

**Estimated Economic Impacts of the NM AMP
and Related Programs on New Mexico's Economy**

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Executive Summary

Approximately 9.32 million individuals are working in science, technology, engineering, and math (STEM) occupations in the U.S., representing 6.7% of employment (BLS, 2021). Interest in STEM degrees and careers has increased over time but some segments of the population continue to face hurdles to successfully navigate STEM educations and careers (IES 2016; NASEM, 2016). Many programs have been developed to assist these populations, including the New Mexico Alliance for Minority Participation (NM AMP). NM AMP assists underrepresented minority students in 14 New Mexico institutions of higher education interested in STEM degrees.

Using a methodology similar to that used in past analyses (Peach, 2011 and 2015), the potential economic impact of increased STEM degree awards to students participating in the NM AMP programs was estimated. While attempts have been made to follow a similar analytical method, results from this analysis should not be compared to previous analyses due to structural economic changes in the New Mexico economy that have occurred over time, software updates and modifications, and changes in the way that STEM degrees (and careers) have been classified over time.

Assumptions, calculations, and results associated with the analysis include:

- (1) Increases in underrepresented minority STEM degree graduates, above the baseline, 253 STEM degrees awarded in 1992-93 (the year before the organization of NM AMP) can be attributed to efforts by NM AMP and related programs. Using this assumption and NM AMP records, 8,883 underrepresented minority students have earned STEM degrees since 1992-93 that would not have received the degree without NM AMP and related programs.
- (2) Using the U.S. Census Bureau's 2019 American Community Survey for New Mexico, differential earnings between individuals who hold STEM degrees and individuals who hold non-STEM college degrees, regardless of occupation were calculated (Table 1).

Table 1. Earnings by Degree and Occupation (STEM vs. Non-STEM).

	Any Occupation	STEM Occupation	Non-STEM Occupation
Any Degree	\$78,039.74	\$106,774.97	\$72,401.90
STEM Degree	\$104,272.86	\$112,321.97	\$97,548.85
Non-STEM Degree	\$69,520.67	\$94,973.75	\$67,620.28
Differential	\$34,752.19	\$17,348.22	\$29,928.57

The difference between earnings for STEM degree holders (any occupation), \$104,272.86, and non-STEM degree holders (any occupation), \$69,520.67, i.e., \$34,752.19 was used to represent the earning differential between STEM and non-STEM degree holders.

- (3) NMSU's Foundation (Alumni Relations) reports that 52.95% of all living graduates currently live in New Mexico. This percentage was applied to the 8,883 net graduates of the NM AMP program (net of annual 253 baseline graduates) to estimate the number of underrepresented STEM degree graduates, attributed to the work of NM AMP and related programs, live in New Mexico. That is, the analysis assumes that 4,704 $[8,883 \text{ (Net NM AMP graduates)} \times 0.5295 \text{ (Percent of NMSU alumni living in New Mexico)}]$ underrepresented minorities associated with the NM AMP program live in New Mexico.
- (4) Using the U.S. Census Bureau's 2019 American Community Survey, it was estimated that the labor force participation rate in New Mexico for College graduates (Bachelor's degree or higher) for New Mexico in 2019 was 82.43%. Using this workforce participation rate, it was estimated that 3,878 $[4,704 \text{ (estimated underrepresented minorities associated with NM AMP program living in New Mexico)} \times 0.8243 \text{ estimated NM labor force participation rate}]$.
- (5) The \$34,752.19 earnings differential describe in (2) above multiplied by the estimated 3,878 underrepresented minorities associated with the NM AMP program provides an estimate of \$134,768,993 in higher earnings that would not have been paid in 2019 without the STEM degrees.
- (6) Input-output analysis facilitated by the IMPLAN software (IMPLAN Group, LLC.) was used to estimate the higher earnings received in (5) above had on New Mexico's economy. Using the data and assumptions above, it was estimated the higher earnings associated with underrepresented STEM graduates supported an additional 660 jobs and \$27,702,271 in labor income in 2019. The additional jobs and labor income were a result of increased spending associated with the earnings differential, i.e., induced effects.

Introduction

STEM Participation

According to the Bureau of Labor Statistics, there were an estimated 9.32 million jobs in the United States associated with science, technology, engineering, and math (STEM) representing 6.70% of all jobs in the country (2021). New Mexico is on par with the country with 52,690 STEM jobs representing 6.71% of all jobs in the state, ranking 17th out of 50 states (Figure 1). Career growth in STEM fields has been significant increase over the last several years, increasing 7.48% between 2014 and 2018, or an annual rate of 1.45%. The Bureau of Labor Statistics (BLS) expects STEM careers will increase by 10.13% over the next 10 years, or 1.01% annually (Horan, 2021).

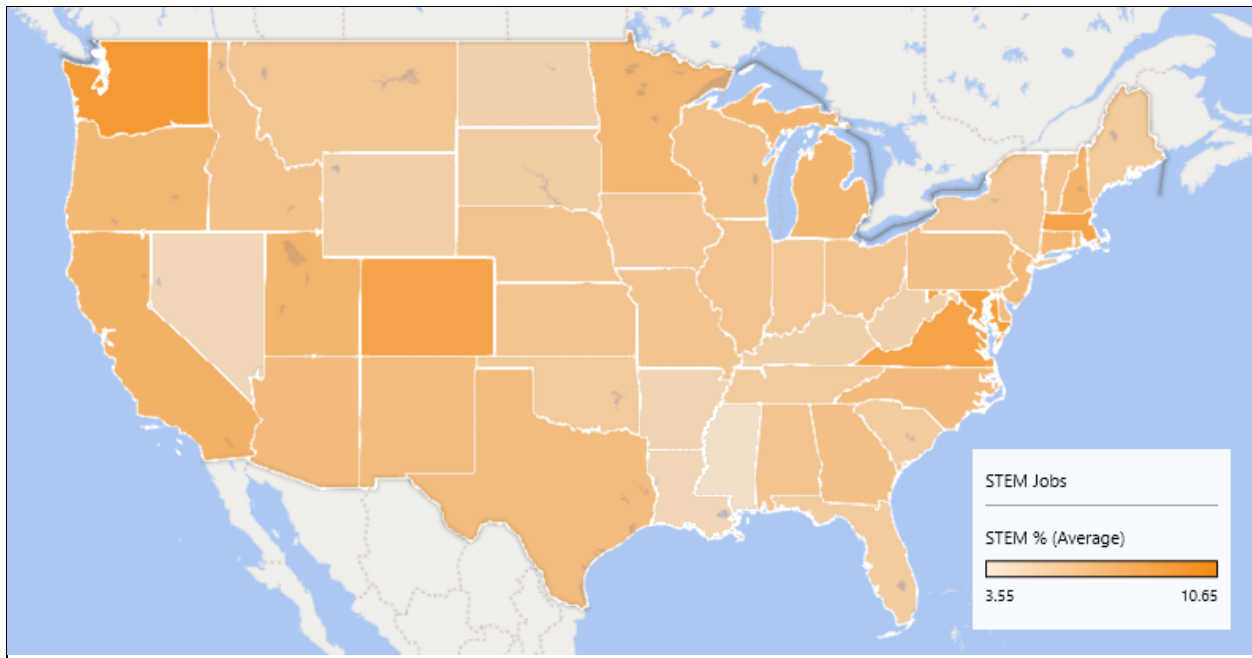


Figure 1. Percentage of STEM Jobs, by State 2020.

Increases in career opportunities have been accompanied by increases in STEM degrees awarded by institutions of higher education. The U.S. Department of Higher Education reported a 62.8% increase in STEM Bachelor’s degrees awarded by postsecondary institutions between 2009-10 and 2018-19, a compound annual growth rate of 4.99%. New Mexico exhibited similar growth over the same time period increasing from 542 STEM Bachelor’s degrees in 2009-10 to 947 in 2018-19, a growth of 74.7% or a compound annual growth rate of 5.74% (Figure 2).

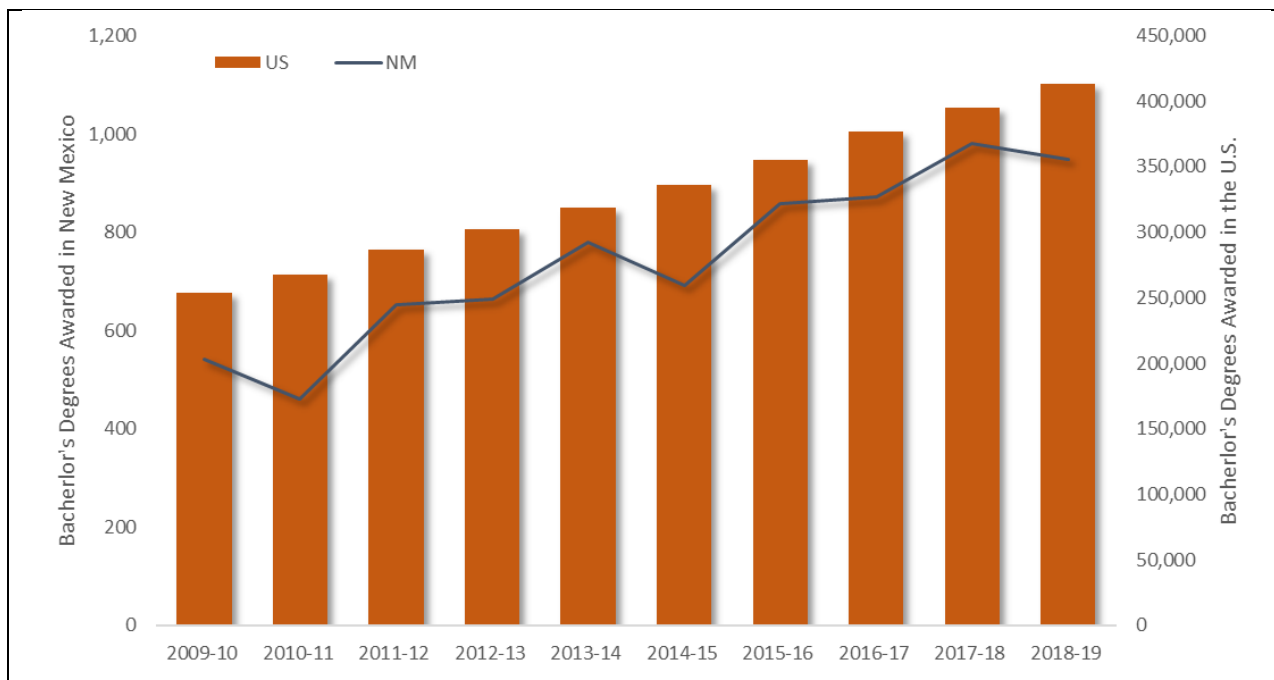


Figure 2. U.S. STEM Bachelor Degrees, 2009-10 to 2018-19. Source: IES (2020), NM AMP (2021).

While STEM career opportunities and degrees are increasing, significant difficulties related to entering STEM fields remain for some populations. In the preface to a report prepared by the National Academies of Sciences, Engineering, and Medicine, Shirley Malcom, Chair of the Committee on Barriers and Opportunities in Completing 2-Year and 4-Year STEM Degrees, stated:

“As we have explored the research to inform the question of STEM degree completion, we have tried to look to the extent possible at various groups in the population, especially at groups who, history shows, may not have been enabled to contribute to the talent pool for STEM. We know, for example, that in addition to women and underrepresented minorities, persons with disabilities and first-generation college students have faced barriers” (NASSEM, 2016; p. xiii).

Numerous programs have been designed to increase the interest of college students in STEM fields and improve performance within these fields. Many of the programs focus on underrepresented groups, including minorities and women.

New Mexico Alliance for Minority Participation (NM AMP)

Established in 1993, the New Mexico Alliance for Minority Participation (NM AMP) is a partnership between 14 universities and colleges within New Mexico, with New Mexico State University serving as the lead institution for the alliance. The partnership has a goal of increasing the number of underrepresented minority students who complete a B.S. degree in STEM-related disciplines. Partnering institutions provide a variety of support activities and programs to assist in achieving the goal (NM AMP, 2021). Support activities include:

- Undergraduate Research Scholars (URS) programs;
- Summer Community College Opportunity for Research Experience (SCCORE) programs;
- Transfer stipends;
- International Research and Education Participation (IREP); and
- STEM pre-Research Exploration (STEM PREP) programs.

The NM AMP support activities are designed to increase student retention in science, technology, engineering, and mathematics (STEM) related degrees through a focus on research; assist students interested in STEM degrees that are transferring from two-year to four-year institutions; and help students interested in furthering STEM-related academic careers via graduate school (Garland, 2021).

Economic Contributions

Higher salaries (earnings) are often obtained by students who graduate with degrees that are in high demand by employers. Higher salaries or earnings provide employees with increased disposable income that if spent within the state will result in increased economic activity. This analysis explores the economic impact that increased STEM degrees and resulting employment in higher-paying occupations has on the state of New Mexico, specifically as it relates to underrepresented students who participated in the NM AMP program. To the extent that the NM AMP program has increased the number of underrepresented minority students graduating with STEM degrees, the analysis shows the impact that the program has had on the State’s economy.

Estimating the Economic Impact of NM AMP and Related Programs

The following section describes the data and methodology used to estimate the economic impact that the NM AMP program has had on New Mexico’s economy. The approach used in the analysis is similar to that used previously (Peach, 2011 and 2015). While the method is similar, results from this analysis should not be compared to previous efforts for a variety of reasons. These reasons include structural economic changes in the New Mexico economy that have occurred over time, software updates and modifications, and changes in the way that STEM degrees (and careers) have been classified over time.¹

Data

Data used in the analysis were obtained from NM AMP internal records, the U.S. Bureau of Labor Statistics Standard Occupational Classification, and the U.S. Census Bureau American Community

¹ “Although the OEWS survey methodology is designed to create detailed cross-sectional employment and wage estimates for the U.S., States, metropolitan and nonmetropolitan areas, across industry and by industry, it is less useful for comparisons of two or more points in time. Challenges in using OEWS data as a time series include changes in the occupational, industrial, and geographical classification systems, changes in the way data are collected, changes in the survey reference period, and changes in mean wage estimation methodology, as well as permanent features of the methodology” (BLS, 2021).

Survey. NM AMP personnel provided a record of the number of program-participating, underrepresented-minority students graduating with STEM degrees and the total number of STEM degrees awarded by New Mexico institutions of higher education. Information from the U.S. Bureau of Labor Statistics was used to identify STEM occupations. The American Community Survey dataset provided information about New Mexico’s workforce including college degrees held by employees, occupations, and salaries for the previous twelve-month period, i.e., for the previous year.

Methodology

The following steps were followed to identify and estimate the economic impact increased salaries associated with STEM degrees awarded to NM AMP participating underrepresented minority students had on the State’s economy.

- (1) Calculate the number of STEM degrees (BS or higher) awarded to all students participating in the NM AMP program from the 1993-94 to the 2018-19 period. .

To better estimate impacts of the NM AMP (and similar) programs, the number of underrepresented minority students that graduated with a STEM degree in the year before the program began, i.e., 1992-93 was subtracted from each year. This process is based on the assumption that any increases over the 1992-93 base year 253 graduates (the year before the establishment of NM AMP) can be attributed to NM AMP (Figure 1).² The cumulative number of NM AMP underrepresented minority graduates, less the 253 baseline number, was 8,883.

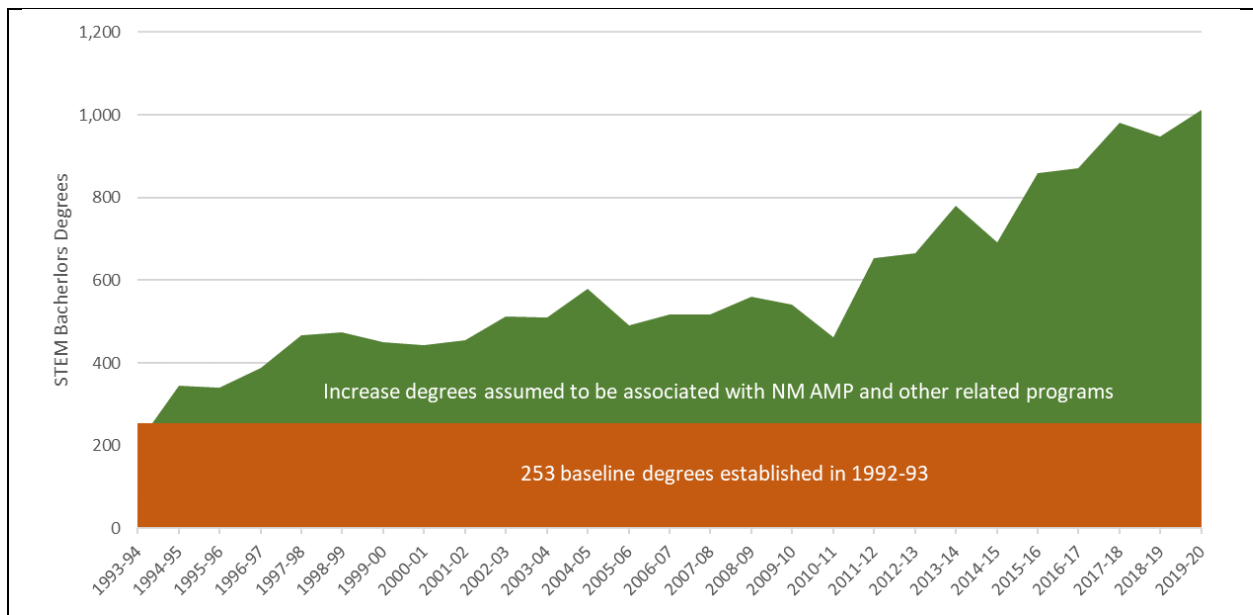


Figure 1. NM Underrepresented Minority STEM Bachelor’s Degrees Awarded, 1993 – 2020.

² To the extent that other factors have contributed to the increase over the baseline 253 degrees, the analysis overstates the contribution of these programs.

- (2) Calculate the earnings differential for employees with a STEM degree versus employees without a STEM degree (regardless of their career). One hundred and seventy-three (173) college degrees are identified in the American Community Survey (ACS) dataset. With the assistance of NM AMP personnel, 56 degrees were categorized as STEM Degrees (Table A1, Appendix A).

Earnings differentials were estimated by subtracting the average personal earnings for an individual with a non-STEM degree, regardless of their occupation from the average personal earnings³ for an individual with a STEM degree, again regardless of their occupation. Earnings were limited to individuals between the ages of 25 and 64, with a Bachelor’s degree or higher, who were at work (civilian or armed forces), who worked less than 46 weeks in the previous year, or who work less than an average of 35 hours per week. Earnings differentials between STEM and non-STEM degree holders and STEM and non-STEM occupations are shown in Table 1.

Table 1. Earnings by Degree and Occupation (STEM vs. Non-STEM).

	Any Occupation	STEM Occupation	Non-STEM Occupation
Any Degree	\$78,039.74	\$106,774.97	\$72,401.90
STEM Degree	\$104,272.86	\$112,321.97	\$97,548.85
Non-STEM Degree	\$69,520.67	\$94,973.75	\$67,620.28
Differential	\$34,752.19	\$17,348.22	\$29,928.57

- (3) Calculate the percentage of STEM graduates that remain in the state. NMSU’s Alumni Association provided information about the number of living alumni who currently reside in the state. The analysis assumes that the NMSU percentage is representative of all STEM graduates in the state.

NMSU’s Foundation (Alumni Relations) reports that 76,529 of a total 144,542 living NMSU alumni (52.95%) reside in New Mexico (Galves, 2021).

- (4) Calculate the labor force participation rate for college graduates (Bachelor’s degree or higher) between the ages of 25 and 64 using information from the American Community Survey dataset.

The ACS reports in New Mexico 81.55% of civilians were employed and at work, and 0.88% of individuals in the Armed Forces were at work resulting in 82.43% of the target population (age between 25 and 64, Bachelor’s degree or higher) being in the workforce. An additional 1.15% of civilians were classified as employed with a job but not at work. These individuals were not included in the workforce. To the extent that they should have been considered in the

³ Defined in the ACS dataset as PERNP.

workforce, the reported estimated impacts will underestimate the total impact of the NM AMP and related programs.

- (5) Calculate the total earnings increase associated with underrepresented minorities influenced by NM AMP and related programs.

Using the assumptions and calculations in steps (1) through (4), the total dollar differential associated with the NM AMP and related programs on the State’s employment earnings was calculated as:

NM AMP underrepresented minorities graduating with a STEM degree	8,883
x Percent of underrepresented minorities remaining in New Mexico	52.95%
= Number of NMAMP underrepresented minorities in New Mexico	4,704
x Percent in the labor force	82.43%
= Number underrepresented minorities in New Mexico labor force	3,878
x Earnings differential	\$34,752.19
= Additional earnings in New Mexico	\$134,768,992.82

The total additional earnings estimated above, i.e., \$134,768,993 served as an input in the IMPLAN program representing increased labor income. Because the increased salaries are not related to a business endeavors, the increased salaries will not have direct or indirect impacts on the state’s economy, but will have induced impacts.

Input-output Analysis

Input-output is a popular methodology used to estimate the economic impacts of a specific event on the economy of a geographical region. Developed in 1930, the methodology quantifies the interrelationships between industry sectors within a specific geographic region. While useful for evaluating and describing the impacts that can occur with underlying changes in one particular industry (our labor sector in this instance), the methodology does have several limiting simplifying assumptions to note. These assumptions or limitations are noted here for completeness and include (Clouse, ND):

- (1) **Backward linkages.** Only backward linkages and the impacts on industry segments before the industry that experienced changes (“upstream participants”) are measured;
- (2) **Constant returns to scale.** Input requirements remain constant per unit of output, regardless of how much output is generated, i.e., a ten percent increase in output requires a ten percent increase in inputs;
- (3) **No supply constraints.** There are unlimited amounts of inputs available for production;
- (4) **Fixed input structure.** Substitutions in inputs in response to changes in output is are not allowed;

- (5) **Industry technology assumption.** Industry uses the same technology to produce each of the products within the industry;
- (6) **Constant make matrix.** Industries increase outputs proportionately, i.e., one output produced within the industry will not increase without a proportionate increase in other outputs within the same industry; and
- (7) **Time is static.** Changes in input mixes, i.e., adoption of technologies over time that would change input uses, are not reflected in the methodology.

Contributions to the economy identified by the input-output methodology are commonly defined by three categories: direct, indirect, and induced. Direct contributions arise due to a specific action, e.g., increased expenditures associated with constructing a new factory. Induced and indirect contributions are “ripple effects” in the economy generated as a result of the initial impact occurring.

Direct contributions. Direct impacts are impacts that are the result of the initial change within a particular industry sector. For example, increased expenditures in the construction industry that is a result of a new business coming into the region.

Indirect contributions. Indirect impacts are impacts that result from intermediary purchases among industry sectors (business-to-business) within the economy that are derived as a result of direct contributions. For example, a construction company may purchase new equipment due to the increased workload associated with the direct impact described above.

Induced contributions. Induced impacts are associated with increased household spending of labor income, often associated with direct and indirect impacts described above. Although in this analysis the increased labor income is not associated with a particular direct or indirect impact, but rather is the result of increased earnings associated with human capital investment, i.e., investment in STEM education.

As the impacts of the NM AMP and related programs are associated with increased employment earnings and hence increased income available for spending, all impacts associated with the program are, by definition, induced.

Economic Impacts

Input-output analysis facilitated by the IMPLAN software (IMPLAN Group, LLC.) was used to estimate the higher earnings calculated above, i.e., \$134,768,993 had on New Mexico’s economy in 2019. Using the data and assumptions above, it was estimated the higher earnings associated with underrepresented STEM graduates supported an additional 661 jobs and \$27,702,271 in labor income in 2019. The additional jobs and labor income were a result of increased spending associated with the earnings differential, i.e., induced effects.

The top five industries impacted by the additional spending from an employment perspective included full-service restaurants (41.78 jobs), limited-service restaurants (41.25 jobs), hospitals (33.49 jobs), individual and family services (23.64 jobs), and offices of physicians (22.95 jobs).

The top five industries impacted by the additional spending from an economic output perspective included owner-occupied dwellings (\$13.52 million), hospitals (\$6.50 million), other real estate (\$3.68 million), insurance carriers, except direct life (\$3.47 million), and limited-service restaurants (\$3.30 million).

Comments/Further Refinements

A number of simplifying assumptions that are noted and may at some time be revised to better reflect the impacts the NM AMP program has on the State's economy.

Account for natural increases in STEM degrees. The analysis assumes increases in STEM degrees earned by minorities in the state above the 253 baseline degrees earned prior to the start of the NM AMP program is attributable to the program itself. Other factors may have influenced the increase, e.g., a natural interest in STEM degrees due to media efforts. To the extent that increases are associated with other factors not associated with the NM AMP program (or related programs), the analysis overstates the impact of NM AMP.

Underrepresented minority participation in STEM Careers. The analysis assumes underrepresented minority students participating in the NM AMP program obtain careers equal to the overall proportion observed within the state. That is, the analysis does not account for the potential that graduating underrepresented minorities obtain employment disproportionate with the others, e.g., more (or less) enter STEM careers than what is observed in the general population of STEM degree holders. If more underrepresented minorities enter STEM careers or higher-paying careers (STEM or non-STEM) the analysis will underestimate (or overestimate if the opposite is true) the impact of the program.

The proportion of underrepresented minority STEM graduates remaining in New Mexico. The analysis assumes that the percentage of underrepresented minorities that remain in the state and work within the state is the same as the number of (NMSU) graduates. To the extent that other universities have different rates for alumni living in New Mexico, or that employment for individuals with STEM degrees draws them out of (or into) the state or the percentage of minorities that remain in the state is different from the general population the analysis will distort the impacts that the NM AMP program has on the State economy.

The proportion of underrepresented minority STEM graduates in the workforce. The analysis assumes the proportion of underrepresented minorities in the workforce is equal to the overall percentage for the state. Further, the analysis assumes that all NM AMP graduates since the program's inception have remained in the workforce. To the extent that this assumption is not true the analysis will distort the impact of the NM AMP program.

References

Clouse, Candi. "Overview of Assumptions of Input-Output Analysis." IMPLAN. <https://implanhelp.zendesk.com/hc/en-us/articles/360044458734-Overview-of-Assumptions-of-Input-Output-Analysis>.

Galves, Rebecca. New Mexico State University Foundation. Personal Communication. May 13, 2021.

Horan, Stephanie. "Fastest-Growing STEM Jobs in the U.S. – 2020 Edition." February 16, 2021. <https://smartasset.com/checking-account/fastest-growing-stem-jobs-in-the-us-2020#:~:text=Over%20the%20past%20four%20years,of%20only%201.01%25%20every%20year>.

Institute of Education Sciences. "Digest of Education Statistics: 2016." Nation Center for Education Statistics Annual Report. 2020. <https://nces.ed.gov/programs/digest/d16/>.

Institute of Education Sciences. "Digest of Education Statistics: 2020 Tables and Figures." Table 318.45: Number and percentage distribution of science, technology, engineering, and mathematics (STEM) degrees/certificates conferred by postsecondary institutions, by race/ethnicity, level of degree/certificate, and sex of student: 2009-10 through 2018-19. https://nces.ed.gov/programs/digest/d20/tables/dt20_318.45.asp

National Academies of Sciences, Engineering, and Medicine. (2016). Barriers and Opportunities for 2-Year and 4-Year STEM Degrees: Systemic Change to Support Diverse Student Pathways. Committee on Barriers and Opportunities in Completing 2-Year and 4-Year STEM Degrees. S. Malcom and M. Feder, Editors. Board on Science Education, Division of Behavioral and Social Sciences and Education. Board on Higher Education and the Workforce, Policy and Global Affairs. Washington, DC: The National Academies Press. doi: 10.17226/21739.

New Mexico Alliance for Minority Participation. Website. <https://nmamp.nmsu.edu/>

Garland, Jeanne. "Organization and Program Description." Personal communication. April 21, 2021.

U.S. Bureau of Labor Statistics. "Occupational Employment and Wage Statistics, Additional OEWS Data Sets: STEM Data Sets." <https://www.bls.gov/oes/additional.htm>.

U.S. Bureau of Labor Statistics. "Occupational Employment and Wage Statistics. Frequency Asked Questions." https://www.bls.gov/oes/oes_ques.htm#qf1.

Appendix A. STEM Degree and Occupation Categorizations

Table A1. College Degrees Categorized as STEM Degrees

#	ACS Code	Degree Description
1	2401	Aerospace Engineering
2	1101	Agriculture Production And Management
3	1103	Animal Sciences
4	3701	Applied Mathematics
5	5001	Astronomy And Astrophysics
6	5002	Atmospheric Sciences And Meteorology
7	3601	Biochemical Sciences
8	2402	Biological Engineering
9	3600	Biology
10	2404	Biomedical Engineering
11	3602	Botany
12	2405	Chemical Engineering
13	5003	Chemistry
14	2406	Civil Engineering
15	2407	Computer Engineering
16	2102	Computer Science
17	2408	Electrical Engineering
18	2502	Electrical Engineering Technology
19	5701	Electrical, Mechanical, And Precision Technologies And Production
20	2501	Engineering And Industrial Management
21	2409	Engineering Mechanics Physics And Science
22	2500	Engineering Technologies
23	2410	Environmental Engineering
24	1301	Environmental Science
25	1104	Food Science
26	1302	Forestry
27	1100	General Agriculture
28	2400	General Engineering
29	3605	Genetics
30	2411	Geological And Geophysical Engineering
31	5004	Geology And Earth Science

Table A1. College Degrees Categorized as STEM Degrees (Continued)

#	ACS Code	Degree Description
32	5005	Geosciences
33	2412	Industrial And Manufacturing Engineering
34	2503	Industrial Production Technologies
35	2413	Materials Engineering And Materials Science
36	5008	Materials Science
37	3700	Mathematics
38	4005	Mathematics And Computer Science
39	2414	Mechanical Engineering
40	2504	Mechanical Engineering Related Technologies
41	2415	Metallurgical Engineering
42	3606	Microbiology
43	2416	Mining And Mineral Engineering
44	3699	Miscellaneous Biology
45	2499	Miscellaneous Engineering
46	2599	Miscellaneous Engineering Technologies
47	3603	Molecular Biology
48	5098	Multi-Disciplinary Or General Science
49	2418	Nuclear Engineering
50	5102	Nuclear, Industrial Radiology, And Biological Technologies
51	4002	Nutrition Sciences
52	2419	Petroleum Engineering
53	5000	Physical Sciences
54	5007	Physics
55	1105	Plant Science And Agronomy
56	1106	Soil Science

Table A2. College Degrees Categorized as Non-STEM Degrees

#	ACS Code	Degree Description
57	6201	Accounting
58	6202	Actuarial Science
59	1904	Advertising And Public Relations
60	1102	Agricultural Economics
61	5502	Anthropology And Archeology
62	2403	Architectural Engineering
63	1401	Architecture
64	1501	Area Ethnic And Civilization Studies
65	2314	Art And Music Education
66	6006	Art History And Criticism
67	6205	Business Economics
68	6203	Business Management And Administration
69	5202	Clinical Psychology
70	4006	Cognitive Science And Biopsychology
71	6004	Commercial Art And Graphic Design
72	6102	Communication Disorders Sciences And Services
73	2001	Communication Technologies
74	1901	Communications
75	6110	Community And Public Health
76	3302	Composition And Rhetoric
77	2106	Computer Administration Management And Security
78	2100	Computer And Information Systems
79	2107	Computer Networking And Telecommunications
80	2101	Computer Programming And Data Processing
81	5601	Construction Services
82	2201	Cosmetology Services And Culinary Arts
83	5203	Counseling Psychology
84	3201	Court Reporting
85	5301	Criminal Justice And Fire Protection
86	5503	Criminology
87	6001	Drama And Theater Arts
88	2307	Early Childhood Education
89	3604	Ecology

Table A2. College Degrees Categorized as Non-STEM Degrees (Continued)

#	ACS Code	Degree Description
90	5501	Economics
91	2301	Educational Administration And Supervision
92	5201	Educational Psychology
93	2304	Elementary Education
94	3301	English Language And Literature
95	2901	Family And Consumer Sciences
96	6005	Film Video And Photographic Arts
97	6207	Finance
98	6000	Fine Arts
99	2602	French German Latin And Other Common Foreign Language Studies
100	6200	General Business
101	2300	General Education
102	6100	General Medical And Health Services
103	5500	General Social Sciences
104	5504	Geography
105	6103	Health And Medical Administrative Services
106	6106	Health And Medical Preparatory Programs
107	6402	History
108	6211	Hospitality Management
109	6209	Human Resources And Personnel Management
110	5403	Human Services And Community Organization
111	3402	Humanities
112	5205	Industrial And Organizational Psychology
113	2105	Information Sciences
114	4001	Intercultural And International Studies
115	4007	Interdisciplinary Social Sciences
116	6210	International Business
117	5505	International Relations
118	1902	Journalism
119	2313	Language And Drama Education
120	3401	Liberal Arts
121	3501	Library Science
122	2601	Linguistics And Comparative Language And Literature

Table A2. College Degrees Categorized as Non-STEM Degrees (Continued)

#	ACS Code	Degree Description
123	6212	Management Information Systems And Statistics
124	6206	Marketing And Marketing Research
125	1903	Mass Media
126	2305	Mathematics Teacher Education
127	6104	Medical Assisting Services
128	6105	Medical Technologies Technicians
129	3801	Military Technologies
130	1199	Miscellaneous Agriculture
131	6299	Miscellaneous Business And Medical Administration
132	2399	Miscellaneous Education
133	6099	Miscellaneous Fine Arts
134	6199	Miscellaneous Health Medical Professions
135	5299	Miscellaneous Psychology
136	5599	Miscellaneous Social Sciences
137	4000	Multi/Interdisciplinary Studies
138	6002	Music
139	1099	N/A (less than bachelor's degree)
140	1303	Natural Resources Management
141	2417	Naval Architecture And Marine Engineering
142	3611	Neuroscience
143	6107	Nursing
144	5006	Oceanography
145	6204	Operations Logistics And E-Commerce
146	2603	Other Foreign Languages
147	3607	Pharmacology
148	6108	Pharmacy Pharmaceutical Sciences And Administration
149	4801	Philosophy And Religious Studies
150	2306	Physical And Health Education Teaching
151	4101	Physical Fitness Parks Recreation And Leisure
152	3608	Physiology
153	5506	Political Science And Government
154	3202	Pre-Law And Legal Studies
155	5200	Psychology

Table A2. College Degrees Categorized as Non-STEM Degrees (Continued)

#	ACS Code	Degree Description
156	5401	Public Administration
157	5402	Public Policy
158	2303	School Student Counseling
159	2308	Science And Computer Teacher Education
160	2309	Secondary Teacher Education
161	5206	Social Psychology
162	2311	Social Science Or History Teacher Education
163	5404	Social Work
164	5507	Sociology
165	2310	Special Needs Education
166	3702	Statistics And Decision Science
167	6007	Studio Arts
168	2312	Teacher Education: Multiple Levels
169	4901	Theology And Religious Vocations
170	5901	Transportation Sciences And Technologies
171	6109	Treatment Therapy Professions
172	6403	United States History
173	6003	Visual And Performing Arts
174	3609	Zoology

Table A3. Occupations Categorized as STEM Occupations

#	SOC Code	Occupation Description
1	152011	CMM-Actuaries
2	151221	CMM-Computer And Information Research Scientists
3	151241	CMM-Computer Network Architects
4	151251	CMM-Computer Programmers
5	151230	CMM-Computer Support Specialists
6	151211	CMM-Computer Systems Analysts
7	15124X	CMM-Database Administrators And Architects
8	151212	CMM-Information Security Analysts
9	151244	CMM-Network And Computer Systems Administrators
10	152031	CMM-Operations Research Analysts
11	1520XX	CMM-Other Mathematical Science Occupations
12	151252	CMM-Software Developers
13	151253	CMM-Software Quality Assurance Analysts And Testers
14	151255	CMM-Web And Digital Interface Designers
15	151254	CMM-Web Developers
16	172011	ENG-Aerospace Engineers
17	1720XX	ENG-Biomedical And Agricultural Engineers
18	172041	ENG-Chemical Engineers
19	172051	ENG-Civil Engineers
20	172061	ENG-Computer Hardware Engineers
21	173023	ENG-Electrical and Electronic Engineering Technologists And Technicians
22	172070	ENG-Electrical And Electronics Engineers
23	172081	ENG-Environmental Engineers
24	172110	ENG-Industrial Engineers, Including Health And Safety
25	172121	ENG-Marine Engineers And Naval Architects
26	172131	ENG-Materials Engineers
27	172141	ENG-Mechanical Engineers
28	17302X	ENG-Other Engineering Technologists And Technicians, Except Drafters
29	1721YY	ENG-Other Engineers
30	1721XX	ENG-Petroleum, Mining And Geological Engineers, Including Mining Safety Engineers
31	173031	ENG-Surveying And Mapping Technicians
32	171020	ENG-Surveyors, Cartographers, And Photogrammetrists
33	113021	MGR-Computer And Information Systems Managers

Table A3. Occupations Categorized as STEM Occupations (Continued)

#	SOC Code	Occupation Description
#	SOC Code	Occupation Description
34	119121	MGR-Natural Sciences Managers
35	419031	SAL-Sales Engineers
36	194010	SCI-Agricultural And Food Science Technicians
37	191010	SCI-Agricultural And Food Scientists
38	192010	SCI-Astronomers And Physicists
39	192021	SCI-Atmospheric And Space Scientists
40	191020	SCI-Biological Scientists
41	194021	SCI-Biological Technicians
42	194031	SCI-Chemical Technicians
43	192030	SCI-Chemists And Materials Scientists
44	193033	SCI-Clinical And Counseling Psychologists
45	191030	SCI-Conservation Scientists And Foresters
46	193011	SCI-Economists
47	1940XX	SCI-Environmental Science And Geoscience Technicians, And Nuclear Technicians
48	192041	SCI-Environmental Scientists And Specialists, Including Health
49	19204X	SCI-Geoscientists And Hydrologists, Except Geographers
50	1910XX	SCI-Other Life Scientists
51	1940YY	SCI-Other Life, Physical, And Social Science Technicians
52	19303X	SCI-Other Psychologists
53	1930XX	SCI-Other Social Scientists
54	192099	SCI-Physical Scientists, All Other
55	193034	SCI-School Psychologists
56	193051	SCI-Urban And Regional Planners

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
57	131011	BUS-Agents And Business Managers Of Artists, Performers, And Athletes
58	131199	BUS-Business Operations Specialists, All Other
59	131021	BUS-Buyers And Purchasing Agents, Farm Products
60	131030	BUS-Claims Adjusters, Appraisers, Examiners, And Investigators
61	131141	BUS-Compensation, Benefits, And Job Analysis Specialists
62	131041	BUS-Compliance Officers
63	131051	BUS-Cost Estimators
64	131131	BUS-Fundraisers
65	131070	BUS-Human Resources Workers
66	131081	BUS-Logisticians
67	131111	BUS-Management Analysts
68	131161	BUS-Market Research Analysts And Marketing Specialists
69	131121	BUS-Meeting, Convention, And Event Planners
70	131082	BUS-Project Management Specialists
71	131023	BUS-Purchasing Agents, Except Wholesale, Retail, And Farm Products
72	131151	BUS-Training And Development Specialists
73	131022	BUS-Wholesale And Retail Buyers, Except Farm Products
74	371011	CLN-First-Line Supervisors Of Housekeeping And Janitorial Workers
75	371012	CLN-First-Line Supervisors Of Landscaping, Lawn Service, And Groundskeeping Workers
76	37201X	CLN-Janitors And Building Cleaners
77	373011	CLN-Landscaping And Groundskeeping Workers
78	372012	CLN-Maids And Housekeeping Cleaners
79	37301X	CLN-Other Grounds Maintenance Workers
80	372021	CLN-Pest Control Workers
81	373013	CLN-Tree Trimmers And Pruners
82	151299	CMM-Computer Occupations, All Other
83	211021	CMS-Child, Family, And School Social Workers
84	212011	CMS-Clergy
85	211019	CMS-Counselors, All Other
86	212021	CMS-Directors, Religious Activities And Education
87	211012	CMS-Educational, Guidance, And Career Counselors And Advisors
88	211022	CMS-Healthcare Social Workers

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
89	211013	CMS-Marriage And Family Therapists
90	211023	CMS-Mental Health And Substance Abuse Social Workers
91	211014	CMS-Mental Health Counselors
92	21109X	CMS-Other Community And Social Service Specialists
93	211092	CMS-Probation Officers And Correctional Treatment Specialists
94	211015	CMS-Rehabilitation Counselors
95	212099	CMS-Religious Workers, All Other
96	211093	CMS-Social And Human Service Assistants
97	211029	CMS-Social Workers, All Other
98	211011	CMS-Substance Abuse And Behavioral Disorder Counselors
99	472011	CON-Boilermakers
100	472XXX	CON-Brickmasons, Blockmasons, Stonemasons, And Reinforcing Iron And Rebar Workers
101	472031	CON-Carpenters
102	472040	CON-Carpet, Floor, And Tile Installers And Finishers
103	472050	CON-Cement Masons, Concrete Finishers, And Terrazzo Workers
104	474011	CON-Construction And Building Inspectors
105	472070	CON-Construction Equipment Operators
106	472061	CON-Construction Laborers
107	472080	CON-Drywall Installers, Ceiling Tile Installers, And Tapers
108	472111	CON-Electricians
109	474021	CON-Elevator And Escalator Installers And Repairers
110	474031	CON-Fence Erectors
111	471011	CON-First-Line Supervisors Of Construction Trades And Extraction Workers
112	472121	CON-Glaziers
113	474041	CON-Hazardous Materials Removal Workers
114	473010	CON-Helpers, Construction Trades
115	474051	CON-Highway Maintenance Workers
116	472130	CON-Insulation Workers
117	4740XX	CON-Other Construction And Related Workers
118	472140	CON-Painters And Paperhangers
119	472151	CON-Pipelayers
120	472161	CON-Plasterers And Stucco Masons

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
121	472152	CON-Plumbers, Pipefitters, And Steamfitters
122	474061	CON-Rail-Track Laying And Maintenance Equipment Operators
123	472181	CON-Roofers
124	472211	CON-Sheet Metal Workers
125	472231	CON-Solar Photovoltaic Installers
126	472221	CON-Structural Iron And Steel Workers
127	353011	EAT-Bartenders
128	351011	EAT-Chefs And Head Cooks
129	352010	EAT-Cooks
130	359011	EAT-Dining Room And Cafeteria Attendants And Bartender Helpers
131	359021	EAT-Dishwashers
132	353023	EAT-Fast Food And Counter Workers
133	351012	EAT-First-Line Supervisors Of Food Preparation And Serving Workers
134	359099	EAT-Food Preparation And Serving Related Workers, All Other
135	352021	EAT-Food Preparation Workers
136	353041	EAT-Food Servers, Nonrestaurant
137	359031	EAT-Hosts And Hostesses, Restaurant, Lounge, And Coffee Shop
138	353031	EAT-Waiters And Waitresses
139	254010	EDU-Archivists, Curators, And Museum Technicians
140	252020	EDU-Elementary And Middle School Teachers
141	254022	EDU-Librarians And Media Collections Specialists
142	254031	EDU-Library Technicians
143	2590XX	EDU-Other Educational Instruction and Library Workers
144	2530XX	EDU-Other Teachers And Instructors
145	251000	EDU-Postsecondary Teachers
146	252010	EDU-Preschool And Kindergarten Teachers
147	252030	EDU-Secondary School Teachers
148	252050	EDU-Special Education Teachers
149	259040	EDU-Teaching Assistants
150	253041	EDU-Tutors
151	171011	ENG-Architects, Except Landscape And Naval
152	173011	ENG-Architectural And Civil Drafters
153	171012	ENG-Landscape Architects

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
154	17301X	ENG-Other Drafters
155	272011	ENT-Actors
156	271010	ENT-Artists And Related Workers
157	272021	ENT-Athletes And Sports Competitors
158	273011	ENT-Broadcast Announcers And Radio Disc Jockeys
159	272022	ENT-Coaches And Scouts
160	271021	ENT-Commercial And Industrial Designers
161	273092	ENT-Court Reporters And Simultaneous Captioners
162	272030	ENT-Dancers And Choreographers
163	272091	ENT-Disc Jockeys, Except Radio
164	273041	ENT-Editors
165	272099	ENT-Entertainers And Performers, Sports And Related Workers, All Other
166	271022	ENT-Fashion Designers
167	271023	ENT-Floral Designers
168	271024	ENT-Graphic Designers
169	271025	ENT-Interior Designers
170	273091	ENT-Interpreters And Translators
171	273099	ENT-Media And Communication Workers, All Other
172	271026	ENT-Merchandise Displayer And Windows Trimmers
173	272041	ENT-Music Directors And Composers
174	272042	ENT-Musicians And Singers
175	273023	ENT-News Analysts, Reporters, And Journalists
176	27102X	ENT-Other Designers
177	2740XX	ENT-Other Media And Communication Equipment Workers
178	274021	ENT-Photographers
179	272012	ENT-Producers And Directors
180	273031	ENT-Public Relations Specialists
181	273042	ENT-Technical Writers
182	274030	ENT-Television, Video, And Film Camera Operators And Editors
183	272023	ENT-Umpires, Referees, And Other Sports Officials
184	273043	ENT-Writers And Authors
185	4750YY	EXT-Derrick, Rotary Drill, And Service Unit Operators, And Roustabouts, Oil, Gas, And Mining

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
186	475032	EXT-Explosives Workers, Ordnance Handling Experts, And Blasters
187	4750XX	EXT-Other Extraction Workers
188	475020	EXT-Surface Mining Machine Operators And Earth Drillers
189	475040	EXT-Underground Mining Machine Operators
190	452011	FFF-Agricultural Inspectors
191	451011	FFF-First-Line Supervisors Of Farming, Fishing, And Forestry Workers
192	453031	FFF-Fishing And Hunting Workers
193	454011	FFF-Forest And Conservation Workers
194	452041	FFF-Graders And Sorters, Agricultural Products
195	454020	FFF-Logging Workers
196	4520XX	FFF-Other Agricultural Workers
197	132011	FIN-Accountants And Auditors
198	132031	FIN-Budget Analysts
199	132041	FIN-Credit Analysts
200	132070	FIN-Credit Counselors And Loan Officers
201	132051	FIN-Financial And Investment Analysts
202	132061	FIN-Financial Examiners
203	132053	FIN-Insurance Underwriters
204	1320XX	FIN-Other Financial Specialists
205	132052	FIN-Personal Financial Advisors
206	132020	FIN-Property Appraisers And Assessors
207	132081	FIN-Tax Examiners And Collectors, And Revenue Agents
208	132082	FIN-Tax Preparers
209	319091	HLS-Dental Assistants
210	311121	HLS-Home Health Aides
211	319011	HLS-Massage Therapists
212	319092	HLS-Medical Assistants
213	319094	HLS-Medical Transcriptionists
214	311131	HLS-Nursing Assistants
215	312010	HLS-Occupational Therapy Assistants And Aides
216	31113X	HLS-Orderlies And Psychiatric Aides
217	31909X	HLS-Other Healthcare Support Workers
218	311122	HLS-Personal Care Aides

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
219	319095	HLS-Pharmacy Aides
220	319097	HLS-Phlebotomists
221	312020	HLS-Physical Therapist Assistants And Aides
222	319096	HLS-Veterinary Assistants And Laboratory Animal Caretakers
223	231012	LGL-Judicial Law Clerks
224	2310XX	LGL-Lawyers, And Judges, Magistrates, And Other Judicial Workers
225	232099	LGL-Legal Support Workers, All Other
226	232011	LGL-Paralegals And Legal Assistants
227	232093	LGL-Title Examiners, Abstractors, And Searchers
228	291291	MED-Acupuncturists
229	291181	MED-Audiologists
230	292031	MED-Cardiovascular Technologists And Technicians
231	291011	MED-Chiropractors
232	292010	MED-Clinical Laboratory Technologists And Technicians
233	291292	MED-Dental Hygienists
234	291020	MED-Dentists
235	292032	MED-Diagnostic Medical Sonographers
236	29205X	MED-Dietetic Technicians And Ophthalmic Medical Technicians
237	291031	MED-Dietitians And Nutritionists
238	292042	MED-Emergency Medical Technicians
239	291299	MED-Healthcare Diagnosing Or Treating Practitioners, All Other
240	292061	MED-Licensed Practical And Licensed Vocational Nurses
241	292035	MED-Magnetic Resonance Imaging Technologists
242	292072	MED-Medical Records Specialists
243	292090	MED-Miscellaneous Health Technologists And Technicians
244	29203X	MED-Nuclear Medicine Technologists And Medical Dosimetrists
245	291151	MED-Nurse Anesthetists
246	2911XX	MED-Nurse Practitioners, And Nurse Midwives
247	291122	MED-Occupational Therapists
248	292081	MED-Opticians, Dispensing
249	291041	MED-Optometrists
250	299000	MED-Other Healthcare Practitioners And Technical Occupations
251	29112X	MED-Other Therapists

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
252	292043	MED-Paramedics
253	291051	MED-Pharmacists
254	292052	MED-Pharmacy Technicians
255	291123	MED-Physical Therapists
256	291071	MED-Physician Assistants
257	291210	MED-Physicians
258	291081	MED-Podiatrists
259	292053	MED-Psychiatric Technicians
260	291124	MED-Radiation Therapists
261	292034	MED-Radiologic Technologists And Technicians
262	291125	MED-Recreational Therapists
263	291141	MED-Registered Nurses
264	291126	MED-Respiratory Therapists
265	291127	MED-Speech-Language Pathologists
266	291240	MED-Surgeons
267	292055	MED-Surgical Technologists
268	291131	MED-Veterinarians
269	292056	MED-Veterinary Technologists And Technicians
270	113012	MGR-Administrative Services Managers
271	112011	MGR-Advertising And Promotions Managers
272	119041	MGR-Architectural And Engineering Managers
273	1110XX	MGR-Chief Executives And Legislators
274	113111	MGR-Compensation And Benefits Managers
275	119021	MGR-Construction Managers
276	119030	MGR-Education And Childcare Administrators
277	119161	MGR-Emergency Management Directors
278	119070	MGR-Entertainment And Recreation Managers
279	113013	MGR-Facilities Managers
280	119013	MGR-Farmers, Ranchers, And Other Agricultural Managers
281	113031	MGR-Financial Managers
282	119051	MGR-Food Service Managers
283	111021	MGR-General And Operations Managers
284	113121	MGR-Human Resources Managers

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
285	113051	MGR-Industrial Production Managers
286	119081	MGR-Lodging Managers
287	112021	MGR-Marketing Managers
288	119111	MGR-Medical And Health Services Managers
289	1191XX	MGR-Other Managers
290	119141	MGR-Property, Real Estate, And Community Association Managers
291	112030	MGR-Public Relations And Fundraising Managers
292	113061	MGR-Purchasing Managers
293	112022	MGR-Sales Managers
294	119151	MGR-Social And Community Service Managers
295	113131	MGR-Training And Development Managers
296	113071	MGR-Transportation, Storage, And Distribution Managers
297	552010	MIL-First-Line Enlisted Military Supervisors
298	553010	MIL-Military Enlisted Tactical Operations And Air/Weapons Specialists And Crew Members
299	551010	MIL-Military Officer Special And Tactical Operations Leaders
300	559830	MIL-Military, Rank Not Specified
301	433011	OFF-Bill And Account Collectors
302	433021	OFF-Billing And Posting Clerks
303	433031	OFF-Bookkeeping, Accounting, And Auditing Clerks
304	435011	OFF-Cargo And Freight Agents
305	432099	OFF-Communications Equipment Operators, All Other
306	434XXX	OFF-Correspondence Clerks And Order Clerks
307	435021	OFF-Couriers And Messengers
308	434031	OFF-Court, Municipal, And License Clerks
309	434041	OFF-Credit Authorizers, Checkers, And Clerks
310	434051	OFF-Customer Service Representatives
311	439021	OFF-Data Entry Keyers
312	435032	OFF-Dispatchers, Except Police, Fire, And Ambulance
313	434061	OFF-Eligibility Interviewers, Government Programs
314	436011	OFF-Executive Secretaries And Executive Administrative Assistants
315	434071	OFF-File Clerks
316	431011	OFF-First-Line Supervisors Of Office And Administrative Support Workers

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
317	434081	OFF-Hotel, Motel, And Resort Desk Clerks
318	434161	OFF-Human Resources Assistants, Except Payroll And Timekeeping
319	439041	OFF-Insurance Claims And Policy Processing Clerks
320	434111	OFF-Interviewers, Except Eligibility And Loan
321	436012	OFF-Legal Secretaries And Administrative Assistants
322	434121	OFF-Library Assistants, Clerical
323	434131	OFF-Loan Interviewers And Clerks
324	439051	OFF-Mail Clerks And Mail Machine Operators, Except Postal Service
325	436013	OFF-Medical Secretaries And Administrative Assistants
326	435041	OFF-Meter Readers, Utilities
327	434141	OFF-New Accounts Clerks
328	439061	OFF-Office Clerks, General
329	439071	OFF-Office Machine Operators, Except Computer
330	4330XX	OFF-Other Financial Clerks
331	434YYY	OFF-Other Information And Records Clerks
332	439XXX	OFF-Other Office And Administrative Support Workers
333	433051	OFF-Payroll And Timekeeping Clerks
334	435051	OFF-Postal Service Clerks
335	435052	OFF-Postal Service Mail Carriers
336	435053	OFF-Postal Service Mail Sorters, Processors, And Processing Machine Operators
337	433061	OFF-Procurement Clerks
338	435061	OFF-Production, Planning, And Expediting Clerks
339	439081	OFF-Proofreaders And Copy Markers
340	435031	OFF-Public Safety Telecommunicators
341	434171	OFF-Receptionists And Information Clerks
342	434181	OFF-Reservation And Transportation Ticket Agents And Travel Clerks
343	436014	OFF-Secretaries And Administrative Assistants, Except Legal, Medical, And Executive
344	435071	OFF-Shipping, Receiving, And Inventory Clerks
345	439111	OFF-Statistical Assistants
346	432011	OFF-Switchboard Operators, Including Answering Service
347	432021	OFF-Telephone Operators
348	433071	OFF-Tellers
349	435111	OFF-Weighers, Measurers, Checkers, And Samplers, Recordkeeping

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
350	439022	OFF-Word Processors And Typists
351	519191	PRD-Adhesive Bonding Machine Operators And Tenders
352	513011	PRD-Bakers
353	513020	PRD-Butchers And Other Meat, Poultry, And Fish Processing Workers
354	517011	PRD-Cabinetmakers And Bench Carpenters
355	519010	PRD-Chemical Processing Machine Setters, Operators, And Tenders
356	519160	PRD-Computer Numerically Controlled Tool Operators And Programmers
357	519020	PRD-Crushing, Grinding, Polishing, Mixing, And Blending Workers
358	519030	PRD-Cutting Workers
359	514031	PRD-Cutting, Punching, And Press Machine Setters, Operators, And Tenders, Metal And Plastic
360	519080	PRD-Dental And Ophthalmic Laboratory Technicians And Medical Appliance Technicians
361	512020	PRD-Electrical, Electronics, And Electromechanical Assemblers
362	512031	PRD-Engine And Other Machine Assemblers
363	519194	PRD-Etchers And Engravers
364	519041	PRD-Extruding, Forming, Pressing, And Compacting Machine Setters, Operators, And Tenders
365	511011	PRD-First-Line Supervisors Of Production And Operating Workers
366	513091	PRD-Food And Tobacco Roasting, Baking, And Drying Machine Operators And Tenders
367	513092	PRD-Food Batchmakers
368	513093	PRD-Food Cooking Machine Operators And Tenders
369	513099	PRD-Food Processing Workers, All Other
370	514020	PRD-Forming Machine Setters, Operators, And Tenders, Metal And Plastic
371	519051	PRD-Furnace, Kiln, Oven, Drier, And Kettle Operators And Tenders
372	517021	PRD-Furniture Finishers
373	514033	PRD-Grinding, Lapping, Polishing, And Buffing Machine Tool Setters, Operators, And Tenders, Metal and Plastic
374	519198	PRD-Helpers--Production Workers
375	519061	PRD-Inspectors, Testers, Sorters, Samplers, And Weighers
376	519071	PRD-Jewelers And Precious Stone And Metal Workers
377	516011	PRD-Laundry And Dry-Cleaning Workers
378	514041	PRD-Machinists
379	514050	PRD-Metal Furnace Operators, Tenders, Pourers, And Casters

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
380	518090	PRD-Miscellaneous Plant And System Operators
381	5191XX	PRD-Miscellaneous Production Workers, Including Equipment Operators and Tenders
382	5140XX	PRD-Model Makers, Patternmakers, And Molding Machine Setters, Metal And Plastic
383	519195	PRD-Molders, Shapers, And Casters, Except Metal And Plastic
384	5120XX	PRD-Other Assemblers and Fabricators
385	51403X	PRD-Other Machine Tool Setters, Operators, And Tenders, Metal And Plastic
386	514XXX	PRD-Other Metal Workers And Plastic Workers
387	51609X	PRD-Other Textile, Apparel, And Furnishings Workers
388	5170XX	PRD-Other Woodworkers
389	519111	PRD-Packaging And Filling Machine Operators And Tenders
390	519120	PRD-Painting Workers
391	519196	PRD-Paper Goods Machine Setters, Operators, And Tenders
392	519151	PRD-Photographic Process Workers And Processing Machine Operators
393	518010	PRD-Power Plant Operators, Distributors, And Dispatchers
394	515111	PRD-Prepress Technicians And Workers
395	516021	PRD-Pressers, Textile, Garment, And Related Materials
396	515113	PRD-Print Binding And Finishing Workers
397	515112	PRD-Printing Press Operators
398	517041	PRD-Sawing Machine Setters, Operators, And Tenders, Wood
399	516031	PRD-Sewing Machine Operators
400	516040	PRD-Shoe And Leather Workers
401	518021	PRD-Stationary Engineers And Boiler Operators
402	512041	PRD-Structural Metal Fabricators And Fitters
403	516050	PRD-Tailors, Dressmakers, And Sewers
404	516060	PRD-Textile Machine Setters, Operators, And Tenders
405	519197	PRD-Tire Builders
406	514111	PRD-Tool And Die Makers
407	516093	PRD-Upholsterers
408	518031	PRD-Water And Wastewater Treatment Plant And System Operators
409	514120	PRD-Welding, Soldering, And Brazing Workers
410	517042	PRD-Woodworking Machine Setters, Operators, And Tenders, Except Sawing
411	392021	PRS-Animal Caretakers

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
412	392011	PRS-Animal Trainers
413	396010	PRS-Baggage Porters, Bellhops, And Concierges
414	395011	PRS-Barbers
415	399011	PRS-Childcare Workers
416	3940XX	PRS-Embalmers, Crematory Operators And Funeral Attendants
417	399031	PRS-Exercise Trainers And Group Fitness Instructors
418	393010	PRS-Gambling Services Workers
419	395012	PRS-Hairdressers, Hairstylists, And Cosmetologists
420	395092	PRS-Manicurists and Pedicurists
421	394031	PRS-Morticians, Undertakers, And Funeral Arrangers
422	3930XX	PRS-Other Entertainment Attendants And Related Workers
423	39509X	PRS-Other Personal Appearance Workers
424	399099	PRS-Personal Care And Service Workers, All Other
425	399032	PRS-Recreation Workers
426	399041	PRS-Residential Advisors
427	395094	PRS-Skincare Specialists
428	391000	PRS-Supervisors of Personal Care And Service Workers
429	397010	PRS-Tour And Travel Guides
430	393031	PRS-Ushers, Lobby Attendants, And Ticket Takers
431	339011	PRT-Animal Control Workers
432	333011	PRT-Bailiffs
433	333012	PRT-Correctional Officers And Jailers
434	339091	PRT-Crossing Guards And Flaggers
435	333021	PRT-Detectives And Criminal Investigators
436	332020	PRT-Fire Inspectors
437	332011	PRT-Firefighters
438	331011	PRT-First-Line Supervisors Of Correctional Officers
439	331021	PRT-First-Line Supervisors Of Firefighting And Prevention Workers
440	331012	PRT-First-Line Supervisors Of Police And Detectives
441	3330XX	PRT-Fish And Game Wardens And Parking Enforcement Officers
442	331090	PRT-Miscellaneous First-Line Supervisors, Protective Service Workers
443	33909X	PRT-Other Protective Service Workers
444	333050	PRT-Police Officers

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
445	339021	PRT-Private Detectives And Investigators
446	339094	PRT-School Bus Monitors
447	339030	PRT-Security Guards And Gambling Surveillance Officers
448	339093	PRT-Transportation Security Screeners
449	493011	RPR-Aircraft Mechanics And Service Technicians
450	492097	RPR-Audiovisual Equipment Installers And Repairers
451	493021	RPR-Automotive Body And Related Repairers
452	493022	RPR-Automotive Glass Installers And Repairers
453	493023	RPR-Automotive Service Technicians And Mechanics
454	492091	RPR-Avionics Technicians
455	493031	RPR-Bus And Truck Mechanics And Diesel Engine Specialists
456	499091	RPR-Coin, Vending, And Amusement Machine Servicers And Repairers
457	492011	RPR-Computer, Automated Teller, And Office Machine Repairers
458	499010	RPR-Control And Valve Installers And Repairers
459	492092	RPR-Electric Motor, Power Tool, And Related Repairers
460	499051	RPR-Electrical Power-Line Installers And Repairers
461	491011	RPR-First-Line Supervisors Of Mechanics, Installers, And Repairers
462	499021	RPR-Heating, Air Conditioning, And Refrigeration Mechanics And Installers
463	493040	RPR-Heavy Vehicle And Mobile Equipment Service Technicians And Mechanics
464	499098	RPR-Helpers--Installation, Maintenance, And Repair Workers
465	499031	RPR-Home Appliance Repairers
466	49904X	RPR-Industrial And Refractory Machinery Mechanics
467	499094	RPR-Locksmiths And Safe Repairers
468	499071	RPR-Maintenance And Repair Workers, General
469	499043	RPR-Maintenance Workers, Machinery
470	499044	RPR-Millwrights
471	493090	RPR-Miscellaneous Vehicle And Mobile Equipment Mechanics, Installers, And Repairers
472	49209X	RPR-Other Electrical And Electronic Equipment Mechanics, Installers, and Repairers
473	4990XX	RPR-Other Installation, Maintenance, And Repair Workers
474	499060	RPR-Precision Instrument And Equipment Repairers
475	492020	RPR-Radio And Telecommunications Equipment Installers And Repairers
476	499096	RPR-Riggers

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
477	492098	RPR-Security And Fire Alarm Systems Installers
478	493050	RPR-Small Engine Mechanics
479	499052	RPR-Telecommunications Line Installers And Repairers
480	413011	SAL-Advertising Sales Agents
481	412010	SAL-Cashiers
482	412021	SAL-Counter And Rental Clerks
483	419091	SAL-Door-To-Door Sales Workers, News And Street Vendors, And Related Workers
484	411012	SAL-First-Line Supervisors Of Non-Retail Sales Workers
485	411011	SAL-First-Line Supervisors Of Retail Sales Workers
486	413021	SAL-Insurance Sales Agents
487	419010	SAL-Models, Demonstrators, And Product Promoters
488	412022	SAL-Parts Salespersons
489	419020	SAL-Real Estate Brokers And Sales Agents
490	412031	SAL-Retail Salespersons
491	419099	SAL-Sales And Related Workers, All Other
492	413091	SAL-Sales Representatives Of Services, Except Advertising, Insurance, Financial Services, And Travel
493	414010	SAL-Sales Representatives, Wholesale And Manufacturing
494	413031	SAL-Securities, Commodities, And Financial Services Sales Agents
495	419041	SAL-Telemarketers
496	413041	SAL-Travel Agents
497	195010	SCI-Occupational Health And Safety Specialists And Technicians
498	532020	TRN-Air Traffic Controllers And Airfield Operations Specialists
499	532010	TRN-Aircraft Pilots And Flight Engineers
500	533011	TRN-Ambulance Drivers And Attendants, Except Emergency Medical Technicians
501	533051	TRN-Bus Drivers, School
502	533052	TRN-Bus Drivers, Transit And Intercity
503	537061	TRN-Cleaners Of Vehicles And Equipment
504	5370XX	TRN-Conveyor, Dredge, And Hoist And Winch Operators
505	537021	TRN-Crane And Tower Operators
506	533030	TRN-Driver/Sales Workers And Truck Drivers
507	532031	TRN-Flight Attendants
508	537051	TRN-Industrial Truck And Tractor Operators

Table A4. Occupations Categorized as Non-STEM Occupations (Continued)

#	SOC Code	Occupation Description
509	537062	TRN-Laborers And Freight, Stock, And Material Movers, Hand
510	534010	TRN-Locomotive Engineers And Operators
511	537063	TRN-Machine Feeders And Offbearers
512	533099	TRN-Motor Vehicle Operators, All Other
513	5371XX	TRN-Other Material Moving Workers
514	5340XX	TRN-Other Rail Transportation Workers
515	5360XX	TRN-Other Transportation Workers
516	537064	TRN-Packers And Packagers, Hand
517	536021	TRN-Parking Attendants
518	536061	TRN-Passenger Attendants
519	537070	TRN-Pumping Station Operators
520	534031	TRN-Railroad Conductors And Yardmasters
521	537081	TRN-Refuse And Recyclable Material Collectors
522	5350XX	TRN-Sailors And Marine Oilers, And Ship Engineers
523	535020	TRN-Ship And Boat Captains And Operators
524	533053	TRN-Shuttle Drivers and Chauffeurs
525	537065	TRN-Stockers And Order Fillers
526	531000	TRN-Supervisors Of Transportation And Material Moving Workers
527	533054	TRN-Taxi Drivers
528	536051	TRN-Transportation Inspectors
529	536030	TRN-Transportation Service Attendants
530	999920	Unemployed, With No Work Experience In The Last 5 Years Or Earlier Or Never Worked