

March 2022

# Labor Market Analysis

## **ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society**

POWERED BY



California  
Community  
Colleges



Prepared by the Central Valley/Mother Lode Center of Excellence

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**COVID-19 Statement:** This report includes employment projection data by Emsi. Emsi’s projections are modeled on recorded (historical) employment figures and incorporate several underlying assumptions, including the assumption that the economy during the projection period will be at approximately full employment or potential output. To the extent that a recession or labor shock, such as the economic effects of COVID-19, can cause long-term structural change, they may impact the projections. At this time, it is not possible to quantify the impact of COVID-19 on projections of industry and occupational employment. Other measures such as unemployment rates and monthly industry employment estimates will reflect the most recent information on employment and jobs in the state and, in combination with input from local employers, may help validate current and future employment needs as depicted here.

*If for any reason this document is not accessible or if you have specific needs for readability, please contact us and we will do our utmost to accommodate you with a modified version. To make a request, contact Nora Seronello by phone at (209) 575-6894 or by email [seronellon@mjc.edu](mailto:seronellon@mjc.edu).*

# Summary

Please note the COVID-19 statement on page 2 when considering this report's findings.

This study conducted by the Central Valley/Mother Lode Center of Excellence examines labor market demand, wages, skills, and postsecondary supply for ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society. Four occupations related to ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society were identified for San Joaquin Delta College:

- 15-1257, Web Developers and Digital Interface Designers
- 27-1014, Special Effects Artists and Animators
- 27-1024, Graphic Designers
- 43-9031, Desktop Publishers

## Key findings:

- **Occupational demand** — Nearly 1,010 workers were employed in jobs related to ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society in 2020 in the North Central Valley/Northern Mother Lode (NCV/NML) subregion. The largest occupation is graphic designers with 537 workers in 2020, a projected growth rate of 5% over the next five years, and 56 annual openings.
- **Wages** — Web developers and digital interface designers earn the highest entry-level wage, \$20.97/hour in the subregion. Please note there was no information available for desktop publishers.
- **Employers** — Employers with the most job postings in the subregion are Anthem Blue Cross, Danaher Corporation, and California State University Stanislaus.
- **Occupational titles** — The most common occupational title in job postings in the subregion is web developers. The most common job title is front end engineer.
- **Skills and certifications** — The top baseline skill is writing, the top specialized skill is front-end development, and the top software skill is software engineering. The most in-demand certification is a driver's license.
- **Education** — An associate degree is typically required for web developers and digital interface designers and desktop publishers. A bachelor's degree is typically required for graphic designers and special effects artists and animators.
- **Supply** — Analysis of postsecondary completions shows that on average 25 awards were conferred in the Central Valley/Mother Lode region each year. Please note based on the information provided from the requestor, 101300 Commercial Art appears to be the TOP code of best fit

Based on a comparison of occupational demand and supply, there is an undersupply of 100 trained workers in the subregion and 223 workers in the region. The Center of Excellence recommends that San Joaquin Delta College work with the regional directors, the college's advisory board, and local industry in

the development of programs to address the shortage of ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society workers in the region.

## Introduction

The Central Valley/Mother Lode Center of Excellence was asked by San Joaquin Delta College to provide labor market information for ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society. The geographical focus for this report is the North Central Valley/Northern Mother Lode (NCV/NML) subregion, but regional demand and supply data has been included for broader applicability and use. The average living wage for a single adult in the NCV/NML subregion is \$12.65/hour.<sup>1</sup> Analysis of the program and occupational data related to ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society resulted in the identification of applicable occupations. The Standard Occupational Classification (SOC) System codes and titles used in this report are:

- 15-1257, Web Developers and Digital Interface Designers
- 27-1014, Special Effects Artists and Animators
- 27-1024, Graphic Designers
- 43-9031, Desktop Publishers

The occupational titles, job descriptions, sample job titles, and knowledge and skills from the Bureau of Labor Statistics and O\*NET OnLine are shown below. O\*NET data was not available for web developers and digital interface designers.

### **Special Effects Artists and Animators**

**Job Description:** Create special effects or animations using film, video, computers, or other electronic tools and media for use in products, such as computer games, movies, music videos, and commercials.

**Knowledge:** Computer and Electronics, English Language, Design, Communications and Media, Customer and Personal Service

**Skills:** Active Listening, Critical Thinking, Reading Comprehension, Speaking, Active Learning

### **Graphic Designers**

**Job Description:** Design or create graphics to meet specific commercial or promotional needs, such as packaging, displays, or logos. May use a variety of mediums to achieve artistic or decorative effects.

**Knowledge:** Design, Communications and Media, English Language, Fine Arts, Computer and Electronics

**Skills:** Active Listening, Critical Thinking, Speaking, Reading Comprehension, Active Learning

### **Desktop Publishers**

**Job Description:** Format typescript and graphic elements using computer software to produce publication-ready material.

**Knowledge:** Computer and Electronics, Communication and Media, English Language

**Skills:** Critical Thinking, Reading Comprehension, Judgment and Decision Making, Active Listening, Speaking

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<sup>1</sup> The term "living wage" in Center of Excellence reports is calculated by averaging the self-sufficiency wages from the Insight Center's California Family Needs Calculator for each county in the subregion: <https://insightccd.org/tools-metrics/self-sufficiency-standard-tool-for-california/>.

# Occupational Demand

The NCV/NML subregion employed 1008 workers in ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society occupations in 2020 (Exhibit 1). The largest occupation is graphic designers with 537 workers in 2020. This occupation is projected to grow by 5% over the next five years and has the greatest number of projected annual openings, 56.

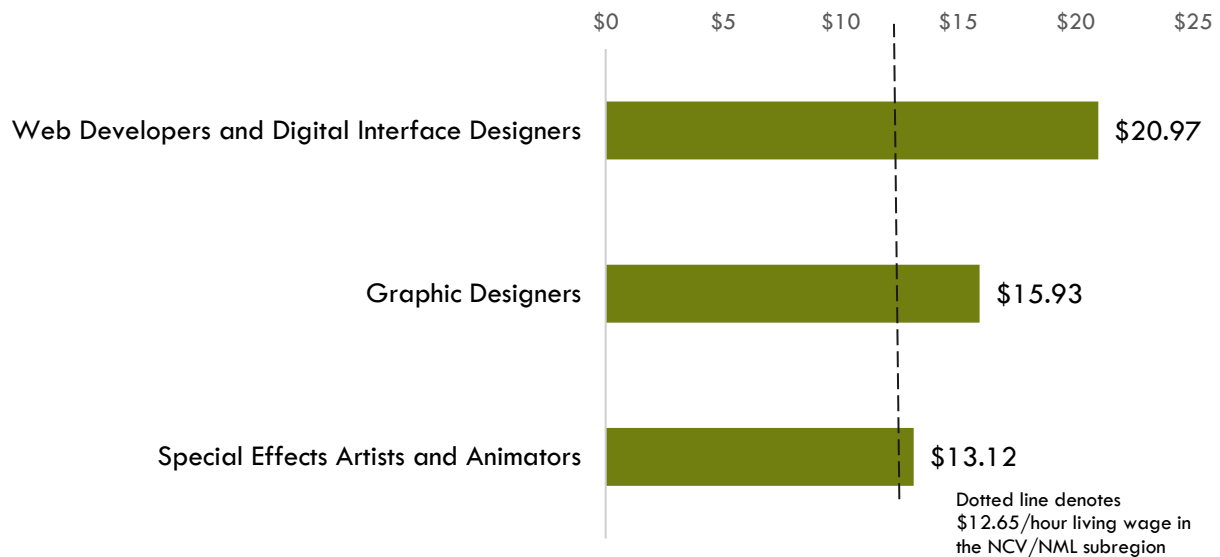
**Exhibit 1. ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society employment and occupational projections in the NCV/NML subregion**

Occupation	2020 Jobs	2025 Jobs	5-Year Change	5-Year % Change	Annual Openings
Graphic Designers	537	562	25	5%	56
Web Developers and Digital Interface Designers	342	368	26	8%	32
Special Effects Artists and Animators	124	115	(9)	(7%)	12
Desktop Publishers	<10	<10	Insf. Data	Insf. Data	0
<b>TOTAL</b>	<b>1,008</b>	<b>1,049</b>	<b>40</b>	<b>4%</b>	<b>100</b>

# Wages

Exhibit 2 shows the entry-level hourly wages of the ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society occupations. Web developers and digital interface designers earn the highest entry-level wage, \$20.97/hour in the subregion. Entry-level wages are derived from the 25<sup>th</sup> percentile. Please note there was no information available for desktop publishers

**Exhibit 2. ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society entry-level wages in the NCV/NML subregion**



# Job Postings

There were 179 job postings for the four occupations in the NCV/NML subregion from August 2021 to January 2021.<sup>2</sup> The employers with the most job postings are listed in Exhibit 3.

**Exhibit 3. Top employers of ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society by number of job postings**

Employer	Job Postings	% Job Postings
Anthem Blue Cross	6	9%
Danaher Corporation	6	9%
California State University Stanislaus	5	7%
Class Valuation	3	4%
San Joaquin County Office of Education	3	4%
Viola	3	4%
Banner Health System	2	3%
Better Place Forests	2	3%
Ej Gallo Winery	2	3%
Electronic Arts Incorporated	2	3%

Exhibit 4 shows how job postings for the targeted occupations in the NCV/NML subregion are distributed across three O\*NET OnLine occupations. The occupational title web developers is listed in 145 job postings. Note how this occupational title dominates the job posting results. Common job titles in postings include Front End Engineer in 20 job postings, Backend Engineer in 19 job postings, and Front End Engineer - Remote in 18 job postings.

**Exhibit 4. Top occupational titles in job postings for ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society**

Occupational Title	Job Postings	% of Job Postings
Web Developers	145	81%
Graphic Designers	30	17%
Multimedia Artists and Animators	4	2%

## Salaries

Exhibit 5 shows the “Market Salaries” for ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society occupations that are calculated by Burning Glass which uses a machine learning model built off of millions of job postings every year, and accounts for adjustments based on locations, industry, skills, experience, education requirements, among other variables.

<sup>2</sup> Other than occupation titles and job titles, the categories below can be counted one or multiple times per job posting, and across several areas in a single posting. For example, a skill can be counted in two different skill types, and an employer can indicate more than one education level.

**Exhibit 5. Salaries for ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society occupations**

Market Salary Percentile	Salary Amount
10th Percentile	\$47,813
25th Percentile	\$70,333
50th Percentile	\$86,950
75th Percentile	\$102,672
90th Percentile	\$105,120

**Education**

Of the 179 job postings, 157 listed an education level preferred for the positions being filled. Among those, 96% requested a bachelor’s degree, 6% requested a master’s degree, and 5% requested an associate degree (Exhibit 6). A job posting can indicate more than one education level. Hence, the percentages shown in the chart below may total more than 100%.

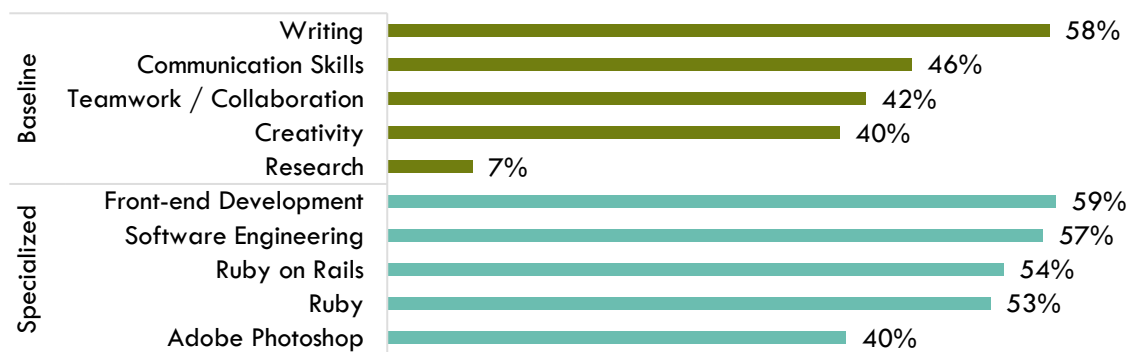
**Exhibit 6. Education levels requested in job postings for ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society**

Education Level	Job Postings	% of Job Postings
Bachelor's degree	150	96%
Master's degree	10	6%
Associate's degree	8	5%
High school or vocational training	7	4%
Doctoral degree	7	4%

**Baseline and Specialized Skills**

Exhibit 7 depicts the top baseline and specialized skills for the targeted occupations. The three most important baseline skills are writing, 58% of job postings, communication, 46%, and teamwork/collaboration, 42%. The top three specialized skills are front-end development, 59% of job postings, software engineering 57%, and ruby on rails, 54%.

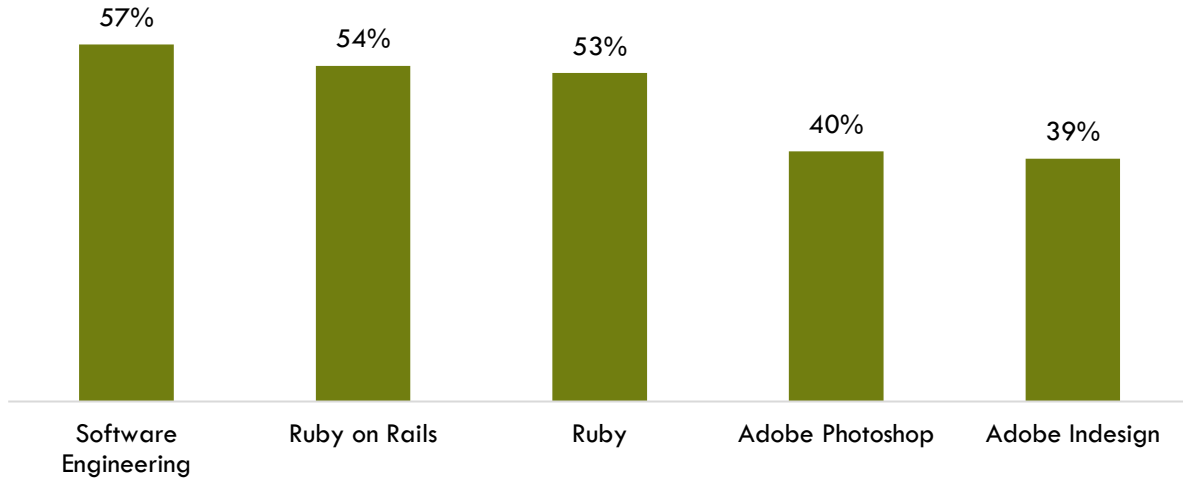
**Exhibit 7. In-demand ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society baseline and specialized skills**



### Software Skills

Analysis also included the software skills most in demand by employers. software engineering and Ruby on Rails were the top two software skills identified in job postings (Exhibit 8).

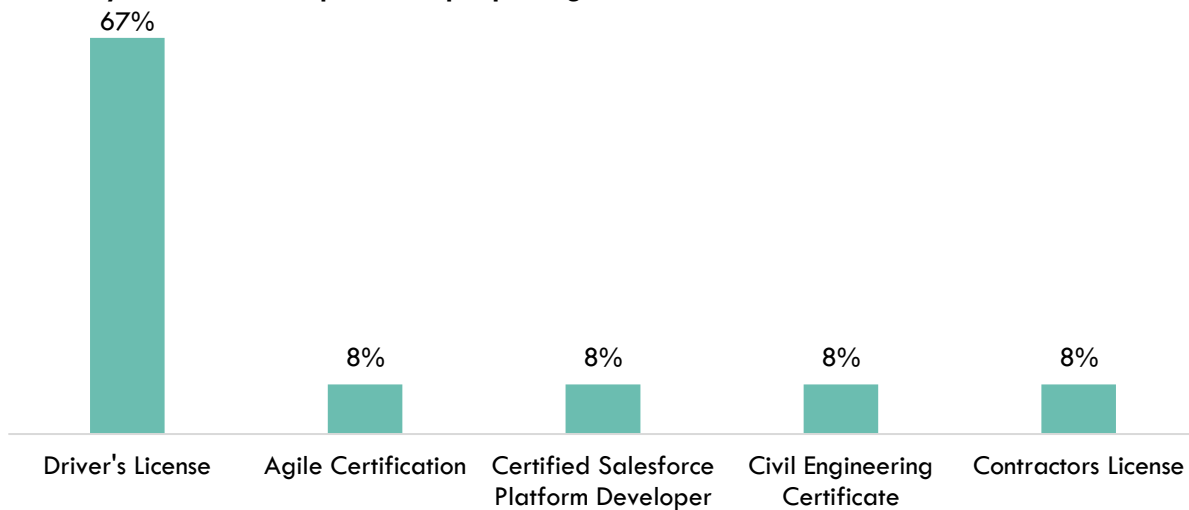
**Exhibit 8. In-demand ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society software skills**



### Certifications

Of the 179 job postings, 12 contained certification data. Among those, 53% indicated a need for a driver's license. The next top certifications are a driver's license and AWS D1.1 (Exhibit 9). (Due to the low number of job postings with certifications listed, the chart below may not be representative of the full sample.)

**Exhibit 9. Top ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society certifications requested in job postings**





# Education, Work Experience & Training

An associate degree is typically required for web developers and digital interface designers and desktop publishers. A bachelor's degree is typically required for graphic designers and special effects artists and animators (Exhibit 10).

**Exhibit 10. Education, work experience, training, and Current Population Survey results for ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society occupations<sup>3</sup>**

Occupation	Typical Entry-level Education	Work Experience Required	Typical On-The-Job Training	CPS
Graphic Designers	Bachelor's degree	None	None	26.5%
Web Developers and Digital Interface Designers	Associate's degree	None	None	23.4%
Special Effects Artists and Animators	Bachelor's degree	None	None	27.7%
Desktop Publishers	Associate's degree	None	Short-term	40.7%

## Supply

Analysis of program data from the California Community Colleges Chancellor's Office Data Mart included the TOP codes and titles: 061400 - Digital Media, and 103000 - Graphic Art and Design. Analysis of the last three years of data shows that, on average, 25 awards were conferred in the Central Valley/Mother Lode region each year (Exhibit 11). Please note based on the information provided from the requestor, 101300 Commercial Art appears to be the TOP code of best fit.

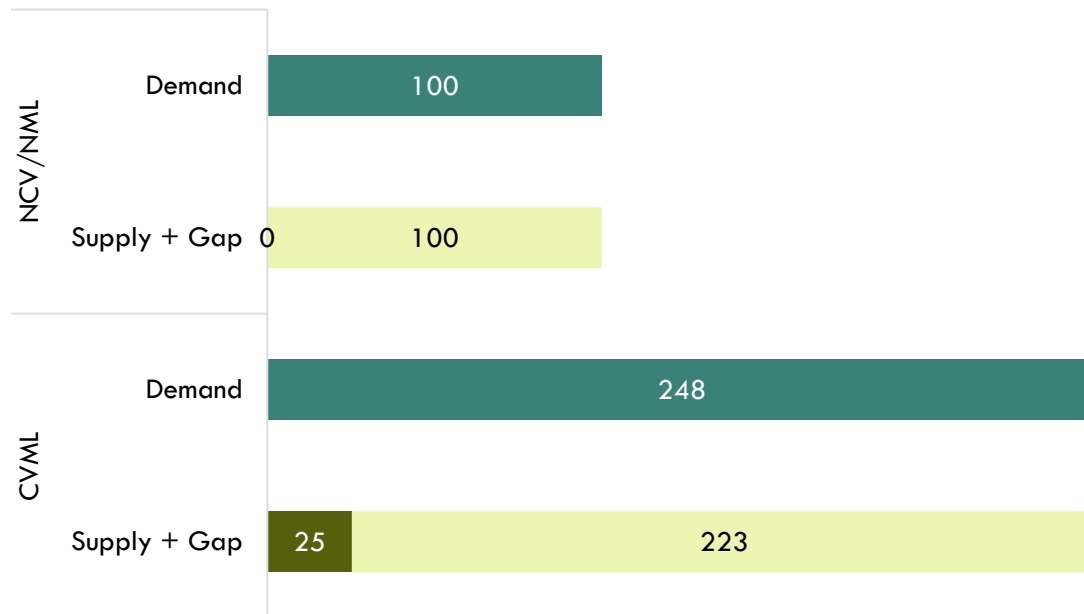
**Exhibit 11. Postsecondary supply for ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society occupations in the region**

TOP/ CIP Code- Title	College	Associate Degree	Certificate 12 < 18 semester units	Certificate 30 < 60 semester units	Certificate 6 < 18 semester units	Certificate 8 < 16 semester units	Subtotal
061400 - Digital Media	Sequoias				0		0
103000 - Graphic Art and Design	Fresno City	5		5			10
	Sequoias	2	2		9	1	15
<b>Total</b>		<b>7</b>	<b>2</b>	<b>5</b>	<b>9</b>	<b>1</b>	<b>25</b>

There is an undersupply of 100 ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society workers in the NCV/NML subregion and 223 workers in the region (Exhibit 12).

<sup>3</sup> "Labor Force Statistics from the Current Population Survey," Bureau of Labor Statistics, <https://www.bls.gov/cps/>.

**Exhibit 12. ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society workforce demand (annual job openings), postsecondary supply of students (awards), and additional students needed to fill gap in the NCV/NML subregion and region**



## Supply

Exhibit 13 summarizes employment and wage outcomes from the California Community College Chancellor’s Cal-PASS Plus LaunchBoard for the TOP code related to ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society. Of note, 26 graphic art and design students received a degree or certificate or attained apprenticeship journey status; 104 students transferred; 39% of students obtained a job closely related to their field of study; 38% had a median change in earnings; and 46% of students attained a living wage.

**Exhibit 13. Regional metrics for the TOP code related to ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society**

Metric	Digital Media 061400	Graphic Art and Design 103000
Students Who Got a Degree or Certificate or Attained Apprenticeship Journey Status	*	26
Number of Students Who Transferred	46	104
Job Closely Related to Field of Study	46%	39%
Median Change in Earnings	24%	38%
Attained a Living Wage	57%	46%
* denotes data not available.		

## Conclusion

The entry-level wages of three of the four occupations exceed the NCV/NML subregion's average living wage. There were 179 job postings in the past six months for occupations related to ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society in the subregion. Analysis of skills and certification requirements in job postings indicates:

- The top baseline skill is writing, and the top specialized skill is front-end development.
- The top software skill is software engineering.
- The top certification is a driver's license.

There is an undersupply of trained workers, a shortage of 100 in the NCV/NML subregion and 223 in the region.

## Recommendation

Based on these findings, it is recommended that San Joaquin Delta College work with the regional directors, the college's advisory board, and local industry in the development of programs to address the shortage of ARTrepreneurship and ARTivism: Art for Application in Business, Law, Public Policy, and Society workers in the region.

# Appendix A: Methodology & Data Sources

## Data Sources

Labor market and educational supply data compiled in this report derive from a variety of sources. Data were drawn from external sources, including the Economic Modeling Specialists, Inc., the California Community Colleges Chancellor’s Office Management Information Systems Data Mart and the National Center for Educational Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS). Below is the summary of the data sources found in this study.

Data Type	Source
Labor Market Information/Population Estimates and Projections/Educational Attainment	Economic Modeling Specialists, Intl. (EMSI). EMSI occupational employment data are based on final EMSI industry data and final EMSI staffing patterns. Wage estimates are based on Occupational Employment Statistics (QCEW and Non-QCEW Employees classes of worker) and the American Community Survey (Self-Employed and Extended Proprietors). Occupational wage estimates also affected by county-level EMSI earnings by industry: <a href="http://economicmodeling.com">economicmodeling.com</a> .
Typical Education Level and On-the-job Training	Bureau of Labor Statistics (BLS) uses a system to assign categories for entry-level education and typical on-the-job training to each occupation for which BLS publishes projections data: <a href="https://www.bls.gov/emp/tables/educational-attainment.htm">https://www.bls.gov/emp/tables/educational-attainment.htm</a> .
Labor Force, Employment and Unemployment Estimates	California Employment Development Department, Labor Market Information Division: <a href="http://labormarketinfo.edd.ca.gov">labormarketinfo.edd.ca.gov</a> .
Job Posting and Skills Data	Burning Glass: <a href="http://burning-glass.com/">burning-glass.com/</a> .
Additional Education Requirements/ Employer Preferences	The O*NET Job Zone database includes over 900 occupations as well as information on skills, abilities, knowledge, work activities and interests associated with specific occupations: <a href="http://onetonline.org">onetonline.org</a> .

## Key Terms and Concepts

**Annual Job Openings:** Annual openings are calculated by dividing the number of years in the projection period by total job openings.

**Education Attainment Level:** The highest education attainment level of workers age 25 years or older.

**Employment Estimate:** The total number of workers currently employed.

**Employment Projections:** Projections of employment are calculated by a proprietary Economic Modeling Specialists, Intl. (EMSI) formula that includes historical employment and economic indicators along with national, state and local trends.

**Living Wage:** The cost of living in a specific community or region for one adult and no children. The cost increases with the addition of children.

**Occupation:** An occupation is a grouping of job titles that have a similar set of activities or tasks that employees perform.

**Percent Change:** Rate of growth or decline in the occupation for the projected period; this does not factor in replacement openings.

**Replacements:** Estimate of job openings resulting from workers retiring or otherwise permanently leaving an occupation. Workers entering an occupation often need training. These replacement needs, added to job openings due to growth, may be used to assess the minimum number of workers who will need to be trained for an occupation.

**Total Job Openings (New + Replacements):** Sum of projected growth (new jobs) and replacement needs. When an occupation is expected to lose jobs, or retain the current employment level, number of openings will equal replacements.

**Typical Education Requirement:** represents the typical education level most workers need to enter an occupation.

**Typical On-The-Job Training:** indicates the typical on-the-job training needed to attain competency in the skills needed in the occupation.