



CONNECTIONS OPEN TEXTBOOK COST-BENEFIT ANALYSIS

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The purpose of this white paper is to present a framework for a quantitative cost/benefit assessment of philanthropic investments in providing open textbooks for the community college market. It is based on the Collaborative Statistics textbook,¹ a successful project hosted on the Connexions² open educational platform.

Unlike most philanthropic investments, the open textbook project has an easily quantifiable metric of social benefit – the direct cost savings to students of freely using an open textbook online or purchasing a very low-cost print version. Since the cost of textbooks is a major factor in the ability of many students to attend community college or to graduate in a reasonable time frame, the benefits to society of minimizing this barrier to education are large.

The analysis framework presented here provides a quantitative cost/benefit assessment considering only the direct monetary benefits to students. There are many other benefits that are harder to quantify – such as how many additional students could afford to attend college if textbook cost were not an impediment. If the quantitative cost/benefit can justify the investment, these other benefits are “gravy”.

In the for-profit business world, the standard approach to determining whether to undertake a project is to use Return on Investment (ROI) analysis. ROI is the ratio of expected returns (i.e. profits) over the life of the project, divided by the cost of the investment. This can be expressed as a *return multiple*, e.g. a multiple of 3x means the project will return 3 times the investment. Alternatively it can be expressed as an *annualized ROI* which is computed using a standard compound growth rate formula; for a project with a 3x return over a 4 year project life this formula computes the annualized ROI as 32%. Where the project life is long, with a constant annual return, the ROI formula reduces to just the ratio of annual returns divided by the investment cost. Most corporations have “hurdle rates” defining the minimum per annum ROI that is acceptable for their business model; typical hurdle rates are 15-25% per annum depending on the economic characteristics of the industry.

To apply the ROI method to the development of an open textbook or group of open textbooks, the direct monetary savings to students can be considered to be the **social return**, and the ratio of that to the initial investment is then the **social ROI**. Thus an open textbook that costs \$500,000 to develop and which saves students \$300,000 per year has a social ROI of 60%. To develop a full cost/benefit model we need to estimate (a) the cost of developing/acquiring the textbook, (b) the

¹ <http://cnx.org/content/col10522/latest/>

² <http://cnx.org/>

annual per-student cost savings of using the textbook, and (c) the number of students each year that will use the textbook.

The Excel spreadsheet “Return on Investment Analysis.xls” is set up to apply the above ROI methodology to the community college textbook market. It uses actual enrollment data for the California community college system in 2007-2008 (FTE enrollments in each of 393 subject areas). Given additional assumptions about the average development cost of each open textbook (cell I4) the expected adoption rate (cell H4), and the savings per student (cell G4), the spreadsheet computes the social ROI based on the California market alone, and also provides a rough extrapolation to the ROI for the entire US community college market. For illustrative purposes, a specific set of reasonable assumptions have been inserted. It is simple to test alternate assumptions or sensitivity to variation by simply entering new numbers into the three cells; the spreadsheet will immediately recalculate the ROI figures.

The next section explains in detail the components and calculations of the spreadsheet. The section after that discusses the implications and sensitivities of the results.

EXPLANATION OF THE SPREADSHEET

ROWS

Each row represents one subject area; the rows are ranked by the number of full-time equivalent (FTE) enrollments (largest to smallest) in the 2007-2008 year in California community colleges.

COLUMNS

Rank – shows the ranking (#1 is largest number of FTEs)

Title – name of the subject

2007-8 CA Total FTEs – a “full time student” is defined as one who is enrolled in 12 or units (credits). The Full Time Equivalent (FTE) figure is calculated by dividing 12 into the total number of units for which students are enrolled in a given subject area.³

CA #enrollees/yr – computed by multiplying the FTE figure by 12 to get the total units enrolled, then dividing by 3 (assuming the average course is 3 units) to get the number of persons taking the subject each year.

Potential CA savings/yr @ \$xx – multiplies the total CA enrollees per year by the expected savings per student that is entered in cell G4. The illustrative figure of \$75 assumes all students purchase a low-cost print version for \$25, saving \$75 over the cost of a typical \$100 publisher book. If a large fraction of students chose to simply view the material on-line and not purchase a book, the average savings would be higher.

Actual CA savings if adoption rate is xx% -- it is highly unlikely that any given open textbook would be adopted by every California teacher in a given subject, for many reasons. This column

³ Source of FTE data: https://misweb.cccco.edu/mis/onlinestat/ftes_rpt.cfm?RequestTimeout=1000

applies an assumed adoption rate entered in cell H4 to the potential savings to get a more realistic estimate of actual savings. The assumption here is 10%.

Annual ROI (CA only) for investment of \$xxx,xxx – this computes the annual ROI as a ratio of the annual savings divided by the assumed average development cost of a book, as entered in cell I4. The assumption here is \$500,000.

The next two columns extend the analysis to provide a rough estimate for the entire US community college market. The simplifying assumption is that all states have similar relative numbers of students in each subject area with mostly overlapping subject requirements (i.e. each open textbook developed is usable in all states). There are approximately 7M community college students in the US, of which 1.4M are in California.⁴ So the total US market is approximately 5 times the California Market; hence these columns multiply the savings by 5 and recalculate the ROI in the same manner as for the California market:

US Annual Savings – CA savings times 5

Annual ROI (US) -- CA ROI times 5

The next three columns show the cumulative results, for only the California market, of a multi-book project where the top-ranked subjects 1 to N are developed. For the total US market, the savings and ROI would be multiplied by 5.

Cumulative Investment – sums the total investment assuming an average development cost given in cell I4.

Cumulative CA Annual Savings – sums the annual savings for the N books in the CA market

Cumulative CA Annual ROI – divides the annual CA savings of the top N books by the total investment.

For example, under the illustrative assumptions given, if a project to develop the top 5 titles were undertaken, the investment would be \$2.5M, and the annual return for just the California market would be 341%. Said another way, **the savings to students in California on a \$2.5M investment would be \$8.5M every year thereafter (or \$11.3M if all students chose to just access the material digitally). For the total US market, the savings would be 5 times as much, or \$43M per year.**

DISCUSSION

One major conclusion emerges from examining this model and performing sensitivity analysis; **the social ROI for the high enrollment subject areas is far higher than would be required to justify investments in the for-profit world.**

Table 1 summarizes the estimated return on investment for a hypothetical project for various numbers of top titles produced – 5, 10, 15, and 20 titles – under the assumptions of \$500K/title cost, 10% adoption rate, and \$75/student savings.

⁴ Source: <http://www.aacc.nche.edu/AboutCC/Trends/Pages/enrollment.aspx>

If all of the top 20 titles were developed, the annual ROI for California alone would be 187% under the basic assumptions, over 7 times a typical 25% business hurdle rate. Even if the assumption of adoption rate is reduced from 10% to 3% and the assumed per-title development cost is doubled to \$1,000,000, the top 20 titles would still be justified for the California market alone.

Table 1. Return on Investment Summary

# Titles	Investment (\$M)	CA Savings/yr (\$M)	CA ROI / yr	US Savings/yr (\$M)	US ROI / yr
Top 5	2.5	8.5	341%	42.5	1703%
Top 10	5.0	13.0	261%	65.0	1304%
Top 15	7.5	16.0	214%	80.0	1070%
Top 20	10.0	18.7	187%	93.5	936%

Using the same 25% ROI as a minimum acceptable figure, under the basic assumptions shown in Table 1 the top 63 titles would be justified considering only the California market. If we consider the total US market, the top 164 titles would be justified for investment.

Because of the very high ROI, there are large benefits to minimizing “time-to-market”, i.e. the calendar time required to develop a textbook. For example, suppose there are two options to acquiring content for a textbook: for option A, the acquisition cost is \$250,000 and will take 24 months to complete, while for option B the cost is \$500,000 but can be completed in 12 months. Choosing the lower-cost option will result in a 12 month loss of social benefit to students that cannot be recovered. For the #10 title, this amounts to over \$700,000 lost in the CA market, or over \$3M for the US market. So choosing the additional investment of \$250,000 for the higher-cost option provides several times that much incremental social benefit.

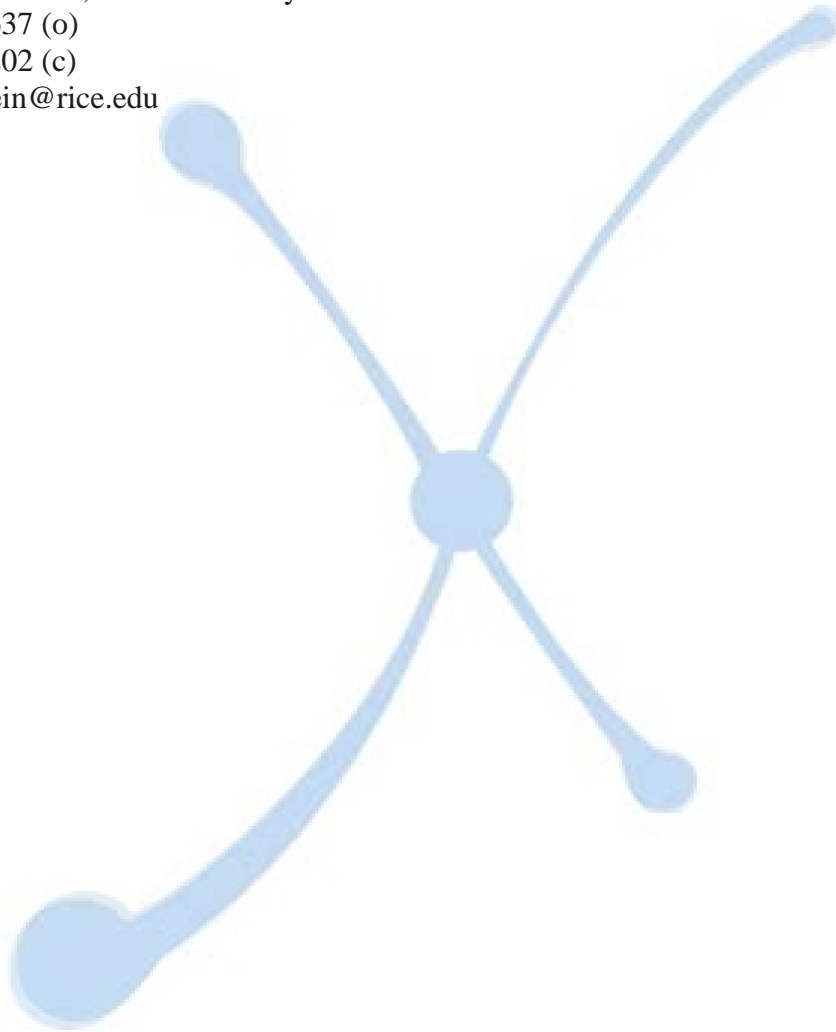
Based on the data, it is likely that a compelling case can be made for developing as many as 100 or more textbooks just for the community college market, costing on the order of \$50M. While it may be the case that private sector philanthropy at this level is not available, this amount is a small fraction of what federal, state, and local governments spend on education, especially with the current federal government stimulus plans. Governments are not likely to start such an initiative on their own, and even if they did they likely would execute it poorly and slowly. This suggests a win-win strategy: initiate a private project to develop 5-10 textbooks within 2 years; in parallel, approach the federal government for a follow-on public-private partnership to scale up the enterprise (it would take 1-2 years get to the point of having funds available, so starting the process early is essential). In the scale-up phase the private partners would continue to provide some funding as well as manage the project, with the federal government providing the lion’s share -- say 80% -- of the funding to develop, say, 100 books by the end of 5-6 years. This is a “best of both worlds” scenario, allowing effective management by the private sector with public sector funding support.

The framework provided in the spreadsheet provides a standard way of representing cost/benefit tradeoffs. Of course, the credibility of the calculation results depends on the accuracy of the input data and the reasonableness of the assumptions about development cost, average per-

student savings, and adoption rates. These can and should be fine-tuned in the early stages of the project; in particular, it would be desirable to use data on highest enrollment *courses* rather than subjects. This data probably exists but was not available for this analysis.

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RETURN ON INVESTMENT ANALYSIS

Rank Title		MULTI-BOOK PROJECT ANALYSIS									
		2007-8 CA		Potential CA	CA annual savings	Annual ROI (CA only)	US annual savings	Annual ROI (US)	Cumulative	Cumulative CA	Cumulative CA
		Total FTEs	# enrollees/yr	Savings/yr @ 75	if adoption rate is 10%	for investment of \$500,000			Investment	Annual Savings	Annual ROI
1	Mathematics, General	97,748	390,992	\$29,324,401	\$2,932,440	586%	\$14,662,200	2932%	\$500,000	\$2,932,440	586%
2	English	70,385	281,539	21,115,450	2,111,545	422%	10,557,725	2112%	1,000,000	5,043,985	504%
3	Physical Education	44,614	178,455	13,384,090	1,338,409	268%	6,692,045	1338%	1,500,000	6,382,394	425%
4	English as a Second Language - Intermediate	36,235	144,939	10,870,397	1,087,040	217%	5,435,199	1087%	2,000,000	7,469,434	373%
5	Biology, General	34,879	139,517	10,463,787	1,046,379	209%	5,231,894	1046%	2,500,000	8,515,813	341%
6	Psychology, General	34,416	137,664	10,324,805	1,032,480	206%	5,162,402	1032%	3,000,000	9,548,293	318%
7	History	33,591	134,363	10,077,219	1,007,722	202%	5,038,610	1008%	3,500,000	10,556,015	302%
8	Music	30,161	120,643	9,048,190	904,819	181%	4,524,095	905%	4,000,000	11,460,834	287%
9	Chemistry, General	28,287	113,147	8,485,994	848,599	170%	4,242,997	849%	4,500,000	12,309,433	274%
10	Speech Communication	24,258	97,032	7,277,385	727,739	146%	3,638,693	728%	5,000,000	13,037,172	261%
11	Pre-Algebra (Basic Math/Arithmetic)	21,758	87,031	6,527,336	652,734	131%	3,263,668	653%	5,500,000	13,689,905	249%
12	Spanish	21,738	86,951	6,521,356	652,136	130%	3,260,678	652%	6,000,000	14,342,041	239%
13	Child Development/Early Care and Education	19,678	78,713	5,903,438	590,344	118%	2,951,719	590%	6,500,000	14,932,385	230%
14	Registered Nursing	18,668	74,673	5,600,502	560,050	112%	2,800,251	560%	7,000,000	15,492,435	221%
15	Administration of Justice	18,564	74,256	5,569,185	556,918	111%	2,784,592	557%	7,500,000	16,049,353	214%
16	Sociology	18,376	73,505	5,512,847	551,285	110%	2,756,424	551%	8,000,000	16,600,638	208%
17	Political Science	17,857	71,426	5,356,961	535,696	107%	2,678,481	536%	8,500,000	17,136,334	202%
18	Anatomy and Physiology	17,835	71,342	5,350,624	535,062	107%	2,675,312	535%	9,000,000	17,671,397	196%
19	Accounting	17,740	70,960	5,322,031	532,203	106%	2,661,015	532%	9,500,000	18,203,600	192%
20	Writing	17,442	69,767	5,232,514	523,251	105%	2,616,257	523%	10,000,000	18,726,851	187%
21	Art	15,552	62,208	4,665,623	466,562	93%	2,332,812	467%	10,500,000	19,193,414	183%
22	Physical Fitness and Body Movement	15,360	61,438	4,607,878	460,788	92%	2,303,939	461%	11,000,000	19,654,201	179%
23	Office Technology/Office Computer Applications	14,981	59,925	4,494,364	449,436	90%	2,247,182	449%	11,500,000	20,103,638	175%
24	Philosophy	14,835	59,342	4,450,631	445,063	89%	2,225,316	445%	12,000,000	20,548,701	171%
25	Health Education	14,349	57,397	4,304,762	430,476	86%	2,152,381	430%	12,500,000	20,979,177	168%
26	Economics	13,665	54,660	4,099,511	409,951	82%	2,049,756	410%	13,000,000	21,389,128	165%
27	Anthropology	12,548	50,194	3,764,538	376,454	75%	1,882,269	376%	13,500,000	21,765,582	161%
28	Information Technology, General	11,130	44,521	3,339,088	333,909	67%	1,669,544	334%	14,000,000	22,099,491	158%
29	Dramatic Arts	11,004	44,016	3,301,183	330,118	66%	1,650,592	330%	14,500,000	22,429,609	155%
30	Reading Skills Development	10,770	43,079	3,230,929	323,093	65%	1,615,464	323%	15,000,000	22,752,702	152%
31	Intercollegiate Athletics	10,519	42,074	3,155,551	315,555	63%	1,577,775	316%	15,500,000	23,068,257	149%
32	Cosmetology and Barbering	10,350	41,399	3,104,895	310,490	62%	1,552,448	310%	16,000,000	23,378,747	146%
33	Business and Commerce, General	9,377	37,506	2,812,979	281,298	56%	1,406,489	281%	16,500,000	23,660,045	143%
34	Painting and Drawing	9,256	37,025	2,776,845	277,685	56%	1,388,423	278%	17,000,000	23,937,729	141%
35	Fire Technology	9,004	36,017	2,701,264	270,126	54%	1,350,632	270%	17,500,000	24,207,856	138%
36	Secondary Education (Grades 9-12) and G.E.D.	8,725	34,900	2,617,513	261,751	52%	1,308,756	262%	18,000,000	24,469,607	136%
37	Automotive Technology	8,700	34,799	2,609,945	260,995	52%	1,304,973	261%	18,500,000	24,730,601	134%
38	Physics, General	8,350	33,401	2,505,055	250,506	50%	1,252,528	251%	19,000,000	24,981,107	131%
39	Police Academy	8,206	32,824	2,461,824	246,182	49%	1,230,912	246%	19,500,000	25,227,289	129%
40	Supervised Tutoring	8,107	32,428	2,432,130	243,213	49%	1,216,065	243%	20,000,000	25,470,502	127%
41	Fine Arts, General	8,072	32,288	2,421,588	242,159	48%	1,210,794	242%	20,500,000	25,712,661	125%
42	English as a Second Language - Elementary	7,745	30,979	2,323,438	232,344	46%	1,161,719	232%	21,000,000	25,945,005	124%
43	Geography	7,666	30,664	2,299,771	229,977	46%	1,149,886	230%	21,500,000	26,174,982	122%
44	Dance	7,644	30,576	2,293,168	229,317	46%	1,146,584	229%	22,000,000	26,404,299	120%
45	English as a Second Language - Degree Applicable	7,403	29,612	2,220,870	222,087	44%	1,110,435	222%	22,500,000	26,626,386	118%
46	Career Guidance and Orientation	6,747	26,988	2,024,135	202,414	40%	1,012,068	202%	23,000,000	26,828,799	117%
47	Astronomy	6,291	25,166	1,887,431	188,743	38%	943,716	189%	23,500,000	27,017,542	115%
48	Computer Programming	5,842	23,366	1,752,457	175,246	35%	876,229	175%	24,000,000	27,192,788	113%
49	Nutrition, Foods, and Culinary Arts	5,812	23,248	1,743,602	174,360	35%	871,801	174%	24,500,000	27,367,148	112%
50	MicroBiology	5,426	21,706	1,627,915	162,792	33%	813,958	163%	25,000,000	27,529,940	110%
51	Ethnic Studies	5,411	21,644	1,623,333	162,333	32%	811,667	162%	25,500,000	27,692,273	109%
52	Business Management	5,307	21,227	1,591,995	159,199	32%	795,997	159%	26,000,000	27,851,473	107%
53	Fire Academy	5,187	20,746	1,555,963	155,596	31%	777,981	156%	26,500,000	28,007,069	106%
54	Applied Photography	4,972	19,887	1,491,526	149,153	30%	745,763	149%	27,000,000	28,156,222	104%
55	Real Estate	4,837	19,346	1,450,965	145,097	29%	725,483	145%	27,500,000	28,301,318	103%
56	Licensed Vocational Nursing	4,703	18,813	1,410,951	141,095	28%	705,476	141%	28,000,000	28,442,413	102%
57	Culinary Arts	4,677	18,707	1,402,989	140,299	28%	701,494	140%	28,500,000	28,582,712	100%
58	Emergency Medical Services	4,660	18,642	1,398,118	139,812	28%	699,059	140%	29,000,000	28,722,524	99%
59	Geology	4,464	17,855	1,339,101	133,910	27%	669,550	134%	29,500,000	28,856,434	98%
60	Welding Technology	4,370	17,481	1,311,083	131,108	26%	655,542	131%	30,000,000	28,987,542	97%
61	Sign Language	4,233	16,932	1,269,876	126,988	25%	634,938	127%	30,500,000	29,114,530	95%
62	French	4,103	16,413	1,231,000	123,100	25%	615,500	123%	31,000,000	29,237,630	94%
63	Elementary Algebra (not degree applicable)	4,100	16,401	1,230,109	123,011	25%	615,055	123%	31,500,000	29,360,641	93%
64	Software Applications	4,082	16,328	1,224,591	122,459	24%	612,295	122%	32,000,000	29,483,100	92%
65	Computer Information Systems	3,947	15,789	1,184,169	118,417	24%	592,085	118%	32,500,000	29,601,517	91%

66	Drafting Technology	3,773	15,092	1,131,899	113,190	23%	565,950	113%	33,000,000	29,714,707	90%
67	Living Skills, Handicapped	3,735	14,940	1,120,471	112,047	22%	560,236	112%	33,500,000	29,826,754	89%
68	Business Administration	3,734	14,938	1,120,337	112,034	22%	560,169	112%	34,000,000	29,938,788	88%
69	Graphic Art and Design	3,639	14,557	1,091,794	109,179	22%	545,897	109%	34,500,000	30,047,967	87%
70	Other Humanities	3,626	14,502	1,087,663	108,766	22%	543,831	109%	35,000,000	30,156,733	86%
71	Academic Guidance	3,572	14,290	1,071,717	107,172	21%	535,858	107%	35,500,000	30,263,905	85%
72	General Work Experience	3,482	13,926	1,044,463	104,446	21%	522,232	104%	36,000,000	30,368,351	84%
73	Photography	3,420	13,681	1,026,039	102,604	21%	513,019	103%	36,500,000	30,470,955	83%
74	Japanese	3,408	13,632	1,022,414	102,241	20%	511,207	102%	37,000,000	30,573,197	83%
75	Ceramics	3,278	13,110	983,262	98,326	20%	491,631	98%	37,500,000	30,671,523	82%
76	Radiologic Technology	3,273	13,090	981,757	98,176	20%	490,879	98%	38,000,000	30,769,699	81%
77	Architecture and Architectural Technology	2,998	11,993	899,509	89,951	18%	449,754	90%	38,500,000	30,859,649	80%
78	Manufacturing and Industrial Technology	2,937	11,749	881,173	88,117	18%	440,586	88%	39,000,000	30,947,767	79%
79	Electronics and Electric Technology	2,817	11,269	845,210	84,521	17%	422,605	85%	39,500,000	31,032,288	79%
80	Nursing	2,773	11,093	831,975	83,198	17%	415,988	83%	40,000,000	31,115,485	78%
81	Reading Skills, College Level (including Speed Reading)	2,728	10,912	818,424	81,842	16%	409,212	82%	40,500,000	31,197,328	77%
82	Learning Skills, Learning Disabled	2,725	10,900	817,476	81,748	16%	408,738	82%	41,000,000	31,279,075	76%
83	Electrical	2,694	10,778	808,349	80,835	16%	404,174	81%	41,500,000	31,359,910	76%
84	Social Sciences, General	2,690	10,758	806,875	80,688	16%	403,438	81%	42,000,000	31,440,598	75%
85	Learning Skills, Handicapped	2,595	10,380	778,501	77,850	16%	389,250	78%	42,500,000	31,518,448	74%
86	English as a Second Language - Advanced (not degree applicab	2,588	10,351	776,315	77,632	16%	388,158	78%	43,000,000	31,596,079	73%
87	Physical Sciences, General	2,476	9,904	742,801	74,280	15%	371,400	74%	43,500,000	31,670,359	73%
88	Construction Crafts Technology	2,437	9,747	730,995	73,099	15%	365,497	73%	44,000,000	31,743,459	72%
89	Job Seeking/Changing Skills	2,403	9,610	720,781	72,078	14%	360,390	72%	44,500,000	31,815,537	71%
90	Paralegal	2,285	9,139	685,419	68,542	14%	342,709	69%	45,000,000	31,884,079	71%
91	Family and Consumer Sciences, General	2,275	9,099	682,395	68,240	14%	341,198	68%	45,500,000	31,952,318	70%
92	Chinese	2,190	8,759	656,914	65,691	13%	328,457	66%	46,000,000	32,018,010	70%
93	Computer Networking	2,034	8,136	610,171	61,017	12%	305,086	61%	46,500,000	32,079,027	69%
94	Computer Graphics and Digital Imagery	1,956	7,825	586,841	58,684	12%	293,420	59%	47,000,000	32,137,711	68%
95	Carpentry	1,914	7,657	574,303	57,430	11%	287,151	57%	47,500,000	32,195,141	68%
96	Journalism	1,914	7,655	574,106	57,411	11%	287,053	57%	48,000,000	32,252,552	67%
97	Psychiatric Technician	1,863	7,454	559,030	55,903	11%	279,515	56%	48,500,000	32,308,455	67%
98	Fashion	1,861	7,444	558,287	55,829	11%	279,143	56%	49,000,000	32,364,283	66%
99	Commercial Music	1,844	7,377	553,273	55,327	11%	276,636	55%	49,500,000	32,419,611	65%
100	Italian	1,844	7,377	553,250	55,325	11%	276,625	55%	50,000,000	32,474,936	65%
101	Interior Design and Merchandising	1,835	7,341	550,541	55,054	11%	275,271	55%	50,500,000	32,529,990	64%
102	Human Services	1,833	7,331	549,821	54,982	11%	274,911	55%	51,000,000	32,584,972	64%
103	Automotive Collision Repair	1,832	7,328	549,609	54,961	11%	274,805	55%	51,500,000	32,639,933	63%
104	Film History and Criticism	1,796	7,185	538,888	53,889	11%	269,444	54%	52,000,000	32,693,822	63%
105	Marketing and Distribution	1,766	7,066	529,926	52,993	11%	264,963	53%	52,500,000	32,746,814	62%
106	Other Interdisciplinary Studies	1,733	6,933	519,994	51,999	10%	259,997	52%	53,000,000	32,798,814	62%
107	Digital Media	1,730	6,919	518,914	51,891	10%	259,457	52%	53,500,000	32,850,705	61%
108	Study Skills	1,712	6,849	513,695	51,369	10%	256,847	51%	54,000,000	32,902,074	61%
109	Fashion Design	1,712	6,847	513,543	51,354	10%	256,772	51%	54,500,000	32,953,429	60%
110	Oceangraphy	1,703	6,811	510,843	51,084	10%	255,421	51%	55,000,000	33,004,513	60%
111	Environmental Control Technology	1,697	6,786	508,979	50,898	10%	254,490	51%	55,500,000	33,055,411	60%
112	Communication Skills	1,695	6,780	508,493	50,849	10%	254,247	51%	56,000,000	33,106,260	59%
113	Radio and Television	1,659	6,637	497,767	49,777	10%	248,884	50%	56,500,000	33,156,037	59%
114	Respiratory Care/Therapy	1,659	6,635	497,607	49,761	10%	248,804	50%	57,000,000	33,205,798	58%
115	Religious Studies	1,655	6,619	496,427	49,643	10%	248,213	50%	57,500,000	33,255,440	58%
116	Elementary Education (Grades 1-8)	1,549	6,194	464,583	46,458	9%	232,291	46%	58,000,000	33,301,899	57%
117	Adapted Physical Education	1,546	6,186	463,931	46,393	9%	231,966	46%	58,500,000	33,348,292	57%
118	Horticulture	1,545	6,181	463,543	46,354	9%	231,772	46%	59,000,000	33,394,646	57%
119	Gerontology	1,513	6,050	453,762	45,376	9%	226,881	45%	59,500,000	33,440,022	56%
120	Film Studies	1,460	5,840	438,019	43,802	9%	219,010	44%	60,000,000	33,483,824	56%
121	Health Occupations, General	1,442	5,768	432,617	43,262	9%	216,308	43%	60,500,000	33,527,086	55%
122	Vocational ESL	1,437	5,748	431,091	43,109	9%	215,545	43%	61,000,000	33,570,195	55%
123	Alcohol and Controlled Substances	1,421	5,684	426,269	42,627	9%	213,135	43%	61,500,000	33,612,822	55%
124	Paramedic	1,402	5,607	420,498	42,050	8%	210,249	42%	62,000,000	33,654,872	54%
125	Medical Assisting	1,294	5,174	388,064	38,806	8%	194,032	39%	62,500,000	33,693,678	54%
126	Certified Nurse Assistant	1,285	5,141	385,540	38,554	8%	192,770	39%	63,000,000	33,732,232	54%
127	Corrections	1,277	5,106	382,983	38,298	8%	191,492	38%	63,500,000	33,770,531	53%
128	Machining and Machine Tools	1,270	5,082	381,113	38,111	8%	190,556	38%	64,000,000	33,808,642	53%
129	Film Production	1,245	4,981	373,574	37,357	7%	186,787	37%	64,500,000	33,845,999	52%
130	Classics	1,242	4,969	372,666	37,267	7%	186,333	37%	65,000,000	33,883,266	52%
131	Dental Hygienist	1,210	4,839	362,929	36,293	7%	181,464	36%	65,500,000	33,919,559	52%
132	Engineering, General (requires Calculus) (Transfer)	1,210	4,839	362,894	36,289	7%	181,447	36%	66,000,000	33,955,848	51%
133	Comparative Literature	1,197	4,788	359,068	35,907	7%	179,534	36%	66,500,000	33,991,755	51%
134	Media and Communications, General	1,197	4,787	359,049	35,905	7%	179,525	36%	67,000,000	34,027,660	51%

135	Career Technical Computational Skills	1,177	4,706	352,956	35,296	7%	176,478	35%	67,500,000	34,062,955	50%
136	Website Design and Development	1,172	4,688	351,570	35,157	7%	175,785	35%	68,000,000	34,098,112	50%
137	Dental Assistant	1,131	4,524	339,322	33,932	7%	169,661	34%	68,500,000	34,132,045	50%
138	Sign Language Interpreting	1,124	4,495	337,162	33,716	7%	168,581	34%	69,000,000	34,165,761	50%
139	German	1,114	4,457	334,307	33,431	7%	167,153	33%	69,500,000	34,199,191	49%
140	Creative Writing	1,112	4,446	333,460	33,346	7%	166,730	33%	70,000,000	34,232,537	49%
141	Television (including combined TV/Film/Video)	1,101	4,404	330,334	33,033	7%	165,167	33%	70,500,000	34,265,571	49%
142	Earth Science	1,090	4,359	326,899	32,690	7%	163,449	33%	71,000,000	34,298,261	48%
143	Mill and Cabinet Work	1,080	4,320	324,003	32,400	6%	162,001	32%	71,500,000	34,330,661	48%
144	Leadership Skills Development	1,030	4,121	309,039	30,904	6%	154,520	31%	72,000,000	34,361,565	48%
145	Foreign Languages, General	1,028	4,111	308,324	30,832	6%	154,162	31%	72,500,000	34,392,397	47%
146	Infants and Toddlers	1,019	4,076	305,679	30,568	6%	152,840	31%	73,000,000	34,422,965	47%
147	Animal Science	1,009	4,036	302,716	30,272	6%	151,358	30%	73,500,000	34,453,237	47%
148	Sculpture	994	3,978	298,338	29,834	6%	149,169	30%	74,000,000	34,483,071	47%
149	Commercial Art	989	3,955	296,629	29,663	6%	148,314	30%	74,500,000	34,512,734	46%
150	Technical Theater	969	3,876	290,734	29,073	6%	145,367	29%	75,000,000	34,541,807	46%
151	Plumbing, Pipefitting and Steamfitting	969	3,874	290,580	29,058	6%	145,290	29%	75,500,000	34,570,865	46%
152	Aeronautical and Aviation Technology	947	3,789	284,161	28,416	6%	142,081	28%	76,000,000	34,599,281	46%
153	Computer Science (Transfer)	927	3,706	277,981	27,798	6%	138,991	28%	76,500,000	34,627,079	45%
154	Restaurant and Food Services and Management	907	3,628	272,073	27,207	5%	136,036	27%	77,000,000	34,654,287	45%
155	Animation	904	3,616	271,169	27,117	5%	135,585	27%	77,500,000	34,681,403	45%
156	Drywall and Insulation	887	3,548	266,094	26,609	5%	133,047	27%	78,000,000	34,708,013	44%
157	Citizenship	876	3,504	262,825	26,283	5%	131,413	26%	78,500,000	34,734,295	44%
158	Applied Design	865	3,459	259,442	25,944	5%	129,721	26%	79,000,000	34,760,240	44%
159	Education, General	857	3,428	257,115	25,712	5%	128,558	26%	79,500,000	34,785,951	44%
160	Multimedia	817	3,267	245,050	24,505	5%	122,525	25%	80,000,000	34,810,456	44%
161	Civil and Construction Management Technology	809	3,238	242,848	24,285	5%	121,424	24%	80,500,000	34,834,741	43%
162	Environmental Studies	791	3,163	237,195	23,720	5%	118,598	24%	81,000,000	34,858,461	43%
163	Management Development and Supervision	787	3,150	236,250	23,625	5%	118,125	24%	81,500,000	34,882,086	43%
164	Environmental Science	757	3,029	227,158	22,716	5%	113,579	23%	82,000,000	34,904,801	43%
165	Preschool Age Children	748	2,991	224,358	22,436	4%	112,179	22%	82,500,000	34,927,237	42%
166	Computer Infrastructure and Support	732	2,930	219,719	21,972	4%	109,859	22%	83,000,000	34,949,209	42%
167	Banking and Finance	726	2,904	217,763	21,776	4%	108,881	22%	83,500,000	34,970,985	42%
168	Health Professions, Transfer Core Curriculum	711	2,843	213,211	21,321	4%	106,606	21%	84,000,000	34,992,306	42%
169	ESL Civics	693	2,771	207,851	20,785	4%	103,926	21%	84,500,000	35,013,092	41%
170	Other Fine and Applied Arts	676	2,706	202,929	20,293	4%	101,464	20%	85,000,000	35,033,384	41%
171	Sheet Metal and Structural Metal	674	2,695	202,148	20,215	4%	101,074	20%	85,500,000	35,053,599	41%
172	Veterinary Technician (Licensed)	664	2,655	199,153	19,915	4%	99,577	20%	86,000,000	35,073,515	41%
173	Plant Science	663	2,651	198,816	19,882	4%	99,408	20%	86,500,000	35,093,396	41%
174	Small Business and Entrepreneurship	660	2,641	198,055	19,805	4%	99,027	20%	87,000,000	35,113,202	40%
175	Child Development Administration and Management	647	2,590	194,235	19,423	4%	97,117	19%	87,500,000	35,132,625	40%
176	Diesel Technology	642	2,568	192,577	19,258	4%	96,289	19%	88,000,000	35,151,883	40%
177	Construction Inspection	630	2,519	188,916	18,892	4%	94,458	19%	88,500,000	35,170,774	40%
178	Water and Wastewater Technology	610	2,440	182,974	18,297	4%	91,487	18%	89,000,000	35,189,072	40%
179	Other Information Technology	605	2,422	181,634	18,163	4%	90,817	18%	89,500,000	35,207,235	39%
180	Medical Office Technology	584	2,335	175,096	17,510	4%	87,548	18%	90,000,000	35,224,745	39%
181	Special Education	577	2,309	173,151	17,315	3%	86,576	17%	90,500,000	35,242,060	39%
182	Landscape Design and Maintenance	577	2,307	173,056	17,306	3%	86,528	17%	91,000,000	35,259,366	39%
183	Natural History	570	2,281	171,070	17,107	3%	85,535	17%	91,500,000	35,276,473	39%
184	Petroleum Technology	565	2,262	169,640	16,964	3%	84,820	17%	92,000,000	35,293,437	38%
185	Pharmacy Technology	555	2,222	166,639	16,664	3%	83,319	17%	92,500,000	35,310,101	38%
186	Hospitality	554	2,216	166,180	16,618	3%	83,090	17%	93,000,000	35,326,719	38%
187	Engineering Technology, General (requires Trigonometry)	552	2,210	165,737	16,574	3%	82,869	17%	93,500,000	35,343,292	38%
188	Library Science, General	544	2,176	163,218	16,322	3%	81,609	16%	94,000,000	35,359,614	38%
189	Other Education	540	2,160	161,974	16,197	3%	80,987	16%	94,500,000	35,375,811	37%
190	Women's Studies	530	2,121	159,085	15,908	3%	79,542	16%	95,000,000	35,391,720	37%
191	Diagnostic Medical Sonography	528	2,113	158,502	15,850	3%	79,251	16%	95,500,000	35,407,570	37%
192	Zoology, General	511	2,043	153,252	15,325	3%	76,626	15%	96,000,000	35,422,895	37%
193	Agriculture Technology and Sciences, General	509	2,036	152,734	15,273	3%	76,367	15%	96,500,000	35,438,169	37%
194	World Wide Web Administration	506	2,023	151,696	15,170	3%	75,848	15%	97,000,000	35,453,338	37%
195	Other Foreign Languages	504	2,016	151,208	15,121	3%	75,604	15%	97,500,000	35,468,459	36%
196	Computer Software Development	476	1,905	142,849	14,285	3%	71,424	14%	98,000,000	35,482,744	36%
197	Other Media and Communications	474	1,897	142,255	14,225	3%	71,127	14%	98,500,000	35,496,969	36%
198	Health Information Technology	467	1,869	140,202	14,020	3%	70,101	14%	99,000,000	35,510,990	36%
199	Natural Resources	455	1,822	136,648	13,665	3%	68,324	14%	99,500,000	35,524,654	36%
200	Physicians Assistant	454	1,816	136,169	13,617	3%	68,084	14%	100,000,000	35,538,271	36%
201	Parenting and Family Education	434	1,735	130,145	13,014	3%	65,072	13%	100,500,000	35,551,286	35%
202	Family Studies	432	1,728	129,582	12,958	3%	64,791	13%	101,000,000	35,564,244	35%
203	Other Engineering and Related Industrial Technologies	425	1,700	127,523	12,752	3%	63,762	13%	101,500,000	35,576,996	35%

204	Botany, General	422	1,689	126,684	12,668	3%	63,342	13%	102,000,000	35,589,665	35%
205	Jewelry	413	1,653	123,946	12,395	2%	61,973	12%	102,500,000	35,602,059	35%
206	Vietnamese	412	1,647	123,519	12,352	2%	61,759	12%	103,000,000	35,614,411	35%
207	Other Health Occupations	408	1,634	122,549	12,255	2%	61,274	12%	103,500,000	35,626,666	34%
208	Aviation Powerplant Mechanics	408	1,633	122,489	12,249	2%	61,244	12%	104,000,000	35,638,915	34%
209	Biotechnology and Biomedical Technology	398	1,591	119,290	11,929	2%	59,645	12%	104,500,000	35,650,844	34%
210	International Business and Trade	395	1,578	118,364	11,836	2%	59,182	12%	105,000,000	35,662,680	34%
211	Mass Communications	377	1,508	113,082	11,308	2%	56,541	11%	105,500,000	35,673,988	34%
212	Other Biological Sciences	361	1,446	108,433	10,843	2%	54,217	11%	106,000,000	35,684,832	34%
213	Fashion Merchandising	359	1,435	107,638	10,764	2%	53,819	11%	106,500,000	35,695,596	34%
214	Law, General	357	1,429	107,209	10,721	2%	53,604	11%	107,000,000	35,706,316	33%
215	American Studies	348	1,390	104,285	10,429	2%	52,143	10%	107,500,000	35,716,745	33%
216	Environmental Technology	336	1,345	100,875	10,088	2%	50,438	10%	108,000,000	35,726,832	33%
217	Agriculture Business, Sales and Service	335	1,341	100,571	10,057	2%	50,286	10%	108,500,000	35,736,890	33%
218	Database Design and Administration	333	1,334	100,031	10,003	2%	50,016	10%	109,000,000	35,746,893	33%
219	Travel Services and Tourism	328	1,310	98,274	9,827	2%	49,137	10%	109,500,000	35,756,720	33%
220	Wildland Fire Technology	327	1,306	97,971	9,797	2%	48,985	10%	110,000,000	35,766,517	33%
221	Electrical Systems and Power Transmission	326	1,305	97,911	9,791	2%	48,956	10%	110,500,000	35,776,308	32%
222	Computer Support	326	1,305	97,889	9,789	2%	48,944	10%	111,000,000	35,786,097	32%
223	Other Mathematics	323	1,291	96,855	9,685	2%	48,427	10%	111,500,000	35,795,783	32%
224	Agricultural Power Equipment Technology	321	1,285	96,399	9,640	2%	48,199	10%	112,000,000	35,805,423	32%
225	Printing and Lithography	319	1,276	95,710	9,571	2%	47,855	10%	112,500,000	35,814,994	32%
226	Floriculture / Floristry	319	1,275	95,611	9,561	2%	47,805	10%	113,000,000	35,824,555	32%
227	Tax Studies	317	1,269	95,139	9,514	2%	47,570	10%	113,500,000	35,834,069	32%
228	Court Reporting	315	1,261	94,594	9,459	2%	47,297	9%	114,000,000	35,843,528	31%
229	Fashion Production	315	1,261	94,573	9,457	2%	47,286	9%	114,500,000	35,852,985	31%
230	Children with Special Needs	314	1,257	94,297	9,430	2%	47,148	9%	115,000,000	35,862,415	31%
231	Interpersonal Skills	311	1,245	93,406	9,341	2%	46,703	9%	115,500,000	35,871,756	31%
232	Piloting	310	1,240	92,967	9,297	2%	46,484	9%	116,000,000	35,881,052	31%
233	Administrative Medical Assisting	302	1,206	90,453	9,045	2%	45,227	9%	116,500,000	35,890,098	31%
234	Arabic	301	1,205	90,407	9,041	2%	45,204	9%	117,000,000	35,899,138	31%
235	Physical Therapist Assistant	298	1,193	89,464	8,946	2%	44,732	9%	117,500,000	35,908,085	31%
236	Computer Electronics	297	1,188	89,092	8,909	2%	44,546	9%	118,000,000	35,916,994	30%
237	Geographic Information Systems	294	1,176	88,174	8,817	2%	44,087	9%	118,500,000	35,925,811	30%
238	Architectural Drafting	291	1,163	87,262	8,726	2%	43,631	9%	119,000,000	35,934,538	30%
239	Fitness Trainer	287	1,146	85,975	8,598	2%	42,988	9%	119,500,000	35,943,135	30%
240	Russian	282	1,127	84,549	8,455	2%	42,274	8%	120,000,000	35,951,590	30%
241	Clinical Medical Assisting	278	1,112	83,418	8,342	2%	41,709	8%	120,500,000	35,959,932	30%
242	Industrial Electronics	275	1,101	82,545	8,255	2%	41,273	8%	121,000,000	35,968,186	30%
243	Parks and Outdoor Recreation	272	1,090	81,747	8,175	2%	40,873	8%	121,500,000	35,976,361	30%
244	Surveying	272	1,086	81,472	8,147	2%	40,736	8%	122,000,000	35,984,508	29%
245	Library Technician (Aide)	271	1,084	81,327	8,133	2%	40,663	8%	122,500,000	35,992,641	29%
246	Forestry	271	1,084	81,265	8,126	2%	40,632	8%	123,000,000	36,000,767	29%
247	Coaching	268	1,073	80,462	8,046	2%	40,231	8%	123,500,000	36,008,814	29%
248	Dental Laboratory Technician	254	1,017	76,271	7,627	2%	38,136	8%	124,000,000	36,016,441	29%
249	Computer Systems Analysis	254	1,014	76,069	7,607	2%	38,034	8%	124,500,000	36,024,048	29%
250	Cardiovascular Technician	245	981	73,570	7,357	1%	36,785	7%	125,000,000	36,031,405	29%
251	Forensics, Evidence, and Investigation	239	958	71,834	7,183	1%	35,917	7%	125,500,000	36,038,588	29%
252	Educational Aide (Teacher Assistant)	235	938	70,359	7,036	1%	35,179	7%	126,000,000	36,045,624	29%
253	Heavy Equipment Operation	233	934	70,026	7,003	1%	35,013	7%	126,500,000	36,052,627	29%
254	Dietetic Services and Management	232	929	69,682	6,968	1%	34,841	7%	127,000,000	36,059,595	28%
255	Industrial Systems Technology and Maintenance	230	920	69,021	6,902	1%	34,510	7%	127,500,000	36,066,497	28%
256	Speech/Language Pathology and Audiology	229	916	68,727	6,873	1%	34,363	7%	128,000,000	36,073,369	28%
257	Educational Aide (Teacher Assistant), Bilingual	229	916	68,719	6,872	1%	34,360	7%	128,500,000	36,080,241	28%
258	Linguistics	228	911	68,362	6,836	1%	34,181	7%	129,000,000	36,087,078	28%
259	Heavy Equipment Maintenance	224	895	67,107	6,711	1%	33,553	7%	129,500,000	36,093,788	28%
260	Aviation Airframe Mechanics	223	893	66,945	6,695	1%	33,473	7%	130,000,000	36,100,483	28%
261	Radio	221	884	66,298	6,630	1%	33,149	7%	130,500,000	36,107,113	28%
262	Archaeology	217	867	65,050	6,505	1%	32,525	7%	131,000,000	36,113,618	28%
263	Athletic Training and Sports Medicine	190	758	56,878	5,688	1%	28,439	6%	131,500,000	36,119,305	27%
264	Viticulture, Enology, and Wine Business	188	752	56,414	5,641	1%	28,207	6%	132,000,000	36,124,947	27%
265	Commercial Dance	177	706	52,955	5,295	1%	26,477	5%	132,500,000	36,130,242	27%
266	Other Psychology	176	702	52,661	5,266	1%	26,331	5%	133,000,000	36,135,508	27%
267	Motorcycle, Outboard and Small Engine Repair	174	695	52,101	5,210	1%	26,050	5%	133,500,000	36,140,719	27%
268	Aquatics and Lifesaving	173	694	52,015	5,201	1%	26,007	5%	134,000,000	36,145,920	27%
269	Desktop Publishing	170	680	51,025	5,102	1%	25,512	5%	134,500,000	36,151,022	27%
270	Phlebotomy	170	680	50,989	5,099	1%	25,495	5%	135,000,000	36,156,121	27%
271	Other Business and Management	167	666	49,955	4,996	1%	24,978	5%	135,500,000	36,161,117	27%
272	Educational Technology	162	646	48,478	4,848	1%	24,239	5%	136,000,000	36,165,965	27%

273	Occupational Therapy Technology	161	643	48,254	4,825	1%	24,127	5%	136,500,000	36,170,790	26%
274	Sales and Salesmanship	160	639	47,926	4,793	1%	23,963	5%	137,000,000	36,175,583	26%
275	Advertising	159	637	47,794	4,779	1%	23,897	5%	137,500,000	36,180,362	26%
276	Dietetic Technology	156	623	46,707	4,671	1%	23,354	5%	138,000,000	36,185,033	26%
277	Other Commercial Services	155	619	46,455	4,646	1%	23,228	5%	138,500,000	36,189,678	26%
278	Mortuary Science	139	554	41,567	4,157	4%	20,783	4%	139,000,000	36,193,835	26%
279	Other Public and Protective Services	138	554	41,545	4,155	1%	20,773	4%	139,500,000	36,197,990	26%
280	Labor and Industrial Relations	135	540	40,497	4,050	1%	20,249	4%	140,000,000	36,202,039	26%
281	Technical Communication	133	533	39,999	4,000	1%	20,000	4%	140,500,000	36,206,039	26%
282	Filipino (Tagalog)	133	532	39,901	3,990	1%	19,950	4%	141,000,000	36,210,029	26%
283	Korean	126	505	37,885	3,788	1%	18,942	4%	141,500,000	36,213,818	26%
284	Home Health Aide	125	500	37,500	3,751	1%	18,753	4%	142,000,000	36,217,568	26%
285	Surgical Technician	122	488	36,563	3,656	1%	18,281	4%	142,500,000	36,221,225	25%
286	The School Age Child	122	487	36,553	3,655	1%	18,276	4%	143,000,000	36,224,880	25%
287	Mechanical Drafting	116	463	34,731	3,473	1%	17,365	3%	143,500,000	36,228,353	25%
288	Broadcast Journalism	115	460	34,474	3,447	1%	17,237	3%	144,000,000	36,231,800	25%
289	Behavioral Science	111	445	33,378	3,338	1%	16,689	3%	144,500,000	36,235,138	25%
290	Telecommunications Technology	103	412	30,925	3,092	1%	15,462	3%	145,000,000	36,238,231	25%
291	Electronic Game Design	103	412	30,876	3,088	1%	15,438	3%	145,500,000	36,241,318	25%
292	Other Physical Sciences	102	409	30,679	3,068	1%	15,340	3%	146,000,000	36,244,386	25%
293	Area Studies	98	390	29,280	2,928	1%	14,640	3%	146,500,000	36,247,314	25%
294	Painting, Decorating, and Flooring	97	387	29,026	2,903	1%	14,513	3%	147,000,000	36,250,217	25%
295	Lodging Management	95	382	28,641	2,864	1%	14,321	3%	147,500,000	36,253,081	25%
296	Other Family and Consumer Sciences	94	377	28,296	2,830	1%	14,148	3%	148,000,000	36,255,911	24%
297	Latin	93	372	27,922	2,792	1%	13,961	3%	148,500,000	36,258,703	24%
298	Equine Science	93	372	27,887	2,789	1%	13,943	3%	149,000,000	36,261,491	24%
299	Other Social Sciences	92	369	27,707	2,771	1%	13,854	3%	149,500,000	36,264,262	24%
300	Upholstery Repair - Automotive	92	367	27,526	2,753	1%	13,763	3%	150,000,000	36,267,015	24%
301	Massage Therapy	86	345	25,874	2,587	1%	12,937	3%	150,500,000	36,269,602	24%
302	Student Government	86	345	25,842	2,584	1%	12,921	3%	151,000,000	36,272,186	24%
303	Asian, South Asian, and Pacific Islands (Chinese and Japanese e	84	336	25,221	2,522	1%	12,610	3%	151,500,000	36,274,708	24%
304	Electrocardiography	80	319	23,939	2,394	0%	11,970	2%	152,000,000	36,277,102	24%
305	Logistics and Materials Transportation	78	311	23,318	2,332	0%	11,659	2%	152,500,000	36,279,434	24%
306	Legal and Community Interpretation	74	297	22,290	2,229	0%	11,145	2%	153,000,000	36,281,663	24%
307	E-Commerce (Technology emphasis)	70	281	21,097	2,110	0%	10,548	2%	153,500,000	36,283,773	24%
308	Probation and Parole	69	276	20,731	2,073	0%	10,365	2%	154,000,000	36,285,846	24%
309	Technical Illustration	68	274	20,543	2,054	0%	10,271	2%	154,500,000	36,287,900	23%
310	Chemical Technology	68	270	20,261	2,026	0%	10,131	2%	155,000,000	36,289,926	23%
311	Masonry, Tile, Cement, Lath and Plaster	67	269	20,154	2,015	0%	10,077	2%	155,500,000	36,291,942	23%
312	Ocean Technology	67	267	20,026	2,003	0%	10,013	2%	156,000,000	36,293,944	23%
313	Escrow	66	265	19,874	1,987	0%	9,937	2%	156,500,000	36,295,932	23%
314	Hebrew and Semitic	65	262	19,628	1,963	0%	9,814	2%	157,000,000	36,297,894	23%
315	Marine Technology	65	260	19,515	1,952	0%	9,758	2%	157,500,000	36,299,846	23%
316	Electron Microscopy	65	260	19,474	1,947	0%	9,737	2%	158,000,000	36,301,793	23%
317	Recreation Assistant	65	258	19,353	1,935	0%	9,676	2%	158,500,000	36,303,729	23%
318	Recreation	63	253	18,951	1,895	0%	9,476	2%	159,000,000	36,305,624	23%
319	Insurance	62	250	18,730	1,873	0%	9,365	2%	159,500,000	36,307,497	23%
320	Appliance Repair	61	245	18,358	1,836	0%	9,179	2%	160,000,000	36,309,333	23%
321	Turfgrass Technology	61	242	18,182	1,818	0%	9,091	2%	160,500,000	36,311,151	23%
322	Medical Laboratory Technology	59	237	17,810	1,781	0%	8,905	2%	161,000,000	36,312,932	23%
323	Foster and Kinship Care	57	227	17,049	1,705	0%	8,524	2%	161,500,000	36,314,637	22%
324	Other Library Science	55	222	16,634	1,663	0%	8,317	2%	162,000,000	36,316,300	22%
325	Aircraft Electronics (Avionics)	55	222	16,621	1,662	0%	8,310	2%	162,500,000	36,317,962	22%
326	Plastics and Composites	55	219	16,454	1,645	0%	8,227	2%	163,000,000	36,319,607	22%
327	Diving and Underwater Safety	54	218	16,326	1,633	0%	8,163	2%	163,500,000	36,321,240	22%
328	Customer Service	54	214	16,054	1,605	0%	8,027	2%	164,000,000	36,322,845	22%
329	E-Commerce (Business emphasis)	53	214	16,014	1,601	0%	8,007	2%	164,500,000	36,324,447	22%
330	Portuguese	52	207	15,496	1,550	0%	7,748	2%	165,000,000	36,325,996	22%
331	Retail Store Operations and Management	49	195	14,651	1,465	0%	7,326	1%	165,500,000	36,327,462	22%
332	Flight Attendant	47	188	14,081	1,408	0%	7,041	1%	166,000,000	36,328,870	22%
333	Health Information Coding	47	187	14,015	1,401	0%	7,007	1%	166,500,000	36,330,271	22%
334	Public Works	47	186	13,967	1,397	0%	6,983	1%	167,000,000	36,331,668	22%
335	Aircraft Fabrication	45	182	13,635	1,364	0%	6,818	1%	167,500,000	36,333,031	22%
336	Electro-Neurodiagnostic Technology	44	175	13,135	1,313	0%	6,567	1%	168,000,000	36,334,345	22%
337	Resort and Club Management	43	170	12,759	1,276	0%	6,379	1%	168,500,000	36,335,621	22%
338	Air Traffic Control	42	166	12,455	1,246	0%	6,228	1%	169,000,000	36,336,866	22%
339	Laser and Optical Technology	37	149	11,163	1,116	0%	5,582	1%	169,500,000	36,337,983	21%
340	Legal Office Technology	37	148	11,085	1,108	0%	5,542	1%	170,000,000	36,339,091	21%
341	Electro-Mechanical Technology	35	141	10,572	1,057	0%	5,286	1%	170,500,000	36,340,148	21%

342	Radiation Therapy Technician	34	138	10,326	1,033	0%	5,163	1%	171,000,000	36,341,181	21%
343	International Studies	34	138	10,320	1,032	0%	5,160	1%	171,500,000	36,342,213	21%
344	Public Relations	34	137	10,285	1,029	0%	5,143	1%	172,000,000	36,343,241	21%
345	Aviation and Airport Management and Services	32	128	9,563	956	0%	4,781	1%	172,500,000	36,344,198	21%
346	Community Health Care Worker	29	116	8,678	868	0%	4,339	1%	173,000,000	36,345,066	21%
347	Learning Skills, Speech Impaired	28	111	8,343	834	0%	4,172	1%	173,500,000	36,345,900	21%
348	Nursery Technology	27	110	8,240	824	0%	4,120	1%	174,000,000	36,346,724	21%
349	Railroad and Light Rail Operations	27	107	8,013	801	0%	4,007	1%	174,500,000	36,347,525	21%
350	Alternative Fuels and Advanced Transportation Technology	27	106	7,950	795	0%	3,975	1%	175,000,000	36,348,320	21%
351	Office Management	25	99	7,414	741	0%	3,707	1%	175,500,000	36,349,062	21%
352	Aviation and Airport Management	22	86	6,486	649	0%	3,243	1%	176,000,000	36,349,710	21%
353	Display	21	85	6,402	640	0%	3,201	1%	176,500,000	36,350,351	21%
354	Consumer Services	21	83	6,258	626	0%	3,129	1%	177,000,000	36,350,976	21%
355	Industrial Quality Control	20	82	6,123	612	0%	3,062	1%	177,500,000	36,351,589	20%
356	Disability Services	18	73	5,465	546	0%	2,732	1%	178,000,000	36,352,135	20%
357	Laboratory Science Technology	18	73	5,462	546	0%	2,731	1%	178,500,000	36,352,681	20%
358	Energy Systems Technology	18	73	5,441	544	0%	2,721	1%	179,000,000	36,353,225	20%
359	Other Agriculture and Natural Resources	17	69	5,170	517	0%	2,585	1%	179,500,000	36,353,742	20%
360	Wildlife and Fisheries	17	68	5,070	507	0%	2,535	1%	180,000,000	36,354,249	20%
361	Other Law	16	66	4,915	492	0%	2,458	0%	180,500,000	36,354,741	20%
362	Health Facility Unit Coordinator	16	66	4,913	491	0%	2,457	0%	181,000,000	36,355,232	20%
363	Hospital Central Service Technician	16	63	4,732	473	0%	2,366	0%	181,500,000	36,355,705	20%
364	Roofing	13	53	3,938	394	0%	1,969	0%	182,000,000	36,356,099	20%
365	Landscape Architecture (Transfer)	13	52	3,921	392	0%	1,960	0%	182,500,000	36,356,491	20%
366	Military Science	12	48	3,611	361	0%	1,806	0%	183,000,000	36,356,853	20%
367	Industrial and Transportation Security	11	45	3,339	334	0%	1,669	0%	183,500,000	36,357,186	20%
368	Industrial and Occupational Safety and Health	10	41	3,091	309	0%	1,545	0%	184,000,000	36,357,495	20%
369	Other Architecture and Environmental Design	10	41	3,086	309	0%	1,543	0%	184,500,000	36,357,804	20%
370	General Studies	10	40	2,974	297	0%	1,487	0%	185,000,000	36,358,101	20%
371	Agricultural Pest Control Adviser and Operator (Licensed)	9	37	2,753	275	0%	1,377	0%	185,500,000	36,358,377	20%
372	Industrial Arts (Transfer)	9	36	2,665	266	0%	1,332	0%	186,000,000	36,358,643	20%
373	Purchasing	8	33	2,469	247	0%	1,234	0%	186,500,000	36,358,890	19%
374	Language Arts	7	28	2,109	211	0%	1,054	0%	187,000,000	36,359,101	19%
375	Civil Drafting	7	28	2,083	208	0%	1,041	0%	187,500,000	36,359,309	19%
376	Dairy Science	7	26	1,975	197	0%	987	0%	188,000,000	36,359,507	19%
377	Humanities and Social Sciences	6	26	1,944	194	0%	972	0%	188,500,000	36,359,701	19%
378	Electrical, Electronic, and Electro-Mechanical Drafting	5	22	1,623	162	0%	811	0%	189,000,000	36,359,863	19%
379	Food Processing and Related Technologies	5	20	1,525	153	0%	763	0%	189,500,000	36,360,016	19%
380	Environmental Sciences and Technologies, Other	4	14	1,061	106	0%	530	0%	190,000,000	36,360,122	19%
381	School Health Clerk	3	12	881	88	0%	441	0%	190,500,000	36,360,210	19%
382	Greek	3	12	864	86	0%	432	0%	191,000,000	36,360,297	19%
383	Artificial Inseminator (Licensed)	2	10	742	74	0%	371	0%	191,500,000	36,360,371	19%
384	Vacuum Technology	2	9	699	70	0%	350	0%	192,000,000	36,360,441	19%
385	Polysomnography	2	8	612	61	0%	306	0%	192,500,000	36,360,502	19%
386	Hospital and Health Care Administration	2	8	586	59	0%	293	0%	193,000,000	36,360,560	19%
387	Humanities	2	7	525	52	0%	262	0%	193,500,000	36,360,613	19%
388	Instrumentation Technology	2	7	494	49	0%	247	0%	194,000,000	36,360,662	19%
389	Dental Occupations	2	6	473	47	0%	236	0%	194,500,000	36,360,710	19%
390	Public Administration	1	4	313	31	0%	157	0%	195,000,000	36,360,741	19%
391	Glazing	1	3	242	24	0%	121	0%	195,500,000	36,360,765	19%
392	Dry Cleaning	1	3	219	22	0%	110	0%	196,000,000	36,360,787	19%
393	Truck and Bus Driving	1	3	211	21	0%	105	0%	196,500,000	36,360,808	19%

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