



HAWAI'I P-20  
Partnerships for Education

FEBRUARY 2023

*\*January 2024 update included*

# PROMISING CREDENTIALS IN HAWAI'I

An updated report to identify high-value industry credentials that prepare students for careers in Hawai'i.

[www.hawaii20.org/PromisingCredentials](http://www.hawaii20.org/PromisingCredentials)



# PROMISING CREDENTIALS IN HAWAI‘I

FINAL REPORT  
February 2023

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# INTRODUCTION

## Background

Job seekers in Hawai'i can earn hundreds of industry-recognized credentials right now. Thousands of students are investing time and resources to pursue these credentials with the hope they will lead to a career that enables them to live and thrive in Hawai'i. But how valuable are these credentials to Hawai'i job seekers?

In 2020, Hawai'i conducted a first-of-its-kind analysis for the state to identify the industry-recognized credentials that would support Hawai'i residents in obtaining good paying local jobs. Through labor market analysis and industry outreach, the 2020 Promising Credentials in Hawai'i report<sup>1</sup> identified credentials considered valuable in attaining employment in good paying, in-demand fields in the state. Since that initial analysis, Hawai'i has experienced a pandemic and seen decline, recovery, and growth in many sectors. Moving forward, Hawai'i needs updated workforce guidance on industry needs in an economy and labor market that looks strikingly different than it did in 2020.

This 2023 Promising Credentials in Hawai'i report is an updated analysis that includes an updated list of high-value, industry-recognized credentials supported by current labor market data, as well as supplemental information on local credential attainment.

## What is an Industry-Recognized Credential?

An industry-recognized credential is a verification of an individual's qualification or competence in a certain skill or skillsets that are issued by a third party with the relevant authority to issue such credentials.<sup>2</sup> The term industry-recognized credential can encompass educational certificates, certifications, degrees, and government-issued licenses. An industry-recognized credential can signal to potential employers that a candidate has met certain standards of knowledge and/or training in a particular content area and can be preferred or required in many different occupations.

It should be noted that this report only considered non-degree, industry-recognized credentials. High school diplomas and postsecondary degrees, such as associate, bachelor, master, and doctoral degrees, while considered some of the most commonly requested credentials, were not included as industry-recognized credentials. Instead, postsecondary degrees were considered as an accompanying level of education associated with each industry-recognized credential.

## Our Purpose

As Hawai'i's economy continues to recover from the 2020 COVID-19 pandemic, the local workforce demand has intensified. During the first 9 months of 2022, Hawai'i had 46,400 monthly job openings and 29,600 monthly hires on average, leaving 16,800 positions unfilled each month.<sup>3</sup> Prior to the pandemic, in the first 9 months of 2019, an average of 7,900 positions were left unfilled

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<sup>1</sup> The 2020 Promising Credentials in Hawai'i report can be found at [www.hawaiip20.org](http://www.hawaiip20.org)

<sup>2</sup> U.S. Department of Labor, 2010

<sup>3</sup> DBEDT, <https://dbedt.hawaii.gov/blog/22-54/>

each month. Developing a steady supply of local workers to fill local jobs is essential to Hawai'i's economy, as well as to supporting residents and families seeking to thrive in one of the highest cost-of-living states in the country.

The 2023 Promising Credentials in Hawai'i report aims to inform workforce development efforts in the state and to support those who are newly entering the workforce, as well as those who may be unemployed or underemployed, with the tools and resources needed to succeed in a competitive workforce. The report seeks to clarify and validate the industry-recognized credentials that matter in the current local job market, and to ensure that these Promising Credentials are accessible to local candidates. In Hawai'i, the local availability of training is essential to growing a pool of qualified candidates within the state, as residents may face significant financial barriers to accessing out-of-state trainings. To develop a diverse, skilled workforce, Hawai'i high school students and adult learners alike must have opportunities to acquire in-demand skills and credentials locally.

Across the state since the pandemic, only 51% of public high school graduates enrolled in a postsecondary institution upon graduation.<sup>4</sup> Presumably, this means that nearly half of high school students in the state are likely to enter the workforce immediately after graduation without any postsecondary education. For students who do not enter postsecondary education or training after high school, developing awareness of in-demand careers that pay a living wage is key to setting local students up for future success that includes career(s) in Hawaii.

There is also significant opportunity to upskill Hawai'i's incumbent workers to attain better paying jobs and fulfill industry needs. In addition to unemployed individuals in Hawai'i, averaging 3.7% for 2022, a significant portion of the local labor force is underemployed.<sup>5</sup> Underemployment includes marginally attached workers and workers involuntarily employed part-time. Of Hawai'i's civilian labor force, 7.5% was unemployed or underemployed on average in 2022, representing more than 50,000 individuals in Hawai'i.<sup>6</sup>

This report provides guidance to Hawai'i's current and future workforce on the industry-recognized credentials most often requested by potential employers and informs workforce development efforts within the state.

## Our Process

Through intensive labor market analysis, the 2023 Promising Credentials in Hawai'i report has identified **69 Promising Credentials** that are associated with in-demand, living wage occupations throughout the state. The process began with identifying **284 Promising Occupations** that met wage and demand thresholds. A list of corresponding credentials for the 284 occupations was then compiled using job postings data from [Lightcast](#), a national provider of labor market analytics. Additionally, the report incorporates information collected from certifying entities and local postsecondary institutions that offer many of these credentials in the state. The combined analysis of labor market data, secondary data, and outreach feedback resulted in the 69 Promising Credentials that matter most to Hawai'i employers. A comprehensive description of the analysis and research methods can be found in the methodology section of this report (Appendix B).

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<sup>4</sup> Hawai'i State Department of Education, 2021.

<sup>5</sup> Bureau of Labor Statistics, 2022

<sup>6</sup> Bureau of Labor Statistics, 2022

The data and resulting list of Promising Credentials in this report will continue to be updated on a biannual basis.

## About Promising Credentials Project Team

Led by Hawai'i P-20 Partnerships for Education, the project team for the Promising Credentials in Hawai'i 2023 update included strategic leadership from Hawai'i P-20 Partnerships for Education, Hawaii Department of Education, University of Hawai'i Community Colleges, Hawaii Department of Labor and Industrial Relations, the Chamber of Commerce of Hawaii, and Kamehameha Schools. The project team was supported by Hawai'i-based SMS Research as consulting partners.



# PROMISING CREDENTIALS 2023

The resulting list of credentials was identified through labor market data analysis and targeted industry feedback. Credentials are organized according to their most frequently associated industry group. Each credential is shown with the corresponding number of occupations and unduplicated count of annual job postings that referenced that credential across all industries. There are 69 credentials listed in total. Unique credential resource pages are linked for all Promising Credentials.

Each credential has two indicators for education. Prerequisite Education represents the minimum level of education that is required to pursue a credential. As an example, Basic Life Support certification requires completion of a training course, but there is no prerequisite education required to enroll in that course. Typical Entry Level Education for Associated Occupations is the level of education that is most commonly requested in job postings for occupations associated with that credential. It is not a required education level. For more information on education indicators, refer to Additional Supporting Information.

**Note:** For a list of Promising Credentials added in the January 2024 update, please see [Appendix G: Promising Credentials January 2024 Update](#).

**Table 1: Promising Credentials Identified in Labor Market Analysis**

Architecture & Construction						
Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings	Median Hourly Earnings	Typical Entry Level Education for Associated Occupations
<a href="#">Fundamentals of Engineering (FE)</a>	Bachelor's degree*	None	12	1,930	\$45.04	Bachelor's degree
<a href="#">Journeyman Electrician</a>	High school diploma or GED	18	12	2,525	\$34.64	High school diploma or equivalent
<a href="#">Professional Engineer (PE)</a>	Bachelor's degree*	18	18	4,045	\$39.28	Bachelor's degree
Business, Management & Administration						
Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings	Median Hourly Earnings	Typical Entry Level Education for Associated Occupations
<a href="#">Alliance of Information and Referral Systems (AIRS) Certifications</a>	None	None	13	3,073	\$35.39	Bachelor's degree
<a href="#">Certified Internal Auditor</a>	High school diploma or GED	None	19	6,003	\$39.04	Bachelor's degree
<a href="#">Certified Public Accountant</a>	Bachelor's degree	18	15	5,737	\$39.37	Bachelor's degree

Insurance License	None	18	20	5,331	\$34.96	Bachelor's degree
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\*An alternate pathway to this certification exists via work experience. Please see [https://cca.hawaii.gov/pvl/files/2017/12/Require-App-for-Engineer\\_12.17R.pdf](https://cca.hawaii.gov/pvl/files/2017/12/Require-App-for-Engineer_12.17R.pdf) for more information.

Professional in Human Resources	None	None	18	6,399	\$39.20	Bachelor's degree
Project Management Professional Certification	High school diploma or GED	None	16	3,868	\$43.47	Bachelor's degree
Real Estate Salesperson License	High school diploma or GED	18	20	7,754	\$31.79	High school diploma or equivalent
Senior Professional in Human Resources	None	None	18	6,920	\$38.60	Bachelor's degree
Series 63 Uniform Securities Agent State Law License	None	18	11	3,825	\$34.82	Bachelor's degree

### Education & Training

Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings <sup>7</sup>	Median Hourly Earnings <sup>8</sup>	Typical Entry Level Education for Associated Occupations
Hawai'i Teacher License	Bachelor's degree	18	4	1,228	\$25.41	Bachelor's degree

### Health Science

Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings	Median Hourly Earnings	Typical Entry Level Education for Associated Occupations
Advanced Cardiovascular Life Support (ACLS) Certification	Some postsecondary education	18 (Suggested)	23	5,344	\$35.31	Bachelor's degree
Advanced Practice Registered Nurse (APRN) License	Advanced degree	18	14	4,830	\$38.21	Bachelor's degree
American Medical Technologists (AMT) Certifications	High school diploma or GED	None	19	6,459	\$31.83	High school diploma or equivalent
American Registry of Radiologic Technologists (ARRT) Certifications	Some postsecondary education	None	14	5,471	\$31.52	Bachelor's degree
Basic Life Support (BLS) Certification	None	18 (Suggested)	23	5,177	\$33.44	Bachelor's degree

<sup>7</sup> As a substitute for Lightcast data on Annual Openings for Teachers in the state this study utilizes Hawai'i DOE School Year 2021-22 Annual Hires as an indicator for demand.

<sup>8</sup> As a substitute for Lightcast data on Median Hourly Earnings for Teachers in the state this study utilizes an hourly wage approximation of the starting annual salary (Class II Teacher, Step 5) from the Hawai'i DOE School Year 2022-2023 Annual Rate Salary Schedule.

Board Certified Behavior Analyst	Advanced degree	18	13	6,111	\$31.35	Bachelor's degree
Certified Coding Specialist	None	None	11	4,688	\$36.37	Bachelor's degree
Certified Emergency Nurse (CEN)	Some postsecondary education	18	4	2,859	\$32.23	Bachelor's degree
Certified First Responder	Some postsecondary education	None	17	5,781	\$32.18	High school diploma or equivalent
Certified Medical Assistant	None	None	14	4,390	\$31.31	Postsecondary nondegree award
Certified Nursing Assistant	None	18	18	9,679	\$26.17	High school diploma or equivalent
Certified Pharmacy Technician	None	None	16	6,125	\$33.02	High school diploma or equivalent
Certified Surgical Technologist	None	None	7	2,063	\$28.30	High school diploma or equivalent
Critical Care Registered Nurse (CCRN)	Some postsecondary education	18	3	952	\$48.25	Bachelor's degree
Licensed Nurse Practitioner	Advanced degree	18	18	5,212	\$36.35	Bachelor's degree
Licensed Practical Nurse	None	18	25	7,459	\$33.32	Bachelor's degree
National Healthcareer Association (NHA) Certifications	None	None	13	4,177	\$30.83	Postsecondary nondegree award
Neonatal Resuscitation Program	None	None	12	3,455	\$35.57	Bachelor's degree
NIH Stroke Scale (NIHSS)	None	None	6	2,295	\$31.80	Bachelor's degree
Patient Care Technician	None	None	14	5,731	\$29.38	Bachelor's degree
Pediatric Advanced Life Support	None	None	12	3,414	\$38.40	High school diploma or equivalent
Radiology Certification	Some postsecondary education	18	4	494	\$24.26	High school diploma or equivalent
Registered Dietitian (RD/RDN)	Bachelor's degree	18	11	7,025	\$32.13	Bachelor's degree
Registered Health Information Technician	Some postsecondary education	None	13	6,810	\$33.78	Bachelor's degree



Registered Nurse License	Some postsecondary education	18	8	2,071	\$36.97	Bachelor's degree
Trauma Nurse Core Course (TNCC)	Some postsecondary education	18	6	2,989	\$34.84	High school diploma or equivalent
<b>Hospitality &amp; Tourism</b>						
Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings	Median Hourly Earnings	Typical Entry Level Education for Associated Occupations
Food Handler's Card	None	14 (Suggested)	13	5,403	\$26.62	High school diploma or equivalent
ServSafe Certifications	None	None	16	7,489	\$28.00	No formal educational credential
<b>Human Services</b>						
Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings	Median Hourly Earnings	Typical Entry Level Education for Associated Occupations
Certified Case Manager	Some postsecondary education	None	18	5,353	\$31.16	Bachelor's degree
Cosmetology License	High school diploma or GED	16	3	1,022	\$19.46	Postsecondary nondegree award
Licensed Clinical Social Worker (LCSW)	Advanced degree	18	17	3,788	\$38.05	Bachelor's degree
Licensed Marriage and Family Therapist (LMFT)	Advanced degree	18	19	5,425	\$35.39	Bachelor's degree
Licensed Professional Counselor (LPC)	Advanced degree	18	22	5,343	\$34.53	Bachelor's degree
Licensed Social Worker	Advanced degree	18	19	4,321	\$36.26	Bachelor's degree
Management of Aggressive Behavior (MOAB) Certification	None	None	3	1,041	\$41.40	Bachelor's degree
<b>Information Technology</b>						
Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings	Median Hourly Earnings	Typical Entry Level Education for Associated Occupations
Certified Information Security Manager	None	None	16	4,787	\$41.22	Bachelor's degree
Certified Information System Auditor (CISA)	None	None	17	6,809	\$39.15	Bachelor's degree

Certified Information Systems Security Professional	None	16 to take exam	17	5,681	\$38.01	Bachelor's degree
Cisco Certified Network Associate	None	13 to take exam	15	4,830	\$35.44	Bachelor's degree
Cisco Certified Network Professional	None	13 to take exam	15	3,074	\$41.04	Bachelor's degree
CompTIA Advanced Security Practitioner (CASP+)	None	13 to take exam	14	1,681	\$36.99	Bachelor's degree
CompTIA Cybersecurity Analyst (CySA+)	None	13 to take exam	15	4,801	\$33.22	Bachelor's degree
CompTIA Network+	None	13 to take exam	17	4,670	\$37.05	Bachelor's degree
CompTIA Security+	None	13 to take exam	16	4,614	\$36.98	Bachelor's degree
GIAC Certifications	None	None	16	5,188	\$39.43	Bachelor's degree
GIAC Global Industrial Cyber Security Professional	None	None	17	6,115	\$34.10	Bachelor's degree
GIAC Security Essentials Certification (GSEC)	None	None	16	6,686	\$31.38	Bachelor's degree
IAT Level II Certification	None	None	16	5,347	\$33.91	Bachelor's degree
ITIL Certifications	None	None	17	7,719	\$37.77	Bachelor's degree
Systems Security Certified Practitioner	None	16 to take exam	15	5,119	\$32.97	Bachelor's degree

### Transportation, Distribution & Logistics

Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings	Median Hourly Earnings	Typical Entry Level Education for Associated Occupations
Automotive Service Excellence (ASE) Certifications	None	None	16	4,794	\$27.58	High school diploma or equivalent
CDL Class B License	None	21 for License, 18 for Permit	20	6,809	\$27.42	High school diploma or equivalent
Certified Forklift Operator	None	18	17	4,559	\$25.20	High school diploma or equivalent
Commercial Driver's License (CDL)	None	21 for License, 18 for Permit	20	8,338	\$26.34	High school diploma or equivalent

Drone Pilot Certificate	None	16	7	1,507	\$36.72	High school diploma or equivalent
Transportation Worker Identification Credential (TWIC) Card	None	None	17	8,180	\$28.82	High school diploma or equivalent

## ADDITIONAL SUPPORTING INFORMATION

This report contains additional supporting information on each of the Promising Credentials to assist the local community and learners in better understanding the processes for obtaining these credentials in Hawai'i.

### Accessibility

Many of the credentials listed in this report can be prepared for and completed locally at a postsecondary institution or training facility in Hawai'i (57). The below Promising Credentials have limited local accessibility.

#### Inaccessible Credentials (1)

There is one Promising Credential that appears to be inaccessible for learners to compete in-person in Hawai'i or even online. After multiple attempts to inquire with the certifying agency, there was no response.

- Management of Aggressive Behavior (MOAB) Certification

#### Online Only (11)

For many other Promising Credentials, training programs are only available online. This research was unable to identify any local training programs in Hawai'i.

- Alliance of Information and Referral Systems (AIRS) Certifications
- Certified Case Manager
- CompTIA Cybersecurity Analyst (CySA+)
- Certified Emergency Nurse (CEN)
- Critical Care Registered Nurse (CCRN)
- GIAC Certifications
  - GIAC Global Industrial Cyber Security Professional
  - GIAC Security Essentials Certification
- Insurance License
- NIH Stroke Scale
- Series 63 Uniform Securities Agent State Law License

To ensure local access to relevant trainings and to support industry in providing a local workforce that meets their needs, community leaders should develop new programs prioritizing these trainings.

### Associated Education

Data regarding educational requirements were collected for occupations and credentials included in the analysis. There are two indicators for associated education.

### **Typical Entry-Level Education**

This indicator represents the level of education that is most commonly requested in job postings for occupations associated with credentials. It is not a required education level. Rather, it indicates the level of education that may be expected by potential employers hiring for those occupations and seeking candidates with those credentials.

The typical entry-level education for each occupation is from the Bureau of Labor Statistics' Education and Training Measurements for Workers 15 Years and Older by Detailed Occupation. These data come from a variety of sources, including the Census Bureau's American Community Survey, Occupational Information Network (ONET) and data on postsecondary completion from the National Center for Education Statistics.

It should be noted that entry-level education requirements represent national trends and are not Hawai'i-specific. Employers in Hawai'i may prefer more or less education than is captured in the federal data. For the purposes of the Promising Credentials list, these education levels are used only as additional indicators for learners and do not impact whether credentials are added or removed from the list itself.

### **Prerequisite Education Requirements**

This indicator represents the minimum level of education that is **required** to pursue a credential. As an example, Basic Life Support certification requires completion of a training course, but there is no prerequisite education required to enroll in that course. The prerequisite education levels are: None; high school diploma or GED; some postsecondary education; bachelor's degree; and advanced degree. Prerequisite education requirements are included in the credential resource sheets linked in Table 1 and in the master credential database. This data was collected directly from certifying agencies and educational institutions. If learners do not meet an educational prerequisite, they should contact the certifying agency or educational institution directly for additional information on meeting prerequisites.

## **Credentials versus Skills**

Employers commonly list desired knowledge, experience, or professional skills in job ads. For example, many employers in Human Resources and Accounting may request QuickBooks experience and many IT jobs may require Microsoft or Cloud Computing skills. However, employers do not always include specific credentials in job postings as a means of validating those desired skillsets. Employers use credentials to assess candidates' qualifications in certain instances, but they also recognize that knowledge and skills may be self-taught or developed through work experience.

The Promising Credentials are industry-recognized credentials that Hawai'i employers requested in job postings for in-demand, living wage occupations. Many credentials associated with skillsets commonly sought by Hawai'i employers, such as QuickBooks and Microsoft, were not identified as Promising Credentials because local employers did not request them in job postings. However, this does not mean that the skillsets are not in high demand. Credentials can be used as a tool in validating many in-demand skillsets, but for those not identified as Promising Credentials, industry may also use relevant work experience or other methods to confirm candidates' skills.

## Transferability

The transferability of a credential refers to how transferable a credential is between different Promising Occupations.

Credentials associated with many Promising Occupations are more transferable. These credentials prepare learners with skills and knowledge for a range of priority occupations. They hold value within a high number of occupations, potentially across a range of sectors and industries, and do not limit the holder to one applicable occupation. More transferable credentials can be considered more flexible for learners who prefer having a wider range of occupations to choose from.

Credentials associated with only a few Promising Occupations are considered less transferable. They are often more specialized credentials that prepare learners for a specific occupation and may often be required to hold a position. For some learners, a keen interest in a specific occupation may make certain less transferable credentials an ideal choice.

# RECOMMENDATIONS

1. **DEVELOP IMPROVED CREDENTIAL ACCESSIBILITY LOCALLY.** Of the 69 credentials identified in this analysis, 57 are highly accessible to local learners. The development of new local programs or partnerships with 3<sup>rd</sup> party trainers should be prioritized to ensure these credentials are all accessible to Hawai'i residents. Access to these training programs will help local job seekers become more competitive in the job market and will also support the development of a skilled, local workforce pipeline for industry.
2. **INTEGRATE PROMISING CREDENTIALS WITH EDUCATIONAL AND CAREER PATHWAYS.** Align and integrate the Promising Credentials with K-12 (Hawai'i Department of Education), postsecondary, and career pathways and incentivize more students to complete valuable credentials. Increasing credential integration into these programs will help to standardize the pursuit of credentials and better communicate the availability and combined value of various credentials for students.
3. **IMPROVE LONGITUDINAL TRACKING METRICS FOR CAREER AND TECHNICAL EDUCATION (CTE) AND CREDENTIAL ATTAINMENT.** Continued effort to improve comprehensive data on the availability of certification programs statewide both within K-12 and postsecondary education. Improving data collection and data sharing around credentialing, including credential enrollment, attainment, and career success post attainment, will be essential to planning and decision-making as the prominence of credentials increases in the state.
4. **DEVELOP OR IMPROVE DIGITAL TOOLS THAT ALLOW LEARNERS TO EXPLORE CAREERS, PATHWAYS, AND CREDENTIALS IDENTIFIED IN THIS REPORT.** User-friendly, digital tools for career exploration that allow students to explore the pathways to Promising Occupations and Credentials will help to maximize the use and impact of these data.
5. **INDUSTRY OUTREACH AND EDUCATION.** Increase industry education and awareness of nationally recognized credentials and the credentials that will be incorporated into local education programs. Industry should work towards consistency in requesting skills and credentials in job postings, as well as communicating those preferences regularly to education partners to ensure an accurate reflection of workforce needs and expectations in program design and development.
6. **INCREASED SUPPORT FOR HIGH-DEMAND, LOW-WAGE OCCUPATIONS.** Develop policies to support increased wages or advancement opportunities for in-demand positions that did not meet the wage thresholds for this project (Appendix A, Table 3). Increasing pay and/or advancement opportunities for these positions is essential to preventing worker supply shortages. The number of high-demand, low-wage occupations increased from 38 in the 2020 Promising Credentials in Hawai'i report to 43 in the 2023 report.
7. **CONTINUE TO UPDATE PROMISING CREDENTIALS LIST ANNUALLY.** Develop a systematic process to update this research to facilitate continued alignment between certification programs of focus and evolving industry needs.

## APPENDIX A: TABLES FOR REFERENCE

Table 2 lists the occupations that met wage and demand thresholds that are considered Promising Occupations. The table includes projected job numbers and expected growth, as well as the number of annual job openings for those positions, their median hourly earnings in the state of Hawai'i, and typical entry-level education.

**Table 2: Promising Occupations Identified in Labor Market Analysis**

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Accountants and Auditors	5,679	0.6%	511	\$30.49	Bachelor's degree
Administrative Services Managers	1,541	0.7%	125	\$47.38	Bachelor's degree
Air Traffic Controllers	400	1.8%	40	\$65.99	Associate's degree
Aircraft Mechanics and Service Technicians	2,717	0.5%	231	\$37.48	Postsecondary nondegree award
Airfield Operations Specialists	469	0.2%	48	\$32.31	High school diploma or equivalent
Airline Pilots, Copilots, and Flight Engineers	2,108	1.7%	235	\$91.26	Bachelor's degree
Architects, Except Landscape and Naval	866	4.5%	67	\$37.78	Bachelor's degree
Architectural and Civil Drafters	363	4.6%	37	\$29.20	Associate's degree
Architectural and Engineering Managers	1,069	1.3%	76	\$61.74	Bachelor's degree
Art Directors	308	1.0%	32	\$18.19	Bachelor's degree
Audio and Video Technicians	525	4.4%	55	\$29.51	Postsecondary nondegree award
Automotive Body and Related Repairers	601	1.7%	58	\$22.48	High school diploma or equivalent
Automotive Service Technicians and Mechanics	3,462	1.0%	346	\$22.48	Postsecondary nondegree award
Bakers	1,366	-3.5%	184	\$17.27	No formal educational credential
Bartenders	2,313	-3.9%	408	\$17.75	No formal educational credential
Billing and Posting Clerks	1,231	3.4%	131	\$22.70	High school diploma or equivalent
Biological Scientists, All Other	390	2.6%	36	\$40.57	Bachelor's degree

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Biological Technicians	943	1.7%	119	\$18.93	Bachelor's degree
Bookkeeping, Accounting, and Auditing Clerks	6,175	-4.1%	703	\$22.51	Some college, no degree
Brickmasons and Blockmasons	248	1.6%	26	\$32.56	High school diploma or equivalent
Bus and Truck Mechanics and Diesel Engine Specialists	1,186	-0.8%	111	\$29.00	High school diploma or equivalent
Bus Drivers, School	644	3.2%	83	\$22.77	No formal educational credential
Bus Drivers, Transit and Intercity	1,570	-5.9%	196	\$29.77	High school diploma or equivalent
Business Operations Specialists, All Other	4,625	3.5%	358	\$38.27	Bachelor's degree
Butchers and Meat Cutters	611	0.3%	72	\$22.88	No formal educational credential
Buyers and Purchasing Agents	1,405	-3.4%	143	\$29.85	Bachelor's degree
Captains, Mates, and Pilots of Water Vessels	793	0.5%	85	\$29.27	Postsecondary nondegree award
Cargo and Freight Agents	1,133	2.3%	115	\$17.57	High school diploma or equivalent
Carpenters	7,441	0.0%	699	\$34.23	High school diploma or equivalent
Cement Masons and Concrete Finishers	845	1.3%	80	\$36.20	No formal educational credential
Chefs and Head Cooks	1,202	-1.8%	161	\$36.81	High school diploma or equivalent
Chief Executives	917	0.4%	69	\$101.01	Bachelor's degree
Child, Family, and School Social Workers	1,555	5.0%	152	\$28.95	Bachelor's degree
Civil Engineers	2,615	6.5%	209	\$38.28	Bachelor's degree
Claims Adjusters, Examiners, and Investigators	978	-0.8%	78	\$35.75	High school diploma or equivalent
Clergy	979	6.1%	105	\$26.63	Bachelor's degree
Clinical and Counseling Psychologists	453	2.3%	31	\$48.58	Doctoral or professional degree



Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Clinical Laboratory Technologists and Technicians	1,441	7.7%	108	\$29.25	Bachelor's degree
Coaches and Scouts	1,461	-2.9%	212	\$23.40	Bachelor's degree
Commercial Pilots	603	2.4%	69	\$50.16	High school diploma or equivalent
Community and Social Service Specialists, All Other	1,119	3.4%	120	\$23.86	Bachelor's degree
Community Health Workers	353	11.7%	42	\$17.76	High school diploma or equivalent
Compliance Officers	1,634	3.1%	134	\$32.04	Bachelor's degree
Computer and Information Systems Managers	1,209	1.9%	93	\$59.52	Bachelor's degree
Computer Network Support Specialists	566	0.5%	43	\$31.01	Associate's degree
Computer Occupations, All Other	2,335	5.2%	187	\$46.82	Bachelor's degree
Computer Systems Analysts	2,135	-0.4%	151	\$38.21	Bachelor's degree
Computer User Support Specialists	2,409	-0.6%	181	\$28.88	Some college, no degree
Construction and Building Inspectors	728	2.5%	86	\$29.56	High school diploma or equivalent
Construction Laborers	5,990	2.9%	612	\$25.02	No formal educational credential
Construction Managers	3,638	6.3%	293	\$44.26	Bachelor's degree
Cooks, Fast Food	1,125	3.1%	167	\$18.00	No formal educational credential
Cooks, Institution and Cafeteria	1,175	8.6%	180	\$19.24	No formal educational credential
Cooks, Restaurant	8,256	0.8%	1,233	\$17.87	No formal educational credential
Cooks, Short Order	679	-5.4%	101	\$18.18	No formal educational credential
Correctional Officers and Jailers	1,489	-1.8%	139	\$29.29	High school diploma or equivalent
Cost Estimators	1,076	0.7%	98	\$38.56	Bachelor's degree
Counselors, All Other	353	7.6%	36	\$25.54	Master's degree

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Counter and Rental Clerks	1,208	-10.5%	146	\$18.02	No formal educational credential
Couriers and Messengers	415	6.4%	43	\$17.48	High school diploma or equivalent
Court, Municipal, and License Clerks	577	4.5%	61	\$22.87	High school diploma or equivalent
Customer Service Representatives	7,704	-4.3%	1,004	\$18.07	High school diploma or equivalent
Dental Assistants	1,926	7.1%	240	\$17.98	Postsecondary nondegree award
Dental Hygienists	1,580	6.0%	111	\$37.36	Associate's degree
Dental Laboratory Technicians	205	1.5%	27	\$18.18	High school diploma or equivalent
Dentists, General	1,031	6.1%	39	\$76.25	Doctoral or professional degree
Detectives and Criminal Investigators	604	2.9%	46	\$47.88	High school diploma or equivalent
Dietitians and Nutritionists	454	9.4%	37	\$36.74	Bachelor's degree
Directors, Religious Activities and Education	733	-0.1%	85	\$17.97	Bachelor's degree
Dispatchers, Except Police, Fire, and Ambulance	966	11.0%	102	\$22.67	High school diploma or equivalent
Drywall and Ceiling Tile Installers	921	-1.2%	79	\$36.26	No formal educational credential
Education Administrators, Kindergarten through Secondary	1,810	-4.9%	139	\$47.02	Master's degree
Education Administrators, Postsecondary	633	5.3%	50	\$60.85	Master's degree
Educational Instruction and Library Workers, All Other	1,335	-0.3%	128	\$23.47	Bachelor's degree
Educational, Guidance, and Career Counselors and Advisors	2,422	-2.6%	234	\$29.93	Master's degree
Electrical and Electronic Engineering Technologists and Technicians	430	1.2%	42	\$40.85	Associate's degree
Electrical and Electronics Repairers, Commercial and Industrial Equipment	654	-0.6%	51	\$37.62	Postsecondary nondegree award
Electrical Engineers	1,305	0.2%	85	\$47.79	Bachelor's degree

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Electricians	4,022	4.7%	439	\$36.97	High school diploma or equivalent
Electronics Engineers, Except Computer	527	2.3%	36	\$50.58	Bachelor's degree
Elementary School Teachers, Except Special Education	4,812	-4.0%	369	\$30.28	Bachelor's degree
Eligibility Interviewers, Government Programs	792	3.1%	74	\$22.62	High school diploma or equivalent
Engineering Technologists and Technicians, Except Drafters, All Other	542	1.3%	51	\$37.83	Associate's degree
Engineers, All Other	945	2.9%	64	\$51.91	Bachelor's degree
Environmental Scientists and Specialists, Including Health	477	3.7%	48	\$32.26	Bachelor's degree
Executive Secretaries and Executive Administrative Assistants	1,082	-7.7%	122	\$36.89	High school diploma or equivalent
Exercise Trainers and Group Fitness Instructors	940	-5.9%	155	\$21.67	High school diploma or equivalent
Facilities Managers	679	-3.4%	56	\$47.04	Bachelor's degree
Financial and Investment Analysts	673	2.9%	54	\$38.67	Bachelor's degree
Financial Managers	3,684	4.2%	285	\$49.30	Bachelor's degree
Financial Specialists, All Other	749	2.0%	58	\$37.06	Bachelor's degree
Firefighters	2,091	3.9%	169	\$29.39	Postsecondary nondegree award
First-Line Supervisors of Construction Trades and Extraction Workers	3,565	2.4%	352	\$44.70	High school diploma or equivalent
First-Line Supervisors of Farming, Fishing, and Forestry Workers	349	2.3%	51	\$23.34	High school diploma or equivalent
First-Line Supervisors of Firefighting and Prevention Workers	523	4.4%	37	\$48.24	Postsecondary nondegree award
First-Line Supervisors of Food Preparation and Serving Workers	6,547	0.3%	982	\$20.81	High school diploma or equivalent
First-Line Supervisors of Housekeeping and Janitorial Workers	1,147	-3.8%	142	\$23.21	High school diploma or equivalent
First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	1,190	2.1%	129	\$28.04	High school diploma or equivalent

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
First-Line Supervisors of Mechanics, Installers, and Repairers	3,138	-1.9%	285	\$38.61	High school diploma or equivalent
First-Line Supervisors of Non-Retail Sales Workers	1,371	-6.8%	126	\$30.44	High school diploma or equivalent
First-Line Supervisors of Office and Administrative Support Workers	7,835	-3.8%	801	\$28.97	High school diploma or equivalent
First-Line Supervisors of Personal Service Workers	705	-2.6%	79	\$23.07	High school diploma or equivalent
First-Line Supervisors of Police and Detectives	964	2.8%	66	\$62.25	High school diploma or equivalent
First-Line Supervisors of Production and Operating Workers	1,523	-3.9%	154	\$29.50	High school diploma or equivalent
First-Line Supervisors of Retail Sales Workers	6,049	-6.6%	664	\$21.46	High school diploma or equivalent
First-Line Supervisors of Security Workers	651	0.0%	64	\$25.01	High school diploma or equivalent
First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	2,425	-0.5%	263	\$24.00	High school diploma or equivalent
Flight Attendants	1,836	11.5%	247	\$49.80	High school diploma or equivalent
Food Service Managers	1,240	0.6%	142	\$27.22	High school diploma or equivalent
Forest and Conservation Technicians	215	3.4%	27	\$17.80	Associate's degree
Forest and Conservation Workers	217	0.5%	34	\$16.56	High school diploma or equivalent
Fundraisers	442	8.3%	47	\$29.02	Bachelor's degree
General and Operations Managers	12,854	-0.2%	1,091	\$46.01	Bachelor's degree
Graphic Designers	803	1.6%	79	\$22.96	Bachelor's degree
Hairdressers, Hairstylists, and Cosmetologists	2,722	3.4%	318	\$18.44	Postsecondary nondegree award
Hazardous Materials Removal Workers	406	1.8%	49	\$20.31	High school diploma or equivalent
Health Education Specialists	270	7.1%	30	\$28.65	Bachelor's degree

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Health Information Technologists and Medical Registrars	367	4.0%	28	\$23.25	Postsecondary nondegree award
Health Technologists and Technicians, All Other	490	16.9%	46	\$28.50	Postsecondary nondegree award
Healthcare Practitioners and Technical Workers, All Other	472	1.9%	34	\$23.39	Postsecondary nondegree award
Healthcare Social Workers	825	8.4%	84	\$37.12	Master's degree
Healthcare Support Workers, All Other	2,191	3.6%	275	\$22.29	High school diploma or equivalent
Heating, Air Conditioning, and Refrigeration Mechanics and Installers	1,819	5.6%	185	\$29.01	Postsecondary nondegree award
Heavy and Tractor-Trailer Truck Drivers	4,515	1.5%	504	\$23.66	Postsecondary nondegree award
Helpers--Installation, Maintenance, and Repair Workers	426	0.7%	55	\$22.49	High school diploma or equivalent
Hotel, Motel, and Resort Desk Clerks	1,801	-4.0%	328	\$22.23	High school diploma or equivalent
Human Resources Assistants, Except Payroll and Timekeeping	719	-3.7%	73	\$21.56	Associate's degree
Human Resources Managers	945	-1.2%	77	\$48.98	Bachelor's degree
Human Resources Specialists	3,477	-0.5%	339	\$29.87	Bachelor's degree
Industrial Machinery Mechanics	717	2.3%	65	\$37.28	High school diploma or equivalent
Industrial Truck and Tractor Operators	847	4.2%	97	\$28.10	No formal educational credential
Information and Record Clerks, All Other	1,200	3.0%	133	\$22.88	High school diploma or equivalent
Information Security Analysts	670	7.5%	55	\$47.80	Bachelor's degree
Inspectors, Testers, Sorters, Samplers, and Weighers	568	-3.2%	73	\$26.46	High school diploma or equivalent
Installation, Maintenance, and Repair Workers, All Other	1,040	-2.8%	108	\$33.04	High school diploma or equivalent
Instructional Coordinators	1,106	-2.0%	109	\$37.54	Master's degree

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Insurance Claims and Policy Processing Clerks	699	-1.8%	68	\$22.22	High school diploma or equivalent
Insurance Sales Agents	2,037	4.8%	198	\$24.35	High school diploma or equivalent
Interior Designers	470	5.4%	47	\$27.88	Bachelor's degree
Interpreters and Translators	598	13.5%	66	\$22.60	Bachelor's degree
Interviewers, Except Eligibility and Loan	290	5.1%	38	\$22.44	High school diploma or equivalent
Laborers and Freight, Stock, and Material Movers, Hand	8,103	-0.4%	1,087	\$17.82	No formal educational credential
Landscaping and Groundskeeping Workers	9,932	2.0%	1,330	\$17.52	No formal educational credential
Lawyers	3,205	1.3%	162	\$48.61	Doctoral or professional degree
Legal Secretaries and Administrative Assistants	501	-11.3%	58	\$29.16	High school diploma or equivalent
Librarians and Media Collections Specialists	374	2.7%	36	\$29.84	Master's degree
Library Assistants, Clerical	278	0.7%	43	\$17.34	High school diploma or equivalent
Licensed Practical and Licensed Vocational Nurses	1,524	15.5%	147	\$24.82	Postsecondary nondegree award
Life, Physical, and Social Science Technicians, All Other	650	0.2%	80	\$24.02	Associate's degree
Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	758	2.6%	192	\$22.50	No formal educational credential
Light Truck Drivers	4,135	-1.6%	462	\$18.26	High school diploma or equivalent
Loan Interviewers and Clerks	857	1.2%	77	\$22.81	High school diploma or equivalent
Loan Officers	1,322	3.0%	107	\$30.46	Bachelor's degree
Lodging Managers	289	1.4%	37	\$42.72	High school diploma or equivalent
Logisticians	1,187	3.8%	110	\$40.92	Bachelor's degree

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Maids and Housekeeping Cleaners	7,634	-9.2%	1,130	\$21.09	No formal educational credential
Maintenance and Repair Workers, General	7,681	-2.5%	773	\$22.91	High school diploma or equivalent
Management Analysts	3,861	7.0%	385	\$38.98	Bachelor's degree
Managers, All Other	4,477	4.3%	353	\$42.98	Bachelor's degree
Market Research Analysts and Marketing Specialists	1,908	9.2%	208	\$28.69	Bachelor's degree
Marketing Managers	634	5.7%	58	\$45.31	Bachelor's degree
Massage Therapists	1,842	8.5%	224	\$23.07	Postsecondary nondegree award
Mechanical Engineers	868	3.1%	55	\$38.23	Bachelor's degree
Media and Communication Equipment Workers, All Other	429	3.1%	44	\$43.47	High school diploma or equivalent
Medical and Health Services Managers	2,701	15.4%	262	\$57.49	Bachelor's degree
Medical Assistants	4,052	11.1%	524	\$18.68	Postsecondary nondegree award
Medical Equipment Preparers	232	7.9%	30	\$23.31	High school diploma or equivalent
Medical Equipment Repairers	315	1.0%	33	\$18.25	Associate's degree
Medical Records Specialists	623	5.4%	49	\$23.11	Postsecondary nondegree award
Medical Scientists, Except Epidemiologists	345	4.2%	27	\$37.31	Doctoral or professional degree
Medical Secretaries and Administrative Assistants	1,271	16.3%	161	\$18.06	High school diploma or equivalent
Meeting, Convention, and Event Planners	606	0.5%	69	\$28.59	Bachelor's degree
Mental Health and Substance Abuse Social Workers	832	2.8%	80	\$30.91	Master's degree
Middle School Teachers, Except Special and Career/Technical Education	2,288	-5.3%	174	\$30.63	Bachelor's degree
Miscellaneous Assemblers and Fabricators	648	-3.6%	78	\$17.78	High school diploma or equivalent

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Mobile Heavy Equipment Mechanics, Except Engines	755	0.0%	75	\$34.08	High school diploma or equivalent
Motor Vehicle Operators, All Other	292	1.4%	48	\$22.90	No formal educational credential
Motorboat Operators	418	3.7%	46	\$18.66	Postsecondary nondegree award
Music Directors and Composers	231	5.0%	29	\$36.89	Bachelor's degree
Musicians and Singers	1,099	-1.9%	130	\$36.17	No formal educational credential
Natural Sciences Managers	397	2.6%	29	\$51.76	Bachelor's degree
Network and Computer Systems Administrators	1,609	-2.5%	106	\$46.82	Bachelor's degree
Nurse Practitioners	829	31.2%	76	\$62.79	Master's degree
Nursing Assistants	6,479	9.4%	857	\$17.76	Postsecondary nondegree award
Occupational Health and Safety Specialists	778	0.9%	56	\$37.27	Bachelor's degree
Occupational Therapists	611	10.3%	43	\$45.21	Master's degree
Office and Administrative Support Workers, All Other	2,524	0.8%	282	\$17.86	High school diploma or equivalent
Office Clerks, General	16,669	-4.2%	1,953	\$18.00	High school diploma or equivalent
Operating Engineers and Other Construction Equipment Operators	2,194	0.6%	233	\$37.38	High school diploma or equivalent
Operations Research Analysts	469	7.6%	36	\$47.44	Bachelor's degree
Ophthalmic Medical Technicians	420	5.0%	33	\$17.86	Postsecondary nondegree award
Packaging and Filling Machine Operators and Tenders	384	5.5%	45	\$16.44	High school diploma or equivalent
Painters, Construction and Maintenance	2,817	1.0%	254	\$26.65	No formal educational credential
Paralegals and Legal Assistants	1,345	2.2%	147	\$23.96	Associate's degree
Paramedics	537	1.1%	38	\$31.02	Postsecondary nondegree award



Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Parts Salespersons	748	2.0%	92	\$18.07	No formal educational credential
Passenger Attendants	565	3.5%	84	\$17.50	High school diploma or equivalent
Payroll and Timekeeping Clerks	550	-8.8%	59	\$23.58	High school diploma or equivalent
Personal Financial Advisors	819	3.0%	63	\$33.52	Bachelor's degree
Pest Control Workers	637	2.4%	91	\$18.53	High school diploma or equivalent
Pharmacists	1,059	2.8%	45	\$61.80	Doctoral or professional degree
Pharmacy Technicians	1,737	4.9%	135	\$17.75	High school diploma or equivalent
Phlebotomists	601	14.0%	80	\$19.97	Postsecondary nondegree award
Photographers	1,526	11.3%	172	\$17.97	High school diploma or equivalent
Physical Therapist Assistants	350	25.9%	51	\$29.61	Associate's degree
Physical Therapists	1,510	11.4%	89	\$45.68	Doctoral or professional degree
Physician Assistants	558	17.5%	45	\$42.36	Master's degree
Physicians, All Other	2,178	2.9%	71	\$114.36	Doctoral or professional degree
Plumbers, Pipefitters, and Steamfitters	2,897	4.5%	311	\$34.47	High school diploma or equivalent
Police and Sheriff's Patrol Officers	3,694	3.5%	303	\$37.76	High school diploma or equivalent
Postal Service Clerks	401	3.6%	35	\$30.87	High school diploma or equivalent
Postal Service Mail Carriers	1,287	3.7%	99	\$24.92	High school diploma or equivalent
Postal Service Mail Sorters, Processors, and Processing Machine Operators	397	1.3%	35	\$22.97	High school diploma or equivalent

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Postsecondary Teachers	9,168	3.9%	934	\$35.91	Doctoral or professional degree
Power Plant Operators	507	-10.9%	52	\$47.44	High school diploma or equivalent
Preschool Teachers, Except Special Education	1,380	3.8%	145	\$17.70	Associate's degree
Producers and Directors	829	11.3%	84	\$24.09	Bachelor's degree
Production Workers, All Other	299	1.7%	34	\$19.79	High school diploma or equivalent
Production, Planning, and Expediting Clerks	1,173	1.0%	121	\$23.56	High school diploma or equivalent
Project Management Specialists	2,111	5.2%	169	\$31.53	Bachelor's degree
Property Appraisers and Assessors	344	0.3%	27	\$33.77	Bachelor's degree
Property, Real Estate, and Community Association Managers	2,562	-0.7%	197	\$31.38	High school diploma or equivalent
Protective Service Workers, All Other	252	5.9%	64	\$17.93	High school diploma or equivalent
Psychologists, All Other	441	5.8%	33	\$43.37	Master's degree
Public Relations Managers	323	0.6%	28	\$49.52	Bachelor's degree
Public Relations Specialists	1,330	2.5%	126	\$29.54	Bachelor's degree
Public Safety Telecommunicators	262	7.4%	26	\$22.92	High school diploma or equivalent
Purchasing Managers	323	1.3%	25	\$48.94	Bachelor's degree
Radiologic Technologists and Technicians	752	9.5%	63	\$37.68	Associate's degree
Real Estate Brokers	1,046	3.9%	96	\$30.43	High school diploma or equivalent
Real Estate Sales Agents	2,981	4.6%	276	\$25.32	High school diploma or equivalent
Receptionists and Information Clerks	4,065	1.9%	519	\$17.57	High school diploma or equivalent
Refuse and Recyclable Material Collectors	783	5.7%	109	\$23.05	No formal educational credential

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Registered Nurses	13,375	7.1%	846	\$53.30	Bachelor's degree
Rehabilitation Counselors	411	3.5%	40	\$18.61	Master's degree
Reservation and Transportation Ticket Agents and Travel Clerks	1,580	1.9%	182	\$22.50	High school diploma or equivalent
Respiratory Therapists	402	12.9%	27	\$37.31	Associate's degree
Roofers	1,109	3.3%	115	\$23.91	No formal educational credential
Sailors and Marine Oilers	341	5.2%	43	\$25.44	No formal educational credential
Sales Managers	1,615	-4.4%	142	\$48.87	Bachelor's degree
Sales Representatives of Services, Except Advertising, Insurance, Financial Services, and Travel	3,582	-0.9%	421	\$28.90	High school diploma or equivalent
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	3,475	-3.0%	349	\$23.26	High school diploma or equivalent
Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	514	-3.2%	52	\$47.20	Bachelor's degree
Secondary School Teachers, Except Special and Career/Technical Education	7,610	-7.0%	553	\$29.83	Bachelor's degree
Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	7,753	-4.8%	857	\$22.47	High school diploma or equivalent
Securities, Commodities, and Financial Services Sales Agents	771	2.4%	69	\$29.27	Bachelor's degree
Security and Fire Alarm Systems Installers	333	13.3%	39	\$23.83	High school diploma or equivalent
Security Guards	10,023	2.8%	1,336	\$17.58	High school diploma or equivalent
Self-Enrichment Teachers	2,300	-2.5%	279	\$22.79	High school diploma or equivalent
Sheet Metal Workers	590	2.6%	57	\$36.72	High school diploma or equivalent
Shipping, Receiving, and Inventory Clerks	1,669	-6.3%	167	\$18.17	High school diploma or equivalent
Skincare Specialists	341	9.3%	40	\$18.49	Postsecondary nondegree award

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Social and Community Service Managers	1,058	6.7%	99	\$30.27	Bachelor's degree
Social and Human Service Assistants	3,433	5.2%	417	\$17.80	High school diploma or equivalent
Social Scientists and Related Workers, All Other	469	1.5%	42	\$46.95	Bachelor's degree
Social Workers, All Other	373	5.4%	37	\$42.98	Bachelor's degree
Software Developers	2,651	11.1%	233	\$48.52	Bachelor's degree
Solar Photovoltaic Installers	528	17.6%	71	\$28.25	High school diploma or equivalent
Special Education Teachers, Kindergarten and Elementary School	313	8.7%	27	\$30.72	Bachelor's degree
Speech-Language Pathologists	401	17.6%	34	\$45.29	Master's degree
Substance Abuse, Behavioral Disorder, and Mental Health Counselors	1,430	10.7%	152	\$25.69	Bachelor's degree
Substitute Teachers, Short-Term	2,517	-7.3%	301	\$23.86	Bachelor's degree
Surgical Technologists	353	10.7%	30	\$28.96	Postsecondary nondegree award
Surveying and Mapping Technicians	278	4.5%	36	\$23.24	High school diploma or equivalent
Surveyors	371	3.1%	33	\$29.13	Bachelor's degree
Teachers and Instructors, All Other	1,993	1.5%	230	\$23.08	Bachelor's degree
Teaching Assistants, Postsecondary	558	6.1%	55	\$22.54	Bachelor's degree
Telecommunications Equipment Installers and Repairers, Except Line Installers	952	-1.2%	108	\$29.44	Postsecondary nondegree award
Telecommunications Line Installers and Repairers	1,027	-6.0%	114	\$37.14	High school diploma or equivalent
Tellers	1,953	-7.3%	211	\$17.81	High school diploma or equivalent
Tile and Stone Setters	669	3.7%	61	\$35.60	No formal educational credential
Tire Repairers and Changers	224	3.7%	27	\$21.39	High school diploma or equivalent
Tour and Travel Guides	562	-9.1%	98	\$17.03	High school diploma or equivalent

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Training and Development Specialists	1,218	2.0%	115	\$29.74	Bachelor's degree
Transportation Security Screeners	1,126	1.5%	100	\$22.05	High school diploma or equivalent
Transportation, Storage, and Distribution Managers	691	-0.6%	53	\$49.04	High school diploma or equivalent
Tree Trimmers and Pruners	297	6.5%	41	\$20.86	High school diploma or equivalent
Urban and Regional Planners	512	3.4%	46	\$39.61	Master's degree
Veterinarians	471	13.8%	25	\$45.54	Doctoral or professional degree
Veterinary Assistants and Laboratory Animal Caretakers	630	13.3%	109	\$17.44	High school diploma or equivalent
Veterinary Technologists and Technicians	363	20.2%	35	\$18.63	Associate's degree
Water and Wastewater Treatment Plant and System Operators	516	0.6%	48	\$29.49	High school diploma or equivalent
Welders, Cutters, Solderers, and Brazers	875	-1.7%	96	\$29.24	High school diploma or equivalent
Writers and Authors	625	3.6%	63	\$18.55	Bachelor's degree

There were 43 occupations identified that met demand thresholds but did not meet wage thresholds. These are positions that are in demand and needed to sustain our communities and our economy, yet they do not pay a living wage. The wage threshold applied to this list was based off the 2020 ALICE Report.

**Table 3: High Demand Occupations that did not meet Wage Thresholds**

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Agricultural Equipment Operators	309	4.7%	51	\$14.15	No formal educational credential
Agricultural Workers, All Other	656	0.0%	105	\$15.37	No formal educational credential
Amusement and Recreation Attendants	1,637	-1.9%	353	\$13.83	No formal educational credential
Animal Caretakers	1,102	7.9%	171	\$14.05	High school diploma or equivalent
Baggage Porters and Bellhops	575	-11.1%	84	\$13.73	High school diploma or equivalent
Cashiers	14,095	-7.5%	2,672	\$13.98	No formal educational credential
Childcare Workers	3,451	-2.8%	505	\$13.23	High school diploma or equivalent
Cleaners of Vehicles and Equipment	1,272	-3.1%	184	\$14.41	No formal educational credential
Dining Room and Cafeteria Attendants and Bartender Helpers	2,476	-4.1%	447	\$11.60	No formal educational credential
Dishwashers	2,909	-7.9%	484	\$14.07	No formal educational credential
Door-to-Door Sales Workers, News and Street Vendors, and Related Workers	394	1.0%	51	\$9.22	No formal educational credential
Driver/Sales Workers	1,873	3.4%	213	\$13.75	High school diploma or equivalent
Farmers, Ranchers, and Other Agricultural Managers	2,531	-5.4%	258	\$13.56	High school diploma or equivalent

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Farmworkers and Laborers, Crop, Nursery, and Greenhouse	3,073	2.8%	504	\$13.55	No formal educational credential
Farmworkers, Farm, Ranch, and Aquacultural Animals	829	-2.2%	135	\$13.70	No formal educational credential
Fast Food and Counter Workers	19,510	3.0%	4,002	\$13.75	No formal educational credential
Fine Artists, Including Painters, Sculptors, and Illustrators	395	13.2%	46	\$6.64	Bachelor's degree
Food Batchmakers	394	-1.3%	50	\$14.37	High school diploma or equivalent
Food Preparation Workers	4,955	-3.0%	859	\$14.73	No formal educational credential
Food Servers, Nonrestaurant	682	11.4%	114	\$14.64	No formal educational credential
Home Health and Personal Care Aides	10,876	13.3%	1,494	\$14.17	High school diploma or equivalent
Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	1,748	-6.6%	420	\$14.10	No formal educational credential
Janitors and Cleaners, Except Maids and Housekeeping Cleaners	12,659	-2.3%	1,701	\$14.52	No formal educational credential
Laundry and Dry-Cleaning Workers	1,163	-8.0%	163	\$13.69	No formal educational credential
Manicurists and Pedicurists	901	12.6%	109	\$13.48	Postsecondary nondegree award
Meat, Poultry, and Fish Cutters and Trimmers	308	1.7%	37	\$14.26	No formal educational credential
Merchandise Displayers and Window Trimmers	915	-2.9%	86	\$14.33	High school diploma or equivalent
Military-only occupations	25,637	-1.6%	2,810	\$15.48	N/A
Packers and Packagers, Hand	1,937	-6.7%	281	\$14.03	No formal educational credential
Parking Attendants	1,004	-17.4%	169	\$13.30	No formal educational credential

Description	2027 Projected Jobs	2022 - 2027 % Change	Annual Openings	Median Hourly Earnings	Typical Entry Level Education
Personal Care and Service Workers, All Other	997	0.2%	135	\$13.82	High school diploma or equivalent
Recreation Workers	1,710	1.4%	270	\$14.21	High school diploma or equivalent
Religious Workers, All Other	203	6.3%	28	\$11.51	Bachelor's degree
Residential Advisors	598	1.9%	86	\$15.16	High school diploma or equivalent
Retail Salespersons	16,257	-10.7%	2,419	\$14.32	No formal educational credential
Sales and Related Workers, All Other	756	0.4%	101	\$14.42	High school diploma or equivalent
Shuttle Drivers and Chauffeurs	1,811	21.2%	256	\$14.41	No formal educational credential
Stockers and Order Fillers	9,004	1.5%	1,404	\$14.91	High school diploma or equivalent
Taxi Drivers	2,918	21.1%	406	\$12.63	No formal educational credential
Teaching Assistants, Except Postsecondary	5,081	-3.9%	487	\$14.61	Some college, no degree
Tutors	1,512	-1.4%	182	\$14.62	Bachelor's degree
Ushers, Lobby Attendants, and Ticket Takers	673	-10.5%	164	\$13.98	No formal educational credential
Waiters and Waitresses	8,728	-7.0%	1,762	\$13.65	No formal educational credential



# APPENDIX B: METHODOLOGY

## Identification of Promising Occupations

To tackle the identification of credentials that lead to good jobs in the state of Hawai'i, the project team first identified a set of promising occupations that offer abundant opportunities and good wages in the state. This analysis leverages data from Lightcast (formally known as EMSI), a labor market data provider that aggregates data from both traditional government sources as well as through job ads, online profiles, and resumes. The dataset was pulled in September of 2022. The number of job postings provides a quantifiable approach to the volume of jobs. There were 688 occupations in Hawai'i with wage and demand data available in Lightcast. Three indicators for demand and one indicator for wage were used to classify occupations.

1. Growth projections from 2022 to 2027: Change in number of jobs for each occupation, using 2022 baseline job numbers and 2027 job projections, as calculated by Lightcast, September 2022;
2. Annual job openings, as identified in Lightcast data between September 2021 to September 2022;
3. Total unduplicated positions for each occupation, as identified in Lightcast data, September 2022;
4. Median hourly earnings, as reported in Lightcast, September 2022.

## Demand Thresholds

Occupational demand thresholds represent a combination of occupational growth projections, annual job openings, and total volume of positions in each occupation. In reviewing these data, two main groups of occupations emerged – those that have a high volume of positions and annuals openings within the state (250 or more total positions and at least 50 annual openings) and those that have fewer total positions but are growing (at least 25 annual openings and positive growth projections).

**Table 4: Demand Thresholds**

Demand Thresholds
250+ total positions, 50+ annual openings
Positive growth, 25+ annual openings

## Wage Thresholds

Leveraging the [ALICE report](#), published by Aloha United Way in 2020, this report uses the ALICE individual living wage threshold (\$15.53/hour). Aloha United Way published an [updated ALICE report](#) in 2022 but has not yet adjusted this individual living wage threshold for the state of Hawai'i. All occupations on the Promising Occupations list met this minimum hourly wage threshold.

**Table 5: Wage Thresholds**

Median Hourly Wage	Wage Threshold
\$0.00-\$15.52	Below living wage
\$15.53+	ALICE Individual

Of all occupations considered in this analysis, Table 6 shows the breakdown of occupations within each category of demand and wage threshold.

**Table 6: Occupations by Demand and Wage Threshold**

Demand Threshold Groups	Below ALICE Individual	ALICE Individual
250+ jobs, 50+ openings	40	210
Positive growth, 25+ openings	3	74
Below Demand Threshold	31	330

The final occupation analysis resulted in the identification of more than 280 Promising Occupations for the State of Hawai'i, shown in Appendix A, Table 2.

**Table 7: Occupation Analysis Breakdown**

Classification	Number of Occupations
Total Occupations Considered	688
Did Not Meet Thresholds	404
Total Promising Occupations included in Analysis	284

## Identifying Promising Credentials

Using Lightcast qualifications data, an examination of credentials that appear in job ads for all occupations in Hawai'i was completed. These data capture the qualifying factors that employers list in job ads, including credentials and in some cases degrees. Overall, there were 93 unique credentials within 2,080 valid qualification and occupation pairings for the state of Hawai'i.

To identify Promising Credentials, only qualifications appearing in job ads for the 284 Promising Occupations in Hawai'i were selected for analysis. All Promising Credentials that were selected for the final list were requested in a minimum of 60 job ads for at least 1 Promising Occupation, though the median number of jobs ads requesting each credential was much higher (762 job ads per credential). Each credential also appeared in job ads for at least 3 priority occupations.

The data was subsequently cleaned, and several credentials were excluded from the analysis for the reasons detailed below. Three credentials were added to the analysis. The final analysis resulted in 69 Promising Credentials within 1,000 valid qualification and occupation pairings.

## Credentials Added

Generally, to maintain the integrity of the analysis, credentials that did not emerge as relevant in the labor market data were not included. However, after careful consideration, the project team made three exceptions.

### **Hawai'i Teacher License**

After reviewing the occupations list in the Lightcast dataset, it was observed that the demand data for secondary educators within the state was significantly underrepresented. It was learned that the database used by the Hawai'i Department of Education (DOE) to post positions does not feed into the Lightcast dataset. After collecting similar data points from the DOE, such as demand and wage information, it was confirmed that this occupation and credential met the thresholds for inclusion in the analysis.

### **Journeyman Electrician**

Journeyman Electrician was on the Promising Credentials list in the 2020 report. However, this credential did not appear in the Lightcast dataset for the 2023 report update. As Electricians are on the 2023 list of Promising Occupations, along with 11 other occupations that were associated with Journeyman Electrician in the 2020 report, this credential met the thresholds for inclusion in the analysis.

### **Registered Nurse License**

National Council Licensure Examination, Registered Nurse was also on the Promising Credentials list in the 2020 report, but did not appear in the 2023 Lightcast dataset. Given that Registered Nurses are on the 2023 list of Promising Occupations, along with 7 other occupations that were associated with the National Council Licensure Examination, Registered Nurse in the 2020 report, this credential met the thresholds for inclusion in the analysis. As passing the national examination is just one of the requirements to attain an RN license in Hawai'i, the credential was renamed Registered Nurse License for clarity.

## Credentials Excluded from Analysis

The raw data from Lightcast included credentials that were excluded from the analysis or combined for various reasons under the guidance of the Project Team.

The data was first cleaned to ensure accuracy. This entailed removing duplicates due to spelling errors and references to the same credential using different titles (e.g., Licensed Vocational Nurse and Licensed Practical Nurse), as well as removing listings that were not considered industry-recognized credentials, such as advanced educational degrees (e.g., MBA, Doctor of Pharmacy).

In addition to this basic data cleaning, the Project Team decided to remove several credentials from the list for the reasons indicated below.

### **Not Attainable without Employer Sponsorship**

Security Clearance

Air Operations Area (AOA) Badge

Secured Identification Display Area (SIDA) Badge

### **Credential Retired**

Microsoft Certified Systems Administrator (retired by Microsoft in 2021)

Microsoft Certified Systems Engineer (retired by Microsoft in 2021)

## Postsecondary and Industry Outreach

SMS worked with the Project Team to conduct outreach with postsecondary and industry stakeholders in the state. While the overall project analysis relied primarily on the Labor Market data, the outreach strategy was developed specifically to collect information on local training programs and to validate the industry-recognized credentials.

The team implemented an online survey for postsecondary educators and administrators, conducted one-on-one interviews with local industry associations and executives, and circulated a draft list of credentials among key stakeholder groups to clarify data. Outreach feedback was not intended to be representative of all employers in Hawai'i, but rather to identify gaps for further inquiry.

## Postsecondary Survey

After conducting extensive data collection from public sources regarding the availability of training programs in Hawai'i, SMS incorporated a postsecondary survey that was distributed to all postsecondary institutions in the state. This survey was completed by 10 of the 13 institutions contacted and helped ensure comprehensive program inclusion in the dataset. The survey can be found in Appendix D: Postsecondary Survey.

## Industry Outreach Summary

The original 2020 Promising Credentials in Hawai'i report incorporated an industry survey and focus groups to gather information and attempt to validate the analysis. Due to limited sample size, response rates, and the challenges of gathering business stakeholders for the research, this

qualitative data added color to the analysis, but did not influence the resulting list of 2020 Promising Credentials. For the 2023 report update, industry outreach focused on one-on-one interviews with key stakeholders with expertise in workforce development in their respective sectors. These interviews were conducted throughout the project life cycle as needed to clarify data collection and analysis.

# APPENDIX C: RELATED CREDENTIALS

## Credential Groups

Several Promising Credentials are either a group of credentials offered by the same provider or are part of a credential group. All of the **bolded** credential groups and individual credentials listed below are **Promising Credentials**. Individual credentials within groups vary by specialization and/or level of expertise.

- In some cases, both a credential group and an individual credential within the group are Promising Credentials. For example, both American Registry of Radiologic Technologists Certifications, a credential group, and Radiology Certification, a credential in that group, are Promising Credentials.
- In other cases, individual credentials in a group are Promising Credentials, but the credential group is not a Promising Credential. For example, Professional in Human Resources and Senior Professional in Human Resources are Promising Credentials, but their credential group, HR Certification Institute Certifications, is not a Promising Credential.

### *Business, Management & Administration:*

#### Credential Group: Alliance of Information and Referral Systems (AIRS) Certifications (3 Certifications)

- Certification for Community Resource Specialist
- Certification for Community Resource Specialist – Aging/Disabilities
- Certification for Community Resource Specialist – Database Curator

#### Credential Group: HR Certification Institute Certifications (8 Certifications)

- Associate Professional in Human Resources
- Associate Professional in Human Resource – International
- **Professional in Human Resources**
- Professional in Human Resources – International
- Professional in Human Resources – California
- **Senior Professional in Human Resources**
- Senior Professional in Human Resources – International
- Global Professional in Human Resources

### *Health Science:*

#### Credential Group: American Heart Association Certifications

- **Basic Life Support (BLS)**
- **Advanced Cardiovascular Life Support (ACLS)**
- **Pediatric Advanced Life Support**

#### Credential Group: American Health Information Management Association Certifications (8 Certifications)

- **Registered Health Information Technician**
- Registered Health Information Administrator
- Certified Coding Associate
- **Certified Coding Specialist**
- Certified Coding Specialist – Physician-based

- Certified Documentation Integrity Practitioner
- Certified Health Data Analyst
- Certified in Healthcare Privacy and Security

Credential Group: **American Medical Technologists (AMT) Certifications**  
(11 Certifications)

- Medical Assistant
- Medical Laboratory Scientist
- Phlebotomy Technician
- Medical Laboratory Technician
- Molecular Diagnostics Technician
- Medical Laboratory Assistant
- Medical Administrative Specialist
- Patient Care Technician
- Dental Assistant
- Allied Health Instructor
- Certified Laboratory Consultant

Credential Group: **American Registry of Radiologic Technologists Certifications**  
(13 Certifications)

- Bone Densitometry
- Breast Sonography
- Cardiac Interventional Radiography
- Computed Tomography
- Magnetic Resonance Imaging
- Mammography
- Nuclear Medicine Technology
- Radiation Therapy
- **Radiology Certification (Radiography)**
- Registered Radiologist Assistant
- Sonography
- Vascular Interventional Radiography
- Vascular Sonography

Credential Group: **National Healthcareer Association (NHA) Certifications**  
(8 Certifications)

- Certified Clinical Medical Assistant
- Certified Pharmacy Technician
- Certified Phlebotomy Technician
- Certified Medical Administrative Assistant
- Certified EKG Technician
- Certified Electronic Health Records Specialist
- Certified Medical Billing and Coding Specialist
- **Certified Patient Care Technician**

Credential Group: **Nursing Licenses**

- **Licensed Practical Nurse**
- **Registered Nurse License**
- **Advanced Practice Registered Nurse (APRN) License**

APRN Types:

- Certified Nurse Midwife
- Certified Registered Nurse Anesthetist
- Clinical Nurse Specialist
- **Nurse Practitioner**

*Information Technology:*

Credential Group: Cisco Certifications

Cisco offers 20 certifications across Entry, Associate, Professional, and Expert levels. To see a comprehensive list of Cisco certification options please visit the [certifier's website](#).

- Certified Support Technician – Networking
- Certified Support Technician – Cybersecurity
- **Certified Network Associate**
- Certified CyberOps Associate
- **Certified Network Professional**
- Certified CyberOps Professional
- Certified Internetwork Expert

Credential Group: CompTIA Certifications (14 Certifications)

- CompTIA IT Fundamentals
- CompTIA A+
- **CompTIA Network+**
- **CompTIA Security+**
- CompTIA Cloud+
- CompTIA Linux+
- CompTIA Server+
- **CompTIA Cybersecurity Analyst (CySA+)**
- **CompTIA Advanced Security Practitioner (CASP+)**
- CompTIA PenTest+
- CompTIA Data+
- CompTIA Project+
- CompTIA CTT+
- CompTIA Cloud Essentials+

Credential Group: GIAC Certifications

More than 40 GIAC certifications are offered across 6 focus areas: Offensive Operations, Cyber Defense, Cloud Security, Industrial Control Systems, Digital Forensics & Incident Response, and Management, Legal & Audit. To see a comprehensive list of GIAC certification options please visit the [certifier's website](#). Below are the individual GIAC certifications that are Promising Credentials.

- **GIAC Global Industrial Cyber Security Professional**
- **GIAC Security Essentials**

Credential Group: ISACA Certifications (5 Certifications)

- **Certified Information System Auditor**
- **Certified Information Security Manager**
- Certified in Risk and Information Systems Control
- Certified Data Privacy and Solutions Engineer



- Certified in the Governance of Enterprise IT

Credential Group: (ISC)2 Certifications (7 Certifications)

- Certified in Cybersecurity
- **Certified Information Systems Security Professional (CISSP)**
- **Systems Security Certified Practitioner (SSCP)**
- Certified Cloud Security Professional (CCSP)
- Certified Authorization Professional (CAP)
- Certified Secure Software Lifecycle Professional (CSSLP)
- HealthCare Information Security and Privacy Practitioner (HCISPP)

Credential Group: ITIL Certifications

More than 15 ITIL certifications are offered at Foundation, Intermediate, and Advanced levels. Examples of certifications at each level of expertise are listed below. To see a comprehensive list of ITIL certification options please visit the [certifier's website](#).

- ITIL 4 Foundational
- ITIL Practitioner
- ITIL4 Leader: Digital and IT Strategy

*Transportation, Distribution & Logistics:*

Credential Group: Automotive Service Excellence (ASE) Certifications

ASE includes 57 certification tests for a variety of vehicle types and specializations. To see a comprehensive list of ASE certification options please visit the [certifier's website](#).

Credential Group: Commercial Driver's License (CDL)

There are 3 classifications of commercial driver's licenses: Class A, B, and C. Classification is based on gross vehicle weight rating and whether the vehicle requires a passenger or hazardous endorsement.

- CDL Class A (Truck/Tractor and trailer that exceeds 26,0001 GVWR)
- **CDL Class B** (Vehicle with a GVWR of 26,001)
- CDL Class C (Vehicle that does not meet the GVW of Class B but requires a passenger or hazardous endorsement)

## Promising Credentials with Shared Value

The Promising Credentials below fulfill requirements to obtain other Promising Credentials.

- **Cisco Certified Network Associate-Security, CompTIA Cybersecurity Analyst (CySA+), GIAC Global Industrial Cyber Security Professional, GIAC Security Essentials, CompTIA Security+, or (ISC)2 Systems Security Certified Practitioner**  
These certifications are all [approved baseline certifications](#) by the U.S. Department of Defense for **IAT Level II Certification**. Any one of the approved certifications meets the minimum requirement for IAT Level II.
- **Fundamentals of Engineering (FE)**  
Passing the Fundamentals of Engineering (FE) exam is one of the requirements for [licensure](#) as a **Professional Engineer** in Hawai'i. Candidates must also pass the Principles and Practice of Engineering (PE) Exam for their engineering discipline and meet the minimum years of lawful experience based on their education level before becoming a Professional Engineer.
- **ServSafe Certification: Food Handler**  
This certification fulfills the training requirement for a **Food Handler's Card**, as ServSafe is considered an [accredited training provider](#) by the Hawai'i Department of Health.

# APPENDIX D: POSTSECONDARY SURVEY

Below is an example of the series of questions asked to survey respondents.

## Postsecondary Survey

**Question 2: Does your institution offer any of the industry credentials listed below to students? (Check all that apply).**

### Architecture & Construction

- Automotive Service Excellence (ASE) Certification
- Fundamentals of Engineering (FE)
- Professional Engineer

### Business, Management & Administration

- Alliance of Information and Referral Systems (AIRS) Certification
- Certified Internal Auditor
- Certified Public Accountant
- Insurance License
- Professional in Human Resources
- Project Management Professional Certification
- Real Estate Salesperson License
- Senior Professional in Human Resources
- Series 63 Uniform Securities Agent State Law License

### Education & Training

- Hawaii Teacher License

### Health Science

- Advanced Cardiovascular Life Support Certification (ACLS)
- Advanced Practice Registered Nurse
- American Medical Technologists (AMT) Certification
- American Registry of Radiologic Technologists (ARRT) Certification
- Basic Life Support (BLS) Certification
- Board Certified Behavior Analyst
- Certified Coding Specialist
- Certified Emergency Nurse (CEN)
- Certified First Responder
- Certified Medical Assistant
- Certified Nursing Assistant
- Certified Pharmacy Technician
- Certified Surgical Technologist
- Critical Care Registered Nurse (CCRN)
- Licensed Practical Nurse
- Licensed Vocational Nurse
- Neonatal Resuscitation Program
- NHA Certified
- NIH Stroke Scale (NIHSS)
- Nurse Practitioner
- Patient Care Technician
- Pediatric Advanced Life Support
- Radiology Certification
- Registered Dietician
- Registered Health Information Technician
- Trauma Nurse Core Course (TNCC)

### Hospitality & Tourism

- Food Handler's Card
- ServSafe Certification

### Human Services

- Certified Case Manager
- Cosmetology License
- Licensed Clinical Social Worker (LCSW)
- Licensed Marriage and Family Therapist (LMFT)
- Licensed Professional Counselor
- Licensed Social Worker
- Management of Aggressive Behavior (MOAB) Certification

### Information Technology

- AWS Cloud Foundations
- Certified Information Security Manager
- Certified Information System Auditor
- Certified Information Systems Security Professional
- Cisco Certified Network Associate
- Cisco Certified Network Professional
- CompTIA A+
- CompTIA Advanced Security Practitioner (CASP+)
- CompTIA Cybersecurity Analyst (CySA+)
- CompTIA Network+
- CompTIA Security+
- GIAC Certifications
- GIAC Global Industrial Cyber Security Professional
- GIAC Security Essentials Certification (GSEC)
- IAT Level II Certification
- ITIL Certifications
- Systems Security Certified Practitioner
- Drone Pilot Certificate

### Transportation, Distribution & Logistics

- CDL Class B License
- Certified Forklift Operator
- Commercial Driver's License (CDL)
- Transportation Worker Identification Credential (TWIC)

**Question 3: Please specify which programs/departments offer these credentials.**

[Selections piped from Question 2]

**Question 4: What is the cost to obtaining each of these credentials at your institution?**

[Selections piped from Question 2]

**Question 5: Please provide a link to any additional resources and information regarding each of these credentials at your institution.**

[Selections piped from Question 2]

## APPENDIX E: PRIMARY DATA SOURCES

**ALICE Report** – Completed every two years, the ALICE report measures financial hardship to understand why so many households struggle to make ends meet. Each ALICE report contains data on household budgets, demographics, employment opportunities, housing affordability, public and private assistance, and other critical economic factors. For more information on ALICE research, see [www.unitedforalice.org](http://www.unitedforalice.org).

**Lightcast** – Lightcast provides labor market data for use in higher education, economic development, workforce development, talent acquisition, and site selection. Lightcast data covers more than 99% of the workforce and is compiled from a wide variety of government sources, job postings, online profiles, and résumés. For more information on Lightcast data, see [economicmodeling.com](http://economicmodeling.com).

## APPENDIX F: GLOSSARY

**Annual Job Openings:** These include unique job postings or the number of deduplicated job vacancy advertisements scraped from over 100,000 websites. Deduplication is the process of identifying duplicate job postings and only counting one of the duplicates. The unique posting count is the count of postings after the deduplication process has taken place.

**CTE:** Career and Technical Education (CTE) is a term used to describe programs that focus on developing career skills for students within K-12 or postsecondary programs.

**Industry Recognized Credential:** A verification of qualifications or competence, issued by a third party with the relevant authority to issue such credential. The term credential encompasses educational certificates, degrees, certifications, and government-issued licenses.

**Labor Market Analysis:** This analysis leveraged economic and industry data from Lightcast, which included occupation data and focused on the number of total positions, annual openings and median wages in Hawaii which was used to assess the demand for various types of positions and whether they paid a living wage.

**Promising Occupations:** There were 284 identified priority occupations that met wage and demand thresholds.

**Promising Credential:** There were 69 credentials identified as being associated with at least 1 Promising Occupation.

**Threshold, Wage:** A wage threshold was established to provide a cut-off point for what would be considered a living wage. The project referenced the ALICE Report published by Aloha United Way in 2020. All identified occupations and associated credentials in this report meet at least the ALICE Individual wage threshold. Table 6 shows the breakdown of occupations within each category of demand by wage threshold.

**Threshold, Demand:** Occupational demand thresholds represent a combination of occupational growth projections, annual job openings, and total volume of positions in each occupation. In reviewing these data, two main groups of occupations emerged – those that have a high volume of positions and annual openings within the state (250 or more total positions and at least 50 annual openings) and those that have fewer positions total, but are growing (at least 25 annual openings and positive growth projections).

## APPENDIX G: PROMISING CREDENTIALS JANUARY 2024 UPDATE

After the publication of the Promising Credentials in Hawai'i report in February 2023, the public was given the opportunity to submit other credentials via an online form for consideration to be added to the list of Promising Credentials. To determine whether these credential submissions qualified as Promising Credentials based on the report methodology<sup>9</sup>, Hawai'i P-20 and SMS Research conducted an updated labor market data analysis in January 2024, utilizing Hawai'i job postings from December 2022 to December 2023, sourced from Lightcast. The same list of Promising Occupations that met the demand and wage thresholds (see Table 2) was utilized to identify Promising Credentials in the new labor market dataset.

Based on credential submissions from the public and the updated labor market data analysis, **29 new Promising Credentials** were identified that did not appear in the February 2023 Promising Credentials in Hawai'i report (see Table 1). Two of the credential submissions, ParaPro Certification and Substitute Teacher Certification, did not appear in the labor market dataset; however, data from the Hawai'i Department of Education demonstrated that they met the demand and wage thresholds for inclusion as Promising Credentials.

The public may continue to submit credentials for review via the online [Promising Credential Request Form](#). Hawai'i P-20 and SMS Research will conduct the next review of credential submissions and an updated labor market data analysis in summer 2024. Any new Promising Credentials and supporting data will then be published in a new appendix to the February 2023 Promising Credentials in Hawai'i report.

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<sup>9</sup> See Appendix A: Methodology for a detailed description of the report methodology.

The 29 new Promising Credentials identified during the January 2024 credential review and updated labor market data analysis are listed in Table 8 below, along with supporting data. Each credential also has a link to additional information on the credential provider.<sup>10</sup>

**Table 8: New Promising Credentials Identified in January 2024 Credential Review and Labor Market Data Analysis**

<b>Architecture &amp; Construction</b>						
<b>Credential</b>	<b>Prerequisite Education</b>	<b>Age Requirement</b>	<b>Total Associated Occupations</b>	<b>Total Annual Openings</b>	<b>Median Hourly Earnings</b>	<b>Typical Entry Level Education for Associated Occupations</b>
10-Hour OSHA General Industry Card	None	None	22	7,499	\$34.59	High school diploma or equivalent
30-Hour OSHA General Industry Card	None	None	17	4,495	\$34.64	High school diploma or equivalent
Airframe & Powerplant (A&P) Certificate	None	18	22	5,549	\$35.81	High school diploma or equivalent
EPA 608 Technician Certification	None	None	17	6,467	\$35.11	High school diploma or equivalent
<b>Business, Management &amp; Administration</b>						
<b>Credential</b>	<b>Prerequisite Education</b>	<b>Age Requirement</b>	<b>Total Associated Occupations</b>	<b>Total Annual Openings</b>	<b>Median Hourly Earnings</b>	<b>Typical Entry Level Education for Associated Occupations</b>
SHRM-CP (Society for Human Resource Management Certified Professional)	None	None	20	6,709	\$36.77	Bachelor's degree
<b>Education &amp; Training</b>						
<b>Credential</b>	<b>Prerequisite Education</b>	<b>Age Requirement</b>	<b>Total Associated Occupations</b>	<b>Total Annual Openings</b>	<b>Median Hourly Earnings</b>	<b>Typical Entry Level Education for Associated Occupations</b>

<sup>10</sup> For the Promising Credentials identified in the February 2023 Promising Credentials in Hawai'i report, a unique resource page was created and linked for each credential (see Table 1). For Promising Credentials identified in the January 2024 update and any future appendices to the February 2023 report, the website of the credential provider will be linked in lieu of resource pages.



ParaPro Certification	High school diploma or GED	18	1	601 unfilled positions <sup>11</sup>	\$18.79 <sup>12</sup>	High school diploma or GED
Substitute Teacher Certification	High school diploma or GED	18	1	Average 2,502 unfilled jobs per month <sup>13</sup>	\$20.02 <sup>14</sup>	Postsecondary nondegree award
Health Science						
Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings	Median Hourly Earnings	Typical Entry Level Education for Associated Occupations
American Registry for Diagnostic Medical Sonography (ARDMS) Certification	Some postsecondary education	None	14	2,684	\$38.52	Bachelor's degree
American Society for Clinical Pathology (ASCP) Certification	Some postsecondary education	None	17	4,068	\$33.51	Postsecondary nondegree award
Automated External Defibrillator (AED) Certification	None	None	19	7,915	\$30.10	High school diploma or equivalent
Cardiopulmonary Resuscitation (CPR) Certification	None	None	21	7,933	\$30.84	High school diploma or equivalent
Certificate Of Clinical Competence in Speech-Language Pathology (CCC-SLP)	Advanced degree	None	16	4,922	\$38.87	Master's degree
Certified Veterinary Technician	Some postsecondary education	18	7	1,254	\$28.82	Postsecondary nondegree award
Clinical Psychology License	Advanced degree	18	15	4,802	\$36.41	Doctoral or professional degree
Emergency Medical Technician (EMT)	Some postsecondary education	18	18	6,449	\$38.13	Bachelor's degree
First Aid Certification	None	None	20	11,102	\$27.77	High school diploma or equivalent

<sup>11</sup> Data on current job vacancies for Educational Assistants from the Hawai'i Department of Education was substituted for data on annual openings.

<sup>12</sup> Hourly earnings for an Educational Assistant I in the Hawai'i Department of Education were substituted for data on median hourly earnings.

<sup>13</sup> Data on average monthly unfilled substitute teacher positions from July 2022-June 2023 was substituted for data on annual openings.

<sup>14</sup> Hourly earnings for a Class I Substitute Teacher (does not possess a bachelor's degree) in the Hawai'i Department of Education were substituted for data on median hourly earnings.

Patient Identification and Matching Microcredential	None	None	21	7,873	\$33.90	Bachelor's degree
Phlebotomy Certification	High school diploma or GED	None	16	4,180	\$35.90	Postsecondary nondegree award
Physical Therapy Assistant License	Some postsecondary education	18	5	1,187	\$32.62	Postsecondary nondegree award
Registered Behavior Technician (RBT)	High school diploma or GED	18	18	5,801	\$36.48	Bachelor's degree
Registered Pharmacist (RPh)	Advanced degree	18	18	5,170	\$39.88	Doctoral or professional degree
Registered Respiratory Therapist (RRT)	Some postsecondary education	18	17	4,963	\$36.55	Bachelor's degree
Registered Vascular Technologist (RVT)	Some postsecondary education	None	4	252	\$28.52	Associate degree
Speech-Language Pathology License	Advanced degree	18	7	2,932	\$41.96	Master's degree

### Human Services

Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings	Median Hourly Earnings	Typical Entry Level Education for Associated Occupations
Barber License	High school diploma or GED	16	2	526	\$23.57	Postsecondary nondegree award
Certified Substance Abuse Counselor (CSAC)	Some postsecondary education	None	21	6,307	\$35.76	Bachelor's degree

### Information Technology

Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings	Median Hourly Earnings	Typical Entry Level Education for Associated Occupations
CompTIA A+	None	13 to take exam	19	5,083	\$37.47	Bachelor's degree
IAT Level III Certification	None	None	20	3,715	\$41.76	Bachelor's degree

### Law & Public Safety

Credential	Prerequisite Education	Age Requirement	Total Associated Occupations	Total Annual Openings	Median Hourly Earnings	Typical Entry Level Education for Associated Occupations
Security Guard License	High school diploma or GED	18	12	3,282	\$32.28	Bachelor's degree