

Labor Market Analysis: 0950.00/Aeronautical and Aviation Technology Drone/Uncrewed Aerial Systems (UAS) Technology – Associate of Science (A.S.) Degree Los Angeles Center of Excellence, February 2024

Introduction

The Los Angeles Center of Excellence for Labor Market Research (LA COE) prepared this report to provide regional labor market supply and demand data related to uncrewed aerial systems (UAS), more commonly known as drones. Previous research from the OC COE showed that online job postings related to drone technology often require base knowledge in a traditional field, such as software development, engineering, or photography, plus experience with drones as an additional skill or qualification.¹ Currently, there is no Standard Occupational Classification (SOC) code in the Bureau of Labor Statistics (BLS) coding system for jobs related to drone technology (i.e., drone pilots, drone technicians, or drone photographers). Therefore, traditional occupational demand data for drone technology roles is undeterminable. To better understand the current need for drone knowledge, skills, and abilities (KSAs), this report primarily focuses on an analysis of online job postings in the region for job titles and skills related to drones.

In addition to analyzing online job postings, this report also provides an overview of drone programs offered at community colleges throughout California using the Chancellor's Office Curriculum Inventory (COCI). Since there is currently no Taxonomy of Programs (TOP) Code that specifically focuses on drone technology, the COE cannot accurately determine the regional supply of drone program completers. Furthermore, four-year and other non-community college institutions may offer drone programs and courses; however, there is not a comprehensive nor methodologically sound way to collect detailed course and program data for these institutions. For that reason, this report focuses on data available from community colleges.

Demand:

- Over the past 12 months, there were **65 online job postings for drone-related jobs**. The highest number of job postings were for unmanned aerial vehicle (UAV) engineers, followed by drone operators and UAV pilots.
- There were **25 companies** in the LA/OC region that posted job ads for drone operator jobs in the past 12 months. The companies with the highest number of postings were General Atomics, Anduril Industries, and Kforce.

Supply:

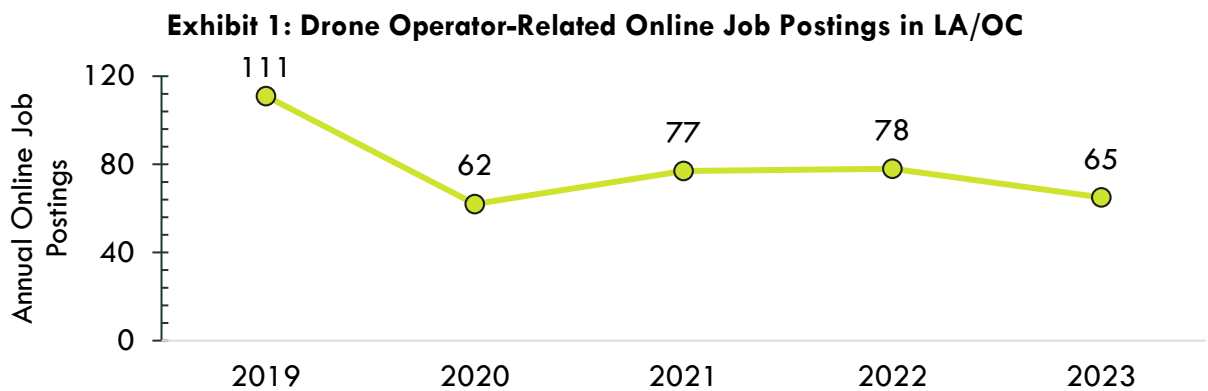
- There are **19 community colleges** in California that offer programs related to drone technology.
- **In LA/OC, 7 community colleges currently offer drone programs:** Citrus, Cypress, Fullerton, Glendale, Mt. San Antonio, Orange Coast, and Santa Ana.

¹ [Drone Technology – OC Center of Excellence for Labor Market Research \(coecc.net\)](https://www.coecc.net)

Demand Job Postings

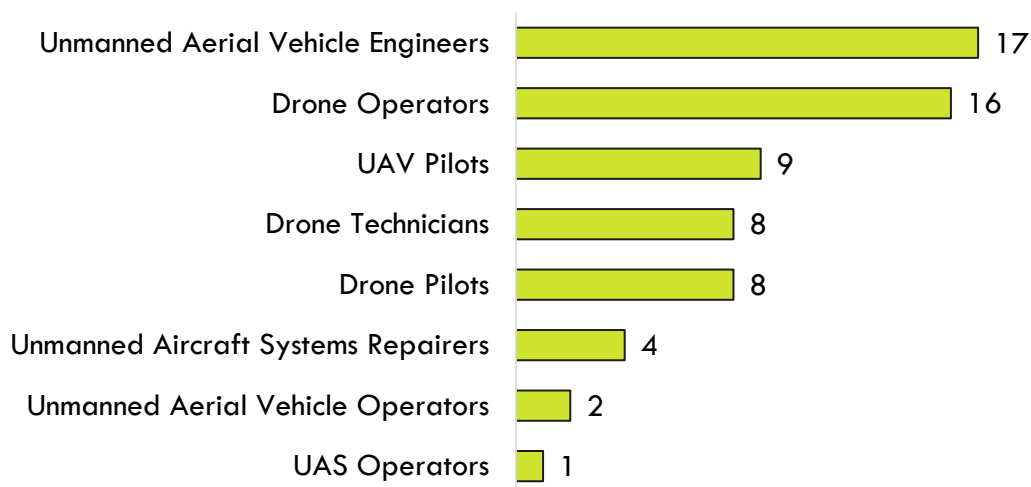
In order to identify online job postings most closely related to drone/uncrewed aerial systems (UAS) operation, targeted job titles were used as search parameters in Lightcast, a software tool that aggregates and deduplicates online job postings from thousands of sources. The full list of job title keywords is included in Appendix A. This search targeted drone operation-related job titles, in order to find jobs where the main function was drone or UAS operation.

To understand how demand for drone skills has changed over time, Exhibit 1 shows the total number of job postings related to drone operation each year from 2019 to 2023 in Los Angeles and Orange counties. During this period, total annual online job postings decreased by 41%, from 111 to 65 annual job postings. However, the number of job postings has remained relatively steady over the past four years, in a range from 62 to 78 job postings.



Over the past 12 months, there were 65 online job postings for drone/UAS operator jobs in LA/OC. Exhibit 2 displays the number of job postings by job title. The majority of job postings (26%) were for unmanned aerial vehicle engineers, followed by drone operators (25%) and UAV pilots (14%).

Exhibit 2: Job postings by job title (last 12 months)



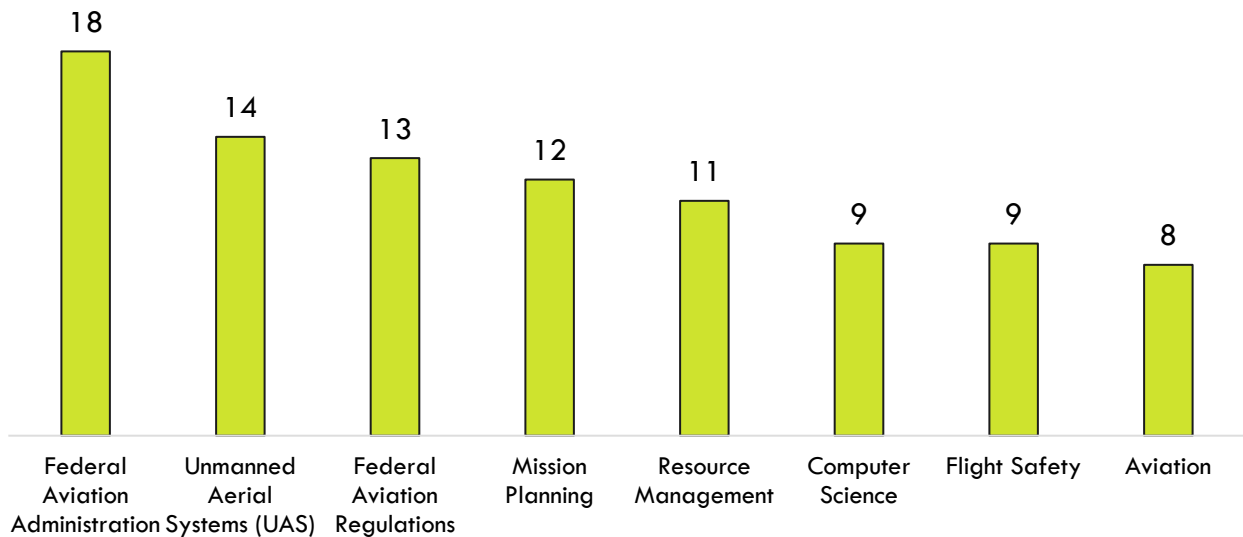
These 65 job postings were spread across various industries, since drones can be used in a variety of roles. The top industries by number of drone operator job postings were Professional, Scientific, and Technical Services (18 job postings), Administrative and Waste Services (10 job postings), Manufacturing (3 job postings), and Construction (2 job postings). There were 25 companies in the LA/OC region that posted job postings for drone operator jobs in the past 12 months. Exhibit 3 shows the companies that listed multiple unique job postings.

Exhibit 3: Job postings by company (last 12 months)

Company	Unique Job Postings (2023)
General Atomics	7
Anduril Industries	6
Kforce	6
Bearded Brothers Roofing & Restoration	4
Aerotek	2
Dzyne.Com	2
Evolving Resources	2
Flying Lion	2

Exhibit 4 displays the top ten specialized skills listed on job postings. The specialized skill most commonly listed on job postings was Federal Aviation Administration (FAA), noted on 28% of the job postings in this report.

Exhibit 4: Top specialized skills listed on job postings



Of the 46% of drone-related job postings listing a minimum education requirement in the greater Los Angeles/Orange County region, 27% (8) requested high school or vocational training, 17% (5) requested an associate degree, and 57% (17) requested a bachelor's degree. The median advertised salary for the job postings that included wage data was \$75,008 annually (43 advertised salary observations on job postings).

Educational Supply

This section will summarize the supply of skilled drone workers coming from California community colleges by including a list of existing community college programs related to drones. Since drone programs are often classified under the same Taxonomy of Programs (TOP) codes as other programs, such as GIS, digital media, or piloting, it is often difficult to obtain annual award totals. Because of these differences in reporting, awards data is not included in this report.

California Community College Drone Programs

According to the Chancellor's Office Curriculum Inventory (COCI), an inventory provided by the CCCCCO, there are 19 community colleges that currently offer drone technology-related associate degree or certificate programs throughout the state. Within the LA/OC region, seven community colleges currently offer drone programs: Citrus, Cypress, Fullerton, Glendale, Mt. San Antonio, Orange Coast, and Santa Ana. Exhibit 5 lists each drone technology-related program and the award type students earn upon successful completion of the program.

Exhibit 5: Drone Technology-Related Community College Programs in California

TOP Code/Title	Local Program Name	College	Region	Award Type
0302.00/ Environmental Studies	Drone Technology and Applications	Southwestern	SD/Imperial	Noncredit
0602.00/Journalism	Drone Journalism	Fullerton	Orange County	Certificate
0604.20/Television (including combined TV/Film/Video)	Drone Cinematography	Santa Ana	Orange County	Certificate
	Introduction to Drone Pilot	Santa Ana	Orange County	Noncredit
0612.20/Film Production	Drone Videography	Orange Coast	Orange County	Certificate
	Drone Operator I	Palomar	SD/Imperial	Certificate
0614.60/Computer Graphics and Digital Imagery	Drone Studies: Applied Drone Operation	Santa Rosa	Bay Area	Certificate
0702.00/Computer Information Systems	Drone Media	Merced	Central/ Mother Lode	Certificate
0799.00/Other Information Technology	Drone Technology	Santa Ana	Orange County	Certificate
	Drone Technician	Modesto	Central/ Mother Lode	Certificate
0950.00/Aeronautical and Aviation Technology	Basic Drone Piloting	Los Medanos	Bay Area	Noncredit
	Drone Cinematography	Grossmont	SD/Imperial	Noncredit
	Drone Mapping	Grossmont	SD/Imperial	Noncredit
	Unmanned Aircraft System Technology	West Valley	Bay Area	Certificate
	Unmanned Aircraft Technology	West Valley	Bay Area	A.S. Degree
1012.00/Applied Photography	Drone Camera Operator	Mt. San Antonio	Los Angeles	A.S. Degree
	Drone Photography	Orange Coast	Orange County	Certificate

TOP Code/Title	Local Program Name	College	Region	Award Type
	Drone Photography, Mapping, and Piloting	Las Positas	Bay Area	Noncredit
	Drone Photography	Glendale	Los Angeles	Certificate
2206.10/Geographic Information Systems	Drone Operations	Palomar	SD/Imperial	Certificate
	Drone Technology	Diablo Valley	Bay Area	Certificate
	Getting Started with Drone Careers and Safety	Palomar	SD/Imperial	Noncredit
	Drone Applications in Geospatial Information Science	Mt. San Jacinto	Inland Empire/Desert	Certificate
3020.00/Aviation and Airport Management and Services	Unmanned Aircraft Systems	Orange Coast	Orange County	Certificate
3020.20/Piloting	UAS Drone Basic	Cypress	Orange County	Certificate
	UAS Drone Advanced	Cypress	Orange County	Certificate
	UAS Drone	Cypress	Orange County	A.S. Degree
	Drone Technology and Applications	Southwestern	SD/Imperial	Certificate
	Uncrewed Aerial Systems Piloting	Fullerton	Orange County	Certificate
	Unmanned Aircraft System	Mt. San Antonio	Los Angeles	A.S. Degree
	Unmanned Aircraft Systems	Mt. San Antonio	Los Angeles	Certificate
3099.00/Other Commercial Services	Drone Technology	Citrus	Los Angeles	Noncredit
4930.10/Academic Guidance	Drone Technology	Merced	Central/Mother Lode	Certificate

Drone Certification

As of December 2015, the FAA began requiring all commercial UAV pilots to have a Remote Pilot Certificate in accordance with the FAA's Small UAS Rule (Part 107), commonly referred to as a "Part 107 license". A Remote Pilot Certificate license costs \$175 and applicants must pass an aeronautical knowledge exam. Alternatively, pilots that hold a pilot certificate issued under FAA 14 CFR Part 61 and completed a flight review within the last 24 months are eligible to obtain a Remote Pilot Certificate after completing an online training course. Once the Remote Pilot Certificate is obtained, pilots are required to complete an online recurrent training course every 24 months.² In addition to a Part 107 license, all UAVs, with the exception of those that weigh 0.55 pounds or less, must be registered with the FAA.³

It is important to note that students who complete a drone-related program at a community college must complete their drone certification in order to be in compliance with the FAA.

² [Become a Drone Pilot | Federal Aviation Administration \(faa.gov\)](http://www.faa.gov)

³ [How to Register Your Drone | Federal Aviation Administration \(faa.gov\)](http://www.faa.gov)

Appendix A: Job Postings Keywords/Search Parameters

Drone Operator	UAV Operator	UAS Operator	Unmanned Aircraft System Operator	Unmanned Aerial Vehicle Operator
Drone Pilot	UAV Pilot	UAS Pilot	Unmanned Aircraft System Pilot	Unmanned Aerial Vehicle Pilot
Drone Technician	UAV Technician	UAS Technician	Unmanned Aircraft Vehicle Operator	Unmanned Aerial System Operator
Drone Photographer	UAV Mechanic	UAS Mechanic	Unmanned Aircraft Vehicle Pilot	Unmanned Aerial System Pilot
Aerial Photographer	Aerial Cinematographer	Drone Videographer		

Appendix B: Sources

- O*NET Online
- Lightcast (formerly Emsi)
- Bureau of Labor Statistics (BLS)
- California Employment Development Department, Labor Market Information Division, OES
- California Community Colleges Chancellor's Office Management Information Systems (MIS)
- Self-Sufficiency Standard at the Center for Women's Welfare, University of Washington
- Chancellor's Office Curriculum Inventory (COCI 2.0)

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