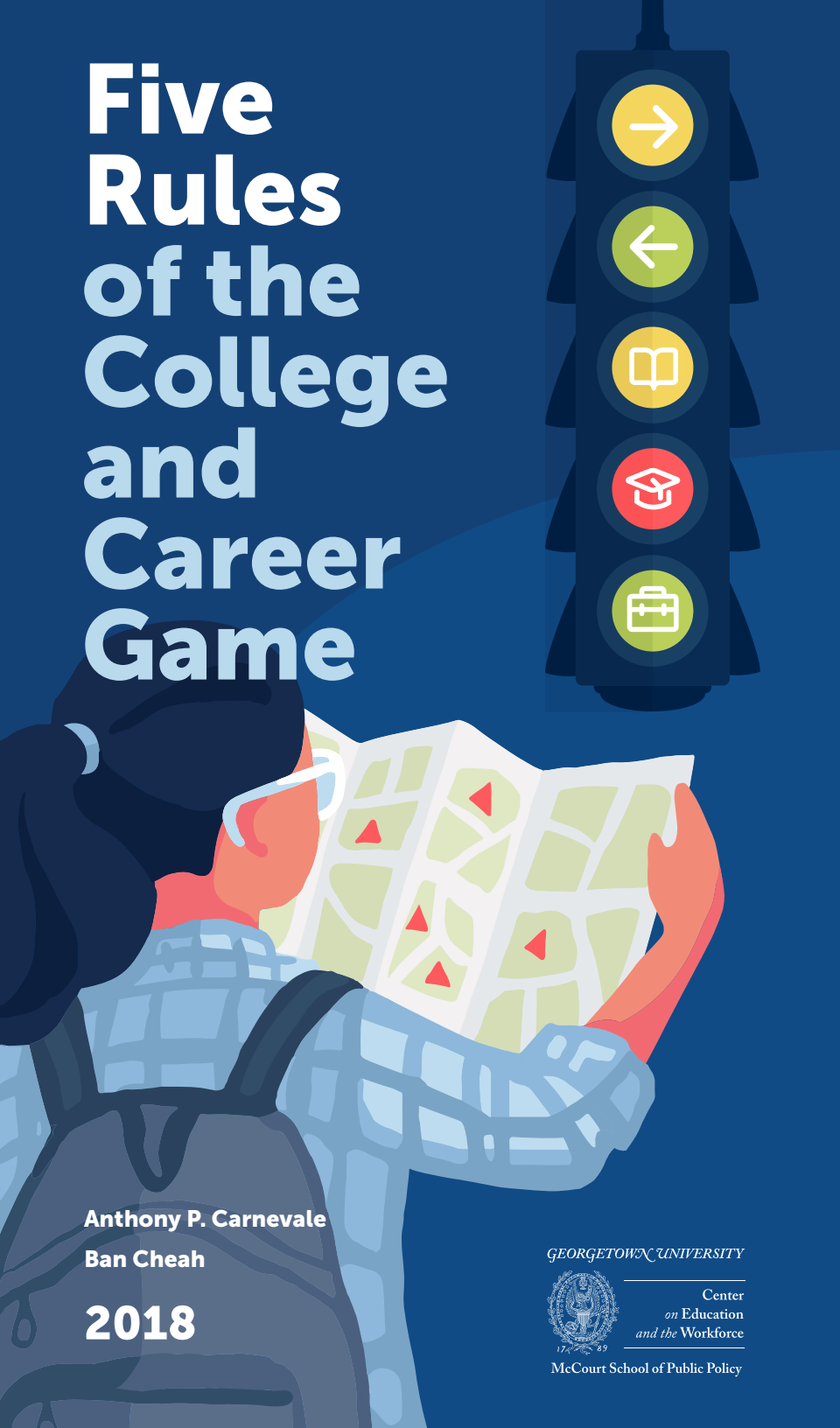
Five Rules of the College and Career Game



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Five Rules of the College and Career Game

In a republic, the mission of higher education is to empower individuals to live fully in their time free from economic or public dependency. The mission endures, but times change.

In the old industrial economy before the 1980s, high school was enough to provide middle class earnings for most Americans: two-thirds of jobs required workers with only a high school education or less. Now, except for about 20 percent of males who can still make it in the blue-collar sector, the high school economy is gone and it is not coming back. Two-thirds of jobs now require workers with at least some college.

The variety of postsecondary programs and credentials today, however, has become a Tower of Babel, a system too vast for prospective students to comprehend and evaluate by institutional reputation alone. Postsecondary programs more than quintupled from 1985 to 2010, from 410 to 2,260. Since 1950, the number of colleges and universities has more than doubled and the number of college students has increased tenfold. At the same time, the number of distinct occupations has tripled to more than 800. This blizzard of options and the lack of transparency have driven the higher education market toward mediocrity.[1]

> **Because postsecondary education and training have become the most well-traveled pathways to middle class earnings, both students and the educators who serve them need to learn new rules of the college and career game.**

Since 1980, tuition and fees at public four-year colleges and universities have risen 19 times faster than average family incomes.[2] This has fueled a basic efficiency problem in higher education. As prices have risen, the United States has fallen from first to 10th in postsecondary credential attainment for people ages 25-34 among Organisation for Economic Co-operation and Development (OECD) nations.[3] Our Canadian neighbors, for example, now get a 56 percent postsecondary credential attainment rate by spending 2.6 percent of their GDP on higher education. We get a 46 percent attainment rate by spending 2.7 percent of our GDP.[4] At the current US higher education productivity rate, we would have to spend almost $200 billion more annually to catch the Canadians.[5] We cannot afford that. As it is, students are saddled with college debt they cannot afford and taxpayers are saddled with an 11.5 percent default rate on student loans.[6]

The growing buyer's remorse among former students has made times even more uncertain. The majority of Americans (51%) would change their degree type, institution, or major if they could do it again, according to the results of a 2017 Gallup Poll.[7] These regrets were influenced by a number of factors, but one was lack of information about degrees and the careers they could lead to.

Because postsecondary education and training have become the most well-traveled pathways to middle class earnings, both students and the educators who serve them need to learn new rules of the college and career game. Students need to shop around for college because higher education is a student's first major investment in the transition from dependent adolescent to independent adult. Students deserve to know what they are paying for.

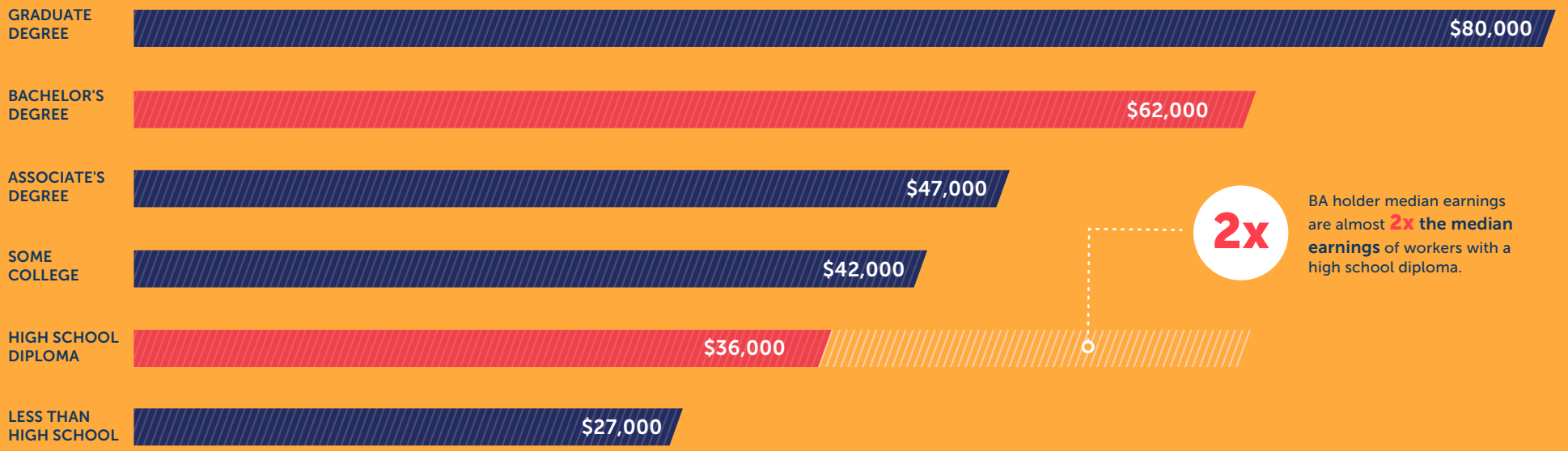
These five rules can help students navigate the college game in these uncertain times.

[1] Carnevale, Garcia, and Gulish, *Career Pathways*, 2017.
[2] Georgetown University Center on Education and the Workforce analysis of the College Board, *Trends in College Pricing 2015*, 2015, Table 2A; US Census Bureau and Bureau of Labor Statistics, *Current Population Survey, March Supplement*, 1980-2016.
[3] OECD, *Education at a Glance*, 2017.
[4] OECD, *Education at a Glance*, 2017. This comparison applies to people ages 25-64.
[5] Georgetown University Center on Education and the Workforce analysis based on data from the US Census Bureau, OECD, Federal Reserve Bank of St. Louis, and National Center for Education Statistics surveys. A range of estimates using different methods suggests a range between $120 billion and $240 billion.
[6] Default rate is for the FY2014 cohort. https://www.ed.gov/news/press-releases/us-department-education-releases-national-student-loan-fy-2014-cohort-default-rate
[7] Carnevale, "Open Information about College Options and Outcomes," 2017.

1 Education level still matters, and generally more education is better.

Median earnings increase with each additional level of educational attainment.

MEDIAN EARNINGS BY EDUCATION LEVEL



2x BA holder median earnings are almost **2x the median earnings** of workers with a high school diploma.

Graduate degree median earnings: **$80,000**

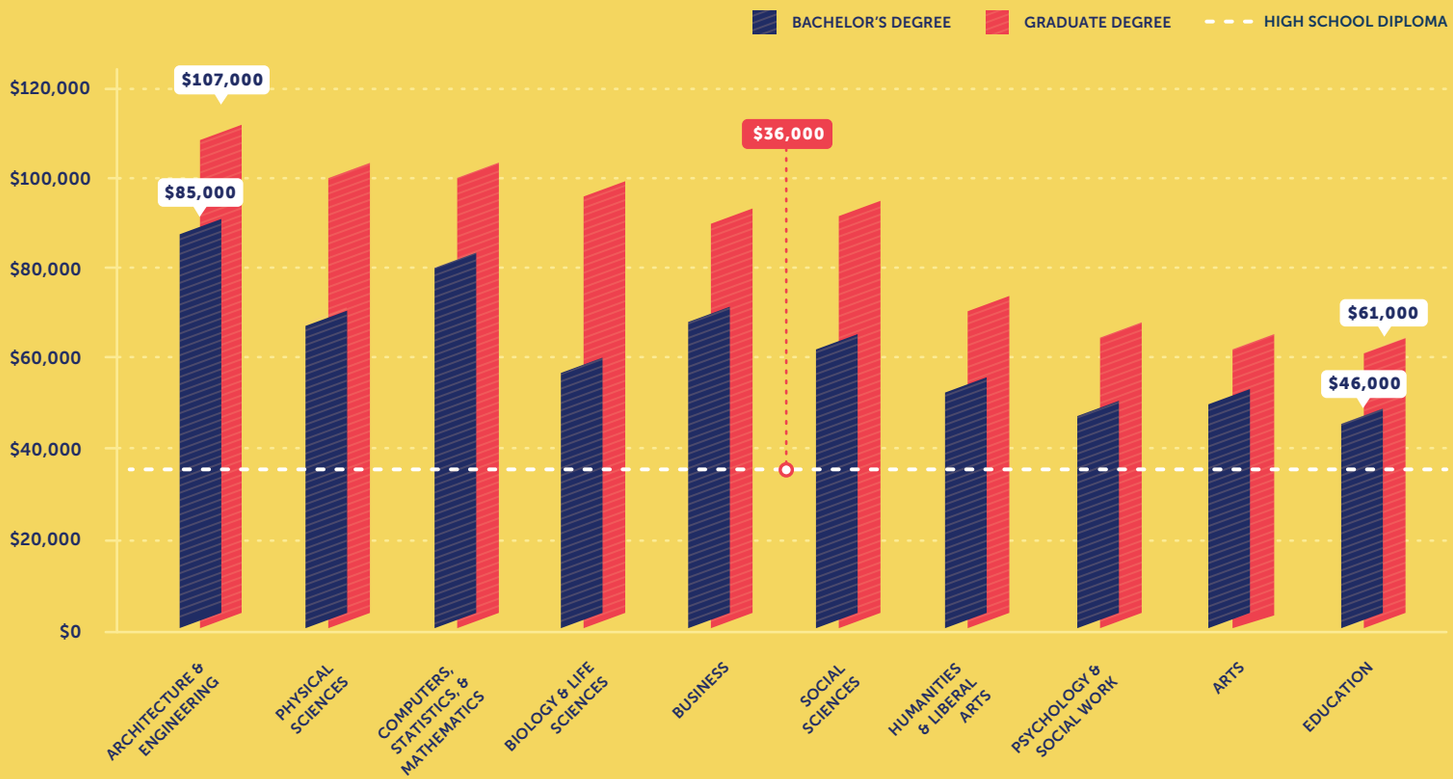
Bachelor's degree median earnings: **$62,000**

Source: Georgetown University Center on Education and the Workforce analysis of *American Community Survey (ACS)*: 2009-2016 pooled one-year person level microdata files.

2 Education level matters, but program of study and majors matter even more.

The difference in earnings between the highest (architecture and engineering) and lowest (education) bachelor's degrees is $39,000.

MEDIAN EARNINGS BY FIELD OF STUDY & DEGREE



The median earnings of every **bachelor's and graduate degree** are **higher than** the median earnings of a worker with just a **high school diploma**.

BAs in architecture and engineering lead to median annual earnings of **$85,000.** This is **more than 2x** the median earnings of a worker with a **high school diploma** and **$5,000 higher** than the median earnings of a **graduate degree holder**.

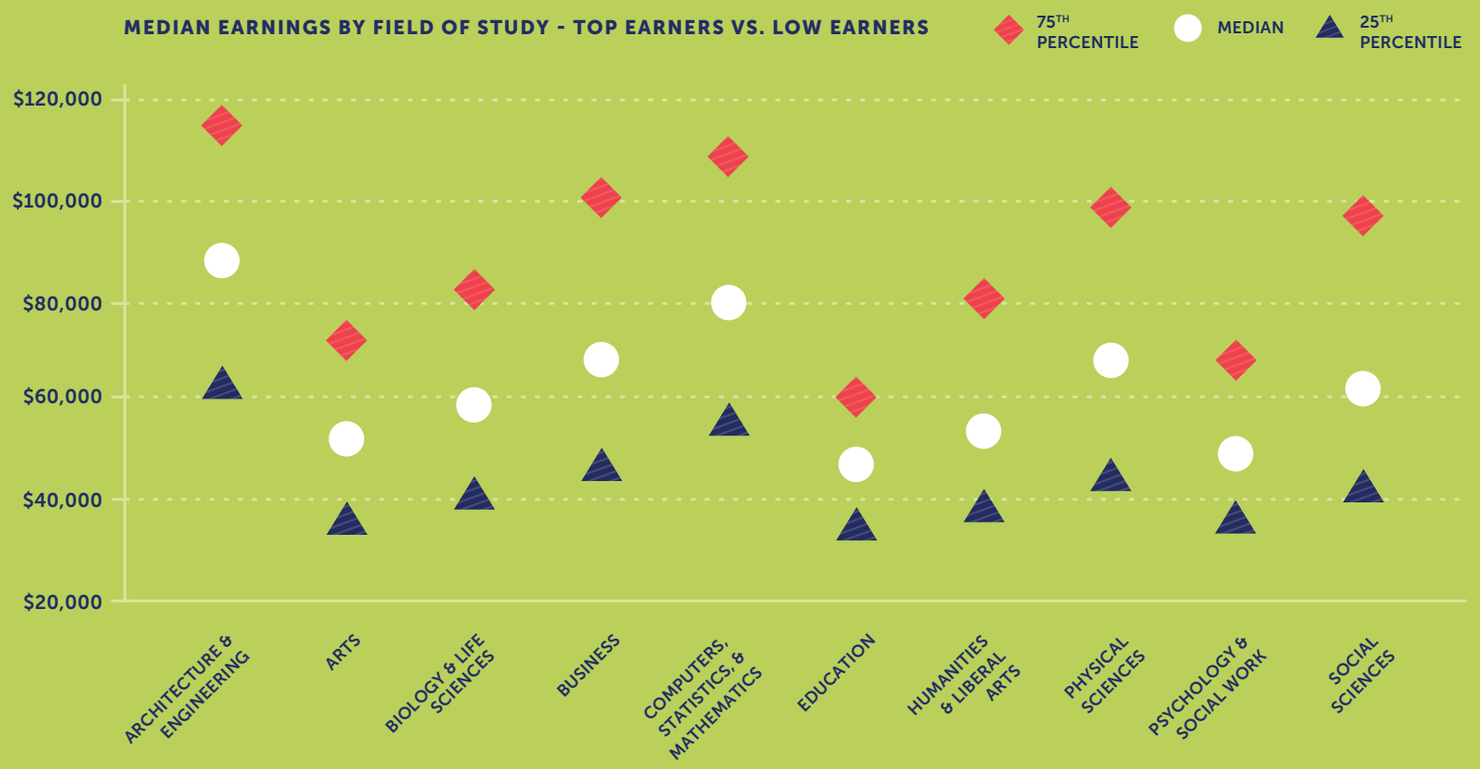
Other majors earn considerably less. The median annual earnings of **education majors are $46,000.** This is still almost **30% more** than the median earnings of a worker with a **high school diploma**.

Source: Georgetown University Center on Education and the Workforce analysis of *American Community Survey (ACS)*: 2009-2016 pooled one-year person level microdata files.

3 While field of study is important, it does not control one's financial destiny—there is great variation in earnings within majors.

The 25th percentile of architecture and engineering majors earn less than the 75th percentile of majors in either the arts or humanities and the liberal arts.

MEDIAN EARNINGS BY FIELD OF STUDY - TOP EARNERS VS. LOW EARNERS



$67,000 is the **median annual earnings** for a worker with a **bachelor's degree in business.**

But, **25%** of workers who **majored in business** are earning more than **$100,000** a year.

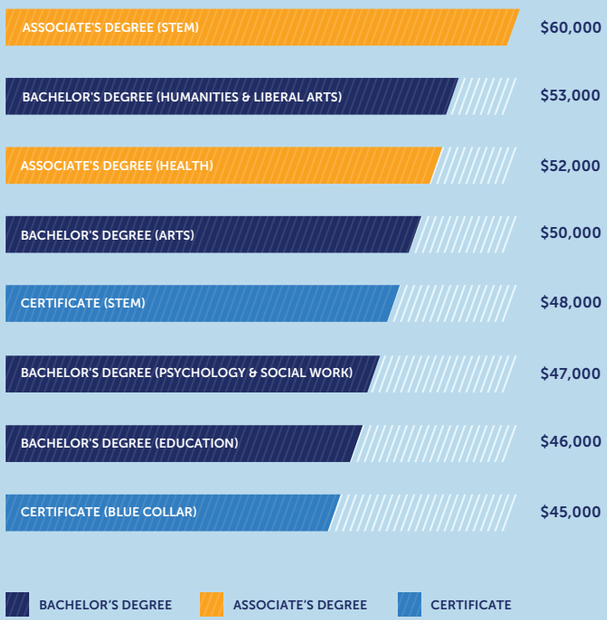
The **top 25%** of education majors **earn almost as much** as the **bottom 25%** of architecture and engineering majors.

Source: Georgetown University Center on Education and the Workforce analysis of *American Community Survey (ACS)*: 2009-2016 pooled one-year person level microdata files.

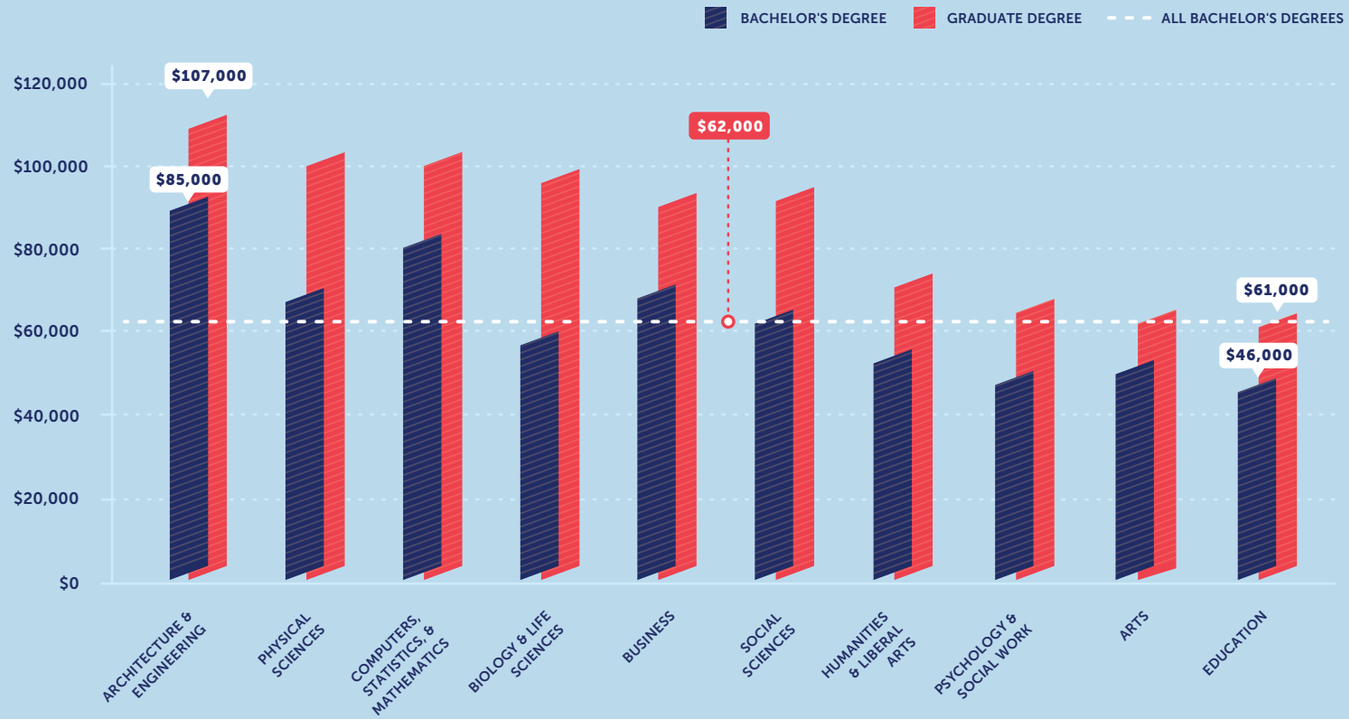
4 Less education can be worth more.

Some certificates pay more than some associate's degrees, some associate's degrees pay higher than some bachelor's degrees, and some bachelor's degrees result in higher earnings than some graduate degrees.

MEDIAN EARNINGS COMPARISON BY EDUCATION LEVEL & FIELD OF STUDY



MEDIAN EARNINGS BY FIELD OF STUDY & DEGREE



Associate's degree holders who studied STEM earn **$60,000** annually. This is **more than** bachelor's degree holders who majored in the **humanities and liberal arts.**

Education majors need a graduate degree to achieve the median earnings of a bachelor's degree holder, as do arts and psychology and social work majors.

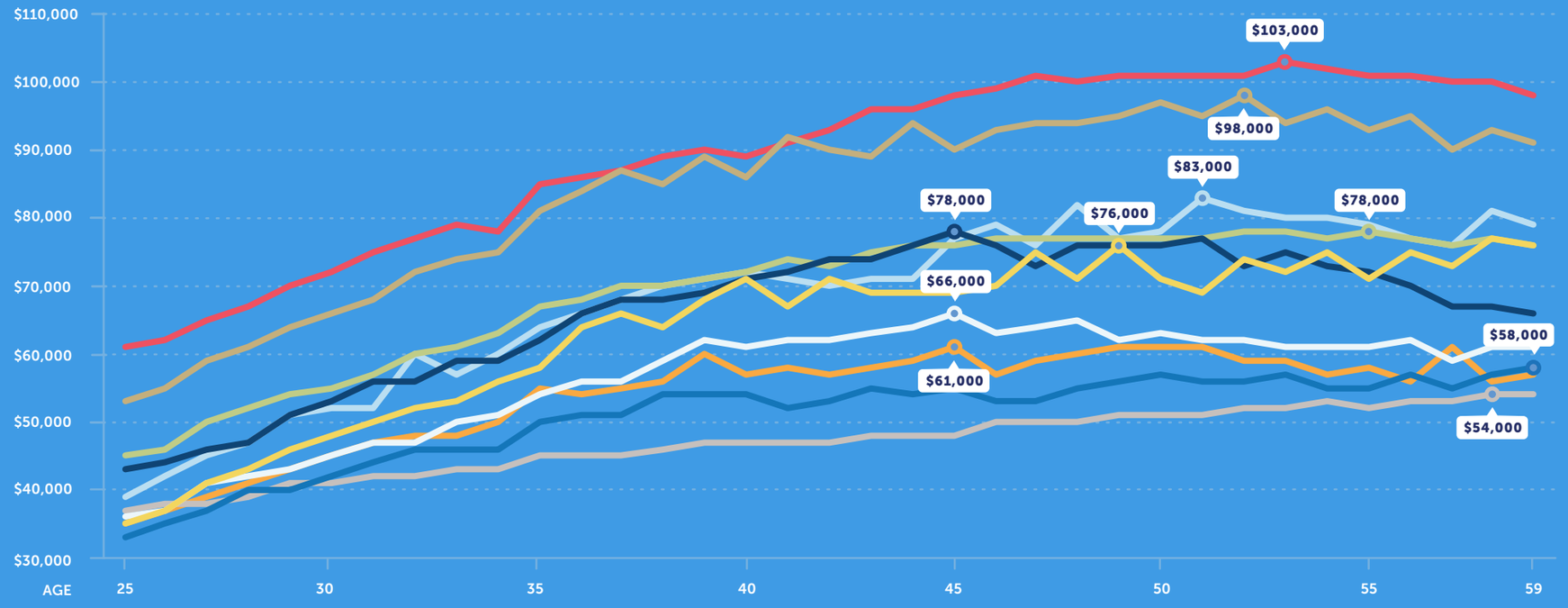
Biology and life sciences majors experience the **largest bump in earnings** from a **graduate degree.**

Source: Georgetown University Center on Education and the Workforce analysis of data from the US Census Bureau's *American Community Survey* (2009-2016 pooled one-year person level microdata files) and *Survey of Income and Program Participation* (2004/2008 combined panels).

5 Humanities and liberal arts majors never catch up with the highest earning majors.

Earnings for social sciences majors drop off late in their careers, and they are passed by majors in business, biology and life sciences, and physical sciences.

CAREER MEDIAN EARNINGS BY AGE & MAJOR



- PEAK EARNINGS
- ARCHITECTURE & ENGINEERING
- ARTS
- BIOLOGY & LIFE SCIENCES
- BUSINESS
- COMPUTERS, STATISTICS, & MATHEMATICS
- EDUCATION
- HUMANITIES & LIBERAL ARTS
- PHYSICAL SCIENCES
- PSYCHOLOGY & SOCIAL WORK
- SOCIAL SCIENCES

Workers with a **bachelor's degree** but without advanced degrees who major in **architecture and engineering; and computers, statistics, and mathematics earn more** at **age 25** and continue to earn more than all other majors through **age 59.**

Source: Georgetown University Center on Education and the Workforce analysis of *American Community Survey (ACS)*: 2009-2016 pooled one-year person level microdata files.

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Appendix

Fields of study, detailed majors, and median earnings of graduates with degrees in these fields

FIELD OF STUDY	MAJOR	BACHELOR'S DEGREE	GRADUATE DEGREE
Agriculture and Natural Resources	Agricultural economics	$72,000	$86,000
	Animal sciences	$51,000	$77,000
	Food science	$69,000	$83,000
	Forestry	$63,000	$82,000
	General agriculture	$54,000	$72,000
	Natural resources management	$56,000	$73,000
	Plant science and agronomy	$55,000	$73,000
	Soil science	$72,000	$78,000
Architecture and Engineering	Aerospace engineering	$92,000	$114,000
	Architectural engineering	$80,000	$85,000
	Architecture	$68,000	$77,000
	Biomedical engineering	$73,000	$91,000
	Chemical engineering	$97,000	$113,000
	Civil engineering	$84,000	$101,000
	Electrical engineering	$96,000	$116,000
	Engineering and industrial management	$78,000	$111,000
Architecture and Engineering	Engineering mechanics, physics, and science	$78,000	$111,000
	Engineering technologies	$71,000	$79,000
	Environmental engineering	$77,000	$91,000
	General engineering	$82,000	$105,000
	Geological and geophysical engineering	$93,000	$120,000
	Industrial and manufacturing engineering	$84,000	$106,000
	Industrial production technologies	$76,000	$92,000
	Mechanical engineering	$89,000	$111,000
	Mechanical engineering related technologies	$72,000	$92,000
	Metallurgical engineering	$101,000	$113,000
	Mining and mineral engineering	$101,000	$109,000
	Petroleum engineering	$140,000	$142,000
Arts	Commercial art and graphic design	$52,000	$66,000
	Drama and theater arts	$46,000	$61,000
	Film, video, and photographic arts	$51,000	$61,000
	Fine arts	$51,000	$61,000
	Music	$50,000	$62,000
	Studio arts	$43,000	$56,000
	Visual and performing arts	$45,000	$58,000
Biology and Life Sciences	Biochemical sciences	$61,000	$100,000
	Biology	$56,000	$97,000
	Botany	$53,000	$69,000
	Ecology	$52,000	$68,000
	Environmental science	$58,000	$73,000
	Microbiology	$64,000	$91,000
	Miscellaneous biology	$56,000	$82,000
	Molecular biology	$57,000	$89,000
	Neuroscience	$47,000	$67,000
	Zoology	$57,000	$107,000
Business	Accounting	$70,000	$91,000
	Actuarial science	$89,000	$123,000
	Business economics	$77,000	$101,000
	Business management and administration	$64,000	$82,000
	Finance	$76,000	$101,000
	General business	$66,000	$89,000
	Hospitality management	$52,000	$70,000
	Human resources and personnel management	$59,000	$77,000
	International business	$61,000	$83,000
	Management information systems and statistics	$81,000	$95,000
Business	Marketing and marketing research	$65,000	$83,000
	Operations logistics and e-commerce	$71,000	$98,000
Communications and Journalism	Advertising and public relations	$57,000	$67,000
	Communications and mass media	$56,000	$68,000
	Journalism	$59,000	$73,000
Computers, Statistics, and Mathematics	Applied mathematics	$88,000	$107,000
	Computer and information systems	$72,000	$88,000
	Computer engineering	$91,000	$106,000
	Computer science	$86,000	$103,000
	Information sciences	$77,000	$93,000
	Mathematics	$75,000	$91,000
	Statistics and decision science	$80,000	$99,000
Education	Art and music education	$46,000	$61,000
	Early childhood education	$40,000	$53,000
	Elementary education	$44,000	$58,000
	General education	$46,000	$61,000
	Language and drama education	$46,000	$61,000
	Mathematics teacher education	$49,000	$63,000
	Physical and health education teaching	$52,000	$68,000
	Science and computer teacher education	$50,000	$65,000
	Secondary teacher education	$49,000	$66,000
	Social science or history teacher education	$47,000	$63,000
	Special needs education	$46,000	$62,000
	Teacher education: multiple levels	$43,000	$57,000
Health	Communication disorders sciences and services	$47,000	$68,000
	Health and medical administrative services	$54,000	$80,000
	Health and medical preparatory programs	$55,000	$131,000
	Nursing	$67,000	$91,000
	Nutrition sciences	$52,000	$71,000
	Pharmacy and pharmaceutical sciences and administration	$116,000	$119,000
	Treatment therapy professions	$67,000	$75,000
Humanities and Liberal Arts	Area ethnic and civilization studies	$52,000	$77,000
	Art history and criticism	$51,000	$66,000
	Composition and speech	$47,000	$61,000
	English language and literature	$54,000	$70,000
	French, German, Latin, and other common foreign languages	$53,000	$70,000
	History	$56,000	$80,000
	Humanities	$52,000	$72,000
Humanities and Liberal Arts	Intercultural and international studies	$53,000	$73,000
	Liberal arts	$54,000	$72,000
	Linguistics and comparative language and literature	$51,000	$67,000
	Philosophy and religious studies	$52,000	$71,000
	Theology and religious vocations	$44,000	$52,000
Industrial Arts, Consumer Services, and Recreation	Family and consumer sciences	$45,000	$61,000
	Military technologies	$72,000	$88,000
	Physical fitness, parks, recreation, and leisure	$49,000	$66,000
	Transportation sciences and technologies	$75,000	$98,000
Law and Public Policy	Criminal justice and fire protection	$56,000	$71,000
	Pre-law and legal studies	$52,000	$78,000
	Public administration	$63,000	$76,000
	Public policy	$67,000	$94,000
Physical Sciences	Astronomy and astrophysics	$66,000	$101,000
	Atmospheric sciences and meteorology	$69,000	$85,000
	Chemistry	$65,000	$106,000
	Geology and earth science	$69,000	$89,000
	Geosciences	$69,000	$101,000
	Multidisciplinary or general science	$62,000	$89,000
	Nuclear, industrial radiology, and biological technologies	$69,000	$101,000
	Oceanography	$64,000	$89,000
	Physical sciences	$64,000	$85,000
	Physics	$82,000	$103,000
Psychology and Social Work	Human services and community organization	$42,000	$54,000
	Industrial and organizational psychology	$69,000	$85,000
	Psychology	$50,000	$66,000
	Social psychology	$50,000	$67,000
	Social work	$43,000	$56,000
Social Sciences	Anthropology and archaeology	$49,000	$67,000
	Criminology	$54,000	$70,000
	Economics	$77,000	$111,000
	General social sciences	$53,000	$69,000
	Geography	$60,000	$77,000
	International relations	$64,000	$93,000
	Political science and government	$66,000	$96,000
	Sociology	$52,000	$67,000

Source: Georgetown University Center on Education and the Workforce analysis of *American Community Survey (ACS)*: 2009-2016 pooled one-year person level microdata files.

Five Rules of the College and Career Game can be accessed online at cew.georgetown.edu/5Rules

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