

Counting U.S. Postsecondary and Secondary Credentials

February 2021





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We want to recognize and thank the Credential Count Project Team for their contributions to this report:

Project Leads:

Allison Forbes, CREC Vice President of Research, with **Andrew Reamer**, CREC Senior Research Fellow and Research Professor, George Washington Institute of Public Policy (GWIPP), George Washington University

Credential Count Research Team:

- **Danielle Haywood**, GWIPP Graduate Assistant
- **Jeff Grann**, Credential Solutions Lead, Credential Engine
- **Lee Winkler**, CREC Research Analyst and Credential Count Database Manager
- **CREC Research Assistance**: Ahoefa Ananouku, Rosa Lee, Gabe Moss, Ellen Schenk, & Jacob Stenstrom

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About Credential Engine

Credential Engine's mission is to bring transparency to all credentials, reveal the marketplace of credentials, increase credential literacy, and allow students, workers, employers, educators, and policy makers to make better informed decisions about credentials and their value.

To achieve this mission, Credential Engine aims to produce a comprehensive, reliable count of every unique credential in the United States and improve the uniformity of how all types of credentials are described so they can be searched, discovered, compared, and valued.

Since 2017, Credential Engine has diligently worked to lay bare an increasingly complex, and confusing, landscape of U.S. credentials, and to create the building blocks to make reliable and useful credential information more accessible for students, workers, and the employers who hire them. We have created a common taxonomy, or schema, through the Credential Transparency Description Language (CTDL) that allows individuals to make “apples-to-apples” comparisons between and among credentials; allowing us to map the connecting points between credentials, competencies, jobs, education, and training opportunities—the information that so many have been looking for.

The driving force behind Credential Engine's work has been a lack of clarity about what exactly is available in terms of education and training, the value of credentials in the labor market, and what enables certain individuals to benefit from those opportunities more than others. To create a credential landscape that is transparent—accessible, discoverable, understandable, and navigable—we first must understand the landscape itself. We needed a clearer picture of what we are all dealing with so that we could appropriately act to meet the challenge of full and meaningful credential transparency.

Meaningful credential transparency relies on all of us contributing to and using the information found in the national Credential Registry—an open data, open-access network for timely and trusted information about credentials across states, regions, and the entire country. Data added to the Registry uses the CTDL schema to clarify, connect, and publish the credential information for others to use. The CTDL is already regarded as the standard language through which these million unique credentials and their competencies can be connected, compared, and contrasted—from evaluating whether a credential leads to a specific career and higher wages or if it leads to a higher-level credential, enhancing economic momentum and mobility.

To learn more about Credential Engine and find ways to get involved, please visit www.credentialengine.org and/or email info@credentialengine.org.



Foreword

As the pandemic continues to upend the economy, education, and people's lives, and as the number of credentials being offered nears—and will soon pass—1,000,000, we must act to bring transparency, insights, and clear pathways to people who desperately need them. Stakeholders need to understand their options and have the information they need to make use of their opportunities. People do not have the luxury to go down credential pathways that do not result in sustainable employment. Employers need to understand how different competencies and skills relate to the jobs they need filled so they can find as many talent pools as possible. Education and training providers need data that helps them fill regional credential needs and open possibilities for individuals and businesses. This report presents the realities of the current credential landscape to underline the need for greater credential transparency.

As Credential Engine and the Counting Credentials reports have shown over the past three years, the marketplace of credentials and education and training in the United States is vast, complex, expensive, and inefficient. We're working to end the confusion and frustration by mapping out the credential landscape and supporting state adoption of credential transparency standards and policy development. And together we're building a trusted and secure linked open data repository with our state partners that everyone can access. The increasingly widespread adoption of a standard approach for describing, comparing and evaluating credentials and competencies will help people avoid getting lost and losing out on opportunities.

With nearly one million credential options and close to [\\$2 trillion spent annually on education and training](#), it is important to put clear and reliable information in users' hands. The confusing marketplace causes many problems. It creates and perpetuates inequities by limiting who has access to which data and gatekeeping opportunity. The lack of transparent credential information and continued siloed nature of credential data has made it difficult for individuals, organizations, and education and training providers to adapt and get ahead.

And that was before the Covid-19 pandemic.

In the first weeks of the pandemic's devastating eruption in the United States, many forward-thinking state leaders reached out to Credential Engine to leverage credential transparency as part of their recovery efforts. For example, at the very onset of the pandemic New York was hit hardest, leaders in the state initiated a partnership with Credential Engine that will help identify which credentials, competencies, programs, and providers—especially those offering virtual learning—they can leverage to scale the supply of qualified workers to meet the demand in specific arenas. Such information helps with the retraining and upskilling of workers laid off due to the pandemic which can help meet crucial economic needs.

New York isn't alone in recognizing the important potential in leveraging credential transparency to inform decision making. At a time when the brakes have been hit hard on many fronts, more states have recognized the imperative—social, economic, and equity—of helping people more efficiently and effectively navigate their way through troves of information to make their best decisions about how



to get the skills and credentials necessary to move ahead. Credential transparency fuels the creation of a new generation of services and tools that allow students, employers, and workers to compare credentials and choose the best option.

Our ability to better meet the current and future economic and educational needs of the country depends on what we do with the information presented in this report. We all must do our piece as partners in transparency to create concrete pathways for people, states, education and training providers, businesses, and policymakers to have the credential information they need to make the best decisions. As organizations that support state policy and practice in education and training, we are working to inform states' efforts to advance transparency in service of their larger economic and education imperatives. We, and others as partners in transparency, have produced a [*State Roadmap and Action Guide*](#) to help advance states along this path. This credential transparency partnership allows individuals and everyone involved in the education and economic ecosystems to navigate the massive credential landscape as we work to link individuals to education and training programs, especially during this critical national push to jumpstart the economy.

Carissa Moffat Miller, Chief Executive Officer
Council of Chief State School Officers



Jeremy Anderson, President
Education Commission of the States



Julie Ellen Squire, Vice President of Policy and
General Counsel
National Association of State Workforce Agencies



Rob Anderson, President
State Higher Education Executive Officers
Association





Letter of Introduction

The credential landscape is vast—perhaps larger than many imagined—and it continues to grow. You’ll see in this report that we’ve uncovered close to a million unique credentials in the marketplace today.

In response to business, worker, and student demands for modern career preparation options, education and training providers have been creating opportunities, many on-line, many shorter in duration than traditional programs, and often less expensive. These are attractive characteristics, but do students benefit in the same ways and to the same levels as they would if they chose more traditional paths? Does a credential give the bearer economic momentum? How about educational momentum—is the credential widely recognized and the learning transferable? Do employers have confidence in the skills and abilities of workers who attain a particular credential from a particular institution?

Our goal in distributing this report is about more than awareness. We are seeking partners to help us make the one million credentials in the marketplace fully transparent to the people who need to know about them. This report comes at one of the most consequential times in the nation’s history. As a result of the COVID-19 pandemic, millions of displaced workers are looking for upskilling or reskilling opportunities that lead to quality jobs and careers. They are seeking timely, relevant, and reliable information to be able to make good decisions. How can we work together to make sure they can get the information they need?

Over the last three years, 19 states and regions as well as 674 organizations and federal agencies have helped populate the Credential Registry—an open data, open-access network for timely and trusted information about credentials across states, regions, and the entire country. Much more remains to be done.

Please review the report. We know the scope of the problem will hit you, maybe hard. Try to walk in the shoes of a dislocated worker or a young person wanting to build a path to their dream job. If you feel compelled to help or want to know more about how to work with us, please let us know. There is room at this table.

Eleni Papadakis

Board Chair
Credential Engine

Executive Director
Washington State Workforce Training
and Education Coordinating Board

Scott Cheney

Chief Executive Officer
Credential Engine



Executive Summary

Learners, educators and policymakers understand that high school completion and education beyond high school are critical to thrive in the workforce. However, until recently an inventory of the number or type of secondary and postsecondary credential opportunities in the United States did not exist. This is the third annual report from Credential Engine that attempts to count all these credentials. The report identifies **967,734 unique credentials in the U.S.** in 16 detailed credential categories across four types of credential providers:

- Postsecondary educational institutions—**359,713** degrees and certificates
- Massive open online course (MOOC) providers—**9,390** course completion certificates, micro-credentials, and online degrees from foreign universities
- Non-academic providers—**549,712** badges, course completion certificates, licenses, certifications, and apprenticeships
- Secondary schools—**48,919** diplomas from public and private secondary schools

The largest of the four provider types is non-academic providers, which are associated with 123,038 online course completion certificates and 381,561 digital badges.¹ These non-academic credential counts increased in comparison to the 2019 count because platform providers supporting the design, development, and dissemination of these credentials increased the number of credentials that they track and report to Credential Engine.² We are not able to determine how much of the increase came from newly created credentials versus newly reported but already existing credentials. For comparison, in 2019, the largest category was credentials awarded by traditional postsecondary educational institutions.

This report discusses each of the 16 credential categories in detail, including the nature of the credential and the sources and methods for developing the credential count. It describes the advances in the credential count effort since Credential Engine's 2019 report.

As in prior years, this report demonstrates the nation's need to dramatically improve transparency in the credential marketplace to promote economic growth and individual mobility. With the data in this report, we now understand the landscape. Next, we need to know more about how credentialing practices overlap, including how certificates offered by institutions of higher education stack to further certificates and degrees, and how badges are utilized to represent these and other credentials. We need more information about what various credentials entail in order to properly categorize and understand them—from the competencies they aim to convey to the time they require to complete to their relative value in the marketplace. We need more stakeholders to be involved in creating credential transparency so that the one million credentials available in the U.S. can be better understood, aligned with other data systems, and used in decision making by all.

¹ Only digital badges that are offered within the United States are included in this count.

² This year, more than 190,000 badges and 42,000 online course completion certificates were added to the count compared to 2019.



Advances Since First Credential Count Estimate

In April 2018, Credential Engine produced the first iteration of a nationwide credential count – 334,114 credentials across eight categories.³ In 2019, Credential Engine counted more than 738,428 credentials across 17 categories.⁴

In this third credential count, in 2020, Credential Engine integrated more information from previously disconnected databases available only at the state level, including additional information from all 50 states. This credential count includes 967,734 credentials across 16 categories and **counts by state** in five credential categories (see Appendix A for state counts for degrees, certificates, licenses, apprenticeships, and high school diplomas).⁵

In 2020, the research team gathered **new information** about non-traditional credential types (badges and online course certificates) from the various platforms offering these credentials. Researchers also **improved methods** for counting traditional credentials—including eliminating double majors as unique credentials; disaggregating system-wide credentials by individual campus; identifying Title IV eligible and non-eligible programs within the same institution; and de-duplicating lists of occupational certifications recognized by federal agencies. Researchers eliminated the “Military (COOL) Certifications” category from last year—these were civilian certifications recognized by the military as related to military occupations—and integrated these certifications into the “Occupational Certifications” category.

³ Credential Engine, “Counting U.S. Secondary and Postsecondary Credentials,” April 2018. <https://credentialengine.org/2018/04/05/counting-u-s-secondary-and-postsecondary-credentials-april-2018-report/>

⁴ Credential Engine, “Counting U.S. Secondary and Postsecondary Credentials,” September 2019. https://credentialengine.org/wp-content/uploads/2019/09/Counting-US-Postsecondary-and-Secondary-Credentials_190925_FINAL.pdf

⁵ The data the research team used for these counts was collected before any COVID-19 disruption.



Findings

For this 2020 report, Credential Engine identifies **967,734 unique credentials in the United States**, organized in 16 categories delivered through four types of education and training providers—postsecondary educational institutions, Massive Open Online Course (MOOC) providers, non-academic organizations, and secondary schools. On the left side of the findings in Table 1, we report by category the 2020 count numbers, the nature of the count; data sources; and availability of count by state. On the table's right side, we indicate how and why each category's count differs from 2019 (whether we revised accounting methods, expanded our data sources, and/or reduced duplicates in the count).

The count for each credential type in the table is characterized in one of three ways—Enumeration, Partial Enumeration, Estimate. These differ in terms of the *completeness* and the *certainty* of a count.

- Enumerations (7) are both complete and certain, that is, they include all the credential opportunities in the category.
- Partial enumerations (1) are certain, but not complete.
- Estimates (8) add approximations of missing credentials to partial enumerations, for example through extrapolations based on a sample of states or industries.

Subsequent sections discuss the nature and method for counting each credential type.



Table 1. Overall 2020 Count of U.S. Secondary and Postsecondary Credentials

| Credential Type | 2020 Count | Estimation or Enumeration | Data Sources | Counts by State | 2019 Count | Change in Count from 2019 | Change in Count Methods from 2019 | | |
|--|----------------|---------------------------|--|-----------------|----------------|---------------------------|-----------------------------------|------------------|---------------------|
| | | | | | | | Revised Methods | Expanded Sources | Reduced Duplication |
| Postsecondary Educational | 359,713 | | | | 370,020 | (10,307) | | | |
| Title IV Degrees | 196,139 | Estimate | IPEDS + WIOA ETPL | ✓ | 212,802 | (16,663) | ✓ | ✓ | ✓ |
| Title IV Certificates | 122,048 | | IPEDS + WIOA ETPL + extrapolation from 8 states | | 111,941 | 10,107 | | | |
| Non-Title IV Certificates | 40,176 | | | | 42,089 | (1,913) | | | |
| Non-Title IV Degrees | 1,350 | | IPEDS + WIOA ETPL | | 3,188 | (1,838) | | | |
| MOOC Providers | 9,390 | | | | 7,132 | 2,258 | | | |
| Course Completion Certificates | 8,520 | Enumeration | edX, Coursera, Udacity, FutureLearn, Kadenze, Swayam | | 6,475 | 2,045 | | ✓ | ✓ |
| Microcredentials | 820 | | Class Central | | 629 | 191 | | | ✓ |
| Degrees from Foreign Universities | 50 | | | | 28 | 22 | | | |
| Non-Academic Organizations | 549,712 | | | | 315,067 | 234,645 | | | |
| Digital Badges | 381,561 | Enumeration | Counts provided by badge vendors Badgr, Credly, Acclaim, LRNG, MyMantle, Participate | | 191,459 | 190,102 | | ✓ | |
| Online Course Completion Certificates | 123,038 | Enumeration | Counts provided by Udemy, Lynda, SkillSuccess, Alison, PluralSights | | 80,117 | 42,921 | | ✓ | |
| Registered Apprenticeships | 23,400 | Enumeration | Count provided by ETA | ✓ | 22,488 | 912 | | | |
| Occupational Licenses | 11,938 | Estimate | ETA License Finder + extrapolation from 10 states | ✓ | 11,837 | 101 | | ✓ | ✓ |
| Occupational Certifications | 8,165 | Enumeration | ETA Certification Finder + WEAMS, Military COOL, DOL Competency Clearinghouse, ANSI, NCCA, ICAC | | 6,724 | 1,618 | | ✓ | ✓ |
| Coding Bootcamp Course Completion Certificates | 1,560 | Estimate | Count of CourseReport.com U.S. Programs + estimate of missing schools | | 1,014 | 546 | | | ✓ |
| Non-Registered Apprenticeships | 50 | Partial Enumeration | German-and-Swiss American program not registered | | 50 | 0 | | | |
| Secondary Schools | 48,919 | | | | 46,209 | 2,710 | | | |
| Public School Districts- Diplomas | 36,548 | Estimate | Number of public school districts by CCD multiplied by Diploma options by Achieve. For each state, multiply two counts, sum for U.S. | ✓ | 33,540 | 3,008 | | | |
| Private Schools- Diplomas | 12,371 | Estimate | Number of private secondary schools by PSS. Assumed one diploma option per school. | | 12,669 | (298) | | | |
| Total | 967,734 | | | | 738,428 | 229,306 | | | |



| Legend & Notes for Table 1 | | |
|----------------------------|--|---|
| Legend | CCD | Common Core of Data, 2018-19, U.S. Department of Education |
| | COOL | Credentialing Opportunities Online, U.S. Department of Defense |
| | ETA | Employment and Training Administration, U.S. Department of Labor |
| | IPEDS | Integrated Postsecondary Education Data System 2017-18, U.S. Department of Education |
| | PSS | Private School Universe Survey 2017-18, U.S. Department of Education |
| | WIOA ETPL | State-managed Workforce Innovation and Opportunity Act Eligible Training Provider Lists |
| Notes | Count type characterized as: Enumeration (Complete Count), Partial Enumeration (Partial Count), Estimate (Count plus Extrapolation). | |
| | Enumeration = Count based on register of all known programs in category (complete, certain). | |
| | Partial Enumeration = Count based on credentials register that does not fully cover category or sum across known providers (incomplete, certain). | |
| | Estimate = Count from partial enumeration plus estimate of additional credentials per extrapolation from sample of state or industry lists (complete, somewhat uncertain) or count of credential-granting institutions multiplied by number of credentials offered by each institution. | |
| | Extrapolation = A type of estimate: for example, count of credentials not elsewhere identified by state or industry, then calculation of state or industry share of nation, then expansion of count in proportion to share. | |
| | Change in count methods from 2019 to 2020 characterized as: Revised accounting method, Expanded data sources, and/or Reduced duplicates counted. | |
| | The 2020 Count was conducted in 2020, relying on data available for 2017-2019, capturing credential information before any COVID-19 disruption. The 2019 count was published in September 2019, and relied on data available for 2016-2018. | |

Credential Categories – Definitions and Methodology

This section discusses each of the 16 credential categories in detail. The categories are organized into four groups by type of institution:

- Postsecondary educational institutions (4 credential categories);
- MOOC providers (3 categories);
- Non-academic organizations (7 categories); and
- Secondary schools (2).

In the next pages, each credential is defined; the sources and methods of the count are explained and discussed; and suggestions for future research are offered.



Postsecondary Educational Degrees and Certificates

Table 2. Count of Postsecondary Educational Degrees and Certificates

| Credential Type | 2020 Count | 2019 Count | Change from 2019 | Estimation or Enumeration | Sources |
|---|----------------|----------------|------------------|---------------------------|---|
| Postsecondary Educational Institutions | 359,713 | 370,020 | (10,307) | | |
| Title IV Degrees | 196,139 | 212,802 | (16,663) | Estimate | Count of IPEDS + count of WIOA ETPL |
| Title IV Certificates | 122,048 | 111,941 | 10,107 | Estimate | Count of IPEDS + count of WIOA ETPL plus extrapolation from 8 states' lists |
| Non-Title IV Degrees | 1,350 | 3,188 | (1,838) | Estimate | Count of IPEDS + count of WIOA ETPL |
| Non-Title IV Certificates | 40,176 | 42,089 | (1,913) | Estimate | Count of IPEDS + count of WIOA ETPL + extrapolation from 8 states' lists |

Title IV Degrees ◀◀◀◀◀◀◀◀

Nature of Credential

A degree is a type of award conferred by a college, university, or other postsecondary education institution as official recognition for the successful completion of a program of study. Primary degree levels include Associate's, Bachelor's, Master's, Doctoral, and specific professional degrees (such as M.D. [Doctor of Medicine] and J.D. [Juris Doctor]).

A Title IV postsecondary education institution is one that has a written agreement with the U.S. Secretary of Education allowing the institution to participate in Title IV federal student financial aid programs. Title IV postsecondary institutions must be approved to operate by their state department of higher education and accredited by an accrediting body recognized by the U.S. Department of Education.

Credential Count – Source and Method

Previously, for the count of Title IV degrees, researchers relied only on Title IV degree data provided by the [Integrated Postsecondary Education Data System](#) (IPEDS) and maintained by the National Center for Education Statistics (NCES) in the U.S. Department of Education. This year, researchers incorporated data from state-managed Workforce Innovation and Opportunity Act (WIOA) Eligible Training Provider



Lists (ETPL) in order to identify additional campuses that offer Title IV degrees. These WIOA ETPL provide Title IV degree data at the level of unique provider and unique address.

IPEDS covers the universe of nearly 7,000 schools categorized as Title IV institutions. Under Title IV, these schools are required to submit program and student data to NCES for all for-credit programs for which students may receive Title IV funds. The inclusion of WIOA ETPL Title IV providers added nearly 3,000 institutions to the Title IV count.

Researchers estimated the number of degree programs in Title IV institutions by first preparing a count of degree programs in IPEDS offered by Title IV postsecondary education institutions (176,180),⁶ then comparing that list with data from WIOA ETPLs from every state and the District of Columbia⁷ to identify Title IV programs from WIOA ETPLs not captured in the initial count (19,959 missing).⁸ For a detailed account of the methodology, please see Appendix B.

Discussion

The count is an estimate. Title IV institutions are required to submit program-specific data for all Title IV-eligible degree programs to IPEDS, but analysis of IPEDS indicates that postsecondary education institutions do not report program-specific data to IPEDS at a consistent level of institution. For example, the unit reporting may be a college system office, representing multiple college campuses, or an individual campus. Credential Engine researchers aimed to capture variation by campus location.

Suggestions for Future Research

- Gather information on IPEDS reporters' completeness and accuracy in reporting.
- Use variables in IPEDS and Department of Education resources to differentiate unique providers from system offices, parent institutions and multi-campus institutions to report data at a consistent level of unique provider and unique address.
- Improve the matching of postsecondary institutions listed in WIOA ETPLs with Department of Education resources and institutions listed in IPEDS.
- Expand to include other state postsecondary resources, e.g. lists of authorized credential opportunities offered by proprietary institutions and state-approved academic programs.

⁶ The IPEDS variable "MAJORNUM" was used to remove double majors as unique credentials. "MAJORNUM" indicates if an academic program is a completer's first or second major.

⁷ WIOA ETPLs contain a list of training programs eligible for tuition under WIOA and can include both credit and non-credit programs. For reference: CareerOneStop (a project of the Employment and Training Administration) maintains a list of WIOA ETPLs <https://www.careeronestop.org/LocalHelp/EmploymentAndTraining/find-WIOA-training-programs.aspx?location=VA&persist=true>.

⁸ The Code of Federal Regulations outlines program and institutional requirements for Title IV eligibility (<https://www.law.cornell.edu/cfr/text/34/668.8>). The Database of Accredited Postsecondary Institutions and Programs (<https://ope.ed.gov/dapip/#/home>) provides a list of participating/applicant Title IV institutions by accreditation, and the Office of Federal Student Aid additionally provides a list of participating Title IV institutions (<https://studentaid.gov/data-center/student/title-iv>).



▶ Title IV Certificates ◀◀◀◀◀◀◀◀

Nature of Credential

A certificate is a type of award conferred by a college, university, or other postsecondary education institution indicating the satisfactory completion of a non-degree program of study. Typically, the course requirements for earning a certificate are less than those for earning a degree. Most certificates require no more than one year of full-time academic effort.

A certificate may be for-credit (academic certificate) or non-credit (continuing education certificate). This credential category only counts Title IV-eligible academic certificates at Title IV institutions. Students enrolled in continuing education programs or academic certificates with less than 300 clock hours at Title IV institutions are not eligible to receive federal financial aid to apply towards their program tuition. These shorter programs are not included in this count but are included in the Non-Title IV Certificates count.

Credential Count – Source and Method

Researchers recognized that the count of certificates in IPEDS is somewhat problematic.⁹ While IPEDS intends to include Title IV-eligible academic certificate programs and exclude non-Title IV certificate programs offered by Title IV institutions, numerous participating institutions upload data for non-Title IV programs into IPEDS. IPEDS distinguishes Title IV eligibility at the institution level and not the program level. Further, IPEDS has difficulty accurately counting stacked credentials (as when the completion of three certificates leads to the award of a fourth that subsumes the first three).

The number of non-credit programs in IPEDS seems significant. In 2018, researchers found that among certificate programs that are both in IPEDS and eight state lists, 18 percent were listed as a non-credit program by the state. Quite often, universities report to IPEDS non-credit programs offered through an extension school or for-credit programs without the required clock hours to be eligible for Title IV.

In light of these issues, researchers estimated the number of certificate programs in Title IV institutions by first preparing a count of certificate programs in IPEDS offered by Title IV postsecondary education institutions (68,099), then comparing that list with data from WIOA ETPLs from every state and the District of Columbia to identify Title IV certificate programs from WIOA ETPLs not captured in the initial count (25,531 missing).¹⁰ Researchers used an assumed multiplier to account for missing state program

⁹ See two reports of the National Postsecondary Education Cooperative: “Defining and Reporting Subbaccalaureate Certificates in IPEDS,” 2012, at <https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=NPEC2012835>, and “Collecting and Disseminating Data on Certificate Awards,” 2016, at <https://eric.ed.gov/?id=ED589579>. Also see RTI International, “Report and Suggestions from IPEDS Technical Review Panel #52: 2017 Subbaccalaureate Certificates,” 2017, at https://edsurveys.rti.org/IPEDS_TRP_DOCS/prod/documents/TRP52_Summary.pdf.

¹⁰ IPEDS lists postsecondary institutions as Title IV or non-Title IV (variable “OPEFLAG”) and assumes all programs provided by Title IV institutions to IPEDS are eligible for Title IV.



lists, resulting in 162,224 total certificate programs,¹¹ and took steps to address programs initially dropped due to insufficient data. For a detailed account of the methodology, please see Appendix B.

Discussion

The count is an estimate. In light of issues with the IPEDS database regarding the number and credit status of certificate programs, the inclusion of WIOA ETPL data and the extrapolation from last year's count of certificates seems an appropriate approach.

Suggestions for Future Research

- Monitor and inform NCES efforts to improve IPEDS completeness regarding certificate programs.
- Expand the number of states and territories from which education and training program lists are obtained.
- Assess the potential for program data provided by accrediting agencies to supplement IPEDS and state data sources.
- Improve the matching of postsecondary institutions listed in WIOA ETPLs with Department of Education resources and institutions listed in IPEDS.
- Expand research to include other state postsecondary resources, such as lists of authorized programs offered by proprietary or workforce institutions and lists of state-approved academic programs.

► Non-Title IV Degrees ◀◀◀◀◀◀◀◀◀

Nature of Credential

This category includes academic degrees offered by postsecondary institutions without a Title IV designation. Typically, such institutions are proprietary. This category also includes degrees offered by extension programs of Title IV institutions that would not qualify for Title IV funding.

Credential Count – Source and Method

Non-Title IV degrees were counted using the same methodology as Title IV degrees, as described above. For a detailed account of the methodology, please see Appendix B.

Discussion

The count is a rough estimate. As no comprehensive national registry of non-Title IV degree programs currently exists, identifying additional credentials from the inclusion of WIOA ETPL data seems appropriate.

¹¹ The eight states are Connecticut, Florida, Illinois, Maryland, Missouri, New Jersey, Texas, and Virginia. Researchers collected data from 19 education and workforce development program lists from among these states in 2019, as compared with only the 8 WIOA ETPLs from these states in 2020.



Suggestions for Future Research

- Expand research to include other state postsecondary resources, such as lists of authorized degrees offered by proprietary or workforce institutions and lists of state-approved academic programs.
- Expand research to include schools reporting non-Title IV data from earlier surveys. Only 42 non-Title IV institutions reported to IPEDS in 2017-2018 and 2018-2019 out of 410 and 420 schools potentially reporting in each survey year, respectively. The low percentage of total non-Title IV schools reporting to IPEDS likely represents a mixture of school closures and schools choosing not to consistently report to IPEDS.

► Non-Title IV Certificates ◀◀◀◀◀◀◀◀

Nature of Credential

This category includes certificates offered by postsecondary institutions without a Title IV designation, continuing education certificates offered by Title IV institutions, and academic certificates offered by Title IV institutions for which enrolled students are ineligible to receive Title IV support.

Credential Count – Source and Method

As some non-Title IV institutions voluntarily submit their certificate program data to IPEDS, non-Title IV certificates were counted using the same methodology as Title IV certificates as described above. For a detailed account of the methodology, please see Appendix B.

Discussion

The count is a rough estimate. The research team was able to use federal and state lists of Title-IV-eligible institutions to identify Title-IV-eligible institutions categorized as non-Title-IV eligible in the 2019 count. As no comprehensive national registry of certificate programs in non-Title IV organizations currently exists, the extrapolation based on state data sources seems an appropriate approach.

Suggestions for Future Research

- Expand research to include other state postsecondary resources, such as lists of authorized certificate programs offered by proprietary or workforce institutions and lists of state-approved academic programs.
- Expand research to include schools reporting non-Title IV data from earlier surveys. Only 42 non-Title IV institutions reported to IPEDS in 2017-2018 and 2018-2019 out of 410 and 420 schools potentially reporting in each survey year, respectively. The low percentage of total non-Title IV schools reporting to IPEDS likely represents a mixture of school closures and schools choosing not to consistently report to IPEDS.



MOOC Providers

Table 3. Credential Count from MOOC Providers

| Credential Type | 2020 Count | 2019 Count | Change from 2019 | Estimation or Enumeration | Sources |
|-----------------------------------|------------|------------|------------------|---------------------------|---|
| MOOC Providers | 9,390 | 7,132 | 2,258 | | |
| Microcredentials | 820 | 629 | 191 | Enumeration | Count of Class Central |
| Degrees from Foreign Universities | 50 | 28 | 22 | Enumeration | Count of Class Central |
| Course Completion Certificates | 8,520 | 6,475 | 2,045 | Enumeration | Count of edX, Coursera, Udacity, FutureLearn, Kadenze, Swayam |

Massive Open Online Course (MOOC) providers offer students electronic platforms for taking courses at a distance. Through MOOC providers (such as Coursera, edX, Udacity, and FutureLearn), diverse education and training organizations offer academic degrees and “microcredentials.” Some MOOC providers also offer course completion certificates.

Organizations offering academic degrees and microcredentials through MOOCs include U.S. and foreign universities and colleges, large U.S.-based businesses (such as IBM, Autodesk, Cisco, Google, SAS, and Microsoft), smaller U.S.-based businesses (such as deeplearning.ai and Unity), nonprofits (such as Linux Foundation), non-U.S.-based business (such as Yandex), and non-academic training organizations (such as HubSpot Academy and Palo Alto Networks).

Microcredentials ◀◀◀◀◀◀◀◀

Nature of Credential

A microcredential is defined as an online educational credential that ***covers more than a single course but is less than a full degree***.¹² Each MOOC platform uses unique labels for the microcredentials it offers:

- Coursera – Specializations, MasterTrack Certificates
- edX – Professional Certificates, Professional Education, MicroMasters, XSeries
- FutureLearn – Programs, Graduate Certificates, Graduate Diplomas
- Udacity – Nanodegrees
- Kadenze – Programs¹³
- Swayam – Diploma programs

¹² Dhawal Shah, “Online Degrees Slowdown: A Review of MOOC Stats and Trends in 2019,” *MOOCReport*, December 17, 2019, at <https://www.classcentral.com/report/moocs-stats-and-trends-2019/> and, previously, Dhawal Shah, “By The Numbers: MOOCs in 2018,” *MOOCReport*, December 11, 2018, at <https://www.class-central.com/report/>.

¹³ *Ibid.* and Laurie Pickard, “Analysis of 450 MOOC-based Microcredentials Reveals Many Options but Little Consistency,” *MOOCReport*, July 18, 2018, at <https://www.class-central.com/report/moocs-microcredentials-analysis-2018/>.



Credential Count – Method and Source

The count for MOOC microcredentials (820) is taken from a table in Class Central’s annual report on MOOCs, produced in December 2019.¹⁴

Discussion

This count is an enumeration. The annual Class Central census of microcredential programs, by type, provides a comprehensive count.

Suggestions for Future Research

- Continue to confirm the completeness of the Class Central annual count.

► Degrees from Foreign Universities ◀◀◀◀◀◀◀◀

Nature of Credential

According to Class Central, MOOC providers offer opportunities to earn an academic degree (primarily bachelor’s or master’s) online from a university. Most of these degree programs are sponsored by universities in Australia, the United Kingdom, and France. The remaining programs, offered by large, well-known American universities, are excluded from this category count.

Credential Count – Source and Method

The count for foreign academic degree programs through MOOC providers (50) is taken from a program list in Class Central’s annual report on MOOCs, produced in December 2019.¹⁵

The programs excluded from this count are offered by large, well-known American universities. The researchers assume that each U.S.-based program is listed in the NCES IPEDS and included in the Title IV degrees count presented earlier.

Discussion

This count is an enumeration.

Suggestions for Future Research

- Continue to confirm that each U.S.-based online degree program is included in NCES IPEDS.

¹⁴ Shah, *op.cit.*

¹⁵ *Ibid.*



► Course Completion Certificates ◀◀◀◀◀◀◀◀

Nature of Credential

A course completion certificate from a MOOC provider indicates that the holder has completed a specific course or series of courses. Courses provide knowledge and skills but do not lead to a professional certification. However, individuals may take these courses to prepare for certification exams and earn professional field-specific certifications.

Credential Count – Source and Method

Five MOOC providers (Coursera, edX, FutureLearn, Kadenze and Swayam) offer students the option of obtaining a certificate of course completion. Each MOOC provider's website indicates the number of courses it offers. Researchers summed the number of courses across the five websites.

Discussion

This count is an enumeration from the various platforms that offer MOOCs, based on self-reporting by these platforms.

Suggestions for Further Research

- Investigate the courses offered by MOOC providers with a course completion certificate option and whether these courses contribute to acquiring other credentials.



Non-Academic Organizations

Table 4. Credential Count from Non-Academic Organizations

| Credential Type | 2020 Count | 2019 Count | Change from 2019 | Estimation or Enumeration | Sources |
|--|-----------------------|----------------|------------------|---------------------------|---|
| Non-Academic Organizations | 549,712 | 315,067 | 234,645 | | |
| Occupational Licenses | 11,938 | 11,837 | 101 | Estimate | Count of ETA License Finder + extrapolation from 10 states' lists |
| Occupational Certifications | 8,165 | 6,724 | 1,618 | Enumeration | Count of ETA Certification Finder + additional certifications from WEAMS, Military COOL, DOL Competency Clearinghouse, ANSI, NCCA, ICAC |
| Registered Apprenticeships | 23,400 | 22,488 | 912 | Enumeration | ETA Count of Apprenticeship Registry |
| Unregistered Apprenticeships | 50 | 50 | - | Partial Enumeration | Count of German- and Swiss-American company programs (subtract Registered Apprenticeships) |
| Coding Bootcamp Course Completion Certificates | 1,560 | 1,014 | 546 | Estimate | Count of Courserreport.com (subtract programs not available in U.S.) |
| Online Course Completion Certificates | 123,038 | 80,117 | 42,921 | Enumeration | Sums provided by Udemy, Lynda, SkillSuccess, Alison, PluralSights |
| Digital Badges | 381,561 ¹⁶ | 191,459 | 190,102 | Enumeration | Count of badge vendors (Badgr, Campus Labs, CanCred, Credly, LRNG, NOCTI, Participate, and SkillStack) |

¹⁶ Only digital badges that are offered within the United States are included in this count.



► Occupational Licenses ◀◀◀◀◀◀◀◀

Nature of Credential

Each state requires persons practicing specific professions and vocations to first obtain an occupational license from a state licensing board. According to the National Conference of State Legislatures (NCSL), “When implemented properly, occupational licensing can help protect the health and safety of consumers by requiring practitioners to undergo a designated amount of training and education in their field.”¹⁷

Credential Count – Source and Method

The count in this report (11,938) was determined by counting the number of state-specific occupation-specific licenses in the U.S. Department of Labor (DOL) License Finder,¹⁸ estimating the number of such licenses not included in License Finder, and adding these two numbers.

At last count, the License Finder database contained 10,203 unique licenses. Licenses reported by the states to DOL are included in License Finder if they have sufficient descriptive information.¹⁹

To ascertain the completeness of License Finder, researchers sought to identify differences in nomenclature across states, variation in the specificity of licenses included, and the presence of business licenses on some state lists. The research team revised its estimate of missing licenses this year from 34 percent of total to 17 percent of total based on investigation of License Finder updates and omissions from states’ primary Licensing Authorities in 47 states²⁰ and the District of Columbia. Forty states maintain some form of centralized license registry or roster of licensed persons. In states without a centralized registry, researchers reviewed licenses provided by individual licensing authorities to enumerate License Finder omissions.

Researchers estimated that 17 percent of licenses (1,735) were missing from License Finder, bringing the nationwide estimate to 11,938.

Discussion

The count is an Estimate. States may vary from one another in terms of completeness of coverage in License Finder. It is difficult to verify completeness since publicly available lists of licenses regulated

¹⁷ See NCSL Occupational Licensing Project at <http://www.ncsl.org/research/labor-and-employment/occupational-licensing.aspx>.

¹⁸ License Finder is a database and search tool maintained on the DOL CareerOneStop website. Information on the site is gathered by each state’s Labor Market Information agency under a DOL grant. See <https://www.careeronestop.org/toolkit/Training/find-licenses.aspx>.

¹⁹ The necessary information includes license title, state, licensing authority, occupation, issuing agency contact information, and description of requirements. License Finder does not include business licenses (i.e., license to operate a business) or certain city-issued licenses (e.g., a taxi license).

²⁰ State licensing authorities in Nevada, North Dakota, and South Dakota were not reviewed due to difficulties identifying state licensing authorities by the research team.



by licensing authorities are difficult to find. The 2020 estimate of missing licenses was informed by an in-depth review of licensing authorities in ten states²¹ and a review of centralized state licensing registries. The latter review included identifying omissions from states' primary Licensing Authorities in 47 states²² and the District of Columbia. Forty states maintain some form of centralized license registry or roster of licensed persons. In states without a centralized registry, researchers reviewed licenses provided by individual licensing authorities to enumerate License Finder omissions.

Suggestions for Future Research

- Obtain and analyze additional licensing authorities and registries in states for which they were not easily available.
- Assess the completeness of centralized licensing authorities.
- Collaborate with the License Finder team to review License Finder licenses sent by states, including those intentionally dropped by the CareerOneStop team administering the License Finder database.

► Occupational Certifications ◀◀◀◀◀◀◀◀◀

Nature of Credential

An occupational certification is a credential awarded by an authoritative body—such as an industry or professional association—to an individual who demonstrates designated knowledge, skills, and abilities in a particular occupation. Many certifications are time-limited and renewable and an individual may take courses to prepare for a competency examination.

Certification providers may allow other organizations to provide the courses and administer the tests that qualify a person for the certification.²³ Verification that certification providers and their partners meet certain standards is provided by accreditation organizations. Accreditation is voluntary.

Credential Count – Method and Source

The count in this report (8,165) was determined by counting the number of unique certifications in

²¹ The ten states include California, Colorado, Michigan, New York, Oklahoma, Oregon, Texas, Utah, Washington, and Wisconsin. A list of occupational licenses was found on each state government's website. In 2019, researchers found, across ten states representing 39.2 percent of the U.S. population, the percent of occupational licenses not included in License Finder ranged from a low of 13.3 percent (New York) to a high of 57.5 percent (Texas). The median state figure was 37.6 percent; the average state figure was 35.3 percent; and the percent of licenses across all ten states not in License Finder (i.e., treating it as one large sample) was 33.6 percent.

²² State licensing authorities in Nevada, North Dakota, and South Dakota were not reviewed due to difficulties identifying state licensing authorities by the research team.

²³ For example, two major certification test administrators are Prometric and Pearson VUE. See <https://www.prometric.com/en-us/Pages/home.aspx> and <https://home.pearsonvue.com/>. These organizations develop and administer tests for other purposes, such as academic admissions. At the same time, several other smaller organizations also administer certification tests.



the Department of Labor (DOL) Certification Finder and counting missing certifications from various additional sources.

Certification Finder is a database and search tool maintained on the DOL [CareerOneStop](#) website. At last count, Certification Finder contained 5,394 unique industry-recognized certifications. A certification is included in Certification Finder if it can be applied to an identifiable profession; is not a state license; offers a final test of the skills or experience a person has gained and determines that the progress is acceptable; provides a certificate or documents an award at completion; is nationally recognized via accreditation²⁴ or meets certain organizational qualifications²⁵; and clearly communicates its credibility and value (e.g., member services or accreditation listed on a website).

Researchers did not limit their search for certifications to the criteria established by Certifications Finder nor to certifications recognized by accrediting agencies. Researchers collected certifications from several sources:

- Lists of accredited programs: ANSI accredited program list, the NCCA accredited program list, the International Certification Accreditation Council members (ICAC) accredited program list
- Lists of programs by industry: the National Network of Business and Industry Associations website (collected in 2019), an ANSI/WorkCred 2019 report on credentials, the Wikipedia article on “[Professional Certification](#)”, reports on cybersecurity credentials,²⁶ and industry-specific resources from the DOL Competency Clearinghouse.
- Lists of programs by government agencies and their partners: [Department of Veterans Affairs Weams Approved Certifications List](#) and [Credentialing Opportunities On-Line \(COOL\)](#), an inventory of military-recognized civilian credentials (certifications, licenses, apprenticeships) maintained by the DoD.

These lists were matched and duplicate items reduced. We found 2,771 certifications not included in Certification Finder. For the final estimate, we added the additional certifications found (2,771) to the number of certifications in Certification Finder (5,394) for a total of 8,165 certifications.

Discussion

This count (8,165) is an enumeration. The count in this category is greater than that in the previous report (6,724), even after extensive de-duplication across various sources of information, because

²⁴ One way to achieve national recognition is through accreditation by an outside, independent accreditation agency. The primary ones are the American National Standards Institute (ANSI) and the National Commission for Certifying Agencies (NCCA). See <https://www.ansi.org/accreditation/default> and <http://www.credentialingexcellence.org/ncca>.

²⁵ A second way to achieve national recognition is for the certification sponsor to meet the criteria of a nationally recognized organization. Nationally recognized organizations provide membership benefits such as, but not limited to: involved in developing skill standards for certification; have a training and/or certification committee; maintain a registry of certificants; publish a newsletter; maintain a job bank; hold professional development conferences; and have either online testing or a nationwide system of testing centers. (Source: email communication with CareerOneStop consultant, December 1, 2017.)

²⁶ Industry sources include a report on cybersecurity skills by Pikes Peak Community College and the DOL Competency Clearinghouse.



certifications were added from additional sources, including the Military COOL lists of military-recognized civilian credentials. The 2019 count enumerated all the certifications from the COOL sources in a separate category.

Previously, the research team extrapolated from three industries of certifications not included in Certification Finder to estimate certifications missing in other industries. We still expect that additional industry-specific searches would reveal additional certifications, but given the major extensions to the count this year from other sources we did not extrapolate to estimate those that are missing.

Suggestions for Future Research

- Compile certification program lists in industries and occupations not covered in the above analysis (beyond healthcare, manufacturing, and IT).
- Investigate whether the Air Force has or can add information about acceptable certification providers to its list of the civilian certifications that are relevant to Air Force occupations.

▶ Registered Apprenticeships ◀◀◀◀◀◀◀◀

Nature of Credential

An apprenticeship is a program establishing practitioners as qualified technicians in their chosen trade or profession through a combination of on-the-job training and classroom instruction. It is operationalized by a formal training contract between an employer and their employee and completion is recognized by a Certificate of Completion.

The Office of Apprenticeship (OA) in the U.S. Department of Labor (DOL) manages a [Registered Apprenticeship system](#), as authorized by the National Apprenticeship Act. An individual employer, labor organization, education institution, or an industry association can sponsor a Registered Apprenticeship program. Sponsors can register their program standards and apprentices with OA or a State Apprenticeship Agency (SAA) recognized by DOL. SAAs oversee Registered Apprenticeship programs in 25 states and the District of Columbia. OA performs that role in the remaining 25 states.²⁷

Each Registered Apprenticeship program must meet standards and regulations established under the National Apprenticeship Act. At the successful completion of the on-the-job and instructional learning with an employer, apprentices in a Registered Apprenticeship program receive an employer-approved, nationally-recognized Certificate of Completion from the SAA or OA, as appropriate.

The Registered Apprenticeship system includes the United Services Military Apprenticeship Program (USMAP), which provides active duty Navy, Coast Guard, and Marine Corps service members the opportunity to improve their job skills and complete civilian apprenticeship requirements while on active duty. For USMAP graduates, OA provides the nationally recognized Certificate of Completion upon program completion.

²⁷ See <https://www.doleta.gov/oa/stateagencies.cfm> for a list of SAAs.



Credential Count – Source and Method

The count of active Registered Apprenticeship programs is provided annually by OA on its website.²⁸ USMAP is included in this count; pre-apprenticeship programs are not.

Discussion

This count (23,400) is an enumeration provided by OA and slightly higher than the previous enumeration by OA (22,488). The OA receives data from all states quarterly and reports a national count annually.

Suggestions for Future Research

- OA likely provides an accurate and complete count of the aggregate number of Registered Apprenticeship system programs at the national level and at the state level on an annual basis. However, for more granular information on programs not reported systematically by OA, such as apprenticeship programs by occupation, the research team would rely on a database the OA began to publish on its website in 2020, an inventory of programs from OA states, and some SAA states, reported through the Registered Apprenticeship Partners Information Data System (RAPIDS) database. Detailed information would not be available for all states.

²⁸ See “National Registered Apprenticeship Results” at https://doleta.gov/oa/data_statistics.cfm. The latest count is for Fiscal Year 2017.



A Brief Note on a Discontinued Category: Military-Recognized Civilian Certifications

Each branch of the U.S. military (Air Force, Army, Marines, Navy, and Coast Guard) offers service personnel opportunities to obtain industry-recognized civilian certifications of achievement of specific competencies that relate to their military occupational roles. These were not previously matched to the broader occupational certifications category count in 2019, reported above, but are now integrated into this count category in 2020. There was substantial but not complete overlap with certifications previously collected.

The branches of the U.S. military maintain lists of civilian credentials (certifications, licenses, apprenticeships) applicable to service personnel's roles and post these to the [Credentialing Opportunities On-Line](#) (COOL) website. The Air Force is the only military branch with credentials remaining in this category of the count because these could not be matched with the certifications category count reported above.²⁹ The Air Force only provided the certification name.³⁰ As such, researchers were unable to de-duplicate the list of 177 Air Force COOL certifications from those available in Certification Finder or other resources.

Most military-recognized civilian certifications are included in the count of occupational certifications above. Previous counts identified certifications listed on service-branch credential inventories as "military certifications" but are now recognized by researchers as "military-recognized certifications".

In addition to civilian certifications gained during military transition programs, military personnel also gain many military-recognized skills and credentials. Military-recognized skills and credentials are not easily recognized by civilian employers, which is why civilian credentials are so important. However, military occupational titles, which represent a variety of context-specific skills gained, may be more recognizable. The extent to which military occupations could function as credentials in civilian labor markets should be further explored.

²⁹ As of writing (9/25/2020), the COOL site now includes military-recognized credentials for DoD civilian personnel, which the research team did not review. There is no known inventory of DoD-recognized credentials for Space Force.

³⁰ Certifications offered by multiple organizations in the same field often have the same name, making a certification's provider a necessary detail to de-duplicate certifications.



► Unregistered Apprenticeships ◀◀◀◀◀◀◀◀

Nature of Credential

While the U.S. Registered Apprenticeship system operated by the U.S. Department of Labor (DOL) is the primary mechanism for organizing the nation's apprenticeship programs, experts estimate that a number of organizations, potentially many thousands of employers, support apprenticeship-like programs outside of that system.

Credential Count – Source and Method

Some companies in the U.S. rely on German and Swiss models of apprenticeship. Many of these companies register their apprenticeships with the U.S. government but some do not. We sought to verify how many companies recognized by the [German American Chambers of Commerce](#) or endorsed by the [Swiss-American Chamber of Commerce](#) are not registered with the U.S. Registered Apprenticeship system. Using online documentation of these programs and cross-referencing company names with a list of registered programs in those states, researchers were not able to confirm that 50 of these were registered apprenticeships and counted these as unregistered.

From this sample, we learned that firms do offer high-quality structured apprenticeship programs in the U.S. that are not registered and some U.S.-based firms rely on the German certification system rather than the U.S. registration system to verify the skills of their apprentices.

Discussion

The number in the current report is a partial enumeration. While it is expected that many more employers offer unregistered apprenticeship-type programs, such programs are not currently regulated by federal or state governments and there is no central registry. It is difficult to identify these programs. In 2019, researchers did contact organizations that offer customized apprenticeship development services to businesses and were told that their apprenticeship programs were registered. Researchers were not able to obtain an accurate, meaningful tally beyond that calculated here.

In 1993, DOL carried out a Survey of Employer-Provided Training (SEPT) that estimated 18.9 percent of nonfarm private establishments offered apprenticeship training (defined as “a structured process by which individuals become skilled workers through a combination of classroom instruction and on-the-job training”).³¹ In that year, there were roughly 7 million nonfarm private establishments. If the SEPT was accurate, then, about 1.3 million establishments had an apprenticeship program. Unfortunately, the survey results provided no more information and the survey was not repeated. And as the survey did not gauge the nature and quality of each apprenticeship program, it is not possible to know whether and how the survey results have any meaning for Credential Engine purposes today.

³¹ Harley J. Frazis, Diane E. Herz, and Michael W. Horrigan, “Employer-provided training: results from a new survey,” *Monthly Labor Review*, May 1995. Available at <https://www.bls.gov/opub/mlr/1995/05/art1full.pdf>.



That said, DOL is launching a new system of Industry-Recognized Apprenticeship Programs (IRAPs) that would operate alongside the Registered Apprenticeship system.³² IRAPs will have no minimum time requirement, no set ratio of mentors to apprentices, and each will result in one-industry recognized credential.

Once the IRAP system is created, DOL could provide a regularly updated count of IRAPs. A data reporting system will be created for IRAPs that is similar to that for Registered Apprenticeships, including information on programs, which is currently available in the Registered Apprenticeship Partnership Information Data System (RAPIDS), with the exception that IRAP data will not include individual level data on each apprentice, as RAPIDS does.

Suggestions for Future Research

- Monitor development and implementation of the new IRAP system.

► Coding Bootcamp Course Completion Certificates ◀◀◀◀◀◀◀◀

Nature of Credential

Coding bootcamps issue certificates of course completion. The first coding bootcamp was founded in 2012, according to Course Report.³³ Coding bootcamps provide instruction in-person, online, or both in-person and online. While most have locations in one country, several offer courses in multiple countries. This analysis counts only bootcamps with a U.S. presence, either on location or available online.

Credential Count – Source and Method

Course Report is the primary information source for the coding bootcamp industry. The Course Report directory of bootcamps is the primary source for this count of bootcamp course completion certificates. The directory indicates there are 533 schools. The directory provides a profile for 512 of these, of which 365 have a U.S. presence and/or are online.³⁴ Collectively, the online and U.S.-based schools offer 1,500 unique courses, about four per school. Identical courses with multiple formats (e.g. full/part time, online/in-person) were considered identical and counted as one course.

As the directory does not provide information on 21 schools, it was assumed that these have characteristics similar to those in the directory, that is, about 71 percent are accessible in the U.S. or

³² Essentially, DOL would designate certain organizations as IRAP Accrediting Organizations, with the authority to provide accreditation to organizations that certify apprenticeship programs that meet certain criteria that allow for more customization than traditional Registered Apprenticeship programs. Each IRAP Accrediting Organization would need to prove to DOL that it has the capabilities to perform this function and meet DOL standards. See <https://www.apprenticeship.gov/industry-recognized-apprenticeship-program>.

³³ Lauren Stewart, "Changing the Face of the Tech Industry," *Course Report*, January 19, 2019, Available at <https://www.coursereport.com/blog/diversity-in-tech-why-tech-is-poised-to-see-a-change-in-2018>.

³⁴ "School Directory," *Course Report*. 2020. Available at https://www.coursereport.com/schools?utf8=%E2%9C%93&sort_by=&track_id=&subject_id=&type=2&cost=&start_date=&location=



online, and offer four courses each, resulting in an additional 60 courses, for a total of 1,560 coding bootcamp courses.

Discussion

This count (1,560) is an estimate from a partial enumeration based on Course Report directory listings. A review of Course Report and individual bootcamp websites indicates that these providers emphasize course content and outcomes over the nature of the credential provided (which often is not mentioned).³⁵

The first credential count in 2018 included a count of all bootcamp courses (1,718) regardless of location. Researchers identified 1,014 coding bootcamp courses in the U.S. or online in 2019 and 1,560 in 2020.

Suggestions for Future Research

- Seek information on schools not profiled in the Course Report directory.
- Conduct more in-depth research on the extent to which bootcamp and bootcamp prep courses are included in the count of certificates from non-Title IV organizations.
- Assess the existence of bootcamps in fields other than coding that are not included in other credential categories.

► Online Course Completion Certificates ◀◀◀◀◀◀◀◀

Nature of Credential

Online course completion certificates are awarded upon the completion of a course or series of courses conducted via online platforms. This category does not include online courses completed at academic institutions or offered by MOOC providers.

Credential Count – Source and Method

The largest online course providers include Udemy, Lynda.com, SkillSuccess, PluralSight, and Alison.³⁶ These platforms offer students the option of obtaining a certificate of course completion. Each course provider's website indicates the number of courses it offers and offers some information about these courses. This course-specific information was gathered, and researchers summed the number of courses across the five websites (123,038).

³⁵ Course Report tells prospective bootcamp students that: "[T]he bootcamp you attend should be licensed by a state regulatory agency. Licensing often means that the school has to submit their curricula (and any major curricula changes) for approval, invest in liability insurance in case of closure, and publicize their course catalog. It does not mean that the code school is able to grant degrees." However, it does not provide any information regarding how the percentage of bootcamps that are state-licensed. See "Find the Best Bootcamp for You," *Course Report*, at <https://www.coursereport.com/>.

³⁶ "Digital Certificates and Digital Badges," *Accredible*, 2020. Available at <https://www.accreditable.com/credentials/>



Discussion

This count is an enumeration of publicly available listings of online course completion certificates. Other online course providers offering completion certificates may exist but were not found.

These providers differ from MOOC providers. MOOC providers are intermediaries that offer a web platform for course delivery and multi-course credential programs by academic institutions and businesses. The online course providers included in this category do not serve large education and training organizations and do not offer microcredentials or degrees.

Suggestions for Further Research

- Search for online course providers other than those named here.
- Continue to identify the nature of these online course certificates to differentiate from other types of certificates.

Digital Badges

Nature of Credential

Open Badges are digital badges that contain embedded metadata about skills and achievements and are shareable across the web. Any organization can issue a badge in accordance with the Open Badges specification, published by the IMS Global Learning Consortium, which standardizes how badges are digitally represented.

Credential Count – Source and Method

In the Spring of 2020, Credential Engine staff conducted a survey of badge vendors via the IMS Global OpenBadges workgroup concerning badge classes in America, replicating questions from a Fall 2018 survey. Participating badge vendors included Badgr, Campus Labs, CanCred, Credly, LRNG, NOCTI, Participate, and SkillStack.

Aggregating across all responses yielded a count of 381,561 available badges (“badge classes”). This count does not include badge classes that are self-hosted by the issuing party, the incidence of which is unknown, although believed to be comparatively low. The 2020 count increased in comparison to the 2019 report because badge vendors reported more badges.

Discussion

This count is an enumeration. The number of unique digital badges makes up 39 percent of this report’s total count. Though open digital badges, by their definition, should be the credential that is most easy to track, the systems and search engines are not yet developed to easily read and compare all badges available across different platforms. However, the Credential Engine team did make important



progress in aggregating new and more detailed information from vendors about badges that will help with refining the count in the future.

The Open Badges specification can be used to verify other credential types. For example, the American Medical Certification Association uses badges as one part of their verification services for the Phlebotomy Technician Certification. Because it is difficult to disaggregate badges by type across various badge providers and platforms, we were not able to ascertain the extent to which these badges apply to other categories in the count.

Suggestions for Future Research

- Formalize an annual badge inventory research agenda.
- Develop systematic solutions to identify, verify, compare and categorize digital badges based on metadata that includes connections to other credential types (e.g., part of a certificate program or apprenticeship) as well as provider name and type (e.g., the name of the school or company imparting the skills and knowledge and whether that provider is a university, high school, independent non-profit or company).



Secondary Schools

Table 5. Credential Count from Secondary Schools

| Credential Type | 2020 Count | 2019 Count | Change from 2019 | Estimation or Enumeration | Sources |
|------------------------------------|------------|------------|------------------|---------------------------|---|
| Secondary Schools | 48,909 | 46,209 | 2,710 | | |
| Public School Districts – Diplomas | 36,548 | 33,540 | 3,008 | Estimate | Count of number of public school districts by CCD multiplied by the Count of number of diploma options by Achieve. For each state, multiply two counts, then sum for U.S. |
| Private Schools – Diplomas | 12,371 | 12,669 | (298) | Estimate | Count of number of private secondary schools by PSS. Assumed one diploma option per school. |



► Public Secondary School Diplomas ◀◀◀◀◀◀◀◀

Nature of Credential

A diploma is a North American academic school-leaving qualification awarded upon high school graduation, typically after a course of study over four years, from Grade 9 to Grade 12. This category covers high school diplomas recognized by the state and offered by public secondary schools. This category excludes high school equivalency and other high school completers (e.g., those granted a certificate of attendance).

In public school districts, diplomas are awarded by a school in accordance with the requirements of the school district and state. Each state offers one or more types of high school graduation options, ranging from one option (22 states) to 10 (New York). States define diplomas and graduation requirements differently and may offer one diploma, multiple diplomas, multiple courses of study leading to one diploma, or endorsements students may earn in addition to a standard diploma.³⁷

Credential Count – Source and Method

The number of public secondary school diplomas was determined by:

- Counting the number of public school districts in each state that offers a high school diploma.
- Multiplying each state's number by the number of that state's graduation options.
- Summing across the states.³⁸

The source of the list of school districts offering Grade 12, by state, was the [U.S. Department of Education's Common Core of Data](#) (CCD). Providers of diplomas included in the count are regular school districts, specialized public school districts, and independent charter districts. The nationwide count of public school districts with Grade 12 was 13,065 in 2018-19.

According to [Achieve.org](#), 22 states have one high school graduation option, 15 have two options, three offer three, seven offer four, and one state each offers five (Wyoming), six (North Carolina), seven (Texas), and ten (New York).³⁹

The count estimate was calculated by multiplying the number of school districts in a state that offer Grade 12 by the number of graduation options in that state. The total was 36,548.

³⁷ From the Achieve Data Explorer, at <https://highschool.achieve.org/data-explorer> (website discontinued).

³⁸ A substantial number of districts do not go to Grade 12 and were excluded from this analysis.

³⁹ From the Achieve Data Explorer, at <https://highschool.achieve.org/data-explorer> (website discontinued).



Discussion

This count is deemed an estimate given the assumption made that each school district offers the number of graduation options allowed by its state. It is possible that the actual count is smaller than the number provided here.

Suggestions for Future Research

- For the 26 states that offer more than one diploma option, carry out research to better measure the proportion of districts that do not offer each diploma option.

► Private Secondary School Diplomas ◀◀◀◀◀◀◀◀

Nature of Credential

This category covers high school diplomas offered by private secondary schools. A diploma is a North American academic school-leaving qualification awarded upon high school graduation, typically after a course of study over four years, from Grade 9 to Grade 12.

Credential Count – Method and Source

The U.S. Department of Education indicates that in 2017-18 there were 12,371 private schools with secondary grades.⁴⁰

On the assumption that each school offers one type of diploma, the estimated count of credential programs is the same as the number of schools.

Discussion

The number reported here (12,371) includes both stand-alone secondary schools (2,845) and combined primary-secondary schools (9,526).

This count is considered as an estimate given the assumption that each private school offers one type of credential. The actual number could be greater than that provided here.

Suggestions for Future Research

- Ascertain the extent to which private secondary schools issue more than one type of diploma.

⁴⁰ National Center for Education Statistics, Private School Universe Survey (PSS). Table 16. Number and percentage distribution of private schools, by school level and selected school characteristics: United States, 2017-2018, available at <https://nces.ed.gov/surveys/pss/tables/TABLE16f11718.asp>.



Conclusion

We now have a better understanding of not only the number of credentials in the United States but also the range of learning and credentialing opportunities. This work can inform both policy and practice in the education and workforce fields. However, to truly leverage this new knowledge, we still need an even more rigorous accounting and a better understanding of the value and relative returns of various credentials.

This report, in many ways, raises as many questions as it answers—such as whether we have enough and the right credential options to meet the needs of both the economy and individuals. We also know that the number and types of credentials are in constant flux, as they react to market needs and innovations in education. Thus, any static count will be obsolete as soon as it is created. ***This is why having comprehensive, open, interoperable data about all credentials is so important, and why the Credential Registry's value as a common, open repository of credential information that is updated in real time is vastly advancing our understanding of the full credential marketplace.***

Our goal is to create universal access to credential data so that different stakeholders—states, regions, businesses, agencies, institutions, and organizations—can create applications that provide people with access to open, linked data in the Registry.

We do not own the information entered into the Registry. We are not gatekeepers to these data. Quite the opposite. The open-access nature of credential transparency opens the door to collaboration and connecting different strands of data together so that stakeholders can begin to better understand the alignments between credentials, skills and competencies, their related job opportunities, income expectations, and all the different avenues for individuals to secure meaningful life-long employment to reach their goals. All in one place; easy, trusted, and accessible.

With these tools, reports of this kind will no longer be necessary; but we need all stakeholders to be involved. This work is critical to answering pressing questions about whether the current mix of credentialing programs in the United States is equipped to power the economy and promote equitable individual mobility—and if not, how we might change it.



Appendix A. Number of Credentials by State

The table on the next page provides a state-by-state breakdown of the number of credentials available across five of the credential categories described in this report—those most easily identified as being offered by providers based in a specific state:

1. Degrees
2. Certificates
3. Apprenticeship Programs
4. Licenses
5. High School Diplomas

These counts were determined by exploring credentials offered by secondary and postsecondary institutions, employers, state agencies, and other non-academic organizations.



| State | Degrees | Certificates | Apprenticeship | Licenses | High School Diplomas | Total |
|----------------------|---------|--------------|----------------|----------|----------------------|--------|
| Alabama | 2,563 | 1,291 | 145 | 94 | 141 | 4,234 |
| Alaska | 489 | 688 | 317 | 194 | 159 | 1,847 |
| Arizona | 2,789 | 2,654 | 226 | 193 | 680 | 6,542 |
| Arkansas | 2,871 | 2,578 | 131 | 320 | 500 | 6,400 |
| California | 16,079 | 14,058 | 1,094 | 379 | 2,064 | 33,674 |
| Colorado | 2,673 | 2,894 | 194 | 131 | 358 | 6,250 |
| Connecticut | 2,262 | 1,264 | 1,590 | 345 | 136 | 5,597 |
| Delaware | 716 | 713 | 393 | 249 | 30 | 2,101 |
| District of Columbia | 1,293 | 537 | 302 | 76 | 19 | 2,227 |
| Florida | 6,469 | 6,078 | 245 | 396 | 280 | 13,468 |
| Georgia | 4,759 | 3,880 | 152 | 216 | 187 | 9,194 |
| Hawaii | 649 | 134 | 81 | 86 | 4 | 954 |
| Idaho | 1,379 | 1,059 | 174 | 176 | 264 | 3,052 |
| Illinois | 8,512 | 4,918 | 465 | 432 | 515 | 14,842 |
| Indiana | 4,071 | 1,110 | 1,085 | 267 | 1,360 | 7,893 |
| Iowa | 4,702 | 2,210 | 799 | 161 | 330 | 8,202 |
| Kansas | 2,844 | 2,242 | 296 | 114 | 285 | 5,781 |
| Kentucky | 3,311 | 1,769 | 304 | 277 | 168 | 5,829 |
| Louisiana | 3,019 | 2,039 | 82 | 150 | 214 | 5,504 |
| Maine | 1,189 | 2,027 | 118 | 390 | 252 | 3,976 |
| Maryland | 2,814 | 1,753 | 201 | 167 | 48 | 4,983 |
| Massachusetts | 5,838 | 1,748 | 1,685 | 141 | 606 | 10,018 |
| Michigan | 6,860 | 3,380 | 1,096 | 238 | 1,312 | 12,886 |
| Minnesota | 5,518 | 3,561 | 210 | 353 | 394 | 10,036 |
| Mississippi | 2,250 | 694 | 84 | 88 | 564 | 3,680 |
| Missouri | 7,181 | 4,609 | 486 | 139 | 918 | 13,333 |
| Montana | 1,134 | 436 | 803 | 166 | 480 | 3,019 |
| Nebraska | 2,541 | 799 | 130 | 231 | 244 | 3,945 |
| Nevada | 971 | 958 | 94 | 176 | 76 | 2,275 |
| New Hampshire | 1,179 | 975 | 330 | 166 | 64 | 2,714 |
| New Jersey | 2,967 | 5,104 | 983 | 218 | 308 | 9,580 |
| New Mexico | 1,714 | 1,236 | 81 | 206 | 118 | 3,355 |
| New York | 13,659 | 6,326 | 880 | 161 | 7,220 | 28,246 |
| North Carolina | 6,489 | 4,597 | 692 | 397 | 684 | 12,859 |
| North Dakota | 998 | 265 | 100 | 134 | 432 | 1,929 |
| Ohio | 8,662 | 4,056 | 960 | 109 | 2,948 | 16,735 |
| Oklahoma | 2,871 | 3,167 | 112 | 267 | 866 | 7,283 |
| Oregon | 2,217 | 1,630 | 299 | 325 | 368 | 4,839 |
| Pennsylvania | 9,968 | 3,865 | 833 | 138 | 579 | 15,383 |
| Rhode Island | 1,013 | 277 | 569 | 183 | 43 | 2,085 |
| South Carolina | 2,519 | 1,675 | 968 | 197 | 170 | 5,529 |
| South Dakota | 1,120 | 268 | 107 | 193 | 149 | 1,837 |
| Tennessee | 4,452 | 2,480 | 301 | 208 | 129 | 7,570 |
| Texas | 10,741 | 5,373 | 389 | 121 | 7,581 | 24,205 |
| Utah | 2,179 | 1,151 | 198 | 112 | 89 | 3,729 |
| Vermont | 997 | 264 | 358 | 127 | 220 | 1,966 |
| Virginia | 3,687 | 3,071 | 1,961 | 107 | 262 | 9,088 |
| Washington | 3,753 | 2,241 | 204 | 170 | 257 | 6,625 |
| West Virginia | 1,512 | 769 | 166 | 121 | 55 | 2,623 |
| Wisconsin | 3,740 | 2,202 | 1,029 | 302 | 766 | 8,039 |
| Wyoming | 845 | 494 | 78 | 100 | 240 | 1,757 |



Appendix B. Detailed Methodology for Selected Credentials

Title IV Degrees

Researchers estimated the number of degree programs in Title IV institutions with the following steps:

1. Prepared a count of degree programs in IPEDS offered by Title IV postsecondary education institutions (176,180). The IPEDS variable “MAJORNUM” was used to remove double majors as unique credentials. “MAJORNUM” indicates if an academic program is a completer’s first or second major.
2. Gathered data from WIOA ETPLs from every state and the District of Columbia.⁴¹
3. Compared individual degree programs on state lists with those in IPEDS. Identified Title IV programs in WIOA ETPLs using Department of Education criteria for Title IV eligibility.⁴²
4. Tallied the number of Title IV school degree programs from WIOA ETPLs and not in IPEDS (30,850 on state lists, with 10,891 programs matching with IPEDS, 19,959 missing).
5. Added the numbers produced in Steps 1 and 4.

Title IV Certificates

Researchers estimated the number of certificate programs in Title IV institutions with the following steps:

1. Prepared a count of certificate programs in IPEDS offered by Title IV postsecondary education institutions (68,099).⁴³
2. Gathered data from WIOA ETPLs from every state and the District of Columbia.
3. Compared individual certificate programs on state lists with those in IPEDS. Identified Title IV programs in WIOA ETPLs using Department of Education criteria for Title IV eligibility.^{44,45}

⁴¹ WIOA ETPLs contain a list of training programs eligible for tuition under WIOA and can include both credit and non-credit programs. For reference: CareerOneStop (a project of the Employment and Training Administration) maintains a list of WIOA ETPLs <https://www.careeronestop.org/LocalHelp/EmploymentAndTraining/find-WIOA-training-programs.aspx?location=VA&persist=true>. Researchers note that many linked sites still require significant navigation from the link to the WIOA ETPL used by researchers.

⁴² The Code of Federal Regulations outlines program and institutional requirements for Title IV eligibility (<https://www.law.cornell.edu/cfr/text/34/668.8>). The Database of Accredited Postsecondary Institutions and Programs (<https://ope.ed.gov/dapip/#/home>) provides a list of participating/applicant Title IV institutions by accreditation, and the Office of Federal Student Aid additionally provides a list of participating Title IV institutions (<https://studentaid.gov/data-center/student/title-iv>).

⁴³ The IPEDS variable “MAJORNUM” was used to remove double majors as unique credentials.

⁴⁴ The Code of Federal Regulations (<https://www.law.cornell.edu/cfr/text/34/668.8>), the Database of Accredited Postsecondary Institutions and Programs (<https://ope.ed.gov/dapip/#/home>), and the Office of Federal Student Aid (<https://studentaid.gov/data-center/student/title-iv>).

⁴⁵ IPEDS lists postsecondary institutions as Title IV or non-Title IV (variable “OPEFLAG”) and assumes all programs provided by Title IV institutions to IPEDS are eligible for Title IV.



4. Tallied the number of Title IV school certificate programs on state lists and not in IPEDS (35,956 on state lists, with 10,425 programs matching with IPEDS; 25,531 missing).
5. Estimated that additional state-level research in all 50 states would increase the number of certificates found by 20 to 50 percent, based on extensive research on eight states conducted by Credential Engine researchers for the 2019 Credential Engine Report. This results in a multiplier of 1.29 assumed with the inclusion of the missing state program lists.⁴⁶
6. Multiplied the total enumeration of certificates (124,451) by 1.29, resulting in 160,542 total certificate programs.
7. Researchers initially dropped 2,222 certificate programs from the analysis due to insufficient data. Researchers added 1,682 total certificate programs to the count.
8. Added the numbers produced in Steps 6 and 7 (162,224).
9. Divided the sum of Steps 6 and 7 by the distribution of Title IV and non-Title IV certificate programs from the enumeration of certificate programs.⁴⁷

Non-Title IV Degrees

As some non-Title IV institutions voluntarily submit their degree program data to IPEDS, researchers followed an approach similar to that for degrees in Title IV institutions to estimate the number of degrees offered by non-Title IV Institutions:

1. Prepared a count of degree programs offered by non-Title IV organizations (753). The IPEDS variable “MAJORNUM” was used to remove double majors as unique credentials.
2. Gathered data from WIOA ETPLs from every state and the District of Columbia.
3. Compared individual degree programs on state lists with those in IPEDS. Identified Title IV programs in WIOA ETPLs using Department of Education criteria.^{48, 49}
4. Tallied the number of non-Title IV school degree programs on state lists and not in IPEDS (601 on state lists, with 4 programs matching with IPEDS, 597 missing).
5. Added the numbers produced in Steps 1 and 4.

⁴⁶ The eight states are Connecticut, Florida, Illinois, Maryland, Missouri, New Jersey, Texas, and Virginia. Researchers collected data from 19 education and workforce development program lists from among these states in 2019, as compared with only the 8 WIOA ETPLs from these states in 2020.

⁴⁷ 75.2% of identified certificates were Title IV eligible programs, and 24.8% of identified certificates were non-Title IV eligible programs.

⁴⁸ The Code of Federal Regulations outlines program and institutional requirements for Title IV eligibility (<https://www.law.cornell.edu/cfr/text/34/668.8>). The Database of Accredited Postsecondary Institutions and Programs (<https://ope.ed.gov/dapip/#/home>) provides a list of participating/applicant Title IV institutions by accreditation, and the Office of Federal Student Aid additionally provides a list of participating Title IV institutions (<https://studentaid.gov/data-center/student/title-iv>).

⁴⁹ IPEDS lists postsecondary institutions as Title IV or non-Title IV and assumes all programs provided by Title IV institutions to IPEDS are eligible for Title IV.



Non-Title IV Certificates

As some non-Title IV institutions voluntarily submit their certificate program data to IPEDS, researchers followed an approach similar to that for certificates in Title IV institutions to estimate the number of certificates offered by non-Title IV Institutions:

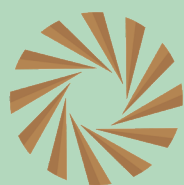
1. Prepared a count of certificate programs in IPEDS offered by non-Title IV postsecondary education institutions (434). The IPEDS variable “MAJORNUM” was used to remove double majors as unique credentials.
2. Gathered data from WIOA ETPLs from every state and the District of Columbia.
3. Compared individual certificate programs on state lists with those in IPEDS. Identified Title IV and non-Title IV programs in WIOA ETPLs using Department of Education resources.^{50, 51}
4. Tallied the number of non-Title IV school certificate programs on state lists and not in IPEDS (30,425 on state lists, with 38 programs matching with IPEDS, 30,287 missing).
5. Calculated the difference in total certificate programs from the 2019 Credential Engine Report and this year’s (2020) effort in eight states (9,400).⁵² Researchers assumed that the loss in programs was due to reduced coverage of state credential program lists, and not any actual change in offered certificate programs.
6. Divided 9,400 by the total number of certificates counted in 2020 in these eight states (32,170) resulting in a percent difference of 0.29. This results in a multiplier of 1.29 assumed with the inclusion of the additional 2019 state program lists.
7. Multiplied the total enumeration of certificates (124,451) by 1.29, resulting in 160,542 total certificate programs assumed with the inclusion of additional state education and workforce development program lists.
8. Researchers initially dropped 2,222 certificate programs from the analysis due to insufficient data. Using the percentage of all programs dropped resulting from deduplication adds 1,682 total certificate programs.
9. Added the numbers produced in Steps 7 and 8 (162,224).
10. Divided the sum of Steps 7 and 8 by the distribution of Title IV and non-Title IV certificate programs from the enumeration of certificate programs.⁵³

⁵⁰ The Code of Federal Regulations outlines program and institutional requirements for Title IV eligibility (<https://www.law.cornell.edu/cfr/text/34/668.8>). The Database of Accredited Postsecondary Institutions and Programs (<https://ope.ed.gov/dapip/#/home>) provides a list of participating/applicant Title IV institutions by accreditation, and the Office of Federal Student Aid additionally provides a list of participating Title IV institutions (<https://studentaid.gov/data-center/student/title-iv>).

⁵¹ IPEDS lists postsecondary institutions as Title IV or non-Title IV and assumes all programs provided by Title IV institutions to IPEDS are eligible for Title IV.

⁵² The eight states are Connecticut, Florida, Illinois, Maryland, Missouri, New Jersey, Texas, and Virginia. Researchers collected data from 19 education and workforce development program lists from among these states in 2019, as compared with only the 8 WIOA ETPLs from these states in 2020.

⁵³ 75.2% of identified certificates were Title IV eligible programs, and 24.8% of identified certificates were non-Title IV eligible programs.



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