

The first national and most comprehensive analysis to date of tenured and tenure track faculty in the "top 50" departments of science and engineering disciplines shows that females and minorities are significantly underrepresented.

- There are few tenured and tenure-track women faculty in these departments in research universities, even though a growing number of women are completing their PhDs. Qualified women are not going to science and engineering departments. In some engineering disciplines, there is a better match between the representation of females in PhD attainment versus the faculty, but these disciplines are the ones with very low percentages of females in PhD attainment.
- Underrepresented minority (URM) women faculty are almost nonexistent in science and engineering departments at research universities. In the "top 50" computer science departments, there are no Black, Hispanic, or Native American tenured or tenure track women faculty.
- The percentage of women in BS attainment in science and engineering continues to increase, but they are likely to find themselves without the female faculty needed for optimal role models
- There are few female full professors in science and engineering; the percentage of women among full professors ranges from 3% to 15%. In all but one discipline surveyed, the highest percentage of female faculty is at the level of assistant professor.
- In most science disciplines studied, the percentage of women among recent PhD recipients is much higher than their percentage among assistant professors, the typical rank of recently hired faculty. Even in disciplines where women outnumber men earning PhDs, the percentage of assistant professors who are White male is greater than females. For example, in the biological sciences, 44.7% of the PhDs between 1993 and 2002 were women; while in 2002, they accounted for only 30.2% of the assistant professors.

In some disciplines, it is likely that a woman can get a bachelor of science without being taught by a female professor in that discipline; it is also possible for a woman to get a PhD in science or engineering without having access to a woman faculty member in her field.

The data demonstrate that while the representation of females in science and engineering PhD attainment has significantly increased in recent years, the corresponding faculties are still overwhelmingly dominated by White men.

There is a drastically disproportionate number of male professors as role models for male students. For example, in 2000, 48.2% of the students graduating with a BS in math were women, but in 2002, only 8.3% of the faculty was female.

A cycle is perpetuated. Women are less likely to enter and remain in science and engineering when they lack mentors and role models. In most science disciplines, the percentage of women among faculty recently hired is not comparable to that of recent women PhDs. This results in fewer female faculty to act as role models for female undergraduates and graduate students. Female students observe this in the course of sampling the environment. When female professors are not hired, treated fairly, and retained, female students perceive that they will be treated similarly. This dissuades them from persisting in that discipline.

This is not to say that only women can mentor women and girls. In the absence of female professors, male professors have been mentoring female students for decades. Because of the dearth of female professors and the impact this has on female student perceptions, the male faculty should (1) actively encourage female students to enter science and engineering and offer to become their mentors and (2) insure that the environment for the few female professors currently in science and engineering is one which female students will perceive as appealing. In the end, the presence, treatment, and fate of female professors will be most relevant to the lives, family responsibilities, and careers of typical female students and the choices and obstacles they will face.

"Progress for female and minority faculty at research universities, produced from past attempted solutions combined, has been too slow. If significant progress is to be made within the next couple of decades, new and totally different approaches to solving problems facing women and minority faculty will be needed."

Dr. Donna J. Nelson

### Introduction

The first determination of the representation of both females and minorities among tenured and tenure track faculties of science and engineering departments at research universities reveals that both are underrepresented, in some cases, at levels far below that expected. Females are primarily in the lower professorial rankings, and underrepresented minority female professors are almost nonexistent. Due to the close relationship between faculty and students, this raises other concerns, which are detailed in this report.

Comparison with recent BS attainment by females and minorities reveals their lack of role models and mentors. This is of particular concern, given the national goal to rely more on US citizens, and less on foreign nationals, as a future source for scientists and engineers. In most of the disciplines surveyed, comparison with recent PhD attainment reveals sufficient qualified females and minorities, so that many more could have been hired.

For decades, it has been recognized that the representation of women and minorities in science and engineering generally is far below that needed to insure the national security, economic superiority, and scientific leadership of our country. Because the scientists and engineers required for this must each pass through an educational institution in order to obtain qualifications for employment, problem solving analyses and efforts have come to focus on academic institutions, particularly on science and engineering departments and their supporting organizations. The anticipated large representation of women and minorities in the US future population indicates that they will be among our future leaders; this warrants analysis of the status of these underrepresented groups at research universities, because this is where the majority of our country's leaders will be educated.

Attempts to correct problems facing underrepresented groups have included appeals to conscience, increased funding for females and minorities (predominantly students), and legislation. Progress for female and minority faculty at research universities, produced from past attempted solutions combined, has been too slow. If significant progress is to be made within the next couple of decades, new and totally different approaches will be needed.

In order to measure the effect of past attempts to increase female and minority leaders in science and engineering, it is important to determine and track the status of and environment for female and minority science and engineering faculty at research universities. Female and minority students already perceive the status and environment of these role models and use them to judge how they themselves will be treated should they pursue degrees and employment in those disciplines.

In order to establish the status of underrepresented groups, we surveyed the top 50 departments in each of fourteen science and engineering disciplines, as ranked by the National Science Foundation<sup>1</sup> (NSF) according to research funds expended. Each department chair was asked to provide the gender, race/ethnicity, and rank of each tenured or tenure track faculty member. In this report, we discuss the data for women and underrepresented minorities (URMs), i.e. Blacks, Hispanics, and Native Americans; we also compare the faculty data to those for PhD attainment and for BS attainment in analogous disciplines.

"Who can look at these numbers and not say that we as a faculty have failed—failed our students, our institution, and most of all, failed our nation?"

Professor Nancy Hopkins, *Professor*, Massachusetts Institute of Technology<sup>2</sup>

### WHO TEACHES MATTERS

Female students do not have an adequate number of female role models and mentors. Although in recent years the number of females studying science and engineering has increased significantly, science and engineering faculties are still overwhelmingly dominated by White men. The data show that the gender and racial compositions of the faculty do not reflect those of the student body. Although the student body has diversified considerably, the composition of the faculty has remained relatively stagnant. The result is a drastically disproportionate number of male professors as mentors and role models. For example, in mathematics women receive almost half of the BS degrees but are less than 10% of the faculty.

There is a similar pattern in departments that have even higher percentages of female students. For example, in the biological sciences, where females are 58.4% of the BS recipients, only 20.2% of the faculty are females. Even in psychology where females overwhelmingly dominate at 76.5% of BS recipients, only 33.5% of the faculty are females (Table 1).

TABLE 1. Gender Distribution of BS Recipients vs. Role Models

	% Fe	males	% M	ales
	Students	Faculty	Students	Faculty
Chemistry	47.3	12.1	52.7	87.9
Math	48.2	8.3	51.8	91.7
Computer Science	27.7	10.6	72.3	89.4
Astronomy	32.7	12.6	67.3	87.4
Physics	21.4	6.6	78.6	93.4
Chemical Engineering	35.7	10.5	64.3	89.5
Civil Engineering	24.5	9.8	75.5	90.2
Electrical Engineering	13.1	6.5	86.9	93.5
Mechanical Engineering	13.9	6.7	86.1	93.3
Economics	32.3	11.5	67.7	88.5
Political Science	50.1	23.5	49.9	76.5
Sociology	70.2	35.8	29.8	64.2
Psychology	76.5	33.5	23.5	66.5
Biological Sciences	58.4	20.2	41.6	79.8

BS degree data are for 2000, from NSF 3; faculty data are FY2002 except chemistry (FY2003) and astronomy (FY2004)

"It was discouraging to know that when I went to (the University of) Texas in 1976, I was the second woman in a faculty of about 50, and when I left in 1998, they were again hiring a second woman."

Professor Marye Anne Fox, *Chancellor*, North Carolina State University <sup>4</sup>

In each discipline examined, the representation of men among faculty is much higher than that among BS degree recipients. Often, female science or engineering majors study in a department in which there is not one female "full" professor; in some departments, there is not a female professor at any rank.

Because of the dearth of female faculty, male faculty should actively encourage female students to enter science and engineering and should offer to become their mentors. It is essential that they provide a fair environment for the few existing female professors in science and engineering in order to convince female students that the same awaits them in their future careers.

It is the paucity of women in science and engineering that is the cause of grave concern. It is likely that a woman could get a bachelor of science without being taught by a female professor in her discipline; it is possible for a women to get a PhD in science or engineering without having access to a woman faculty member in her field; and, if the student is a woman of color, it is probable she will earn her PhD without ever seeing a minority female professor in her field.

Female student attrition in science and engineering has been attributed, in part, to a lack of female mentors and role models. Many studies have shown that the mere presence of female faculty encourages female students. According to a forum published in *Harvard Magazine*, the percentage of women faculty is "the single most important indicator of academic success for women undergraduates." <sup>5</sup>

Female students are not the only ones affected by the lack of female faculty on campus. Male students are also harmed because they are deprived of access to talented faculty who could be their mentors. In addition, the absence of women sends a message to men that women do not belong in these non-traditional environments and that it is acceptable for them to be marginalized, denied tenure, and given unequal resources.

Table 2. Assistant Professors (FY2002) and PhD Attainment (1993 - 2002) in Science and Engineering Disciplines

Discipline	White	e Male	Asiar	n Male	Fei	male	URM	Male
	Asst	PhDs	Asst	PhDs	Asst	PhDs	Asst	PhDs
Chemistry (FY2003)	65.4%	54.8%	11.5%	9.6%	21.5%	31.3%	1.6%	4.2%
Math	60.5%	58.1%	15.0%	11.3%	19.6%	27.2%	5.0%	3.3%
Computer Science	62.9%	60.6%	24.3%	15.1%	10.8%	20.5%	2.0%	3.5%
Astronomy (FY2004)	62.6%	69.8%	9.9%	6.6%	22.0%	20.6%	5.5%	2.6%
Physics	70.6%	68.9%	14.9%	13.9%	11.2%	13.3%	3.3%	3.8%
Chemical Engineering	60.7%	58.4%	16.6%	14.8%	21.4%	22.3%	1.4%	4.0%
Civil Engineering	57.9%	58.4%	11.3%	17.0%	22.3%	18.7%	8.6%	5.9%
Electrical Engineering	57.2%	59.1%	27.5%	23.9%	10.9%	11.5%	4.5%	5.5%
Mechanical Engineering	56.1%	63.4%	22.2%	21.2%	15.7%	10.4%	6.1%	5.0%
Economics	59.8%	54.9%	16.1%	9.6%	19.0%	29.3%	5.1%	6.0%
Political Science	54.2%	52.4%	4.5%	3.6%	36.5%	36.6%	4.8%	7.0%
Sociology	37.2%	31.5%	3.5%	3.0%	52.3%	58.9%	7.0%	6.5%
Psychology	46.0%	29.5%	4.6%	1.1%	45.4%	66.1%	4.0%	3.3%
Biological Sciences	55.4%	43.2%	10.7%	8.7%	30.2%	44.7%	3.7%	3.3%

### HIRING INEQUITY REVEALED IN MOST SCIENCES

Data in Table 2 reveal a reasonable match between female PhDs and recently-hired female faculty in engineering and some sciences, but not in seven of the other disciplines studied. In those seven disciplines, there is a gender disparity between recent hires and the hiring pool. The percentage of women among PhD recipients from 1993 - 2002 can be compared to the percentage of women assistant professors. This shows that in many disciplines women may be well-represented among PhD recipients, but this representation is not reflected among assistant professors. In these disciplines, there is a wide gap between the percentage of women among PhD recipients since 1993 versus the percentage of women among assistant professors, the rank most recently hired. In most science disciplines, qualified female candidates exist, but they are not being hired. In three disciplines: physics, electrical engineering, and mechanical engineering, women have the lowest percentage of female assistant professors, but they also have the lowest percentages of PhD recipients. These low percentages of females among PhD recipients would also be the easiest to match. Nevertheless, the scarcity of female professors in these disciplines is probably at least partially related to the low numbers of women earning a Ph.D.

Even where women outnumber men earning PhDs, White males maintain their hold on the vast majority of assistant professor positions. For example, in the biological sciences, for years females have received the greater percentage of PhDs than White males, but White males still make up more than half of the assistant professors. In computer science, math, and chemistry, there is a similar disparity between the percentages of women among assistant professors versus PhD recipients (Table 2).

### SUFFICIENT WOMEN FILLED THE HIRING POOL

A growing number of women have been completing PhDs in science and engineering. The proportion of women earning a PhD in science or engineering has generally gradually increased over the last 20 years. PhD attainment by women rose an average of 6% between the years 1983 – 1992 versus 1993 – 2001 (Table 3). Data demonstrate that the pool of potential female candidates for faculty positions is plentiful, but faculty search committees and chairs often say they receive few applications from females. This agrees with comments often heard from recent female PhDs; they do not perceive the academic environment as desirable, so they choose not to apply for faculty positions.

"Women who are eligible for faculty positions have earned a Ph.D. in a chemistry department. They have absorbed the tone of that environment . . . and have decided they don't want any more of it."

Professor Janet Osteryoung, *Director*, Division of Chemistry, National Science Foundation <sup>4</sup>

TABLE 3. Female PhDs by Years of PhD Attainment 6

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Discipline	1983 – 1992	1993 – 2002
Chemistry	22.8%	31.3%
Math	20.5%	27.2%
Computer Science	17.9%	20.5%
Astronomy	12.7%	20.6%
Physics	9.0%	13.3%
Chemical Engineering	14.4%	22.3%
Civil Engineering	10.2%	18.7%
Electrical Engineering	6.4%	11.5%
Mechanical Engineering	6.0%	10.4%
Economics	22.4%	29.3%
Political Science	31.0%	36.6%
Sociology	51.1%	58.9%
Psychology	55.0%	66.1%
Biological Sciences	36.5%	46.7%

### **WOMEN ARE UNDERREPRESENTED**

There are very few tenured and tenure-track women faculty in the "top 50" science and engineering departments. Women have made strides as students in science and engineering. However, the data show that while the percentages of women studying science and engineering have significantly increased, the faculties in science and engineering are still overwhelming dominated by men. Data in Table 4 show the distribution by rank of the few female faculty in science and engineering. Because women began with barely any representation on university faculties, and because only miniscule increases have been achieved each year, the progress made has been inadequate. This is exacerbated by female faculty attrition, which is generally perceived to be much higher than that for male faculty.

"Many smart motivated women have cited isolation and marginalization as reasons for moving out of science and engineering at major research institutions."

Abigail Stewart, *Project Director,* Institute for Research on Women and Gender, University of Michigan <sup>7</sup>

TABLE 4. Female Science and Engineering Faculty by Rank (FY2002)

Discipline	Assistant Professor	Associate Professor	"Full" Professor	All Ranks
Chemistry (FY2003)	4.1%	3.0%	5.1%	12.1%
Math	2.8%	2.4%	3.1%	8.3%
Computer Science	2.8%	3.8%	4.0%	10.6%
Astronomy (FY2004)	3.4%	2.6%	6.5%	12.6%
Physics	1.5%	1.4%	3.8%	6.6%
Chemical Engineering	3.8%	4.0%	2.7%	10.5%
Civil Engineering	4.8%	3.2%	1.8%	9.8%
Electrical Engineering	1.8%	2.5%	2.2%	6.5%
Mechanical Engineering	2.5%	2.3%	1.8%	6.7%
Economics	4.3%	3.0%	4.2%	11.5%
Political Science	8.6%	8.2%	6.7%	23.5%
Sociology	12.6%	11.0%	12.2%	35.8%
Psychology	9.6%	8.4%	15.4%	33.5%
Biological Sciences	6.3%	5.4%	8.5%	20.2%

### WOMEN HOLD THE LOWEST ACADEMIC RANK

For those few women who take professorships in science or engineering after attaining PhDs, a new host of concerns arise. The data demonstrate that women are more likely than men to hold lower academic ranks (Table 5).

This phenomenon has been discussed in *Harvard Magazine*. "(T)he gap between the percentage of tenured men and the percentage of tenured women has not changed in 30 years...among those in academia with doctorates in science and engineering, only one-quarter of women had been awarded tenure, compared to one-half of men." <sup>5</sup>

Our data confirm this pattern. In all but computer science, the rank of assistant professor has the highest percentage of female faculty (Table 5). Conversely, the rank which has highest percentage of male faculty is typically that of "full" professor, and that is the rank held by the majority of male faculty as well.

TABLE 5. Percentage of Female Faculty within each Rank (FY2002)

Discipline	Assistant Professor	Associate Professor	"Full" Professor	All Ranks
Chemistry (FY2003)	21.5	20.5	7.6	12.1
Math	19.6	13.2	4.6	8.3
Computer Science	10.8	14.4	8.3	10.6
Astronomy (FY2004)	22.0	16.5	9.5	12.6
Physics	11.2	9.8	4.6	6.6
Chemical Engineering	21.4	19.2	4.4	10.5
Civil Engineering	22.3	11.5	3.5	9.8
Electrical Engineering	10.9	9.8	7.2	6.5
Mechanical Engineering	15.7	8.9	3.2	6.7
Economics	19.0	16.3	7.2	11.5
Political Science	36.5	28.6	13.9	23.5
Sociology	52.3	42.7	13.9	35.8
Psychology	45.4	40.1	13.9	33.5
Biological Sciences	30.2	24.9	14.8	20.2

"I think a very plausible case can be made that academic departments are an unhealthy—even hostile—environment for women."

Dr. Debra Rolison. Naval Research Lab 4

Assistant professors, who are typically untenured, have little job security or capability to change the culture of their departments or disciplines. Tenure is granted by a laborious process that typically involves recommendations by the department and by external reviewers, followed by approval from the college and the university. While there are some objective criteria, in the final analysis, these decisions have room for a great deal of subjectivity. Hence, assistant professors are uniquely vulnerable to the culture of their departments. Because most female professors are assistant professors, this means that the number of female professors who can safely take steps to change the departmental environment is much smaller than it might first appear.

### UNDERREPRESENTED MINORITY WOMEN FACULTY ALL BUT INVISIBLE.

In some disciplines, there is no representation of URM (Black, Hispanic, or Native American) women on the faculty at all. In the "top 50" computer science departments, there are no women in tenured or tenure-track positions. With the exception of one Black "full" professor in astronomy, there are **no** female Black or Native American "full" professors in the physical science or engineering disciplines surveyed.

Similarly, in physics there are no Black female professors, and in eight of the nine physical science and engineering disciplines surveyed, Native American female professors are nonexistent. URM females fare much better in the social sciences and the life sciences. The few female URM faculty in the "top 50" science and engineering departments are detailed in Table 6 below. These data are in two groups to facilitate comparison and contrast; these are physical sciences and engineering, and social sciences and life sciences.

The data show URM women are less likely than either White women or men of any racial group to be "full" professors and to be awarded tenure. (Table 6). The few "full" professors in each discipline are designated by asterisks after the corresponding number.

Table 6. Female URM Faculty at "Top 50" Science and Engineering Departments (FY2002).

District Colonia and Frederica	Black	Hispanic	Native American
Physical Sciences and Engineering	females	females	females
Chemistry (FY2003)	1	5*	1
Math	2	7***	0
Computer Science	0	0	0
Astronomy (FY2004)	2*	2*	0
Physics	0	8***	0
Chemical Engineering	2	3	0
Electrical Engineering	7	3	0
Mechanical Engineering	3	2*	0
Civil Engineering	2	3*	0
Total	19	33	1
*URM female "full" professor	1	10	0
Social Sciences and Life Sciences			
Economics	5***	7***	0
Political Science	26****	6	0
Sociology	32*****	12**	0
Psychology	22***	26****	3
Biological Sciences	9*	13**	0
Total	94	53	3
*URM female "full" professor	19	12	0

Other studies have also concluded that URM minority females are less likely to get tenure than White women or men of any racial group. <sup>5,8</sup> Are universities training an insufficient number of minority women or are qualified women looking outside the academy? The data indicate that both are true, but to varying degrees in different disciplines.

Relatively few URM women earn advanced degrees in science and engineering. The reason for this, according to Professor Cheryl Leggon, is the lack of encouragement they receive. She cites the National Center for Education Statistics that found that "Hispanic and African American women do not persist in science because they are not encouraged to do so." Professor Leggon believes this lack of encouragement has critical implications. She states that numerous studies have shown that "not encouraging women to persist (in science or engineering) produces the same result as actively discouraging them."

"I was surprised that even in 2002, these women (faculty) had so few opportunities in their professional careers to talk and network with other minority women scientists and engineers."

Professor Evelynn Hammonds, *Professor*, Harvard University <sup>2</sup>

But the data also show that universities are not taking advantage of the URM women who do complete the PhD. The data find that only fifty-three are faculty at "top 50" physical science and engineering departments.

Anne J. MacLachlin, at the Center for Studies in Higher Education at U.C., Berkeley, believes "the academic experience often led them (URM women who have earned PhDs) to seek another kind of scientific work." <sup>9</sup>

Finally, we must pose a third possibility that applies to all women of any color earning PhDs in science or engineering. Are qualified women rejected for academic positions because of departmental practices that act as barriers to hiring and retaining women?

### **CONCLUSIONS**

Disparities in hiring and retention between male and female science and engineering faculty place women at a distinct disadvantage at all levels, from undergraduate to full professor. Women faculty are poorly represented in science and engineering departments of research universities. This has grave repercussions for undergraduate and graduate students who are bereft of female role models and mentors and contributes to the attrition rate of women studying science and engineering.

In most science disciplines studied, qualified female candidates exist, but they are not achieving assistant professorships. Whether hiring and work practices at the nation's top universities actively discriminate cannot be answered by this study. However, the numbers clearly indicate a grave national problem that must be aggressively addressed now.

There is general agreement that few women typically apply for academic positions in science and engineering departments at research universities. Yet the percentage of PhDs attained by women has steadily risen over the last two decades. In some cases, it is reported that female applicants for such openings have even declined from years past. There is not agreement on an explanation for this phenomenon. Is the private sector more receptive to women scientists? Have women found the academy a hostile environment? Do qualified women find themselves rejected by departmental practices that operate as barriers to hiring and retention? The low representation of female professors in these disciplines exacerbates a learning and work environment that is often alienating and unfair.

The reasons need to be explored and solutions found. However, before the problem can be solved, it must be well defined. In order to do this, the problems must be discussed in detail and the barriers identified by those most knowledgeable about them. However, those most familiar with these problems and most well-equipped to identify solutions are often afraid to discuss them openly. The same situation holds for many minorities. Therefore, the first step to solving the problems facing women and minorities in science and engineering must be to generate an atmosphere in which it is acceptable to discuss them.

The low number and percentage of women faculty make it difficult for them to effect the needed changes by themselves, so they will need assistance and support in this. If all female faculty, both tenured and untenured, in a department work together, their total percentage or number is still usually insufficient to exert much leverage. According to Rosabeth Moss Kantor, underrepresented groups need to be at least 15% of an organization in order to begin to impact that organization's culture, policy, and agenda. Even when combining all ranks, women remain a small fraction of the faculty in any science or engineering discipline in this study, below the 15% mark.

The paucity of female faculty is exacerbated by their predominantly low academic ranking. Most of the women in science and engineering are assistant professors without the protection of tenure. This places them in a particularly vulnerable position within the department and the university. Tenure has a significant effect on the behavior of professors; tenured professors have the security to help create cultural change. "Full" professors with tenure are most likely to take risks because they have the freedom to say and do things, such as suggesting more female hires, without fear of losing their jobs or being denied promotion. Unfortunately, there are far too few female "full" professors than that needed to effect significant change in a reasonable amount of time. Finally, and perhaps, most importantly, when female students see the few female faculty in their own discipline marginalized, treated poorly, or not promoted, it serves as a warning: stay in this profession at your own risk.

As Cheryl Leggon notes, <sup>8</sup> simply adding more women to science and engineering departments is a "necessary but not sufficient" agent of change. According to Harvard Magazine's "Forum on Faculty Diversity", <sup>5</sup> one formidable obstacle to gender parity is an "unaccommodating culture" and a status quo that proves to be "an intractable force." Some of the concerns women frequently point to include: "limited opportunities to participate in departmental and institutional decision-making; excessive and 'token' committee assignments; …research that's trivialized and discounted…" <sup>5</sup>

In order to diversify successfully and open wide the doors for women, universities have to examine culture, attitudes, and policies they have long followed assuredly. This is a long-overdue and realistic response to a changing world. As Princeton chemist George McLendon observed, "Academic institutions are intrinsically monastic institutions that were created in the 13th century. They might need a little fine-tuning." 11

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### **BIOGRAPHICAL SKETCH**

Dr. Donna Nelson, is an associate professor of chemistry at the University of Oklahoma. Reared in Eufaula, Oklahoma, she took her BS in Chemistry at the University of Oklahoma in 1974. She obtained her PhD in chemistry at the University of Texas with Michael J. S. Dewar in 1980, did her postdoctorate at Purdue University with Herbert C. Brown during 1980 - 1983, and joined the University of Oklahoma in 1983.

She has an active research group in physical organic chemistry, in which she has developed a new synthetically useful technique for gathering mechanistic information on addition reactions of alkenes. The investigations often permit selection of one mechanism from several which are proposed. She has been recognized for this work, most recently via a Sigma Xi Faculty Research Award and a Guggenheim Award.

She has presented her diversity research results at national meetings of professional societies, at Capitol Hill briefings with the US Congress, and before various other organizations in Washington, DC, and she has served on various national level task forces and committees addressing these issues.

For more information about Dr. Nelson, visit her web site at http://cheminfo.chem.ou.edu/faculty/djn/djn.html.

### **METHODOLOGY**

Data were collected while at the University of Oklahoma between 2000 and 2003 and the Massachusetts Institute of Technology during the Fall, 2003. To investigate the gender, race/ethnicity, and rank of faculty, we surveyed top research departments of fourteen science and engineering disciplines. To sample the top research departments of a discipline, we selected all the departments in each discipline that ranked in the top 50 according to the most recent National Science Foundation annual report on research expenditures available at the time of data collection (National Science Foundation report on 1999 expenditures, except 2000 for chemistry). The ranking for astronomy departments was by the National Research Council, based on research expenditures in 1994. The top 50 departments were different for each discipline.

Over 90% of the departments in our sample are located in universities classified in either the Doctoral/Research Universities-Extensive category or the Doctoral/Research Universities-Intensive category of the Carnegie Classification of Institutions of Higher Education (McCormick 2001).

For each of the top 50 departments in research expenditures, department chairs were contacted and asked to report the gender, race-ethnicity (Asian, Black, White, Hispanic, and Native American), and rank (assistant, associate, and professor) of tenured and tenure-track faculty for fiscal year 2002 (fiscal year 2003 for chemistry and 2004 for astronomy). In a limited number of instances, data were unavailable from department chairs and were collected instead from other sources, such as department websites and published directories.

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  - (c) Academic Research and Development Expenditures: Fiscal year 1994, National Research Council.
- 2. Comments in response to presented preliminary data from this research project. Sarah H. Wright, "Minority Women Faculty Conferees Discuss Professional Obstacles," <u>Tech Talk, MIT</u> (January 30, 2002).
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  - (b) PhDs 1985-94, Selected Data on Science and Engineering Doctorate Awards: 1995, NSF 96-303, (Arlington, VA, 1996). www.nsf.gov/sbe/srs/s4095/start.htm
  - (c) PhDs 1983-93, Science and Engineering Doctorates Awarded, by Citizenship Status, Sex, Racial/Ethnic Group, and Major Field of Study of Recipients: 1993, NSF 94-318, (Arlington, VA, 1994).
  - (d) PhD attainment in sociology, economics, and political science are from National Science Foundation WebCASPAR Database System. http://caspar.nsf.gov/webcaspar/
- 7. Judy Steeh, "\$3.7 Million Grant Aids Women in Science and Engineering," <u>The University Record</u>, (University of Michigan) October 15, 2001.
- 8. Cheryl Leggon, "African American and Hispanic Women in Science and Engineering," <u>Making Strides</u>, Vol. 3, no. 3 (July 2001) p. 7.
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- 10. RosaBeth Moss Kanter Men and Women of the Corporation. (New York, 1977): Basic Books.
- 11. NSF Director Dr. Rita Colwell, 224th American Chemical Society National Meeting, Presidential Symposium on Diversity, August 18, 2002; http://www.nsf.gov/od/lpa/forum/colwell/rc020818acsdiversity.htm

### **APPENDICES**

Appendix 1. Tables of data on tenured/tenure-track faculty at the "top 50" departments of fourteen science and engineering disciplines by race/ethnicity, by gender, and by rank. In each data entry, the number after the decimal point shows the number of people that are female. For example the total number of chemistry faculty in FY2003 is 1654.200; this means there are 1654 people, 200 of whom are female.

Appendix 2. Tables of data on US citizen and permanent resident PhD attainment in fourteen science and engineering disciplines each year from 1983 through 2002. Data are disaggregated by race/ethnicity and by gender.

### APPENDIX 1

Tables of data on tenured/tenure-track faculty at the "top 50" departments of fourteen science and engineering disciplines by race/ethnicity, by gender, and by rank. In each data entry, the number after the decimal point shows the number of people that are female. For example the total number of chemistry faculty in FY2003 is 1654.200; this means there are 1654 people, 200 of whom are female.

Data are provided for the "top 50" departments in the following disciplines:

Table 1 Chemistry

Table 2 Physics

Table 3 Mathematics

Table 4 Computer Science

Table 5 Chemical Engineering

Table 6 Civil Engineering

Table 7 Electrical Engineering

Table 8 Mechanical Engineering

**Table 9 Economics** 

Table 10 Political Science

Table 11 Sociology

Table 12 Psychology

**Table 13 Biological Sciences** 

Table 14 Astronomy

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by Gender, and by Rank (FY 2003)*	Linnania
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U CA Berkeley	44.006	-	7.001	52.007	-			-	2			2	-		2	e				0	58.007
MA Institute of Tech	20.003	-	5.001	26.004	•		•	0				0	-		2.001	3.001	,			0	29.005
U of IL Urbana-Champ	24.002	1001	7.001	32.004	•			0		-		-		2		2				0	35.004
Harvard Univ	15,001		3.001	18.002	٠			0	-			-	-		3.001	100.4				0	23.003
Pennsylvania State U	17.001	6.002	9.00	32.007	•			0				0	-	-		2				0	34.007
California Inst of Tech	21.002	-	4	26.002	•	-		-				0		-	1.00	5001				0	29.003
Texas A&M Univ	34,003	8	2	40.004	-		٠	-	-	-		5			9.	8				0	42005
U WI-Madison	33.002		6.002	39.004	•	•		0				0	က		5	ω				0	48.8
Cornell Univ	17.001	4001	4	25.002	-			-	-			-	-			-				0	28.002
U CA Los Angeles	36,005	5.001	7.003	48.009	٠	-		-	-			-	2.001		2.001	4.002				0	5,011
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Furdue Univ	28.003	5,002	8.002	41.007	_					1.001		8.			3.001	8.4				0	
Indiana Univ	16	4.001	6.002	26.003	•			0			-	_	2			7				0	
U TX at Austin	33.001	5.001	80	46.002	•			0				0	-			-				0	
U of NC Chapel Hill	25.002	4.002	8.001	37.005	٠			0	٠			0			-	-				0	38.005
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Univ of Notre Dame	15	7.001	6.002	28.003	-			-				0				0				0	29.003
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Princeton Univ	20	4.003	က	27.003	•			0				0			-	-				0	28.003
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Univ of Arizona	23.004	-	2	26.004	•			0		2	1.00	3.00			2	2				0	31.005
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U of South Carolina	18.001	2	2	25.001	•	٠		0				0			2.001	5.001				0	27.002
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Univ of Michigan	24.001	4.001	7.001	35.003	-			-				0	-		-	5				0	38.003
Arizona State Univ	22.001	100	6.002	32.004	٠			0	1.00		-	2001			-	-				0	35.005
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Percent within race	71%	13%	17%	100%	67%	55%	10%	100%	88	41%	24%	100%	37%	19%	84%	100%	%29	33% 0	0% 10	%001	1
Percent of grand total	62.5%	12.0%	15.2%	89.7%	0.8%	0.3%	0.1%	1.2%	9,970	0.7%	0.4%	1.8%	2.7%	1.3%	3.1%	7.1%	0.1%			2%	90
Females in column	6.7%	19.6%	18.7%	11.3%	%	20.0%	20.0%	10.0%	10.0%	41.7%	42.9%	31.0%	4.5%	13.6%	30.8%	17.8%	%	100% 0		3%	12.1%
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\*By chemical research expenditures FY2000, NSF; numbers after decimals designate females.

\*Reference: "The Nelson Diversity Surveys" Nelson, D. J.: Norman, OK, 2003; http://cheminfo.chem.ou.edu/faculty/djn/diversity/top50.html

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"According to computer science research expenditures FY1999, NSF, numbers after decimals designate females.

Reference: "The Nelson Diversity Surveys" Nelson, D. Jr. Norman, OK, 2002, http://deminfo.dhem.ou.edu/faculty/djn/diversity/top50.html

Rank (FY 2002)*	
Race/Ethnicity, by Gender, and by	
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Table 5. Tenured/Tenure-Track	

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"According to chemical engineering research expenditures FY1999, NSF; numbers after decimals designate females. ""One professor is reported in both chemistry & chemical engineering. Reference: "The Netson Diversity Netson, D. J.: Norman, DK, 2002, http://cheminfo.chem.ou.adu/faculty/djn/diversity/top50.html

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Reference: "The Neison Diversity Surveys" Neison, D. J.: Norman, OK, 2002, http://deminfo.chem.cu.adu/faculty/div/div/diversity/top50.html

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California Inst of Tech	7.01	-	es	11.01				0				0				0			0	11.0	_
Woods Hole Ocean Inst	o	o	2.01	20.01				0				0		-		-			0	21.0	_
Northwestern University	-	4.01	-	1201				0		-		-	cu	201	3.01	7.00			0	8	<u></u>
University of Houston	o	m		12				0				0	m	m		ω			0	\$	
University of Cincinnati	v	4	-	ø				0				0	201	60	-	6.01			0	15.0	_
U CA Santa Barbara	14.01	*	4.03	22.04	,			0	-		-	2	eo	-		4			0	280	
Mechanical Engr Total	645.20	249.24	156.27	1050.71	~	13.02	8.01	28.03	12.01	-	8.01	27.02	156.05	102.07	58.07	316.19	0	0	0	1421	98
Percent within race	61%	24%	15%	100%	25%	46%	29%	100%	44%	98%	30%	9001	49%	32%	18%	100%	6	56	960 960	4000	
Percent of grand total	45,475	17.5%	11.0%	72.9%	0000	0.9%	40.00	2030	0.8%	0.000	U.D.W	1.50	11,076	1900	4.170	0.777	58	200	58	100%	T
*A consilion to machinism	0.170	M.D.no	17.070	3.17% SLOTA 17.37% 0.07% U.U.Te 13x	MUNe hors often	designates	12.070	IN.r.vo	0.038	0.000	12.0%	1.470	0.576	D.B.Vo	12.170	DAVYE	5	280	6	Ď,	
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"According to mechanical engineering research expenditures PY1999, NSF; numbers after decimals designate females.

Reference: "The Neison Diversity Surveys" Neison, D. J.: Norman, OK, 2002, http://domninfo.chem.ou.edu/faculty/djn/diversity/top90.html

Table 9. Tenured/Tenure-Track Faculty at the "Top 50" Economics Departments\* by Race/Ethnicity, by Gender, and by Rank (FY 2002)

apies relation tellate	T GOOD I GOOD	TOTAL OF THE	2000	2	10000	6110	2		2	a long	0.00		Wee,		İ	ľ	4 400			Į,
University	Full	Assoc	Asst	Tot	Full	A SSOC	Asst T	Tot	I Assoc	A Asst	Tot	Full	A SSOC	Asst	Tal	Full As	Assoc As	set :	-	8
Harvard University	34.001	60	9,001	46.002	1.001		- 1		-	1	-			1.001	100		ĺ.		49.0	z
Pennsylvania State U	12	4	-	17				_	•	2001	2.001	5.002		3,002	8.004				27.0	8
U WI-Madison	18.001	0	8 005	30.003		,	,	_	•			-	-		64				330	8
University of Georgia	00	c	2	12				_	•		0				-				=	_
Georgia State University	7.001	8.004	8003	23,008		-	-	~ .	•	-	8			~	e :				300	8;
University of Michigan	100	3,001	8	35,002	-					٠.	- 6		-	-	7007				4	\$ 1
lexas Adm University	13	73 6	88	27.00				- 2	200.		2007	n e			4 5	_			280	8 3
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Michigan State Only	44,003	5	500	20,000				_		3.5	5	- 6			5 -				200	3 6
University of Minnesoda	14.00	N C	2000	2000				_			> 0	v			4 6				200	3 8
University of Florida	13.00	91	200	19.002				_			0 (		- (		4				21.2	3 :
U of Missouri Columbia	0	0	2001	10:001				- :	٠,		0		m		9				180	5
U MD at college Park	16.001	10.003	n	31.004	-			4.0		-	5.007	-	,		100				400	8
Washington State U	1	-	8	9.001				_	•		0		-	_	100				140	8
Purdue University	41,002	12.003	8001	61,006	-			_	•		0				0				620	8
lowa State University	¥.00.4	80	7,002	49,006					•		0	-	-		un			°	ž	8
U CA Berkeley	37.007	64	en	42.007			8		•	-	-	8			4			°	480	8
University of Arizona	12	7.001	-	20.001				_	٠	-	2		,	_	9			۰	240	8
Oldahoma State Univ	22 002	-	8	25.002			,	_	٠		0	1.001			100			0	380	8
Louisiana St U System	7	2	3001	12,001			,		•		0				0				120	5
Comell University	43,004	11 002	45	88,008	,	,	,				,	,	,		5003	,			707	8
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Princeton University	31,002	NI -	1200	45,003	8			5	•	1.001	507	NI (			4				91.0	8 :
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U of Tennessee System	o	2.001	4	11.001				_	٠		0	-			0				7	5
NC State University	32 001	9.001	'n	48.002				_			0	-			60				200	8
U of Pennsylvania"	8	-	11.002	32.002			,	_	-	e	4	5	-		막				400	8
MA Institute of Tech	23.001	1.001	9001	33.003				_	-		5	-			-			°	380	8
Univ of Connecticut	10.003	10.001	es	23.004		-		_	•		0	-	-		2				98	8
Arizona State Univ	#	es	-	9			,	6	•	-	4	-	2001		100			۰	250	5
Montana St U Bozeman	12.001	8,002	2	20,003				_	•		0				0			۰	8	8
Indiana University	0	4.001	es	17.001				_	•		0	-	-		4			۰	22	5
Camegie Mellon U	8.001	en	4	15.001				_	٠		0	-	N		eo			۰	180	5
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University of Oldahoma	9	-	5.003	12,003				_	٠	٠	0		-		2			۰	15.0	8
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US Naval Postgrad Schi	S	4.001	2001	11,002				_	•		0				0			۰	11.0	8
Texas Tech University	3,001	6,001	m	12,002			,	_	•		0				0			۰	120	8
Rutgers, State U NJ**	14.001	6,002	8,002	28,005			,	_	-		-	en	,	-	4			۰	33.0	8
U of South Carolina	0	5.002	3001	18,003				_	•		0				0			۰	180	8
Duke University	14.001	17	12,002	28,003				_	•		0				0				280	8
Columbia U Teachr Col**	ev :			2					-	٠	-	-			-				4	
Brown University	14	-	9	21				_	٠		-	-	N	2001	100				27.0	5
New York University	14	n	48	21.001	7		,	707		5	3.00	n	-	0	7				330	8
U CA Los Angeles	25.003	3.003	11.002	39.008					•		0			4	4				430	8
Case Western Reserve U	m	4.002	5001	12.003		,	,	_	•		0				0				120	8.
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Females in column	6.7%	18.4%	17.5%	10.8%	30.0%	180	3.3% 23	R% 17.6	W 16.7	4 20.0%	18.4%	6.4%	5.9%	27.6	3.6%	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	386	100	4	. 10
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Reference: "The Nelson Diversity Surveys" Nelson, D. J.: Norman, CK, 2002; http://dheminfo.chem.ou.adu/facuity/djn/diversity/top50.html

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Table 10. Tenured/Tenure-Track Faculty at the "Top 50" Political Science Depa	University	Harvasrd I Inhibitionshy	U.C.A. Barkeley	Princaton University **	Inchana University	Rutoers the State U NJ	U of Pennsylvania	University of Michigan	U MD at College Park	George Mason Univ	U of Washington	Vandarbilt University	Morthwoodorn Univ	Company Mellon II	Celhege meton o	U of South Carolina	Duce University	Texas A&M Univ	University of Chicago	Georgerown University	Turis orinversity	U.C.A. Sain Diego	MA Institute of Tech	Michigan state Only	University of Georgia	Florida State Univ	New York University	U CA Irvine	Clamson University	U of Missouri St Louis	11 CA Davis	George Washington U	Univ of Minnesota	VA Polytch Inst & St U	Ohio State University	Pennsylvania State U	SUNY at Albamy	Univ of Oktahoma	U of Missouri Columbia	U of Southern California	U WI-Madison	New School University	Arizona State Univ	Georgia State Univ	Western Michigan U	US Naval Posigrad Scril	U of Termassaa System	U of Nebraska at Lincoln	U MA Boston	Political Science Total	

"According to political science research expenditures FY1989, NSF; numbers after decimals designate females. ""Declined to participate, data are from Reference. "The Netson Diversity Surveys" Netson, D. J.: Norman, OK, 2002; http://cheminfo.chem.cu.edu/faculty/djn/diversity/top50Mmil

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Table 12. Tenured/Tenure-Track Faculty at the "Top 50" Psychology Departments" by Race/Ethnicity, by Gender, and by Rank (FY 2002)		Miles de La
able 12. Tenured/Tenure-Track Faculty at the "Top 50" Psychology Departments" by Race/Ethnicity, by Gender, and by Rank (	FY 2002)	A of one
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able 12. Tenured/Tenure-Track Faculty at the "Top 5	iology Departments* by Race/Ethn	100
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Reference: "The Nalson Diversity Surveys" Nelson, D. J.: Norman, OK, 2002; http://dneminfo.chem.ou.edu/faculty/djn/diversity/topS0html

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University of Kansas***	22 004	16.004	7,002	45.010				-			1.001	1,001	-	-	-	m		-		-	51011
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### **APPENDIX 2**

Tables of data on US citizen and permanent resident PhD attainment in fourteen science and engineering disciplines each year from 1983 through 2002. Data are disaggregated by race/ethnicity and by gender.

Data are provided for PhD attainment in the following disciplines:

Table 1 Chemistry

Table 2 Physics

Table 3 Mathematics

Table 4 Computer Science

Table 5 Chemical Engineering

Table 6 Civil Engineering

Table 7 Electrical Engineering

Table 8 Mechanical Engineering

**Table 9 Economics** 

Table 10 Political Science

Table 11 Sociology

Table 12 Psychology

Table 13 Biological Sciences

Table 14 Astronomy

### Chemistry

Table 1. PhDs in Chemistry	hemist	ry.																					
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male	1067	898	1013	88	88	198																Ŀ,	
female	200	223	230	98	27.1	276																	
Asians	88	26	112	109	108	88																100	1000
male	9	20	79	74	11	29																i	
female	23	22	33	18	55	28																	
Native Am.	6	0	2	40	9	ND.																	
male	e	m	2	9	4	10																	
female	0	0	0	14	24	0																	
Black	16	8	13	11	13	21																	
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female	rv	P4	9	m	44	-																	
Hispanic	21	8	11	10	4	49																	
male	1	55	12	45	81	38																	
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### Physics

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## Mathematics

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male	37.1	357	8	88	318						628										7387	75.6%	4447	
female	18	8	83	2	11						100										2559	24.4%	1662	
White	386	380	380	F	319						476 4					1000			9500		1	82.8%	4740	
male	319	308	280	282	258						352		100								6427	63.0%	3496	
formale	R	72	8	15	10						124										2017	19.8%	1274	
Asians	8	30	33	28	41		0.00				史										1298	127%	888	
male	28	8	27	23	30						7										406	9.2%	674	
female	0	9	0	NT-	=						K										轰	3.5%	388	
Native Am.	0	m	0	-	0						+										27	0.3%	18	
male	0	(1)	0	0	0						-										49	0.2%	12	
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Black	63	4	7	9	11						8										178	1.7%	114	
male	N	en	1	en	æ	ч	10	m	1	4	1	60	4	φ	10	a	9	1	12	ф	117	1.1%	2	1.2%
female	+	+	0	м	N						-										B	0.6%	4	
Hispanic	1	11	12	4	11						16										257	25%	158	
male	10	9	1	æ	(T)						4										198	1.8%	115	
female	2	+	10	es	evi						evi										K	0.7%	43	
Data source: Survey of Earned Doctora	ev of Ea	Frned	Docte	rates	(NS)	NIH	USE	D/ NE	H/US	DAZ	NASAN	-												

## Computer Science

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March   Marc		83	葱	88	88	83		100	8	1772	100	88	3	8	98	48	-	1		_	-	3-05	3º	93-02	
177   168   189   206   221   280   312   313   387   406   400   440   473   423   429   377   325   325   325   325   325   325   319   319   319   319   319   410	JSat & parm res	202	195	213	249	275	326	396	403	90700	400	909	543	919	514	520	200	1001	360	-		8251	30008	5047	$\Rightarrow$
30 27 28 41 54 46 60 60 64 81 100 94 143 91 100 123 105 86 80 17 101 105% 1050 205% 10	male	111	168	189	308	22	280	312	313			400	449	473	423	63						6640	80.5%	4011	
174 163 177 193 229 286 319 329 346 346 401 450 367 367 350 350 350 350 350 350 350 350 350 350	female	8	27	8	4	35	¥	8	8			100	8	143	8	8						11811	10.5%	1036	
150 139 156 153 164 225 252 259 242 309 326 325 347 256 255 329 272 272 272 272 273 673 737 274 448 22 24  6  6  6  7  6  7  6  7  7  7  7  7  7	White	174	163	177	193	229	200	319	338		20	408	401	450	366	361		9572	0.00			6296	28 B75	3084	58
20 20 17 37 28 44 52 48 68 67 71 16 137 111 107 80 87 76 61 62 50 1207 151N 724 1448N  20 20 17 37 28 44 52 48 68 80 77 116 137 111 107 80 87 76 61 66 138 1715 948 1873N  4 2 0 3 6 42 41 52 48 68 80 77 116 137 111 107 80 87 76 61 66 138 1715 948 1873N  1 0 0 0 0 3 1 1 2 0 1 1 0 1 2 0 1 1 2 1 1 1 0 4 1 1 1 1 2 2 8 1 1 1 1 2 8 1 1 1 1 1 1 1	male	150	139	156	153	184	228	282	259			138	329	367	586	8						6409	63.5%	2970	2.0
20 20 17 37 26 44 52 48 66 86 77 116 137 111 107 90 87 76 61 86 1364 1715 948 18-35A A 1 51 74 56 10 107 56 81 67 68 61 41 60 1089 1364 775 948 18-35A A 1 51 74 56 10 107 56 81 67 68 61 41 60 1089 1364 778 738 1515A A 1 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	female	ä	×	22	8	10	8	67	8			83	13	103	40	8						1207	151%	724	
% 18 17 34 20 38 42 41 51 74 58 100 107 56 81 67 86 61 41 80 1089 136% 778 151%  4 2 0 3 6 6 10 7 15 12 19 16 30 16 28 22 19 15 20 28 275 34% 210 4.5%  1 0 0 0 0 2 1 1 1 0 1 2 0 1 1 0 0 0 0 1 1 1 2 1 1 1 1	\ sians	38	20	17	37	28	4	8	48			11	116	137	111	107	200	1000				1364	17.1%	948	×
4 2 0 3 6 6 10 7 15 12 19 16 30 16 28 23 19 15 20 28 275 348 210 4.5% 16 0.3% N 17 0.3% N 16 0.3% N 17 0.3% N 18 0.3	male	8	18	17	25	8	8	42	4			8	100	107	8	9						1069	13.6%	738	
1 0 0 0 0 3 1 2 0 1 2 1 1 0 4 1 4 1 1 1 2 28 0.5% 16 0.3% N 16 0.3	famala	4	2	0	10	0	40	9	-			15	\$	R	16	Ħ						275	3.4%	210	
2 1 1 0 1 2 0 0 0 2 0 4 0 1 1 2 18 0.2% 10 0.2% 1 0 1 0 0 0 1 1 1 0 2 1 0 1 0 0 0 8 0.1% 6 0.1% 2 2 1 1 8 5 6 10 11 12 4 14 18 18 15 17 154 15% 125 26% 8 1 2 0 1 4 4 2 8 7 9 3 6 9 13 5 10 5 11 11% 72 15% 14 1 1 0 1 0 1 0 1 1 1 1 1 1 1 1 1 1 1	letive Am.		0	0	0	60	-	24	0			-	-	0	4	-						8	0.3%	16	æ
1 0 1 0 0 0 0 1 1 0 2 1 0 1 0 0 0 8 01% 6 01% 1 2 2 2 2 3 1 1 1 8 5 6 10 11 12 4 14 18 18 15 17 154 19% 125 26% 8 1 0 1 0 1 0 4 1 4 2 8 7 9 3 6 9 13 5 10 5 11% 72 15% 1 4 2 4 5 12 8 7 7 8 16 16 15 14 18 18 14 18 18 21% 117 24% 1 4 2 4 5 12 8 7 7 8 16 16 15 14 14 8 14 18 12 15% 1 17 24% 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	male	-	0	0	0		-	+	0			0	o	0	64	0						139	0.2%	10	
2 2 1 1 8 5 6 10 11 12 4 14 18 18 15 17 154 19% 125 26% 8 1 2 0 1 4 4 2 8 7 9 3 6 9 13 5 10 91 11% 72 15% 14 4 2 4 5 12 8 7 7 9 3 6 9 5 10 7 63 06% 53 11% 4 2 4 5 12 8 7 7 8 16 16 15 14 14 8 14 188 21% 117 24% 14 2 1 4 11 7 6 7 2 9 14 14 11 11 4 12 13 1 4 2 0 6 1 16% 10 1 1 1 1 0 4 7 2 1 3 3 4 2 35 04% 27 06% 10 16% 10 16% 10 16 16 16 16 16 16 16 16 16 16 16 16 16	formate	0	0	0	0	*	0	+	0			-	-	0	ev	-						m	0.1%	9	
1 2 0 1 4 4 2 8 7 9 3 6 9 13 5 10 91 11% 72 15% 1 10 1 0 1 1 0 4 1 4 2 4 3 1 8 9 5 10 7 63 06% 53 11% 4 2 4 5 12 8 7 7 8 16 16 15 14 14 8 14 188 21% 117 24% 1 4 2 1 4 11 7 6 7 2 9 14 14 11 11 4 12 13 17% 90 16% 0 0 3 1 1 1 1 0 4 7 2 1 3 3 4 2 35 04% 27 06% 6/NSF/NIH/USED/NEH/USED/N	Back	10	10	3	-	~	CV.	-	-			9	9	#	12	4						拉	1,9%	125	m
1 0 1 0 4 1 4 2 4 3 1 8 9 5 10 7 63 0.6% 53 11% 4 2 4 5 12 8 7 7 8 16 16 15 14 14 8 14 188 21% 117 24% 1 4 2 1 4 11 7 6 7 2 9 14 14 11 11 4 12 13 17% 90 1.6% 0 0 3 1 1 1 1 0 4 7 2 1 3 3 4 2 35 0.4% 27 0.6% (NSF) NIH/ USED/ NEH/ USE	male	-	24	m	+	-	P4	0	-			174	65	1	CI.	m						2	1.1%	72	
4 2 4 5 12 8 7 7 8 16 16 16 14 14 8 14 188 21% 117 24% 14 2 1 1 1 7 6 7 2 9 14 14 11 11 4 12 133 17% 90 18% 0 0 0 3 1 1 1 1 0 4 7 2 1 3 3 4 2 35 04% 27 06% (NSF) NIH/ USED/ NEH/ USED/ NEH	female	CA.	-	0	0	-	0	-	0			4	8	4	60							8	0.8%	8	
4 2 1 4 11 7 6 7 2 9 14 14 11 11 4 12 133 17% 90 18% 0 0 0 0 0 0 0 1 1 1 1 0 4 7 2 1 3 3 4 2 35 04% 27 06% (NSF) NIH/ USED/ NEH/ USDA/ NASA).	Hispanic	0	62	40	7	4	74	4	2			7	7	9	16	16						188	2.1%	117	æ
0 0 3 1 1 1 1 0 4 7 2 1 3 3 4 2 35 04% 27 06% (NSF) NIH/ USED/ NEH/ USDA/ NASA).	male	0		4	7	*	(N	-	*			9	*	2	6	Z						133	17%	8	
(NSV) NIH/ USED/ NEH/ USDA/	famala	0	0	P4	0	0	0	n	+				0	*	7	64						35	0.4%	27	
	Jata source Surve	Jo ve	Earne	Doct	orate	- 46	ż	4/ US	N/QE	HH.		NAS	N.												

# Chemical Engineering

SS 64 65 68 67 88 69 90 91 92 92 93 94 95 94 95 96 97 98 97 98 99 90 91 92 92 93 94 95 94 95 95 94 95 95 94 95 94 95 95 94 95 94 95 94 95 94 95 94 95 94 95 94 95 94 95 94 95 94 95 94 95 94 94 94 94 94 94 94 94 94 94 94 94 94	Table 5. PhDs in Chemical Engineering	cal fings	Desting																		10.00
266         260         406         444         392         389         377         380         381         381         381         381         381         381         381         381         381         382         389         377         380         381         382         382         382         382         383         382         284         373         382         284         282         284         274         283         274         283         274         284         274         283         274         284         274         284         274         284         274         284         274         284         274         284         274         284         274         284 <th></th> <th>83</th> <th>ま</th> <th>88</th> <th>88</th> <th></th> <th>88</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th>~~</th> <th>3.05</th> <th></th> <th>93-02</th> <th></th>		83	ま	88	88		88										~~	3.05		93-02	
256         258         356         375         309         395         313         302         280 <td>JSat &amp; perm res</td> <td>200</td> <td>199</td> <td>282</td> <td>286</td> <td></td> <td>408</td> <td></td> <td></td> <td>65/04</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>2119</td> <td></td> <td>3750</td> <td>100%</td>	JSat & perm res	200	199	282	286		408			65/04								2119		3750	100%
42         52         63         64         73         86         86         77         76         75         100           27         266         317         346         318         322         284         296         256         274         287         286         274         277         289         276         286         276         274         287         286         286         274         287         286         286         286         274         271         186         287         286         286         274         287         286         289         286         274         287 <th< td=""><td>male</td><td>185</td><td>181</td><td>381</td><td>982</td><td></td><td>399</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>5790</td><td></td><td>2802</td><td></td></th<>	male	185	181	381	982		399											5790		2802	
27         266         317         345         318         322         284         286         289         286         274         289         276         277         289         284         211         196         205         241         205         244         211         196         205         241         225         244         211         196         205         241         225         244         211         196         205         241         225         244         211         196         205         241         221         107         205         245         211         196         205         247         225         246         211         196         205         267	female	15	18	33	đ		8											1321		837	
195         223         272         283         277         225         244         211         196         205         241         225         242         211         196         205         241         225         243         211         196         205         241         227         225         248         211         196         267         277         275         267         277         275 <td>Vhite</td> <td>152</td> <td>150</td> <td>211</td> <td>122</td> <td></td> <td>317</td> <td>80000</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>5312</td> <td></td> <td>2720</td> <td></td>	Vhite	152	150	211	122		317	80000										5312		2720	
31         43         45         52         48         45         59         54         48         60         60         62         67         77         51         50         54         62         96         101         80         73         66         58         69           52         54         66         67         77         51         50         67         67         67         67         68         68         68         68         68         68         68         68         68         68         68         68         69<	male	140	138	190	198		272											4374		2150	
56         60         67         77         51         50         54         62         96         101         80         73         65         58         69         69         60	female	12	42	7	3		45											838		570	
52         64         67         69         61         68         61         61         62         61         62         61         63         64         68           6         6         6         11         11         9         16         7         25         25         18         12         19         14         21           0         1         2         1         1         1         1         2         1         4         3         2         1           0         0         0         0         0         0         0         0         1         3         1         1         1         1         1         3         1 </td <td>sians</td> <td>33</td> <td>莴</td> <td></td> <td>88</td> <td></td> <td>29</td> <td></td> <td>1271</td> <td></td> <td>728</td> <td></td>	sians	33	莴		88		29											1271		728	
6 6 6 11 11 9 16 7 25 25 18 12 19 14 21 0 1 1 2 1 4 3 2 1 1 0 1 1 2 1 1 1 2 1 4 3 2 1 1 0 0 1 1 1 1 1 1 2 1 1 4 3 2 1 1 0 0 0 1 0 0 0 0 0 1 1 3 0 1 1 1 1 1	male	S	53	3	Si		10											1013		555	
0 1 2 1 0 1 1 1 2 1 4 3 2 1 0 1 2 1 0 0 1 2 1 0 0 0 0 0 0 0 0 0	female	0	vo	19	9		9											982		182	
0 1 2 1 0 0 1 1 1 2 1 3 0 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	lative Am.	0	2	0	0		N											88		18	
0 0 0 0 0 0 1 0 0 0 0 0 0 1 3 1 1 1 4 4 4 7 5 10 8 13 6 8 3 12 18 3 11 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	male	0	2	0	0		00											10		12	
4     4     7     5     10     8     13     6     8     3     12     16     3     11     8       3     4     6     4     8     7     12     3     4     2     7     10     2     7     3       4     11     5     9     11     16     10     7     13     19     7     13     7     18       2     8     5     5     7     7     7     7     7     11     13     4     13     3     14       2     3     0     4     1     4     4     3     0     2     6     3     0     4     4	female	0	0	0	0		0											-		9	
3 4 6 4 8 7 12 3 4 2 7 10 2 7 3 4 1 1 0 1 1 1 2 1 1 1 3 4 1 5 6 1 4 5 6 1 4 5 6 1 4 5 6 1 4 5 6 1 4 5 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6 1 6	lack	3	2	9	4		-											158		96	
1 0 1 1 2 1 1 3 4 1 5 6 1 4 5 6 4 4 5 4 11 5 9 8 11 18 10 7 13 19 7 13 7 18 18 7 18 7 18 18 7 18 18 7 18 18 18 18 18 18 18 18 18 18 18 18 18	male	60	2	4	m		Φ										ø	ğ	1.5%	51	
4 11 5 8 8 11 16 10 7 13 19 7 13 7 18 2 8 5 5 7 7 12 7 7 11 13 4 13 3 14 2 3 0 4 1 4 4 3 0 2 6 3 0 4 4	female	0	0	N	+		+					100						35		45	
2 8 5 5 7 7 12 7 7 11 13 4 13 3 14 2 3 0 4 1 4 4 3 0 2 8 3 0 4 4	lispanic	9	00	2	4		10					2						192		117	
2 3 0 4 1 4 4 3 0 2 6 3 0 4 4	male	9	C4	2	64		40					1						138		8	
	female	-	-	0	ev		0					60						8		×	
	lata source: Survi	w of E	arned	Doct	prates	BN		TSO.	N VO	D/H	SDA	NAS	17								

## Civil Engineering

BOILED THUSHILL	SINE	Dill Ger	But																			
	98	98	87	88	8	8	6	8		8				88	8	00			Name of	%	93-02	
USdt & perm res	170	192	203	233	247	241	213	215		282		200		182	312	261				100%	2844	
male	159	111	192	218	200	202	168	192		237				238	150	213				84.5%	2311	
female	F	\$2	Ξ	15	8	ä	Ŋ	8		18				8	9	8				15.5%	533	
White 130 152 158 183 191 196 159 166	130	152	158	183	191	196	150	198		188				217	241	毒				75.3%	2009	
male	120	139	149	171	157	187	2	147		13				172	朝	86				63.3%	1616	
female	10	5	Ø.	12	Z	8	16	19		46				45	47	ä				12.0%	383	
Asians	28	28	34	27	98	28	30	8		88				8	46	43				17.8%	555	
male	28	R	R	8	8	N	R	R		18				N	4	33				15.6%	470	
female		0	CA	-	0	60	4	re		4				9	in	9				23%	88	
Native A.m.	0	0	**	-	77	2	+	1		0				0	cu	+				0.3%	7	
male	0	0	+	+	0	04	*	0		0				0	-	0				0.2%	9	
female	0	0	0	0	-	0	0			0				0	-	+				0.1%	4	
Black	4	4	4	-					N)	8				6	8	9				2.7%	87	
male	4	6	4	+	10	-	10	3	m	9	8	1	9	-	4	NO.	F	di	101	2.3%	200	2.5%
female	0	-	0	0					CH	evi				re	04	-				0.5%	11	
Hispanic	7	7	-	13					12	14				16	12	6				3.7%	109	
male	7	1	+	12					9	Ξ				13	10	60				3.2%	8	
female	0	0	0	+					N	2				m	9	+				0.6%	4	
Data source: Survey of Earned Do	ey of Ea	arned [	Doctor	stee ()	1357	JIHI/	SED/	NEH!	USDA	/ NA	is											

## Electrical Engineering

Table 7. PhDs in Electrical Engineering	POTFIC	S ENG	20001	8																					
	8	Z	98	88	83	88			16	8	83	#				_			_	-		8	30-05		
USot & perm res	282	314	353	410	393	503			989	719	795	988					1000	1000	-	2000		96001	7817		USat/ perm
male	280	308	334	385	378	470			638	662	715	118	-						100			30.4%	6920		
female	1	æ	N	R	2	B			8	2.9	8	8										8.00	180		
White	214	231	259	319	283	363			87.8	487	553	2					6000	-002				93%	5009	-	White
male	509	227	243	586	271	341			444	447	80	181										33.4%	4503		
female	49	4	22	8	12	R			×	9	9	ž										58%	906		
\ sians	58	99	63	K	78	103			140	175	198	300										52%	2138	100	4
таје	25	Z	8	67	R	16			136	15	E	212										22.1%	1823		
female	-	in	4	4	on	40			40	54	10	33										3.1%	315		
lative Am.	0	0	-	2	3	0	50.00		2	4	0	-							900			0.2%	Ħ		z
male	0	0		2	8	0			-		0	-										0.2%	Ç		
female	0	0	0	0	0	0			-	+	0	0										9600	+		
Black	2	3	00	+	3	1			18	17	15	11										24%	221		面
mate	64	en	40	4	en	40			Ħ	ŧ,	13	#										2.1%	187		
female	0	0	0	0	0	N	0		N	2	N	10	4	40	4	4	10	e)	-	4	4	0.3%	8	0.4%	female
Hispanic	4	80	*	đ	9	#			12	17	11	2										2.8%	M		I
male	*	80	4	10	10	2			12	4	7	7										2.5%	213		male
female	0	0	0	-	a	2			0	3	n	0										0.3%	38		
Data source General of Ewned Doctorates	Sec.	-	Parent.	- 4	00000		00011	SALAN	1	On A L	ALA CO	111													

# Mechanical Engineering

Scale Bernaria (S. 184) 685 687 688 68 68 69 7 81 82 89 89 7 88 89 89 7 88 89 89 89 89 89 89 89 89 89 89 89 89	ble 8. PhDs in M	echan	ical E	ouis.	Buis														- 1	- 23	
227 225 388 319 425 431 538 163 588 538 516 453 397 427 343 7822 100% 4507 100% 1310 300 344 322 401 396 444 514 520 450 50 341 309 239 7148 91.3% 4200 99.0% 171 10 34 372 51 35 36 349 514 517 31 309 239 7148 91.3% 4200 99.0% 124 230 234 232 317 314 315 315 314		8	2	88	8	87		8	16	28	-				_	_	-	e.	7	ê	A S 11.00 18
310         306         344         322         401         365         403         341         309         299         714B         91.7%         420         60 6         36         44         694         87%         420         60 6         60 36         39         44         694         87%         420         60 104%           257         241         236         326         377         371         335         279         301         378         379         37	Sat & perm res	55	305	N	387	308	15(5)	8	389	8								20 10		1000%	JScit/ perm
17 19 24 28 20 20 20 20 20 20 27 27 27 27 20 20 27 27 20 20 27 20 20 27 20 20 27 20 20 27	male	186	8	233	ň	287		×	355	401								16		M0.68	male
237 244 286 286 206 307 309 302 377 371 305 279 301 227 5574 72.1% 206 72.1% 206 72.1% 207 207 207 207 207 207 207 207 207 207	female	9	28	18	2	=		Ä	33	92								2		10.4%	female
217         224         267         296         307         396         311         314         353         344         356         236         276         276         277         510         969         624         317         686         634         317         686         634         317         686         637         317         687         317         688         637         317         688         637 <td>White</td> <td>146</td> <td>151</td> <td>178</td> <td>210</td> <td>230</td> <td>oa.</td> <td>200</td> <td>388</td> <td>97</td> <td></td> <td></td> <td>200</td> <td></td> <td></td> <td></td> <td></td> <td>74 73</td> <td></td> <td>70.1%</td> <td>White</td>	White	146	151	178	210	230	oa.	200	388	97			200					74 73		70.1%	White
16 17 19 30 19 32 28 28 30 33 7 45 32 77 10 20 473 6.2% 317 6.8% 317 88% 357 6.5 6.9 6.9 62 78 479 199 199 190 173 99 68 72 78 77 1669 22.7% 1135 20.2% 45 50.2% 45 50.2% 45 50.2% 45 50.2% 479 50.2 20.2% 45 50.2	male	142	143	159	188	219		100	236	307								10		63.4%	male
57 66 68 62 78 53 179 168 165 113 199 68 72 78 71 1668 22.1% 1135 24.2% 5 57 65 66 59 74 50 165 140 57 79 77 56 68 56 1531 20.1% 102 21.2% 105 105 105 140 57 79 77 56 68 56 1531 20.1% 102 21.2% 103 21.2% 10	famale	4	F	17	12	F		4	8	10								6		6.8%	female
57  66  68  59  74  50  105  105  105  17  10  17  17  56  68  56  1531  201%  902  212%  10  1  3  3  4  3  24  23  17  16  10  11  15  8  15  157  21%  143  31%  10  10  1  1  1  0  0  2  3  6  2  2  3  1  1  1  28  0.3%  20  0.4%  11  1  0  0  0  2  3  6  2  2  3  1  1  1  28  0.3%  20  0.4%  11  1  0  0  0  1  1  0  0  1  1  0  0	Asians	S	37	88	31	81		8	85	78								98 22		M2%	Asians
1 0 1 3 3 4 3 24 23 17 16 10 11 10 2 8 15 15 15 21% 143 31% 11 0 0 0 1 1 1 0 0 0 2 3 6 2 2 3 1 1 1 28 0.3% 20 0.6% N 1 0 0 0 1 1 0 0 0 2 3 5 2 2 3 1 1 1 28 0.3% 20 0.6% N 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	male	8	8	57	31	5		8	8	×								31 20		212%	male
1 0 0 1 1 0 0 2 3 6 2 2 3 1 1 28 0.3% 20 0.4% N 1 0 0 1 1 0 0 2 3 5 2 2 2 1 1 24 0.3% 18 0.4% N 1 5 5 5 3 5 3 7 13 10 12 14 12 18 17 17 158 2.1% 123 2.6% N 1 5 5 2 5 3 6 12 7 11 14 11 13 16 13 18 18 18 18 18 18 18 18 18 18 18 18 18	female	•	-	-	0	0		m	m	4								51		3.1%	female
1 0 0 1 1 0 0 0 2 3 5 2 2 1 1 28 0.8% 18 04% 10 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	give Am.	0	0	0	64	-		0	-	+								98		0.4%	Valive Am.
1 5 5 5 3 5 3 7 13 10 12 14 12 18 17 17 158 21% 123 26% 11 5 5 2 5 3 6 12 7 11 14 11 13 16 13 138 18% 106 23% 10 0 0 0 0 1 0 0 0 1 1 3 1 3 1 4 11 13 16 13 138 18% 106 23% 17 0 0 0 0 1 0 0 0 1 1 3 1 3 1 0 1 5 1 4 2 17 17 23% 17 0 0 0 0 0 0 1 1 0 0 0 1 1 1 0 0 0 1 1 1 0 0 0 1 2 1 0 0 0 0	male	0	0	0	*	-		0	-	+								9		0.4%	male
1 5 5 5 3 5 3 7 13 10 12 14 12 18 17 17 158 2.1% 123 2.6% 8 1 5 5 2 5 3 6 12 7 11 14 11 13 16 13 138 1.8% 106 2.3% 0 0 0 1 0 0 1 1 3 1 0 1 5 1 4 20 0.3% 17 0.4% 17 3 5 5 9 11 5 8 12 11 13 18 11 21 7 158 2.1% 109 2.3% 1 1 1 1 2 2 0 1 0 0 3 1 1 1 0 5 10 5 15 0.2% 12 0.3%	female	0	0	0	0	0		0	0	0								0		9000	female
1 5 5 2 5 3 6 12 7 11 14 11 13 16 13 138 18% 106 23% 0 0 0 1 0 0 1 1 3 1 0 1 5 1 4 20 0.5% 17 04% 7 3 5 9 11 5 8 13 11 16 8 11 21 7 158 21% 12 158 6 2 4 7 8 5 7 8 13 11 16 8 11 21 7 158 21% 106 23% 1 1 1 2 2 2 0 1 0 0 3 1 1 1 0 5 15 0.5% 12 0.3%	8	MD.	2	63	00	0		w	5	s)								88 2		2.6%	Saok
7 3 6 9 11 6 8 13 14 19 9 12 21 12 177 23% 17 04% 8 2 4 7 8 5 7 8 13 11 16 8 11 21 7 158 21% 100 23% 1 1 1 2 2 0 1 0 0 3 1 1 1 0 5 19 05% 12 03%	male	4	64	67	64	e		w)	04	w								# #		23%	male
7 3 5 9 11 5 8 8 13 14 19 9 12 21 12 177 23% 121 245% 1 6 2 4 7 8 5 7 8 13 11 16 8 11 21 7 158 21% 109 23% 1 1 1 1 0 5 15 0.2% 12 0.3%	female		0	0	-	a		0	-	0								0		0.4%	female
6 2 4 7 8 5 7 8 13 11 16 8 11 21 7 158 21% 108 23% 1 1 1 1 0 5 19 0.2% 12 0.3%	spanic	cu	40	53	8	20		9	0	=		200						7 2		26%	Hispanic
1 1 1 2 2 0 1 0 0 3 1 1 1 0 5 16 0.2% 12 0.3%	male	cv	40	3	0	100		4	4	0								2 8		23%	male
	female	0	0	0	0	0		+	e	ev								19 0		0.3%	famale

## Economics

able 9. PhOs in Economics	nos.																							
	8	2	88	98		88	-						77		-						398	8	83-05	8
USat & perm res	862	265	989	617		573	-cm					100	2000		1000				150.00		1169	100%	5408	100%
mele	153	480	479	\$		433									0.0		100				8294	74.3%	3825	70,7%
female	121	134	107	133		140															2875	25.7%	1583	29,3%
White	289	501	494	537		478	-		1074	1000		1051	2000	100	1076	300					6966	82.2%	4114	77.77
male	488	407	401	418		380									D						8999	61.1%	2908	54.99
female	101	æ	83	121		116															2301	21.1%	1206	22.8%
sians	40	37	58	33		22							201		100		101		_		1167	10.7%	982	14.5%
male	R	S	8	8		4															803	7.4%	500	9698
female	¥	47	o	9		10															88	3.3%	90	4.99
Native Am.	0		N	2		-															19	0.17%	0	0.17%
male	0	-	-	64		0															t.	0.1%	9	0.1%
female	0	0	*	0		-															00	0.1%	8	0,19
Black	16	S	21	18		40															421	3.86%	213	4.02%
male	12	12	51	ħ		\$0															339	3.1%	168	328
female	4	2	0		4	4	e	60	evi	۳	4	Θ	4	4	es	9	60	40	rv	m	88	0.8%	45	0.9%
ispanic	12	16	17	80		12															333	3,00%	192	3.63%
male	11	Z	#	60		w															Ñ	23%	144	2.7%
female	+	2	65	0		0			10	4		*	4								88	0.8%	48	0.990
Data sources Survey of Earnard Doctor	The said	Sec. and	Parcel	Section Section	701.00		2011	214.5	21111	5														

## Political Science

83		Section of the sectio																						
	00	4	88				177			175	177	150	1							90	20	-	20.	×
USat & perm re 53	2 5	42 5	10	1020	5000			100	1000	100	100	100	600	500	6000	1000			100	200	552 10		7428	100%
male 39	75	98	98	10.7																	243 66		4707	63.4%
female 14	=	148	45																		309 34		2721	36.6%
White 43	4 8	438 4	90	1555	100		1000	1050	9000	100	100	5000	1000	1000	-	1000	030	1000		-	88 KB	100	198	22.5%
male 319	6	318 2	25					8	1												899		3789	52.4%
female 12	D	118	4														244				510 28		2172	30.1%
Asians 1	1	22	12		100						100										312 5	250	415	57.5
male	di	뭐	cn														100				406		283	3.6%
female	EN	Ф	10																		902		153	2.1%
Native Am.	-	-	+						-												51 0		88	50%
male		+-	-														150				33		2	0.3%
female	0	0	0																		18		9	0.2%
Black 3	A	18	45				1090										500				25 7.		549	1,80%
male 2	63	22	30								199					R					989		318	4.4%
female 1	*	100	15	卑	10	40	F	12	90	#	11	11	18	22	12	R	61	B	18	30	340	2.8%	23	32%
Hispanic 1	6	42	14													38					28 3.		284	885%
maio 1	4	=	7													22					菠		167	2.3%
female	9	4	7													2					144		26	1,3%
Data source: Survey of Earned Do	OFE	arned		orate	SINS	HINK	W US	ED/ N	1	USDA	/ NA	18												

### Sociology

USolt & permires 450 442 392 405 346 351 326 329 male 245 224 178 206 193 160 135 152 male 204 200 214 196 153 191 191 177 male 391 382 392 338 295 299 257 258 male 178 190 166 164 135 161 177 male 10 11 8 11 19 14 13 15 male 10 11 1 4 2 2 1 1 1 male 10 0 1 0 1 0 2 0 0 1 1 1 1 1 1 1 1 1 1	385 378 378 378 378 378 378 378 378 378 378	386 208 316 316 316 45 7 7 7	<b>2</b>	8 3 2 2 3 3 3 3 3 4 4 4	22 8 23 8 4 t	188 1 273 248 3	142 4	159 51	П	18	8272		The Resident	Second P
246 224 178 209 193 160 135 204 208 204 208 214 196 153 191 191 382 382 338 295 289 257 3 178 190 166 194 105 104 10 11 8 11 19 14 13 3 8 5 6 13 6 8 5 7 7 3 3 5 6 6 13 6 8 5 0 1 0 0 1 0 4 0 2 0 1	100000000000000000000000000000000000000		2012 2012 2012 2012 2012 2012 2013 2013	医石榴花属器口					i				4488	55
204 208 214 196 153 191 191 391 382 382 338 296 289 257 3 182 147 774 160 126 104 178 190 166 964 135 163 163 153 10 11 8 11 19 14 13 3 8 5 6 13 6 8 5 7 7 3 3 5 6 6 13 6 8 5 0 1 0 1 0 4 0 2 0 1	11 000		25 28 28 28 28 28 28 28 28 28 28 28 28 28	2 <b>2</b> 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2						2 185	3686		1844	41.1%
391 382 332 338 295 289 257 3 213 192 147 774 160 126 104 178 190 166 964 135 163 153 10 11 8 11 19 14 13 3 8 5 6 13 6 8 7 3 3 5 6 8 5 0 1 0 4 0 2 0	555		阿克斯斯韦韦	<b>20</b>		100	98	1	33		4576		3844	58.9%
213 192 147 174 160 126 104 178 190 166 964 135 163 153 153 153 153 153 153 153 153 153 15	10.17		記 聖 N to to	23222	병생 .		88	346 38	額	8	6883		3420	78 1%
178 190 166 964 135 163 153 153 153 153 153 153 153 153 153 15			聖國本市	2 2 2 2 E							2877		1380	31.5%
10 11 8 11 19 14 13 3 8 5 6 13 6 8 7 3 3 5 6 13 6 8 0 1 0 4 0 2 0			関章章	888	ш.	1.	9	177	15	1	3676		2040	48.6%
3 8 6 13 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1			<b>\$ \$</b>	8 8			152		28		471		327	7.5%
0 1 1 4 8 8 8 8 9 1 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	_		₽	900							208		131	3,0%
4 4 6 6 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7		l		8							283		28	4.5%
0 1 0 4 0 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			4	-			- 88	Ш	6 2		88		88	0.87%
0 0 1 0 2 0 1		-	0	-							24		12	0.3%
			4	0				60			ä		R	0.67%
26 12 22 28		m	8	8	周		捌		Ю	題	627		383	8.75%
14 13			22	22			-	18 2	26 18	4	28		172	3.9%
t3 4 8 t5			£	19				27 31			328	4.1%	ž	4.8%
17 23		m	12	16	13	19	额	1	6 38	1 25	38		211	4.82%
5 6 8			10	9	1		-	80	15 16		197		101	2.3%
4 9 13			1	Ф	8		80				187		110	2.5%

### Psychology

83 84 85 86 86 86 87 88 89 80 90 91 82 83 84 86 87 86 87 89 80 90 01 02 83-02 84 80 90 91 92 83 84 86 87 86 87 89 80 90 01 02 83-02 84 80 80 80 80 80 80 80 80 80 80 80 80 80	done is. The Hill regulation and	360	2000																				
1406   1406   1406   1406   1406   1306   1306   1406		83	Z	88	98	28	88	68			83 8	X	5 98	20	80	0 0	0	-		R	93-02		
1505 1450 1452 1257 1217 1217 1114 1220 1129 1205 1221 1020 1127 1048 1027 1040 1054 1054 1054 1059 1878 2017 2217 1229 1117 1217 1114 1220 1129 1120 1120 1120 1120 1120 1120			2986	1984	203	2906	2	22.22	80	-	161 3	136 3	184 32	129 32	74 3	31 30	122 27		100	100%	31483	-	5
1500 1520 1430 1470 1470 1470 1529 1512 1560 1772 1560 1772 1560 1760 1560 1560 1572 1560 1772 1560 1772 1560 1772 1560 1772 1560 1772 1560 1772 1560 1772 1560 1772 1560 1772 1560 1772 1560 1772 1784 1785 1789 1789 1789 1789 1789 1789 1789 1789	male	1000	1466	425	385	1277	217	1174	0		1 (22)	169	127 %	322 W	1 530	75	382			38.2%	10000		
2775 2602 2547 2518 2445 2422 2648 2652 2655 2000 2728 2722 2744 2523 2645 2702 2005 2453 2226 52105 6788 2612 2448 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	fornale	1503	1520	1430	1470	1529	512	1981	64		1938 1	2 790	2 790	107 2	211 2	77 28	109			30.8%	20797		
1456 1318 1302 1254 1170 1044 1056 1075 991 1078 1094 1028 909 909 903 903 913 918 91 925 746 2024 3513, 901 901 2045 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Vhite	2785	2680	2 066		2518	999	250	8	925	900 2	729 2	722 23	SC 528	46 2	8 3	53 22		-	7.8%	28152	-	-
1229   1236   1238   1318   1348   1518	male	1456	1318	1300	1234	1170	8	9900	10		1000	900	098	833	285	18	500			35.1%	1608		
44 43 44 41 47 47 45 55 59 59 73 108 121 121 128 113 146 122 128 148 122 128 1482 28% 1190 3.9%  21 22 21 22 21 23 31 27 27 31 44 39 11 16 12 12 14 17 18 31 29 34 47 29 43 113 190 3.9%  2	female	55	1361	1288		18	351	1387	m		709 1	101	742 1	1 086	103	西	1, 800			22.5%	17061		
21 27 27 16 16 16 20 28 22 15 20 22 22 24 43 11 12 29 34 47 29 44 59 15 15 20 34 11 15 15 15 15 15 15 15 15 15 15 15 15	Sans	4	43	4	41	47	4	18	-		23	901	121	138	13	88	22			28%	1190		-
21 22 21 23 21 23 31 27 27 31 44 39 01 76 77 18 90 95 94 99 99 99 19 18 113 19 19 19 19 19 19 19 19 19 19 19 19 19	male	8	25	S		16	8	R	C4		22	SI	43	25	8	47	8			960	*		
7 5 5 4 4 3 3 6 5 6 6 5 6 8 6 13 12 13 15 17 18 0.2% 146 0.2% 15 18 18 19 19 19 19 19 19 19 19 19 19 19 19 19	female	E4	R	N	R	20	K	R	-		155	19	E.	8	R	8	68			1.9%	848		
7 5 5 4 4 3 3 5 6 5 6 6 5 6 8 8 6 13 12 3 5 7 119 0.2% 71 0.2%	istive Am.	6	9	10	8	18	-	F	-		15	12	#	18	3	22	17			0.5%	196	0,65%	NativeAm
2 1 5 6 12 4 8 13 18 19 9 7 8 9 12 18 13 19 12 8 19 12 18 12 19 12 18 12 19 12 18 12 19 13 19 13 19 13 14 14 14 14 14 14 14 14 14 14 14 14 14	male	-	w	107	4	4	173	60	10		10	10	ω	ω	43	m	40			0.2%	7	0.2%	male
112 121 105 109 50 103 97 115 130 105 118 124 149 152 152 158 172 159 174 172 2651 4.5% 1590 5.1% 1590 5.1% 159 174 172 125 14% 1590 5.1% 159 5.1%	female	tvi	-	10	10	Çi.	4	10	-		di	1		ņ	22	9	12			0.3%	125	0.4%	female
37 45 42 42 34 45 35 42 44 23 44 45 39 33 41 45 37 45 50 43 823 14% 429 14% 73	Tack	112	121	106	106	8	100	25	10		118	124	149	25	88	- 68	74 1			4.5%	1560	5.1%	Back
75 76 60 67 59 57 61 72 66 78 74 78 110 114 111 115 135 144 124 129 1628 31% 1134 37% 1134 37% 1134 37% 1134 37% 1134 37% 1134 37% 1134 37% 1134 37% 1134 37% 1134 37% 1134 37% 1134 37% 1134 37% 1134 37% 1134 37% 1134 319% 1134 319% 1138 319%	male	37	ą	Ø	4	Ħ	8	×	m		4	8	B	#	6	8	8			1.4%	428	1.4%	male
5 94 84 89 80 85 80 80 109 122 133 151 153 146 173 171 208 215 211 175 184 2729 4.6% 1747 5.7% 4.6% 1747 5.7% 4.6% 1747 5.7% 5.5% 5.5% 5.5% 5.5% 5.5% 5.5% 5.5	female	10	19	8	10	8	lis	19	EV		74	120	110	E	115	4	124			3.1%	#	17.75	female
43 42 28 47 32 38 30 52 52 55 45 43 48 53 94 56 57 60 48 56 59 104 167 520 17%	lispanic	3.	æ	88	8	8	8	8	œ.		131	133	148	171	900	11	75			4.6%	1747	5.7%	Hispanic
51 42 41 43 63 55 63 57 70 78 86 90 97 120 107 152 198 101 129 128 1781 3.0% 1218 3.9%	male	\$	4	8	47	Sŧ	R	8	CV.		¥	8	69	25	8	8	8			1,6%	820	1.7%	male
	female	15	Q	41	4	8	8	B	-		88	8	16	101	25	15	53			3.0%	1218	3.9%	female

### Biology

abe to Pilosin biological spence	5 m6	90000																							
	8	Z	8	æ	87	28	8	8	5		83		98	8	18	88	8	00	5	-	3-05	aR.	29-66		
USoft & perm res	3324	3388	3256	3241	3141	3323	3220	3380	555		752 4		320 4	サ本語	256 4	308 4	124 45	88 4	41 4	90	1186	1000%	41832		USdt/ perm
male	2202	2300	2178	2125	1881	2071	2023	2008	2136		2 8912		SA70	M23 2	338 2	367 2	2 002	2 182	2 2/2		67173	58.3%	23128	7	
female	1122	1001	1008	1116	7	1282	1278	1312	1380		1584		989	18	000	821 3	B84 1	187 1	1 698		20002	40.7%	18703		
White	2966	3044	2913	2888	2759	2965	2804	2976	110		144 3		115 3	170 3	158 3	246 3	128 3	308 3	253 3	900	8180	83.3%	31741	m	100
male	2007	2005	1962	1911	1761	1862	1794	1551	1491		1 000		770	17	700	910 1	7.00	1 18	788 1		34696	50.0%	17777		
famale	888	960	198	225	986	#	1120	1154	1170		1311 1		346	300	388	438 1	402 1	510 1	# 58		2802	33.3%	14024	37.	
Asans	164	158	151	168	170	171	200	88	281		386		920	988	721	285	906	838	998		7866	11.3%	6663	-50	100
male	8	8	ä	101	8	8	112	123	25		8		511	485	373	366	335	378	282		4329	6.2%	3662		
female	8	8	la	67	11	12	88	87	129		F		409	403	348	162	912	583	122		3656	5.1%	3001		
Vative Arm.	4	9	13	17	- 11	9	-	7	9		1		15	20	1	12	8	17	12		224	0.3%	141		-
male	69	1	4	Ξ	7	*	4	(1)	00		ın		g	Ξ	4	80	9	2	00		133	0.2%	20		
formale	-	0	di	10	4	N	en	-	4		04		10	di	m	8	9	1	1		88	0.1%	9		
Back	46	8	83	8	8	\$	B	51	3		73		20%	88	112	111	116	118	98		1492	21%	1078		-
male	Z,	8	8	R	19	S	88	8	St		43		2	88	81	+	8	4	B		737	1.1%	466		
female	23	38	5	23	8	23	*	8	8	25	8	49	43	9	8	2	8	2	ä	67	B	1,1%	18	14%	female
Hispanic	43	4	8	88	8	2	K	88	8		114		127	131	148	188	130	173	99		2037	29%	1608		-
male	S	8	8	30	8	8	8	8	98		b		8	8	8	88	8	28	8		1146	10%	111		
fomale	21	15	S	27	*	27	54	33	8		15		47	98	63	20	2	5	11		88	1.3%	PE.		
Date services Queens of County Doubles	200		Panel	-	14100		1000	ALC: ALT:	21110		40.41														

### Astronomy

Table 14. PhDs in Astronomy	Astrono	Smy																					
	85	9.6	87	88	68	06	10	95		4	9.2	96	97	86	66	00	0.1	03	85-02	*	93-05	a <sup>†</sup>	
US of & permites	84	16	22	104	82 9	8	86	106	111	112		149		147	117	139		601	2028	100%		1000	USoltperm re
male	75	8.4	84	90	69			9		9.1	118	114		150	16	104	9.6	87	1,687	82.2%			male
female	0	7	on	1.4	13			2		No.		36		27	26	38	80	EN CH	361	17,8%			female
White	77	79	69	93	7.4			in the		10		131		120	109	110	103	87	1761	90.1%			White
majo	69	76	90	81	63			6		78		101		96	9.6	8	7.6	69	1,456	74,5%			- male
fomale	89	m	(f)	22	+			Ξ		10		30		24	53	56	27	100	306	15.6%			female
Asians	CH	19	+	15	64			*		10		12		13		13	ø.	13	128	6.5%			Asians -
maje	OV	*	-	4	0			ew.		œ.		0		0	0	æ	φ	evi F	00	5,1%			male
formale	0	DV.	O	-	N	CH		04		-		4		173	0	4	0	-	29	1.5%			- female
Native Am.	0	0	0	0	es.	0		0		0		0		+	1	+	+	0	8	0.4%			- Native Am.
male	0	0	0	0		0		0	-	0		0		-	0	0	-	0	9	0.3%			male
fomale	0	0	0	0	0	0		0	0	0		0		0	-		0	0	04	0.1%			female
Stack	0	0	CM	0		1			OU	0		0		-	74	+	+	-	15	6,00			- Black
male	0	0	64	0		-		0	tw	0		0		-	0	0	-	D	6	0.5%			male
fomale	0	0	0	0	0		0	-	0	0	0	0	-	0	Di	-	0	-	9	0.3%	ıń	0.4%	female
Hapanie	0	CN	0	CM.		CM.			CH	04		94		Ç#	-	3	-	+	43	2.2%			- Haponic
male	0	-	0	ev			*	m	DV	ou		-		DV.	-	04	0	6	34	1,7%			. male
Samula	0		0	0	0		0		0	0		+		٥	0	-		-	6	0.5%			female