

SUN PATH Comparison Group Study

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Prepared by

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The New Mexico SUN PATH TAACCCT project provides equal opportunities (EO) to all applicants without regard to race, color, religion, gender, sexual orientation, gender identity or expression, national origin, age, disability, genetic information, marital status, amnesty, or status as a covered veteran in accordance with applicable federal, state and local regulations.

Introduction

This study examined to what extent SUN PATH participants differed from a matched comparison group in completing certificates or associate degrees and subsequently getting jobs and having more income. A rigorous quasi-experimental matched groups research design was used to isolate the SUN PATH Program's effects. Students were statistically matched on key background characteristics and selected into the comparison group such that they were as similar as possible to their SUN PATH contemporaries at enrollment. Evaluators collected student-level administrative data from colleges across the state with programs to prepare for careers in healthcare and allied health occupations. The New Mexico Department of Workforce Solutions (DWS) provided data on student employment and earnings. Statistical tests were applied to output and outcome measures to detect significant differences between the groups. Analyses also determined whether certain student background characteristics such as age and participation in remedial courses influenced results. This report describes the methods used to select students for the study, preparation and analysis of the data, results of statistical tests, and findings and conclusions about the SUN PATH Program's impact on students. The Cradle to Career Policy Institute at the University of New Mexico (UNM-CCPI) conducted this study as part of a four-year evaluation of the Program.

Research Questions

While funded by a fourth round TAACCCT grant from the US Department of Labor (DOL), SUN PATH programs and DWS collected data and measured student enrollment, accumulation of course credits, completion of programs of study, or if not completion then retention in TAACCCT funded programs, earned academic credentials, success in enrolling participants and following their advancement through programs of study and into jobs. This study applied available data to a set of measures that were adapted from the DOL defined measures for comparing differences between students in SUN PATH programs of study and students in comparable programs not funded by TAACCCT (Appendix A). The DOL approved this evaluation design to answer the following research questions:

1. Does a greater proportion of SUN PATH participants complete their programs of study than students in comparable non-TAACCCT funded programs?
2. Is a greater proportion of SUN PATH participants retained in their program of study (or other grant-funded programs) compared with participants in comparable non-TAACCCT funded programs?
3. Do SUN PATH participants complete a greater number of credit hours compared with participants in comparable non-TAACCCT funded programs?
4. Does a greater proportion of SUN PATH participants earn certificates for less than one year compared with participants in comparable non-TAACCCT funded programs?
5. Does a greater proportion of SUN PATH participants earn certificates for more than one year and less than two years compared with participants in comparable non-TAACCCT funded programs?

6. Does a greater proportion of SUN PATH participants earn associate's degrees compared with participants in comparable non-TAACCT funded programs?
7. Is a greater proportion of SUN PATH participants employed after program of study completion and exit compared with participants in comparable non-TAACCT funded programs?
8. Is a greater proportion of SUN PATH participants retained in employment after program of study completion and exit compared with participants in comparable non-TAACCT funded programs?
9. Does a greater proportion of SUN PATH participants employed at enrollment (incumbent worker) receive a wage increase post-enrollment compared with participants in comparable non-TAACCT funded programs?
10. Do certain student background characteristics (e.g. gender, race, and age) and program of study influence these outcomes?

Data Collection

Santa Fe Community College (SFCC), the administrator for the Program, collected student-level data on enrollment, programs of study, course credits earned, and certificates and degrees earned was collected from the New Mexico Higher Education Department and DWS. SFCC also collected data on student employment and earnings from the DWS Unemployment Insurance data collection. SFCC assembled and deidentified records prior to transfer to UNM-CCPI. The data represents students at all 11 New Mexico college campuses participating in SUN PATH as well as 8 campuses that had similar programs of study that were not TAACCT funded. The following college campuses are represented in the data:

- Clovis Community College (CCC)
- Central New Mexico Community College (SUN PATH Campus)
- Eastern New Mexico University-Roswell (ENMU-ROS, SUN PATH Campus) and Ruidoso (ENMU-RUI, SUN PATH Campus)
- Luna Community College (LCC)
- Mesalands Community College (MCC, SUN PATH Campus)
- New Mexico Junior College
- New Mexico State University-Alamogordo (NMSU-A, SUN PATH Campus)
- New Mexico State University-Carlsbad (NMSU-CA)
- New Mexico State University-Dona Ana (NMSU-DA)
- New Mexico State University-Grants (NMSU-GR)
- Northern New Mexico College (NNMC)
- Santa Fe Community College (SFCC, SUN PATH Campus)
- San Juan Community College (SJC, SUN PATH Campus)

- University of New Mexico satellite campuses at Gallup (UNM-G, SUN PATH Campus), Los Alamos (UNM-LA, SUN PATH Campus), Taos (UNM-T, SUN PATH Campus), and Valencia (UNM-V, SUN PATH Campus)
- Western New Mexico University (WNMU)

Altogether, the data contains information on 25,385 unique students, who were enrolled from fall 2015 through fall 2016. The data contained enrollment and education attainment information from spring 2016 through spring 2017. The data represented 2,004 SUN PATH participants and 23,381 students in non-TAACCT funded programs. DWS employment and earnings data covered the period from the first quarter of 2014 through the third quarter of 2017.

The data was conditioned prior to matching and analysis. Students under 16 years of age were filtered from analysis to minimize the probability of including students in a dual credit program in high school. Students older than 66 years of age were filtered from analysis to minimize the probability of including students who were not preparing for a career. A total of 345 students were dropped due to filtering on age. This left 1,821 unique SUN-PATH participants.

Selection of a Comparison Group

Propensity score matching (PSM) was used to select an unbiased comparison group. Demographic variables (gender, age and race/ethnicity), an indicator variable for the socio-economic status (Pell Grants received), log of wage first quarter before enrollment (transformed to normalize the distribution), enrollment status in the initial semester (whether a student is a transfer, first-time freshman, readmitted or continuing), and the school they attended. PSM used logistic regression to calculate scores for each student, which represents the conditional probability that a student was a SUN PATH participant, given the similarity of patterns among covariates. PSM employed a nearest neighbor matching approach, which pairs a SUN PATH student with the closest match from the pool of potential comparisons. As many as three matches were accepted per SUN PATH participant to improve the statistical power of the comparison analysis. Also, PSM used a caliper setting of 0.1 of a standard deviation.

The effectiveness of PSM was assessed using Percent Bias Reduction (PBR), Standardized Bias (SB), and Balance. Researchers usually regard an 80 percent reduction in bias as acceptable (Guo and Fraser, 2014), and this threshold was met for all covariates except for the age and race/ethnicity variables. Standardized Bias measures were reduced to 5 percent or smaller for age, race/ethnicity, and enrollment status. The balance of those same covariates were at or below 0.52, which further demonstrated a high quality match between SUN PATH and comparison groups. A detailed descriptive analysis of SUN PATH and comparison groups shows their similarity on matching variables (Appendix B, Tables B1, B2, and B3). The group of SUN PATH participants consisted of 1,821 students and the comparison group was comprised of 4,278 students.

Data Analysis and Results

Differences in group proportions and means on output and outcome measures were examined using two tailed Z tests and independent t-tests, and a critical value of 0.10 or less was used for rejecting null hypotheses (Table 1). These analyses found that significantly greater proportions of SUN PATH participants complete their programs of study (45.52% compared with 15.43%), earn certificates of less than one year (27.62% compared with 22.44%), earn certificates of more than one year and less than two years (7.74% compared with 4.84%) compared with students in similar non-TAACCT funded programs. Although a small number of students earned an associate degree (10.16% compared with 8.35%), the difference between groups was significant at 1 percent significance level. By the third quarter of 2017, a greater proportion of SUN PATH students are retained in the program (46.17% compared with 40.58%). An independent t-test also found that SUN PATH participants completed more credit hours in their programs of study than their counterparts in the comparison group (22.32 hours compared with 18.38 hours).

Table 1. Statistical Tests of Output and Outcome Measures

Output and Outcome Measures	Test Statistic	p-value	% SUN PATH Group	% Comparison Group	Significance
Completed Program of Study	$z = -25.04$	0.000	45.52%	15.43%	Y
Earned Certificate < 1 Yr	$z = -30.48$	0.000	27.62%	22.44%	Y
Earned Certificate > 1 Yr & < 2 Yr	$z = -4.48$	0.000	7.74%	4.84%	Y
Earned Associate Degree	$z = -2.28$	0.011	10.16%	8.35%	Y
Retained in the third quarter of 2017	$z = -3.17$	0.001	46.17%	40.58	Y
Credit Hours Completed	$t = -9.83$	0.000	22.32	18.38	Y
Employed after Completion for non-incumbent Workers in the first quarter after graduation	$z = -4.27$	0.000	46.15%	28.07%	Y
Employed after Completion for non-incumbent Workers in the second and third quarters after completion	$z = -6.29$	0.000	50.17%	23.26%	Y
Incumbent workers who receive a wage increase	$t = -1.86$	0.033	61.50%	55.06%	Y

As expected, a Z test found that a significantly greater proportion of SUN-PATH non-incumbent students entered employment after completing their studies (46.15% compared with 28.07%) in the first quarter after the quarter in which they graduated. In the following quarters (second and third quarter after the quarter in which students graduated), a larger proportion of SUN PATH students are still employed, Specifically, 47.16% of SUN PATH students (compared with 22.81%) are employed in the second quarter and 50.17 % of SUN PATH students (compared with 23.26) are still employed in the third quarter, which are statistically significant at 1 percent significance level. Similarly, a higher proportion of SUN PATH students who were incumbent workers (61.50% compared with 55.06%) receive a pay raise.

Additional analyses measured the impact of background characteristics on the student outcomes (i.e., completion of a program, employment, and increases in earnings). Logistic regression analysis was used to estimate the effects of characteristics on these outcomes. With a clustered standard error at the school level, the analysis used gender, age, an indicator of whether a student is Hispanic or not, an indicator of whether a student received a Pell Grant or not, an indicator for a student's SUN PATH status and finally an indicator of whether a student enrolled in remedial courses.

The results of logistic regression analysis on the three student success outcomes is presented in Table 2, including (1) graduation rate, (2) salary increase after graduation and (3) employment after graduation. The first column presents the results of tests of student characteristics and graduation rate. While gender is statistically insignificant in determining graduation rate, older students are more likely to graduate. Students who are Hispanic are more likely to graduate. Finally, being in the Treatment group (SUN PATH participants) increases the likelihood of graduation, which is statistically significant.

In Table 2, Column (2), logistic regression tested whether background characteristics were related to a pay increase for the incumbent worker who graduated and are employed in the quarter after graduation. Older students are less likely to receive a pay raise, while being in the SUN PATH program increases pay.

With our sample of SUN PATH and comparison group, logistic regression analysis also found that students who are older are less likely to get a job after completion (Table 2, Column 3). Further, if a student is an incumbent worker and a SUN PATH participant, they are more likely to be employed after graduation.

Table 2: Estimation Results - Logit models of Student Success Outcomes

	(1) Graduation	(2) Pay Raised	(3) Employment after Graduation
Female	0.102 (0.112)	0.0779 (0.120)	-0.129 (0.116)
Age	0.0129*** (0.00309)	-0.0223*** (0.00765)	-0.0235*** (0.00711)
Hispanic	0.353* (0.210)	0.0737 (0.118)	0.367*** (0.0866)
Pell Grant	0.211 (0.143)	0.0957 (0.111)	-0.207 (0.138)
Treatment	1.553*** (0.279)	0.246* (0.135)	0.334*** (0.102)
Constant	-2.419*** (0.306)	0.713** (0.342)	1.282*** (0.296)
<i>N</i>	6099	808	1489

Notes: Clustered standard error at the school level in parentheses; * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$; Female is the gender of a student which is equal to 1 if the individual is female, otherwise 0. Hispanic is the race/ethnicity of the students which is equal to 1 if a student is of Hispanic decent otherwise 0. Pell Grant, is the indicator variable equal 1 if a student received Pell Grants in any semester after enrolling in the program. Treatment is also an indicator variable equal to 1 if a students is enrolled in SUN PATH, the comparison group is equal to 0.

Summary and Conclusions

Most importantly, the study found that SUN PATH participants fared better on all the academic and employment outcomes than their counterparts in programs not funded by TAACCCT. SUN PATH students earned more course credits, a greater share of students completed their programs of study and were employed after completion (non-incumbent workers). The services and supports that were designed to move SUN PATH students through their programs were successful and much was learned from this study that can be applied to design of workforce development programs and improving practices for educating low-skilled adults.

The study also examined whether certain groups of SUN PATH students were more successful than others and that certain student characteristics added to their success. Age and remedial courses are related to student outcomes, while gender, race/ethnicity and receipt of a Pell Grant were not.

References

Guo, S., & Fraser, M. W. (2015). *Propensity score analysis*. (Vol. 12), Sage; CA.

Appendix A

Evaluation of Propensity Score Matching

The output and outcome measures for this study conform to definitions in the grant guidance document, Trade Adjustment Assistance Community College and Career Training Grants, Annual and Quarterly Program Reporting Forms & Instructions, Rounds 2, 3, 4 (Revised 8/8/2016). [Notes specific to this evaluation are included].

Unique Participants Enrolled (B.1) -

The total number of individuals who entered any of the grant-funded programs of study offered (including certificate or degree programs or other training activities). Participants should only be included once in the year they first enroll, even if they enroll in multiple programs or are still enrolled in subsequent years. A program of study is broadly defined as an educational program in which a degree or certificate is earned.

Total Number of Participants Who Have Completed a Grant-Funded Program of Study (B.2)

The total number of unique participants (B.1) who completed any grant-funded program. Completion is defined as having earned all of the credit hours (formal award units) needed for the award of a degree or certificate in that program of study. Participants should only be included once, even if they complete multiple programs of study.

Total Number of Grant-Funded Program of Study Completers Who Are Incumbent Workers (B2a:)

The total number of incumbent workers (those employed at enrollment) who complete any grant-funded program. Completion is defined as having earned all of the credit hours (formal award units) needed for the award of a degree or certificate in that program of study. Participants should only be included once, even if they complete multiple programs.

Total Number of Participants Still Retained in Their Program of Study (or Other Grant-Funded Programs; B3) -

Of the total number of unique participants enrolled (B.1) who have not completed their programs, enter the total number of enrollees who were still enrolled either in their original program of study or a different grant-funded program of study at the end of the reporting year. (Note: A participant counted in B.2 should not be counted again in B.3).

Total Number of Participants Retained in Other Education Program(s) (B4)-

Of the total number of unique participants enrolled, enter the total number of enrollees who dropped out of a grant-funded program of study, but have enrolled in another education program not funded by the grant. (Note: A participant counted in B.2 or B.3 should not be counted in B.4; B4:).

Total Number of Grant-Funded Credit Hours Completed (B5) -

The total number of grant-funded credit hours that have been completed by all participants during the reporting year, regardless of the year in which the participants enrolled. This number should be reported for all enrollees, even if the participant is no

longer enrolled in the grant-funded program of study or did not complete the program of study.

Total Number of Earned Certificates/Degrees (B6:)

The total number of degrees or certificates earned during the reporting year by participants in grant-funded programs. This number should be reported for all enrollees, including multiple certificates and degrees earned by the same participant. [Evaluators counted all academic credentials earned, regardless of level, for measure B6. Evaluators used a different selection procedure for the comparison of students earning credentials at three distinct levels. Evaluators identified the first and highest academic credential earned for students with multiple credentials and then counted students who earned credentials within each level. This prevented duplicate counts of students who earned multiple credentials across levels].

Total Number of Participants Employed After Program of Study Completion and Exit (B8)

Of the participants in the reporting year who were not incumbent workers and who completed at least one grant-funded program of study (B.2), count the total number of participants who entered unsubsidized employment after completion and who were still employed in the first quarter after the quarter in which the student exits the college. Incumbent workers are defined as participants employed at enrollment. Exit is defined as being no longer enrolled at the college in any program of study and can include formal withdrawal, expulsion, graduation, and other reasons. (Note: A participant counted in B.7 cannot be counted in B.8. A participant counted in B.8 may be counted again in B.9). [Evaluators considered incumbent workers as those employed in the quarter prior to first enrollment in the target program of study].

Total Number of Participants Retained in Employment after Program of Study Completion and Exit (B9)

Of the non-incumbent participants who were employed in the first quarter after the quarter in which the student exits the college (B.8), enter the total number of participants who were employed in the second and third quarters after exit, regardless of whether they entered employment in this reporting year or the previous reporting year. Incumbent workers are defined as participants employed at enrollment. Exit is defined as being no longer enrolled at the college in any program of study and can include formal withdrawal, expulsion, graduation, and other reasons. (Note: A participant counted in B.9 must have been counted in B.8).

Total Number of Participants Employed at Enrollment Who Received a Wage Increase (B10)

Post-Enrollment – Of incumbent workers who enter a grant-funded program, enter the number who received an increase in their wages at any time after becoming enrolled. Report the first wage increase only and report the wage increase in the reporting year in which it occurred. Incumbent workers are defined as participants employed at enrollment.

Appendix B

Table B1: Descriptive Statistics of the Estimating Sample

	Comparison Group	% of Comparison Group	SUN-PATH Group	% of SUN-PATH Group	All Students	% of all Students
Female	3,067	71.69	1,361	74.74	4,428	72.60
Male	1,211	71.69	460	25.26	1,671	27.40
Race/Ethnicity						
American Indian	545	12.74	344	18.89	889	14.58
Asian	67	1.57	26	1.43	93	1.52
African American	121	2.83	28	1.54	149	2.44
Hispanic	2,029	47.43	762	41.85	2,791	45.76
Native Hawaiian	10	0.23	5	0.27	15	0.25
Non-Resident Alien	38	0.89	11	0.60	49	0.80
Unknown	129	3.02	63	3.46	192	3.15
Two or More Races	76	1.78	29	1.59	105	1.72
White	1,263	29.52	553	30.37	1,816	29.78
Enrollment Status in First Semester						
Continue	1,383	32.33	819	44.98	2,202	36.10
Readmitted	1,476	34.50	415	22.79	1,891	31.01
First-time Freshman	985	23.02	336	18.45	1,321	21.66
Transfer/Other	434	10.14	251	13.78	685	11.23
Pell Awards	1,789	41.82	801	43.99	2,590	42.47
	Comparison Group		SUN PATH Group		All Students	
	Mean	SD	Mean	SD	Mean	SD
Age	28.63628	10.72478	28.43108	10.15248	28.5750	10.5567

Table B2: Distribution of the Comparison Group and SUN PATH Students by University/Colleges

	Comparison Group	% of Comparison Group	SUN-PATH Group	% of SUN-PATH Group	All Students	% of all Students
CCC	224	5.24	0	0	224	3.67
CNM	1468	34.32	367	20.15	1835	30.09
ENMU-RO	219	5.12	355	19.49	574	9.41
ENMU-RU	28	0.65	52	2.86	80	1.31
LCC	111	2.59	0	0	111	1.82
MCC	27	0.63	55	3.02	82	1.34
NMJC	326	7.62	0	0	326	5.35
NMSU-AL	28	0.65	55	3.02	83	1.36
NMSU-CA	190	4.44	0	0	190	3.12
NMSU-DA	245	5.73	0	0	245	4.02
NMSU-GR	19	0.44	0	0	19	0.31
NNMC	87	2.03	0	0	87	1.43
SFCC	207	4.84	238	13.07	445	7.3
SJC	448	10.47	305	16.75	753	12.35
UNM-GA	230	5.38	179	9.83	409	6.71
UNM-LA	118	2.76	36	1.98	154	2.53
UNM-TA	113	2.64	43	2.36	156	2.56
UNM-VA	135	3.16	136	7.47	271	4.44
WNMU	55	1.29	0	0	55	0.9

Table B3: Distribution of the Comparison Group and SUN PATH Students by CIP Codes

Program of Study	Title	Comparison Group	% of Comparison Group	SUN PATH Group	% of SUN PATH	All student	% of all student
0	Missing CIP	143	3.34	186	10.21	329	5.39
1.0604	Greenhouse Operations and Management	1	0.02	0	0	1	0.02
3.0104	Environmental Science (NEW)	0	0	1	0.05	1	0.02
4.0201	Architecture (BArch, BA/BS, MArch, MA/MS, PhD)	1	0.02	0	0	1	0.02
4.0901	Architectural Technology/Technician	1	0.02	0	0	1	0.02
9.01	Communication, General.	2	0.05	1	0.05	3	0.05
10.0304	Animation, Interactive Technology, Video Graphics	1	0.02	1	0.05	2	0.03
11.0101	Computer and Information Sciences, General	162	3.79	3	0.16	165	2.71
11.0103	Information Technology (NEW)	1	0.02	0	0	1	0.02
11.0201	Computer Programming/Programmer, General	2	0.05	0	0	2	0.03
11.0301	Data Processing and Data Processing Technology/Tec	51	1.19	0	0	51	0.84
11.0701	Computer Science, System	5	0.12	0	0	5	0.08
11.1001	Administration/Administrator (NEW)	1	0.02	0	0	1	0.02
11.1002	System, Networking, and LAN/WAN Management/Manager	1	0.02	0	0	1	0.02
11.1003	Computer and Information Systems Security (NEW)	4	0.09	2	0.11	6	0.1
11.1006	PC Support Technician	1	0.02	0	0	1	0.02
12.0401	Cosmetology/Cosmetologist, General	6	0.14	0	0	6	0.1
12.0502	Bartender/Mixologist.	1	0.02	0	0	1	0.02
12.0503	Culinary Arts/Chef Training	2	0.05	0	0	2	0.03
12.0504	Restaurant, Culinary, and Catering Management/Mana	1	0.02	0	0	1	0.02
13.0101	Education, General	11	0.26	3	0.16	14	0.23
13.0201	Bilingual and Multilingual Education	1	0.02	0	0	1	0.02

13.0301	Curriculum and Instruction	4	0.09	0	0	4	0.07
13.1001	Special Education and Teaching, General	2	0.05	0	0	2	0.03
13.1202	Elementary Education and Teaching	4	0.09	1	0.05	5	0.08
13.1205	Secondary Education and Teaching	0	0	1	0.05	1	0.02
13.1206	Teacher Education, Multiple Levels	4	0.09	3	0.16	7	0.11
13.121	Early Childhood Education and Teaching (NEW)	18	0.42	8	0.44	26	0.43
13.1307	Health Teacher Education	1	0.02	1	0.05	2	0.03
13.1314	Physical Education Teaching and Coaching	0	0	1	0.05	1	0.02
13.1501	Teacher Assistant/Aide	1	0.02	0	0	1	0.02
14.0101	Engineering, General	2	0.05	0	0	2	0.03
14.0102	Pre-Engineering	4	0.09	2	0.11	6	0.1
14.0901	Computer Engineering, General	1	0.02	0	0	1	0.02
15.0303	Electrical, Electronic and Communications Engineer Instrumentation	5	0.12	1	0.05	6	0.1
15.0404	Technology/Technician Industrial	1	0.02	1	0.05	2	0.03
15.0612	Technology/Technician (NEW)	0	0	1	0.05	1	0.02
15.0701	Occupational Safety and Health Technology/Technician	1	0.02	0	0	1	0.02
15.0799	Quality Control and Safety Technologies/Technician	1	0.02	0	0	1	0.02
15.1301	Drafting and Design Technology/Technician, General	1	0.02	1	0.05	2	0.03
16.0101	Foreign Languages and Literatures, General	0	0	1	0.05	1	0.02
16.0905	Spanish Language and Literature	0	0	1	0.05	1	0.02
19.0101	Family and Consumer Sciences/Human Sciences, General	1	0.02	0	0	1	0.02
19.0501	Foods, Nutrition, and Wellness Studies, General	0	0	1	0.05	1	0.02
19.0701	Human Development and Family Studies, General	3	0.07	1	0.05	4	0.07
19.0708	Child Care and Support Services Management (NEW)	2	0.05	1	0.05	3	0.05
19.0709	Child Care	2	0.05	1	0.05	3	0.05

		Provider/Assistant					
22.0001	Pre-Law Studies.	1	0.02	0	0	1	0.02
22.0302	Legal Assistant/Paralegal	4	0.09	2	0.11	6	0.1
23.0101	English Language and Literature, General	2	0.05	1	0.05	3	0.05
23.1304	Rhetoric and Composition	1	0.02	0	0	1	0.02
24.0101	Liberal Arts and Sciences/Liberal Studies	713	16.67	137	7.52	850	13.94
24.0102	General Studies	730	17.06	92	5.05	822	13.48
24.0199	Liberal Arts and Sciences, General Studies and Hum	37	0.86	24	1.32	61	1
25.0301	Library Assistant/Technician	1	0.02	0	0	1	0.02
26.0101	Biology/Biological Sciences, General	172	4.02	13	0.71	185	3.03
26.0202	Biochemistry	2	0.05	1	0.05	3	0.05
27.0101	Mathematics, General	2	0.05	2	0.11	4	0.07
30	Multi-/Interdisciplinary Studies, General	8	0.19	12	0.66	20	0.33
30.1701	Behavioral Sciences (NEW)	1	0.02	0	0	1	0.02
31.0501	Health and Physical Education, General	4	0.09	1	0.05	5	0.08
40.0101	Physical Sciences	147	3.44	96	5.27	243	3.98
40.0501	Chemistry, General	0	0	2	0.11	2	0.03
40.0601	Geology/Earth Science, General	1	0.02	0	0	1	0.02
42.0101	Psychology, General	14	0.33	9	0.49	23	0.38
43.0102	Corrections	1	0.02	4	0.22	5	0.08
43.0103	Criminal Justice/Law Enforcement Administration.	5	0.12	4	0.22	9	0.15
43.0104	Criminal Justice/Safety Studies	25	0.58	2	0.11	27	0.44
43.0201	Fire Protection and Safety Technology/Technician	2	0.05	1	0.05	3	0.05
43.0203	Fire Science/Firefighting	52	1.22	34	1.87	86	1.41
44	Human Services, General (NEW)	2	0.05	0	0	2	0.03
44.0201	Community Organization and Advocacy	2	0.05	0	0	2	0.03
44.0701	Social Work	17	0.4	10	0.55	27	0.44
45.0101	Social Sciences, General	1	0.02	0	0	1	0.02
45.0201	Anthropology	5	0.12	0	0	5	0.08
45.0401	Criminology	3	0.07	0	0	3	0.05
45.1101	Sociology	1	0.02	1	0.05	2	0.03
46.0302	Electrician	1	0.02	0	0	1	0.02
46.0415	Building Construction Technology.	1	0.02	1	0.05	2	0.03

47.0303	Industrial Mechanics and Maintenance Technology	2	0.05	1	0.05	3	0.05
47.0604	Automobile/Automotive Mechanics	3	0.07	2	0.11	5	0.08
47.0607	Technology/Technic Airframe Mechanics and Aircraft Maintenance Techno	1	0.02	1	0.05	2	0.03
47.0699	Vehicle and Mobile Equipment Mechanics and Repairers, Other.	2	0.05	1	0.05	3	0.05
48.0508	Welding Technology/Welder	10	0.23	2	0.11	12	0.2
49.0105	Air Traffic Controller.	1	0.02	0	0	1	0.02
50.0102	Digital Arts	1	0.02	0	0	1	0.02
50.0401	Design and Visual Communications, General	1	0.02	0	0	1	0.02
50.0402	Commercial and Advertising Art	1	0.02	0	0	1	0.02
50.0502	Technical Theatre/Theatre Design and Technology	1	0.02	0	0	1	0.02
50.0602	Cinematography and Film/Video Production	4	0.09	1	0.05	5	0.08
50.0701	Art/Art Studies, General	4	0.09	1	0.05	5	0.08
50.0711	Ceramic Arts and Ceramics	0	0	1	0.05	1	0.02
50.0901	Music, General	3	0.07	0	0	3	0.05
51	Health Services/Allied Health/Health Sciences	196	4.58	86	4.72	282	4.62
51.0601	Dental Assisting/Assistant	46	1.08	6	0.33	52	0.85
51.0602	Dental Hygiene/Hygienist	14	0.33	0	0	14	0.23
51.0706	Health Information/Medical Records Administration/	33	0.77	24	1.32	57	0.93
51.0707	Health Information/Medical Records Technology/Tech	29	0.68	46	2.53	75	1.23
51.071	Medical Office Assistant/Specialist (NEW)	33	0.77	2	0.11	35	0.57
51.0713	Medical Insurance Coding Specialist/Coder (NEW)	1	0.02	0	0	1	0.02
51.0801	Medical/Clinical Assistant	31	0.72	97	5.33	128	2.1
51.0803	Occupational Therapist Assistant	13	0.3	34	1.87	47	0.77
51.0805	Pharmacy Technician/Assistant	14	0.33	12	0.66	26	0.43
51.0806	Physical Therapist Assistant	32	0.75	8	0.44	40	0.66
51.0808	Veterinary/Animal Health Technology/Technician and	109	2.55	0	0	109	1.79
51.081	Emergency Care Attendant	2	0.05	0	0	2	0.03
51.0814	Radiologist Assistant.	3	0.07	0	0	3	0.05
51.0904	Emergency Medical	160	3.74	204	11.2	364	5.97

	Technology/Technician (EMT Param						
51.0907	Medical Radiologic Technology/Science - Radiation	10	0.23	1	0.05	11	0.18
51.0908	Respiratory Care Therapy/Therapist	17	0.4	37	2.03	54	0.89
51.0909	Surgical Technology/Technologist	29	0.68	21	1.15	50	0.82
51.091	Diagnostic Medical Sonography/Sonographer and Ultr	54	1.26	1	0.05	55	0.9
51.0911	Radiologic Technology/Science	60	1.4	24	1.32	84	1.38
51.0913	Radiographer (NEW)						
51.0913	Athletic Training/Trainer	1	0.02	0	0	1	0.02
51.1001	Blood Bank Technology Specialist	3	0.07	13	0.71	16	0.26
51.1004	Clinical/Medical Laboratory Technician	33	0.77	9	0.49	42	0.69
51.1009	Phlebotomy/Phlebotomist	22	0.51	15	0.82	37	0.61
51.1012	Sterile Processing Technology/Technician.	8	0.19	1	0.05	9	0.15
51.1101	Pre-Dentistry Studies.	1	0.02	1	0.05	2	0.03
51.1102	Pre-Medicine/Pre-Medical Studies	12	0.28	12	0.66	24	0.39
51.1104	Pre-Veterinary Studies.	2	0.05	1	0.05	3	0.05
51.1105	Pre-Nursing Studies (NEW)	34	0.79	26	1.43	60	0.98
51.1199	Health and Medical Preparatory Programs, Other.	7	0.16	1	0.05	8	0.13
51.1503	Clinical/Medical Social Work	1	0.02	0	0	1	0.02
51.1504	Community Health Services/Liaison/Counseling	3	0.07	15	0.82	18	0.3
51.1801	Opticianry/Dispensing Optician.	1	0.02	0	0	1	0.02
51.2201	Public Health, General (MPH, DPH)	13	0.3	0	0	13	0.21
51.2207	Public Health Education and Promotion	1	0.02	1	0.05	2	0.03
51.2208	Community Health and Preventive Medicine.	3	0.07	5	0.27	8	0.13
51.2306	Occupational Therapy/Therapist	1	0.02	0	0	1	0.02
51.2601	Health Aide	0	0	10	0.55	10	0.16
51.2602	Home Health Aide/Home Attendant	6	0.14	12	0.66	18	0.3
51.3801	Nursing Registered	650	15.19	304	16.69	954	15.64

51.3901	licensed Practical/Vocational Nurse Training	10	0.23	0	0	10	0.16
51.3902	Nursing Assisting	40	0.94	91	5	131	2.15
52.0101	Business/Commerce, General	16	0.37	2	0.11	18	0.3
52.0201	Business Administration and Management, General	47	1.1	13	0.71	60	0.98
52.0204	Office Management and Supervision	2	0.05	0	0	2	0.03
52.0301	Accounting	3	0.07	2	0.11	5	0.08
52.0302	Technology/Technician and Bookkeeping	3	0.07	1	0.05	4	0.07
52.0401	Administrative Assistant and Secretarial Science,	13	0.3	0	0	13	0.21
52.0408	General Office Occupations and Clerical Services	1	0.02	0	0	1	0.02
52.0901	Hospitality Administration/Management, General	2	0.05	0	0	2	0.03
54.0101	History, General	4	0.09	0	0	4	0.07

