May 8, 2026

Gary Graves
Professor and CCCCO AI Fellow
Business & Computer Information Systems Division
Fullerton College
321 E. Chapman Ave.
Fullerton, CA 92832

Dear Professor Graves,

**Subject: Summary of Labor Market Assessment for Proposed Applied Human-AI Collaboration and Leadership Bachelor of Science Degree Program**

The Orange County Center of Excellence has completed a comprehensive labor market assessment related to Fullerton College's application to offer a baccalaureate degree in Applied Human-AI Collaboration and Leadership. This analysis evaluated both the workforce need for graduates in the proposed field and whether a bachelor's degree is required or preferred for entry into the target occupations. The full labor market report is attached for reference.

***Summary of Key Findings:***

- ☑ **Educational Requirements and Certifications**: According to the Bureau of Labor Statistics (BLS) and job posting data, the targeted occupations typically require a bachelor's degree, with no state certification or licensing requirement. This aligns with the educational goals of the proposed program.
- ☑ **Work Experience and Degree Alignment**: The typical work experience expected for related positions within these occupations, as detailed by BLS and job posting information, suggests that candidates with a bachelor's degree are preferred, and 35% of postings that specify experience require 4 to 6 years.
- ☑ **Preference for Bachelor's Degree Holders:** California employers have a preference for related entry-level workers who hold a bachelor's degree as specified by 88% of job posting data listing a bachelor's degree as a minimum requirement for related positions.
- ☑ **Salary Differentials**: The available online job posting data is insufficient for a conclusive analysis of salary differentials. However, available data shows employers offer salary premiums for target positions in two of the three occupations: *project management specialists^* (+$18.95) and *management analysts^* (+$5.29).
- ☑ **Job Outlook and Demand**: The 10-year and annual average job openings for the target occupations in California and the region indicate strong projected growth of 6% and 3%, respectively. Analysis of historical employment trends and future demand in the region further supports the need for this program.

- ☑ **Occupational Wages and Living Wage Comparison**: Entry-level wages for all the targeted occupations exceed the regional living wage benchmark for a single adult; however, all three occupations offer entry-level wages below the living wage for one adult with one infant-aged child.

**Conclusion: Positive – Labor Market Endorsed**

Regional labor market data indicate a regional supply-demand gap for workers with a bachelor's degree in Applied Human-AI Collaboration and Leadership. The analysis shows a strong demand for workers in the target occupations, with positive employment projections across the state and a growing number of job openings in the region. Each target occupation offers entry-level wages above the living wage; though limited, available data suggests two of the three occupations pay a wage premium for having a bachelor's degree as opposed to an associate degree.

For the detailed analysis of data and findings, please refer to the attached full labor market assessment report. Should you have any questions or require further information, you are welcome to contact us.

Respectfully,

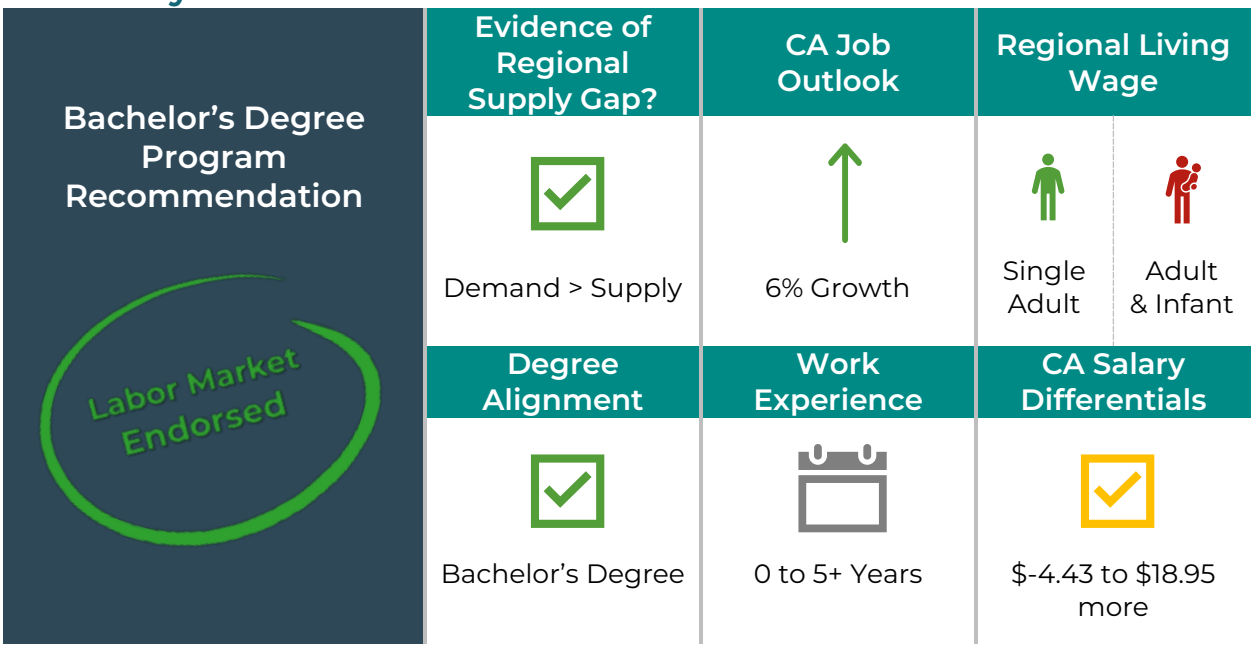


Jesse Crete, Ed.D.
Regional Director, Orange County Center of Excellence
714-564-5521
Crete_Jesse@rsccd.edu

# Baccalaureate Program Labor Market Analysis:
# TOP Code: 0501.00/Business and Commerce, General
# CIP Code: 52.0201/Business Administration and Management, General
# (*Applied Human-AI Collaboration and Leadership Bachelor of Science*)

Orange County Center of Excellence, May 2026

## Summary




The Orange County Center of Excellence for Labor Market Research (OC COE) prepared this report to provide labor market supply and demand data related to Fullerton College's (Fullerton's) proposed Applied Human-AI Collaboration and Leadership Bachelor of Science degree program. This report examines two above middle-skill occupations, denoted with a caret (^), and one middle-skill occupation:

- Detailed, Above Middle-Skill Occupations
  - General and Operations Managers (11-1021)
  - Project Management Specialists (13-1082)^
  - Management Analysts (13-1111)^

Although *General and Operations Managers* are often classified as middle-skill, a bachelor's degree is typically required for employment in related positions; currently, 33% of its incumbent workforce have a four-year degree as their highest educational attainment. This follows trends seen in the two above middle-skill occupations, which also require a bachelor's degree for entry and have high percentages of four-year degree-holders (47% and 44%). Online job postings further support the need for a bachelor's degree for 'human-AI collaboration and leadership' roles (henceforth, "target positions') within these three occupations. This analysis examines the target positions using online job posting data in conjunction with traditional labor market data for the three occupations.

The resulting endorsement criteria are based on traditional labor market data for the three detailed occupations (i.e., Regional Supply Gap, CA Job Outlook, Wages) and real-time labor market data (i.e., Degree Alignment, Work Experience, CA Salary Differentials) from the target positions.

The available data indicates a regional supply gap for the 'human-AI collaboration and leadership' occupations, and the typical education requirements align with the objectives of the proposed program. All annual job openings offer entry-level wages that exceed the Self-Sufficiency Standard living wage for a single adult in Orange County. Real-time labor market data for target positions within the two above middle-skill occupations indicate that postings requesting a bachelor's degree consistently advertise higher entry-level wages than those requesting only an associate degree. Conversely, real-time labor market data for *General and Operations Managers* deviates from this pattern; however, this is likely due to the small sample size of associate degree requests (33) compared to the volume of bachelor's degree requests (1,042).

The analysis demonstrates a workforce need for Fullerton's proposed Applied Human-AI Collaboration and Leadership Bachelor of Science degree, which would provide the education necessary for employment in the target positions.

## Introduction

The findings aim to inform Fullerton's proposed Applied Human-AI Collaboration and Leadership Bachelor of Science degree.

Exhibit 1 shows the demand, supply, entry-level hourly wages, and percentage of incumbent workers that have completed a bachelor's degree as their highest level of education.

Exhibit 1: Occupational Demand and Supply in Los Angeles/Orange Counties

| Occupation (SOC) | Demand (Annual Openings) | Supply (Non-CC) | Entry-Level Hourly Earnings (25th Percentile) | Bachelor's Degree Educational Attainment |
|---|---|---|---|---|
| General and Operations Managers (11-1021) | LA: 6,222 | LA: 7,592 | LA: $40.49 | 33% |
| | OC: 2,603 | OC: 3,598 | OC: $40.33 | |
| | *TTL: 8,825* | *TTL: 11,190* | *LA/OC: $40.44* | |
| Project Management Specialists (13-1082)^ | LA: 1,835 | LA: 171 | LA: $37.50 | 47% |
| | OC: 918 | OC: 118 | OC: $38.17 | |
| | *TTL: 2,753* | *TTL: 289* | *LA/OC: $37.72* | |
| Management Analysts (13-1111)^ | LA: 2,996 | Accounted for Above | LA: $36.33 | 44% |
| | OC: 1,261 | | OC: $34.98 | |
| | *TTL: 4,256* | | *LA/OC: $35.92* | |
| **Total** | **15,835** | **11,479** | **N/A** | **N/A** |

## Literature Review

The rapid integration of artificial intelligence into business operations has generated growing demand for workers who can effectively apply, oversee, and coordinate AI tools—rather than design or build them. This literature review synthesizes recent research on AI-related workforce needs, the role of baccalaureate-level education in meeting employer demand, the particular challenges facing small businesses, and the regional context of Orange County and California.

### The Growing Demand for AI Fluency Across the Workforce

Employer demand for AI-related skills has grown at a remarkable pace. According to Lightcast job postings data, the number of postings requiring AI skills jumped 73% from 2023

to 2024 and surged an additional 109% from 2024 to 2025.[1] McKinsey's 2025 State of AI report found that worldwide, 78% of organizations now use AI in at least one business function, up from just 50% in 2022.[2] Critically, this demand is no longer concentrated in technical or engineering roles. Lightcast data shows that four of the ten occupations with the highest growth in AI skill demand are primarily non-technical: marketing managers, market research analysts, sales managers, and operations roles.[3] PwC's 2025 Global AI Jobs Barometer—drawing on analysis of nearly one billion job postings across six continents—found that jobs requiring AI skills now command a 56% wage premium over comparable positions without those skills, up from 25% the prior year.[4]

Research from the Federal Reserve Bank of Atlanta provides important nuance: AI skill demand is most concentrated in occupations requiring a bachelor's degree or higher. In 2024, 4.7% of online job postings requiring a bachelor's degree also required at least one AI skill, compared to just 1.4% for associate degree-level postings and 0.5% for high school-level postings. Within major occupational groups, management and business and financial operations—the categories most closely aligned with the proposed program—ranked among the highest in AI skill demand at 2.2% and 2.4% of all postings, respectively.[5]

## The Shift Toward Human-AI Collaboration and Applied AI Skills

A growing body of research distinguishes between workers who build AI systems and workers who apply and oversee them—a distinction central to the proposed program. The World Economic Forum's 2025 Future of Jobs Report identified human-AI collaboration as one of the most critical emerging workforce competencies, estimating that close to 60% of all workers will require training before 2030 to work effectively alongside intelligent systems.[6]

Globally, the adoption of generative AI in the workplace rose from 22% of organizations in 2023 to 75% in 2024, yet most organizations report that fewer than 1% describe themselves as operating at full AI maturity.[7] This gap between adoption and effective integration represents a significant and unmet need for workers trained not just to use AI tools but to orchestrate them strategically within organizational workflows.

## AI Adoption and the Skills Gap in Small Business

A 2025 national survey of nearly 1,000 small businesses found that 82% of small business owners view adopting AI as essential to staying competitive, and 76% are either actively using or exploring AI tools. Among current adopters, the most frequently cited barrier to deeper adoption was not cost or technology access—it was practical training and the ability to demonstrate business value.[8] Similarly, Thryv's 2025 national survey of small business

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[1] edX, "Demand for AI Skills Has Doubled over the Last Year," August 26, 2025, https://www.edx.org/resources/demand-for-ai-skills.

[2] McKinsey & Company, *The State of AI: How Organizations Are Rewiring to Capture Value* (New York: McKinsey Global Institute, 2025), https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai.

[3] edX, "Demand for AI Skills."

[4] PricewaterhouseCoopers (PwC), *The Fearless Future: 2025 Global AI Jobs Barometer* (London: PwC, 2025), https://www.pwc.com/gx/en/services/ai/ai-jobs-barometer.html.

[5] Federal Reserve Bank of Atlanta, Center for Workforce and Economic Opportunity, "By Degree(s): Measuring Employer Demand for AI Skills by Educational Requirements," *Workforce Currents*, May 21, 2025, https://www.atlantafed.org/research-and-data/publications/workforce-currents/2025/05/21/01-by-degrees-measuring-employer-demand-ai-skills-educational-requirements.

[6] World Economic Forum, *The Future of Jobs Report 2025* (Geneva: World Economic Forum, 2025), https://www.weforum.org/publications/the-future-of-jobs-report-2025/.

[7] McKinsey & Company, *State of AI*.

[8] Public Private Strategies Institute and PayPal, "Beyond Efficiency: Small Businesses Look to AI for Competitive Edge," press release, Reimagine Main Street, June 10, 2025, https://www.reimaginemainstreet.org/ai-survey-press-release.

decision-makers found that AI adoption among companies with 10 to 100 employees jumped from 47% to 68% in a single year, with professional services among the leading sectors.[9]

The U.S. Small Business Administration's Office of Advocacy documented that while a gap between small and large firms in AI adoption persists, it is closing rapidly: in early 2024, large businesses used AI at 1.8 times the rate of small businesses, and that gap has narrowed substantially by 2025.[10] Among small businesses using AI, the most common use-cases center on marketing, sales, and operational efficiency—precisely the domains where applied human-AI collaboration skills are most needed. However, the SBA also found that small firms predominantly use AI for peripheral rather than core business tasks, with only 29% of small firms using generative AI in their core activities.[11] Bridging that gap requires workers who understand both business operations and AI capabilities.

### California and Orange County Context

California occupies a particularly prominent position in the national AI labor market. According to Stanford's 2025 AI Index Report, AI-related jobs accounted for 1.8% of all U.S. job postings in 2024, and over 15% of those postings were in California—more than any other state.[12] California added over 100,000 AI-related job postings in 2024 alone, with the strongest growth in information, professional services, finance, and manufacturing[13]. The state's legislative analysis also highlights that while AI is creating new employment opportunities, risks include a widening gap between workers who can leverage AI and those who cannot—with particular concern for entry-level workers and those in lower-wage occupations.[14]

Orange County is emerging as a regional AI hub with a documented talent gap. The CEO Leadership Alliance of Orange County's 2024 State of AI in OC Report—based on surveys and interviews with regional employers—documented more than 400% growth in AI investment deals in the county over the past decade, with AI investment per capita on par with or ahead of peer California regions.[15] The report identified strategic investment in talent development as critical to sustaining that momentum, calling for stronger alignment between educational institutions and employers across AI-intensive sectors. This regional assessment is echoed by the 2026 Orange County Economic Opportunity Report, published by the Orange County Community Foundation, which specifically cited securing the region's competitive advantage in AI and high-tech sectors as a priority, with workforce training and educational pipeline investment as the primary lever.[16]

## Statewide Analysis

This section presents a statewide overview of the three 'applied human-AI collaboration and leadership' occupations, focusing on five key areas: entry-level education requirements, desired licenses and certifications, work experience expectations, salary differentials by

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[9] Thryv, Inc., "AI Adoption among Small Businesses Surges 41% in 2025," press release, July 17, 2025, https://investor.thryv.com/news/news-details/2025/AI-Adoption-Among-Small-Businesses-Surges-41-in-2025-According-to-New-Survey-from-Thryv/.

[10] US Small Business Administration (SBA), Office of Advocacy, "Research Spotlight—AI in Business: Small Firms Closing In" (Washington, DC: SBA, September 2025), https://advocacy.sba.gov/wp-content/uploads/2025/09/Research-Spotlight-AI-in-Business-Small-Firms-Closing-In_-092425.pdf.

[11] OECD, *AI Adoption by Small and Medium-Sized Enterprises* (Paris: OECD Publishing, 2025), https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/12/ai-adoption-by-small-and-medium-sized-enterprises.

[12] Nestor Maslej et al., *Artificial Intelligence Index Report 2025* (Stanford, CA: AI Index Steering Committee, Institute for Human-Centered AI, Stanford University, 2025), https://hai.stanford.edu/ai-index/2025-ai-index-report.

[13] California Senate Select Committee on Economic Development and Technological Innovation, "Examining the Impacts of Artificial Intelligence on California's Workforce—Potential Benefits and Risks," background paper (California State Senate, October 23, 2025), https://www.senate.ca.gov/system/files/2025-10/examining-the-impacts-of-artificial-intelligence-on-californias-workforce-potential-benefits-and-risks-background-paper.pdf.

[14] Ibid.

[15] CEO Leadership Alliance of Orange County (CLAOC), *The State of AI in OC: 2024 Report* (Orange County, CA: CLAOC, 2024), https://claoc.org/ai-in-oc/.

[16] Orange County Community Foundation (OCCF), *2026 Orange County Economic Opportunity Report* (Irvine, CA: OCCF, February 2026), https://www.oc-cf.org/new-2026-orange-county-economic-opportunity-report-identifies-needs-and-solutions-to-meet-future-workforce-demand/.

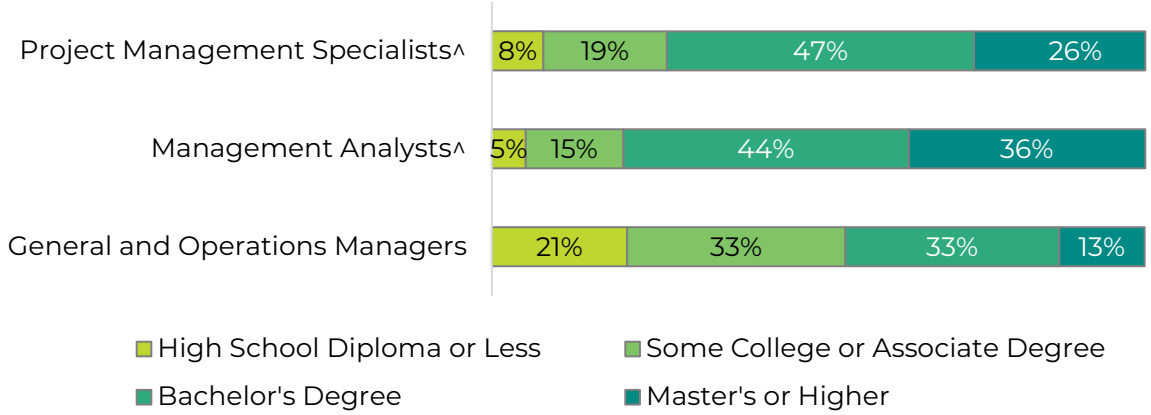
education level, and long-term job projections. Since traditional labor market data cannot be isolated for the specific target positions, the analysis draws on real-time market data to capture insights into the roles most closely aligned with the proposed program. Where necessary, demand and employment projections are based on the detailed occupations.

The job postings analysis combined the three occupations with keywords and skills aligned with the proposed program to evaluate education requirements, licensures, years of experience, and wages. See Appendix A: Methodology for a comprehensive list of skills and keywords employed in this analysis.

## Entry-Level Requirements

The Bureau of Labor Statistics (BLS) lists a bachelor's degree as the typical entry-level education for each of the three 'applied human-AI collaboration and leadership' occupations. The national-level educational attainment data indicates 33% to 47% of incumbent workers in these occupations have completed a bachelor's degree as their highest level of education. Exhibit 2 shows the educational attainment for these occupations, sorted by the highest attainment of a four-year degree.

Exhibit 2: National-level Educational Attainment for Occupations




Throughout the state, there were 98,100 job postings for three occupations over the past 12 months; 4,770 of these postings were specifically related to the target positions aligned with the proposed program. These figures only account for postings made publicly available and do not include internal recruitment.

Approximately 66% of the 4,770 postings listed a minimum education requirement, of which 88% (2,766) requested a bachelor's degree compared to 3% (83) that requested an associate degree. Exhibit 3 shows the requested level of education by number of online job postings.

Exhibit 3: Requested Education by Number of Job Postings in California (n=3,132)

| Education Level | Job Postings | Percentage of Job Postings |
|---|---|---|
| High school or GED | 114 | 4% |
| Associate's degree | 83 | 3% |
| **Bachelor's degree** | **2,766** | **88%** |
| Master's degree | 160 | 5% |
| Ph.D. or professional degree | 9 | 0% |

## Licenses, Clearances, and Certifications

While there are no official state licenses, clearances, or certifications required for entry into any of the three emerging occupations, employers list a variety of qualifications for job

applicants. Of all 4,770 online job postings for the target positions, the most requested certifications, clearances, or licenses were Master of Business Administration (MBA) (14%), Project Management Professional Certification (10%), and valid driver's license (2%).

Notably, the number of MBA requests (653) exceeds the total number of postings requiring a minimum of a master's degree (160) listed under Entry-Level Requirements. This is largely due to the following reasons:

1. Differing Sample Sizes: Entry-Level Requirements only account for postings with a stated minimum education requirement (n=3,132). This section, however, accounts for qualifications across all 4,770 postings – including those without a minimum requirement.
2. Preferred vs. Required: Many employers list a bachelor's degree as the minimum education required but include a master's degree as a "preferred" qualification.
3. Flexible Minimum Qualifications: A master's degree may be substituted for years of professional experience (e.g., requiring a bachelor with 10 years of experience OR a master's with 8).

Exhibit 4 shows the most requested licenses or certifications for these target positions, sorted by number of online job postings.

Exhibit 4: Top Licenses, Clearances, or Certifications
by Number of Job Postings in California (n=4,770)

| License or Certification | Job Postings | Percentage of Job Postings |
|---|---|---|
| Master Of Business Administration (MBA) | 653 | 14% |
| Project Management Professional Certification | 472 | 10% |
| Valid Driver's License | 84 | 2% |
| Project Management Certification | 80 | 2% |
| PMI Agile Certified Practitioner | 63 | 1% |
| Certified Scrum Master | 62 | 1% |
| Certified Public Accountant | 57 | 1% |
| Certified Scrum Product Owner | 43 | 1% |
| Certified Business Analysis Professional | 36 | 1% |
| Secret Clearance | 34 | 1% |

## Entry-Level Work Experience

The Bureau of Labor Statistics (BLS) lists 5 years or more as the typical entry-level work experience for *general and operations managers*, less than 5 years for *management analysts^*, and no years for *project management specialists^*. Of the 3,628 postings for the target positions that listed a minimum experience requirement, 35% (1,279) requested 4 to 6 years of experience, followed by 23% (819) of postings that requested 10+ years.

Exhibit 5 shows the requested years of experience by number of online job postings for the target positions.

Exhibit 5: Requested Years of Experience
by Number of Job Postings in California (n=3,628)

| Years of Experience | Job Postings | Percentage of Job Postings |
|---|---|---|
| 0 - 1 Years | 83 | 2% |
| 2 - 3 Years | 738 | 20% |
| 4 - 6 Years | 1,279 | 35% |
| 7 - 9 Years | 709 | 20% |
| 10+ Years | 819 | 23% |

## Degree Alignment

The proposed program aligns with the educational requirements for all three 'applied human-AI collaboration and leadership' occupations. BLS lists a bachelor's degree as the typical entry-level education for each of the three occupations, 33% to 47% incumbent workers attained a baccalaureate degree as their highest level of education, and the vast majority (88%) of online job postings for the target positions required at least a bachelor's degree. Entry-level work experience varies widely (0 to 5 or more years) for these occupations; this would need to be combined with the bachelor's degree earned to obtain employment.

## Salary Differentials by Level of Education

Exhibit 6 lists the advertised entry-level wage for each of the three occupations with program-aligned keywords and skills, by level of education. However, significant disparities in the number of online job postings hinder a conclusive analysis of salary differentials by education.

Among the 1,225 total postings with a minimum education requirement for *general and operations managers*, 1,042 (85%) requested a bachelor's degree but showed a salary $4.43 an hour less than the advertised salary for the 33 (3%) postings requesting an associate degree. While the high frequency of postings requesting a bachelor's degree supports the assertion that employers overwhelmingly look for *general and operations managers* with a four-year degree, the inflated salary for associate degrees is likely due to a low frequency of postings overall and cannot be considered a reliable representation of the market.

A similar trend appears for *project management specialists*^ and *management analyst*^. For each occupation, approximately 90% of job postings require a bachelor's degree, offering salary premiums of $18.95 and $5.29 per hour, respectively, over their associate degree counterparts. While the small number of postings for associate degrees makes it difficult to validate these differentials, the data consistently underscores a clear demand for four-year degrees in the target positions.

Exhibit 6: Advertised Entry-Level Wage by Level of Education (n=3,132)

| | General and Operations Managers (11-1021) | | Project Management Specialists (13-1082)^ | | Management Analysts (13-1111)^ | |
|---|---|---|---|---|---|---|
| **Education** | **Job Postings** | **Advertised Entry-Level Wage** | **Job Postings** | **Advertised Entry-Level Wage** | **Job Postings** | **Advertised Entry-Level Wage** |
| **High school diploma or GED** | 40 | $84,992 ($40.86) | 39 | $94,976 ($45.66) | 35 | $92,160 ($44.31) |
| **Associate degree** | 33 | $153,344 ($73.72) | 19 | $84,224 ($40.49) | 31 | $92,672 ($44.55) |
| **Bachelor's degree** | **1,042** | **$144,128 ($69.29)** | **831** | **$123,648 ($59.45)** | **893** | **$103,680 ($49.85)** |
| **Master's degree** | 107 | $171,520 ($82.46) | 27 | $126,208 ($60.68) | 26 | $86,528 ($41.60) |
| **Ph.D. or professional degree** | 3 | $210,000 ($100.96) | 4 | $244,000 ($117.31) | 2 | Insufficient Data |

## 10-Year Occupational Projections

Exhibit 7 shows the cumulative number of jobs for the three 'applied human-AI collaboration and leadership occupations, from 2024 through 2034. There were 593,372 jobs for these occupations in 2024. Following a small decline from 2024 to 2025, employment is projected to grow through 2034, reaching its highest rate of increase (1.2%) in 2026.

Exhibit 7: Projected Number of Jobs in 'Applied Human-AI Collaboration and Leadership' Occupations by Year, 2024-2034

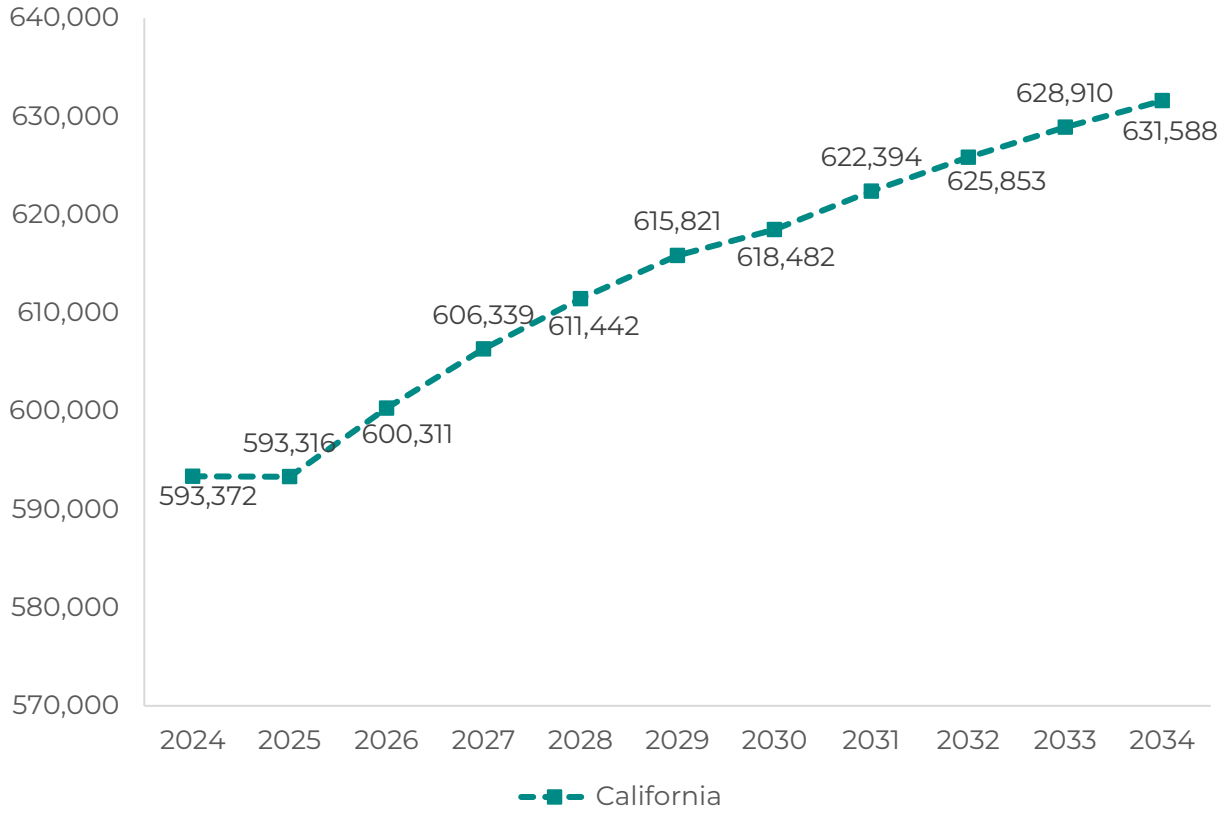



Exhibit 8 shows the ten-year occupational demand projections for the three occupations across California. Throughout the state, the number of jobs related to these occupations is projected to increase by 6% through 2034, 50,414 job openings available annually.

Exhibit 8: 10-Year Occupational Demand in California

| Occupation | 2024 Jobs | 2034 Jobs | 2024-2034 Change | 2024-2034 % Change | Annual Openings |
|---|---|---|---|---|---|
| General and Operations Managers | 307,812 | 330,573 | 22,761 | 7% | 26,905 |
| Project Management Specialists^ | 118,412 | 124,538 | 6,127 | 5% | 8,834 |
| Management Analysts^ | 167,148 | 176,476 | 9,328 | 6% | 14,676 |
| **Total** | **593,372** | **631,588** | **38,216** | **6%** | **50,414** |

## Regional Analysis

To gain a deeper understanding of labor market trends for these occupations, this section delves into Los Angeles/Orange County regional data, examining historical employment trends and demand, educational supply, and wages per occupation. Due to extensive workforce migration across Los Angeles and Orange counties, this analysis examines them in unison for a comprehensive regional view of labor market trends, aligning with standard practice recognizing the counties' integrated workforce and economic dynamics.

### Occupational Overview in the Los Angeles/Orange County Region

Exhibit 9 shows the historical, annual percent change in jobs for the three 'applied human-AI collaboration and leadership' occupations from 2014 through 2024. Employment in these occupations generally increased throughout this period, however, with two exceptions: the first being in 2017 with a 0.8% decrease and the second in 2020 with a 4% drop due to the COVID-19 pandemic in 2020. In 2021, employment spiked by 16% and continuously increased at varying degrees, finishing off with a 5% growth in 2024, the most recent year of data.

Exhibit 9: 10-Year Historical Annual Percent Change in Jobs for 'Applied Human-AI Collaboration and Leadership' Occupations, 2014-2024

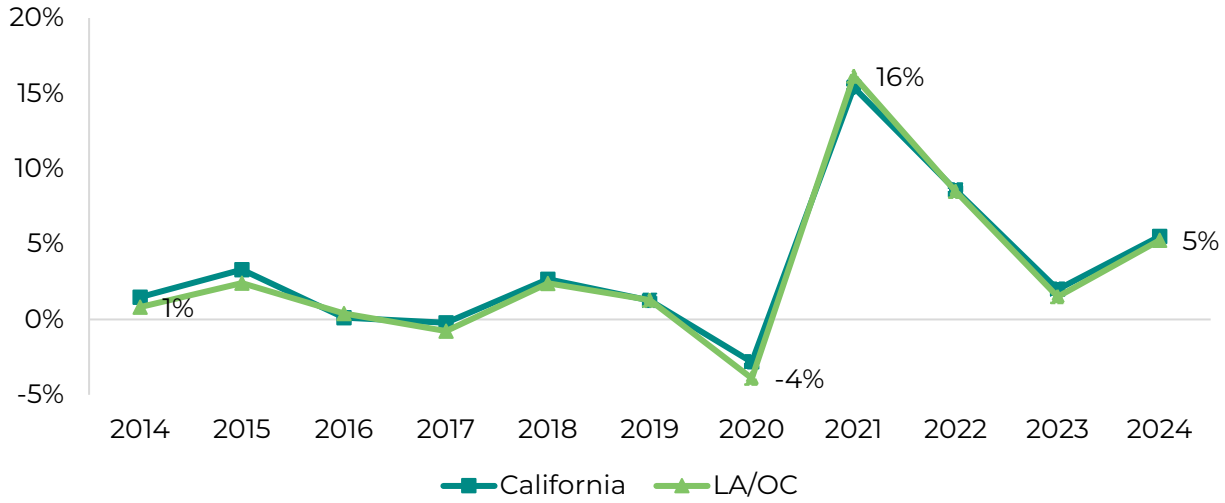



Exhibit 10 shows the ten-year occupational demand projections for the three 'applied human-AI collaboration and leadership' occupations in Los Angeles/Orange County. The number of jobs related to these occupations is projected to increase 3% through 2034, with 15,835 job openings available annually.

Exhibit 10: Occupational Demand in Los Angeles and Orange Counties[17]

| Geography | 2024 Jobs | 2034 Jobs | 2024-2034 Change | 2024-2034 % Change | Annual Openings |
|---|---|---|---|---|---|
| Los Angeles County | 139,984 | 143,082 | 3,098 | 2% | 11,053 |
| Orange County | 59,027 | 61,369 | 2,342 | 4% | 4,782 |
| **LA/OC (Total)** | **199,011** | **204,451** | **5,439** | **3%** | **15,835** |

[17] Ten-year change represents new job additions to the workforce. Annual openings include new jobs and replacement jobs that result from retirements and separations.

## Educational Supply

Many community colleges offer business and commerce programs; however, none provide baccalaureate degree training for the target positions. Therefore, educational supply is based on non-community college baccalaureate degrees.

Exhibit 11 shows the Classification of Instructional Programs (CIP) codes aligned with program needs and related to the three 'applied human-AI collaboration and leadership' occupations, as well as the number of non-community college awards conferred in each CIP code.

Exhibit 11: Related Classification of Instructional Program (CIP) Codes

| CIP Code | CIP Title | LA/OC Non-CC Baccalaureate Awards |
|---|---|---|
| 30.7102 | Business Analytics | - |
| 30.7199 | Data Analytics, Other | - |
| 42.2804 | Industrial and Organizational Psychology | 9 |
| 52.0101 | Business/Commerce, General | 12 |
| 52.0201 | Business Administration and Management, General | 10,616 |
| 52.0206 | Non-Profit/Public/Organizational Management | 0 |
| 52.0208 | E-Commerce/Electronic Commerce | 0 |
| 52.0211 | Project Management | - |
| 52.0212 | Retail Management | - |
| 52.0213 | Organizational Leadership | 280 |
| 52.0215 | Risk Management | - |
| 52.0701 | Entrepreneurship/Entrepreneurial Studies | 64 |
| 52.0704 | Social Entrepreneurship | - |
| 52.1301 | Management Science | 498 |
| | **Total** | **11,479** |

Exhibit 12 shows the annual and three-year average number of awards conferred by non-community college institutions in the related Classification of Instructional Programs (CIP) codes in Los Angeles and Orange counties. Between 2021 and 2023, four-year colleges and

universities throughout the region conferred an average of 11,479 bachelor's degrees annually in related training programs.

Exhibit 12: Regional Non-Community College Awards, 2021-2023

| CIP Code | Program | College | 2020-2021 Awards | 2021-2022 Awards | 2022-2023 Awards | 3-Year Award Average |
|---|---|---|---|---|---|---|
| 42.2804 | Industrial and Organizational Psychology | Concordia University-Irvine | 11 | 7 | 7 | 8 |
| | | Pepperdine University | 0 | 1 | 1 | 1 |
| **Supply Subtotal/Average** | | | **11** | **8** | **8** | **9** |
| 52.0101 | Business / Commerce, General | Azusa Pacific University | 10 | 15 | 10 | 12 |
| | | Loyola Marymount University | 1 | 1 | 0 | 1 |
| | | Mount Saint Mary's University | 0 | 0 | 0 | 0 |
| **Supply Subtotal/Average** | | | **11** | **16** | **10** | **12** |
| 52.0201 | Business Administration and Management, General | Abraham Lincoln University | 1 | 1 | 0 | 1 |
| | | American Jewish University | 5 | 1 | 2 | 3 |
| | | Angeles College | 10 | 16 | 0 | 9 |
| | | Azusa Pacific University | 100 | 82 | 79 | 87 |
| | | Bethesda University | 28 | 14 | 22 | 21 |
| | | Biola University | 120 | 106 | 111 | 112 |
| | | California State Polytechnic University-Pomona | 1,644 | 1,561 | 1,521 | 1,575 |
| | | California State University-Dominguez Hills | 619 | 588 | 537 | 581 |
| | | California State University-Fullerton | 2,367 | 2,164 | 2,066 | 2,199 |
| | | California State University-Long Beach | 1,457 | 1,491 | 1,284 | 1,411 |
| | | California State University-Los Angeles | 864 | 726 | 896 | 829 |
| | | California State University-Northridge | 760 | 769 | 1,052 | 860 |
| | | Chapman University | 452 | 453 | 422 | 442 |
| | | Concordia University-Irvine | 76 | 64 | 82 | 74 |

| CIP Code | Program | College | 2020-2021 Awards | 2021-2022 Awards | 2022-2023 Awards | 3-Year Award Average |
|---|---|---|---|---|---|---|
| | | Haven University | 0 | 0 | 0 | 0 |
| | | Hope International University | 35 | 38 | 37 | 37 |
| | | Latin American Bible Institute | 0 | 0 | 0 | 0 |
| | | Life Pacific University | 17 | 19 | 22 | 19 |
| | | Los Angeles Pacific University | 4 | 14 | 24 | 14 |
| | | Loyola Marymount University | 52 | 41 | 55 | 49 |
| | | Mount Saint Mary's University | 29 | 20 | 16 | 22 |
| | | Pacific College | 0 | 0 | 0 | 0 |
| | | Pacific Oaks College | 1 | 0 | 0 | 0 |
| | | Pacific States University | 1 | 4 | 0 | 2 |
| | | Pepperdine University | 176 | 218 | 186 | 193 |
| | | Platt College-Anaheim | 0 | 0 | 0 | 0 |
| | | Platt College-Los Angeles | 0 | 0 | 0 | 0 |
| | | Presbyterian Theological Seminary in America | 0 | 0 | 0 | 0 |
| | | The Master's University and Seminary | 40 | 43 | 54 | 46 |
| | | University of Antelope Valley | 16 | 15 | 14 | 15 |
| | | University of California-Irvine | 379 | 340 | 360 | 360 |
| | | University of La Verne | 296 | 219 | 192 | 236 |
| | | University of Massachusetts Global | 266 | 299 | 282 | 282 |
| | | University of Southern California | 1,035 | 832 | 0 | 622 |
| | | University of the People | 214 | 235 | 306 | 252 |
| | | University of the West | 11 | 9 | 10 | 10 |

| CIP Code | Program | College | 2020-2021 Awards | 2021-2022 Awards | 2022-2023 Awards | 3-Year Award Average |
|---|---|---|---|---|---|---|
| | | Vanguard University of Southern California | 66 | 50 | 53 | 56 |
| | | West Coast University-Orange County | 0 | 0 | 7 | 2 |
| | | Westcliff University | 107 | 114 | 148 | 123 |
| | | Whittier College | 62 | 39 | 64 | 55 |
| | | Woodbury University | 30 | 8 | 10 | 16 |
| **Supply Subtotal/Average** | | | **11,340** | **10,593** | **9,914** | **10,616** |
| 52.0206 | Non-Profit / Public / Organizational Management | Concordia University-Irvine | 0 | 0 | 0 | 0 |
| **Supply Subtotal/Average** | | | **0** | **0** | **0** | **0** |
| 52.0208 | E-Commerce / Electronic Commerce | University of La Verne | 1 | 0 | 0 | 0 |
| **Supply Subtotal/Average** | | | **1** | **0** | **0** | **0** |
| 52.0213 | Organizational Leadership | Azusa Pacific University | 0 | 0 | 0 | 0 |
| | | California State University-Dominguez Hills | 0 | 0 | 9 | 3 |
| | | Claremont Lincoln University | 0 | 0 | 0 | 0 |
| | | Los Angeles Pacific University | 69 | 46 | 41 | 52 |
| | | The Master's University and Seminary | 1 | 2 | 1 | 1 |
| | | University of La Verne | 132 | 131 | 68 | 110 |
| | | University of Massachusetts Global | 147 | 114 | 58 | 106 |
| | | University of West Los Angeles | 4 | 0 | 1 | 2 |
| | | Vanguard University of Southern California | 1 | 3 | 7 | 4 |
| | | Woodbury University | 2 | 2 | 0 | 1 |
| **Supply Subtotal/Average** | | | **356** | **298** | **185** | **280** |
| 52.0701 | | Azusa Pacific University | 3 | 3 | 2 | 3 |

| CIP Code | Program | College | 2020-2021 Awards | 2021-2022 Awards | 2022-2023 Awards | 3-Year Award Average |
|---|---|---|---|---|---|---|
| | Entrepreneurship / Entrepreneurial Studies | Hussian College-Los Angeles | 0 | 0 | 0 | 0 |
| | | Loyola Marymount University | 62 | 52 | 66 | 60 |
| | | The Master's University and Seminary | 0 | 0 | 1 | 0 |
| | | University of La Verne | 0 | 1 | 0 | 0 |
| | | Westcliff University | 0 | 0 | 2 | 1 |
| **Supply Subtotal/Average** | | | **65** | **56** | **71** | **64** |
| 52.1301 | Management Science | Loyola Marymount University | 33 | 38 | 30 | 34 |
| | | University of Southern California | 0 | 172 | 1,221 | 464 |
| | | Westcliff University | 0 | 0 | 0 | 0 |
| **Supply Subtotal/Average** | | | **33** | **210** | **1,251** | **498** |
| **Supply Total/Average** | | | **11,817** | **11,181** | **11,439** | **11,479** |

## Wages

This report considers the entry-level hourly wages for the three 'applied human-AI collaboration and leadership' occupations as they relate to the county's living wage. These figures represent the high and low range of regional living wages. Entry-level hourly earnings are represented by the 25th percentile, which indicates 25% of workers in that occupation earn less than that amount while 75% earn more.

Each county's wage analysis presents a weighted entry-level wage across all three occupations adjusted by 2024 jobs. This approach accounts for wage variation by normalizing the influence of high- or low-wage occupations.

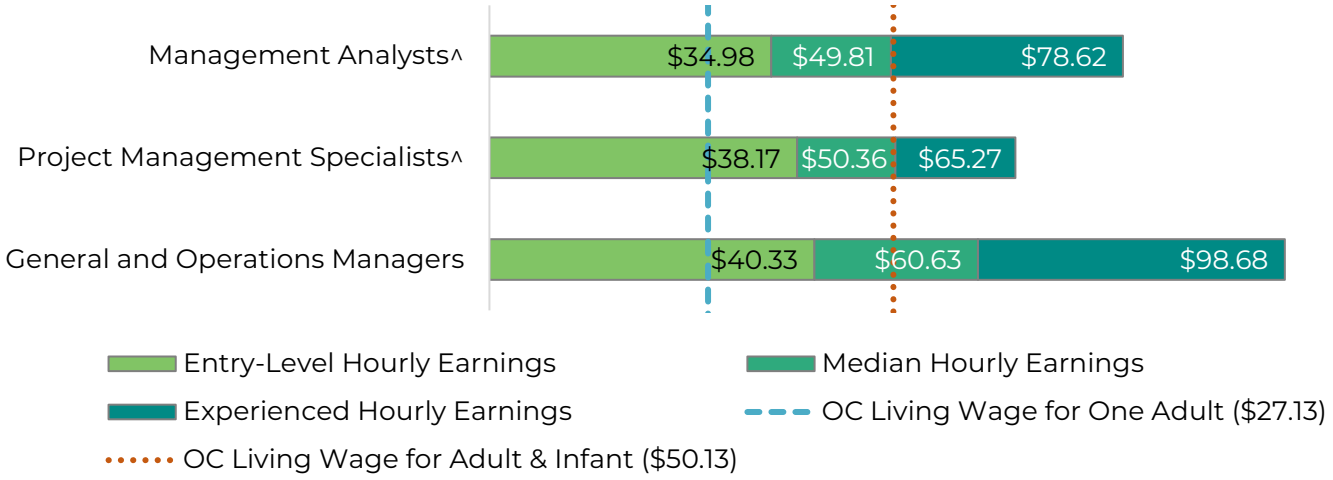
### Orange County Wages

All annual openings for these three occupations have entry-level wages above Orange County's living wage for one adult ($27.13); however, none offer entry-level wages above the living wage for one adult with one infant-aged child ($50.13).

Typical entry-level hourly wages range between $34.98 and $40.33. Orange County's weighted entry-level wage ($38.48) is slightly above the statewide weighted average ($38.38).

Exhibit 13 shows the unweighted wage range for each of the three occupations in Orange County and their comparison to the county living wage, sorted from lowest to highest entry-level wage.

## Exhibit 13: Wages by Occupation in Orange County



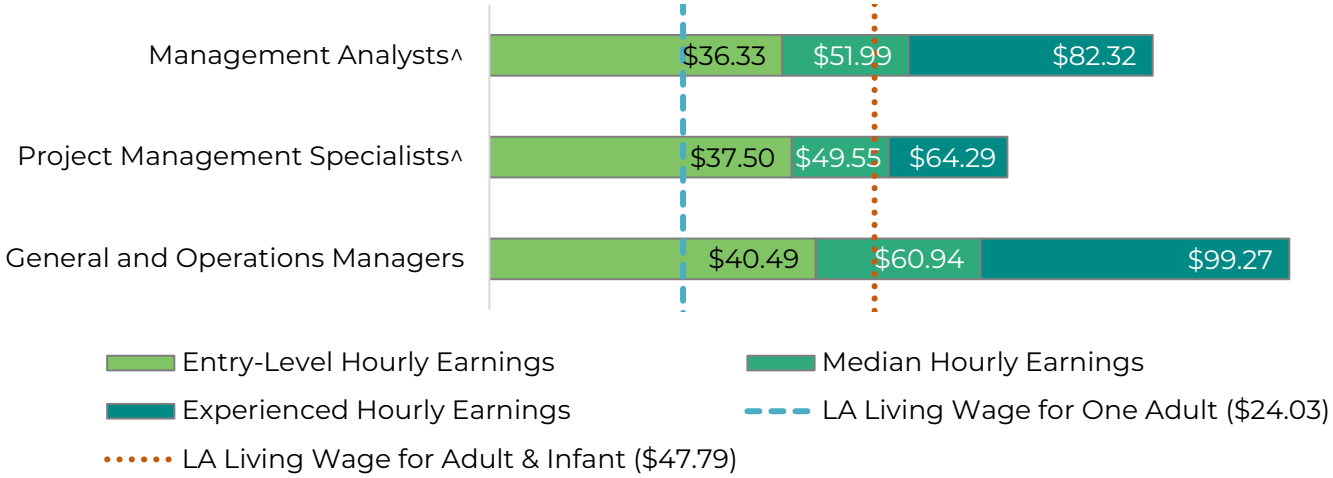

### Los Angeles County Wages

All annual openings for these three occupations have entry-level wages above Los Angeles' living wage for one adult ($24.03); however, none offer entry-level wages above the living wage for one adult with one infant-aged child ($47.79).

Typical entry-level hourly wages range between $36.33 and $40.49. Los Angeles County's weighted entry-level wage ($38.86) is above the statewide weighted average ($38.38) for these occupations.

Exhibit 14 shows the unweighted wage range for each of the three occupations in Los Angeles County and their comparison to the county living wage, sorted from lowest to highest entry-level wage.

## Exhibit 14: Wages by Occupation in Los Angeles County



# Appendix A: Methodology

All findings are based on the most current available data and a combination of primary and secondary sources. While care was taken to ensure accuracy, the OC COE, its host district, and the California Community Colleges Chancellor's Office are not responsible for individual decisions made based on this report.

## Traditional Labor Market Data

OC COE prepared this report by analyzing occupational and educational program data. Occupational data comes from Lightcast, a labor market analytics firm which compiles information from the California Employment Development Department (EDD), U.S. Bureau of Labor Statistics (BLS), and other agencies. Analysis of emerging occupations is predicated on online job postings data combined with Occupational Information Network (O*NET) profile descriptions. Program supply data was sourced from the California Community Colleges Chancellor's Office Data Mart (datamart.cccco.edu) and the Integrated Postsecondary Education Data System (nces.ed.gov/ipeds/use-the-data), also known as IPEDS, which was integrated into the COE's Supply Table. (IPEDS).

Using a TOP-SOC crosswalk, the OC COE identified middle-skill and above middle-skill occupations aligned with programs in relevant TOP codes. Middle-skill occupations typically require education beyond high school but less than a bachelor's degree, while above middle-skill roles usually require a bachelor's degree or higher.

Labor market supply was determined by calculating the three-year average number of program completions within related TOP and CIP codes. This data informed the "supply table" in the report. TOP codes are used in California to classify community college programs; CIP codes are used nationally across higher education institutions.

The analysis reflects labor market demand for occupations closely related to the proposed baccalaureate degree program, based on the requestor's specifications. Traditional labor market data was used to assess current and projected employment based on data trends for detailed occupations, as well as annual average awards granted by regional postsecondary educational institutions. Specifically, while demand was measured as projected annual openings from 2024 to 2034, supply figures only include non-community college awards, since existing community college programs are unlikely to directly train for the above-middle skill occupations included in this report and/or the program-related specialization at the baccalaureate-level. Supply may be overstated, as it's unclear whether these programs specifically address this specialization.

Wage data was evaluated using the Self-Sufficiency Standard from the University of Washington's Center for Women's Welfare, which sets Orange County's living wage at $27.13 for one adult and $50.13 for one adult with one infant-aged child (as of March 2024).

## Real-Time Labor Market Data

Real-time labor market data (i.e., online job postings) assess employer preferences but cannot be used to indicate the number of open positions, number of jobs, or annual openings (also known as "demand").

OC COE refined the analysis of the job market by isolating postings most relevant to the proposed degree. From the initial pool of 98,100 online postings for the three occupations in California over the last 12 months, the data was filtered to yield a set of 4,770 highly aligned postings. This isolation process specifically utilized the skills and job titles detailed in Exhibit 15 in conjunction with any keyword combination included in Exhibit 16.

Exhibit 15: Skills and Job Title Criteria

| Skills Included (Any) | Job Title Terms Excluded (Any) | | | | |
|---|---|---|---|---|---|
| AI | Architect | Camp | Civil | Clinical | Coder |
| Artificial Intelligence | Construction | Counselor | CPR | Data Scientist | Developer |
| Automation | Engineer | Engineering | Developer | Engineer | Engineering |
| | Legal | Machine Learning Researcher | Mechanical | Nurse | Programmer |
| | Software | Technical Lead | | | |

Exhibit 16: Program-Aligned Keyword Parameters

| Included (Any) | | | | | Excluded (Any) |
|---|---|---|---|---|---|
| AI Adoption | AI Augmentation | AI Augmented | AI Business Partner | AI Enabled | CPR |
| AI Enabled Workflow | AI Ethics | AI Governance | AI Implementation | AI Integration | |
| AI Literacy | AI Orchestration | AI Productivity | AI ROI | AI Strategy | |
| AI Tools | AI Value | AI-Augmented | AI-Driven Decision Making | AI-Enabled | |
| AI-Enabled Workflow | Algorithmic Management | Augmented Intelligence | Augmented Workforce | Change Management | |
| Citizen Development | Data-Driven Leadership | Digital Transformation | Fractional AI | Generative AI | |
| Human AI | Human Artificial | Human Centric AI | Human-AI | Human-Artificial | |
| Human-Centric AI | Human-in-the-Loop | Intelligent Automation | Low-Code | No-Code | |
| Process Automation | Prompt Engineering | Responsible AI | SaaS Implementation | SaaS Management | |
| Shadow AI | Tech Stack Optimization | Workflow Automation | Workforce Transportation | | |

## Appendix B: Data Sources

| Data Type | Source |
|---|---|
| Occupational Projections, Wages, and Job Postings | Traditional labor market information data is sourced from Lightcast (v.2026.1), a labor market analytics firm. Lightcast occupational employment data are based on final Lightcast industry data and final Lightcast staffing patterns. Wage estimates are based on Occupational Employment Statistics and the American Community Survey. For more information, see https://lightcast.io/.Wage differentials were based on online job postings data from Lightcast and compared advertised entry-level wages for positions requiring at least a bachelor's degree or an associate degree. |
| Living Wage | "Living Wage" measures the income necessary for an individual or family to afford basic expenses by assessing the costs such as housing, food, child care, health care, transportation, and taxes.<br>Per the CCCCCO's this report's endorsement criteria uses the University of Washington's Center for Women's Welfare Self-Sufficiency Standard last updated in March 2024, which is $27.13 per hour ($57,294 annually) for one adult and $50.13 per hour ($105,872 annually) for one adult with one infant in Orange County. For more information, see: http://www.selfsufficiencystandard.org/California |
| Typical Education and Training Requirements, and Educational Attainment for Detailed Occupations | The Bureau of Labor Statistics (BLS) provides information about education and training requirements for hundreds of detailed occupations. BLS uses a system to assign categories for entry-level education, work experience in a related occupation, and typical on-the-job training to each occupation for which BLS publishes projections data. For more information, see https://www.bls.gov/emp/documentation/education/tech.htm. |
| Educational Supply | The CCCCO Data Mart provides information about students, courses, student services, outcomes and faculty and staff. For more information, see: https://datamart.cccco.edu<br>The National Center for Education Statistics (NCES) Integrated Postsecondary Integrated Data System (IPEDS) collects data on the number of postsecondary awards earned (completions). For more information, see https://nces.ed.gov/ipeds/use-the-data/survey-components/7/completions |

For more information, please contact the Orange County Center of Excellence:

**Jesse Crete, Ed. D., Regional Director**
crete_jesse@rsccd.edu

**Diego Mosquera, Interim Research Coordinator**
mosquera_diego@rsccd.edu

FOR LABOR MARKET RESEARCH
ORANGE COUNTY

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