

Progress and Practice in Production of Minority Biology Doctorates

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Biological Sciences US Doctorates

	1995	1997	1999	2001	2005
Race	4,329	4,256	4,124	4,216	4,396
White	3,115	3,158	3,128	3,240	3,337
Asian/ Pac. Is.	920	721	609	552	536
Black	107	112	116	136	158
Hispanic	127	146	175	164	227
Am Ind	15	7	20	15	12

Source: NSF

Documented Programs that Work

- ✦ Myerhoff Scholars Program - UMBC
 - ✦ Maton, et al. 2000. J. Res Sci Teaching.
- ✦ Biology Undergraduate Scholars Program - UC Davis
 - ✦ Barlow & Villerejo. 2004. J Res Sci Teaching.
- ✦ NIH Training grants
- ✦ Sloan Foundation

- ✦ Expensive, comprehensive, small
So far, not cloned

Programs that Likely Work

- ✦ MORE Programs at NIGMS -MARC, MBRS, PREP, IRACDA, BRIDGES
- ✦ NSF - AGEP, HBCUP, TCUP, Criterion 2
- ✦ HHMI
- ✦ Ford Foundation Fellows
- ✦ Minority serving scientific societies, etc.
 - ✦ SACNAS, NOBCCHE, MAES, NABB, etc.
 - ✦ AAAS Minority Scientists Network
 - ✦ Compact for Faculty Diversity
- ✦ Still awaiting comprehensive analysis

Where do minorities earn biology baccalaureates?

- ✦ African Americans earn degrees predominantly in HBCUs, research II, and comprehensive universities
- ✦ Hispanics earn degrees in a diverse group of research I universities
- ✦ American Indians earn degrees in predominantly non-research state universities
- ✦ Schools in regions of traditionally high populations of respective minorities

Biological and Biomedical Sciences '02-'03 HISPANIC BACCALAUREATE

Rank	Institution	State	Total
1	UNIVERSITY OF PUERTO RICO, RIO PIEDRAS	PR	>300
2	UNIVERSITY OF PUERTO RICO, MAYAGUEZ	PR	>200
3	THE UNIVERSITY OF TEXAS AT SAN ANTONIO	Texas	138
4	THE UNIVERSITY OF TEXAS-PAN AMERICAN	Texas	84
5	UNIVERSITY OF CALIFORNIA-LOS ANGELES	Calif.	83
6	TEXAS A&M UNIVERSITY	Texas	74
7	THE UNIVERSITY OF TEXAS AT EL PASO	Texas	52
8	UNIVERSITY OF CALIFORNIA-DAVIS	Calif.	81
9	THE UNIVERSITY OF TEXAS AT AUSTIN	Texas	61
10	FLORIDA INTERNATIONAL UNIVERSITY	Fla.	69
11	UNIVERSITY OF MIAMI	Fla.	51
12	UNIVERSITY OF CALIFORNIA-SAN DIEGO	Calif.	54
13	UNIVERSITY OF CALIFORNIA-IRVINE	Calif.	51
14	UNIVERSITY OF NEW MEXICO-MAIN CAMPUS	N.M.	59
15	ST. MARY'S UNIVERSITY	Texas	40
16	UNIVERSITY OF ARIZONA	Ariz.	43
17	UNIVERSITY OF CALIFORNIA-SANTA BARBARA	Calif.	42
18	UNIVERSITY OF ILLINOIS AT CHICAGO	Ill.	24
19	UNIVERSITY OF SOUTH FLORIDA	Fla.	24
20	UNIVERSITY OF CALIFORNIA-RIVERSIDE	Calif.	36

BIOLOGICAL AND BIOMEDICAL SCIENCES 00-04 AFRICAN-AMERICAN BACCALAUREATE

1. Xavier University	LA	161
2. Howard University	DC	101
3. Prairie View A&M	TX	98
4. Hampton University	VA	58
5. Jackson State University	MS	57
6. Univ Maryland Š College Park	MD	54
7. Florida A&M	FL	54
8. North Carolina State Univ Š Raleigh	NC	52
9. Spelman College	GA	51
10. Morgan State University	MD	45
11. South Carolina State University	SC	43
12. Tuskegee University	AL	43
13. Grambling State	LA	43
14. Florida Atlantic University	FL	42
15. Georgia State University	GA	41
16. Texas Southern University	TX	40
17. Dillard University	LA	40
18. Louisiana State University	LA	40
19. Alabama A&M University	AL	39
20. University of Maryland, Baltimore Co.	MD	38

What do we know about institutions that produce minority biology doctorates?

- ✦ African Americans earn doctorates at HBCUs and public and private research I and II universities
- ✦ Hispanics earn doctorates at major public and private research I universities

Producers of Hispanic Biology Doctorates 2003-04

1. Harvard University	Ma	7
2. University of Florida	Fl	6
3. University of Calif Los Angeles	Ca	6
4. Yeshiva University	NY	6
5. University of Calif Berkeley	Ca	5
6. University of Miami	Fl	5
7. Mayo Graduate School	Minn	5
8. Univ Texas Hlth Sci Center	TX	5
9. University Calif Davis	Ca	5
10. Cornell University	NY	4
11. Yale University	Conn	4
12. Baylor College of Medicine	TX	4
13. University of Washington	Wa	4
14. Virginia Commonwealth	Va	3
15. University of Wisconsin	Wis	3
16. Princeton University	NJ	3
17. Univ of Medicine and Den New Jersey	NJ	3
18. University of Michigan	Mich	3
19. University of Rochester	NY	3
20. University of Arizona	Ariz	3

Producers of African American Biology Doctorates 2003-2004

1. Meharry Medical Center	Tenn	13
2. Howard University	DC	9
3. Texas Southern University	TX	6
4. Harvard University	Mass	5
5. Louisiana State Univ Hlth Sci Center	La	4
6. Tulane University	La	4
7. University of Mississippi Med Center	Miss	3
8. University of Alabama Birmingham	Ala	3
9. Wayne State University	Mich	3
10. University of North Carolina Chapel Hill	NC	3
11. Case Western University	Ohio	3
12. Morehouse School of Medicine	Ga	3
13. University of Pennsylvania	Pa	3
14. University of South Carolina	SC	3
15. Johns Hopkins University	Md	3
16. University of Washington	Wa	3
17. Vanderbilt University	Tenn	3
18. CUNY Graduate School	NY	3
19. Pennsylvania State University	Pa	3

How do the baccalaureate producers of doctorates compare with largest baccalaureate producers of minorities?

- ★ 13 top producers of Hispanic biology and biomedical science baccalaureates appear in list of 20 top baccalaureate institutions of Hispanic doctorate recipients
- ★ Only 8 of 20 top producers of Black biology and biomedical science baccalaureates appear in list of 20 top baccalaureate institutions of Black doctorate recipients

Faculty at Top 50 Funded Departments (2001/2002)

	Chemistry	Computer Science	Math	Physics	Biol 02
Total	1641	1332	2053	1988	3636
URM	43 (2.6%)	21 (1.6%)	77 (3.7%)	51 (2.6%)	110 (3.0%)
Asst Prof	15 (0.9%)	7 (0.5%)	18 (0.9%)	14 (0.7%)	41 (1.1%)

Data from Nelson Diversity Surveys

Biology

★ Ph.Ds's 1983-99 %

★ White	78.9
★ AI	0.3
★ Asian	15.2
★ Black	2.3
★ Hispanic	3.3

★ 2002 Faculty- Top 50 Departments %

★ White	88.9	(1.13)
★ AI	0.1	(0.33)
★ Asian	8.1	(0.53)
★ Black	1.0	(0.43)
★ Hispanic	1.9	(0.56)

Data from Nelson Diversity Surveys

Science Faculty

- ✦ Research I doctorates tend to teach at Research I universities
- ✦ <20% of Research II doctorates work at Research I universities
- ✦ Lower % of black faculty than all other groups employed at Research I universities and higher percentage employed at comprehensive institutions
- ✦ Black doctorates from Research I universities less likely than all other groups to work at Research I universities
- ✦ HBCUs employ 2% of all faculty with S&E doctorates but 28% of black S&E faculty

Challenges

- ✦ Backlash to affirmative action
- ✦ Competition for funding
- ✦ Lack of data at all levels including NIH, NSF
- ✦ Lack of comprehensive national strategy
- ✦ Institutional leadership on faculty hiring at research I universities