

# Hispanic Americans Among Degree Recipients in Physics and Geoscience

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## REPORTS ON MINORITIES IN PHYSICS & GEOSCIENCE

The African American  
Presence in Physics and  
Geoscience (Sept 2008)

African Americans and  
Hispanics Among Physics  
and Astronomy Faculty (Feb  
2010)

Native Americans Among  
Degree Recipients in Physics  
and Geoscience (Aug 2010)

**Hispanic Americans  
Among Degree Recipients  
in Physics and Geoscience  
(September 2010)**

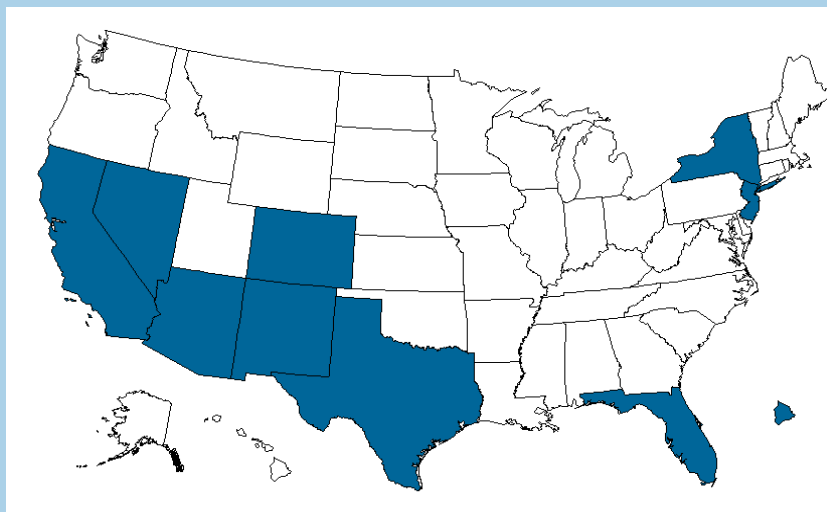
*Puerto Rico and the 9  
states with the highest  
proportion of Hispanics  
among their population  
also have the highest  
proportion of Hispanics  
among their recent  
college graduates.*

Hispanic Americans are increasing their representation among the US population in general and increasing their presence among college graduates. Hispanics comprise 15% of the population. However, they are not randomly distributed across the country. In fact, their concentration is such that only 9 states as well as Puerto Rico have a population that is 15% or more Hispanic (see Figure 1).

Only 8% of recent bachelor's degree recipients are Hispanic which means that they are under-represented relative to their proportion among the population. Hispanic college graduates are heavily concentrated (comprising 8% or more of recent graduates) in 9 states plus Puerto Rico.

**Figure 1**

**The states with high proportion of Hispanic Americans among their population and among recent college graduates.**



AIP Statistical Research Center compiled data collected by the Census Bureau.

<http://www.aip.org/statistics>

The same 9 states that have a high proportion of Hispanics among their population also have the highest proportion of Hispanics among recent college graduates. This correlation suggests that Hispanic students are very likely to attend college near where their families live.

**Table 1**

**Hispanic Americans among bachelor's degree recipient  
in 2008 and 1998.**

	Number of Bachelor's All Fields		Change '98 to '08
	2008	1998	%
All Degree Recipients			
Total	1,579,955	1,198,938	32
Women	906,376	674,036	34
Men	673,579	524,902	28
Hispanic Americans			
Total	131,695	78,075	69
Women	81,410	46,429	75
Men	50,285	31,646	59

AIP Statistical Research Center compiled data collected by the NCES.

<http://www.aip.org/statistics>

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*The number of Hispanic American women earning bachelor's degrees increased by 75% over the last decade, while the number of Hispanic men increased by 59%.*

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Despite being under-represented relative to the population, more than 130,000 Hispanic Americans earned bachelor's degree in academic year 2007-08. This represents a stunning increase (69%) from the 78,000 Hispanic Americans who earned bachelor's degrees only ten years earlier (see Table 1). The increase in the number of Hispanic Americans earning bachelor's degrees is more than twice the overall increase in bachelor's degrees awarded over the last decade.

Women continued to increase their participation in postsecondary education earning 57% of all bachelor's degrees in 2008. Women comprised about 62% of the Hispanics who earned bachelor's degrees.

Hispanic Americans are less likely to earn bachelor's degrees in geoscience and physics than they are in other disciplines. Fewer than 5% of the recent bachelor's recipients in physics and geoscience were Hispanic Americans. By contrast, Hispanics were twice as likely to be among recent college graduates who majored in psychology.

More Hispanic Americans earned bachelor's degrees in engineering than all students earned bachelor's in either physics or geoscience. Clearly, Hispanic Americans are not avoiding math intensive majors.

**Table 2**

**Hispanic Americans among bachelor's degree recipients  
in selected fields in 2008.**

Degree Field	Hispanic Americans	All Students	Percent Hispanic
Business & Mgmt	22,195	344,892	6.4
Education	10,134	124,846	8.1
Psychology	8,885	92,966	9.6
Engineering	6,594	86,048	7.7
Biological Sciences	5,995	82,387	7.3
Computer Science	2,923	38,916	7.5
Mathematics	924	15,840	5.8
Chemistry	830	11,829	7.0
Physics	229	4,875	4.7
Geoscience	192	4,313	4.5
Bachelor's across all fields	131,695	1,579,955	8.3

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***Fewer than 5% of the bachelor's degrees in physics and geoscience are earned by Hispanic Americans.***

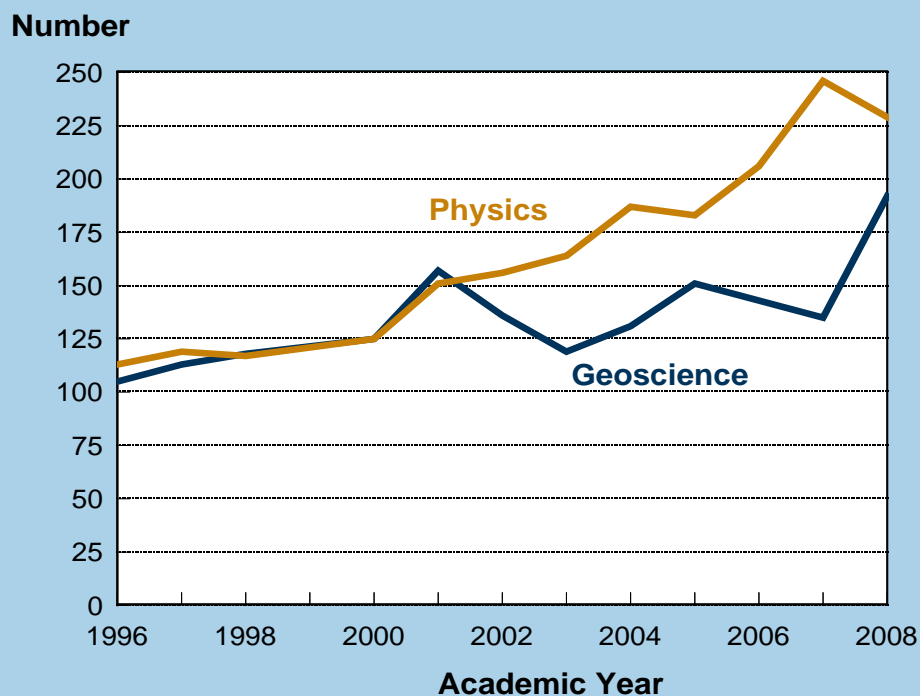
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Figure 2

**Number of Hispanic Americans who earned bachelor's degrees in physics and geoscience, 1996 through 2008.**



This figure does not include academic year 1999 for which minority data are unavailable.

AIP Statistical Research Center compiled data collected by the NCES.

<http://www.aip.org/statistics>

*The number of Hispanic Americans earning bachelor's degrees in physics and geosciences is at an all time high.*

The representation of Hispanic Americans among bachelor's degree recipients has taken rather different paths in physics and in geoscience over the last dozen years. Prior to 2002, approximately the same number of Hispanic Americans earned bachelor's degrees in physics and in geoscience. However, over the last 7 years combined, many more Hispanic Americans (36%) earned bachelor's degrees in physics than they did in geoscience (1,371 and 1,007 respectively).

The last two bachelor's classes in physics included larger numbers of Hispanic Americans than any of the preceding 10 years. Similarly, the geoscience bachelor's class of 2008 had more Hispanic Americans than any of the preceding 11 classes. Hispanic Americans have increased their representation to the point that they now comprise about 4.5% of geoscience bachelor's and about 4.7% of physics bachelor's degree recipients.

## Universities that are succeeding

There is a strong geographic component to where Hispanic Americans live and where they are likely to earn their bachelor's degrees. Puerto Rico and nine states have high concentrations of Hispanic Americans among their populations and among their recent college graduates. Most, but not all, of these states have a representation of Hispanic Americans that is higher than the national average among their physics and geoscience bachelor's degree recipients.

Virtually all of the largest producers of physics bachelor's degrees earned by Hispanic Americans are in Puerto Rico or one of the 9 states. The two exceptions in this list are MIT and Harvard. There are about 760 universities that award bachelor's degrees in physics. The 19 universities listed in Table 3 awarded 38% of all physics bachelor's degrees earned by Hispanic Americans over the last 5 academic years combined.

**Table 3**

**Universities that awarded the most physics bachelor's degrees to Hispanic Americans during the 5-year period from 2004 through 2008.**

California Institute of Technology	University of California, Los Angeles
Florida International University	University of California, San Diego
Harvard University	University of California, Santa Barbara
Massachusetts Institute of Technology	University of Florida
New Mexico State University	University of Puerto Rico, Humacao
St. Mary's University	University of Puerto Rico, Mayaguez
Southwest Texas State University	University of Puerto Rico, Rio Piedras
University of Arizona	University of Texas, Austin
University of California, Berkeley	University of Texas, San Antonio
University of California, Davis	

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*Of the 19 largest producers of physics bachelor's degrees earned by Hispanic Americans, six are in California and three are on the island of Puerto Rico.*

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According to the NCES, each of the universities listed above awarded more than 10 physics bachelor's degrees to Hispanic Americans over the last 5 academic years.

AIP Statistical Research Center compiled data collected by the NCES.

<http://www.aip.org/statistics>

Table 4

**Universities that awarded the most geoscience bachelor's degrees to Hispanic Americans during the 5-year period from 2004 through 2008.**

Florida State University	University of California, Santa Cruz
San Diego State University	University of Puerto Rico, Mayaguez
Stanford University	University of Texas, Austin
Texas A&M University, Main Campus	University of Texas, El Paso
United States Naval Academy	University of Texas, San Antonio
University of California, Irvine	University of Washington, Seattle
University of California, Santa Barbara	

According to the NCES, each of the universities listed above awarded more than 10 geoscience bachelor's degrees to Hispanic Americans over the last 5 academic years.

AIP Statistical Research Center compiled data collected by the NCES.

<http://www.aip.org/statistics>

*These 13 universities awarded one-third of all geoscience bachelor's degrees earned by Hispanic Americans over the last 5 academic years combined.*

The largest producers of geoscience bachelor's degrees to Hispanic Americans are in states that have both the largest proportion of Hispanics among their populations and the largest proportion of Hispanics among recent college graduates. The two exceptions to these trends in Table 4 are the U.S. Naval Academy and the University of Washington at Seattle.

There are about 460 universities that award bachelor's degrees in geoscience and some of these have more than one geoscience department. However, the 13 universities listed in Table 4 awarded one-third of all geoscience bachelor's earned by Hispanic Americans over the last 5 years combined.

Four universities appear among the top producers for Hispanic Americans in both physics and geoscience. These are: University of California at Santa Barbara, University of Puerto Rico at Mayaguez, University of Texas at Austin and University of Texas at San Antonio.

## PhDs

Nearly 46,000 PhDs are awarded in the U.S, across all fields. Hispanic Americans have a noticeable presence among PhDs degrees in general and, on average, have earned about 1,300 PhDs a year for the last decade.

Physics comprises a larger percent of all PhDs than it does of all bachelor's degrees. In 2006, physics represented 3% (N=1,365) of all PhDs, but only 0.3% of all bachelor's degrees awarded.

Geoscience is a somewhat smaller degree field than physics at the bachelor's level (see Table 2) and quite a bit smaller than physics at the PhD level (757 and 1,365 respectively).

### Table 5

#### PhDs awarded across all disciplines by race and ethnicity in 2006.

45,596	All PhDs
26,917	US Citizens
1,659	African Americans
1,560	Asian Americans
1,370	Hispanic Americans

The data on African, Asian and Hispanic Americans include US citizens and people on permanent visas.

In 2006, 2732 PhDs did not report their citizenship and, of US citizens who earned PhDs that year, 930 did not report their race or ethnicity.

AIP Statistical Research Center compiled data collected by the NCES.

<http://www.aip.org/statistics>

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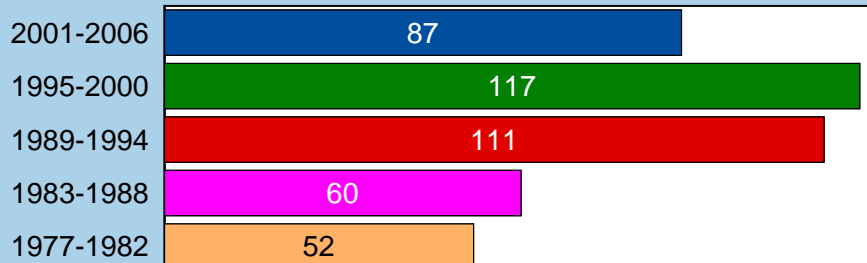
*In 2006, 1370 Hispanic Americans earned PhDs representing 3% of all people who earned doctorates and 5% of the US citizens who earned PhDs.*

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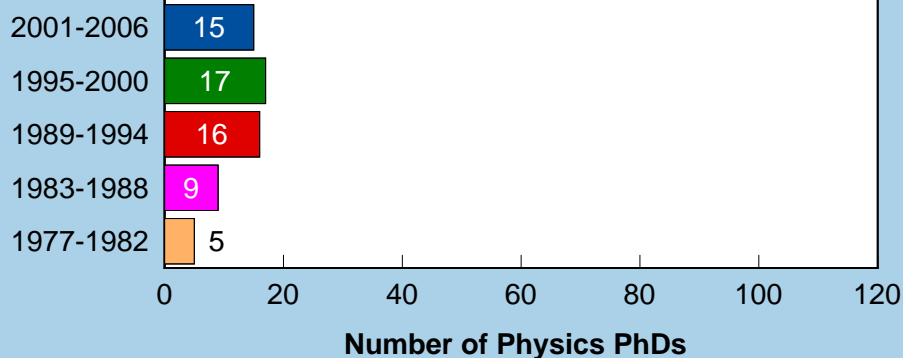
Figure 3

**Hispanic Americans earning physics PhDs by sex for each 6-year period from 1977 through 2006.**

**Males**



**Females**



<http://www.aip.org/statistics>

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*Over the last 30 years, 427 Hispanic American men and 62 Hispanic American women earned physics PhDs.*

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Over the last three decades, about 35,400 physics PhDs were awarded in the U.S. Of them, only 489 were earned by Hispanic Americans.

More Hispanic males earned physics PhDs during the decade of the 1990's than during the preceding dozen years. However, the number of Hispanic Americans earning physics PhDs has declined somewhat over the last 6 years and is now around 14.5 per year.

More Hispanic women earn physics PhDs today than 30 years ago. However, the average is only 2.5 Hispanic women per year and that has remained unchanged for nearly two decades.

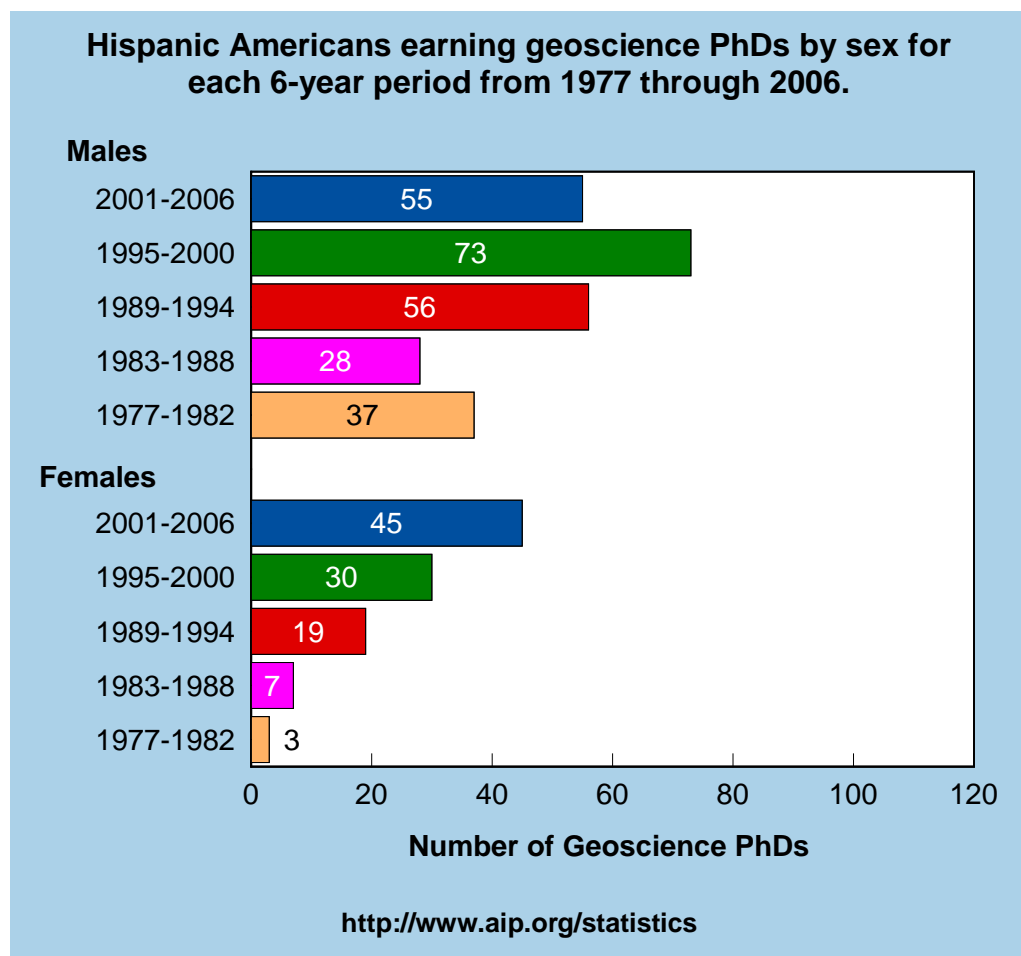


Over the last 3 decades, about 22,000 PhDs were awarded in geoscience in the U.S. Of them, only 353 geoscience PhDs were earned by Hispanic Americans.

Far more Hispanic women earn PhDs in geoscience than in physics. The number of Hispanic women earning geoscience PhDs has increased dramatically over the last 3 decades.

The number of Hispanic men who earned geoscience PhDs peaked during the decade of the 1990's and has declined somewhat over the last 6 years. Hispanic American men now average only 9 geoscience PhDs per year.

**Figure 4**



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*Over the last 30 years, 249 Hispanic American men and 104 Hispanic American women earned geoscience PhDs.*

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Table 6

**Number of Hispanic Americans who are physics faculty by highest degree awarded by department, 2000, 2004, and 2008.**

Highest Degree Awarded By Department	Hispanic American			All Faculty Members		
	2008	2004	2000	2008	2004	2000
PhD	130	107	81	5,400	5,400	4,950
Masters	50	56	36	800	900	750
Bachelor's	82	60	42	2,900	2,700	2,550
All Departments	262	223	159	9,100	9,000	8,250

Data collected and compiled by AIP Statistical Research Center.

<http://www.aip.org/statistics>

The bulk of this report focuses on Hispanic Americans among recent degree recipients in physics, geoscience, and across all disciplines. However, the Statistical Research Center has also published data on the representation of minorities among physics faculty in universities and 4-year colleges. Table 4 comes from the **focus on African Americans and Hispanics among Physics & Astronomy Faculty** (February 2010). The full report can be found at: <http://www.aip.org/statistics/trends/reports/awf08minority.pdf>

The number of physics faculty members who are Hispanic American has increased by 65% over the last 8 years, but is still quite small. In fact, nearly 80% (599 out of 763) of physics degree-granting departments have no faculty members who are Hispanic American.

## Methodology

The bachelor's data in this **focus on** were all compiled from the Integrated Postsecondary Education Data System (IPEDS). IPEDS is the core postsecondary education data system for the National Center for Education Statistics (NCES) of the U.S. Department of Education. IPEDS is a comprehensive system built around a series of interrelated surveys that collect data on students, faculty members, finances, libraries, etc. These surveys are conducted at the institutional level, that is, one person or office reports data for the entire institution. In the case of the bachelor's data used for this report, someone at the institution provided all of the data by sex, ethnicity and subject of degree. IPEDS is available as an on-line resource. To learn more, see <http://nces.ed.gov/ipeds>

The PhD data in this **focus on** were all compiled from WebCASPAR, the integrated science and engineering resources data system maintained by the National Science Foundation. WebCASPAR emphasizes PhDs in science and engineering. However, it does include data on non-science and on other degree levels. The data on PhD recipients in WebCASPAR are collected from individuals who report on their own gender and race as well as categorizing the field of their degree. WebCASPAR is an on-line resource. To learn more about this important data resource, see <https://webcaspar.nsf.gov/>

The data on the representation of minorities among physics faculty in universities and 4-year colleges were collected from the Statistical Research Center's Academic Workforce Survey. This is a biennial study where we contact all 800 physics and astronomy degree granting departments in the country. Findings from this study were published in **focus on African Americans and Hispanics among Physics & Astronomy Faculty**, and can be found at <http://www.aip.org/statistics/trends/minoritytrends.html>

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