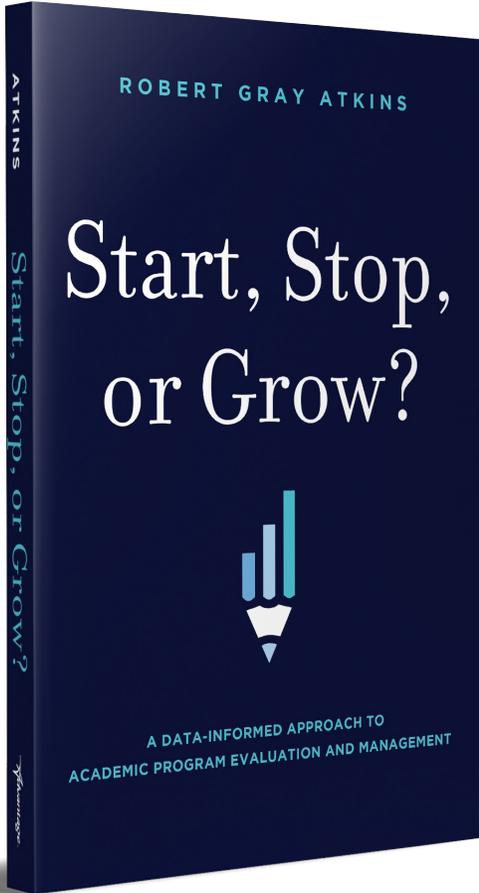




GRAY
ASSOCIATES

Demand for Higher-Education Programs

Results through May 2023



Gray has developed a complete Program Evaluation System.

A PES is an inclusive, data-informed evaluation process.



Agenda

Student Demand

- **Leading Indicators: Google**
- **Recent Trends: Enrollment**
- **Non-Degree Courses**

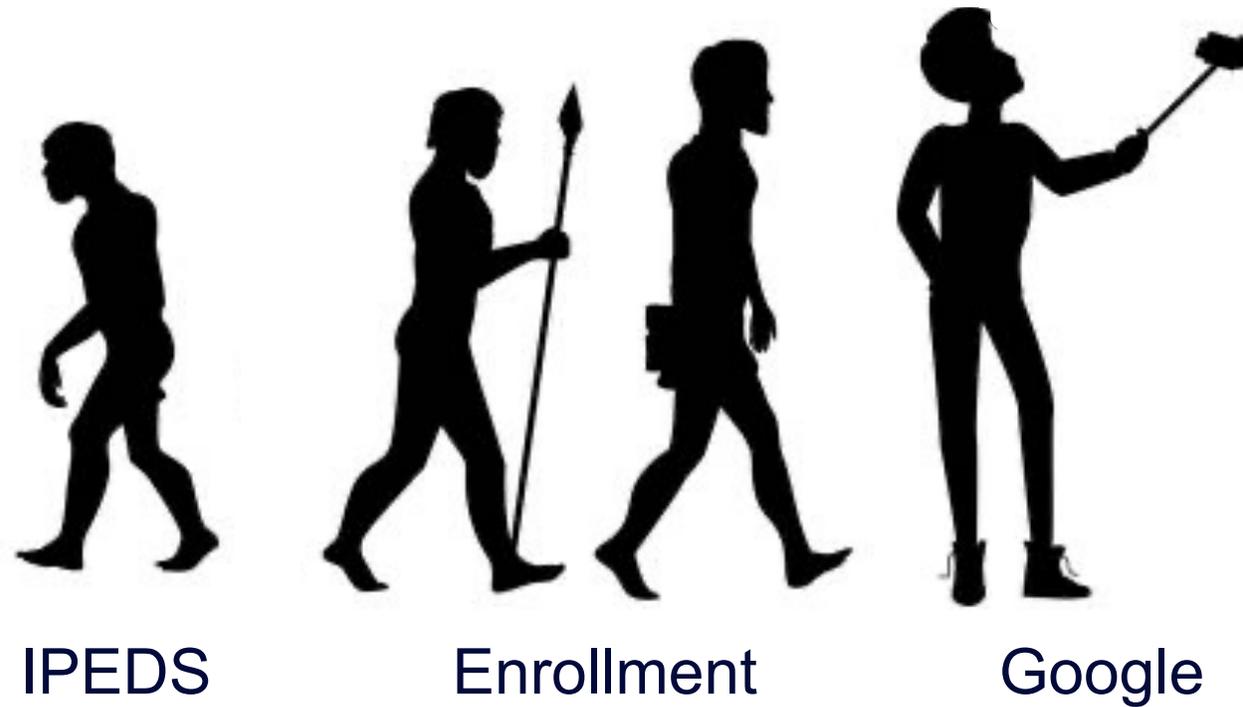
Employment: Current Indicators

Program of the Month

Summary

IPEDES, Enrollment, and Google Search: Past, Present, and Future

Insights on Student Demand



Agenda

Student Demand

- **Leading Indicators: Google**
- **Recent Trends: Enrollment**
- **Non-Degree Courses**

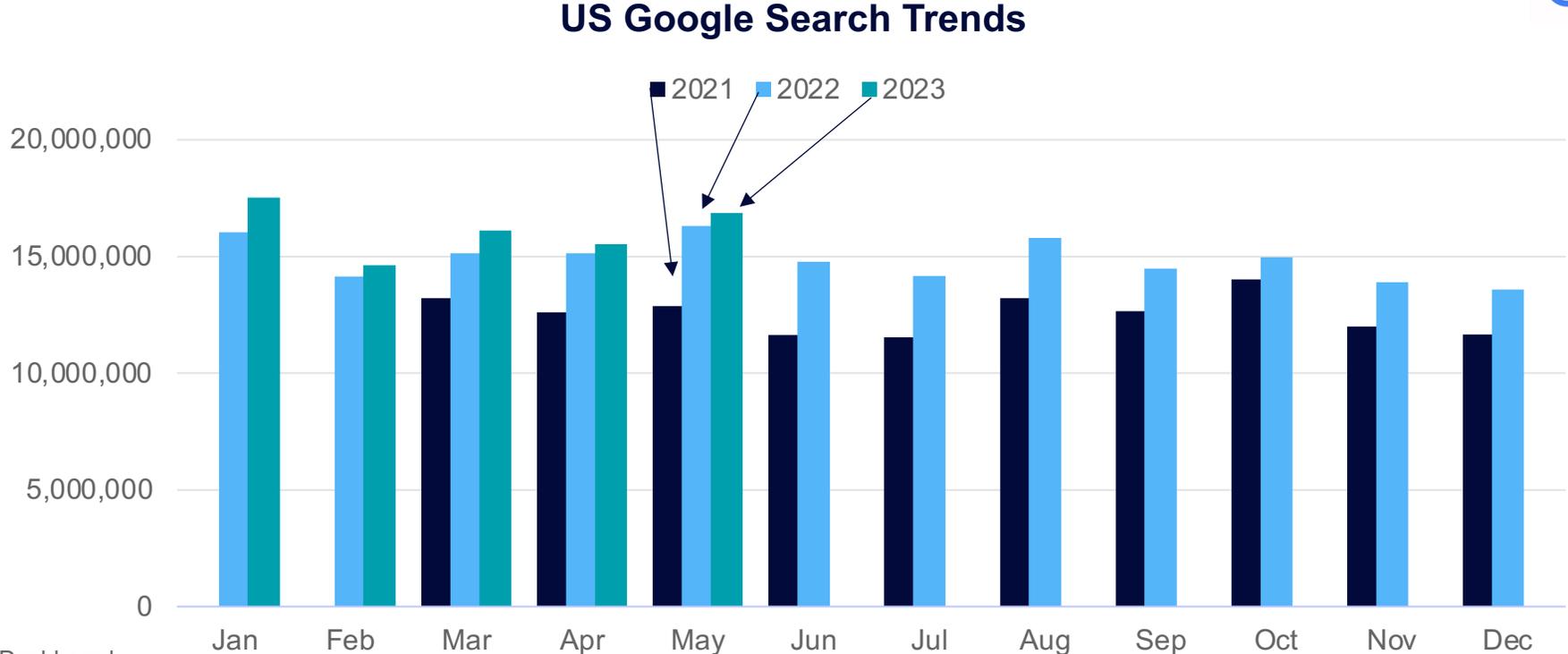
Employment: Current Indicators

Program of the Month

Summary

Google Search Trends: Programs

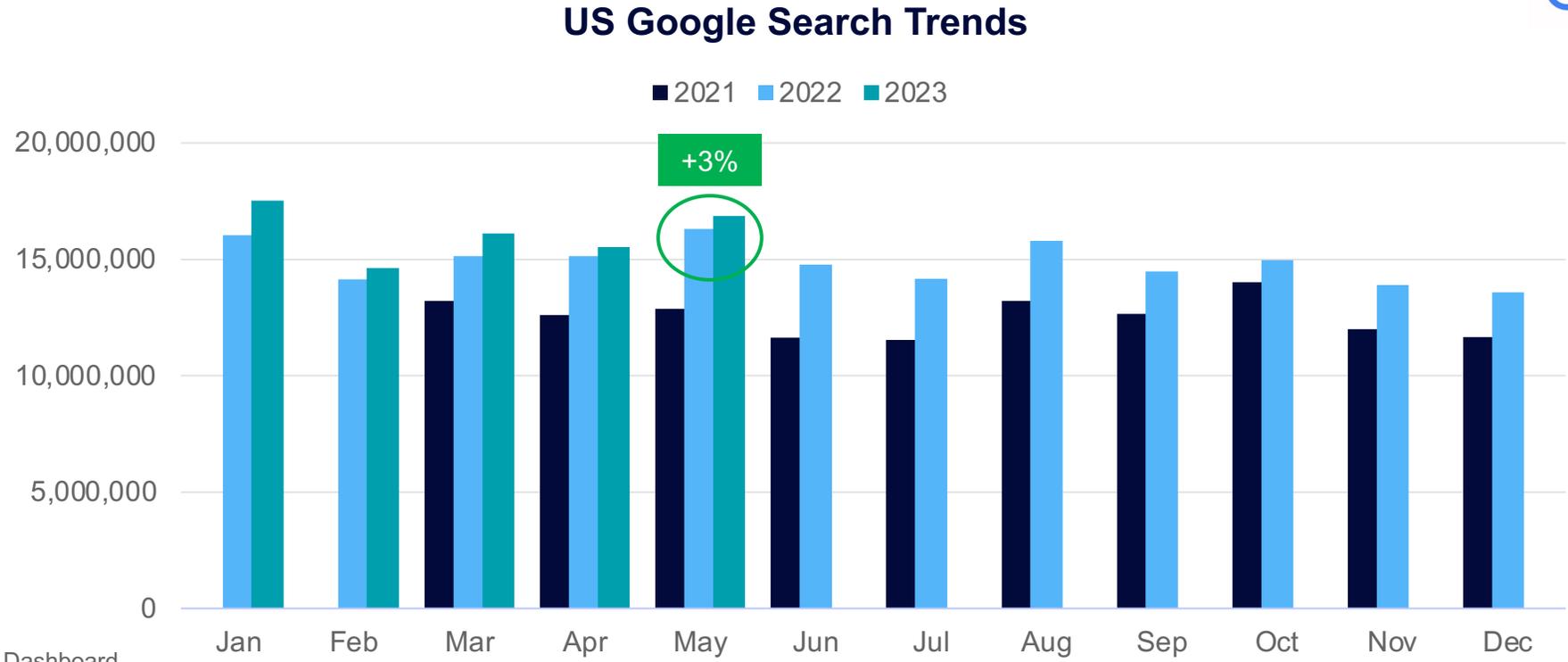
Gray tracks searches for over 900 programs (90% of all US completions).



Source: PES Keyword Search Dashboard

Google Search Trends: Programs

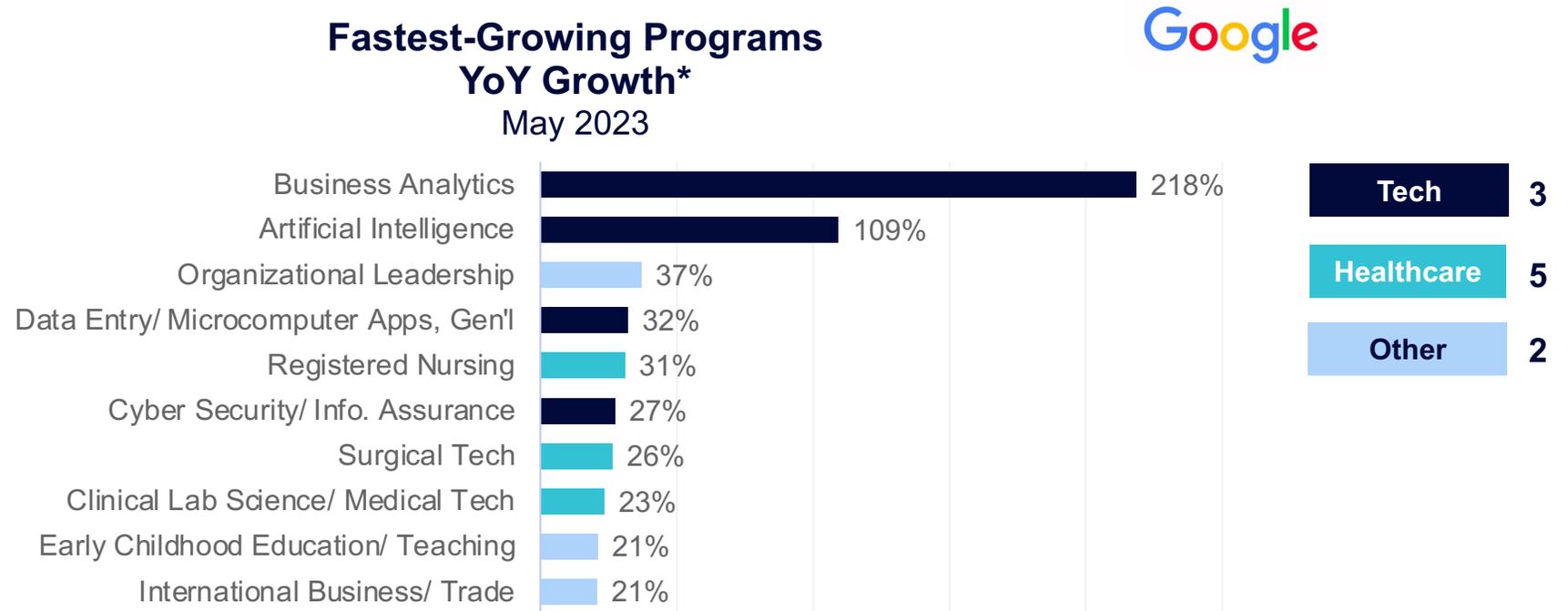
In May 2023, Google searches for academic programs rose 3% year-over-year.



Source: PES Keyword Search Dashboard

Google: US Fastest-Growing Programs

In May, searches for Business Analytics programs increased 218% year-over-year.

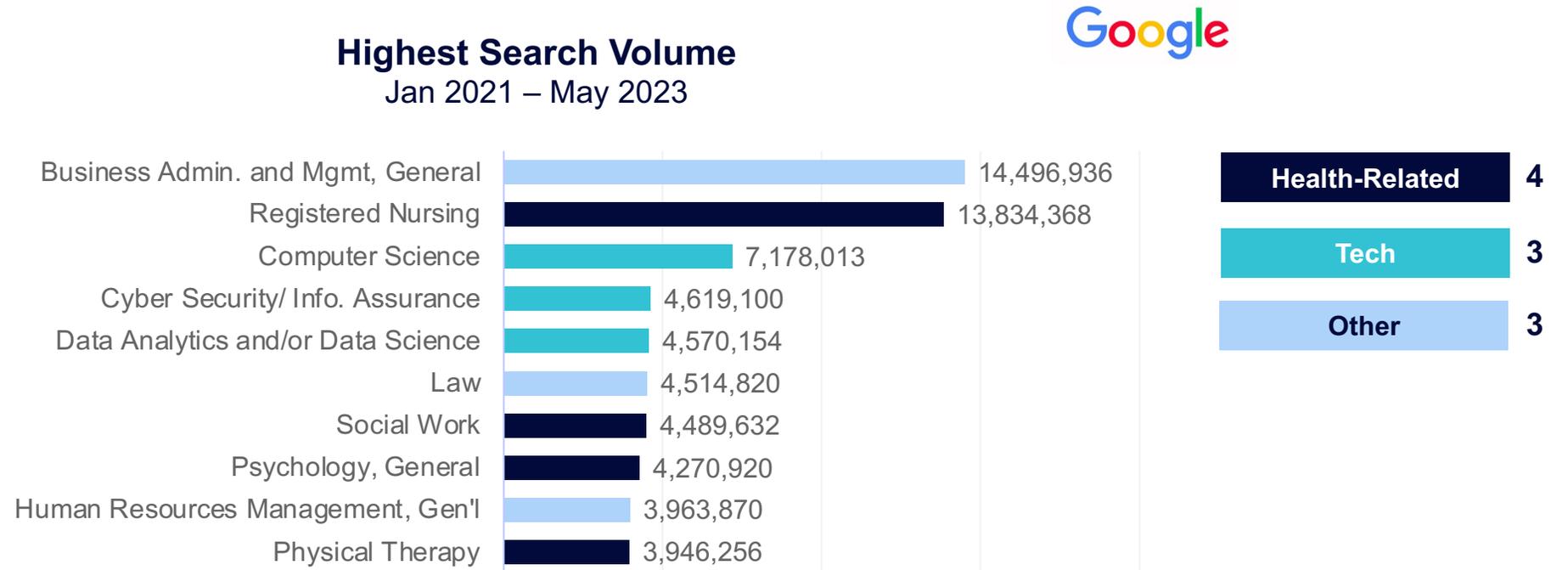


*Minimum 10,000 searches May 2022

Google search volume for standardized sets of academic
Source: PES Keyword Search Dashboard

Google: The Big 10

From January 2021 – May 2023, Business had the highest search volume.



Source: PES Keyword Search Dashboard

Google Search Trends: Brands

In May 2023, Google brand searches for academic programs rose 3% year-over-year.



Source: PES Keyword Search Dashboard

Agenda

Student Demand

- **Leading Indicators: Google**
- **Recent Trends: Enrollment**
- **Non-Degree Courses**

Employment: Current Indicators

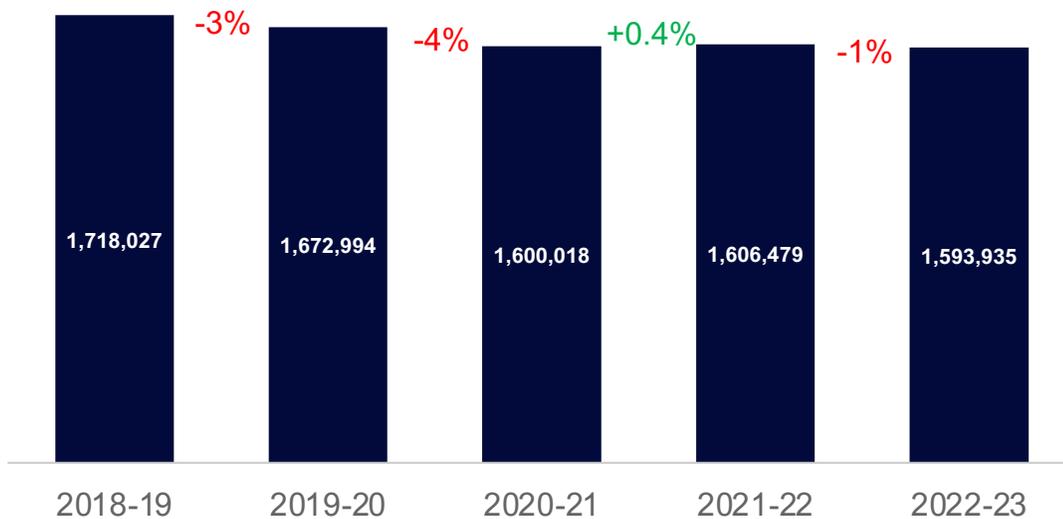
Program of the Month

Summary

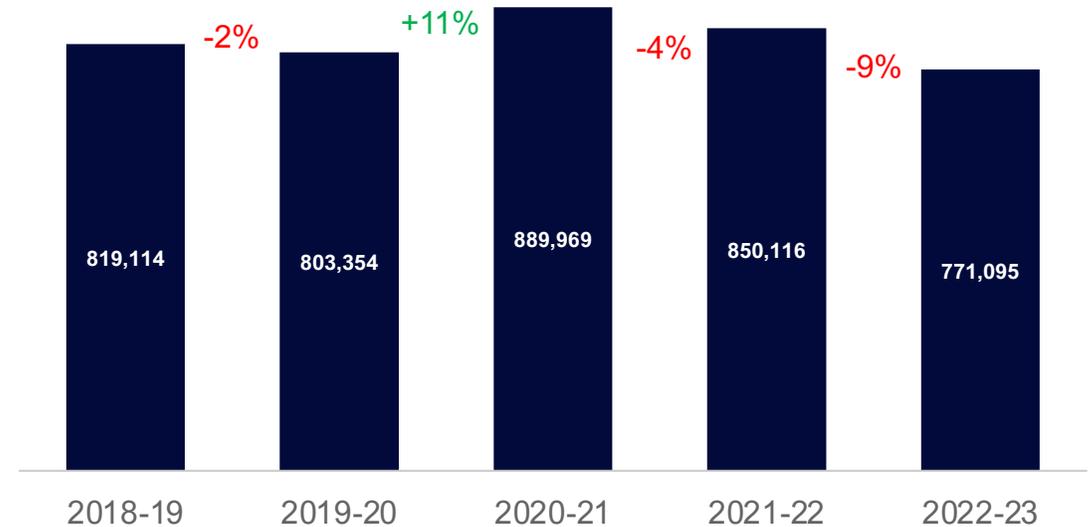
In Fall/Spring 2022–23, new enrollment fell.

- Bachelor’s new enrollment was down slightly year-over-year.
- Master’s new enrollment fell 9%.

US 2022-23 New Enrollment
Bachelor’s Programs, 2018 - 2023



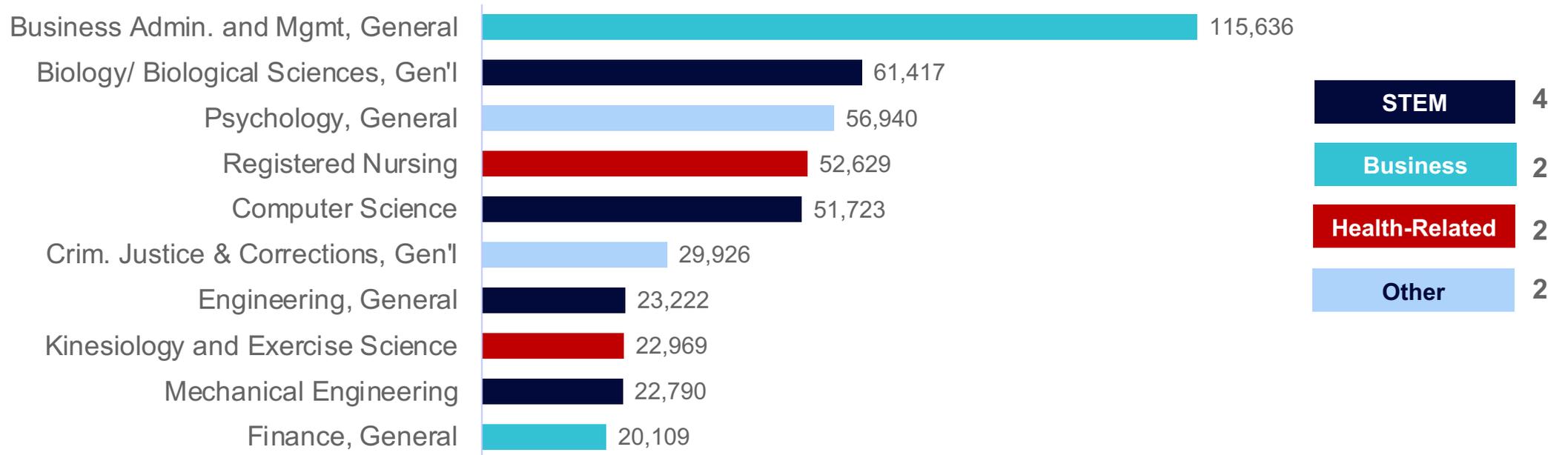
US 2022–23 New Student Enrollment
Master’s Programs, 2018 - 2023



Source: Gray Analysis of National Student Clearinghouse

Bachelor's: In Fall/Spring, Business had the highest new enrollment.*

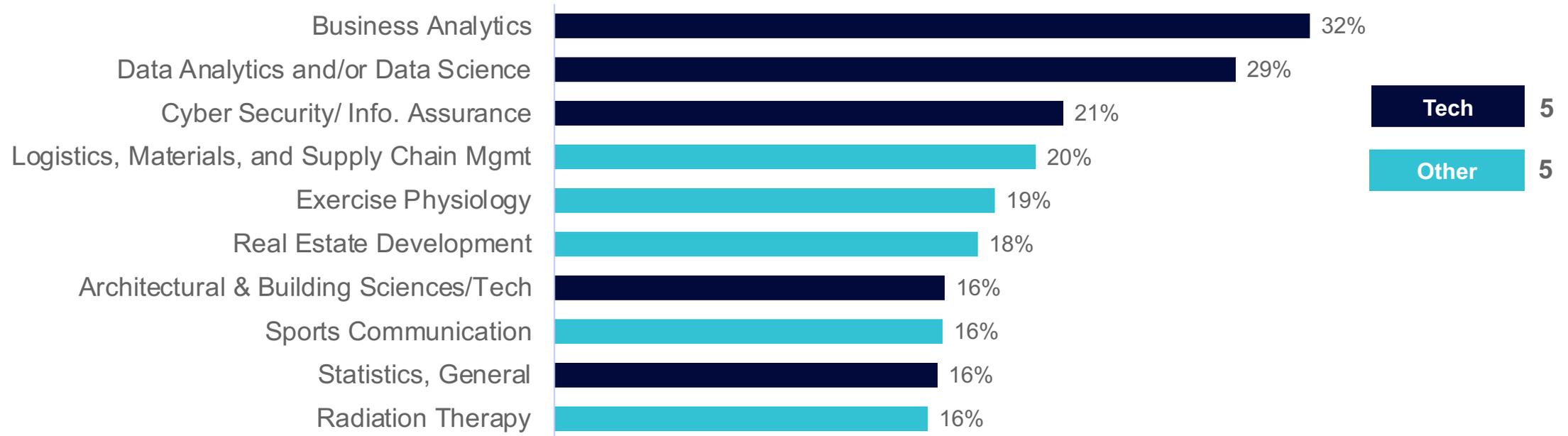
Highest New Enrollment
Bachelor's Programs Fall/Spring 2022-23



Source: Gray analysis of National Student Clearinghouse data
*Excludes CIP codes ending in 99, "Other" and Liberal Arts and General Studies

Bachelor's: In Fall/Spring 2022- 23, Business Analytics grew 32% YoY.

Fastest-Growing New Enrollment*
 Bachelor's Programs
 Fall/Spring 2022-23 Year-over-Year

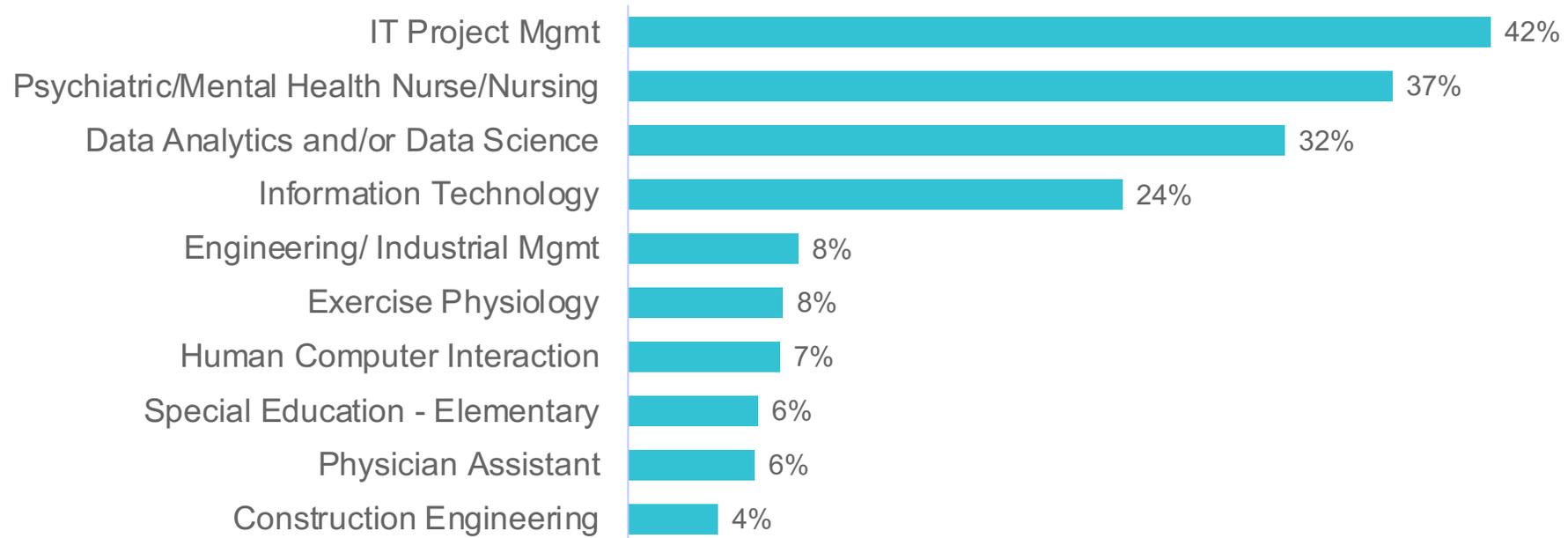


Source: Gray analysis of National Student Clearinghouse data
 Excludes CIP codes ending in 99, "Other"

*Minimum 1,000 enrollees in 2021-22

Master's: IT Project Management grew 42% YoY.

Fastest-Growing New Enrollment* Master's Programs Fall/Spring 2022-23 Year-over-Year



Source: Gray analysis of National Student Clearinghouse data
Excludes CIP codes ending in 99, "Other"

*Minimum 1,000 enrollees in 2020-2021

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Student Demand

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- Recent Trends: Enrollment
- **Non-Degree Courses**

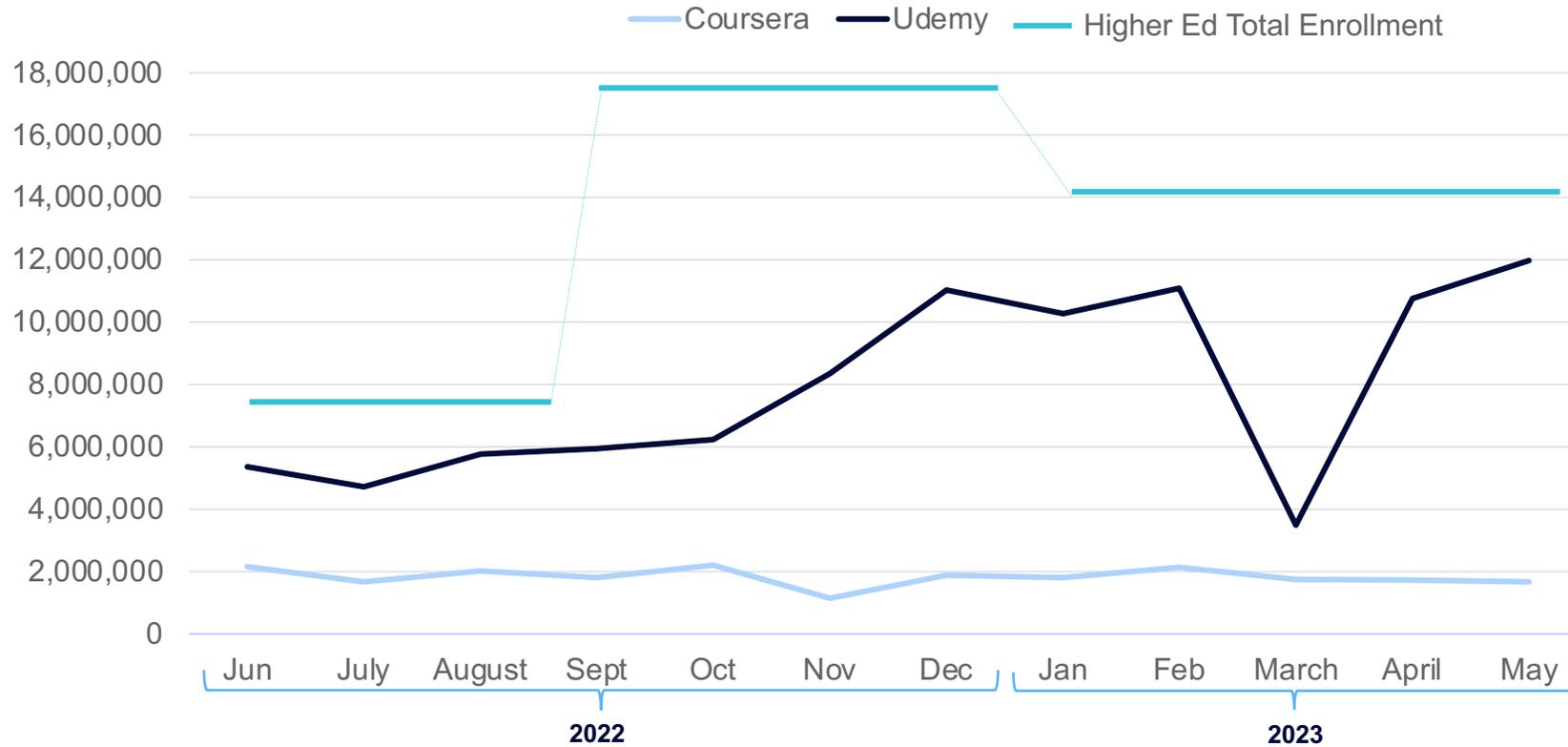
Employment: Current Indicators

Program of the Month

Summary

Total Enrollment: Coursera, Udemy, Higher Education

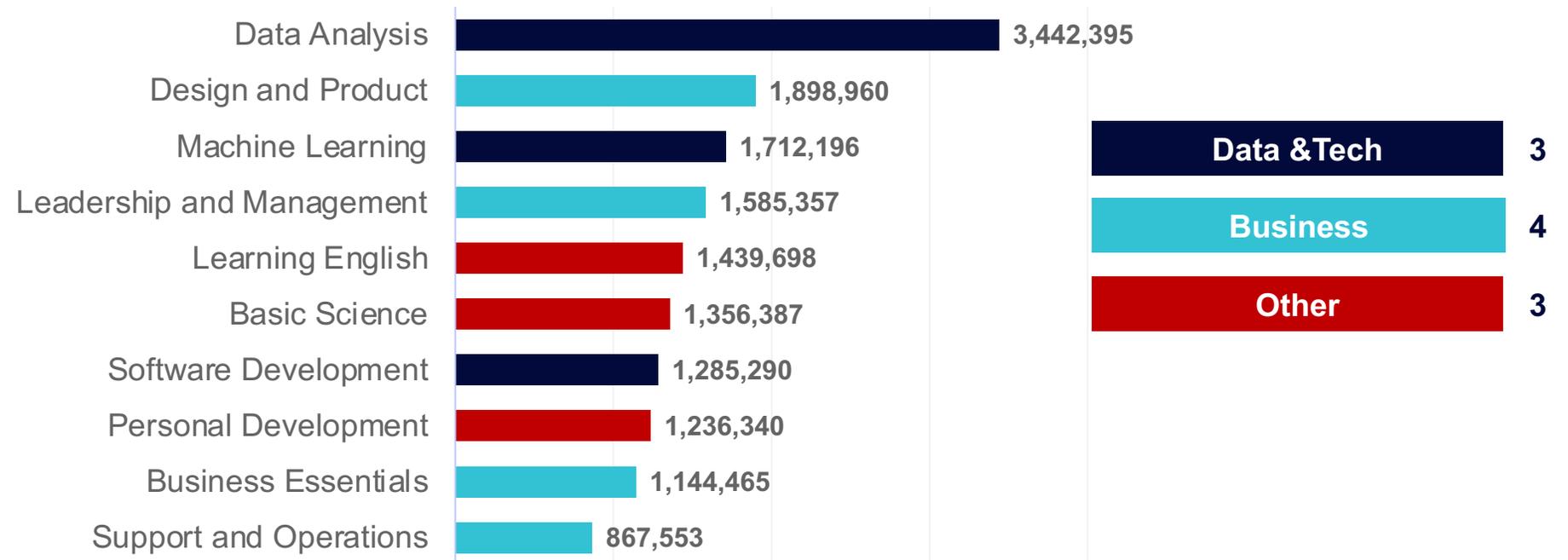
June 2022 – May 2023 Total Enrollment



Coursera: Fastest-Growing Course Categories

In May, Data Analysis added the most students year-over-year.

Highest Year-Over-Year Unit Change in Cumulative Enrollment
May 2023



Agenda

Student Demand

- Leading Indicators: Google
- Recent Trends: Enrollment
- Non-Degree Courses

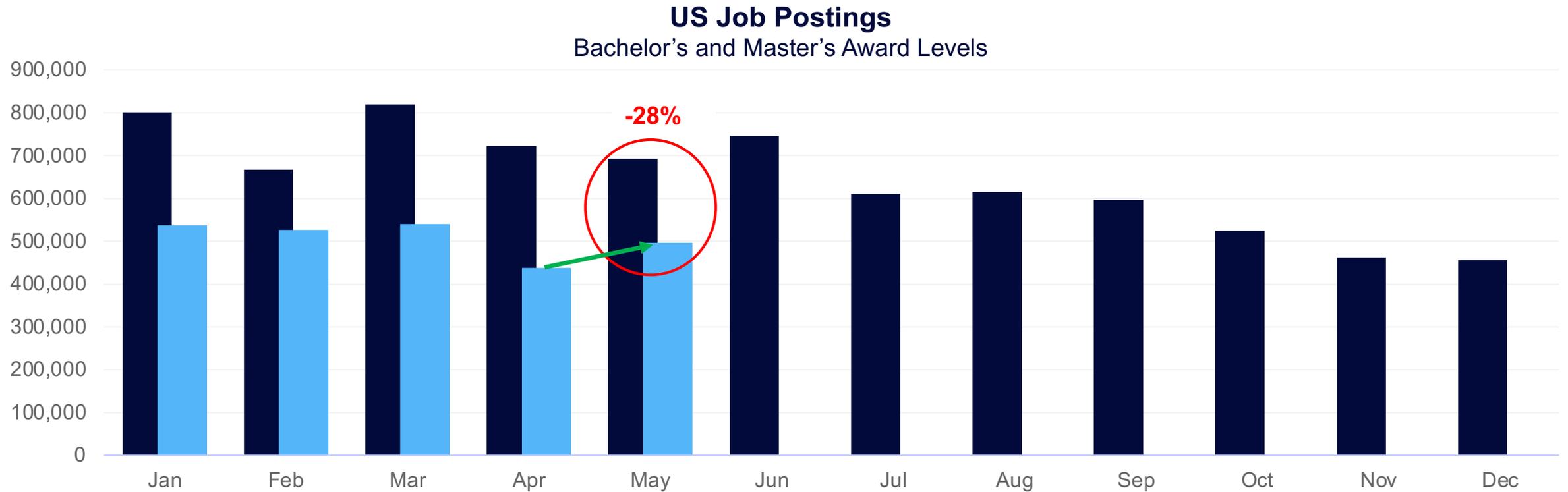
Employment: Current Indicators

Program of the Month

Summary

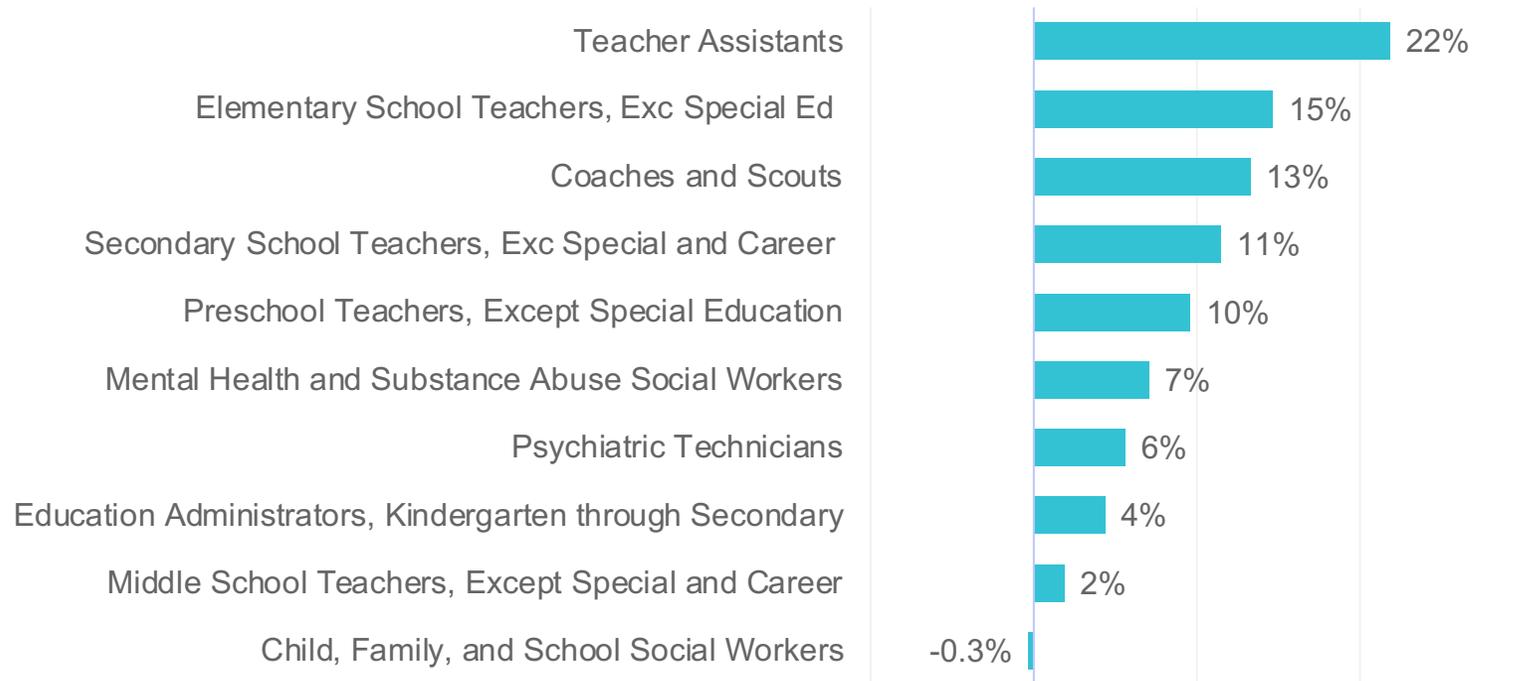
In May, US job postings for bachelor's and above grads fell 28% YoY.

They rose 13% month-over-month.

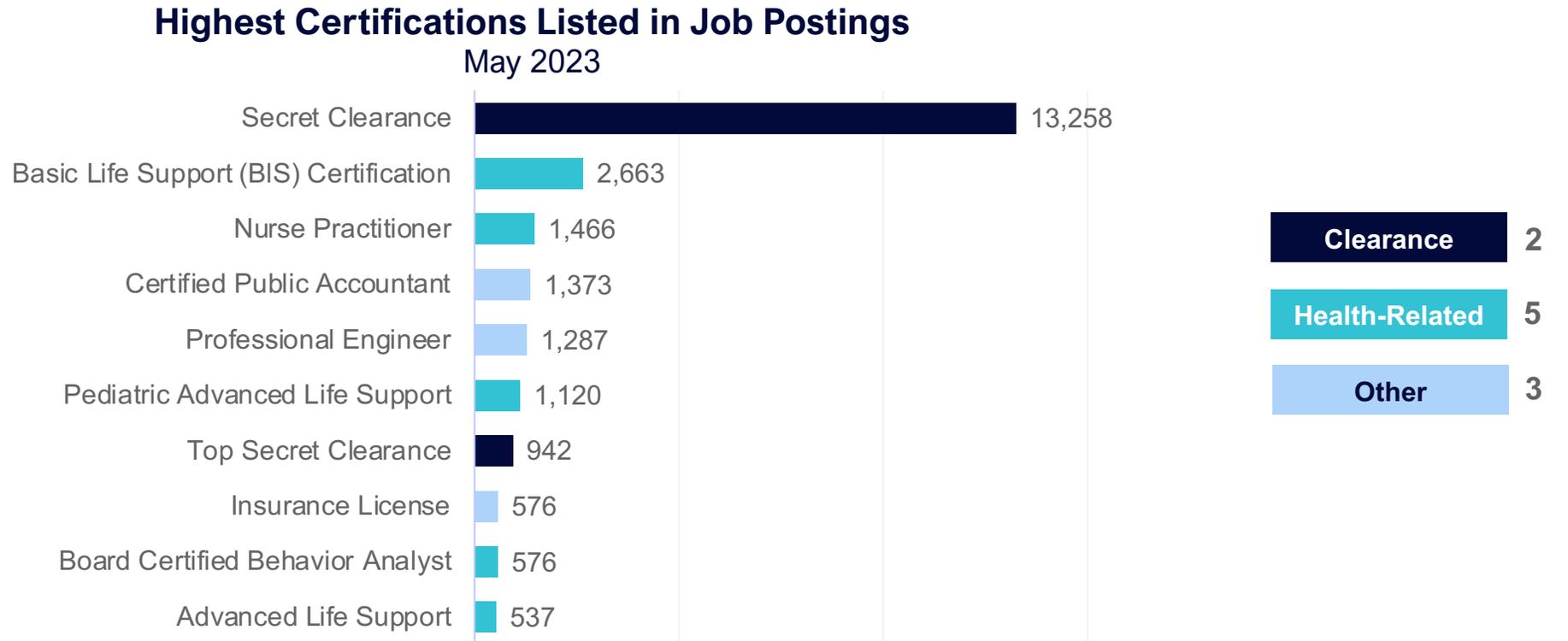


What's growing in job postings?

Highest Job Postings Growth by Occupation (SOC Code)
Bachelor's and Above, May 2023 YoY

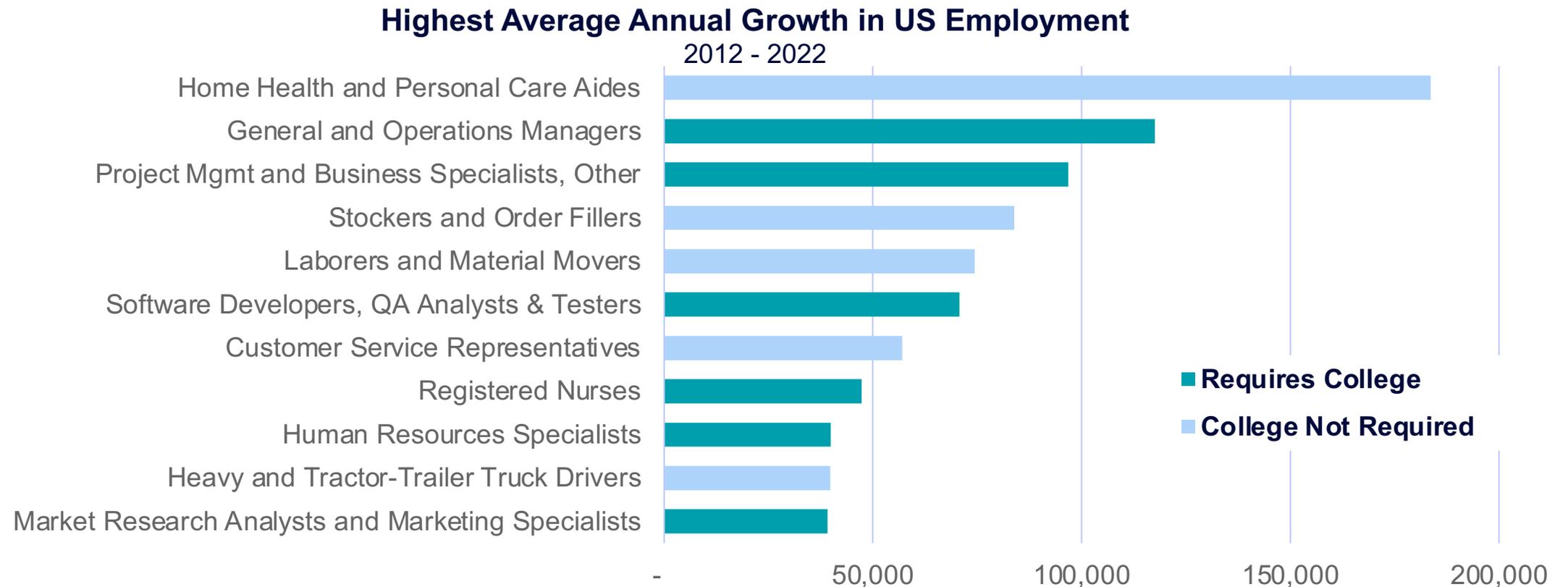


Certifications in Secret Clearance and Healthcare had the highest demand in job postings.



Occupations with the Most and Steadiest Growth 2012-2022

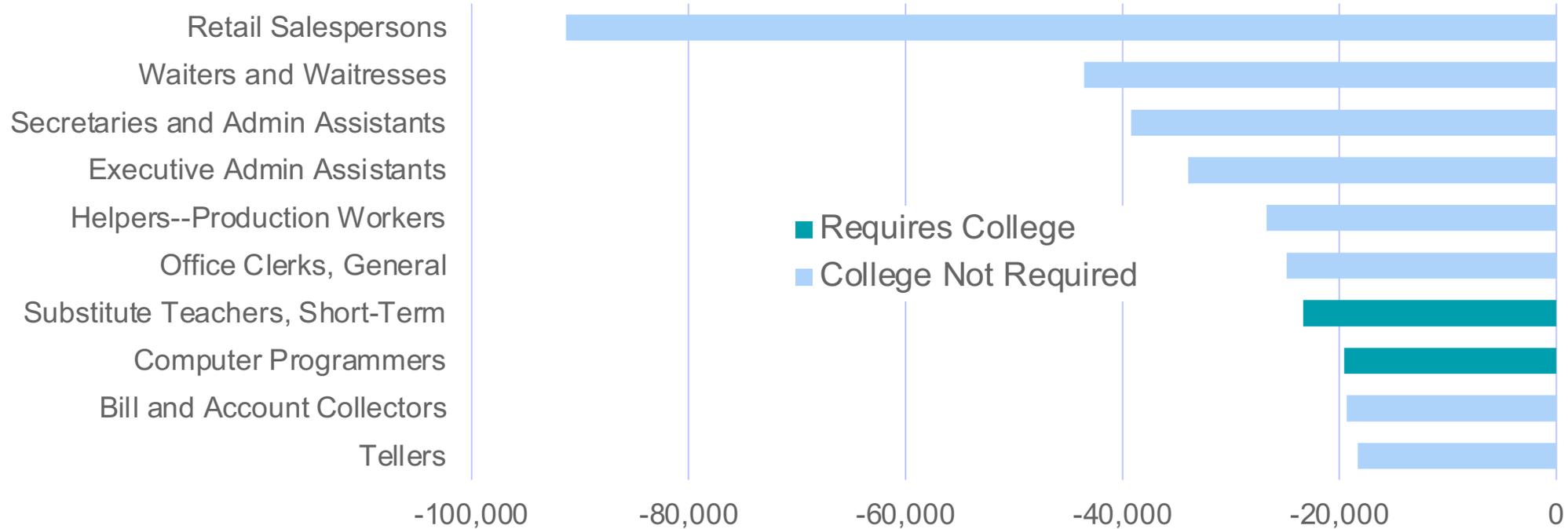
Half the occupations with the most growth require college degrees.



Occupations with the Most and Steadiest Shrinkage 2012-22

Nearly all occupations with the most shrinkage traditionally have not required college.

Highest Shrinkage in Average Annual Growth in US Employment
2012 - 2022

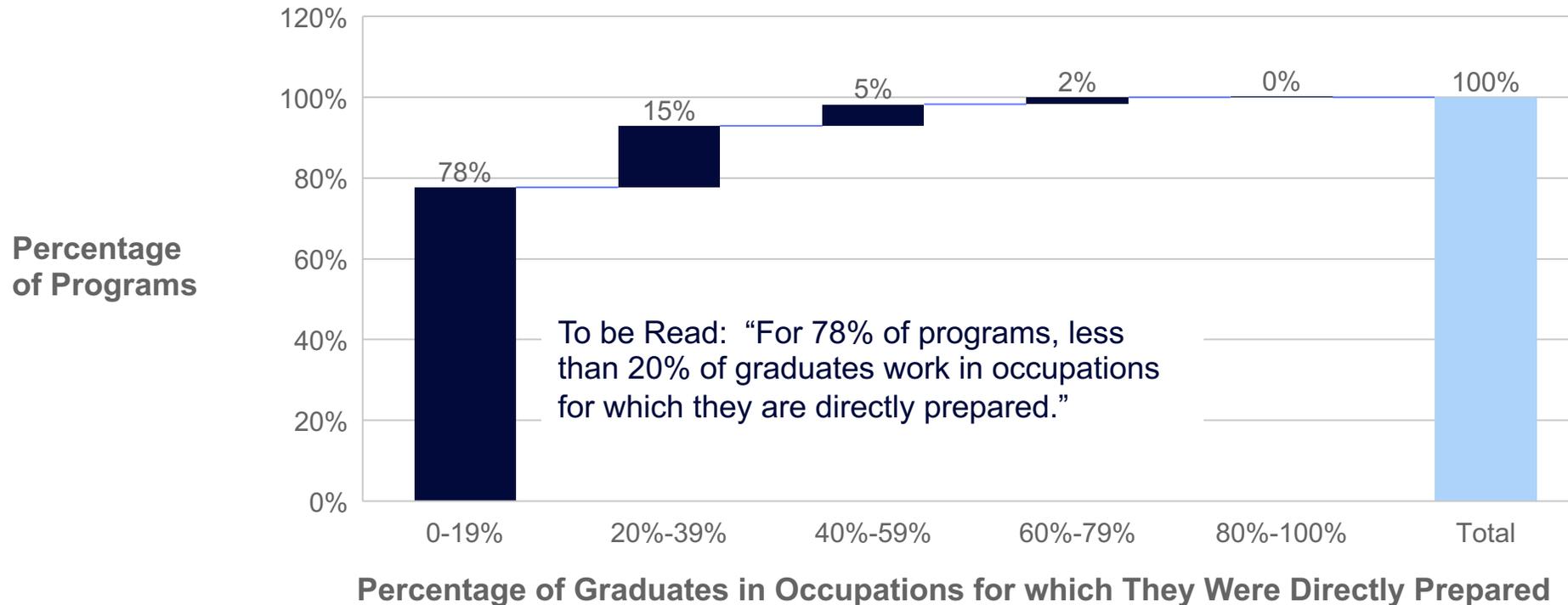


Note: Employment for office clerks was stable until the pandemic, then fell sharply and stayed down. Employment for waiters was stable until the pandemic, then fell sharply and has since partly recovered.

NCES: “The CIP SOC Crosswalk is not based on actual empirical data.”¹

78% of programs place less than 20% of graduates in jobs for which they are directly prepared.

Do Graduates Go into Fields for which They Are Directly Prepared? ²

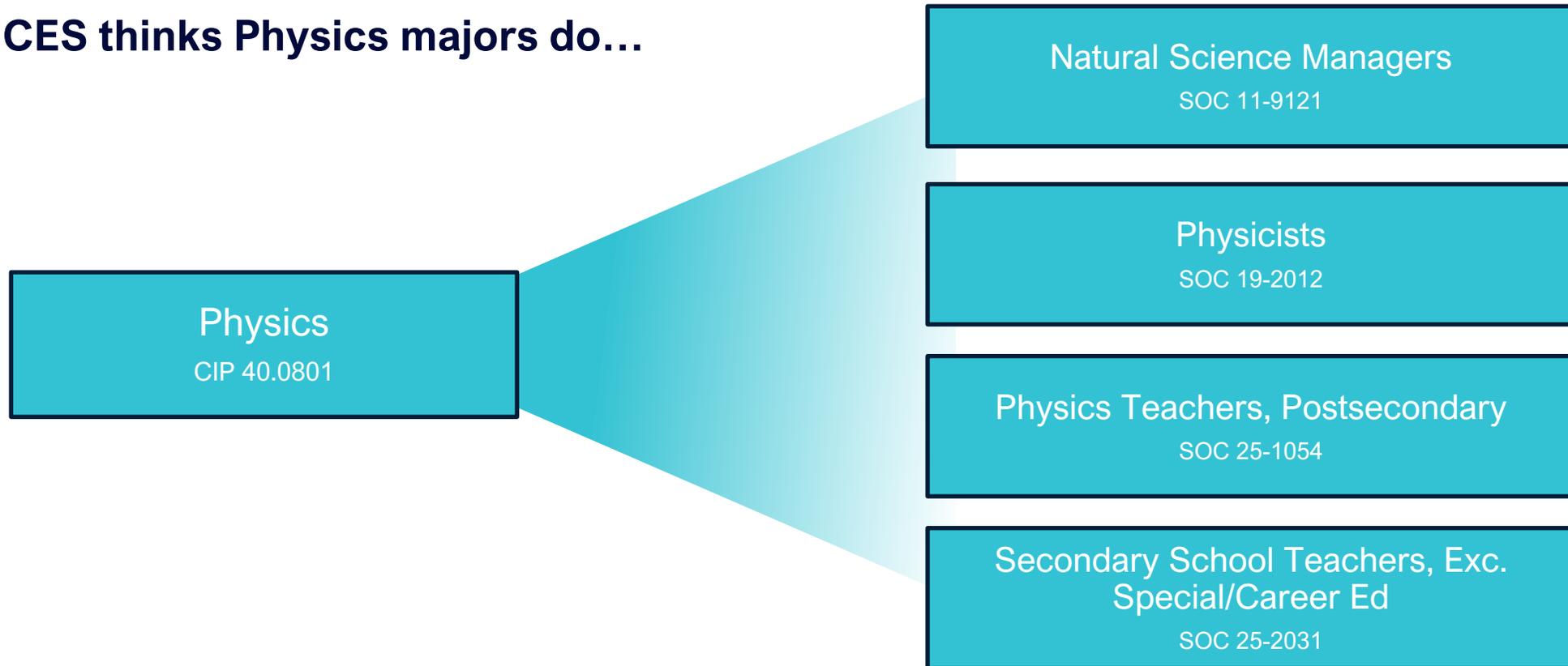


1. Source: IES NCES: “CIP SOC Crosswalk”, July 2021 <https://nces.ed.gov/ipeds/cipcode/post3.aspx?y=56>, Gray Analysis. Number of Programs: 634

2. US Census, American Community Survey, Gray Analysis. Bachelor’s-degree programs with over 100 completions.

NCES CIP 2020 to SOC 2018 Crosswalk

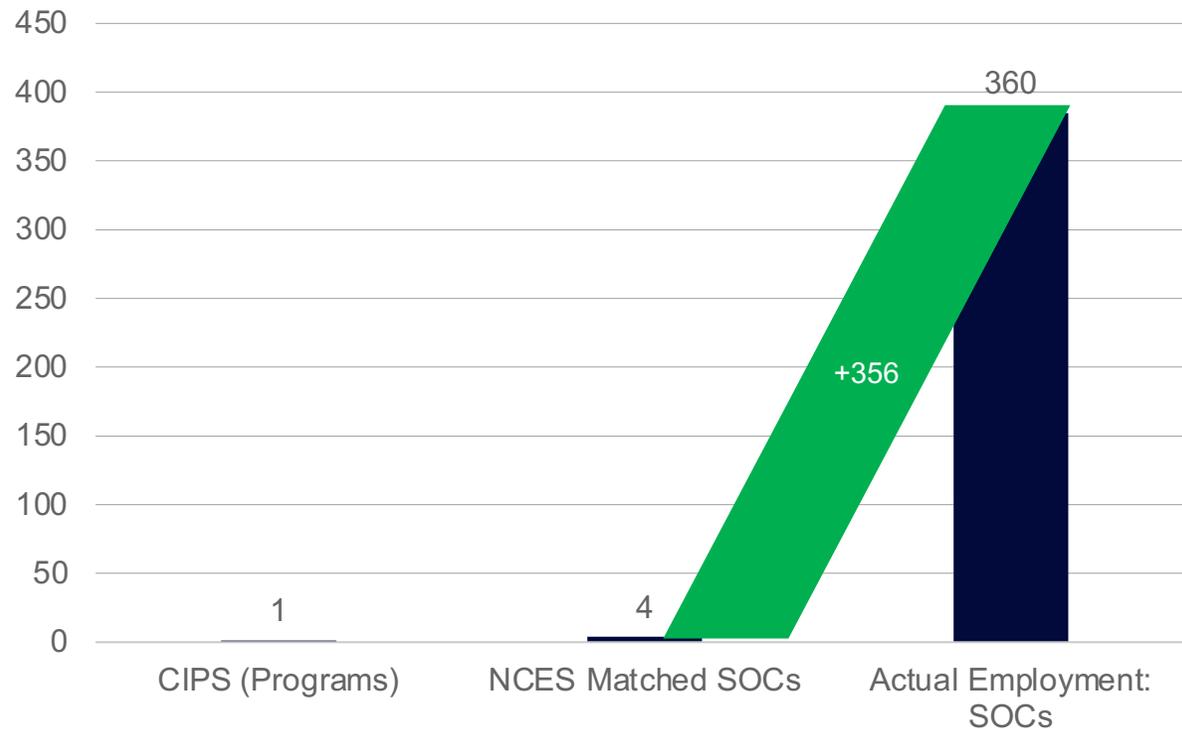
What NCES thinks Physics majors do...



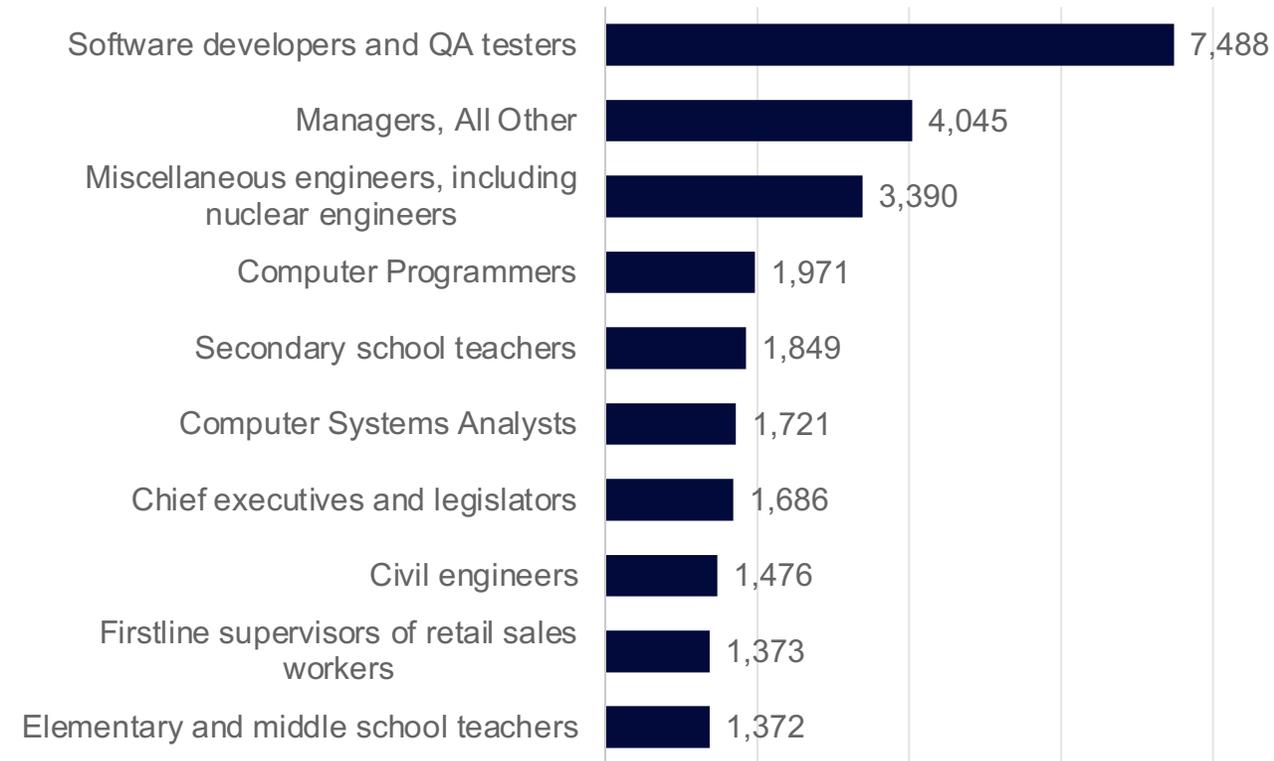
Source: IES NCES: "CIP SOC Crosswalk", July 2021
<https://nces.ed.gov/ipeds/cipcode/post3.aspx?y=56>,

Reality: Physics majors work in 360 SOCs and earn an average of \$90,308.

Count of Programs and Occupations
CIP 40.0801 Physics



Top Occupations, Physics Majors



Liberal Arts graduates don't always do what they are supposed to.

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
History Graduate	Voice Consultant Mood-media					Marketing Director City Club of Rock Hill			Sales Account Manager Carowinds Cedar Fair Corporation				Financial Wellness Business Dev Sharonview Federal Credit Union					Director of Corporate Sales Greater Charlotte YMCA			
Philosophy Graduate	Agriculture/ Community Developer Peace Corps		Agriculture/Water Program Associate Mission Resource Conserv. District		Technical Trainer CHP International	Research and Writing Consultant Aida Cules			Production Manager Saltwater Inc. Alaska Fishery			Production Manager and Video Producer e-Learning					Manager and Director Turn to Turn Productions				
English Graduate						Sales Associate William Sonoma				Sales Manager/Supervisor The Gap		Sales Partner Brighton Collectables	Special Ed Paraprofessional Partners in Special Ed	English Teacher	English III and AP Language Teacher Fort Worth Teaching Fellows	English III and IV, Lead Content Teacher, English Dept Chair OD Wyatt Middle School					
Psychology Graduate	Senior Sales Representative Sprint			Assistant Head Teller TD Bank					Director of Scheduling	Chief of Staff NYS Senate		Community Outreach Coordinator NYC Dept of Education					Director of Workforce Development NYC DOT				
Economics Graduate						Seasonal Sales Associate William Sonoma	Fundraising Coordinator Muscular Dystrophy Association	Marketing Coordinator	Content Manager	Web Manager /optimization	Director of Business Solutions	Director of Operations Earth Fare					Vice President of Marketing and eCommerce	Director of eCommerce Sprouts Farmers			

Agenda

Student Demand

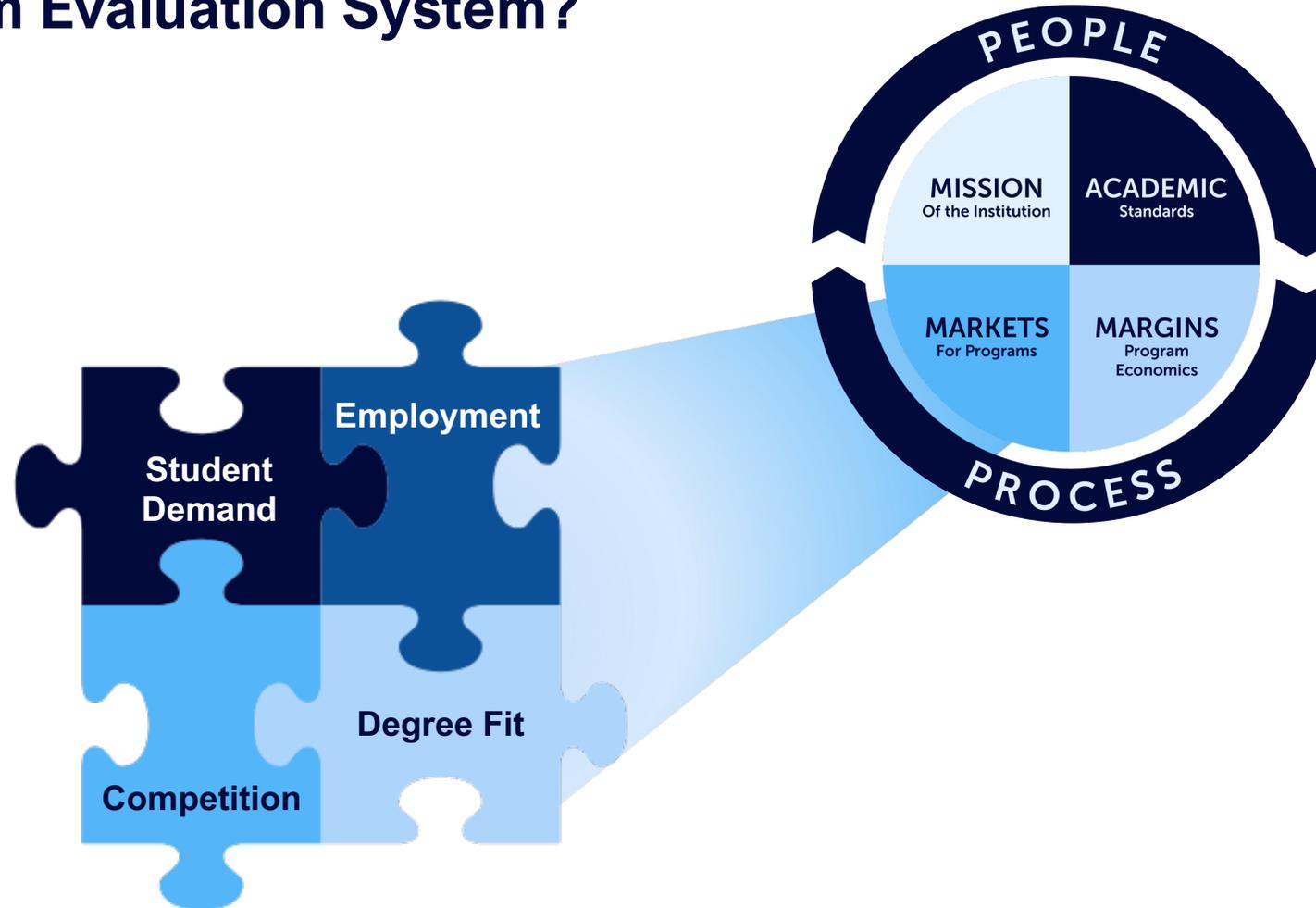
- Leading Indicators: Google
- Recent Trends: Enrollment
- Non-Degree Courses

Employment: Current Indicators

Program of the Month

Summary

What is a Program Evaluation System?



US Bachelor's Program Ranking

Program	Overall Score	Student Demand	Competitive Intensity	Jobs	Degree Fit
04.0902 Architectural & Building Sciences/Tech	99	96	97	84	50
14.0501 Bioengineering and Biomedical Engineering	99	96	95	94	50
51.2010 Pharmaceutical Sciences	99	94	99	97	50
26.1503 Neurobiology and Anatomy	99	84	99	94	50
11.1003 Cyber Security/ Info. Assurance	98	99	5	78	50
26.0101 Biology/ Biological Sciences, Gen'l	98	98	30	90	50
30.7101 Data Analytics and/or Data Science	98	98	1	95	50
 26.1501 Neuroscience	98	97	14	94	50
30.7102 Business Analytics	98	97	8	97	50
26.0102 Biomedical Sciences, General	98	96	39	94	50
14.1001 Electrical/Electronics Eng'g	98	96	20	99	50
52.1201 Management Info. Systems, General	98	96	20	98	50
14.0903 Computer Software Engineering	98	94	30	100	50
52.0601 Business/ Managerial Economics	98	93	30	99	50
14.0701 Chemical Engineering	98	92	95	98	50
15.1001 Construction Engineering Tech	98	91	99	87	50
29.0201 Intelligence, General	98	91	98	92	50
14.3501 Industrial Engineering	98	91	95	97	50
14.4701 Electrical and Computer Eng'g	98	91	50	99	50

Total Percentile	0	20+	40+	70+	90+	95+	98+	100
Total Score	-32	-6	-1	3	11	16	24	49

Program Scorecard: Student Demand

A Bachelor's in Neuroscience scores in the 97th percentile for Student Demand.

- This is a large program.
 - Google search volume, the most current indicator of student demand, is in the 85th percentile.
 - International page views are high
 - New enrollment and completions volume are high.
 - This program is almost entirely on campus.

Student Demand Score: 21 Percentile: 97

Catego...	Pctl	Criterion	Value	Score
Size	85	Google Search Volume (3 Months)* 	57,750	2
	95	International Page Views (12 Months) 	640	NS
	96	New Student Enrollment Volume (12 Mo.) 	6,057	6
	97	On-ground Completions at In-Market Institutions	9,066	3
	77	Online Completions by In-Market Students	19	1
	96	Sum of On-ground and Online Completions 	9,085	3

Student Demand: Growth Metrics

Older growth metrics are strongest.

- Google searches are down slightly.
- New student enrollment grew 8% year-over-year.
- Completion volume grew 10%.

Student Demand

Score: 21 Percentile: 97

Catego...	Pctl	Criterion	Value	Score
Size	85	Google Search Volume (3 Months)*	57,750	2
	95	International Page Views (12 Months)	640	NS
	96	New Student Enrollment Volume (12 Mo.)	6,057	6
	97	On-ground Completions at In-Market Institutions	9,066	3
	77	Online Completions by In-Market Students	19	1
	96	Sum of On-ground and Online Completions	9,085	3
Growth	25	Google Search YoY Change (Units)*	-670	0
	98	New Student Enrollment Vol. YoY Change (Units)	426	3
	98	Completion Volume YoY Change (Units)	802	3
	53	Google Search YoY Change (%)*	-1%	0
	69	New Student Enrollment Vol. YoY Change (%)	8%	0
	70	Completion Volume YoY Change (%)	10%	0



Program Scorecard: Employment

A Bachelor in Neuroscience ranks in the 94th percentile for Employment.

Direct Prep Jobs:

- Job postings and current employment are fair.
- 6% three-year historical job growth
 - 2% year-over-year growth
- Low job postings per graduate
- Top 1% of mean wages: \$146,127 (99th percentile)

ACS Outcomes:

- 82nd percentile for BLS current employment
- 18% of graduates go to direct prep jobs.
- 78% go on to graduate school.

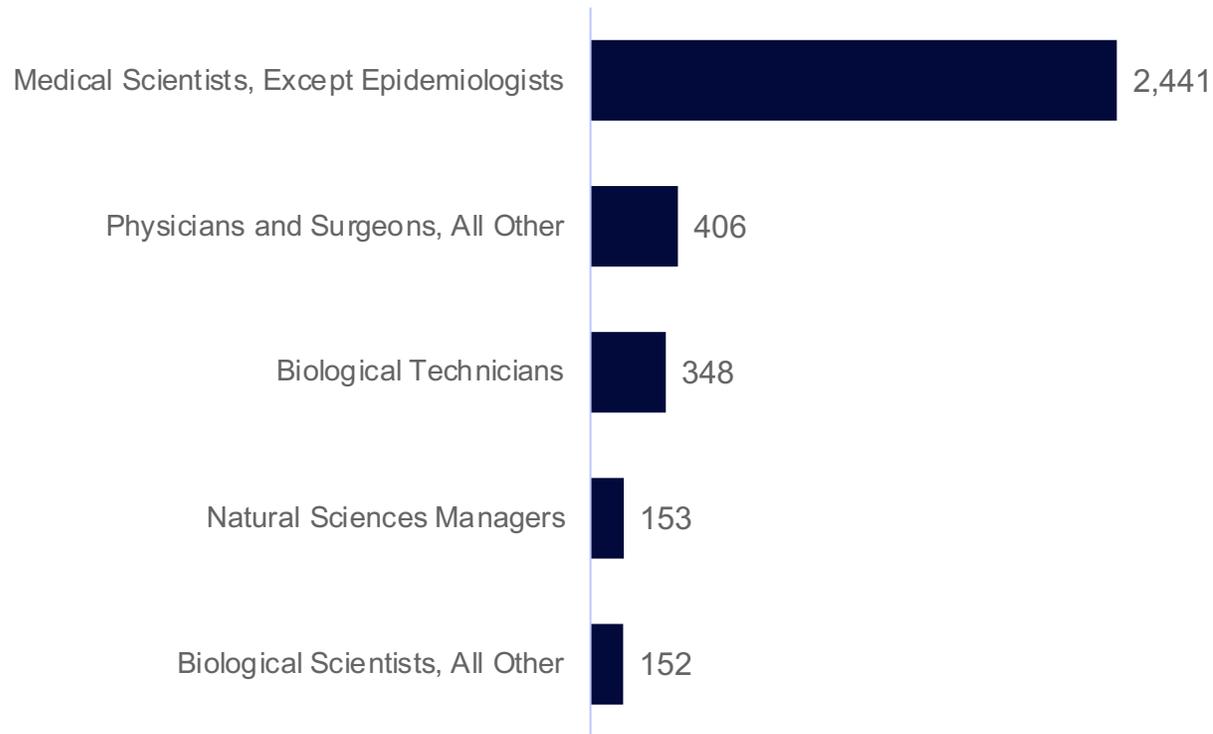
Employment*

Score: 9 Percentile: 94

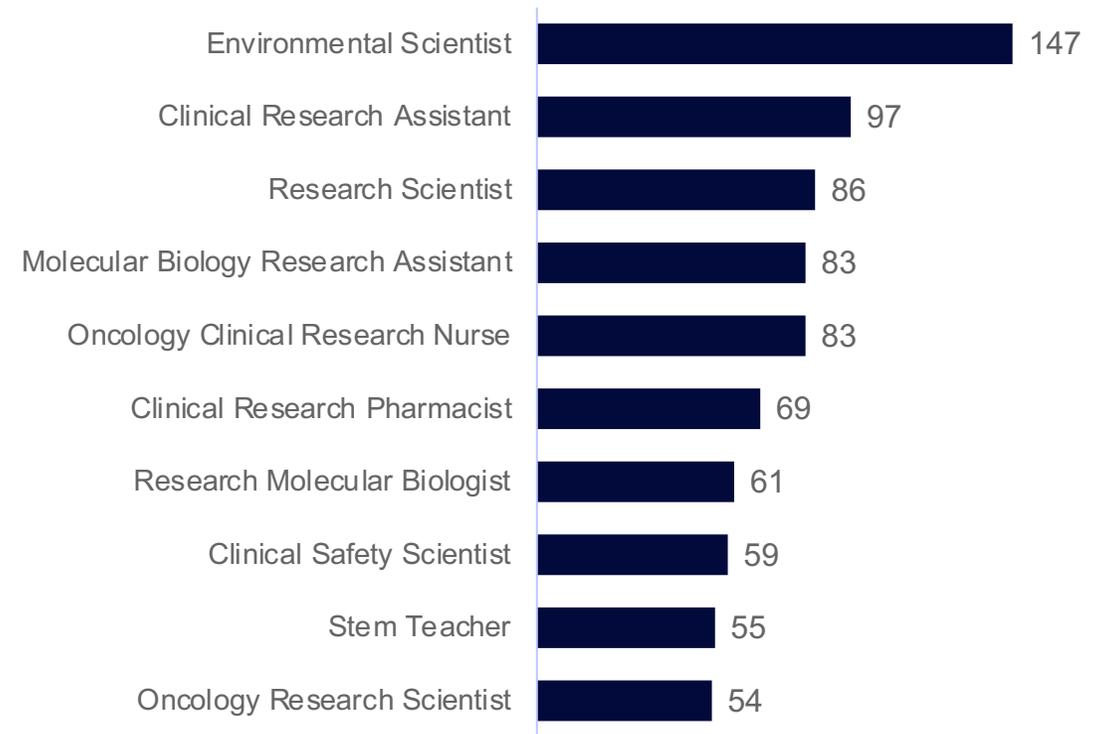
Category	Pctl	Criterion	Value	Score
Size: Direct Prep	71	Job Postings Total (12 Months)*	10,171	1
	61	BLS Current Employment*	12,400	0
	58	BLS Annual Job Openings*	973	NS
Size: ACS Bach. Outcomes	73	Job Postings Total (12 Months)*	10,371	NS
	82	BLS Current Employment*	28,758	NS
Growth (Direct Prep)	89	BLS 1-Year Historical Growth*	2.0%	NS
	93	BLS 3-Year Historic Growth (CAGR)*	6.0%	1
	48	BLS 10-Year Future Growth (CAGR)*	0.5%	-1
Saturation (Direct Prep)	33	Job Postings per Graduate*	1.0	-1
	24	BLS Job Openings per Graduate*	0.1	NS
Wages (Direct Prep)	98	BLS 10th-Percentile Wages*	\$79,503	NS
	99	BLS Mean Wages*	\$146,127	NS
National American Community Survey Bachelor's Degree Outcomes	70	Wages (Age < 30)	\$48,078	3
	96	Wages (Age 30-60)	\$146,890	6
	98	% with Any Graduate Degree	78%	NS
	17	% with Masters	17%	NS
	99	% with Doct/Prof Degree	61%	NS
	29	% Unemp. (Age <30)**	2%	0
	22	% Unemp. (Age 30-60)**	1%	0
	75	% in Direct Prep Jobs	18%	NS

In May, Medical Scientists and Environmental Scientists were in high demand.

Highest Job Postings Volume by Occupation
Bachelor in Neuroscience, May 2023

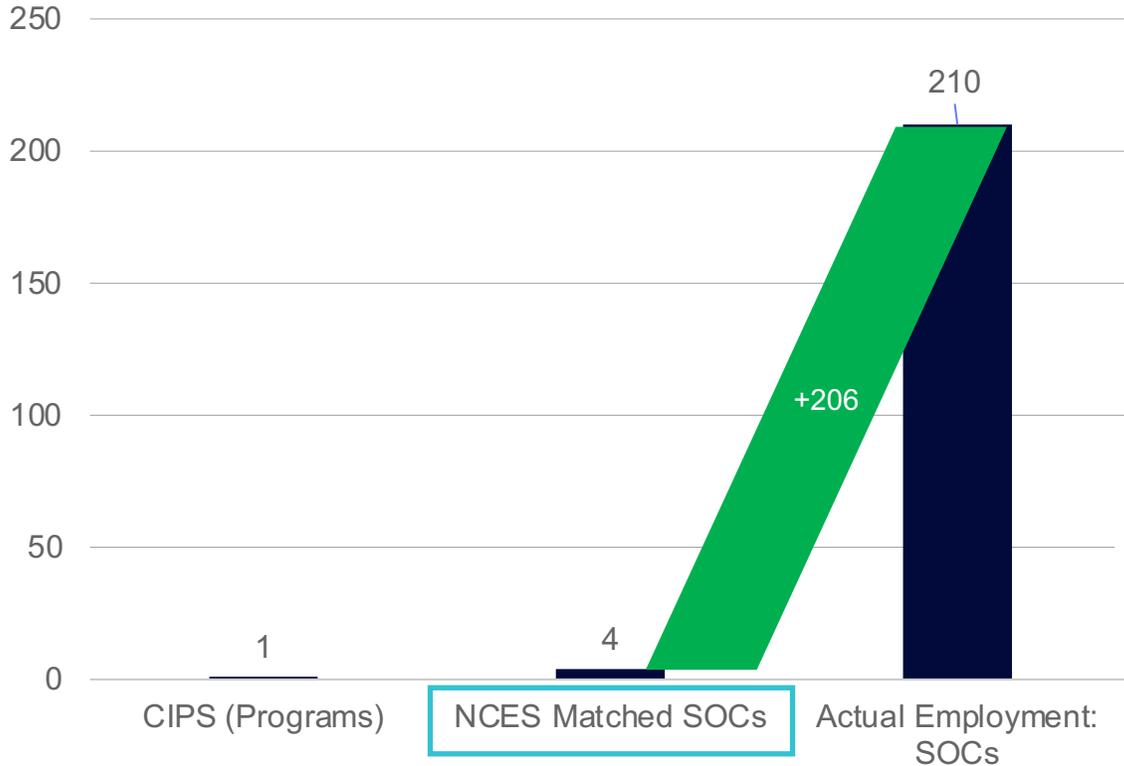


Highest Job Postings Volume by Job Title
Bachelor in Neuroscience, May 2023



ACS Outcomes: Neuroscience majors go into 210 SOCS and earn \$89,138 mid-career.

Count of Programs and Occupations
CIP 26.1501, Neuroscience



Top Occupations Neuroscience Majors, Ages 30-60



Program Scorecard: Competitive Intensity

Neuroscience is in the 14th percentile for Competitive Intensity.

- There are 235 campuses graduating Neuroscience students.
- 14 new programs had graduates in 2021.
- Median program size is moderate and flat year-over-year.
- Marketing costs are favorable.
- No online competition

Competitive Intensity Score: -6 Percentile: 14

Category	Pctl	Criterion	Value	Score
Volume of In-Market Competition	95	Campuses with Graduates**	235	-6
	99	Campuses with Grads YoY Change (Units)**	14	-3
	0	Institutions with Online In-Market Students**	0	NS
In-Market Program Sizes	90	Average Program Completions	39	2
	81	Median Program Completions	17	0
	67	YoY Median Prog. Compl. Change (Units)	0	0
	67	YoY Median Prog. Compl. Change (%)	0	0
In-Market Saturation	45	Google Search * Cost per Click**	\$3	0
	19	Google Competition Index**	0.05	1
National Online Competition	74	National Online Institutions (Units)**	1	NS
	0	Nat'l Online % of Institutions	0	NS
	0	Nat'l Online % of Completions	0	NS

Program Scorecard: Degree Fit

A bachelor's degree is an appropriate award level for Neuroscience.

- 89% of completions are at the bachelor's level.
- 28% of the national workforce have a bachelor's degree.
- 36% of the workforce have a doctoral degree.

National Completions by Level
Score: 0

Award Level	Completions (National)	Completions (Market)	Enrollment (Market)
Certificate	1%	1%	0%
Associates	0%	0%	0%
Bachelors	89%	89%	78%
Postbaccalaureate Certificate	0%	0%	0%
Masters	4%	4%	7%
Post-masters Certificate	0%	0%	1%
Doctoral	6%	6%	13%
Unknown	0%	0%	0%



Degree Fit:

Score: 0 Percentile: 50

National Workforce Ed. Attainment

Score: 0

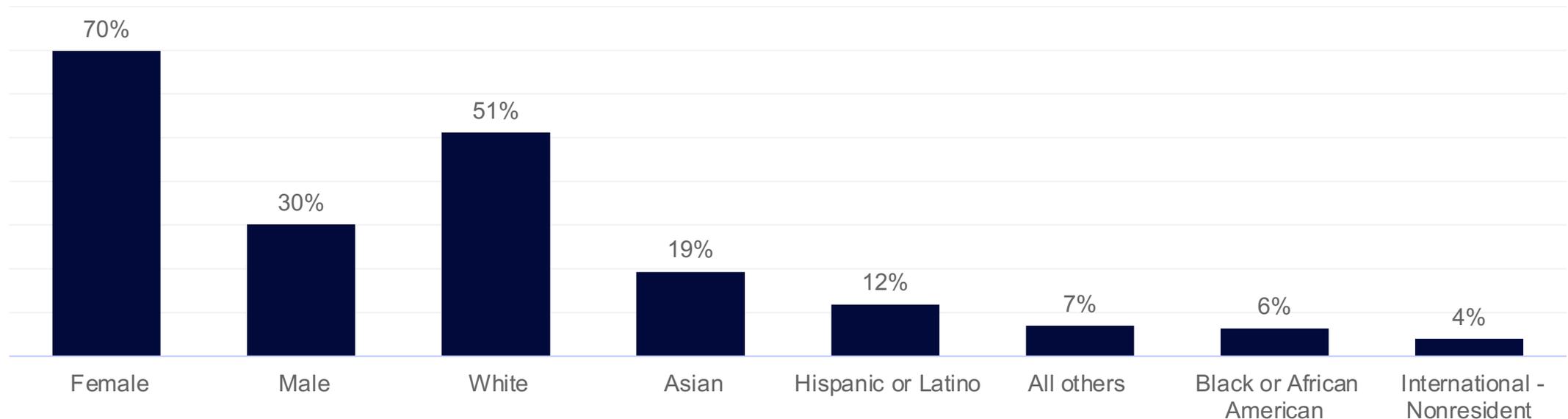
Award Level	BLS Educational Attainment
No College	5%
Some College	4%
Associates	4%
Bachelors	28%
Masters	23%
Doctoral	36%

US demographics: Neuroscience

In 2021, women had 70% of completions – more than their share of overall enrollment.

- 51% of 2021 completions were by white students.
- 19% were by Asian students.

US 2021 Completions by Demographic Group



CIP: 26.1501 Neuroscience

Market: National

Total Score: 24

Percentile: 98

Student Demand
Score: 21 Percentile: 97

Catego...	Pctl	Criterion	Value	Score
Size	85	Google Search Volume (3 Months)*	57,750	2
	95	International Page Views (12 Months)	640	NS
	96	New Student Enrollment Volume (12 Mo.)	6,057	6
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In-Market Program Sizes	90	Average Program Completions	39	2
	81	Median Program Completions	17	0
	67	YoY Median Prog. Compl. Change (Units)	0	0
	67	YoY Median Prog. Compl. Change (%)	0	0
In-Market Saturation	45	Google Search * Cost per Click**	\$3	0
	19	Google Competition Index**	0.05	1
National Online Competition	74	National Online Institutions (Units)**	1	NS
	0	Nat'l Online % of Institutions	0	NS
	0	Nat'l Online % of Completions	0	NS

Employment*
Score: 9 Percentile: 94

Category	Pctl	Criterion	Value	Score
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	99	% with Doct/Prof Degree	61%	NS
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	22	% Unemp. (Age 30-60)**	1%	0
	75	% in Direct Prep Jobs	18%	NS

CIP Description:
A program that focuses on the interdisciplinary scientific study of the molecular, structural, physiologic, cognitive, and behavioral aspects of the brain and nervous system. Includes instruction in molecular and cellular neuroscience, brain science, anatomy and physiology of the central nervous system, molecular and biochemical bases of information processing, behavioral neuroscience, biology of neuropsychiatric disorders, and applications to the clinical sciences and biomedical engineering.

Degree Fit:
Score: 0 Percentile: 50

Category	Pctl	Criterion	Value	Score
NHEBI Nat'l 2 Year		Cost Index**	NA	NS
		Student: Faculty Index	NA	NS

National Completions by Level
Score: 0

Award Level	Completions (National)	Completions (Market)	Enrollment (Market)
Certificate	1%	1%	0%
Associates	0%	0%	0%
Postbaccalaureate Certificate	89%	89%	78%
Masters	0%	0%	0%
Post-masters Certificate	4%	4%	7%
Doctoral	0%	0%	1%
Unknown	6%	6%	13%
	0%	0%	0%

National Workforce Ed. Attainment
Score: 0

Award Level	BLS Educational Attainment
No College	5%
Some College	4%
Associates	4%
Bachelors	28%
Masters	23%
Doctoral	36%

* - Google search, employment data and Jobs Per Grad Ratio do not filter by award level.
 ** - Color scale in reverse.
 NA - No data available/not currently tracked.
 NS - Not Scored in Rubrics (values = 0).
 2-Yr - Associates & certificate programs only.
 PCTL - Percentile

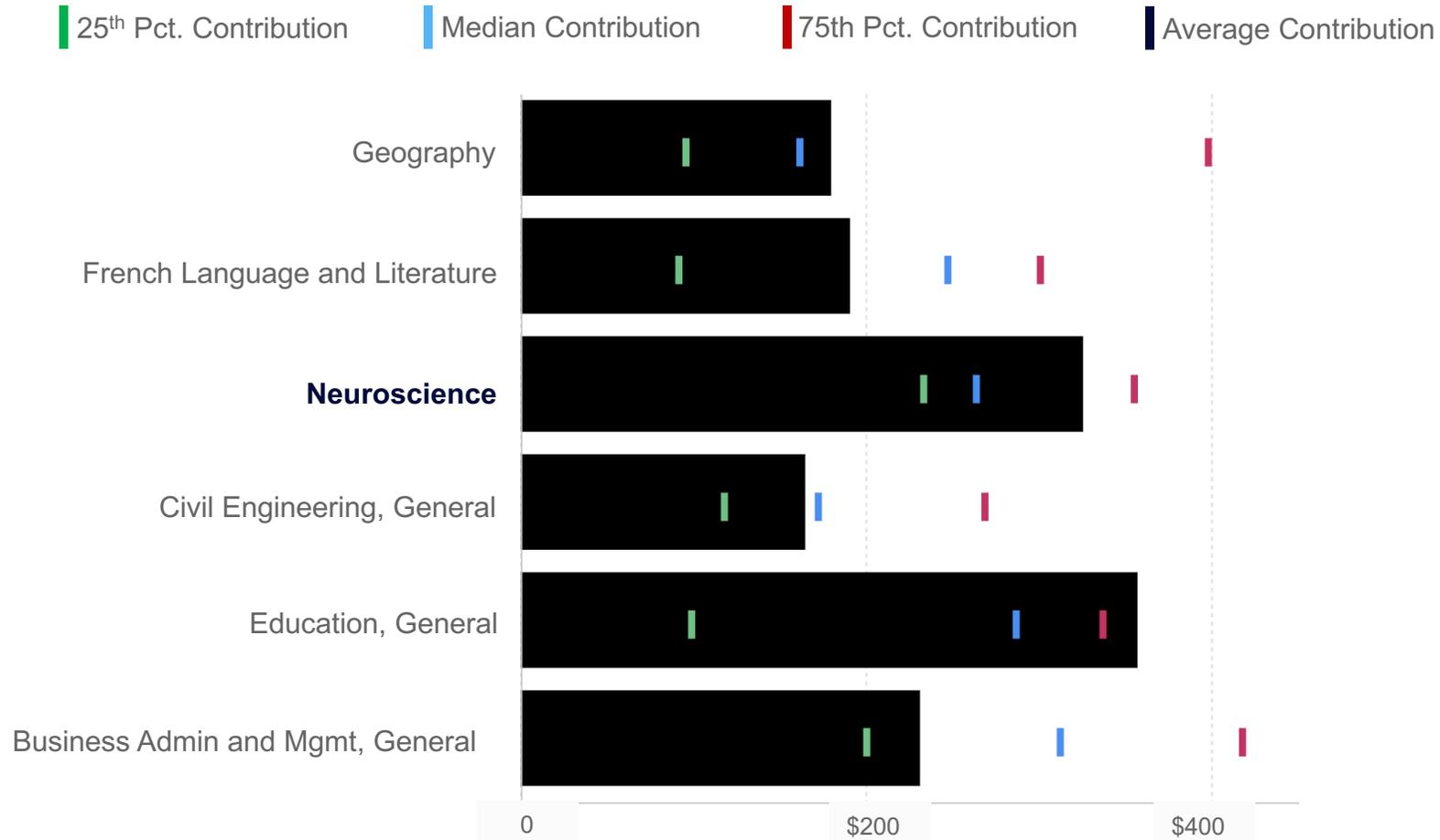
Total Percentile	0	20+	40+	70+	90+	95+	98+	100
Total Score	-50	-20	-18	-1	9	15	24	49

** Color Scale in Reverse

Percentile (Reverse)	<02	02+	05+	10+	30+	60+
	<02	02+	05+	10+	30+	60+

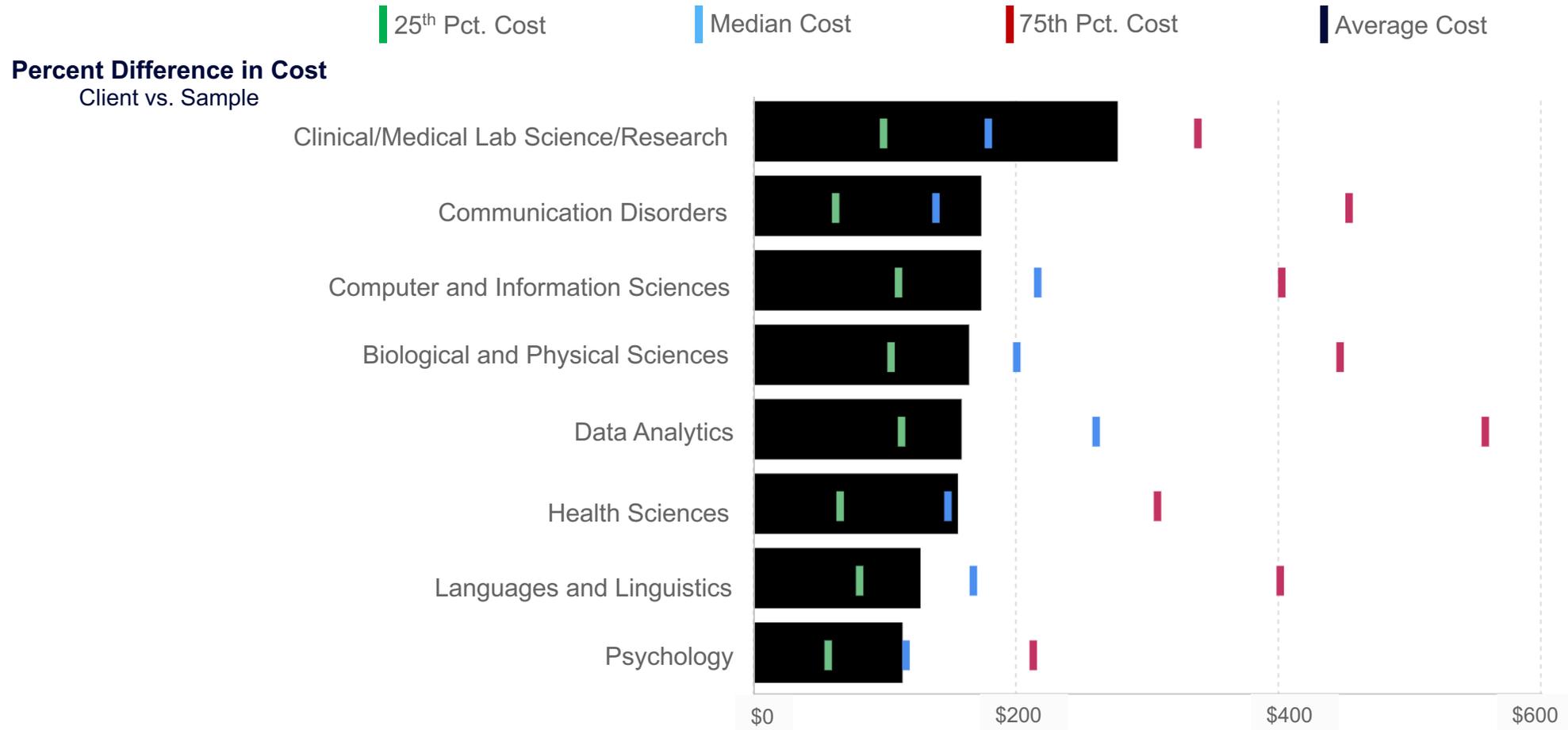


Benchmarking Programs: Contribution Margins/Student Credit Hour



Source: Gray's PES Economics

Benchmarking Courses: Instructional Cost/SCH, Neuroscience-related courses



Source: Gray's PES Economics

Lower variance than benchmarks indicates costs are more controlled.

The illustrative client's costs are 16% lower than the benchmark for Bio/Physical Sciences.

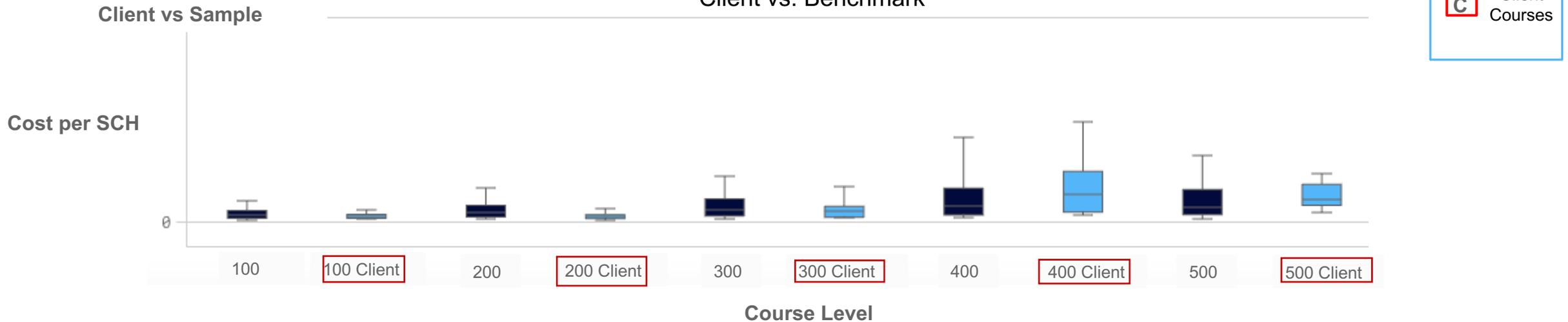
Avg. Cost/SCH, Client
\$151

Avg. Cost/SCH, Sample
\$181

Percent Difference
-16%

Total Cost Difference
-786.9k

**Cost: Student Credit Hour by Course Level,
Biological and Physical Sciences**
Client vs. Benchmark



Agenda

Student Demand

- Leading Indicators: Google
- Recent Trends: Enrollment
- Non-Degree Courses

Employment: Current Indicators

Program of the Month

Summary

Summary

- Demand for bachelor and master's programs is strong.
 - Google searches rose 3% in May 2023.
 - Google searches for Business Analytics grew the fastest – 218% – in May 2023.
 - New enrollment growth in bachelor's programs is slightly down.
 - Master's is down 9%.
- Business Analytics had the fastest-growing enrollment at the bachelor's level.
 - IT Project Management was the fastest-growing master's program.
- In May, job postings were down 28% year-over-year, but up 13% month-over-month.
- Demand for Neuroscience programs is healthy.
 - Volume metrics are favorable, and the program is growing.
 - Wages for graduates are high.
 - This program is very competitive, but there is no online presence.

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Upcoming Webinars

Topic	Date
Demand Trends Webcast: Community Colleges	<i>Wednesday</i> July 26 th at 2 PM ET
Demand Trends Webcast: Bachelor's and Above	<i>Thursday</i> June 27 th at 2 PM ET

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