HELP WANTED

THE ROLE OF FOREIGN WORKERS IN THE INNOVATION ECONOMY

A REPORT FROM

INFORMATION TECHNOLOGY INDUSTRY COUNCIL

PARTNERSHIP FOR A NEW AMERICAN ECONOMY

U.S. CHAMBER OF COMMERCE

Information Technology Industry Council

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INTRODUCTION

In February of 2011, President Barack Obama attended a small dinner with several Silicon Valley executives. Seated between Apple founder Steve Jobs and Facebook founder Mark Zuckerberg, the conversation quickly turned to the large shortage of trained engineers in the United States, according to Walter Isaacson's biography of Steve Jobs. Jobs reportedly put the case bluntly to the President, stating that he employs 700,000 factory workers in China because he cannot recruit 30,000 engineers in the United States.[1]

Similar stories of skills gaps are found at companies large and small all over the US economy. Microsoft currently has 3,400 job openings for engineers, software developers, and researchers that it cannot fill, an increase of 34% over its openings from last year. [2] A June 2011 study by McKinsey & Company found that more than one in every four science and engineering firms report difficulty hiring. [3] And a recent survey of national job posting data revealed that there are currently 1.9 job openings for every unemployed worker in science, technology, engineering, and mathematics ("STEM").[4] The US government estimates that jobs in STEM fields have grown three times faster than jobs in the rest of the US economy over the last 10 years, and expects STEM job creation to continue to outperform over the coming decade.[5]

There is universal agreement on the need to reform the US education system to encourage more US students to enter STEM occupations. Currently, the number of US students pursuing STEM fields is growing at less than one percent per year, and by 2018 there will be more than 230,000 advanced degree STEM jobs that will not be filled even if every single new American STEM grad finds a job.[6]

As a near term solution to fill the perceived STEM shortage, University Presidents, STEM employers, STEM workers, and others have called on Congress to reform US immigration laws to recruit and retain high-skilled foreign-born STEM workers,[7] and members of Congress have taken up the call for reform. Both Democrats and Republicans from the US Senate and the US House of Representatives have introduced bills to provide green cards to foreign advanced degree graduates in STEM from US universities.[8] Polls have shown broad bipartisan support for these bills across political, ideological, racial, and ethnic lines.[9]

As these bills are considered, it is important to ask and address the following questions: (1) Does a STEM shortage exist?; (2) What is the extent of the STEM shortage, and in what fields is it most prominent?; and (3) Would hiring foreign STEM professionals displace their American counterparts?

To answer these questions, this report analyzes data from the US Census and the US Department of Education Integrated Post-Secondary Education Data System (IPEDS).

The data show that:

- **There is full employment for US STEM workers with advanced degrees:** While the current national unemployment rate hovers around 8 percent, the unemployment rate for US citizens with PhDs in STEM is just 3.15 percent, and 3.4 percent for those with master's degrees in STEM. Given that the US government has defined "full-employment" to be 4 percent, this suggests a skills shortage of STEM professionals with advanced degrees.[10]

- **In many STEM occupations, unemployment is virtually non-existent:** Unemployment is particularly low in STEM occupations such as Petroleum Engineers (0.1 percent), Computer Network Architects (0.4 percent), Nuclear Engineers (0.5 percent), Environmental Scientists and Geoscientists (1.2 percent), Database Administrators (1.3 percent), Statisticians (1.6 percent), Engineering Managers (1.6 percent), and Aerospace Engineers (1.9 percent).

- **STEM fields employ a far higher proportion of foreign workers than non-STEM fields:** In STEM fields, 26.1 percent of workers with PhDs are foreign born, as are 17.7 percent of workers with master's degrees. In comparison, in non-STEM fields, just 6.4 percent of doctoral workers and 5.2 percent of masters workers are foreign born.

- **STEM fields with high percentages of foreign STEM workers have low unemployment rates for US workers:** Although nearly 25 percent of Medical Scientists are foreign born, US Medical Scientists enjoy an unemployment rate of just 3.4 percent, fully five percentage points lower than the national non-STEM unemployment rate (8.4 percent). Similar stories exist for STEM occupations such as physical scientists and computer software designers, where immigrants make up more than 20 percent of the field and unemployment is just 4 percent. Unemployment across all STEM occupations is just 4.3 percent, and the unemployment rate is actually lower than that average in 10 of the 11 STEM occupations with the largest proportion of foreign workers.[11]

- **Foreign-born STEM workers are paid on-par with US STEM workers:** There is no verifiable evidence that foreign-born STEM workers adversely affect the wages of American workers by providing a less expensive source of labor. The average STEM worker actually makes slightly more than his or her US counterpart, earning on average $61 more per week.

That data show that many STEM occupations have markedly low unemployment, and that foreign born STEM workers currently in the workforce are complementing, not displacing their US counterparts. This suggests that the bills proposed in Congress to provide green-cards for STEM graduate degree holders from US universities would help meet a documented need in the US labor force without hurting US workers.

Not only would foreign STEM workers fail to displace their US-born counterparts, but, according to existing research, they would actually create additional opportunities for US workers. Every foreign-born student who graduates from a US university with an advanced degree and stays to work in STEM has been shown to create on average 2.62 jobs for American workers – often because they help lead in innovation, research and development.[12]

The fact is that many of the talented STEM workers who could fill the gaps in our labor force are already here training in our universities, powering the research our universities are championing. Foreign-born students make up 41 percent of masters and 45 percent of PhDs in STEM at US universities.[13] Their impact on university research, along with the impact of foreign-born professors and postdoctoral fellows, has been shown to be dramatic. At the top 10 patent-producing US Universities – a group that includes Caltech, MIT, Georgia Tech, Stanford, University of Texas, University of California, University of Wisconsin, University of Illinois, University of Michigan, and Cornell – more than 3 out of every 4 patents (76 percent) the schools received in 2011 had an immigrant inventor.[14] Yet under current immigration laws, many of these students have to leave after they graduate because there is no clear path for them to stay in the US.

The data in this report shows an immediate need in the US economy for more STEM workers with advanced degrees. For a long-term fix, America must improve its domestic pipeline with programs to improve STEM education and career training at all levels of schooling. Improving education is essential, but this will take years to yield new workers with advanced degrees. Meanwhile, there are talented and accomplished STEM graduates from US universities who are blocked from contributing to the US economy by current immigration law. To spur innovation, meet labor force needs and help the economy grow, Congress should reform immigration laws to recruit and retain more foreign-born STEM workers trained in US universities.

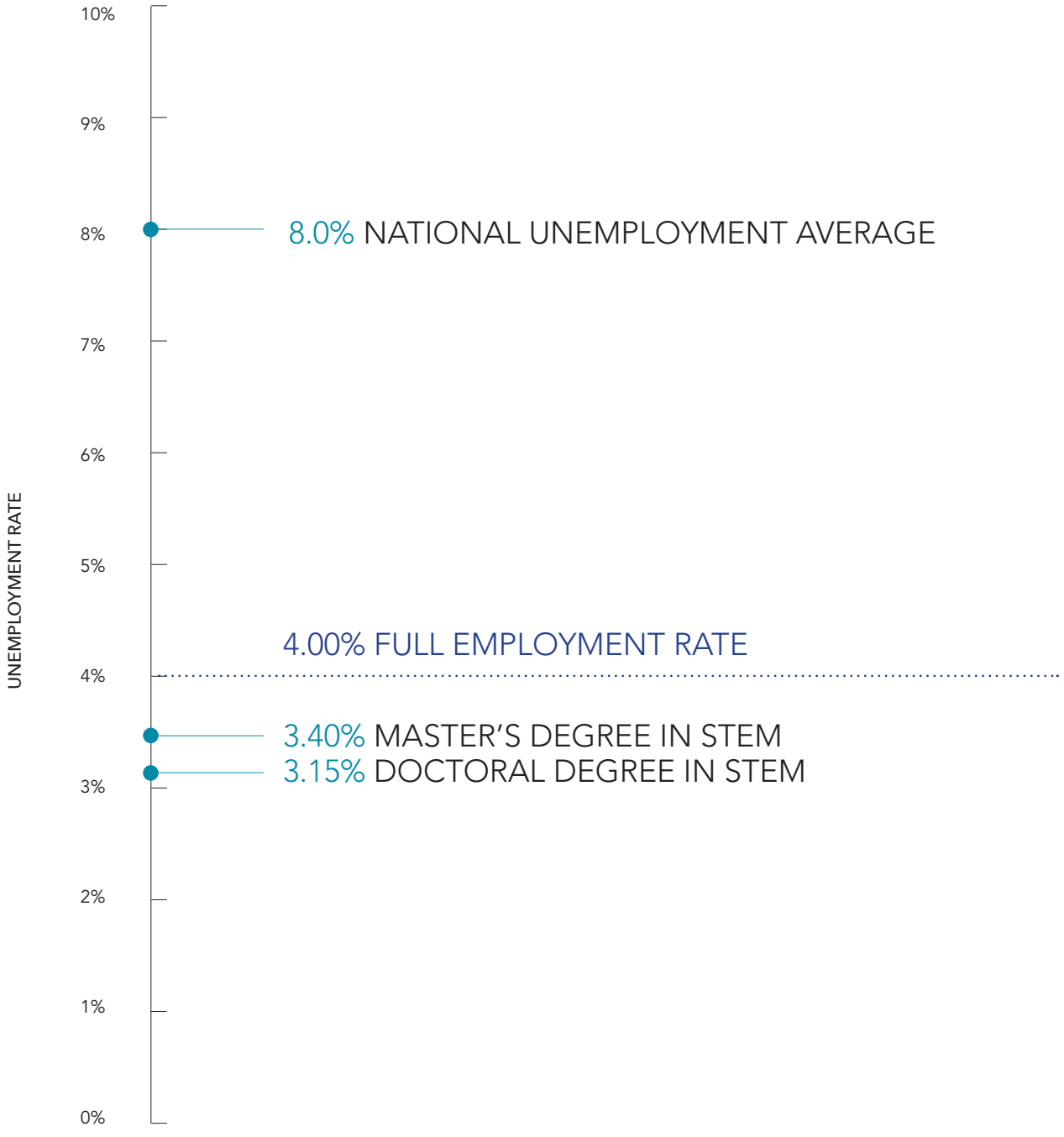
1 THERE IS FULL EMPLOYMENT FOR US CITIZENS IN STEM

Zero unemployment is neither attainable nor necessarily desirable. As companies reorganize, businesses open and close, and people look to change jobs or move from city to city, some degree of unemployment is inevitable and may even be healthy. For example, the Federal Reserve Bank of San Francisco has argued that it is "well understood that some 'frictional' unemployment, which involves the search for new jobs and the transition between occupations, is a necessary accompaniment to the proper functioning of the economy in the long run."[15] If unemployment is too low, economists believe that inflation will ensue.[16]

Labor economists therefore tend to discuss employment not in terms of zero unemployment, but in terms of "full employment," and Congress' charge to the federal government is not to to end unemployment, but rather to promote full employment.[17] Full employment is generally defined as the lowest unemployment rate consistent with stable inflation, and it varies depending upon economic conditions. The federal government defined full employment for individuals over 16 to be 4 percent unemployment in the Full Employment and Balanced Growth Act of 1978, which still governs the federal government's responsibility to promote employment.[18]

Unemployment in the US economy, currently hovering around 8 percent, far exceeds full employment levels. But in STEM fields, particularly for STEM workers with advanced degrees, unemployment is far lower. US STEM workers with PhDs enjoy unemployment of just 3.15 percent, while those with Master's Degrees have unemployment of just 3.40 percent, both comfortably below what would be understood as full employment in the broader labor market.

Unemployment Rate of US Citizens with Advanced Degrees in STEM



*See discussion of full employment in text accompanying Table 1

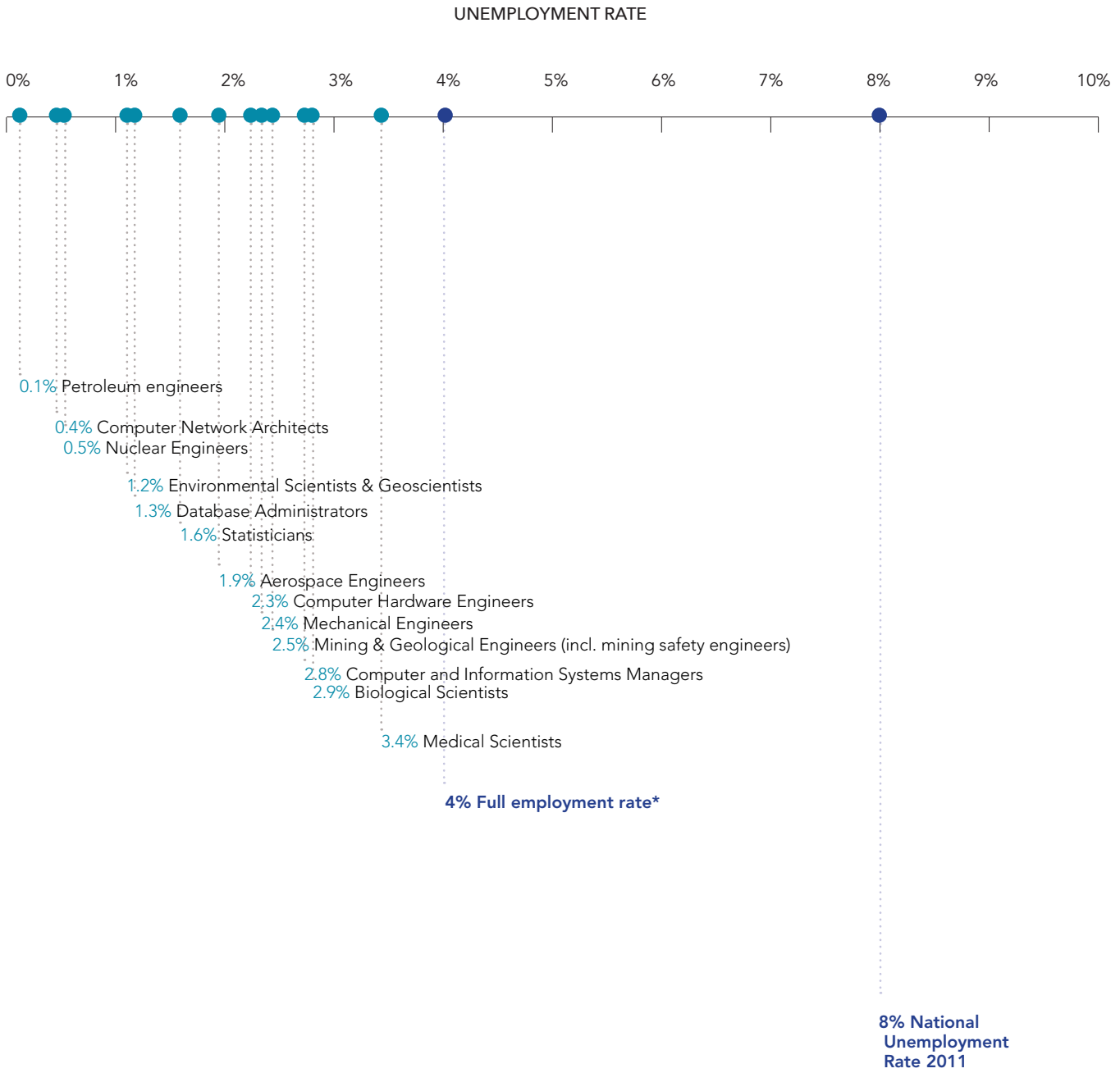
SOURCE: CENSUS/BUREAU OF LABOR STATISTICS, CURRENT POPULATION SURVEY, POOLED JANUARY THROUGH DECEMBER 2011 DATA.

2

SOME STEM OCCUPATIONS HAVE VIRTUALLY ZERO UNEMPLOYMENT, AND MANY HAVE BELOW 3.5 PERCENT UNEMPLOYMENT

Unemployment for US workers in STEM fields – including those with bachelor's degrees, master's degrees, and doctorates – is 4.3 percent. In many STEM fields, however, unemployment is even far lower. In some, it is all but non-existent. For Petroleum engineers, for example, unemployment is just 0.1 percent. While more than 25,000 petroleum engineers are currently working, just 37 are unemployed nationwide.[19] Similarly, nearly 98,000 computer network architects are working across the country, and just 376 are looking for work, an unemployment rate of 0.4 percent.[20] And only 94 nuclear engineers are unemployed, compared to the more than 20,000 that have jobs.[21]

US STEM Occupations with Unemployment under 3.5 Percent



*See discussion of full employment in text accompanying Table 1

SOURCE: CENSUS/BUREAU OF LABOR STATISTICS, CURRENT POPULATION SURVEY, POOLED JANUARY THROUGH DECEMBER 2011 DATA.

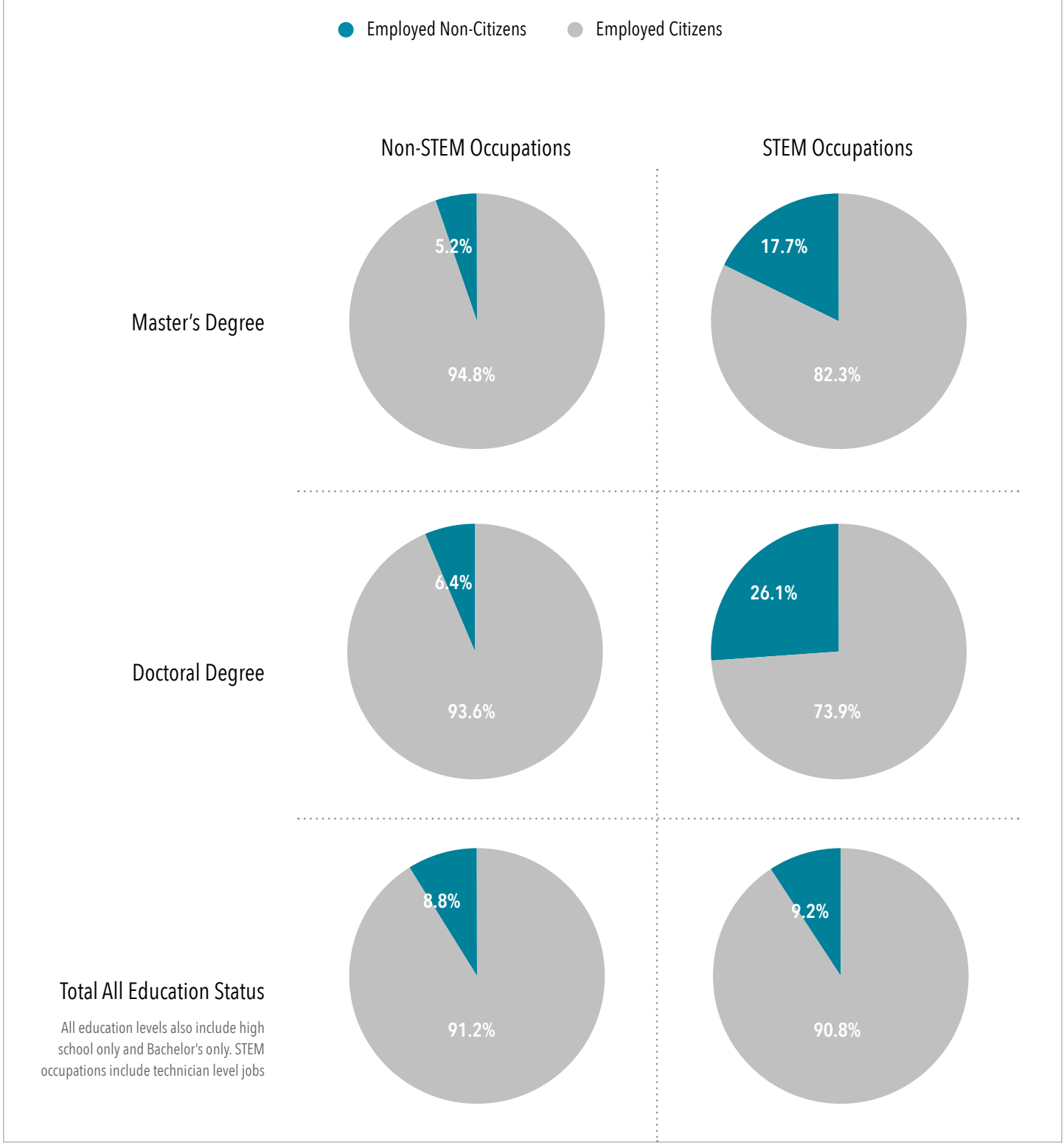
3

STEM FIELDS EMPLOY A FAR HIGHER PROPORTION OF FOREIGN WORKERS THAN NON-STEM FIELDS

Unemployment in STEM is markedly low despite the fact that the STEM fields hire a higher percentage of foreign-born workers than the rest of the economy. And where unemployment is lowest in STEM – at the graduate level – the percentage of foreign-born is highest.

There is no evidence that higher concentrations of foreign workers leads to higher unemployment for US workers. The data, in fact, suggest the reverse. In non-STEM occupations, where unemployment is roughly 8 percent, 8.8 percent of all workers are foreign born. In STEM, unemployment is just 4.3 percent despite the fact that a higher percentage – 9.2 percent – of all workers are foreign-born. And for STEM master's and PhDs, who enjoy unemployment rates of just 3.4 and 3.15 percent, respectively, the percentage of STEM students shoots up significantly. Foreign-born workers make up 17.7 percent of all STEM workers with master's degrees and 26.1 percent of all STEM workers with doctoral degrees.

Percentage of Foreign Workers in STEM and Non-STEM Occupations



SOURCE: CENSUS/BUREAU OF LABOR STATISTICS, CURRENT POPULATION SURVEY, POOLED JANUARY THROUGH DECEMBER 2011 DATA.

4

STEM OCCUPATIONS WITH HIGH PERCENTAGES OF FOREIGN STEM WORKERS ENJOY LOW UNEMPLOYMENT RATES FOR US WORKERS

There is no evidence that a large concentration of foreign workers in a STEM occupation leads to high unemployment for US workers in that occupation. Quite to the contrary, 10 of the 11 STEM fields with the highest proportion of foreign-born workers have below-average unemployment rates for STEM (4.3 percent), and 8 of the 11 have unemployment rates under 3 percent.

This is consistent with past research that suggests that foreign-born STEM workers create jobs for their American counterparts. A 2011 study by the conservative American Enterprise Institute and the bipartisan Partnership for a New American Economy found that each foreign-born graduate of a US university who stays in the US and works in STEM creates on average 2.62 jobs for American workers.[22]

Unemployment rate for US citizen workers in 11 STEM fields with highest dependence on foreign-born STEM

	PERCENT OF WORKERS WHO ARE NON-CITIZENS	UNEMPLOYMENT RATE FOR US CITIZENS
Total STEM Occupations	**8.82%**	**4.30%**
All Non-STEM Occupations	**8.57%**	**8.40%**
Medical scientists	24.89%	3.40%
Computer and information research scientists	23.19%	5.40%
Physical scientists, all other	20.52%	4.00%
Software developers, applications and systems software	20.13%	4.00%
Statisticians	13.32%	1.60%
Biological scientists	10.0%	2.90%
Actuaries	9.94%	0.00%
Petroleum engineers	9.83%	0.10%
Computer hardware engineers	9.39%	2.30%
Computer programmers	9.28%	3.70%
Computer systems analysts	9.18%	2.50%

SOURCE: CENSUS/BUREAU OF LABOR STATISTICS, CURRENT POPULATION SURVEY, POOLED JANUARY THROUGH DECEMBER 2011 DATA.

5

FOREIGN-BORN STEM WORKERS ARE NOT PAID LESS THAN US STEM WORKERS

There is no evidence that foreign-born STEM workers adversely affect the wages of American workers by providing a less expensive source of labor. The average STEM worker actually makes slightly more than his or her US counterpart, earning on average $61 more per week.

Average weekly earnings for STEM workers by citizenship status

Profession	Non-Citizen	Citizen	Difference
WEIGHTED AVERAGE ACROSS ALL STEM OCCUPATIONS	**1,428**	1,367	61
Actuaries (15-2011)	**2,018**	1,755	263
Aerospace engineers (17-2011)	1,183	**1,692**	-509
Agricultural and food scientists (19-1010)	660	**1,122**	-462
Architects, except naval (17-1010)	916	**1,405**	-489
Astronomers and physicists (19-2010)	786	**1,549**	-763
Atmospheric and space scientists (19-2021)	**1,923**	1,339	584
Biological scientists (19-1020)	**1,189**	1,118	71
Biological technicians (19-4021)	**1,250**	1,032	218
Chemical engineers (17-2041)	**2,114**	1,701	413
Chemical technicians (19-4031)	724	**870**	-146
Chemists and materials scientists (19-2030)	**1,641**	1,284	357
Civil engineers (17-2051)	**1,475**	1,467	8
Computer and information research scientists (15-1111)	**2,100**	1,221	879
Computer and information systems managers	**1,748**	1,624	124
Computer hardware engineers (17-2061)	1,144	**1,542**	-398
Computer network architects (15-1143)	**1,620**	1,500	120
Computer occupations, all other (15-1199)	**1,327**	1,191	136
Computer programmers (15-1131)	1,288	**1,339**	-51
Computer support specialists (15-1150)	**1,215**	1,041	174
Computer systems analysts (15-1121)	**1,486**	1,401	85
Conservation scientists and foresters (19-1030)	**1,756**	1,145	611
Database administrators (15-1141)	**1,431**	1,340	91
Drafters (17-3010)	967	**984**	-17
Electrical and electronic engineers (17-2070)	1,512	**1,556**	-44
Engineering managers (11-9041)	1,633	**1,968**	-335
Engineering technicians, except drafters (17-3020)	852	**996**	-144
Engineers, all other (17-2199)	1,408	**1,445**	-37
Environmental scientists and geoscientists (19-2040)	1,247	**1,489**	-242
Geological and petroleum technicians (19-4041)	**1,315**	1,163	152
Industrial engineers, including health and safety (17-2110)	**1,476**	1,356	120
Information security analysts (15-1122)	**1,732**	1,445	287
Materials engineers (17-2131)	1,358	**1,471**	-113
Mathematicians (15-2021)	1,385	**1,924**	-539
Mechanical engineers (17-2141)	1,423	**1,460**	-37
Medical scientists (19-1040)	1,046	**1,283**	-237
Mining and geological engineers, including mining safety engineers (17-2151)	1,346	**1,546**	-200
Miscellaneous life, physical, and social science technicians (19-4090)	736	**756**	-20
Miscellaneous mathematical science occupations (15-2090)	962	**1,227**	-265
Network and computer systems administrators (15-1142)	**1,329**	1,259	70
Operations research analysts (15-2031)	1,359	**1,437**	-78
Petroleum engineers (17-2171)	1,750	**1,806**	-56
Physical scientists, all other (19-2099)	1,137	**1,474**	-337
Software developers, applications and systems software (15-113X)	**1,614**	1,590	24
Statisticians (15-2041)	756	**1,509**	-753
Web developers (15-1134)	**1,271**	1,078	193

SOURCE: CENSUS/BUREAU OF LABOR STATISTICS, CURRENT POPULATION SURVEY, POOLED JANUARY THROUGH DECEMBER 2011 DATA.

6

FOREIGN-BORN STEM WORKERS ARE NOT CROWDING OUT THE US-BORN

There is no evidence that foreign STEM workers drive US workers out of the labor force. While STEM fields have far higher percentages of foreign-born workers than non-STEM fields (see Table 3), this trend is not associated with more US workers being displaced and leaving the labor force. Instead, STEM workers were actually half as likely as non-STEM workers to leave the labor force over the last 12 months. Just 0.5 percent of all STEM workers left the labor force over the last year, compared with 1.0 percent of all non-STEM workers.

Current Labor Force Participation of STEM Workers

Employment by Occupation	In Labor Force	Left Labor Force in Last 12 months	Total	Percent of occupation who left labor force in past 12 months
Total STEM Occupations	**8,400,479**	**41,472**	**8,441,951**	**0.5%**
All Non-STEM Occupations	**143,923,887**	**1,434,550**	**145,358,437**	**1.0%**
Computer and information systems managers	568,591	1,115	569,706	0.2%
Engineering managers (11-9041)	107,552	0	107,552	0.0%
Computer and information research scientists (15-1111)	21,328	0	21,328	0.0%
Computer systems analysts (15-1121)	458,748	3,346	462,094	0.7%
Information security analysts (15-1122)	44,753	550	45,303	1.2%
Computer programmers (15-1131)	476,383	1,903	478,286	0.4%
Software developers, applications and systems software	1,086,526	2,702	1,089,228	0.2%
Web developers (15-1134)	191,427	770	192,197	0.4%
Computer support specialists (15-1150)	496,622	2,265	498,887	0.5%
Database administrators (15-1141)	135,689	794	136,483	0.6%
Network and computer systems administrators (15-1142)	242,853	1,679	244,532	0.7%
Computer network architects (15-1143)	98,327	219	98,546	0.2%
Computer occupations, all other (15-1199)	321,171	1,342	322,513	0.4%
Actuaries (15-2011)	17,566	0	17,566	0.0%
Mathematicians (15-2021)	*			
Operations research analysts (15-2031)	124,074	1,674	125,748	1.3%
Statisticians (15-2041)	37,345	353	37,698	0.9%
Miscellaneous mathematical science occupations (15-2090)	*			
Architects, except naval (17-1010)	194,415	1,609	196,024	0.8%
Surveyors, cartographers, and photogrammetrists (17-1020)	44,473	641	45,114	1.4%
Aerospace engineers (17-2011)	146,306	1,040	147,346	0.7%
Agricultural engineers (17-2021)	*			
Biomedical engineers (17-2031)	12,147	26	12,173	0.2%
Chemical engineers (17-2041)	76,871		76,871	0.0%
Civil engineers (17-2051)	403,001	2,633	405,634	0.6%
Computer hardware engineers (17-2061)	78,952	104	79,056	0.1%
Electrical and electronic engineers (17-2070)	319,671	1,857	321,528	0.6%
Environmental engineers (17-2081)	46,498	556	47,054	1.2%
Industrial engineers, including health and safety (17-2110)	184,250	456	184,706	0.2%
Marine engineers and naval architects (17-2121)	*			
Materials engineers (17-2131)	36,234	0	36,234	0.0%
Mechanical engineers (17-2141)	330,290	1,465	331,755	0.4%
Mining and geological engineers, including mining safety	11,536	681	12,217	5.6%
Nuclear engineers (17-2161)	20,222	37	20,259	0.2%
Petroleum engineers (17-2171)	25,065	270	25,335	1.1%
Engineers, all other (17-2199)	347,250	1,973	349,223	0.6%
Drafters (17-3010)	161,718	540	162,258	0.3%
Engineering technicians, except drafters (17-3020)	410,949	1,707	412,656	0.4%
Surveying and mapping technicians (17-3031)	72,103	574	72,677	0.8%
Agricultural and food scientists (19-1010)	41,901	98	41,999	0.2%
Biological scientists (19-1020)	116,985	449	117,434	0.4%
Conservation scientists and foresters (19-1030)	28,912	334	29,246	1.1%
Medical scientists (19-1040)	161,408	1,304	162,712	0.8%
Life scientists, all other (19-1099)	*			
Astronomers and physicists (19-2010)	20,954	0	20,954	0.0%
Atmospheric and space scientists (19-2021)	*			
Chemists and materials scientists (19-2030)	93,849	0	93,849	0.0%
Environmental scientists and geoscientists (19-2040)	98,734	409	99,143	0.4%
Physical scientists, all other (19-2099)	158,060	278	158,338	0.2%
Agricultural and food science technicians (19-4011)	25,503	28	25,531	0.1%
Biological technicians (19-4021)	21,523	334	21,857	1.5%
Chemical technicians (19-4031)	81,104	916	82,020	1.1%
Geological and petroleum technicians (19-4041)	10,653	84	10,737	0.8%
Nuclear technicians (19-4051)	*			
Miscellaneous life, physical, and social science technicians	159,475	2,189	161,664	1.4%

SOURCE: CENSUS/BUREAU OF LABOR STATISTICS, CURRENT POPULATION SURVEY, POOLED JANUARY THROUGH DECEMBER 2011 DATA.

* indicates insufficient data for statistical reporting (30 or fewer sample observations).

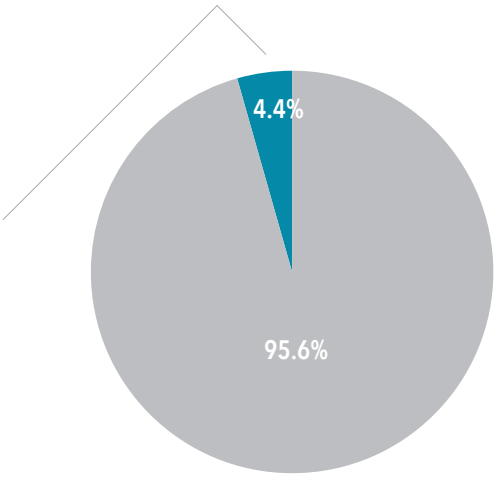
7

FOREIGN-BORN STUDENTS MAKE UP MORE THAN 40 PERCENT OF ADVANCED DEGREE STEM GRADUATES FROM US UNIVERSITIES

US university STEM programs, the pipeline for the future STEM workforce in this country, depend upon foreign-born students. At the bachelor's level, 4.4 percent of all STEM graduates are foreign born. At the master's level, this climbs to 40.8 percent. And at the PhD level it climbs even higher, to 45.2 percent. Unless visa laws change, many foreign-born workers educated in the US will not be able to work in the US, and will work for our competitors instead.

STEM degrees awarded, by citizenship, 2009

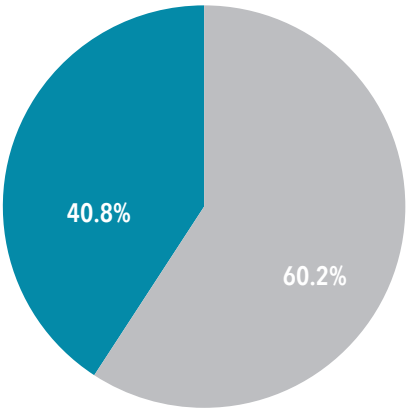
BACHELORS DEGREE



Non-resident aliens
9,830

US citizens or residents
213,480

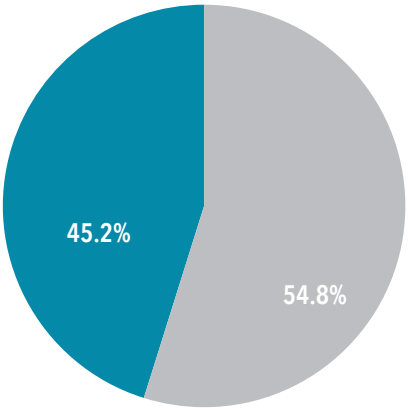
MASTER'S DEGREE



Non-resident aliens
29,165

US citizens or residents
42,299

DOCTORAL DEGREE



Non-resident aliens
9,981

US citizens or residents
12,121

SOURCE: U.S. DEPARTMENT OF EDUCATION, INTEGRATED POST-SECONDARY EDUCATION DATA SYSTEM (IPEDS), CUSTOM USER QUERY TABULATED JULY 26, 2012.

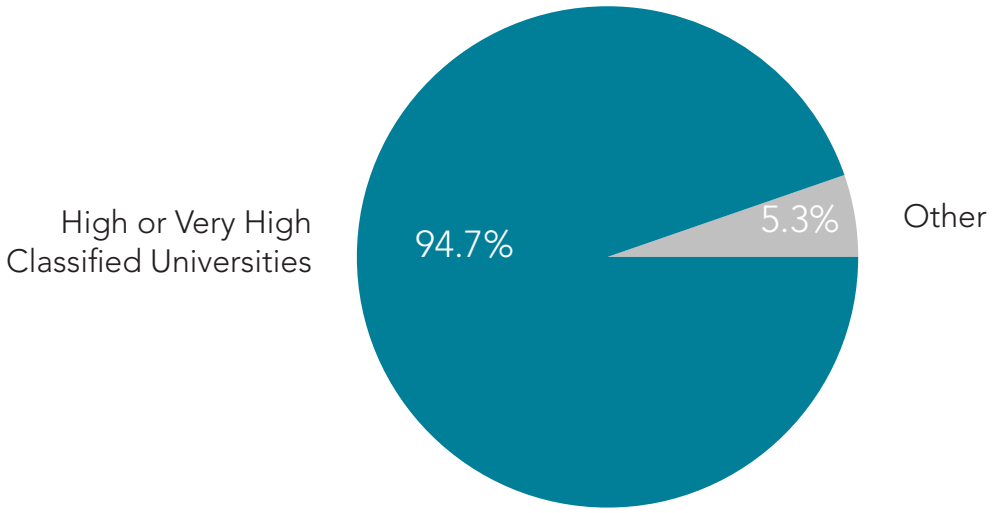
8

FOREIGN STUDENTS EARNING ADVANCED DEGREES IN STEM FROM US UNIVERSITIES OVERWHELMINGLY GRADUATE FROM UNIVERSITIES CLASSIFIED AS "HIGH" OR "VERY HIGH" RESEARCH UNIVERSITIES

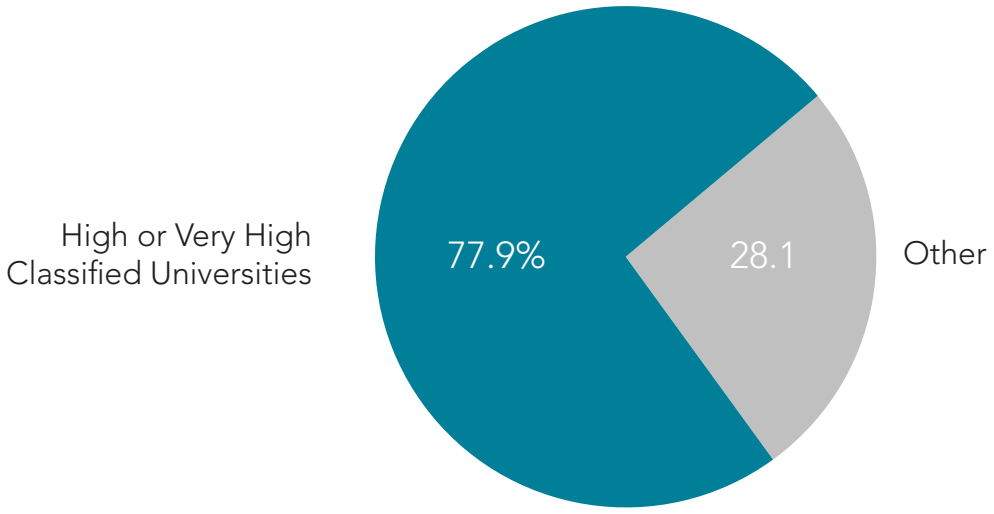
Like their US-born counterparts, the vast majority of foreign-born students earning advanced STEM degrees in the US are studying at the top US universities. The Carnegie Foundation for the Advancement of Teaching classifies colleges and universities as Research, High Research, or Very High Research based on factors such as research expenditures, number of research doctorates awarded, and number of research faculty. More than 94 percent of all foreign-born PhD students in STEM at US universities earn their degrees from High or Very High Research Universities, as do more than 73 percent of foreign-born Master's degree STEM students.

Percent of advanced STEM degrees awarded to foreign-students earned at "High" or "Very High" Research Universities

DOCTORAL DEGREE



MASTER'S DEGREES



SOURCE: U.S. DEPARTMENT OF EDUCATION, INTEGRATED POST-SECONDARY EDUCATION DATA SYSTEM (IPEDS), CUSTOM USER QUERY TABULATED JULY 26, 2012.

9

ALL 50 STATES DEPEND UPON FOREIGN-BORN ADVANCED DEGREE STEM STUDENTS

Foreign-born students are receiving a large share of the master's and PhDs in STEM in universities across the country. In several states, including Connecticut, Texas, Illinois, Oklahoma, and Kansas, more than 50 percent of advanced degree STEM graduates are foreign-born.

STEM post-baccalaureate degrees by State and student U.S. residency status

	All Masters and Doctorate				Masters				Doctorate			
	Citizens or permanent residents	Non-resident Aliens	Total	Percent non-resident aliens	Citizens or permanent residents	Non-resident Aliens	Total	Percent non-resident aliens	Citizens or permanent residents	Non-resident Aliens	Total	Percent non-resident aliens
U.S. Total	**56,630**	**39,232**	**95,862**	**40.9%**	**44,295**	**29,251**	**73,546**	**39.8%**	**12,335**	**9,981**	**22,316**	**44.7%**
Alaska	81	32	113	**28.3%**	67	27	94	**28.7%**	14	5	19	**26.3%**
Alabama	768	604	1,372	**44.0%**	616	463	1,079	**42.9%**	152	141	293	**48.1%**
Arkansas	187	145	332	**43.7%**	151	104	255	**40.8%**	36	41	77	**53.2%**
Arizona	841	761	1,602	**47.5%**	604	555	1,159	**47.9%**	237	206	443	**46.5%**
California	7,285	4,406	11,691	**37.7%**	5,421	3,327	8,748	**38.0%**	1,864	1,079	2,943	**36.7%**
Colorado	1,478	395	1,873	**21.1%**	1,170	311	1,481	**21.0%**	308	84	392	**21.4%**
Connecticut	784	1,073	1,857	**57.8%**	624	960	1,584	**60.6%**	160	113	273	**41.4%**
District of Columbia	1,240	282	1,522	**18.5%**	1,119	239	1,358	**17.6%**	121	43	164	**26.2%**
Delaware	152	133	285	**46.7%**	108	78	186	**41.9%**	44	55	99	**55.6%**
Florida	2,219	1,571	3,790	**41.5%**	1,860	1,167	3,027	**38.6%**	359	404	763	**52.9%**
Georgia	1,469	1,246	2,715	**45.9%**	1,053	896	1,949	**46.0%**	416	350	766	**45.7%**
Hawaii	151	71	222	**32.0%**	115	44	159	**27.7%**	36	27	63	**42.9%**
Iowa	499	487	986	**49.4%**	366	307	673	**45.6%**	133	180	313	**57.5%**
Idaho	186	79	265	**29.8%**	156	62	218	**28.4%**	30	17	47	**36.2%**
Illinois	2,652	2,808	5,460	**51.4%**	2,136	2,330	4,466	**52.2%**	516	478	994	**48.1%**
Indiana	930	803	1,733	**46.3%**	654	449	1,103	**40.7%**	276	354	630	**56.2%**
Kansas	352	352	704	**50.0%**	284	273	557	**49.0%**	68	79	147	**53.7%**
Kentucky	529	367	896	**41.0%**	436	278	714	**38.9%**	93	89	182	**48.9%**
Louisiana	561	527	1,088	**48.4%**	284	402	686	**58.6%**	277	125	402	**31.1%**
Massachusetts	2,705	1,735	4,440	**39.1%**	1,917	1,166	3,083	**37.8%**	788	569	1,357	**41.9%**
Maryland	2,391	746	3,137	**23.8%**	2,040	461	2,501	**18.4%**	351	285	636	**44.8%**
Maine	75	26	101	**25.7%**	61	16	77	**20.8%**	14	10	24	**41.7%**
Michigan	2,389	1,462	3,851	**38.0%**	1,945	1,054	2,999	**35.1%**	444	408	852	**47.9%**
Minnesota	918	395	1,313	**30.1%**	794	286	1,080	**26.5%**	124	109	233	**46.8%**
Missouri	951	695	1,646	**42.2%**	798	536	1,334	**40.2%**	153	159	312	**51.0%**
Mississippi	406	183	589	**31.1%**	361	131	492	**26.6%**	45	52	97	**53.6%**
Montana	147	49	196	**25.0%**	123	30	153	**19.6%**	24	19	43	**44.2%**
North Carolina	1,790	799	2,589	**30.9%**	1,277	562	1,839	**30.6%**	513	237	750	**31.6%**
North Dakota	105	81	186	**43.5%**	82	58	140	**41.4%**	23	23	46	**50.0%**
Nebraska	414	89	503	**17.7%**	344	49	393	**12.5%**	70	40	110	**36.4%**
New Hampshire	284	128	412	**31.1%**	226	91	317	**28.7%**	58	37	95	**38.9%**
New Jersey	1,277	1,270	2,547	**49.9%**	1,034	1,030	2,064	**49.9%**	243	240	483	**49.7%**
New Mexico	385	282	667	**42.3%**	293	213	506	**42.1%**	92	69	161	**42.9%**
Nevada	206	104	310	**33.5%**	156	64	220	**29.1%**	50	40	90	**44.4%**
New York	4,289	4,137	8,426	**49.1%**	3,472	3,336	6,808	**49.0%**	817	801	1,618	**49.5%**
Ohio	1,614	1,515	3,129	**48.4%**	1,265	1,053	2,318	**45.4%**	349	462	811	**57.0%**
Oklahoma	431	442	873	**50.6%**	352	344	696	**49.4%**	79	98	177	**55.4%**
Oregon	477	234	711	**32.9%**	342	175	517	**33.8%**	135	59	194	**30.4%**
Pennsylvania	2,864	2,150	5,014	**42.9%**	2,219	1,587	3,806	**41.7%**	645	563	1,208	**46.6%**
Puerto Rico	426	66	492	**13.4%**	387	59	446	**13.2%**	39	7	46	**15.2%**
Rhode Island	224	174	398	**43.7%**	167	100	267	**37.5%**	57	74	131	**56.5%**
South Carolina	468	253	721	**35.1%**	345	159	504	**31.5%**	123	94	217	**43.3%**
South Dakota	143	76	219	**34.7%**	130	64	194	**33.0%**	13	12	25	**48.0%**
Tennessee	680	365	1,045	**34.9%**	490	233	723	**32.2%**	190	132	322	**41.0%**
Texas	3,239	3,751	6,990	**53.7%**	2,499	2,924	5,423	**53.9%**	740	827	1,567	**52.8%**
Utah	630	236	866	**27.3%**	491	129	620	**20.8%**	139	107	246	**43.5%**
Virginia	2,130	732	2,862	**25.6%**	1,865	504	2,369	**21.3%**	265	228	493	**46.2%**
Vermont	202	19	221	**8.6%**	180	11	191	**5.8%**	22	8	30	**26.7%**
Washington	912	296	1,208	**24.5%**	649	191	840	**22.7%**	263	105	368	**28.5%**
Wisconsin	846	417	1,263	**33.0%**	552	228	780	**29.2%**	294	189	483	**39.1%**
West Virginia	170	156	326	**47.9%**	153	120	273	**44.0%**	17	36	53	**67.9%**
Wyoming	78	27	105	**25.7%**	62	15	77	**19.5%**	16	12	28	**42.9%**

SOURCE: U.S. DEPARTMENT OF EDUCATION, NATIONAL CENTER FOR EDUCATION STATISTICS, INTEGRATED POSTSECONDARY EDUCATION DATA SYSTEM, 2009 DATA, COMPILED JULY 26, 2012

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9 Public Opinion Strategies, "High-Skilled Immigration: An In-Depth Look At Attitudes Towards Immigration And A STEM Visa Proposal"; June 2012. Available at http://www.renewoureconomy.org/sites/all/themes/pnae/stem-poll.pdf ; Selzer & Company, "Attitudes Towards Immigration: Iowa Caucus-Goers" November, 2011; available at http://www.renewoureconomy.org/sites/all/themes/pnae/img/IA-Republican-Caucus-Goers-Immigration-Attitudes.pdf

10 See Full Employment and Balanced Growth Act of 1978, available at http://www.law.cornell.edu/uscode/text/15/1021

11 This figure excludes workers in STEM fields who are technicians. Technicians refers to occupations that provide support services to professionals in science, technology, engineering or mathematical specialty occupations. These occupations fall within the general occupational code groupings as the STEM professional occupations discussed in this report, but the typical education needed for entry (as defined in Bureau of Labor Statistics Occupational Handbook publications) is classified as less than a collegiate bachelor's degree.

12 Madeline Zavodny, American Enterprise Institute & Partnership For A New American Economy, "Immigration And American Jobs" (2011), available at http://www.renewoureconomy.org/sites/all/themes/pnae/img/NAE_Im-AmerJobs.pdf

13 See Table 7 below

14 Partnership for a New American Economy, "Patent Pending" (2012), available at http://www.renewoureconomy.org/sites/all/themes/pnae/patent-pending.pdf

15 See Federal Reserve Board of San Francisco, Economic Letter 99-04 (1999), available at http://www.frbsf.org/econrsrch/wklyltr/wklyltr99/el99-04.html

16 Id.

17 See Full Employment and Balanced Growth Act of 1978, available at http://www.law.cornell.edu/uscode/text/15/1021

18 Full Employment and Balanced Growth Act of 1978, available at http://www.law.cornell.edu/uscode/text/15/1021

19 Census/Bureau of Labor Statistics, Current Population Survey, pooled January through December 2011 data.

20 Id.

21 Id.

22 Madeline Zavodny, American Enterprise Institute & Partnership For A New American Economy, "Immigration And American Jobs" (2011), available at http://www.renewoureconomy.org/sites/all/themes/pnae/img/NAE_Im-AmerJobs.pdf