



# KENTUCKY FUTURE SKILLS REPORT

---

## Technical Notes

The Kentucky Future Skills Report (KFSR) is produced by the Kentucky Center for Statistics (KYSTATS) utilizing data from the Kentucky Longitudinal Data System (KLDS), Labor Market Information Section (Kentucky LMI), Kentucky Council on Postsecondary Education (CPE), Kentucky Department of Education (KDE), Kentucky SKILLS U, and Kentucky Unemployment Insurance (UI). The latest data update is December 2024.

Occasionally, data from one source will not conform to data from another source because of differences in cohorts, how variables are defined, the treatment of missing data, and other factors. This means that data published in this report may not be comparable to data published in other reports. Some values are suppressed to preserve individual privacy. For specific details about metric formulas, please refer to Appendix A. Some values are redacted to preserve individual privacy and conform to state laws. Redaction rules can be found in Appendix B.

Credential and Career and Technical Education pathway completion data in this report includes graduates from Kentucky's public high schools, in-state public and independent postsecondary institutions, and GED completers. Employment and wage outcome data includes only those firms covered by the UI System. Data on credential completions and employment outcomes are extracted from the KLDS. Mid-term (five-year) projected employment metrics are calculated from the long-term (ten-year) projections estimates also published by KYSTATS. Standard Occupational Codes (SOC) have been converted to the 2018 SOC system.

This report is divided into four distinct dashboards: Historic Supply, Employment Outcomes, Future Demand, and Occupational Profiles. Statewide totals in Historic Supply, Future Demand, and Occupational Profiles can be filtered by the ten Local Workforce Areas (LWAs).

Users can switch to different dashboards by clicking the tabs at the top of the page. Technical Notes can be accessed by clicking the technical notes link, which define the terminology and methods of analysis in the report.

## Dashboard 1: Historic Supply



### KENTUCKY FUTURE SKILLS REPORT



This dashboard is powered by the Kentucky Center for Statistics. Those using screen readers may need to click the enter key to select options in filters. This dashboard is best viewed on a desktop computer. If you have any questions regarding accessibility, please contact [kystats@ky.gov](mailto:kystats@ky.gov). Follow us @KYSTATS on social media.

An alternative, accessible format in Excel is available for download here:

<https://bit.ly/KFSR-PAF-2024>

Technical documentation can be found in PDF form here:

<https://bit.ly/KFSR-TechNotes-2024>

Historic Supply

Employment Outcomes

Future Demand

Occupational Profiles

#### Five-Year Historic Supply (2018-2022) by Local Workforce Area (LWA)

Historic supply refers to pathways, credentials, or pathway completers/credentialed people between the above timeframe. *Credentials* are the total number of credentials issued within each area and credential category. *Pathways* are the total number of completed CTE pathways issued within each area. Some people may have earned more than one. *Pathway Completers or Credentialed People* are unique counts of individuals completing a specific CTE pathway or earning a credential. These are only counted once in each region or pathway/credential category.

Select Total Pathways/Credentials or People with Pathways/Credentials

Total Pathways or Credentials

People with Completed CTE Pathways or Credentials Earned in Kentucky

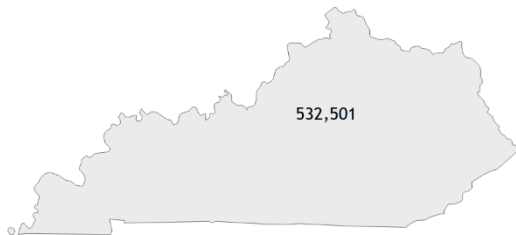
476,144

Select an Area

Kentucky

Total Completed CTE Pathways or Credentials Earned in Kentucky

532,501



#### Total Historical Supply in Kentucky

	People with Pathways/Credentials	Pathways/Credentials
Doctoral	11,612	11,651
Master's	59,145	61,616
Bachelor's	107,355	110,053
Associate	40,648	45,465
Cert/Diploma	32,979	57,958
CTE Pathway Completer	75,167	96,520
HS Diploma/GED	149,238	149,238

CTE pathways/credentials can be redacted when the count of people is not redacted. This happens when the difference between the total count of people and count of CTE pathways/credentials is less than 10.

#### Grid of Total Pathways or Credentials by Major Group and Pathway/Credential Level

Major Group	Pathway or Credential Level					
	CTE Pathway Completer	Postsecondary Cert/Diploma	Associate	Bachelor's	Master's	Doctoral
Arts and Humanities	1%	0%	49%	13%	3%	3%
Business	20%	7%	6%	23%	16%	4%
Education	5%	0%	1%	8%	24%	10%
Health	16%	44%	23%	13%	11%	51%
Social and Behavioral Sciences and Human Services	3%	3%	3%	18%	16%	21%
STEM	29%	12%	7%	21%	27%	11%
Trades	26%	33%	11%	4%	2%	0%

A person with multiple degrees can be attributed to many major groups and therefore the percentages for this section will not align exactly with the counts above. For example, a dual major in biology and business will be included in the percentages for STEM and Business major groups. Additionally, due to rounding some majors may not total 100%.

Select a specific major or CTE Pathway to see the area densities of credentials/credentialed people.

All

#### Majors and Pathway Outcomes for Kentucky

Majors or Pathways	People with Pathways or Credentials	Pathways or Credentials
Liberal Arts and Sciences/Liberal Studies	19,619	21,754
Registered Nursing/Registered Nurse	15,712	
Licensed Practical/Vocational Nurse Training	11,777	11,844
Business Administration and Management, General	9,988	10,898
Business/Commerce, General	8,343	
Computer/Information Technology Services Administration and Management, Other	6,666	6,686
Social Work	6,162	
Pre-Nursing	6,052	6,084
Computer and Information Sciences, General	6,052	9,557
Psychology, General	5,917	5,917

Credentials/pathways can be redacted when the count of people is not redacted. This happens when the difference between the total count of people and count of credentials is less than 10.

This section provides a five-year historic overview of skilled people credentialed to enter the workforce in Kentucky. The historic workforce supply of credentials/CTE pathways and people spans the 2018 through 2022 Academic Years (AY). Supply is examined by both total credentials/CTE pathways and also by people, which is indicated by the filter at the top of the page. The differentiation in counts by people and by credentials is detailed below. Those without a known location have been excluded from Historic Supply.

Each chart can be filtered at the same time by choosing any combination of the following:

- People with CTE Pathways or Credentials or Total CTE Pathways/Credentials
- Geographically by Area (State and LWA)

Credential categories in historic supply include: high school diploma/GED, CTE certificate, postsecondary certificate or diploma, associate degree, bachelor's degree, master's degree, and doctoral degree.

#### 1. Detail Level:

- People with CTE Pathways or Credentials:** This option displays the total number of unique individuals, grouped by their highest credential or CTE pathway earned within each region (LWA). Individuals are counted once per region, based on their highest attained credential. These individuals may appear in multiple regions if they earned credentials or completed CTE pathways in more than one.
- Total CTE Pathways or Credentials:** This option displays the total number of highest-ranked credentials or CTE pathways issued within each region. Individuals are counted once per credential or CTE pathway. This means individuals that earn multiple credentials or CTE pathways may be counted more than once. When counts are small, totals for both individuals and credentials/pathways are redacted to protect privacy.

### Walkthrough

The map shows the distinct number of people that earned a credential/CTE pathway or the total number of credentials/CTE pathways earned (depending on the filter value) at an institution within that area. Filtering an area will filter the dashboard to metrics specific to the selected area.

The next chart breaks out the total people with pathways/credentials and pathways/credentials by pathway or credential level for the five-year period.

The grid shows a cross-section between pathway/credential level and major group for the five-year period.

The table at the bottom is a list of specific majors and can be filtered with the additional filter above it. This table allows a user to select various majors or CTE pathways and see the number of credentialed/pathwayed people and credentials/pathways by LWA.

## Dashboard 2: Employment Outcomes



### KENTUCKY FUTURE SKILLS REPORT



This dashboard is powered by the Kentucky Center for Statistics. Those using screen readers may need to click the enter key to select options in filters. This dashboard is best viewed on a desktop computer. If you have any questions regarding accessibility, please contact [kystats@ky.gov](mailto:kystats@ky.gov). Follow us @KYSTATS on social media.

An alternative, accessible format in Excel is available for download here:

<https://bit.ly/KFSR-PAF-2024>

Technical documentation can be found in PDF form here:

<https://bit.ly/KFSR-TechNotes-2024>

Historic Supply

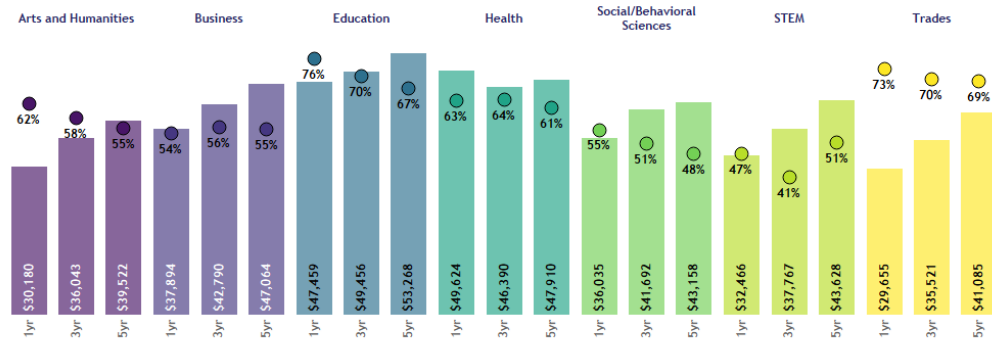
Employment Outcomes

Future Demand

Occupational Profiles

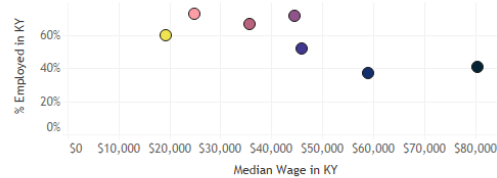
Filter the Bar Chart by Pathway/Credential Level  
Overall

#### Employment Outcomes for Those Employed in Kentucky During FFY 2023

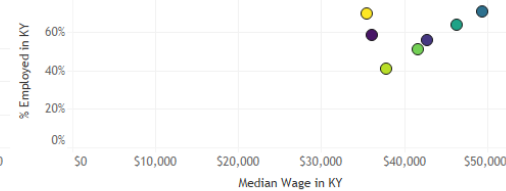


Employment outcomes are for those covered by Unemployment Insurance and employed in Kentucky. Wages are median wages for those not enrolled in postsecondary during federal fiscal year 2023.

#### Employment Outcomes Three Years After Graduation by Pathway or Credential Level



#### Employment Outcomes Three Years After Graduation by Major Group



Filter Grid by Years After Graduation  
Employment Five Years After Graduation

#### Employment in Key Sectors

	Grand Total	High School Diploma or Equivalent	CTE Pathway Completer	Postsecondary Certificate & Diploma	Associate	Bachelor	Master	Doctoral
Construction	4.6%	4.9%	8.7%	5.7%	3.6%	2.6%	1.0%	Redacted
Educational Services	10.3%	2.0%	1.9%	4.9%	6.0%	14.1%	51.6%	30.0%
Health Care and Social Assistance	17.9%	11.2%	13.4%	25.8%	34.0%	20.3%	18.9%	40.2%
Manufacturing and Logistics	17.6%	21.9%	23.3%	19.4%	18.3%	11.7%	5.1%	Redacted
Professional, Scientific, and Technical Services	4.7%	2.4%	2.2%	3.5%	3.6%	10.5%	5.1%	13.2%
Non-Key Sectors	45.0%	57.6%	50.5%	40.8%	34.5%	40.8%	18.2%	15.3%

The grid shows which key sectors Kentuckians are working in by their pathway or credential level. Darker colors show a higher percentage of people within a pathway or credential level that work in a sector. Percentages will approximately total 100% (due to rounding) within each pathway/credential (top to bottom). Blank spaces represent no degree levels working in that key sector.

This section provides an overview of employment outcomes, including percent employed, key sector of employment, and median wage in Federal Fiscal Year 2023 (October 1, 2022 through

September 30, 2023) (FFY 2023) for people earning credentials/CTE pathways in Academic Years (AY) 2021-22 (1Yr), 2019-20 (3Yr), and 2017-18 (5Yr).

Individuals were considered to be employed in Kentucky if they earned wages at a firm covered by the UI System during any quarter of FFY 2023 and were not reenrolled at a Kentucky public or independent postsecondary institution in AY 2023. The UI System does not include most of the self-employed, most federal employees, the military, or several other smaller categories of employment. Individuals who reenrolled in a postsecondary institution during AY 2023 are not included in any views of this dashboard. Wages are calculated as the median of the sum of all four fiscal quarters for each individual in the dataset. No annualization or proration of wages was performed.

Employment outcomes are presented for each individual's highest degree earned. If an individual received multiple credentials/pathways of the same level (e.g. two Master's degrees) in different years, the most recent degree is used. If they received multiple degrees of the same level in their most recent credential-receiving year, all such degrees are included once for each major category. In the numeric table and sector icons, the person will be counted only once in any given disaggregated/filtered view. As a result, any given disaggregate or aggregate filter combination of the table is accurate, but the disaggregates will not sum to the similarly aggregate totals when unfiltered.

Key sectors of employment were assigned by using the sector in which each completer earned their highest wage during their highest earning quarter in FFY 2023. The chart on key sectors of employment are created using groupings of the 2-digit North American Industry Classification System (NAICS) codes - the federal standard in classifying business establishments. Key sectors identified were developed by KWIB in collaboration with the Kentucky Cabinet for Economic Development: **Construction (23)**, **Manufacturing and Logistics (31, 32, 33, 48, 49)**, **Professional, Scientific, and Technical Services (54)**, **Educational Services (61)**, **Health Care and Social Assistance (62)**, and **Non-Key sectors (All other NAICS)**.

## Walkthrough

The pathway/credential level filter ranges from CTE Pathways to doctoral level credentials. Changing the pathway/credential level filter will show statewide employment outcomes below.

The bar chart shows 1, 3, and 5-year wages (relative to FFY 2023) as well as the employment percentage over time, represented by the circles. Hovering over the bars will show a tooltip with all relevant information.

The scatterplots show the relationship between **median wages** and **employment outcomes three years after graduation**. The left chart breaks this down by **credential/CTE pathway level**, while the right chart shows results by **major group**. Each point represents a category's position in terms of post-graduation employment rate and typical earnings.

The grid below shows the breakout of employment in key sectors by pathway/credential level. These can be filtered by years after graduation.

## Dashboard 3: Future Demand



### KENTUCKY FUTURE SKILLS REPORT



This dashboard is powered by the Kentucky Center for Statistics. Those using screen readers may need to click the enter key to select options in filters. This dashboard is best viewed on a desktop computer. If you have any questions regarding accessibility, please contact [kystats@ky.gov](mailto:kystats@ky.gov). Follow us @KYSTATS on social media.

An alternative, accessible format in Excel is available for download here:

<https://bit.ly/KFSR-PAF-2024>

Technical documentation can be found in PDF form here:

<https://bit.ly/KFSR-TechNotes-2024>

Historic Supply

Employment Outcomes

Future Demand

Occupational Profiles

#### Five-Year (2023-2028) Future Demand

Demand is the sum of occupational change and exits from the workforce (including retirement). Openings is the sum of occupational demand and transfers from one occupation to another. Visit <https://kystats.ky.gov/KYLM> to download labor market information.

Select a region to filter the dashboard.

Kentucky

#### Kentucky Overview



FUTURE DEMAND		FUTURE OPENINGS	
547,414		1,187,361	
Entry Wage	Median Wage	Experienced Wage	
\$24,880	\$43,730	\$89,810	

#### Occupational Group Summary for Kentucky

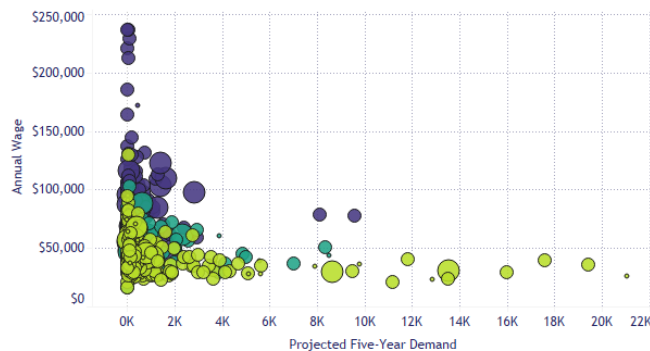
	Change	Percent Change	Exits	Transfers	Demand	Openings
	①	①	①	①	①	①
Transportation and Material Moving	12,278	5.12%	63,373	92,079	75,651	167,730
Food Preparation and Serving Related	4,349	2.54%	67,943	83,769	72,292	156,061
Office and Administrative Support	-4,953	-1.92%	68,031	76,075	63,078	139,153
Sales and Related	232	0.13%	53,887	65,199	54,119	119,318
Production	1,797	0.94%	40,985	60,743	42,782	103,526
Healthcare Support	5,118	6.90%	24,779	29,367	29,897	59,265
Healthcare Practitioners and Technical	6,382	4.44%	23,352	18,375	29,734	48,109
Management	4,929	3.71%	19,210	31,936	24,139	56,075
Educational Instruction and Library	916	0.99%	19,959	19,128	20,875	40,003
Installation, Maintenance, and Repair	3,047	3.34%	17,632	22,138	20,679	42,817
Building and Grounds Cleaning and Maintenance	1,556	2.65%	18,654	20,987	20,210	41,197
Personal Care and Service	1,484	2.92%	17,323	26,530	18,807	45,337
Business and Financial Operations	2,578	2.75%	14,490	22,583	17,068	39,651
Construction and Extraction	1,378	1.67%	14,249	21,080	15,627	36,706
Protective Service	465	1.17%	10,197	12,100	10,662	22,762
Community and Social Service	1,658	4.72%	6,531	8,459	8,189	16,648
Computer and Mathematical	2,527	6.18%	4,800	7,785	7,327	15,112
Architecture and Engineering	1,119	3.95%	4,228	5,589	5,347	10,936
Arts, Design, Entertainment, Sports, and Media	372	1.67%	4,489	6,371	4,861	11,232
Life, Physical, and Social Science	493	3.42%	1,617	4,964	2,110	7,074
Legal	272	2.27%	1,699	1,782	1,971	3,753
Farming, Fishing, and Forestry	40	0.61%	1,816	2,988	1,856	4,844

This section details the main projection metrics by occupational group. Users can hover over the info icons for definitions and the charts for wage information.

#### Specific Occupation (6-Digit Standard Occupational Classification (SOC) Code) Scatterplot for Kentucky

Occupational Group	Specific Occupation
All	All
Choose a Metric to Change the Color Legend	
Typical Education Required for Entry Level	
<input type="checkbox"/> Low Skill	
<input type="checkbox"/> Mid Skill	
<input type="checkbox"/> High Skill	
Wage Types	
Median Wage	
Typical Education Required at Entry Level	
All	
Typical On-the-Job Training	
All	
Typical Work Experience	
All	

#### Median Wage by Projected Five-Year Demand



The scatterplot displays projected five-year demand by the selected wage type. The further a dot lands to the right implies more demand while the higher a dot lands implies higher annual wages. Larger dots indicate larger change. Users can filter and change colors on the left. Hovering will provide additional information. Only occupations with both wages and demand are displayed.

This dashboard provides an overview of projected 5-year employment demand in Kentucky for the years 2023-2028. See Appendix A for specific employment demand metrics and calculations.

### Walkthrough

The first section gives an overview of the selected region. Users can filter the dashboard to reflect the selected region of choice (LWA or Kentucky). The map will identify the selected region. Key metrics are to the right of the map, and include the area's future demand, future openings, and wages (entry or 10<sup>th</sup> percentile, median or 50<sup>th</sup> percentile, and experienced or 90<sup>th</sup> percentile).

The next section shows the occupational group summary for the selected region. Occupational groups are 2-digit SOC codes that categorize the specific occupations that use 6-digit SOC codes. Key projection metrics such as change, percent change, exits, transfers, demand, and openings can be found here. Hovering will provide the entry, median, and experienced annual wages for these groups. The color legend notes that low values are lighter and yellow and get darker and purple as they get higher. Info icons are below the metric titles and provide a definition.

Lastly, the scatter plot shows the selected demand by selected wage types for any specific occupation. The filters to the left apply only to the scatter plot and allow the user to manipulate the chart in many ways. Selecting an occupational group will only show specific occupations within that group. Wage types will let users change the vertical axis to plot dots by entry, median, or experienced wages. Lastly, users can filter by typical education requirements for entry level, typical on-the-job training, and typical work experience. Hovering over a circle will display an occupation along with the top Knowledge, Skills, and Abilities (KSAs) associated with that occupation. KSA information is from O\*NET. The size of the circle will increase as growth within that occupation increases. The color legend changes between educational skill level, work experience, and on-the-job training. Educational skill is defined as low skill (high school or equivalent), middle skill (career and technical education, postsecondary certificates or diplomas, or associate degree), and high skill (bachelor's degrees or higher). Please see the legends beside the chart for more information.



## Dashboard 4: Occupational Profiles



### KENTUCKY FUTURE SKILLS REPORT



This dashboard is powered by the Kentucky Center for Statistics. Those using screen readers may need to click the enter key to select options in filters. This dashboard is best viewed on a desktop computer. If you have any questions regarding accessibility, please contact [kystats@ky.gov](mailto:kystats@ky.gov). Follow us @KYSTATS on social media.

An alternative, accessible format in Excel is available for download here:

<https://bit.ly/KFSR-PAF-2024>

Technical documentation can be found in PDF form here:

<https://bit.ly/KFSR-TechNotes-2024>

Historic Supply

Employment Outcomes

Future Demand

Occupational Profiles

#### Five-Year (2023-2028) Future Demand - Occupational Profiles

This dashboard allows users to dive deeper into projection metrics for specific occupations. Visit <https://kystats.ky.gov/KYUMI> to download labor market information.

Select an occupation group (optional)

All

Select a specific occupation

Accountants and Auditors

Select a region

Kentucky

#### Key Metrics for Accountants and Auditors in the Kentucky Area

Demand

2,373

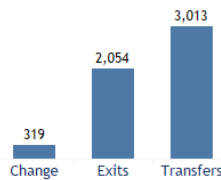


Openings

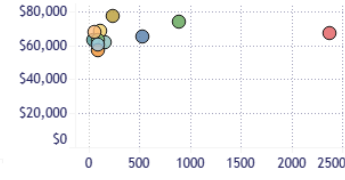
5,385



Openings Breakout



Demand by Median Wages by Area



Percent Change

2.43%



Typical Entry Level Education

Bachelor's degree



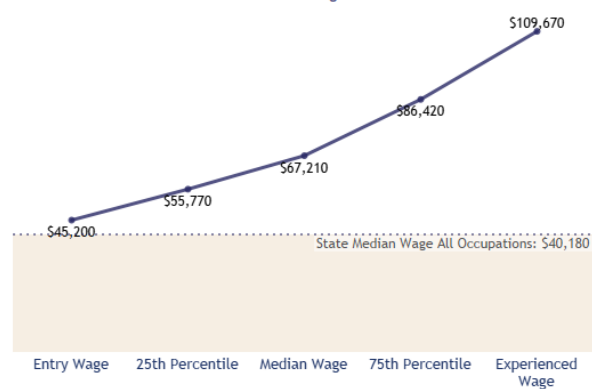
Typical On-the-Job Training Required

None



Typical Work Experience Required

None



#### Projections for All in Kentucky

	Demand	Openings	Percent Change	Entry Wage	Median Wage	Experienced Wage
Accountants and Auditors	2,373	5,385	2.43%	\$45,200	\$67,210	\$109,670
Actors	34	70	1.35%			
Actuaries				\$82,420	\$104,430	\$208,480
Acupuncturists				\$67,480	\$74,800	\$79,040
Adhesive Bonding Machine Operators and Tenders	92	230	1.79%	\$34,440	\$47,890	\$59,160
Administrative Law Judges, Adjudicators, and Hearing Officers	43	69	0.58%	\$34,410	\$42,950	\$139,650
Administrative Services Managers	519	1,039	3.21%	\$56,370	\$99,640	\$170,980
Adult Basic Education, Adult Secondary Education, and English as a Second Language Instructors	119	255	-6.07%	\$31,050	\$44,370	\$53,720
Advertising and Promotions Managers	49	189	1.09%	\$51,490	\$81,600	\$109,600
Advertising Sales Agents	101	416	-6.30%	\$26,670	\$37,660	\$64,090



This dashboard provides an overview or profile of each specific occupation (6-digit SOC) in Kentucky or the selected region, as well as a full list of occupations in the selected region.

### **Walkthrough**

The first section shows key metrics such as 5-year projected demand (2023-2028), job openings, change, exits, transfers, wages, typical education requirements for entry level, typical on-the-job training, typical work experience, and projected demand by LWA for each occupation. Users can filter the dashboard by occupation group to narrow down occupations, by specific occupations, and regions of Kentucky.

At the bottom of the dashboard, users can find a full list of occupations within the selected region that can be sorted by clicking the sort button near each metric. See Appendix A for specific employment demand metrics and calculations.

## APPENDIX A: METRIC FORMULAS

### Data Sources:

**Council on Postsecondary Education (CPE):** Provides data from the Kentucky Postsecondary Education Data System (KPEDS). This system contains comprehensive information on postsecondary enrollments, coursework, grades, and degrees earned for all in-state postsecondary students that attend one of the following institution types: 4-Year Private (Independent), 2-Year Public (KCTCS), 4-Year Public Comprehensive, and 4-Year Public Research. In-state proprietary and out-of-state institutions are not included in this data system.

**Kentucky Department of Education (KDE):** KDE provides statistics and pertinent facts about schools and education in Kentucky including racial breakdowns, attendance, and graduation rates. KDE provides information on public PK-12 teachers and students.

**KYSTATS (Kentucky Center for Statistics):** KYSTATS collects and links data to evaluate education and workforce efforts in the Commonwealth. These data are maintained by KYSTATS in Kentucky's statewide longitudinal data system (KLDS). This includes developing reports, responding to research requests, and providing statistical data about these efforts so policymakers, agencies, and the general public can make better informed decisions. The wage and projections estimates in this report are drawn from a variety of statistical programs operated by the Labor Market Information Section (LMI). Specifically, projections estimates presented here are derived from the predicted demand for labor outlined in KYSTATS' 2022-2032 Occupational Outlook, and 2023 wage estimates are taken from the Occupational Employment & Wage Statistics (OEWS) program and KYSTATS' Labor Market Information Branch.

**Kentucky Skills U:** KY Skills U is Kentucky's adult education program and provides KYSTATS with data on adult student programs that help students to gain the academic skills and credentials they need to transition to postsecondary education, function productively in the workforce, and support their families.

**Unemployment Insurance (UI):** This system contains information on all wages and employment covered by the Kentucky Unemployment Insurance System. This is estimated to cover 90% of employment in Kentucky. Annualized wages are based on the Federal Fiscal Year (FFY), which runs from October 1st through September 30th. For instance, the 2018 FFY encompasses the time period of October 1, 2017 through September 30, 2018.

## Dashboard - Historic Supply:

### Five-Year Historic Supply by Local Workforce Area (LWA)

**People with CTE Pathways or Credentials** - This option represents the total number of unique individuals, grouped by their highest credential or pathway earned and region. Individuals may be counted multiple times across regions but only once per region for their highest credential. Individuals receiving credentials in multiple years are counted once in each year they received any number of credentials.

**Data Source:** CPE

**Data Elements:** KPEDS\_Degree: *degreeerank*, *KPEDS\_DegreelevelShortDesc*, *KPEDS\_Degree\_Year*, *KPEDS\_Institution*, *KPEDS\_Major1\_CIP*, *KPEDS\_Major1*.

**Total CTE Pathways or Credentials** - This option shows the total number of highest-ranked credentials/CTE pathways per person issued within each area and region. People receiving more than one credential are counted multiple times - each credential is counted in each geographic region and also each credential category.

**Data Sources:** CPE, KDE, SKILLS U

**Data Elements:** KPEDS\_Degree: *degreelevelshortdesc* 'Certificate where *KPEDS\_Degree.kpeds\_degreelevelshortdesc* in ('Cert < 1 Yr','Cert 1-2 Yr','Cert 2-4 Yr B','Cert 2-4 Yr') 'Diploma' where *KPEDS\_Degree.kpeds\_degreelevelshortdesc* in ('Diploma 1-2 Yr','Diploma 2-4 Yr') 'Associate's where *KPEDS\_Degree.kpeds\_degreelevelshortdesc* in ('Associate') 'Bachelor' where *KPEDS\_Degree.kpeds\_degreelevelshortdesc* in ('Bachelor','Post-Bacc Cert') 'Master' where *KPEDS\_Degree.kpeds\_degreelevelshortdesc* in ('Masters','Post-Mast Cert','Specialist','Inst-Def Grad Cert') or *kpeds\_degreelevelshortdesc* like ('Master%') 'Doctoral' where *KPEDS\_Degree.kpeds\_degreelevelshortdesc* in ('Doct Other','Doct Prof','Doct Rsch/Schl','PostDoc Cert'), *degreeerank*, *KPEDS\_Degree\_Year* *KPEDS\_Institution*: *TEDS\_IndustryCerts*: *TEDS\_IndustryValid* = 'Yes'; *IC\_AnnualPerson*: *IC\_ReportedGraduated* = 'Y' or *AE\_Data.AE\_HSDiplomaGED*='GED'

**Major or Industry Certification** - The total number of credentialed/pathwayed People or Credentials/CTE Pathways within a Major or Industry Certification.

**Data Source:** CPE

**Data Elements:** KPEDS\_Degree: *KPEDS\_Degree\_Year*, *KPEDS\_Institution*, *KPEDS\_Major1\_CIP*, *TEDS\_Enrollment*: *DistNo*; *TEDS\_IndustryCerts*; *TEDS\_IndustryValid*; *AE\_Data*; *AE\_HSDiplomaGED*; *AE\_County*

**Local Workforce Area (LWA)** - Locations are based on where the credential or pathway was earned. Postsecondary degrees are based on the institution location; Career & Tech Ed Certificates and High School Diploma, are based on the location of the district where the credential or pathway was earned; and GED earners, the location of the Adult Education facility (SKILLS U) was used. Counties are used to determine the LWA. See the link for a map that displays all counties within each LWA. Those without a known location have been excluded from Historic Regional Supply. Individuals without a known location are those without a High School Diploma or CTE pathway. Most of these individuals earned a GED at correctional facilities across Kentucky.

**Data Sources:** CPE, KDE, SKILLS U

**Data Elements:** KPEDS\_Institution: *CensusTract*; IC\_AnnualPerson: *IC\_ReportedGraduated*, *DistNo*; TEDS\_Enrollment: *DistNo*; TEDS\_IndustryCerts; *TEDS\_IndustryValid*; AE\_Data; *AE\_HSDiplomaGED*; *AE\_County*

### Pathway or Credential Level by Major Group Grid

**Distribution of CTE Pathways or Credentials within Major Groups** - Percentage of credentialed/pathwayed People or Credentials/Pathways within Major Groups. See Appendix D for a chart of the classification of academic majors into Major Groups.

**Data Source:** CPE

**Data Elements:** KPEDS\_Degree: *KPEDS\_DegreelevelShortDesc*, *degreeerank*, *KPEDS\_Degree\_Year*, *KPEDS\_Institution*, *KPEDS\_Major1\_CIP* 'Arts and Humanities' where left (*KPEDS\_Major1\_CIP*, 2) in ('05','16','23','24','30','38','39','50','54')  
'Business' where left (*KPEDS\_Major1\_CIP*, 2) in ('09','10','52')  
'Health' where left (*KPEDS\_Major1\_CIP*, 2) = '51'  
'Education' where left (*KPEDS\_Major1\_CIP*, 2) = '13'  
'Social and Behavioral Sciences and Human Services' where left (*KPEDS\_Major1\_CIP*, 2) in ('19','22','25','31','42','44','45')  
'STEM' where left (*KPEDS\_Major1\_CIP*, 2) in ('01','03','04','11','14','15','26','27','28','40','41')  
'Trades' where left (*KPEDS\_Major1\_CIP*, 2) in ('12','33','43','46','47','48','49')

**Distribution of Specific Majors and Certifications** - The count of credentialed or pathwayed people and credentials or pathways for 6-digit CIP codes in both postsecondary and career and technical education industry certifications.

**Data Sources:** CPE, KDE

**Data Elements:** KPEDS\_Degree: *KPEDS\_DegreelevelShortDesc*, *degreeerank*, *KPEDS\_Degree\_Year*, *KPEDS\_Institution*, *KPEDS\_Major1\_CIP*, TEDS\_IndustryCerts, *degreeerank*

### **Dashboard - Employment Outcomes:**

#### Employment Outcomes by Pathway or Credential Level and Major Group

**Percentage Employed 1, 3, and 5-years after graduation** - Percent Employed in KY one/three/five years after graduation - are determined through CPE degree information, with each individual assigned the highest acquired credential or pathway, and affiliated degree year, during the given timeframe. Any individuals re-enrolled in an in-state postsecondary institution, as determined by CPE data, during the appropriate FFY are excluded: reenrolled individuals are excluded from both the base graduation rate and the employed rate. Individuals are considered employed if they acquire any in-state UI covered wages during the requisite FFY.

**Data Sources:** CPE, UI

**Data Elements:** UI\_Wages\_Annualized: *FFY*, *sumWages*; KPEDS\_Degree: *degreeerank*, *KPEDS\_Degree\_Year*, *KPEDS\_Institution*, *KPEDS\_CIP\_2Digits*

**Median Wage 1, 3, and 5-years after graduation** - Median Wages are calculated one/three/five years after graduation year and are determined through CPE degree information, with each individual assigned the highest acquired credential or pathway, and affiliated degree year, during the given timeframe. Total individual wage is determined by summing all in-state UI covered wages acquired by an individual during the appropriate FFY. Individual wages are used to calculate median wages by pathway or credential level, institution, and major. Any individuals re-enrolled in an in-state postsecondary institution, as determined by CPE data, during the appropriate FFY are excluded.

**Data Sources:** CPE, UI

**Data Elements:** UI\_Wages\_Annualized: *FFY, sumWages*; KPEDS\_Degree: *degreeRank*, *KPEDS\_Degree\_Year*, *KPEDS\_Institution*, *KPEDS\_CIP\_2Digits*

**Employment in Key Sectors** - Percentage of employment by major group - Key sectors of employment were assigned by using the sector in which each completer earned their highest wage during their highest earning quarter in FFY 2023. The chart on key sectors (hovering over the wage bars or employment percentages) of employment are created using groupings of the 2-digit North American Industry Classification System (NAICS) codes - the federal standard in classifying business establishments. Key sectors identified were developed by KWIB in collaboration with the Kentucky Cabinet for Economic Development: **Construction** (23), **Manufacturing and Logistics** (31, 32, 33, 48, 49), **Professional, Scientific, and Technical Services** (54), **Educational Services** (61), **Health Care and Social Assistance** (62), and **Non-Key** sectors (All other NAICS).

**Data Source:** UI

**Data Element:** UI\_Wages, *MajorIndustry*, *NAICS*, *FiscalYear*

## Dashboards - Future Demand and Occupational Profiles:

### Five-Year Future Demand (Occupational Change & Exits)

**Future Openings/Projected Job Openings** - The total number of job openings expected to have been produced from 2023 to 2028. In the 2022-2032 Occupational Outlook, total job openings are presented as the sum of openings produced by occupational change, occupational exits (i.e. worker retirements, or other exits from the labor force), and occupational transfers (worker migration from one occupation to another). To produce the estimates shown in this report, the portion of the openings in the long-term projections produced in the 2023-2028 projection period are assumed to be commensurate with the portion of occupations' employment change in the long-term projections occurring within the 2023-2028 period used here. This can be written as:

$$((2028\_projected\_employment - 2023\_base\_employment) / (2032\_projected\_employment - 2022\_base\_employment)) * (total\_2022-2032\_job\_openings)$$

**Data Source:** Original calculation, derived from values in 2022-2032 KY Occupational Outlook

**Data Element:** Projected Job Openings

**Future Demand** - Occupational demand, a metric calculated specifically for this report, is intended to represent the volume of total Job Openings that can be interpreted as a signal for educational planners, re: the minimum number of total estimated job openings that Kentucky's education systems can reasonably be expected to produce newly-qualified workers to fill. Demand is calculated as the sum of Occupational Change and Exits (which are both calculated for the five-year projection frame used here, but are not published).

**Data Source:** Original calculation, derived from values in 2022-2032 KY Occupational Outlook

**Data Element:** Future Demand

**Wage Type** - The most current estimated annual entry-level, median, and experienced wages paid to workers in a given occupation. Entry-level Wage is 10th percentile, Median Wage is 50th percentile, and Experienced Wage is 90th percentile.

**Data Sources:** 2023 state-level wage estimates are taken from the Occupational Employment & Wage Statistics (OEWS) program and Local Workforce Area estimates are from KYSTATS' Labor Market Information Branch.

**Data Elements:** Entry-level Wage, Wage, Experienced Wage

### **Future Demand (Occupational Change & Exits) by Median Annual Wage for Specific Occupations - Scatterplot Filters**

**Metric - Educational Skill Level** - The level of educational attainment typically required for entry into an occupation. Occupational skill levels (only visible when viewing the dashboard at the Specific Occupation detail level) are based on the BLS Education and Training Assignments by Detailed Occupation, 2020 (<https://www.bls.gov/emp/tables/education-and-training-by-occupation.htm>). The classifications used in this report appear as:

<b>BLS Entry Level Education Level</b>	<b>Skill Level</b>
Bachelor's Degree and Higher	High Skill
Postsecondary Below Bachelor's	Middle Skill
High School Diploma or Below	Low Skill

The Kentucky Office of Career and Technical Education (CTE), along with KYSTATS analysts, further cross-walked these assignments into three buckets. Occupations that require a high school diploma, but also require substantive Career/Technical training at the secondary level were moved to "Middle Skill" on recommendation of CTE as noted below:

<b>SOC Code</b>	<b>Title</b>	<b>Education Needed for Entry Level Position</b>	<b>Skill Level</b>
11-3071	Transportation, Storage, and Distribution Managers	High school diploma or equivalent	Middle
43-1011	First-Line Supervisors of Office and Administrative Support Workers	High school diploma or equivalent	Middle

47-1011	Supervisors of Construction and Extraction Workers	High school diploma or equivalent	Middle
47-2021	Brickmasons and Blockmasons	High school diploma or equivalent	Middle
47-2031	Carpenters	High school diploma or equivalent	Middle
47-2111	Electricians	High school diploma or equivalent	Middle
47-2152	Plumbers, Pipefitters, and Steamfitters	High school diploma or equivalent	Middle
47-2211	Sheet Metal Workers	High school diploma or equivalent	Middle
49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	High school diploma or equivalent	Middle
49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	High school diploma or equivalent	Middle
49-9041	Industrial Machinery Mechanics	High school diploma or equivalent	Middle
49-9071	Maintenance and Repair Workers, General	High school diploma or equivalent	Middle
51-1011	First-Line Supervisors of Production and Operating Workers	High school diploma or equivalent	Middle
51-4041	Machinists	High school diploma or equivalent	Middle
51-4121	Welders, Cutters, Solderers, and Brazers	High school diploma or equivalent	Middle
53-1021	First-Line Supervisors of Helpers, Laborers, and Material Movers, Hand	High school diploma or equivalent	Middle
53-1031	First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators	High school diploma or equivalent	Middle
53-3021	Bus Drivers, Transit and Intercity	High school diploma or equivalent	Middle
53-3022	Bus Drivers, School or Special Client	High school diploma or equivalent	Middle



53-3033	Light Truck or Delivery Services Drivers	High school diploma or equivalent	Middle
---------	--	-----------------------------------	--------

**Metric - Occupational Change** - Occupational Change (previously referred to as Growth), is defined as the difference between Future and Current Employment. Rate of change used in the calculations of Future and Current Employment estimates represent the exponential rate of change needed for an occupation's employment to reach projected levels in the 2022-2032 Occupational Outlook from the base employment in the same report. Where  $n$  is the number of years in the projection period (10), this can be written as:

$$\text{Rate of change} = (((2032\_projected\_employment / 2022\_estimated\_employment)^{1/n}) - 1) * 100$$

In this report, the intensity of Change is characterized by adjectives representing four classifications:

Adjective	Percent Change
Declining	<0%
Stable	0% to 6.99%
Growing	7% to 12.99%
Fast Growing	13%+

**Metric - Work Experience** - Related work experience typically required for entry into an occupation; Five years or more, Less than five years, None.

**Data Source:** BLS - Occupational Projections Data

**Data Elements:** Work Experience in a related occupation

**Metric - On-the-Job Training** - On-the-job-training typically needed to reach competency within an occupation.

**Data Source:** 2022-2032 KY Occupational Outlook

**Data Element:** Typical Training

**Occupational Group** - General Occupations are assigned according to 2-digit Standard Occupational Classification (SOC) codes. (First two digits)

**Data Source:** 2022-2032 KY Occupational Outlook

**Data Element:** SOC Code

**Specific Occupations** - Specific Occupations are assigned according to full 6-digit SOC codes.

**Data Source:** 2022-2032 KY Occupational Outlook

**Data Element:** SOC Code

**Estimated Current Employment** - Current (2023) employment represents the base (2022) employment in KYSTATS' 2022-2032 Occupational Outlook, matured with one year of exponential growth (see Occupational Change above).

**Data Source:** Original calculation, derived from values in 2022-2032 KY Occupational Outlook

**Data Element:** 2023 Estimated Employment

**Entry Level Wage** - The most current estimated annual entry-level wages paid to workers in a given occupation.

**Data Sources:** 2024 state-level wage estimates are taken from the Occupational Employment & Wage Statistics (OEWS) program and Local Workforce Area estimates are from KYSTATS' Labor Market Information Branch.

**Data Element:** Entry-level Wage

**Median Annual Wage** - The most current estimated annual median wages paid to workers in a given occupation.

**Data Sources:** 2024 state-level wage estimates are taken from the Occupational Employment & Wage Statistics (OEWS) program and Local Workforce Area estimates are from KYSTATS' Labor Market Information Branch.

**Data Element:** Median Wage

**Experienced Wage** - The most current estimated annual experienced wages paid to workers in a given occupation.

**Data Sources:** 2024 state-level wage estimates are taken from the Occupational Employment & Wage Statistics (OEWS) program and Local Workforce Area estimates are from KYSTATS' Labor Market Information Branch.

**Data Element:** Experienced Wage

**Typical Educational Required for Entry** - The level of educational attainment typically required for entry into an occupation.

**Data Source:** 2022-2032 KY Occupational Outlook

**Data Element:** Typical Education

**Work Experience** - Related work experience typically required for entry into an occupation; Five years or more, Less than five years, None.

**Data Source:** BLS - Occupational Projections Data

**Data Elements:** Work Experience in a related occupation

**On-the-Job Training** - On-the-job-training typically needed to reach competency within an occupation.

**Data Source:** 2022-2032 KY Occupational Outlook

**Data Element:** Typical Training

**Associated Work Skills from ONET** - Data on Knowledge, Skills, Abilities, and Work Activities are from O\*NET and are ranked by their standardized order of importance (This is a score between 0 and 100 and can be found at [www.onetonline.org/help/online/scales](http://www.onetonline.org/help/online/scales)). (These data

are from "O\*NET Online" by the National Center for O\*NET Development. Used under the CC BY 4.0 license.)

**Knowledge** - Organized sets of principles and facts applying in general domains.

**Data Source:** ONET

**Data Elements:** Knowledge

**Skills** - Developed capacities that facilitate learning or the more rapid acquisition of knowledge.

**Data Source:** ONET

**Data Elements:** Skills

**Abilities** - Enduring attributes of the individual that influence performance.

**Data Source:** ONET

**Data Elements:** Abilities

**Activities** - General types of job behaviors occurring on multiple jobs.

**Data Source:** ONET

**Data Elements:** Work Activities

## APPENDIX B: REDACTION RULES

KYSTATS follows strict redaction and suppression guidelines to ensure the privacy of all individuals. The following rules were applied to the Kentucky Future Skills Report to redact or mask some of the data based on the small cell-size counts that could be used to identify individuals. In general, categories must have a base denominator of 10 to be present in the report. If two categories are exhaustive (ex: males and females) and either group has less than 10 students, both groups are redacted. All rules apply at the school, district, and state level. All graphs include data already presented in the report unless otherwise noted. If these data are redacted in the report, they are also redacted in any accompanying charts and graphs.

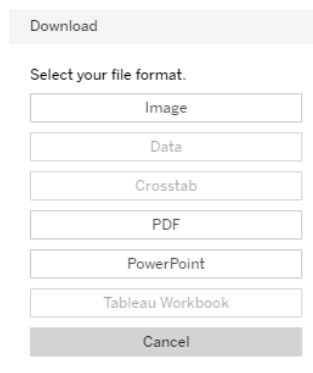
The principles outlined above apply to wage and projected employment metrics as well. Estimates for occupations having employment of 10 or fewer, as well as estimates that reflect a small aggregate number of employers, are redacted in the 2022-2032 Occupational Outlook as well as this report.

## APPENDIX C: PRINTING

### Printing (located at the bottom of the dashboard) - Download a dashboard to PDF



1. Click Download
2. On the Download screen - click PDF



Download

Select your file format.

Image

Data

Crosstab

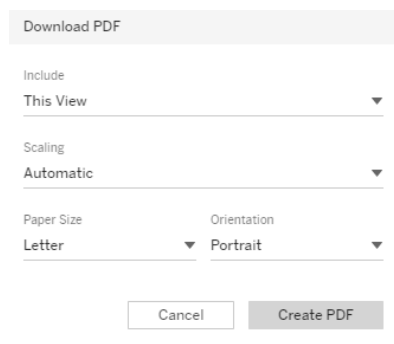
PDF

PowerPoint

Tableau Workbook

Cancel

3. On the Download PDF screen. Set what you want to include, the scaling paper size, and orientation, **then click create PDF.**  
This View under Include, prints the current page.  
Specific sheets from this dashboard (the displayed page) allows you to select specific sheets  
Specific sheets from this workbook (select from all dashboards) allows you to select specific workbooks.



Download PDF

Include  
This View ▼

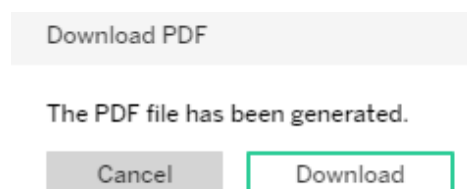
Scaling  
Automatic ▼

Paper Size  
Letter ▼

Orientation  
Portrait ▼

Cancel Create PDF

4. Once your PDF has been generated. Click **Download.**



Download PDF

The PDF file has been generated.

Cancel Download

## APPENDIX D: CLASSIFICATION OF ACADEMIC MAJORS INTO MAJOR GROUPS

Major Group	2-Digit CIP Code	2-Digit CIP Family Title
Arts & Humanities	05	Area, Ethnic, Cultural, Gender, & Group Studies
	16	Foreign Languages, Literatures, & Linguistics
	23	English Language & Literature/Letters
	24	Liberal Arts & Sciences, General Studies & Humanities
	30	Multi/Interdisciplinary Studies
	38	Philosophy & Religious Studies
	39	Theology & Religious Vocations
	50	Visual & Performing Arts
	54	History
Business & Communication	09	Communication, Journalism, & Related Programs
	10	Communications Technologies/Technicians & Support Services
	52	Business, Management, Marketing, & Related Support Services
Education	13	Education
Health	51	Health Professions & Related Programs
Social & Behavioral Sciences & Human Services	19	Family & Consumer Sciences/Human Sciences
	22	Legal Professions & Studies
	25	Library Science
	31	Parks, Recreation, Leisure, & Fitness Studies
	42	Psychology
	44	Public Administration & Social Service Professions
	45	Social Sciences
STEM	01	Agriculture, Agriculture Operations, & Related Sciences
	03	Natural Resources & Conservation
	04	Architecture & Related Services
	11	Computer & Information Sciences & Support Services
	14	Engineering
	15	Engineering Technologies & Engineering-related Fields
	26	Biological & Biomedical Sciences
	27	Mathematics & Statistics
	28	Military Science, Leadership & Operational Art
	40	Physical Sciences
	41	Science Technologies/Technicians
Trades	12	Personal & Culinary Services
	33	Citizenship Activities
	43	Homeland Security, Law Enforcement, Firefighting & Related Protective Services
	46	Construction Trades
	47	Mechanic & Repair Technologies/Technicians
	48	Precision Production
	49	Transportation & Materials Moving

## APPENDIX E: 2018 SOC Code Implementation

This report utilizes the [2018 Standard Occupational Classification System](#). The SOC codes from KYSTATS' 10-year projections and KYSTATS' Occupational Employment and Wage Statistics have been standardized to these codes. Occupational titles and mapping of occupations to postsecondary majors are based on the 2018 SOC system. In the case of hybrid estimate codes, mentioned in the wage section below, the 2018 SOC system occupational title replaces the hybrid occupation title.

### *Openings from KYSTATS' 5-year Projections:*

KYSTATS' 10-year projections utilizes the 2010 SOC system. As a result, the 2010 codes have been cross-walked to the 2018 codes. This process involves the mapping of SOC codes detailed below. In the case of two SOC codes pre-existing in the projections estimate mapping to a single 2018 SOC code, the projected openings are summed and the highest typical education required is displayed. This summation will occur even if one of the collapsed codes had suppressed projections employment and openings (with the suppressed value treated as zero). Note that typical education is a BLS provided field that is mapped to projections.

### *KYSTATS' OEWS (wage) Estimates:*

Beginning with data collection in the November 2018 survey panel, KYSTATS' OEWS program utilized the 2018 SOC system. Because KYSTATS' OEWS estimates are generated using data collected from six surveys over a three-year period, the estimates released during the calendar years 2020 and 2021 will rely on data collected and coded under two different classification systems (2010 SOC and 2018 SOC). As a result, the estimates for these two years will be based on a hybrid of the two classification systems. The estimates published in 2022 will be the first based solely on the new 2018 SOC. In the case where one pre-existing occupation becomes multiple, wage estimates are duplicated where applicable.

Details on the hybrid occupations and the implementation of the 2018 SOC system, including a list of the hybrid occupations, can be found at [https://www.bls.gov/oes/soc\\_2018.htm](https://www.bls.gov/oes/soc_2018.htm)



Summary of SOC Code Mapping across Versions:

	Prior Code	Hybridized Code for OEWS	Future Code
	2010 SOC	OES estimates code 2019	2018 SOC
<b>Possible Scenarios</b>			
<i>One pre-existing occupation becomes multiple:</i>	A	AA	AA
		BB	BB
			CC
<i>Multiple pre-existing occupations collapse into one:</i>	A	AA	AA
	B		
<i>One-to-One (same code/same title):</i>	A	A	A
<i>One-to-One (new code/new title):</i>	A	A	B
<b>Information</b>			
	Education Level Needed	Wage Estimates	SOC to CIP
	Job Openings (Annualized)		Occupation Title