Program Evaluation System

Overview of Markets Module

Gray Decision Intelligence (Gray DI) is pleased to present this overview of PES Markets, a module of our Program Evaluation System (PES) software application.

Gray DI PES helps higher-education institutions make better-informed decisions that improve growth, efficiency, and student success. The Gray DI academic Program Evaluation System (PES) is the only platform that provides data by program on external markets and institutional performance.

- **PES Markets** includes data on student demand, jobs, skills, and competition for over 1,500 academic programs. It predicts potential enrollment for your current and new programs. It corrects labor supply data; for example, 200,000+ online students are usually shown at headquarters' locations; Gray DI reports them where they live.
- **Data Dashboards:** Your subscription to PES Markets includes access to Gray DI's Data Dashboards, which offer robust datasets on **Job Postings, Alumni Insights, Program Enrollment, Google Keyword Searches, International Student Demand, Athletics Benchmarking**, and **Non-Degree Demand**.

Make Better, Faster Decisions on Which Programs to Start, Stop, or Grow.

PES Markets has at least three independent data sources on each of these topics so that program decisions are not vulnerable to the idiosyncrasies of a single source. For example, our student demand data includes IPEDS completions, Google search volumes, and enrollment from the National Student Clearinghouse. PES Markets also provides detailed information on competition, including program size, growth, modality (online vs. on-campus), US News Rankings, and selectivity. PES Markets is now used by over 100 higher education institutions in the US, ranging from some of the largest online universities to local community colleges. Every year, we also research emerging programs that are too new to be included in traditional data sources. PES Markets will address the following:

- Provide regional and national academic data to position your institutional brand in those markets
- Analyze historical data and information to assess the University's current academic program offerings, including market share and future demand potential
- Evaluate the strength of current program offerings
- Identify opportunities for program growth and enhancement with the current portfolio of programs
- Student demand for different types of academic programs and development of strategies to gain a greater market share by program
- Assess workforce demand and alumni outcomes by program and key components in the curriculum to ensure alignment with workforce needs

The goal of a program portfolio strategy fueled by PES is to enable investments in programs that drive institutional growth, financial vitality, and realization of the mission. PES Markets brings data, rigor, speed, and scale to program analysis. Schools no longer need to evaluate one new program at a time—and hope to hit a winner. You can evaluate all potential new programs and pick the best for development. Schools can also evaluate all current programs by campus and decide where to invest and where to cut. The time required to make programmatic decisions can be reduced from months to days (or even minutes), which is increasingly important as the pace of change in education continues to accelerate and competition becomes more intense.

Fundamentally, PES Markets enables you to:

1. **Launch the best new programs**
   A successful new program can attract hundreds of students, stimulate millions in tuition and alumni giving, and generate considerable prestige. Using PES, institutions can consider all programs and select the best for your school.

2. **Reduce the risk of failure**
   Poor program decisions incur actual losses and opportunity costs. The most visible penalties are for new programs that fail. Fortunately, these failures tend to be small, since few students enroll, but they are expensive, somewhat embarrassing, and may increase regulatory risk.

3. **Avoid missed opportunities**
   Traditional, one-at-a-time program evaluations allow colleges to identify good programs to launch; however, they are often not the best programs. This leads to the most expensive error in program strategy: missing the biggest opportunities for growth. PES, combined with the judgment of faculty and institutional leaders, helps schools choose the best programs.

4. **Ensure student demand**
   PES contains metrics on student demand including Google keyword searches, job postings, market completions, and enrollment. This information helps your team evaluate student demand for current and new programs.

5. **Properly allocate resources to existing programs**
   Existing programs fall into three groups: Start, Stop, or Grow. Deciding which programs fall into each category ensures that the right programs receive the resources they need.

6. **Focus program research and development resources**
   Program research and development become more expensive as the work on a program proceeds. PES enables you to quickly select the programs that merit more expensive research and development.

GRAY DI

Gray's PES approach to academic program evaluation and prioritization combines comprehensive and customized data, advanced analytics, and a robust BI platform to improve and accelerate the evaluation of current and potential programs.

1. **Comprehensive and Customized Data:** PES Markets combines over a dozen data sources on the market drivers of a successful academic program, including enrollment, Google keyword searches, demographics, competition, job openings, job postings, wages, and placement rates. We have mapped all the data down to the census tract level so you can pull data for the exact geographies you serve or aspire to enter. We have developed sophisticated crosswalks that link related variables, such as jobs, skills, and wages, to academic programs. We have invested in a BI tool (Qlik) that enables you to rigorously screen hundreds of programs in several markets at one time.

2. **Advanced Analytics:** Often, institutions research a few new programs per year and rely on manual processes to pull data from industry and regulatory databases. This approach has several weaknesses. It tends to be slow, error-prone, and difficult to scale up. Resource constraints may lead to simplistic analyses, such as lists of competitors that miss IPEDS data on program size. BLS data may be pulled for the most common job for a program, ignoring other fields that compete for these jobs, and other jobs that may be appropriate for graduates. Since not all program options can be explored manually, programs that emerge from this approach may be good, but far from the best programs the school could have chosen, leaving millions of dollars in potential revenue on the table.

   In contrast, PES enables you to evaluate and compare all potential IPEDS programs for each individual local market using the best available data on student demand, competitive intensity, and job opportunities.

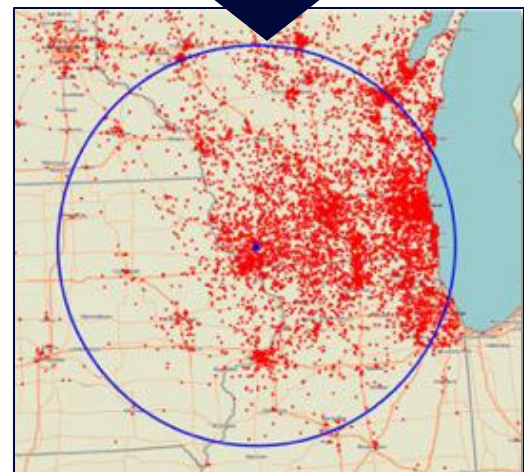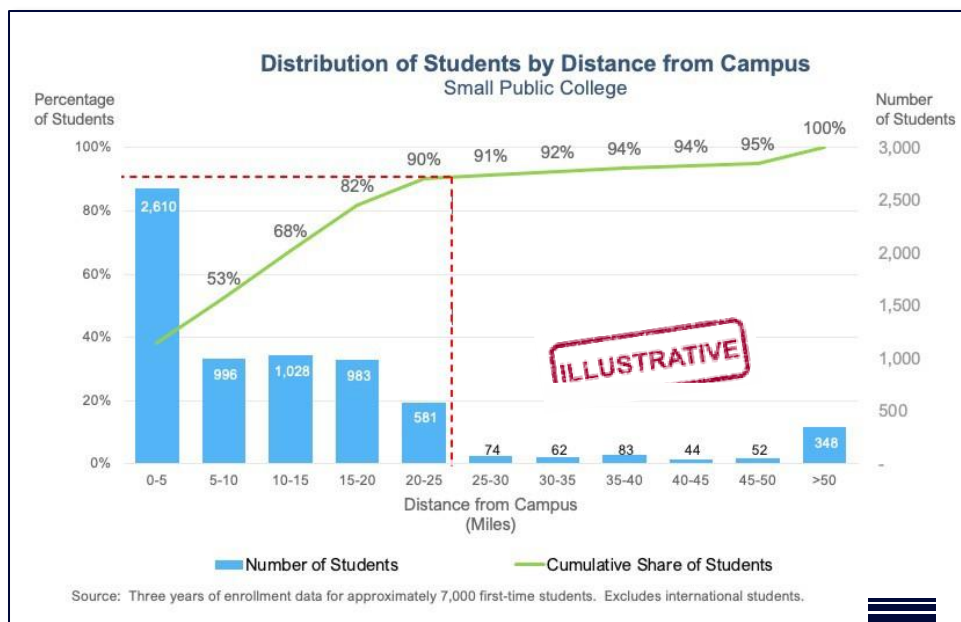3. **Robust BI Platform:** PES provides its data using secure, private, cloud-based servers and a BI application called QlikView. This combination ensures that you have fast, reliable access to PES from any device, anywhere there is internet access. In particular, Qlik allows you to point and click to select data (no SQL needed) and pull a custom report in a few seconds from the millions of records in our dataset.

To customize PES Markets for your institution, we pull data for your markets and work with you to tailor a program scoring rubric for your school. Your markets are custom-defined, typically a radius around your main campus and other campus locations or geographic regions you serve. Using the data on these markets, we score current programs and work with you to refine the scoring rubric until it correctly evaluates your current programs. The validated scoring rubric is then applied to over 1,400 IPEDS programs in Markets. A typical work plan is outlined below:

1. **Conduct Kick-off Meeting:** This meeting will help Gray begin to set up your instance of PES. We will review the tasks and schedule for your system installation. You will let us know the users you would like trained. We ask for the data needed to define custom markets. We will also give your team an overview of

2. **Define the Relevant Market:** We work with you to clarify the geographic scope for program analysis (e.g., within 30 miles of a city center). In most cases, our clients provide a list of campus locations and a file of starts that Gray analyzes to find a radius that covers substantially all your students.

3. **Create Custom Markets:** For the selected geographic areas, Gray creates a unique instance of PES with the relevant student demand, competition, and employment data for all programs in IPEDS. This includes metrics created from National Student Clearinghouse enrollment, IPEDS completions, BLS employment and job openings, job postings, and wages.

4. *Optional* **Draft and Refine Scoring Rubric:** Your original instance of PES comes with generic scoring rules for ranking programs and markets. In this task, we meet with you twice to refine and customize these scoring rules and ensure that the scoring correctly identifies programs that fit your goals and strategies.

5. **Provide User Training:** Once Markets is customized and configured, we provide you with secure login details and one half-day of training for your users. In the training session, we start with an explanation of the data we use and its limitations. We review the scoring system and help your users learn to pull program reports by program and location.

6. **Refresh Data:** As part of your subscription, we refresh your instance of Markets as new data becomes available. Our PES Markets Data Dashboards are updated monthly. We update monthly for keywords, job postings data, international page views, and non-degree demand, and annually for data derived from IPEDS and BLS. Enrollment data is updated three times per year by term.

7. **Provide Ongoing Support:** Gray's Customer Support Hub is available 24/7 on our website, and our Customer Success team hosts monthly office hours to answer questions and discuss new features or use cases. We provide a limited amount of coaching to help your users get the most value from our systems. For example, on request, we will walk them through how to pull custom data and reports. We also answer questions about data interpretation. We have also reviewed and commented on draft analyses using data from these systems. This service is intended to support your use of PES but is not a substitute for a consulting or analytical support engagement. Therefore, Gray reserves the right, at Gray's sole discretion, to limit the amount of coaching provided.

Custom Markets

PES allows for custom market analytics. Because we map market data down to the census tract level (tracts are twice as precise as zip codes), PES can be customized to your exact market definitions. Using census tracts also ensures PES data aligns precisely with US Census data on population, ethnicity, income, and other factors. Gray will work with you to clarify the geographic scope for program analysis (e.g., within 30-35 miles of your campuses for on-ground programs, or a larger radius for online programs). This task may involve discussions about whether to include or exclude particular markets or sites. We can create multiple market definitions to align with different campuses, programs, degree levels, and/or modalities.

In the example below, 90% of students come from within 25 miles of a campus. In this case, a 25-mile radius would be appropriate for defining markets since it would include the vast majority of students without accidentally including potential students, competitors, or jobs that are not really part of the college's market.

Distribution of Students by Distance from Campus — Small Public College (ILLUSTRATIVE)

Source: Three years of enrollment data for approximately 7,000 first-time students. Excludes international students.

For the selected geographic markets, Gray creates a dataset for all programs in IPEDS. We pull all the data for the radius you choose, around each of your campuses. Using Qlik, you can evaluate campuses one at a time, in groups, or in total.

Our program evaluation criteria fall into four categories: student demand, employment, competitive intensity, and degree fit. Within each category, we use several different metrics to cross-validate the information and provide a comprehensive rating. We can also construct additional or different metrics to better align with your view of the market. For example, different institutions target very different mixes of award levels for their programs. The chart below illustrates the categories and metrics we normally use.

Student Demand

- **Keyword Search Volume:** Indexed units and % growth
- **Enrollment:** Units and % growth
- **Completions:** Units, unit growth, % growth, in-market students
- **International:** Student page views

Employment

- **Employment:** Total, % growth, annual openings, 10th percentile and mean wages
- **Wages** by major and career stage.
- **Job Postings:** Units, unit growth, % growth, and job postings per graduate
- **Placement Rates:** % of graduates employed

Degree Fit

- **Degree Level:** % of completions and enrollment by degree level
- **Degree Level:** % of current workers by level of educational attainment
- **Cost:** National instructional cost index, student:faculty ratio index

Competitive Intensity

- **Completions:** Total and % change in number of competitors, unit and % change in program size, completions per capita
- **Programs Offered Online:** % of programs offered online, % of completions in online programs, online completions for in-market students.
- **Keyword Search:** Total and % change, cost per click, competitive index

PES produces a **Program Ranking Report**. Once you set your award level and select a market, the Program Ranking Report scores and ranks your current programs, all other IPEDS programs, and any other groups of programs you choose. This report allows you to identify current programs with strong growth potential and the best new programs to offer in this market. It will also identify current programs that may not be a good fit for the market.

The example below shows the top-scoring associate programs in New York State. The report ranks programs by overall market score (top-to-bottom). The bar colors represent the scores the program received on each individual component. This allows you to see, at a glance, how each demand category contributes to the overall market score for the program.

A unique feature of PES is the availability of data on student demand. Many program assessments focus on labor market statistics to ensure program graduates can find jobs. While vitally important, PES also tracks student demand to ensure there is enough interest among prospective students to fill seats.

Percentile rank on each category

CIP	Total Percentile	Student Demand Percentile	Competitive Intensity Percentile	Employment Percentile	Degree Fit Percentile
51.3801 Registered Nursing	100	100	28	100	100
50.0407 Fashion/Apparel Design	99	99	97	76	100
51.3901 Licensed Practical/Voc. Nurse	99	99	28	82	100
52.0201 Business Admin. and Mgmt, General	99	99	17	99	100
43.0107 Criminal Justice/Police Science	99	99	17	94	100
43.0100 Crim. Justice & Corrections, Gen'l	99	99	14	97	100
11.0701 Computer Science	99	99	3	99	100
11.1003 Cyber Security/Info. Assurance	99	99	3	98	100
46.0302 Electrician	99	98	17	93	100
52.1001 Human Resources Management, Gen'l	99	98	6	98	100
11.0103 Information Technology	99	98	0	98	100
50.0602 Cinematography and Film/Video Prod	99	97	98	82	100
43.0203 Fire Science/Fire-fighting	99	96	22	94	100
52.0205 Operations Management/Supervision	99	86	50	99	100
52.1801 Sales/Distrib/Marketing Ops, Gen'l	99	86	50	99	100
52.0299 Business Admin/Mgmt/Oper., Other	99	83	17	100	100
52.0302 Bookkeeping and Accounting Tech	98	99	12	66	100
12.0503 Culinary Arts/Chef Training	98	99	12	50	100
51.0911 Radiologic Tech/Radiographer	98	99	6	85	100
22.0302 Legal Assistant/Paralegal	98	98	0	94	100

Market: New York | Award Level: Associates and Below | Current Programs | 2 Digit CIP | 4 Digit CIP

Percentiles by CIP | Scores by CIP | Scores Stacked Bar Chart

Percentiles by CIP
(Double-click Field headers to change sorting.)

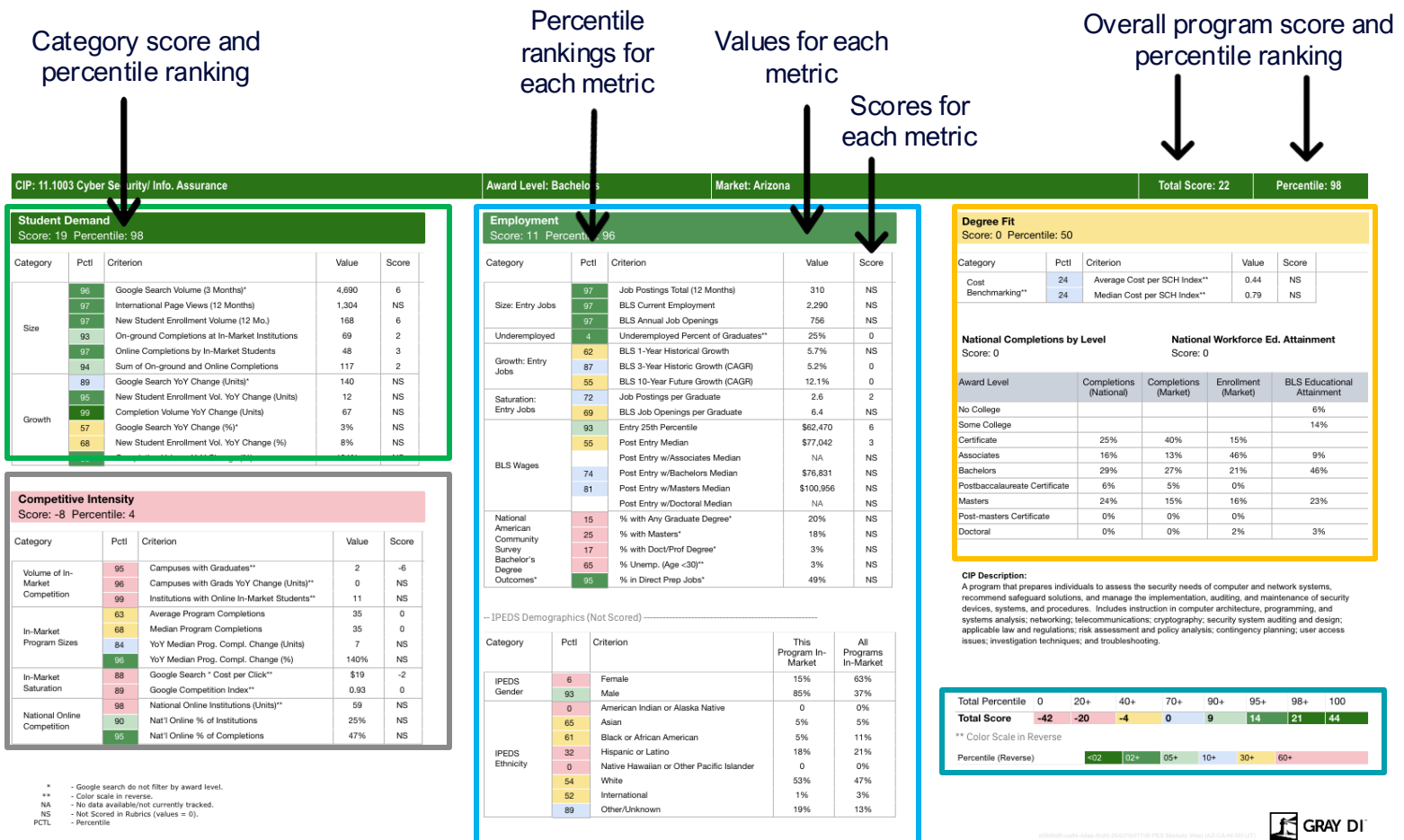| Total Percentile	0	20+	40+	70+	90+	95+	98+	100
Total Score	-63	-32	-20	-1	7	14	23	65

The ranking is a starting point for program decisions. PES also provides a Program Scorecard with data and your scores on over 50 metrics for each program in a single view. Below is an illustrative Program Scorecard for bachelor's-level Cybersecurity programs in the Arizona market.

The scorecard is broken into quadrants that correspond to the market demand categories: student demand (green box), competitive intensity (gray box), employment opportunities (blue box), and degree fit (gold box). Within each quadrant, the raw value for each criterion is shown in the Value column, and the score associated with that value is shown in the Score column. The Percentile column indicates how each category's value and score compare to all other programs in the market for that criterion. A percentile color key is included at the bottom of the scorecard (teal box).

For example, the scorecard below shows there were 168 new student enrollments at the bachelor's level for this program; this enrollment volume is in the 97th percentile for all programs in the market and, therefore, is shaded in green and receives a score of 6 for that metric.

Aggregated scores for each demand category are shown next to the category label and an Overall Score for the program is shown at the top of the scorecard with a color-coded box to indicate the program's percentile rank compared to all other programs in the market.

Category score and percentile ranking

Percentile rankings for each metric

Values for each metric

Scores for each metric

Overall program score and percentile ranking

CIP: 11.1003 Cyber Security/ Info. Assurance | **Award Level: Bachelors** | **Market: Arizona** | **Total Score: 22** | **Percentile: 98**

Student Demand
Score: 19 Percentile: 98

Category	Pctl	Criterion	Value	Score
Size	96	Google Search Volume (3 Months)*	4,690	6
	97	International Page Views (12 Months)	1,304	NS
	97	New Student Enrollment Volume (12 Mo.)	168	6
	93	On-ground Completions at In-Market Institutions	69	2
	97	Online Completions by In-Market Students	48	3
	94	Sum of On-ground and Online Completions	117	2
Growth	89	Google Search YoY Change (Units)*	140	NS
	95	New Student Enrollment Vol. YoY Change (Units)	12	NS
	99	Completion Volume YoY Change (Units)	67	NS
	57	Google Search YoY Change (%)*	3%	NS
	68	New Student Enrollment Vol. YoY Change (%)	8%	NS

Competitive Intensity
Score: -8 Percentile: 4

Category	Pctl	Criterion	Value	Score
Volume of In-Market Competition	95	Campuses with Graduates**	2	-6
	96	Campuses with Grads YoY Change (Units)**	0	NS
	99	Institutions with Online In-Market Students**	11	NS
In-Market Program Sizes	63	Average Program Completions	35	0
	68	Median Program Completions	35	0
	84	YoY Median Prog. Compl. Change (Units)	7	NS
	96	YoY Median Prog. Compl. Change (%)	140%	NS
In-Market Saturation	88	Google Search * Cost per Click**	$19	-2
	89	Google Competition Index**	0.93	0
National Online Competition	98	National Online Institutions (Units)**	59	NS
	90	Nat'l Online % of Institutions	25%	NS
	95	Nat'l Online % of Completions	47%	NS

*   - Google search do not filter by award level.
**   - Color scale in reverse.
NA   - No data available/not currently tracked.
NS   - Not Scored in Rubrics (values = 0).
PCTL - Percentile

Employment
Score: 11 Percentile: 96

Category	Pctl	Criterion	Value	Score
Size: Entry Jobs	97	Job Postings Total (12 Months)	310	NS
	97	BLS Current Employment	2,290	NS
	97	BLS Annual Job Openings	756	NS
Underemployed	4	Underemployed Percent of Graduates**	25%	0
Growth: Entry Jobs	62	BLS 1-Year Historical Growth	5.7%	NS
	87	BLS 3-Year Historic Growth (CAGR)	5.2%	0
	55	BLS 10-Year Future Growth (CAGR)	12.1%	0
Saturation: Entry Jobs	72	Job Postings per Graduate	2.6	2
	69	BLS Job Openings per Graduate	6.4	NS
BLS Wages	93	Entry 25th Percentile	$62,470	6
	55	Post Entry Median	$77,042	3
		Post Entry w/Associates Median	NA	NS
	74	Post Entry w/Bachelors Median	$76,831	NS
	81	Post Entry w/Masters Median	$100,956	NS
		Post Entry w/Doctoral Median	NA	NS
National American Community Survey Bachelor's Degree Outcomes*	15	% with Any Graduate Degree*	20%	NS
	25	% with Masters*	18%	NS
	17	% with Doct/Prof Degree*	3%	NS
	65	% Unemp. (Age <30)**	3%	NS
	95	% in Direct Prep Jobs*	49%	NS

--- IPEDS Demographics (Not Scored) ---------------------------------

Category	Pctl	Criterion	This Program In-Market	All Programs In-Market
IPEDS Gender	6	Female	15%	63%
	93	Male	85%	37%
IPEDS Ethnicity	0	American Indian or Alaska Native	0	0%
	65	Asian	5%	5%
	61	Black or African American	5%	11%
	32	Hispanic or Latino	18%	21%
	0	Native Hawaiian or Other Pacific Islander	0	0%
	54	White	53%	47%
	52	International	1%	3%
	89	Other/Unknown	19%	13%

Degree Fit
Score: 0 Percentile: 50

Category	Pctl	Criterion	Value	Score
Cost Benchmarking**	24	Average Cost per SCH Index**	0.44	NS
	24	Median Cost per SCH Index**	0.79	NS

National Completions by Level
Score: 0

National Workforce Ed. Attainment
Score: 0

Award Level	Completions (National)	Completions (Market)	Enrollment (Market)	BLS Educational Attainment
No College				6%
Some College				14%
Certificate	25%	40%	15%	
Associates	16%	13%	46%	9%
Bachelors	29%	27%	21%	46%
Postbaccalaureate Certificate	6%	5%	0%	
Masters	24%	15%	16%	23%
Post-masters Certificate	0%	0%	0%	
Doctoral	0%	0%	2%	3%

CIP Description:
A program that prepares individuals to assess the security needs of computer and network systems, recommend safeguard solutions, and manage the implementation, auditing, and maintenance of security devices, systems, and procedures. Includes instruction in computer architecture, programming, and systems analysis; networking; telecommunications; cryptography; security system auditing and design; applicable law and regulations; risk assessment and policy analysis; contingency planning; user access issues; investigation techniques; and troubleshooting.

Total Percentile	0	20+	40+	70+	90+	95+	98+	100
Total Score	**-42**	**-20**	**-4**	**0**	**9**	**14**	**21**	**44**

** Color Scale in Reverse

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

GRAY DI

The Student Demand metrics included in PES (referenced on the sample scorecard on the previous page and shown in more detail below) quantify student interest in academic programs by location, degree level, and modality. PES includes several data sources to triangulate on total volume and trends in student demand. The most authoritative and complete source is IPEDS (Integrated Postsecondary Education Data System), which includes data on completions by program for all Title IV institutions. It tracks completion data by program and degree level, from certificates to post-docs, so you can tell roughly how big a program is, and whether it has been growing.

Unfortunately, IPEDS data is intrinsically old: people choose their major years before they graduate, so program completions reflect decisions made four years earlier, or more. To address this issue, Gray DI developed a data set using National Student Clearinghouse enrollment data, which we update with new enrollment volumes three times a year. We also track Google search volumes for over 15,000 program keywords for over 900 IPEDS CIP codes, which we update with new search volumes each month. International student demand captures the number of pages viewed by program, country of origin, and destination location for students around the world. This data includes information on the student's location, degree level sought, program of interest, and whether they want to take it online or on-campus.

Unique to PES, we have also added estimates of online completions by in-market students, based on data from IPEDS, NC-SARA, and our proprietary brand database, to understand how many in-market students are completing the program online, including those that complete at out-of-market institutions. This can be an important indication of how many in-market students are "exporting" tuition revenues to out-of-market institutions and can help colleges and universities prioritize distance education efforts.

The system includes all current data for these metrics, as well as year-over-year changes, so you can see if demand is trending up or down in each category.

Program Scorecard: Student Demand

Student Demand
Score: 19 Percentile: 98

Category	Pctl	Criterion	Value	Score
Size	96	Google Search Volume (3 Months)*	4,690	6
	97	International Page Views (12 Months)	1,304	NS
	97	New Student Enrollment Volume (12 Mo.)	168	6
	93	On-ground Completions at In-Market Institutions	69	2
	97	Online Completions by In-Market Students	48	3
	94	Sum of On-ground and Online Completions	117	2
Growth	89	Google Search YoY Change (Units)*	140	NS
	95	New Student Enrollment Vol. YoY Change (Units)	12	NS
	99	Completion Volume YoY Change (Units)	67	NS
	57	Google Search YoY Change (%)*	3%	NS
	68	New Student Enrollment Vol. YoY Change (%)	8%	NS
	95	Completion Volume YoY Change (%)	134%	NS

The Employment Opportunities data in the scorecard quantifies labor market data for all academic programs in a geographic market. Gray compiles data from several sources, including our proprietary job postings database, an enhanced CIP-SOC crosswalk based on ~70 million profiles in our Alumni Insights dashboard, Bureau of Labor Statistics employment and wage data, and American Community Survey (ACS). We also provide metrics on Job Postings and Job Openings per Graduate.

A sample of the Employment section of a program scorecard is shown below.

Program Scorecard: Employment Opportunities

Employment
Score: 11 Percentile: 96

Category	Pctl	Criterion	Value	Score
Size: Entry Jobs	97	Job Postings Total (12 Months)	310	NS
	97	BLS Current Employment	2,290	NS
	97	BLS Annual Job Openings	756	NS
Underemployed	4	Underemployed Percent of Graduates**	25%	0
Growth: Entry Jobs	62	BLS 1-Year Historical Growth	5.7%	NS
	87	BLS 3-Year Historic Growth (CAGR)	5.2%	0
	55	BLS 10-Year Future Growth (CAGR)	12.1%	0
Saturation: Entry Jobs	72	Job Postings per Graduate	2.6	2
	69	BLS Job Openings per Graduate	6.4	NS
BLS Wages	93	Entry 25th Percentile	$62,470	6
	55	Post Entry Median	$77,042	3
		Post Entry w/Associates Median	NA	NS
	74	Post Entry w/Bachelors Median	$76,831	NS
	81	Post Entry w/Masters Median	$100,956	NS
		Post Entry w/Doctoral Median	NA	NS
National American Community Survey Bachelor's Degree Outcomes*	15	% with Any Graduate Degree*	20%	NS
	25	% with Masters*	18%	NS
	17	% with Doct/Prof Degree*	3%	NS
	65	% Unemp. (Age <30)**	3%	NS
	95	% in Direct Prep Jobs*	49%	NS

PES includes job posting data in the Employment quadrant of the program scorecard. This data includes:
▪ Count of annual job postings
▪ Job postings per graduate
▪ Job openings per graduate
▪ BLS Wages (early- and mid-career wages, wages by educational attainment)

Unlike BLS, this data is current (to the most recent quarter) and tracks actual postings, rather than survey data. The example below shows past year job postings in the US, by program. Data is customized for each institution to pull job postings by geographic market, award level, and program.

Job Postings and Wages by Program – Arizona

CIP	Size Entry: Job Postings Total (12 months)	Saturation Entry Jobs: Job Postings per	Saturation Entry Jobs: BLS Job Openings per	BLS Wages Entry Jobs: BLS 25th-Percentile Wages	BLS Wages Post-entry: BLS Median Wages	BLS Wages Post-entry: BLS Median Wages w/Bachelors	BLS Wages Post-entry: BLS Median Wages w/Masters	BLS Wages Post-entry: BLS Median Wages w/Doctoral
51.3801 Registered Nursing	13,743	3.2	0.9	$70,797	$81,822	$77,110	$95,549	$103,682
52.0201 Business Admin. and Mgmt, General	6,632	3.3	9.2	$50,505	$80,641	$76,815	$100,591	$103,771
42.0101 Psychology, General	3,277	1.7	3.9	$43,922	$74,876	$68,651	$83,173	$100,484
11.0701 Computer Science	2,689	2.3	19.5	$68,931	$96,440	$91,471	$114,036	$118,462
52.1401 Marketing/ Marketing Mgmt, General	2,011	2.7	5.5	$48,282	$77,460	$74,672	$96,605	$101,887
52.0301 Accounting	1,907	2.8	7.7	$56,757	$90,932	$85,448	$112,580	$109,477
52.0801 Finance, General	1,831	2.3	12.5	$52,957	$87,520	$80,901	$109,365	$106,310
13.1202 Elementary Education and Teaching	1,704	1.6	1.3	$43,101	$60,770	$56,531	$71,037	$94,114
26.0101 Biology/ Biological Sciences, Gen'l	1,413	0.9	2.4	$44,643	$80,644	$73,407	$88,791	$95,893
09.0101 Speech Communication and Rhetoric	1,383	1.4	3.4	$47,762	-	-	-	-
45.1001 Political Science and Gov't, Gen'l	1,201	1.7	5.0	$47,567	$83,136	$74,016	$92,698	$100,617
43.0100 Crim. Justice & Corrections, Gen'l	1,031	1.4	4.8	$45,336	$72,371	$68,631	$85,411	$99,832
45.1101 Sociology	985	3.8	8.8	$44,401	$72,873	$67,970	$83,633	$99,716
23.0101 English Language and Lit., Gen'l	928	2.1	4.7	$44,304	$74,034	$67,825	$81,768	$97,875
45.0601 Economics, General	854	2.1	10.2	$52,746	$88,341	$79,897	$105,121	$103,138
31.0505 Kinesiology and Exercise Science	837	2.1	5.2	$43,430	$72,416	$67,568	$86,178	$100,495
24.0101 Liberal Arts/Sciences/ Studies	827	1.2	2.5	$44,742	$71,928	$67,578	$83,741	$98,303
30.9999 Multi-/Interdisc. Studies, Other	798	1.7	3.4	$44,742	-	-	-	-
11.0103 Information Technology	747	4.4	15.9	$62,518	$89,086	$85,838	$110,046	$112,622
54.0101 History, General	746	2.5	5.9	$44,954	$77,955	$70,377	$86,474	$99,539
14.1901 Mechanical Engineering	718	1.1	4.2	$64,917	$94,327	$87,715	$108,463	$111,821
13.1210 Early Childhood Education/ Teaching	670	3.1	2.9	$41,448	$60,934	$56,785	$69,483	$94,527
27.0101 Mathematics, General	636	2.3	11.2	$55,777	$87,814	$80,667	$98,936	$108,875
31.0504 Sport and Fitness Admin/Mgmt	607	7.4	15.6	$44,264	$72,803	$68,665	$87,851	$98,948
44.0701 Social Work	523	1.1	1.8	$41,835	$67,730	$61,804	$76,678	$98,188

The scorecard includes several sources of data on competitors. PES tracks completions in all markets and average and median program size. Additionally, we have developed metrics to assess market saturation and competitive intensity using data from IPEDS, Google, and the Census. For example, PES tracks completions per capita for over 300 markets, to compare and gauge local market saturation.

PES also tracks national online completions for the program, including the number of institutions nationally that offer the program online and the number of institutions with in-market graduates.

Program Scorecard: Competitive Intensity

Competitive Intensity
Score: -8 Percentile: 4

Category	Pctl	Criterion	Value	Score
Volume of In-Market Competition	95	Campuses with Graduates**	2	-6
	96	Campuses with Grads YoY Change (Units)**	0	NS
	99	Institutions with Online In-Market Students**	11	NS
In-Market Program Sizes	63	Average Program Completions	35	0
	68	Median Program Completions	35	0
	84	YoY Median Prog. Compl. Change (Units)	7	NS
	96	YoY Median Prog. Compl. Change (%)	140%	NS
In-Market Saturation	88	Google Search * Cost per Click**	$19	-2
	89	Google Competition Index**	0.93	0
National Online Competition	98	National Online Institutions (Units)**	59	NS
	90	Nat'l Online % of Institutions	25%	NS
	95	Nat'l Online % of Completions	47%	NS

Competitor Report

For each program and market, the system produces a Report on Competition. The report provides the name, degree level, and number of completions for every competitor for the last five years (including online). Institutional and demographic data is also available, such as sector, tuition rates, selectivity metrics, graduation rates, student body composition by ethnicity, gender, and age, and school rankings.

This report lets users quickly identify relevant competitors, whether they offer the program online, the size of each competitor's program, which institutions and programs are growing or declining, who has entered or exited the market, and how each institution compares on institutional and demographic metrics.

The example below shows a Report on Competition for bachelor's-level Cybersecurity programs in the Arizona market.

Report on Competition

Total Completions by In-Market Students
Current Year and Previous Year
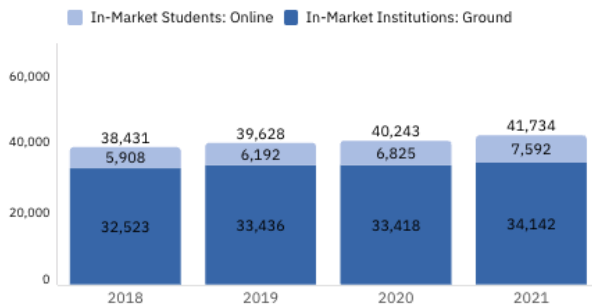
Total Completions by In-Market Institutions
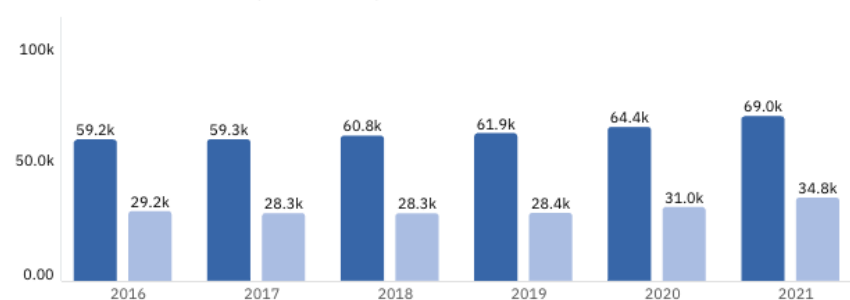
Instructions: Campus, Institution, and Sector will clear when you return to Scorecard; Dimensions and Metrics will clear when a new Scoring Rubric Bookmark is created.

Campus	2016 Completions	2017 Completions	2018 Completions	2019 Completions	2020 Completions	2021 Completions	2021 On-Ground Completions	2021 Online Completions	2021 Online Completions by In-Market Students
Arizona State University Campus Immersion	13,058	13,399	14,221	14,633	14,694	14,829	14,829	0	0
Grand Canyon University	10,267	10,283	11,162	11,319	12,370	13,529	4,326	9,203	1,599
University of Phoenix-Arizona	16,242	14,254	12,943	12,453	12,289	12,925	88	12,837	609
University of Arizona	7,368	7,346	7,645	8,231	7,871	8,117	7,538	579	296
Arizona State University Digital Immersion	2,239	3,085	3,993	4,737	5,639	7,277	238	7,039	1,537
Northern Arizona University	5,280	6,095	6,189	6,248	6,403	6,331	5,325	1,006	788
American InterContinental University	1,402	1,328	1,188	1,247	1,541	2,085	0	2,085	41
Aspen University	50	170	426	763	1,230	1,555	42	1,513	204
Embry-Riddle Aeronautical University-Prescott	362	437	430	466	598	614	614	0	0
Pima Medical Institute-Tucson	330	297	337	332	285	279	28	251	53
Brookline College-Phoenix	216	187	136	146	168	212	201	11	10

Once you have identified a program of interest, you can quickly get a summary report that provides an overview of market demand along key dimensions.

Within PES, you can select the program and click a button to get an AI-generated text report on the program in your market. The text summary highlights key market metrics and trends. You may request an unlimited number of reports. Each report takes a minute or two to produce. A text report summarizes the data in a program scorecard (see next page).

Master's Degree in Business Analytics, Tennessee

← Scorecard Selections

×

AI Report

CIP: 30.7102 Business Analytics

Market: Tennessee

Award Level: Masters and Grad Certs

Regenerate Report

Export to PDF

Overview
National Completions stand at 35,929, ranking at the 99th percentile, with a Sum of On-ground and Online Completions in Tennessee at 362, also at the 99th percentile. The program's greatest strength lies in its Student Demand, evidenced by a high Google Search Volume of 18,440 (93rd percentile), and New Student Enrollment Volume at 628 (99th percentile). However, the program's significant weakness is the Competitive Intensity, with a high number of Campuses with Graduates at 6 (98th percentile) and Institutions with Online In-Market Students at 36 (99th percentile).

Student Demand
The program's Student Demand is strong, as shown by a Google Search Volume of 18,440, placing it in the 93rd percentile among all programs. Additionally, the Google Search YoY Unit Change is at 4,760 (96th percentile), indicating growing interest. The Google Search YoY Percentage Change further confirms this trend with a value of 35%, ranking in the 95th percentile. New Student Enrollment Volume is notably high at 628, securing a spot in the 99th percentile. However, the New Student Enrollment Volume YoY Percentage Change shows a more moderate increase of 22%, which is in the lower range at the 70th percentile.

Employment
Employment outcomes for graduates are favorable with an Entry Level Salary of $72,215 (79th percentile) and Post Entry Level Median Salary of $99,716 (89th percentile). Job Postings per Graduate stand at a healthy ratio of 2.7 (64th percentile), suggesting adequate job availability relative to graduates. The BLS data indicates steady growth in employment sectors relevant to the program with a BLS 1-Year Historical Growth rate of 6% (45th percentile) and BLS 3-Year Historic Growth rate of 3% (58th percentile). A concern may be the Underemployed Percent of Graduates at 34%, which falls into the lower end at the 37th percentile. Nevertheless, Job Postings are high at a value of 987, placing it in the top tier at the 99th percentile.

Competitive Intensity
The Competitive Intensity for this program is considerable; Campuses with Graduates are numerous at a value of six, which ranks unfavorably high at the 98th percentile. This intensity is compounded by an increase in Campuses with Graduates YoY Unit Change by three units (100th percentile). The presence of Institutions with Online In-Market Students is also significant at thirty-six institutions (99th percentile), indicating stiff competition for online students. On a positive note, Average Program Completions are substantial at fifty completions annually (98th percentile), and Median Program Completions are strong as well with thirty-three completions (96th percentile). However, marketing costs may be rising as indicated by Google Search Cost per Click valued at $10.00 (63rd percentile) and Google Competition Index standing at just above zero (88th percentile).

The Multi-Market Scorecard allows you to score every IPEDS program in each of your current and potential markets. The results are color-coded, as shown below; for example, dark green indicates a market that scores above the 98th percentile (compared to all other programs in the specified market).

This chart displays the scores in each cell, which we often replace with the client's enrollment. This allows users to quickly identify high-volume programs in attractive markets (high enrollment numbers in dark green cells) and poor performers in weak markets (lower enrollment numbers in blue cells).

Multi-Market Scorecard

Percentile Key

| <40 | 40+ | 70+ | 90+ | 95+ | 98+ |

Program x Market Matrix

CIP	Arizona	California	Hawaii	National	Nevada	Utah
45.0601 Economics, General	35	24	25	31	20	26
14.0903 Computer Software Engineering	24	25	33	29	24	25
42.0101 Psychology, General	22	28	23	27	26	29
14.0701 Chemical Engineering	27	22	14	37	20	33
11.1003 Cyber Security/ Info. Assurance	22	24	26	24	28	22
09.0101 Speech Communication and Rhetoric	21	28	22	26	20	24
40.0801 Physics, General	26	24	20	22	20	28
11.0401 Information Science/ Studies	20	19	20	30	20	30
45.1001 Political Science and Gov't, Gen'l	29	22	18	24	25	20
27.0101 Mathematics, General	27	25	22	24	17	23
30.7102 Business Analytics	18	26	25	27	21	16
49.0101 Aviation/Aero Science/Tech, Gen'l	31	24	2	38	26	11
51.2201 Public Health, General	24	26	17	25	23	16
52.2001 Construction Management	18	20	20	20	27	20
51.2010 Pharmaceutical Sciences	15	24	23	31	16	14
51.0910 Diag. Med. Sonogr'y/ Ultrasound Tech	20	21	22	15	26	19

Data Dashboards

If you want to examine individual metrics more closely, our dashboards provide detailed information on student demand and labor market data. For example, in our Program Enrollment Dashboard, you can pull data on new and total enrollment by academic year and term, market, and award level.

Explore Individual Datasets

Employment and Workforce

Job Postings Insights

Explore job postings, skills, wages, industries, and employers.

Workforce Report

Download a workforce report including job posting volume, skills, wages, industries, employers, and Bureau of Labor Statistics.

Alumni Insights

Explore and download a report on alumni work profiles, including graduation year, program, institution, job, employer, industry, and location.

Student Demand

Program Enrollment

Explore enrollment trends by geography and program.

Google Search by Program

Explore search trends, cost, and competition.

Google Search by Brand

Explore search trends, cost, and competition.

Coursera Enrollment

Explore demand for courses and certificates.

Udemy Enrollment

Explore demand for courses and certificates.

International Demand

Explore international interest in U.S. programs.

Other

Athletics Benchmarking

Explore participation and cost for athletics programs.

One of the most valuable features of PES is the ability to pull custom data and reports from the comprehensive database underlying the system. Users can use filters to select data by program code, program title, campus or geographic market, or a larger program grouping such as 2-digit or 4-digit CIP code. The example below shows data for healthcare programs (CIP 51) in Arizona.

For the selected programs, users can then select the types of data to include in the table. The categories include the four categories used for program scoring, and the user can select any combination of data elements within each category. The example shows selected data elements: Google search volume and YoY change; job postings total for one year, job postings per graduate, 25th percentile and median wages, in-market campuses with graduates, median program sizes, and online competition.

As with all data tables in PES, users can also download data directly to an Excel file for further review and analysis.

Custom Data Table

CIP	Google Search Volume (3 Months)	Google Search YoY Change (%)	Size Entry: Job Postings Total (12 months)	Saturation Entry Jobs: Job Postings per	BLS Wages Entry Jobs: BLS 25th-Percentile Wages	BLS Wages Post-entry: BLS Median Wages	IPEDS Institutions: Campuses with Graduates	Program Size: 2021 Median Completions/Instit...	Online Competition (National): % of Institutions	Online Competition (National): % of Completions
51.3801 Registered Nursing	41,977	111%	23,962	3.4	$70,653	$86,321	33	76	27%	25%
51.0801 Medical/Clinical Assistant	11,410	33%	3,000	1.7	$36,952	$52,163	23	52	3%	2%
51.0904 EMT Paramedic	8,681	38%	355	0.3	$36,803	$56,939	18	31	5%	2%
51.3902 Nursing Assistant/ Patient Care Aide	8,235	16%	1,925	1.9	$34,982	-	16	67	2%	1%
51.0713 Medical Billing and Coding	4,340	-6%	544	1.2	$38,387	$45,689	15	22	16%	42%
51.0601 Dental Assisting	1,663	-64%	844	1.3	$37,265	-	15	32	2%	1%
51.0805 Pharmacy Technician/ Assistant	5,710	15%	976	4.1	$36,875	$58,994	14	13	4%	9%
51.3901 Licensed Practical/ Voc. Nurse	17,598	35%	1,808	5.4	$56,483	-	12	10	2%	1%
51.1009 Phlebotomy Tech/ Phlebotomist	6,100	22%	197	0.4	$36,405	-	12	40	1%	1%
51.3501 Massage Therapy	4,110	18%	4	0.0	$42,906	-	9	14	0%	0%
51.0701 Health Care Admin/Mgmt	3,948	29%	1,017	1.6	$54,588	$88,622	9	9	45%	58%
51.0806 Physical Therapy Technician/ Assistant	1,620	-10%	352	2.1	$45,388	$56,037	7	19	5%	2%
51.0710 Medical Office Assistant	52	200%	334	2.1	$37,143	-	7	8	10%	26%
51.0911 Radiologic Tech/ Radiographer	1,970	-35%	731	4.8	$59,762	$75,402	6	21	7%	6%
51.0909 Surgical Tech	930	-4%	711	5.3	$45,618	$55,169	6	22	2%	2%
51.0602 Dental Hygiene	810	-44%	195	1.0	$75,442	$87,463	6	25	13%	6%
51.0001 Health and Wellness, General	260	-13%	191	1.1	$46,687	-	6	6	17%	26%
51.2201 Public Health, General	12,540	-26%	730	1.0	$51,103	$80,372	5	19	31%	26%
51.0716 Medical Admin Assistant/ Secretary	310	3%	615	4.8	$38,451	-	5	14	12%	48%
51.0705 Medical Office Mgmt/Admin	300	-21%	470	3.7	$38,494	$50,930	5	4	27%	47%
51.3818 Nursing Practice	3,430	-10%	251	1.0	$74,332	-	4	33	49%	49%
51.1004 Clinical/Medical Laboratory Technician	2,058	3%	113	1.9	$39,212	$61,670	4	13	4%	9%
51.1508 Mental Health Counseling	930	9%	2	0.0	$39,878	-	4	18	16%	38%
51.0201 Communication Science, Gen'l	343	17%	381	1.5	$57,845	$79,022	4	65	10%	6%
51.0707 Health Info./Medical Records Tech	260	-66%	293	2.0	$43,753	$52,038	4	5	27%	48%