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14. ABSTRACT Overall, the goal of the Hopps Scholars program is to enrich the academic preparation of Morehouse students and stimulate their interest in scientific research as a career. The development and improvement of the curriculum, the enhancement of research at Morehouse, and the establishment of linkages to researchers at other institutions will be of lasting value to increasing diversity in the science community. Program was completed and paper published in CBE Life Sciences Education, September 1, 2016. Presentation					
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Report Title

Final Report: John H. Hopps Jr. Defense Research Scholars Program

ABSTRACT

Overall, the goal of the Hopps Scholars program is to enrich the academic preparation of Morehouse students and stimulate their interest in scientific research as a career. The development and improvement of the curriculum, the enhancement of research at Morehouse, and the establishment of linkages to researchers at other institutions will be of lasting value to increasing diversity in the science community.

Program was completed and paper published in CBE-Life Sciences Education, September 1, 2016. Presentation given at Annual Meeting of the American Society of Cell Biology, December, 2016

Enter List of papers submitted or published that acknowledge ARO support from the start of the project to the date of this printing. List the papers, including journal references, in the following categories:

(a) Papers published in peer-reviewed journals (N/A for none)

Received

Paper

12/15/2016	2 Thompson, Rahmelle C., Monroe-White, Thema, Xavier, Jeffrey Howell, Courtney, Moore, Myisha R., Haynes J.K.. Preparation of Underrepresented Males for Scientific Careers: A Study of the Dr. John H. Hopps Jr. Defense Research Scholars Program at Morehouse College, CBE - Life Sciences Education, (): . doi:
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TOTAL: 1

Number of Papers published in peer-reviewed journals:

(b) Papers published in non-peer-reviewed journals (N/A for none)

Received

Paper

TOTAL:

Number of Papers published in non peer-reviewed journals:

(c) Presentations

Number of Presentations: 1.00

Non Peer-Reviewed Conference Proceeding publications (other than abstracts):

Received Paper

TOTAL:

Number of Non Peer-Reviewed Conference Proceeding publications (other than abstracts):

Peer-Reviewed Conference Proceeding publications (other than abstracts):

Received Paper

TOTAL:

Number of Peer-Reviewed Conference Proceeding publications (other than abstracts):

(d) Manuscripts

Received Paper

TOTAL:

Number of Manuscripts:

Books

Received Book

TOTAL:

TOTAL:

Patents Submitted

Patents Awarded

Awards

Graduate Students

<u>NAME</u>	<u>PERCENT SUPPORTED</u>
FTE Equivalent:	
Total Number:	

Names of Post Doctorates

<u>NAME</u>	<u>PERCENT SUPPORTED</u>
FTE Equivalent:	
Total Number:	

Names of Faculty Supported

<u>NAME</u>	<u>PERCENT SUPPORTED</u>
FTE Equivalent:	
Total Number:	

Names of Under Graduate students supported

<u>NAME</u>	<u>PERCENT SUPPORTED</u>
FTE Equivalent:	
Total Number:	

Student Metrics

This section only applies to graduating undergraduates supported by this agreement in this reporting period

The number of undergraduates funded by this agreement who graduated during this period: 189.00

The number of undergraduates funded by this agreement who graduated during this period with a degree in science, mathematics, engineering, or technology fields:..... 189.00

The number of undergraduates funded by your agreement who graduated during this period and will continue to pursue a graduate or Ph.D. degree in science, mathematics, engineering, or technology fields:..... 138.00

Number of graduating undergraduates who achieved a 3.5 GPA to 4.0 (4.0 max scale):..... 40.00

Number of graduating undergraduates funded by a DoD funded Center of Excellence grant for Education, Research and Engineering:..... 0.00

The number of undergraduates funded by your agreement who graduated during this period and intend to work for the Department of Defense 10.00

The number of undergraduates funded by your agreement who graduated during this period and will receive scholarships or fellowships for further studies in science, mathematics, engineering or technology fields: 138.00

Names of Personnel receiving masters degrees

NAME

Total Number:

Names of personnel receiving PHDs

NAME

Dezmond Douglas

Christopher Garrett

John Pamplin

Bobby Wilson

Brandon Crosby

Kenneth Lyons

Chauncey Smith

Luke Yancy

Total Number:

8

Names of other research staff

NAME

PERCENT SUPPORTED

Rahmelle Thompson

1.00

Myisha Moore

1.00

Tashima Wright

1.00

FTE Equivalent:

3.00

Total Number:

3

Sub Contractors (DD882)

Inventions (DD882)

Scientific Progress

Paper published in CBE-Life Sciences Education, September 1, 2016

Presentation given at Annual Meeting of the American Society of Cell Biology, December, 2016

Technology Transfer

Hopps Scholars Final Report to the DoD

Submitted by J.K. Haynes, P.I.

Summary:

During the ten-year period between 2006-2015 when the Hopps Scholars Program was funded by the Department of Defense, 189 students participated in the Program, 150 of whom graduated in good standing. The 39 students who left the Program spent on the average 1.5-2.0 years in the Program before leaving, and the results of an external evaluation by the Sage-Fox Group indicates that they benefitted significantly from participation. Thus, in the analysis that we present in this report, they are grouped with those who graduated in good standing and are called Hopps Scholars. Where we make specific reference to those who graduated in good standing, we use the term Hopps alumni.

A major goal of the program was to increase the percentage of STEM graduates of the College who enrolled in Ph.D. programs, and to enrich their education at the College. During the tenure of the grant, there were 6 graduating classes of Hopps Scholars, seventy-three (73) percent of whom enrolled in graduate programs. Hopps Scholars consistently outperformed their non-Hopps peers on each of the following outcome variables: undergraduate academic performance, enrollment in graduate school, and selectivity of graduate school enrollment. When compared to a matched comparison group at the College, Hopps Scholars earned significantly higher college GPAs at graduation (GPA = 3.36 vs. 3.21); were 2.5 times more likely to enroll in STEM graduate programs; and were 14 times more likely to attend doctoral research institutions with higher research activity than their STEM peers. These data indicate that the Hopps Scholars Program had a significant impact on academic performance and enrollment of Morehouse College STEM students in graduate school.

While it is too early to report the success of graduates of the Hopps Scholars Program from Ph.D. programs, our records indicate that five (5) have now obtained Ph.Ds in STEM fields (Table 8), the first of whom was Bobby Wilson, who obtained the Ph.D. in Mathematics in 2015 from the University of Chicago. He is currently a post-doctoral fellow at Massachusetts Institute of Technology.

Program Details (Results):

The Program consisted of six (6) major components: 1) A pre-freshman summer program; 2) Academic year and summer research; 3) Weekly Program meetings; 4) Program Coaching and Counseling; 5) Graduate school tours and lab site visits; and 6) presentation of research at scientific conferences. In previous annual

reports, we provided details on the conduct of the Program during the year in question. In this final report, we felt that the most valuable data that we could provide was based on the evaluation conducted by the SAGE-Fox Group. The data below is based on STEM students who graduated between 2010 and 2014; 2010 is the first year during which Hopps Scholars graduated from the College, and 2014 was the last year at which data was available.

To define a matched comparison group, nearest neighbor two-to-one propensity score matching using the Matchit package in RStudio software (RStudio Team, 2015) was utilized. College entry data including high school GPA and SAT or ACT scores were obtained from the Office of Institutional Research at the College. From an original group of 374 non-Hopps students, 188 were retained because they were closely matched with the 94 Hopps Scholars who graduated during this period (Table 1). The mean high school GPA of Hopps Scholars was 3.68, while the mean high school GPA of the matched group was 3.63. The mean SAT math score for Hopps was 608 while the mean SAT math score of the matched group was 603. This matched comparison group was used to measure the effectiveness of the Hopps Scholars program.

Similarity of Matched Comparison Group to HOPPS

Table 1. Demographic characteristics

	Full comparison group (n = 468)		Propensity matched comparison group (n = 282)	
	Hopps (n = 94)	Comparison (n = 374)	Hopps (n = 94)	Matched comparison (n = 188)
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
High school GPA ^a	3.68 (0.42)	3.39 (0.52)	3.68 (0.42)	3.63 (0.47)
SAT Math ^b	608 (73)	547 (86)	608 (73)	603 (63)
Morehouse major	Frequencies % (n)			
Applied physics	4 (4)	6 (21)	4 (4)	7 (14)
Biology	34 (32)	25 (92)	34 (32)	27 (50)
Chemistry	12 (11)	5 (19)	12 (11)	7 (13)
Computer science	10 (9)	10 (36)	10 (9)	10 (18)
General science	1 (1)	8 (29)	1 (1)	8 (15)
Mathematics	19 (18)	9 (34)	19 (18)	11 (21)
Physics	10 (9)	6 (24)	10 (9)	9 (16)
Pre-engineering	0 (0)	2 (7)	0 (0)	2 (4)
Psychology	15 (14)	32 (119)	15 (14)	23 (43)

^aWeighted GPA. Scale: 2.69–4.73.

^bScale: 200–800.

Independent-samples t tests were used to determine if Hopps Scholars performed better academically at the College than the matched comparison group. Hopps Scholars had significantly higher college GPAs (mean = 3.36) than

the matched comparison group (mean =3.21), $t(236) = 3.61$, $p = 0.003$. The mean GPA of Hopps alumni (those who graduated from the College while still in the Program) was 3.41 (Table 2).

HOPPS Scholars Performed Better in College

Table 2. Cumulative Morehouse GPA comparison

	N	Mean GPA	SD	t	df
Hopps matched comparison					
Hopps Scholars	94	3.36	0.30	3.61**	236
Matched comparison	188	3.21			
Hopps alumni comparison group					
Hopps alumni	66	3.41	0.27	2.30*	43
Removed/left Hopps	28	3.25	0.34		

* $p < 0.05$.

** $p < 0.01$.

*** $p < 0.001$.

To determine the impact of the Hopps Scholars program on graduate school enrollment, data was obtained from the National Student Clearinghouse (NSC). The NSC provided information on the postbaccalaureate academic work of Hopps Scholars for whom data were available. Included in the NSC data set were the names of the graduate institution and enrollment status of Hopps graduates at those institutions. This data set was later expanded to include NSC data regarding all Morehouse College students who had graduated in STEM majors between 2005 and 2014.

In the propensity score matched data set, of the 167 Morehouse STEM alumni enrolled in graduate degree programs, 41% ($n = 69$) were Hopps Scholars and 59% ($n = 98$) were non-Hopps matched comparison group students. To determine whether Hopps Scholars were more likely to attend graduate school than their matched peers, we sought to determine whether a relationship existed between overall graduate school enrollment and Hopps Scholar status. The Pearson's chi-square test with Yates' continuity correction (3) indicates that the association between Scholar status and graduate school enrollment is significant. (Table 3). The odds ratio indicates that the odds of a Hopps Scholar enrolling in graduate

school is 2.53 times higher than a non-Hopps matched comparison group graduate.

HOPPS Scholars Enroll in Graduate School at Higher Rates

Table 3. Enrollment numbers: all graduate programs

	Enrolled	Not enrolled	Total
Hopps Scholars	73% (69)	27% (25)	94
Comparison	52% (98)	48% (90)	188

$\chi^2 (1, N = 282) = 10.88, p < 0.001$.

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Finally, we sought to determine whether Hopps Scholars enrolled in more research intensive institutions than non-Hopps scholars using the Carnegie classification of graduate institutions based on level of research activity. This classification is shown in Table 4. The lowest ranking graduate institutions with regard to research activity are Master's granting institutions and the highest are Doctoral granting institutions with very high research activity (RU/VH).

Table 4

Carnegie Classification of Institutions of Graduate Education

Doctoral Granting Institutions, according to levels of research activity are:

Master's

DRU (doctoral/research universities; formerly classified as low research activity)

RU/H (doctoral granting institutions with high research activity)

RU/VH (doctoral granting institutions with very high research activity)

To determine whether Hopps Scholars were more likely to attend research-intensive institutions than their non-Hopps STEM Morehouse peers, we created three binary outcome variables comparing master's institutions (with very low research activity) with DRU doctoral-granting institutions (with low research activity), DRU to RU/H doctoral-granting institutions (those with high research activity), and RU/H to RU/VH doctoral granting institutions (those with very high research activity) institutions, respectively. This analysis compares groups of Morehouse STEM graduates: Hopps with non-Hopps and Hopps Alumni with

Hopps Participants (those who left the Program before graduation) (Table 5). Pearson's chi-square tests of independence (or Fisher's exact t, where appropriate) were conducted for significant differences between groups.

Table 5. Institution type: descriptive statistics

	Master's % (n)	DRU % (n)	RU/H % (n)	RU/VH % (n)
Hopps matched comparison group				
Hopps Scholars (n = 69)	13 (9)	1 (1)	20 (14)	65 (45)
Matched control (n = 98)	26 (26)	9 (9)	9 (9)	55 (54)
Subtotal	35	10	23	99
Hopps Alumni comparison group				
Hopps alumni (n = 48)	8 (4)	2 (1)	21 (10)	69 (33)
Removed/Left Hopps (n = 21)	24 (5)	0 (0)	19 (4)	57 (12)
Subtotal	9	1	14	45

All percentages are calculated using sample totals, as opposed to subtotals. Percentages may not sum to 100 due to the effects of rounding.

Overall High versus Low Research Institutions: Hopps versus non-Hopps.

Pearson chi-square tests of independence revealed that Hopps Scholars are significantly more likely to attend doctoral-granting institutions with high or very high (RU/H or RU/VH) research activity than low research activity (master's and DRU) institutions when compared with comparison students $\chi^2(1, N = 167) = 8.217$, $p < 0.01$. Hopps Scholars are 3.28 times more likely to attend graduate institutions with higher as opposed to lower research activity. Disaggregating the data revealed additional variations by institution type which are discussed below. (Table 6)

Master's versus DRU: Hopps versus non-Hopps:

Although proportionately fewer Hopps Scholars attend master's as opposed to DRU (low research) institutions when compared with non-Hopps comparison students, this difference is not significant ($p > 0.05$). (Table 6)

DRU versus RU/H: Hopps versus Non-Hopps.

Hopps Scholars are significantly more likely to attend high research activity doctoral-granting institutions (RU/H) than low research activity (DRU) doctoral-granting institutions when compared with their non-Hopps comparison students. A Fisher's exact test revealed that this difference was significant ($p < 0.01$) and that Hopps Scholars are 14 times more likely to attend high research activity

institutions (RU/H) than DRU institutions when compared with matched comparison students. (Table 6)

RU/H versus RU/VH: Hopps versus Non-Hopps.

Although a greater proportion of Hopps Scholars attend doctoral institutions with very high research activity (RU/VH), than their matched comparison students, this difference is not statistically significant ($p > 0.05$).

Table 6. Institution type: significance testing

	Scholar status		χ^2	df
	Hopps (n = 69)	Matched comparison (n = 98)		
Overall high vs. low research institution				
High (RU/H and RU/VH)	86% (59)	64% (63)	8.21 ***	1
Low (master's and DRU)	14% (10)	36% (35)		
Master's vs. DRU ^a				
Master's	13% (9)	27% (26)	3.88	1
DRU	1% (1)	9% (9)		
DRU vs. RU/H ^a				
DRU	1% (1)	9% (9)	5.37 **	1
RU/H	20% (14)	9% (9)		
RU/H vs. RU/VH				
RU/H	20% (14)	9% (9)	1.21	1
RU/VH	65% (45)	55% (54)		

^aResults hold for Fisher's exact *t*.

** $p < 0.01$.

*** $p < 0.001$.

Program Design

To better understand why Hopps participants outperformed their peers, we reviewed several programs with goals similar to those of the Hopps Scholars Program for comparison. While each program is unique, all of them include at least three of the key program components listed in Table 7. In Hopps, instruction and program activities are designed to be delivered using all seven program components included in Table 7.

Hopps shares five key program components with the Meyerhoff Scholars Program (i.e. summer pre-freshman program, mentored research experience, program meetings, program coaching and counseling support and financial assistance). The Meyerhoff Scholars Program reports that their underrepresented students were 5.3 times more likely to have graduated from or be currently attending a STEM doctoral or MD/PhD program than those students who did not

participate in the program at the University of Maryland Baltimore County (Maton et al., 2012).

However, the Meyerhoff Scholars Program is housed at a public, PWI research university, and its results include statistics on all underrepresented groups (blacks, Latino/Hispanic, and Asian males and females). Moreover, their data do not disaggregate graduates who entered medical school from those who entered graduate school. Despite these differences, comparison of both programs' components and outcomes support the conclusion that intervention programs of this type are effective in increasing the number of underrepresented groups in STEM.

Hopps also shares five key components with the MARC program, four with RISE, and four with the Ronald McNair Scholars Program. Data from each intervention suggests that all have been successful in increasing the number of underrepresented students receiving STEM degrees (Garrison and Brown, 1985; Maton et al., 2000, 2012; U.S. Department of Education, 2002, 2005; Bejar, 2013; Manzanares, 2015).

The comparison of intervention programs also illustrates that the one unique component of Hopps is the graduate school tours and laboratory site visits. While we have not yet had the opportunity to assess the impact of the individual components of the Hopps program, we believe these visits were extremely important in that they gave Hopps Scholars the opportunity to meet graduate school STEM faculty, discuss graduate school experiences with graduate students, and tour research laboratories related to their fields. The visits also allowed scholars to develop networks and build their networking skills.

Table 7. Key program components in Hopps and other programs

Program component	Hopps Scholars Program	Meyerhoff Scholars Program	MARC ^a	RISE	Ronald McNair Scholars Program
Summer pre-freshman experience	+	+	-	-	-
Mentored research experience					
Summer	+	+	+	+	+
Academic year	+	+	+	-	-
Program meetings	+	+	+	-	+
Graduate school tours and laboratory site visits	+	-	-	-	-
Program coaching and counseling	+	+	+	+	+
Scientific conference and symposia	+	-	+	+	-
Financial assistance	+	+	+	+	+

+, component present in program; -, component absent from program.

^aThese components were characteristic of many MARC programs at the time of their evaluation in 1985.

Table 8 contains a complete list of students who participated in the Hopps Scholars program and what they are presently doing, including the ones who have obtained a Ph.D. degree.

Table 8
Hopps Scholars Program Graduates

2010-2016

Year of Graduation	# of Scholars	Name	Major	Current Endeavors
2010	16	Warren Chancellor	Chemistry	Teach for America
		Frank Conyers	Biology	MD/Ph.D. Student: Harvard University
		Jacque Corey Cormier	Biology	doctoral student at Georgia State Univ in Pyschology
		Gregory Davis	Psychology	JD conferred at UCLA doctoral student in african american studies @harvard
		Dezmond Douglas	Psychology	Ph.D. conferred from Howard University in physiology and biophysics, post doc at Gladstone labs
		Patrick Delisser	Biology	MD conferred fall 2015 Howard University
		Christopher Garrett	Physics	PHD Conferred @ UNC-CH *Seeking Post Doc Position
		Jason Jones	Biology	graduate student: Howard University
		Vann Newkirk	Biology	Completed Masters in Public Policy: UNC-CH
		Yannick Matthews	Chemistry	Completed Masters in Architecture: Syracuse
		T.Lydell Newsome	Biology	medical student: Univ. of S. Illinois anticipates MD Spring 2017
		John Pamplin	Psychology	PHD conferred @ Columbia U in Epidemiology 2014
		David Roberts	Biology	Dental student: Howard University
		David Sanders	Physics	Middle School Teacher, Grad Student at UNC Charlotte

2011	17	Matthew Temba	Computer Science	Completed Masters in Math: Univ. of Maryland, CP
		Bobby Wilson	Mathematics	Post Doc @ University of Chicago *PHD CONFERRED
		Kevin Anderson	Chemistry	MD program @ Duke University (anticipated grad date May 2018)
		Brandon Crosby	Psychology	Ph.D. Psychology at University of Maryland College Park (conferred spring 2016)
		James Hightower	Chemistry	Graduate Student
		Joshua Jones	Biology	Graduate Student: John Hopkins, Research Technician
		Kenneth Lyons	Chemistry	PHD in Material Science/Engineering: Cornell University (anticipated conferral May 29 2016)
		Mackenzie Martin	Computer Science	doctoral program at USF in Biomedical Science (anticipated grad date fall 2016)
		Marquette Moore	Computer Science	Boston University Graduate School of Public Health
		Cleon Rice	Biology	Teach for America – Berkmar High School
		Jeron Rowland	Mathematics	graduate school: Georgia State University
		Anthony Saxon	Biology	MS in game design from RIT, Marketing Assistant at RIT
		Chauncey Smith	Psychology	Psychology PHD candidate: University of Michigan (anticipated grad 2016)
		Nicholas Speller	Biology	Ph.D. Candidate in Chemistry student: Louisiana University
		Michael Street	Mathematics	Masters degree, MIT: Ph.D. student at GaTech
		Delawrence Sykes	Physics	Ph.D. Ecology student: Indiana University Bloomington
		Edward Washington	Biology	medical student: Morehouse School of Medicine
		Colin Watson	Mathematics	graduate Ph.D. Informatics student: Princeton University

		Luke Yancy	Computer Science	Phd in bioinformatics Stanford University (spring 2016), Data Scientist Nuna Inc
		Blair Alexander	Biology	Started his own Consulting Firm
		Brandon Murray	Mathematics	Psychology Graduate student: Queens College, New York
		Alan Tyson		Accepted into graduate program of Music Engineering :Indiana University
2012	17	Thomas Benjamin	Psychology	Working at Morehouse College
		Eric Chiyembekeza	Biology	Location not known
		Alexander Deleon	Mathematics	Location not known
		Jabari Elliot	Biology	Ph.D. student at Washington University, St. Louis
		Jamaji Nwanaji Enwerem	Biology	MD/Ph.D. student: Harvard University
		Miles Fuller	Biology	Ph.D. student: Northwestern University
		Pierce Gordon	Physics	Ph.D. student:UC Berkeley
		Zachery Graves	Psychology	Masters student: Columbia University
		Da'sean Green	Chemistry	Ph.D. student: Ohio State University
		Mykel Green	Biology	Ph.D. student: Ga Tech
		Anthony Nixon	Chemistry	Location unknown
		Justin Perry	Chemistry	Ph.D. program: Howard University
		Blaine Radley	Biology	Location unknown
		Brockton Starling	Computer Science	Accepted into Ph.D. Program: Northwestern University and currently working at Boeing in St. Louis
		Andre Thompson	Chemistry	Ph.D. student: University of Michigan
		Charles Watts	Mathematics	Completed Masters degree: Ga Tech

		Cavanaugh Welch	Biology	Working at Boeing in St. Louis; Accepted into Ga Tech dual degree program/Aerospace/Engineering
2013	14	David Brickler	Computer Science	graduate student: Clemson University
		Joel Coppadge	Mathematics	graduate student: North Carolina State
		Wallace Derricotte	Chemistry	graduate student: Emory University
		Denarius Frazier	Chemistry	graduate student: Columbia University
		Brantley Fulton	Computer Science	graduate student: Oregon State University
		Theodore Hicks	Chemistry	Working as Project Chemist
		Kari Jackson	Physics	PHD @ Duke
		Vallmer Jordan	Biology	graduate student: Louisiana State University
		Roy Llewellyn	Physics	graduate student: University of Michigan
		Elijah Martin	Biology	graduate student: University of San Francisco
		Raymond Perkins	Mathematics	graduate student: Princeton University
		Jordan Showell	Biology	Post Bac student: Baylor University
		Maxalan Vickers	Pre-Engineering	graduate student: Cornell University
		Charles Wilkes	Mathematics	graduate student: University of Michigan
2014	24	Omari Baruti	Chemistry	Ph.D. Program in Chemical Biology at the University of Michigan
		David Cherry	Pre-Engineering	Doctoral Program in Human Centered Computing at Clemson University
		Jordan Clark	Mathematics	Doctoral Program in Mathematics, University of Georgia
		Bernard Dickens, III	Computer Science	Doctoral Program in Computer Science, the University of Chicago
		Bakari Hassan	Biology	Applying to Doctoral Programs
		Cedric Hill	Physics	Doctoral Program in Bioengineering at Rice University

Tevin Hughley	Biology	Post Baccalaureate Research Education Program (PREP) at University of California Santa Cruz
Nelson Jenkins	Physics	Employed as a mechanical engineer at Allegion
Toneé Jones	Biology	Apply to Doctoral Programs in Biology
Ryan Leon	Physics	Research Internship at Los Alamos National Laboratory
DeLorian Malone	Biology	Applying to Doctoral Programs in Molecular Engineering
Jerrell Mure	Mathematics	Doctoral Program in Applied Mathematics at Rennselaer Polytechnic Institute
Francisco Nunez	Computer Science	Doctoral Program in Integrated Neuroscience at Northwestern University
Aparecio Peggins	Psychology	Doctoral Program at Meharry Medical College
Andrew Peterson	Pre-Engineering	Applying to Ph.D. programs in Neuroscience
John Porter, III	Computer Science	Doctoral Program in Human-Centered Computing at Clemson University
Octavious Talbot	Mathematics	Doctoral Program in Biostatistics at Harvard University
Austin Tucker	Computer Science	Applying to Doctoral Programs in Computer Science
Tré Wells	Chemistry	Doctoral Program in Economics at the University of Virginia
Shawn Wilkinson	Computer Science	Entrepreneur
Dwight Williams	Physics	Employed at AirWatch
Jeroson Williams	Psychology	Post Baccalaureate Research Education Program (PREP) at Washington University (St. Louis)
Christopher Wills	Physics	Doctoral Program in Mechanical Engineering at Rice University
Christopher Wright	Biology	Applying to PhD Programs in Computer Science

2015	9	Zaire Ali	Computer Science	Doctoral Program at UNC
		Curtis Clark Jr.	Mathematics	Masters Degree in Math at Wake Forrest University
		Arman Green	Mathematics	Doctoral Program at NC State
		Jasseim Ifill	Computer Science	Doctoral Program in Computer Science, Rennsaeler Polytech
		Dorian Kandi	Mathematics	Master Degree in Math at UW Seattle
		Andrew Lapelusa	Biology	MD Program at Wright State
		Evan Miller	Biology	Research Technician at Mt. Sinai MC
		Aquia Richburg	Mathematics	Doctoral Program in Math at University of Maryland
		Jamal Thorne	Computer Science	Post Baccalaureate Research at University of Washington Seattle
2016	13	Jeremy Ariche	Mathematics	Doctoral Program in Math at University of Maryland
		Rafeal Baker	Biology	Post Baccalaureate Research at NIH Bethesda MD
		Ayorinde Cooley	Biology	MD Program at Meharry Medical College
		Terrell Glenn	Physics	Doctoral Program in Robotic Engineering at Purdue University
		Nyalia Lui	Computer Science	Doctoral Program Indiana University in Computer Science
		Ifreke Okpokowuruk	Computer Science	Software Engineer at Google
		Joshua Mann	Pre-Engineering	Masters Degree in Aerospace Engineering at U of Michigan
		Frederick Moss	Biology	Research Internship at Genentech
		Charles Roberson	Biology	MD.PHD at University of Virginia
		Ronald Smith	Biology	DVM/PHD at NC State
		Tunde Smith	Biology	Doctoral Program at Meharry Medical College
		Phillip Stephens	Biology	MD/PHD Program at Morehouse School of Medicine

**Total
Graduates**

110

Publications and presentations on the Hopps Scholars Program:

1. Thompson, Rahmelle C., Monroe-White, Thema, Xavier, Jeffrey, Howell, Courtney, Moore, Myisha R., Haynes, J.K. (2016). Preparation of Underrepresented Males for Scientific Careers: A Study of the John H. Hopps Jr. Defense Research Scholars Program at Morehouse College. CBE-Life Sciences Education (Special issue on Broadening Participation in the Life Sciences), September 1, 2016.
2. Haynes, J.K., Thompson, Rahmelle, Moore Myisha (2016). The John Hopps Research Scholars Program at Morehouse College, Presented at the Minisymposium on Education at the Annual Meeting of the American Society for Cell Biology, San Francisco, December, 2016.

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