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Committee on Academic and Student Affairs

AGENDA ITEM: I – B

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SUBJECT: Earnings of Liberal Arts Majors

This report explores census data from South Dakota in an effort to better understand regional differences in worker earnings by field of study.

RECOMMENDED ACTION OF THE EXECUTIVE DIRECTOR

Information only.



*** Special Data Analysis ***

Earnings of Liberal Arts Majors

In 2014, the Association of American Colleges and Universities (AACU) released “How Liberal Arts and Sciences Majors Fare in Employment,” an analysis of the earnings outcomes of college graduates from liberal arts disciplines.¹ Using data from the US Census Bureau, the AACU analysis found that workers from liberal arts fields (humanities and social sciences) tend to earn somewhat less than workers from other fields, but that such gaps owe in part to the tendency of liberal arts majors to work in low-paying but socially vital service professions (such as social work, counseling, clergy, etc.). The following report explores census data from South Dakota in an effort to better understand local differences in earnings by field of study.

Background: AACU Report

The AACU report analyzes annual earnings of degree holders from four different postsecondary training areas: humanities and social sciences (e.g., sociology, history), professional and pre-professional fields (e.g., nursing, business), sciences and mathematics (e.g., biology, chemistry), and engineering. Data analyzed in the AACU study suggest that among workers just entering the workforce (ages 21-25) in 2012, humanities and social science majors earned a median annual salary of \$26,271, which was among the lowest of all four groups.² Similarly, among experienced workers (ages 61-65) in 2012, humanities and social sciences majors continued to earn substantially less than most other groups.³

The AACU study attributes these gaps in part to the overrepresentation of humanities and social science majors in social service professions. More specifically, the AACU report notes that, “while only about one-quarter of Americans in the overall labor force hold a baccalaureate degree in a humanities or social science field, half of those occupied in social services professions (e.g., social work and counseling) hold a humanities or social science degree,” (p. 17). The authors assert that while these occupations tend to be lower-paying than those sought by graduates from other fields, they are no less economically or socially important.

¹ Humphreys, D., & Kelly, P. (2014). *How Liberal Arts and Science Majors Fare in Employment: A Report on Earnings and Long-Term Career Paths*. Washington DC: AACU. A free executive summary of this report is available at http://www.aacu.org/press_room/press_releases/2014/liberalartsreport.cfm.

² For comparison, median annual wages for the other three groups were: \$31,183 (professional and pre-professional fields), \$25,986 (science and mathematics), and \$41,577 (engineering).

³ Among all four groups, workers in this age category earned: \$66,185 (humanities and social sciences), \$64,149 (professional and pre-professional fields), \$86,550 (sciences and mathematics), and \$97,751 (engineering).

Data Notes

This analysis examines worker earnings – by undergraduate major – in the South Dakota region. For purposes of this analysis, the “South Dakota region” is composed of South Dakota and all neighboring states: Minnesota, Iowa, Nebraska, Wyoming, Montana, and North Dakota. All data are sourced from the US Census Bureau’s 2012 American Community Survey (ACS) public use microdata sample, which contains data on more than 3 million respondents.⁴ Data reported in this analysis refer to employed, full-time workers with a bachelor’s degree or higher.⁵

As in the AACU report, undergraduate majors are categorized into four possible categories:

Field Category	Example Majors
<i>Humanities & Social Sciences (i.e., “Liberal Arts”)</i>	English Foreign Language History Music Philosophy Political Science Psychology Sociology Theatre
<i>Professional & Pre-professional Fields</i>	Accounting Agriculture Business Education Nursing
<i>Physical Sciences, Natural Sciences, & Mathematics</i>	Biology Chemistry Mathematics Physics
<i>Engineering</i>	Civil Engineering Chemical Engineering Electrical Engineering Mechanical Engineering

Individual fields of study are classified into the above categories following the same rules applied in the original AACU report. *Because the ACS does not ask about graduate-level fields of study, all analyzed records – including those for workers with advanced degrees – are classified by undergraduate major, regardless of whether an advanced degree (if applicable) was earned in the same field or in another field.*

⁴ Data used in the current analysis are based on self-reported survey responses, and thus are subject to the same sources of sampling and nonsampling error associated with any other type of survey research. Accordingly, all figures presented in this analysis should be understood as estimates only.

⁵ Like the AACU research report, this analysis defines “full-time” work as 35 hours or more per week.

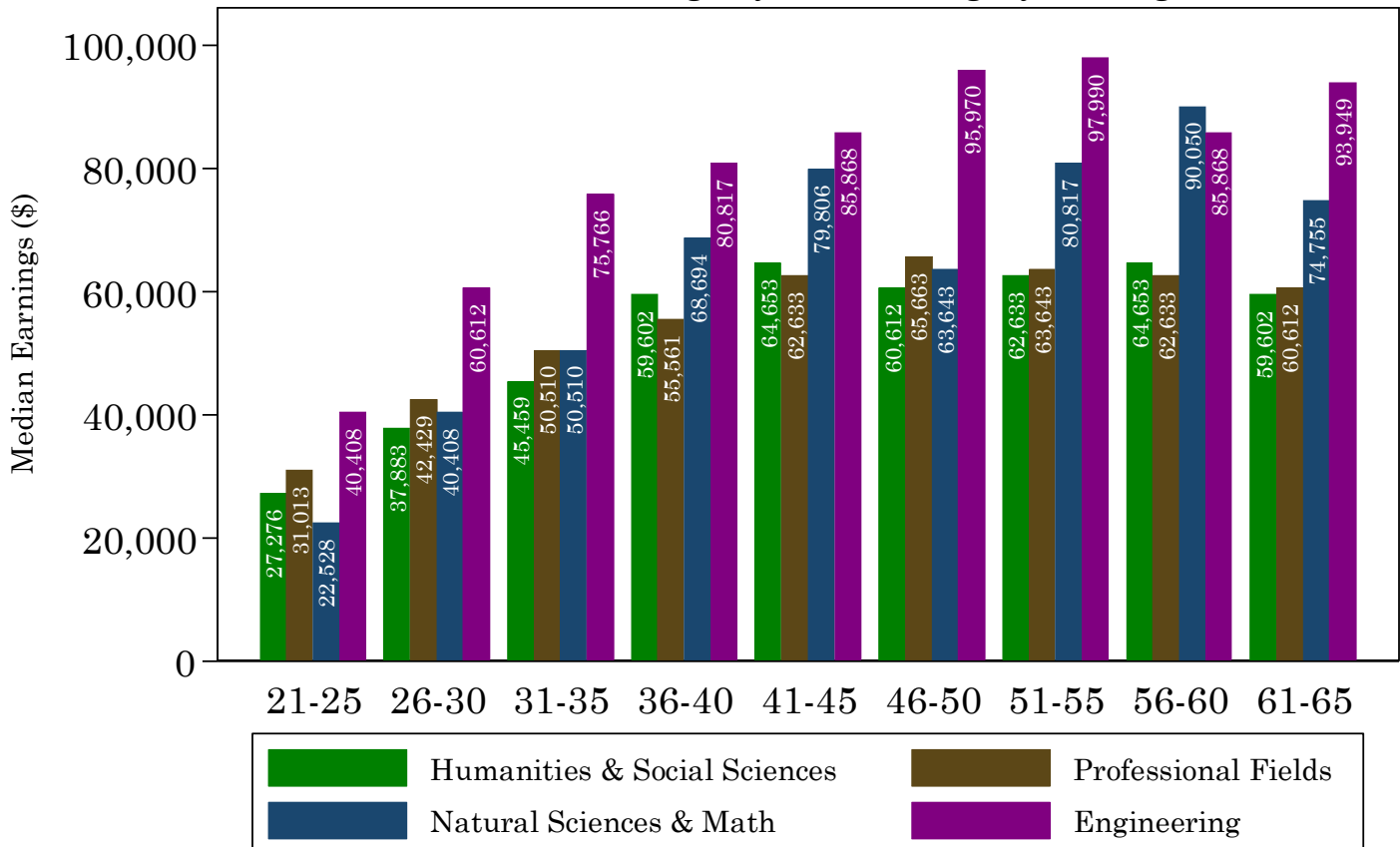
Analysis

In 2012, there were roughly 2 million employed, full-time workers with a bachelor's degree or higher living in the South Dakota region.⁶ Of these workers, 22.5 percent held a four-year degree (or higher) in a humanities or social sciences field. Approximately 60.4 percent of workers held a degree in a professional field, followed by science and mathematics (10.4 percent) and engineering (6.8 percent).

Earnings by Field of Study and Age

Figure 1 offers a comprehensive cross-section of these workers' estimated earnings by age group and field category. Looking first at the entry-level age group (ages 21-25), workers with a humanities or social sciences degree earned about \$27,300 per year, which was third highest among the four groups. Experienced workers (ages 61-65) from the humanities and social sciences area earned about \$59,600, which was lowest among all four groups. Across all age ranges, earnings by workers in the engineering group substantially outpaced those of all other groups. Overall, these data (from the South Dakota region) closely resemble national trends reported in the original AACU report.

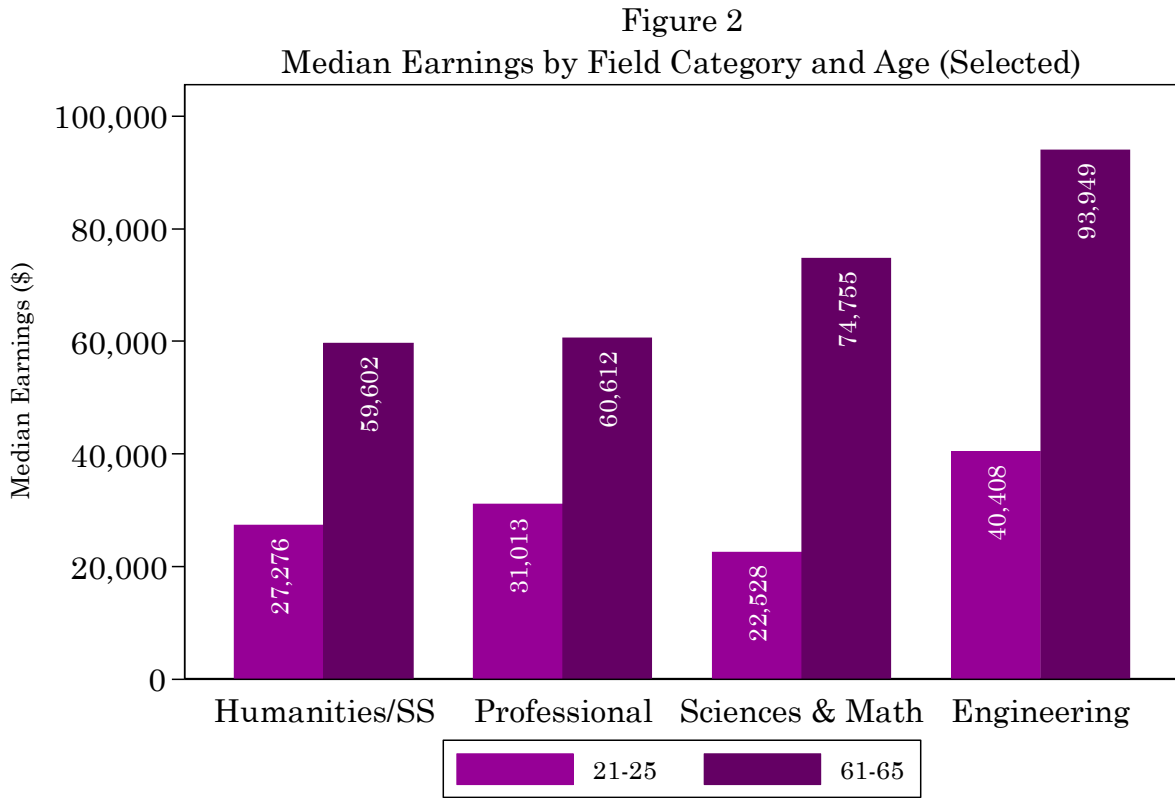
Figure 1
Median Earnings by Field Category and Age



Source: US Census Bureau, 2012 American Community Survey

⁶ In this analysis, individual workers are counted once for every reported undergraduate major. For example, a person reporting two undergraduate majors will be counted twice.

Figure 2 focuses on earnings differences between early-career and late-career workers in each field category. Late-career workers in the humanities and social sciences group earned roughly \$32,300 more than early-career workers in 2012. Analogous differences for the other three field categories were: \$29,600 (professional fields), \$52,200 (sciences and mathematics), and \$53,500 (engineering). From these data, it appears that workers with an undergraduate degree in a liberal arts discipline show somewhat more earnings growth – from early to late career – than workers with an undergraduate degree in a professional field.

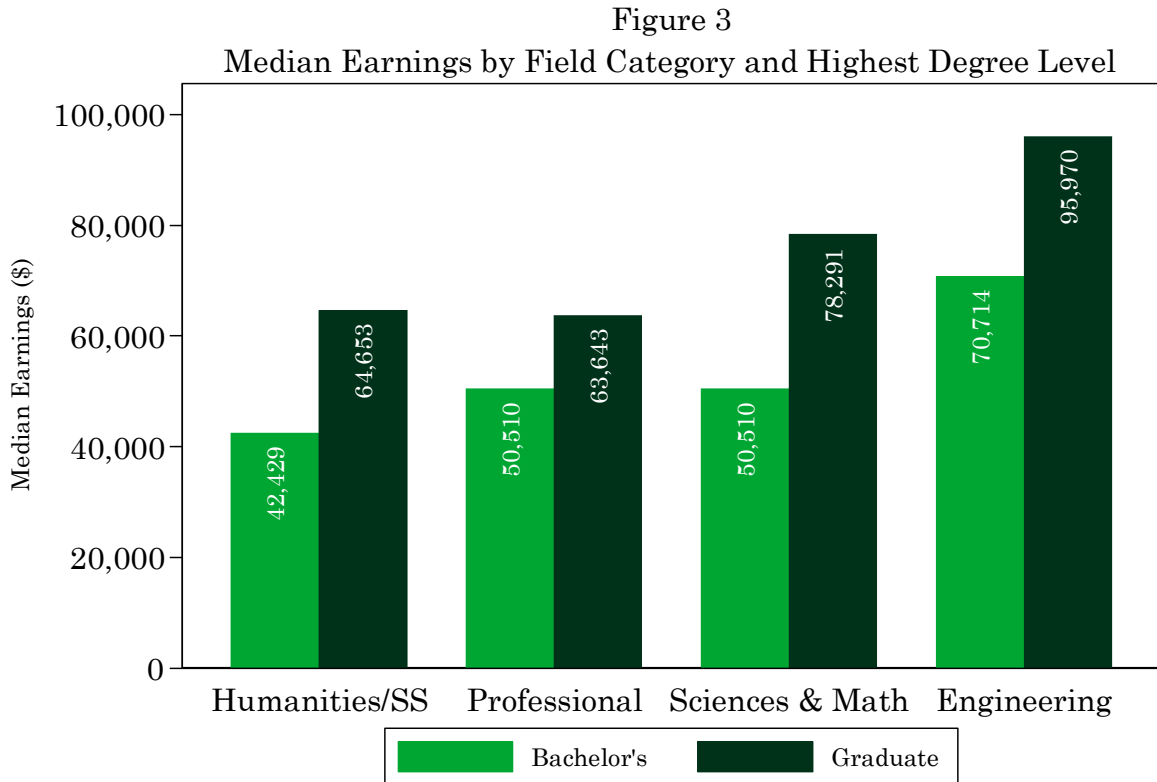


Source: US Census Bureau, 2012 American Community Survey

Earnings by Degree Level

Liberal arts majors are among the most likely to earn an advanced degree. In 2012, 38.0 percent of workers with an undergraduate degree in a humanities or social sciences field also held an advanced degree; the same was true of 26.2 percent of workers with an undergraduate degree in a professional field, 46.3 percent of workers from a science or mathematics field, and 29.8 percent of workers from an engineering field. As shown below, ACS data suggest that – regardless of field – these advanced degrees bring about a considerable earnings boost.

Across all fields, advanced degree holders earn far more than workers with a bachelor's degree only. Figure 3 shows that among workers with an undergraduate degree in a humanities or social sciences field, workers holding only a four-year degree earn approximately \$42,400 annually, while those with an advanced degree earn \$64,700 annually, a difference of more than \$22,000 (52.4 percent). Figure 3 shows analogous data for all four field categories.



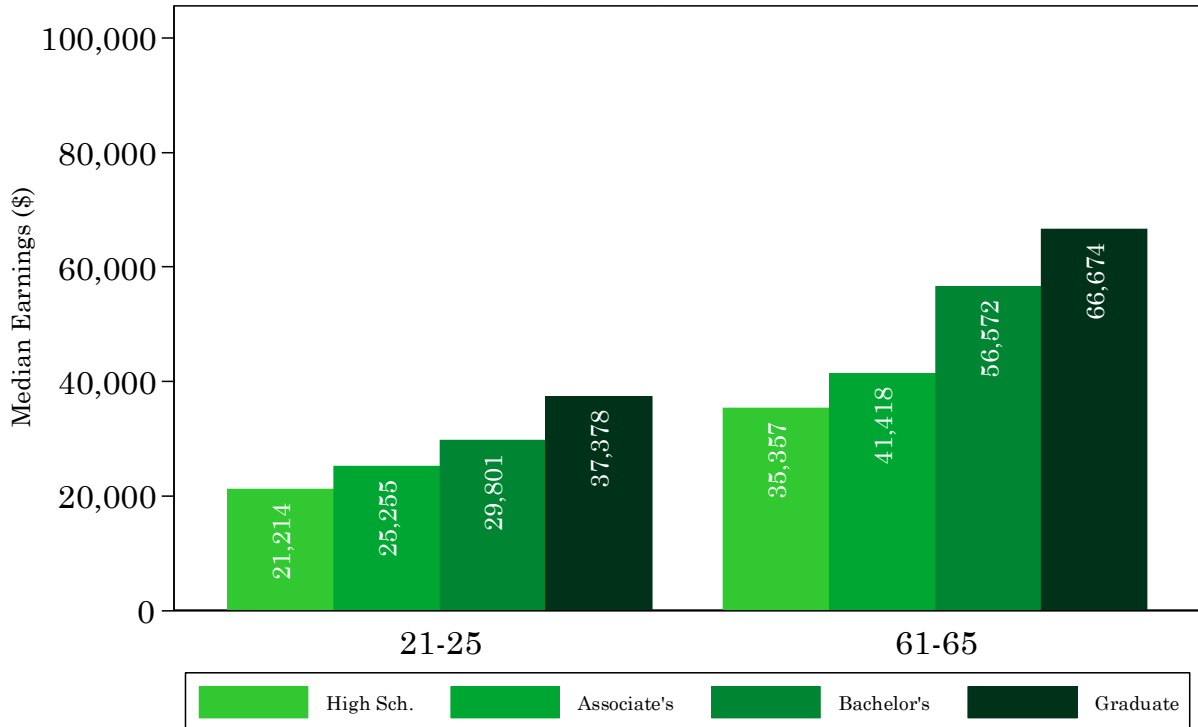
Source: US Census Bureau, 2012 American Community Survey

As shown above, the earnings premium (an increase of 52.4 percent) observed for the liberal arts group is among the highest of any group. Workers with an undergraduate degree in a professional field experienced an earnings premium of 26.0 percent; premiums for the other groups were 55.0 percent (sciences and mathematics) and 35.7 percent (engineering). Combined, the above observations indicate that workers from liberal arts fields both 1) are more likely than most other workers to earn an advanced degree, and 2) experience a comparatively large earnings boost from having done so.

These data bear out what has become a ubiquitous finding in social research, namely, that worker earnings correlate strongly with educational attainment.⁷ Irrespective of field of study, ACS data indicate that workers in the South Dakota region holding only a high school diploma earned an average (median) of \$35,400 in 2012. Associate's degree holders earned \$40,400, bachelor's degree holders earned \$50,500, and graduate degree holders earned \$66,700. Figure 4 (below) indicates that comparable gaps persist across the age continuum.

⁷ See, for example, <http://trends.collegeboard.org/sites/default/files/education-pays-2013-full-report.pdf> and http://www.bls.gov/emp/ep_chart_001.htm.

Figure 4
Median Earnings by Highest Degree Level and Age



Source: US Census Bureau, 2012 American Community Survey

Occupational Placement

The national AACU report posits that the trend among liberal arts majors to earn less than workers from other fields traces in part to systematic differences in vocational choice. That is, liberal arts majors are especially likely to self-select into socially crucial but low-paying professions. Table 1 (below) identifies the top twenty occupational placements for workers in each of the four field categories. Consistent with findings from the AACU report, it appears that workers from humanities or social science fields frequently seek out work in a number of imperative but characteristically low-wage occupations, such as social work, counseling, church-related work, teaching, and community service. Consequently, these workers serve a vital role in fostering the social and economic well-being of their communities.

Table 1. Top Twenty Occupations by Field of Study
South Dakota Region

Humanities & Social Sciences		
Occupation	Number Employed	Median Annual Earnings
Lawyers, and judges, magistrates, and other judicial workers	23,410	\$108,092
Elementary and middle school teachers	16,210	\$50,510
Miscellaneous managers	16,111	\$71,321
Postsecondary teachers	15,450	\$52,531
Social workers	13,405	\$36,772
Clergy	12,840	\$46,470
First-line supervisors of retail sales workers	9,804	\$33,337
Counselors	9,381	\$39,398
Customer service representatives	8,910	\$30,306
Psychologists	7,685	\$75,766
Secretaries and administrative assistants	7,376	\$38,388
Marketing and sales managers	7,366	\$75,766
Chief executives and legislators	7,156	\$113,143
Accountants and auditors	6,808	\$65,663
Education administrators	6,646	\$64,653
Secondary school teachers	6,569	\$44,449
Human resources workers	6,362	\$56,572
Sales representatives, wholesale and manufacturing	6,246	\$50,510
Social and community service managers	5,985	\$48,490
Retail salespersons	5,579	\$32,125

Professional & Pre-professional Fields		
Occupation	Number Employed	Median Annual Earnings
Elementary and middle school teachers	132,413	\$47,480
Accountants and auditors	67,956	\$58,592
Registered nurses	53,668	\$56,572
Miscellaneous managers	48,509	\$75,766
Secondary school teachers	25,425	\$46,470
First-line supervisors of retail sales workers	24,677	\$47,480
Sales representatives, wholesale and manufacturing	23,587	\$75,766
Financial managers	20,860	\$80,817
Software developers, applications and systems software	20,644	\$80,817
Social workers	20,378	\$41,418
Postsecondary teachers	19,389	\$60,612
Customer service representatives	18,244	\$38,792
Education administrators	18,163	\$70,714
Farmers, ranchers, and other agricultural managers	17,874	\$45,459
Marketing and sales managers	15,971	\$90,919
Retail salespersons	15,492	\$50,510
Chief executives and legislators	14,286	\$146,480
Secretaries and administrative assistant	13,732	\$36,367
Medical and health services managers	13,633	\$80,817
Computer and information systems managers	13,298	\$95,970

Physical Sciences, Natural Sciences, & Mathematics

Occupation	Number	Median
	Employed	Annual Earnings
Physicians and surgeons	19,437	\$280,838
Postsecondary teachers	14,288	\$50,510
Miscellaneous managers	7,086	\$76,776
Farmers, ranchers, and other agricultural managers	6,348	\$37,378
Elementary and middle school teachers	5,767	\$50,510
Clinical laboratory technologists and technicians	3,964	\$54,551
Biological scientists	3,805	\$32,327
Chiropractors	3,781	\$30,306
Physical scientists, all other	3,534	\$30,306
Chief executives and legislators	3,400	\$191,939
General and operations managers	3,234	\$101,021
Secondary school teachers	3,193	\$44,449
Veterinarians	3,118	\$85,868
Medical and health services managers	2,936	\$101,021
Dentists	2,905	\$249,521
Pharmacists	2,877	\$106,072
Environmental scientists and geoscientists	2,859	\$68,694
First-line supervisors of non-retail sales workers	2,778	\$53,541
Software developers, applications and systems software	2,683	\$101,021
Chemists and materials scientists	2,667	\$60,612

Engineering

Occupation	Number	Median
	Employed	Annual Earnings
Miscellaneous managers	10,629	\$106,072
Miscellaneous engineers, including nuclear engineers	10,164	\$85,868
Software developers, applications and systems software	9,874	\$70,714
Civil engineers	7,508	\$65,663
Mechanical engineers	5,723	\$78,796
Electrical and electronics engineers	5,655	\$80,817
Industrial engineers, including health and safety	5,469	\$70,714
Chief executives and legislators	4,348	\$191,939
Sales representatives, wholesale and manufacturing	3,199	\$85,868
Architectural and engineering managers	3,111	\$110,113
Aerospace engineers	2,445	\$114,153
Postsecondary teachers	2,176	\$25,255
Biomedical and agricultural engineers	2,142	\$66,674
General and operations managers	2,083	\$146,480
Construction managers	2,048	\$75,766
Computer systems analysts	1,958	\$78,796
Computer programmers	1,796	\$79,806
Farmers, ranchers, and other agricultural managers	1,764	\$40,408
First-line supervisors of production and operating workers	1,718	\$60,612
Computer and information systems managers	1,661	\$85,868