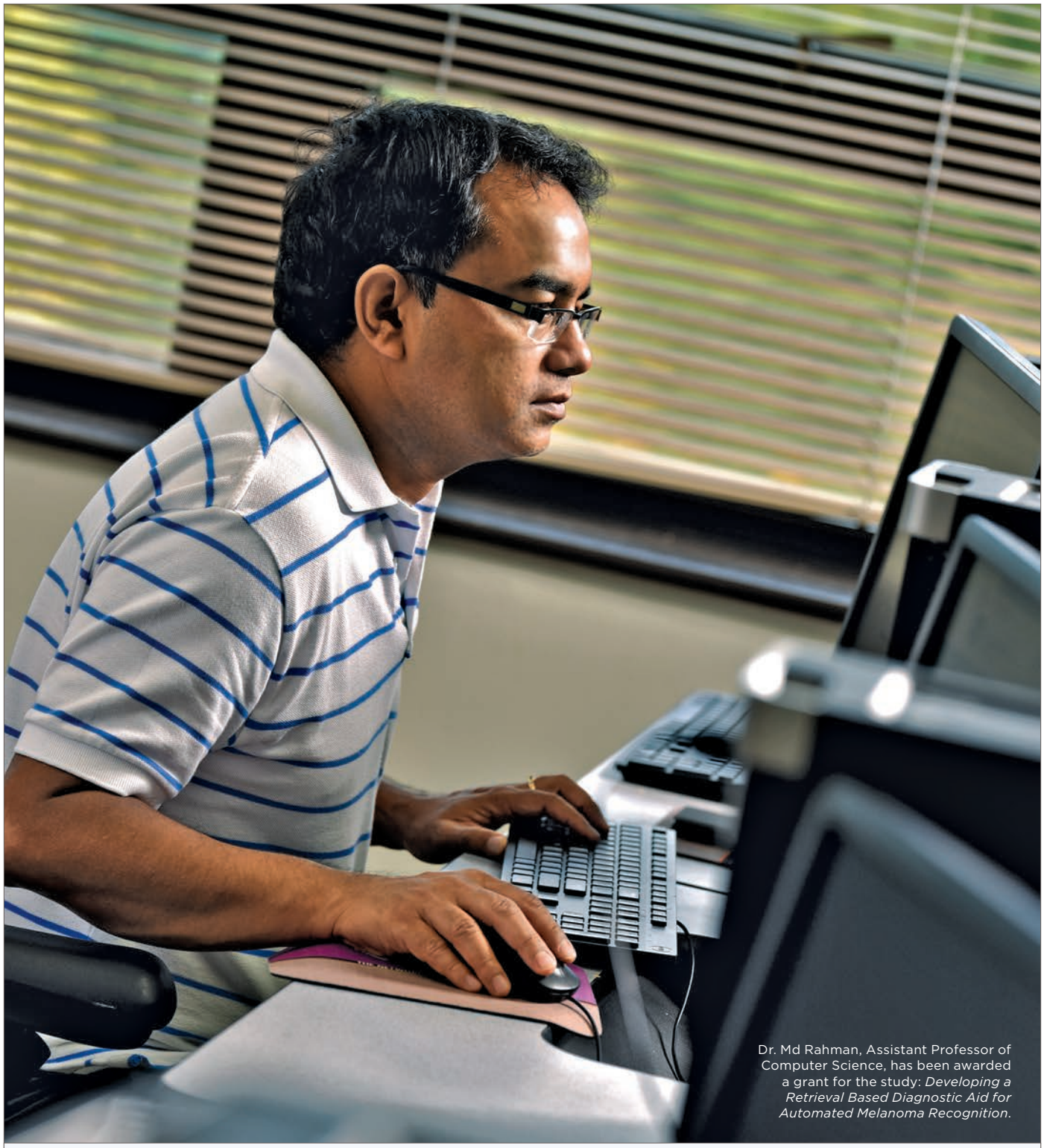
Faculty researchers are faced with the challenge of remaining current and invested in their own scientific research while devoting a significant amount of time to students. It's a sensitive balancing act. Fortunately, ASCEND's Pilot Research Project Program (PRPP) addresses several important needs of faculty researchers, including funding options. The core goal of the PRPP is to encourage and assist faculty in beginning or reinvigorating their own biomedical research programs.

The PRPP provides seed funding of $50,000 for promising projects led by Morgan's faculty. Proposals must address the mission of NIH and adhere to specific NIH guidelines. External experts evaluate research significance and innovation, soundness of the experimental plan, and the suitability of the principal investigators and research environment. ASCEND approval is contingent on a plan for including undergraduates in all phases of the project's lifespan. After external review, recommended proposals are sent to NIH for their approval.

FUNDING SUCCESS

Biomedical research often takes place in a laboratory, but there are also many other venues. Research may include public health topics and technological advances in health care delivery systems. Like most of ASCEND's research programs, PRPP studies touch on a wide variety of health research subjects — from biochemical analysis of disease producing viruses to using low energy blue tooth technology for delivery of health information. Twelve funded projects are underway within six separate Morgan schools; these projects involve dozens of student scientists. In June 2017, ten faculty members submitted proposals for the third round of funding. Six top scoring projects are expected to progress to NIH for approval in late 2017. By the end of fiscal year 2018, nearly eighteen innovative research projects will be underway or nearing completion.

Funded faculty research programs address ASCEND's goal of sustainability, offer essential training opportunities for ambitious student scientists, and — importantly — offer Morgan State University's established scientists the ability to advance their research goals and serve as both models and inspirations to their students.



Dr. Md Rahman, Assistant Professor of Computer Science, has been awarded a grant for the study: *Developing a Retrieval Based Diagnostic Aid for Automated Melanoma Recognition.*

$600k
IN GRANT FUNDS supported by NIH for accepted faculty submitted proposals.

11
FACULTY PILOT PROPOSALS SUBMITTED FOR THIRD ROUND OF FUNDING. Six top-scoring projects are expected to progress to NIH for funding in late 2017. By the end of fiscal year 2018, nearly eighteen innovative research projects will be underway or nearing completion.

12
FUNDED PILOT PROJECTS UNDERWAY in six separate MSU schools, involving dozens of student researchers.

ASCEND has brought the philosophy of student-centered research to Morgan. We are excited about building an entire student-centered culture in SCMNS, which will be reflected in all of our research, academic, and policy-making practices.

— **HONGTAO YU**, PHD, DEAN, SCHOOL OF COMPUTER, MATHEMATICAL AND NATURAL SCIENCES AND PROFESSOR OF CHEMISTRY

HONGTAO YU: LEADING THE MISSION

Morgan State University was recently named the State of Maryland's Preeminent Urban Research Institution. To further strengthen its reputation as a research institution, Morgan is luring the best and brightest faculty to the university's classrooms and laboratories. Dr. Hongtao Yu, a world class chemist and researcher, has studied and worked in China, Germany, and the United States, and recently brought his extensive talents to Baltimore. He now serves as Morgan's Dean of the School of Computer, Mathematical and Natural Sciences (SCMNS), one of the schools working closely with the ASCEND program to enhance student success and promote NIH-relevant research.

MISSION: STUDENT SUCCESS

In addition to his expertise, Dean Yu brought along some very specific goals to achieve. Two of these goals have far-reaching implications for Morgan, SCMNS, and the ASCEND program. The first goal is to increase student enrollment, retention, and graduation rates. To tackle this, he wants to implement best practices based on research to serve the current generation of students. Luckily, support for that goal is available in the ASCEND academic and laboratory spaces. The ASCEND program is a successful model of innovative methodologies that actively engage students, such as pairing students with faculty mentors, identifying meaningful research projects, and recognizing student accomplishments. The student-centered approach of ASCEND aligns well with Dean Yu's leadership style and goals. "ASCEND has brought the philosophy of student-centered research to Morgan. We are excited about building an entire student-centered culture in SCMNS, which will be reflected in all of our research, academic, and policy-making practices," he says. "In addition, a culture of connectivity is critical for retention. We expect that students who are connected, like those in the ASCEND program, will be more likely to remain in college, to graduate, to have successful careers, and to act as ambassadors for the biomedical sciences," he adds.

Dr. Hongtao Yu, Dean, School of Computer, Mathematical and Natural Sciences (SCMNS).

FUNDING: VISIONARY GOALS

Dean Yu believes that excellent research is an important training ground for students. "My vision for SCMNS is that our students will be trained by committed faculty to become independent researchers themselves." With that in mind, he aspires to increase funding for faculty and student research. "My goal is to quadruple SCMNS funding (not counting the ASCEND award) from $3.5 million in 2016–17 to $12–15 million per year by 2025." Dean Yu is implementing several mechanisms to realize this ambitious goal. He is requiring his eight newly hired faculty members to attend weekly grant-writing meetings organized by Dr. Farin Kamangar (the Principal Investigator of ASCEND and SCMNS's new Associate Dean for Research) and his colleagues. Dr. Yu is also strongly encouraging his faculty to benefit from ASCEND's Pilot Research Project Program (PRPP) and to apply for additional research funding through various NIH and National Science Foundation (NSF) mechanisms. "ASCEND has been instrumental in enhancing the research culture at SCMNS for faculty and students by providing grant-writing workshops and short courses, purchasing much-needed equipment, and offering pilot research grants. We continue to work closely together to realize our research goals."

SYNERGY: AMPLIFIED IMPACT

Synergy occurs when the interaction, cooperation and shared missions of two or more groups results in an outcome that is greater than that achieved by each group working alone. The goals of ASCEND and Morgan as a whole are closely aligned. Fortunately, the University leaders saw the potential for synergy from the early days of ASCEND.

In its strategic plan, MSU lists five primary goals:
1) Enhancing Student Success; **2)** Enhancing Morgan's Status as a Doctoral Research University; **3)** Improving and Sustaining Morgan's Infrastructure and Operational Processes; **4)** Growing Morgan's Resources; and **5)** Engaging with the Community.

The ASCEND program shares these goals and supports them in specific ways. The program: **1)** enhances student success by offering student-centered research opportunities and by transforming science courses to be more student-centered; **2)** enhances MSU's status as a doctoral research university by empowering and supporting faculty to receive grants; **3)** improves and sustains infrastructure through the purchase of laboratory equipment and the creation of active learning centers; **4)** grows resources by leveraging support, both internally and externally; and **5)** engages with the community by offering community-based participatory research grants.

Because of a shared mission between the University and ASCEND, ASCEND has enjoyed substantial support from the institution, amplifying ASCEND's impact on the many communities it serves.

The School of Social Work launched a "Scholars Initiative" in 2012, designed to mobilize the school's scholarship culture. ASCEND funding opportunities are supporting our faculty members' efforts to do more research and publish their findings. ASCEND is the right initiative at the right time.

ANNA MCPHATTER, PHD, DEAN, SCHOOL OF SOCIAL WORK

The ASCEND program has been pivotal in helping our mission by providing resources for faculty with a health focus — particularly those in the Psychology Department — to redesign courses to be student-centered and research-based, for faculty to conduct research and mentor students along the way, and for students to make outstanding achievements as ASCEND Scholars.

M'BARE N'GOM, PHD, DEAN, JAMES H. GILLIAM, JR. COLLEGE OF LIBERAL ARTS

Participants in the 2017 ASCEND Summer Research Institute.

ASCEND has been instrumental in enhancing the research culture at the School of Computer, Mathematical, and Natural Sciences for faculty and students by providing grant-writing workshops and short courses, purchasing much-needed equipment, and offering pilot research grants.

HONGTAO YU, PHD, DEAN, SCHOOL OF COMPUTER, MATHEMATICAL, AND NATURAL SCIENCES

The ASCEND funding opportunities have encouraged several faculty in the School of Education and Urban Studies to embark on health-related research. As a result of this shared mission, ASCEND has the potential to positively impact the health of communities we serve.

PATRICIA L. WELCH, PHD, DEAN, SCHOOL OF EDUCATION AND URBAN STUDIES

ASCEND BY THE NUMBERS

STUDENTS

83 Summer Research Institute undergraduate participants.

19 Summer Research Institute group research proposals developed and presented.

108 Student Research Center members.

60 ASCEND Scholars program enrollees.

5 Scholars serving as near-peer mentors for the 2017 SRI and ASCEND Scholars program.

122 undergraduate student research projects and internships.

23 ASCEND Scholars' abstracts accepted for the ABRCMS 2016 and 2017 meetings.

6 ASCEND Scholars have graduated from MSU to date, and 4 are attending graduate school.

FACULTY

12 grant writing workshops offered to MSU faculty applying for ASCEND pilot research and community-based participatory research (CBPR) grants.

62 ASCEND pilot research grant proposals submitted by MSU faculty members.

25 CBPR Small Grant proposals submitted by MSU faculty members in collaboration with community organizations.

197 faculty and community experts from the U.S. and beyond reviewed the ASCEND pilot research and CBPR proposals.

12 course design or redesign grants awarded to MSU faculty members.

31 travel grants awarded to MSU faculty to attend conferences to enhance their pedagogical expertise or to attend scientific meetings in their fields of research.

6 mentoring workshops held for 70 faculty members and near-peer mentors from MSU, Johns Hopkins University, and University of Maryland.

8 faculty members and near-peer mentors participated in online or in-person National Research Mentoring Network (NRMN) workshops.

7 articles by ASCEND-supported faculty (and students) published in peer-reviewed journals.

9 faculty members and doctoral students have received statistical data analysis support from Dr. Mian Hossain, Professor of Biostatistics in the School of Community Health and Policy.

INSTITUTION

10 (out of 10) MSU Schools and Colleges participated in ASCEND-related activities.

4 spaces within MSU's Science Complex renovated to form three Active Learning Centers and a Student Research Center.

3 highly-advanced technologies (BodyViz, functional MRI, and Biolucida®) available for student training and faculty research.

27 pieces of scientific equipment purchased, upgraded, or repaired for a new Core Laboratory or for ASCEND-supported faculty investigators.

1000s of journals, previously inaccessible, now available online through Morgan State's library.

9 research partner institutions: Howard University; Johns Hopkins University; Kennedy Krieger Institute; Lehigh University; National Cancer Institute; Northeastern University; University of Maryland, Baltimore County; University of Maryland Greenebaum Comprehensive Cancer Center; University of Maryland, College Park.

THE ASCEND TEAM

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AC: Administrative Core; **CLA**: College of Liberal Arts; **SoE**: School of Engineering; **IDC:** Institutional Development Core; **JHSPH**: Johns Hopkins Bloomberg School of Public Health; **LAUT** Nigeria: Ladoke Akintola University of Technology, Nigeria; **REC**: Research Enrichment Core; **SCHP**: School of Community Health and Policy; **SCMNS**: School of Computer, Mathematical, and Natural Sciences; **SEUS**: School of Education and Urban Studies; **SRC**: Student Research Center; **SRI**: Summer Research Institut; **SSW:** School of Social Work; **STC**: Student Training Core; **UMCP**: University of Maryland, College Park.

This publication was supported by the National Institute of General Medical Sciences, National Institutes of Health, under award numbers UL1GM118973, RL5GM118972, and TL4GM118974. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institutes of Health. Published October 2017.

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