

Docket Item:

Community College Bachelor of Applied Science (BAS) submission proposal: Lane Community College, has submitted the Statement of Need for their proposed Business BAS. This submission is Phase One out of a Three Phase process.

Summary:

Lane Community College proposes a new Bachelor of Applied Science (BAS) in Business. Higher Education Coordinating Commission (HECC) staff completed a preliminary review of the Statement of Need. After analysis, HECC staff recommends this program move forward to the 90 day waiting period and into Phase Two.

Overview of Submission Process:

Review and approval of the Bachelor of Applied Science (BAS) is a three-step submission process:

- Phase One: Statement of Need (Appendices A and B)
- Phase Two: Notice of Application (Appendices C, D and E)
- Phase Three: Final Program Approval (Submission and Approval in Webforms)

Additional information about the [Applied Baccalaureate Process](#) maybe be found here:

https://www.oregon.gov/highered/institutions-programs/ccwd/Documents/FULL_AB_Document_FINAL-10-14-20.pdf

Staff Recommendation:

The HECC recommends the adoption of the following resolution:

RESOLVED, that the Higher Education Coordinating Commission approves the following: The college be allowed to move into the 90 day waiting period and Phase Two of the review and approval process.



Office of Academic and Student Affairs

May 20, 2022

Higher Education Coordinating Commission
3225 25th Street SE
Salem, OR 97302

Re: Lane Community College Applied Baccalaureate in Business

Dear Commissioners,

I am pleased to submit, for your consideration, the Lane Community College (LCC) Statement of Need application for an Applied Baccalaureate (AB) degree in Business.

Recent industry data indicate that this degree is in demand within our region, as evidenced by a projected lack of qualified employees to meet projected labor needs over the next ten years. There is strong support for this programming from our community and industry partners, as well as recognition of local need, as evidenced by our employer surveys and labor market research.

This degree would be in alignment with our mission and vision in support of our priorities to enhance equity and access to educational opportunities. In particular, we see this degree program as a way to offer a pathway to further studies and affordable baccalaureate completion to students in many of our career technical education associate's programs. Our Board of Education passed a resolution on February 17, 2021 in favor of the support and development of applied baccalaureate degrees at Lane Community College. It voted in December 2021 to authorize the degree type.

Thank you for taking the time to review our Statement of Need. We are prepared to respond to any additional questions you may have or clarify any of the data and information presented herein.

Sincerely,

A handwritten signature in blue ink, appearing to read "Paul E. Jarrell", is written over a light blue circular stamp.

Paul E. Jarrell, Ph.D.
Provost and Executive Vice President
Lane Community College
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2022

Lane Community College

BACHELOR OF APPLIED SCIENCE STATEMENT OF NEED PROGRAM PROPOSAL



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PROGRAM APPLICATION

INTRODUCTION

The Lane Community College Bachelor of Applied Science in Business (BAS) supports Oregon's education goals by filling the gap between the number of graduates with a bachelor's degree and the number of jobs requiring a bachelor's degree. Lane's BAS degree prepares students for current and emerging opportunities among employers, particularly those who value the specific skills and professional orientation to career and workplace that our program will impart.

Most importantly, our program addresses an equity gap in the awarding of bachelor's degrees in Oregon, in part because of limited pathways from an associate degree to a bachelor's degree for many students who are underserved or inhibited from attempting a bachelor's degree because of cost, accessibility, inconvenience, or other barriers. These students include those holding associate degrees in technical and trade areas, and who would have a direct pathway into our BAS program.

While pathway restrictions may apply to students matriculating with a prior bachelor's degree, such as a lack of credits in foundational coursework, all the "benefits" of Lane's BAS program would also apply for second BA seekers: low cost, ease of access, open enrollment, and our blending of co-op and classroom learning.

OPPORTUNITIES AND PATHWAYS WITH ALIGNED OUTCOMES

Our BAS creates opportunity for a smooth transition for associate degree completers to continue their education, thereby increasing equity across a currently underserved demographic.

The BAS effectively offers a "continuation pathway" for students already in our 2-year programs, as well as an open matriculation pathway for transfer students seeking to continue an education and improve career prospects, but who also may be employed, supporting families, and may lack both the resources and scheduling flexibility of traditional students in 4-year degree programs.

Our learning outcomes are embedded in each course at the bachelor's level. The degree program strongly aligns with the individualized, immersive, co-operative education plans and relevant professional knowledge, skills, and capacities that employers in Lane County seek. These outcomes, both at the institutional and program levels, confer transferable skills for lateral, as well as hierarchical, career progression, and geographic mobility.

Significantly, the outcomes and occupational skills we have identified, through research and direct contact with Lane County employers, are embedded in our program design. Crucially, these outcomes reflect and are responsive to labor market demand, and they closely align with key occupations in both today's labor market and the emerging opportunities that voices in our workplace community have indicated.

We consider equity, access, and diversity paramount concerns for all educators, and they inform both our institutional and program values, and the design of our program. In shaping our program for maximum equity and access, and to meet the needs and life situations of a diverse student population, we recognize that other institutions in our local and immediate service areas may already offer programs that appear similar in some ways to ours. While this may raise some initial concern about duplication of efforts, and some program overlap may exist, our program's unique attributes and pathways will help to achieve Oregon's equity and access goals, as well as to meet the needs of a diverse student population. Moreover, we will achieve these goals in the context of our area's industries and employment opportunities, while also providing our graduates highly transferable skills, which are of value in any labor market.

Our program is optimally designed not only to serve a spectrum of students, from non-traditional, to adult students, to the traditional student population, but that its affordability, flexibility, and low barriers to entry significantly extend opportunity to many students who would not otherwise be able to enter, flourish, and graduate from a bachelor's degree program.

Additionally, our program provides learning pathways that few nearby institutions offer. This is true, in part, because we are a community college with long experience and expertise serving populations and demographics that our bachelor's degree will also serve. For instance, many of our 2-year associate degree students, such as those in technical and trade areas, will be able to pursue a bachelor's degree by following a pathway otherwise shut out to them, at least not in the short term, were our BAS degree not so accessible, affordable, and convenient. This opportunity to continue to the next level at the same institution is an invaluable attribute of a BAS program at Lane Community College to our population and current and future degree and certificate holders.

INTEGRATION OF CLASSROOM AND WORKPLACE

Our BAS graduates will be uniquely poised to fulfill the future demands of employers in Lane County, the State of Oregon, and many other work and professional contexts in which their desirable and transferable skills are in demand.

Our understanding of the local labor market, and the industries with which we have forged close, long-standing relationships, allows us to provide a rich "bridge of learning" between classroom and workplace. A key element is co-operative education ("co-op") that immerses the student in a workplace environment and provides a context for complementing and reflecting on the classroom learning experience.

We can say that our co-op partners share a keen interest in the success of our students, because they recognize, as we do, that the student's success is theirs as well. Careers often start close to home, and our BAS program allows students to integrate classroom, workplace, and lived experience among local industries into a holistic learning experience. Ultimately, these rich and layered experiences help flesh out a résumé and provide crucial networking contacts, and the complex and varied skill sets that inform a career.

Finally, graduates of the BAS program—who will be required to participate in up to three terms of co-op—will leave the program with both a high-quality academic background and an impressive depth of work experience. Graduates will bring technical, managerial, and interpersonal skills and experience that will allow them to be high functioning workforce and workplace team members, no matter the prior area of study.

HECC STANDARDS AND PROMPTS (APPENDIX A)

AREA 1—STANDARD: RELATIONSHIP TO INSTITUTIONAL MISSION AND GOALS, AND OREGON'S EDUCATIONAL GOALS.

AREA 1A—CRITERIA: DESCRIBE HOW THIS PROGRAM SERVES OREGON'S RESIDENTS (WHETHER TRADITIONAL-AGED OR RETURNING ADULTS) TO OBTAIN A BACHELOR'S DEGREE THAT PROVIDES TECHNICAL/PROFESSIONAL KNOWLEDGE AND SKILLS REQUIRED FOR **SPECIFIC CAREER POSITIONS** WITH OREGON'S LOCAL, REGIONAL OR STATEWIDE EMPLOYERS.

Lane Community College's BAS in Business is intended to be a degree accessible to a wide swath of Oregonians, from traditional-age students to non-traditional-age students who are coming back to higher education after a hiatus, seeking a career change, or whose career trajectory depends on completion of bachelor-level degree in order to move up in a chosen industry or workplace.

The BAS will be a practical, hands-on, affordable bachelor's degree for a variety of students, including those who may be working while attending college or returning to college after time away. The BAS program learning outcomes (PLOs) are aligned with Lane's values, and we are developing this program's curriculum with the college's values in mind. The alignment between the PLOs, Lane's values, and our Institutional Learning Outcomes ensures a highly functional foundation to support student success across all levels of the organization and beyond—to our community stakeholders, corporate and non-profit partners, and other institutions.

To illustrate how the BAS connects our students to *specific skills and occupations* demanded by employers, we selected a group of six representative, but non-exhaustive occupations¹ from among the hundreds of potential occupations our graduates could fill, and aligned them with the learning outcomes for our BAS degree program.

Next, we examined data from O*NET and listed the top five skills shared by occupations, and we indicate how the BAS outcomes align with these prominent occupational skills sets (*Tables 1a, 1b, on following pages*).

¹ A complete list of occupations and skills / knowledge / capacities may be found on page 63 of the Appendix for this Statement of Need.

Table 1a: BAS Alignment with Technology, Knowledge, & Professional Skills sets

Technology	Outcomes Alignment	Knowledge	Outcomes Alignment	Professional Skills	Outcomes Alignment
Customer relationship management CRM software—Blackbaud; The Raiser's Edge; Oracle Eloqua; QAD Marketing Automation; Salesforce software	1, 4, 5	Administration and Management—Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.	3	Active Listening—Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.	1, 3
Data base user interface and query software—Airtable; Amazon Redshift; MySQL; Yardi	4, 5	English Language—Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.	1	Critical Thinking—Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.	4, 5
Enterprise resource planning ERP software—Microsoft Dynamics GP; NetSuite ERP; Oracle Hyperion; Oracle JD Edwards EnterpriseOne	3, 4, 5	Customer and Personal Service—Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services and evaluation of customer satisfaction.	1, 7	Reading Comprehension—Understanding written sentences and paragraphs in work related documents.	1
Project management software—Confluence; Google Classroom; Oracle Primavera Enterprise Project Portfolio Management; Slack	4, 6	Sales and Marketing—Knowledge of principles and methods for showing, promoting, and selling products or services. This includes marketing strategy and tactics, product demonstration, sales techniques, and sales control systems.	1, 3, 5	Speaking—Talking to others to convey information effectively.	1, 4
Word processing software—3M Post-it App; Google Docs; Microsoft OneNote; Microsoft Word	4	Personnel and Human Resources—Knowledge of principles and procedures for personnel recruitment, selection, training, compensation and benefits, labor relations and negotiation, and personnel information systems.	1, 2, 3	Judgment and Decision Making—Considering the relative costs and benefits of potential actions to choose the most appropriate one.	5

Source: O*Net Online (2021)

Table 1b: BAS Alignment with Work Activity & Detailed Work Activity Skills Sets

Work Activities	Outcomes Alignment	Detailed Work Activities	Outcomes Alignment
Communicating with Supervisors, Peers, or Subordinates—Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.	1, 3, 4	Analyze data to inform operational decisions or activities.	5
Making Decisions and Solving Problems—Analyzing information and evaluating results to choose the best solution and solve problems.	4, 5, 6	Direct organizational operations, projects, or services.	1, 3, 8
Organizing, Planning, and Prioritizing Work—Developing specific goals and plans to prioritize, organize, and accomplish your work.	3	Liaise between departments or other groups to improve function or communication.	1, 3
Guiding, Directing, and Motivating Subordinates—Providing guidance and direction to subordinates, including setting performance standards and monitoring performance.	1, 3, 4	Develop detailed project plans.	6
Getting Information—Observing, receiving, and otherwise obtaining information from all relevant sources.	3, 4	Direct administrative or support services.	1, 3, 4, 8

Source: O*Net Online (2021)

HECC STANDARDS AND PROMPTS (APPENDIX A)

AREA 1A—QUESTION: HOW DOES THIS PROGRAM SERVE OREGON'S EDUCATION DIVERSITY AND EQUITY GOALS?

DIVERSITY & EQUITY GOALS: PROGRESS AND OPPORTUNITIES FOR LANE STUDENTS

Fundamental to Oregon's Educational goals is serving underrepresented and underserved students who have historically encountered barriers to entering a four-year degree program.

A strong indicator of the challenges students face may be found in a recent report issued by The Hope Center for College, Community, and Justice, titled "#REALCOLLEGE DURING THE PANDEMIC SURVEY" (the Hope Center is affiliated with Temple University).

The report states that

"Nearly three in five students experienced basic needs insecurity during the pandemic, so it is understandable that at least half of them also said they had difficulty concentrating on coursework." (5)

The #REALCOLLEGE report examines the economic impact of COVID 19 on our student population and highlights the severe impact of changing economic conditions on our students' ability and resources for meeting basic food and housing needs. (See Table 2 for how Lane compares to peer institutions)

Table 2: Percentage of Students with Basic Needs Insecurity During the Pandemic

	Lane Community College	Peer institutions	Overall
Types of basic needs insecurity			
Any basic needs insecurity	63	58	58
Food insecurity	47	44	42
Housing insecurity	39	36	37
Homelessness	14	11	12

Source: 2020 #RealCollege During the Pandemic Survey

DEFINING OUR STUDENT DEMOGRAPHIC

Our program aims to address the needs of students who face disparities in personal and family resources as well as economic and socio-cultural barriers to achieving a four-year degree when compared to students matriculating into other four-year institutions in Lane County and nearby.

“There are stark racial/ethnic disparities that, if not remedied, will further drive inequities in college attainment...” (5).

Lane County has a relatively small ethnically and racially diverse population (less than 20% of residents are non-white, and barely more than 10% are non-Hispanic **(See Table 3)**, the significant socio-economic disparities facing our student demographic also describes underrepresented and underserved students of color, many of whom face ever greater historical barriers of resource allocation and access to higher education.

Indeed, such barriers have enormous consequences for physical well-being as well as for mental health, which may grievously impact a student's capacity to persist in a chosen degree pathway.

In addition to facing formidable personal challenges, our students, often first-generation college attendees, may lack the background knowledge, skills, cultural currency, and self-confidence to navigate the terrain of systems and resources that might address their needs.

The overlapping issue for all low socio-economic status students in our service area is access to a four-year degree and, consequently, to the economic and career pathways that change lives.

According to the REAL COLLEGE report, in addition to socioeconomic disparities, “there are stark racial/ethnic disparities that, if not remedied, will further drive inequities in college attainment...” (5).

Creating a BAS that affords access to our population and is tailored to its needs will impact the historical disparities in education, income, and well-being among the non-white Lane County population.

Table 3: Lane County Population by Ethnicity

Source: [US Census Bureau](#)

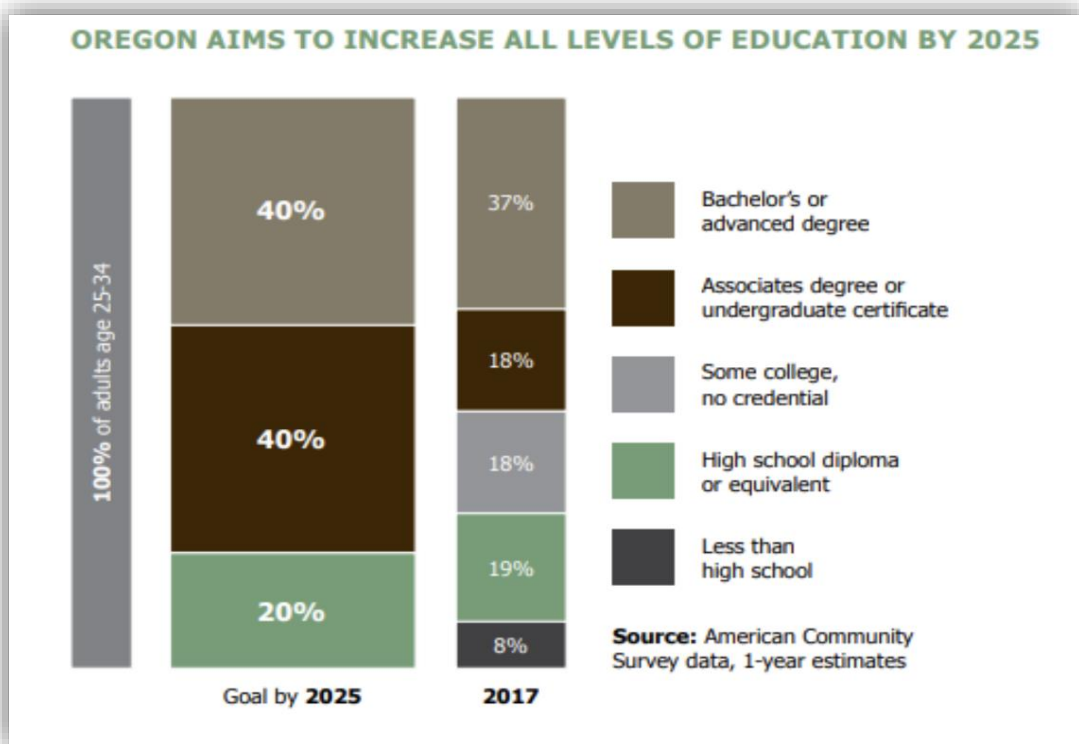
Race and Hispanic Origin		Lane County, Oregon
Population per square mile, 2010		77.2
PEOPLE		
Race and Hispanic Origin		
White alone, percent		89.0%
Black or African American alone, percent (a)		1.3%
American Indian and Alaska Native alone, percent (a)		1.6%
Asian alone, percent (a)		3.2%
Native Hawaiian and Other Pacific Islander alone, percent (a)		0.3%
Two or More Races, percent		4.6%
Hispanic or Latino, percent (b)		9.3%
White alone, not Hispanic or Latino, percent		81.3%

CONNECTION TO OREGON'S 40/40/20 ATTAINMENT GOALS

We understand that the intent of Oregon's 40/40/20 goal (**Table 4**) is to provide ways for historically disadvantaged individuals to access education, which will provide a variety of benefits to the state and its residents.

Our degree program aligns itself in crucial ways with this goal as it pertains to our population—and helps differentiate our BAS from other institutions and degree programs in our service area.

Table 4: Oregon's Educational Goals by Percentage and Degree Type



Source: Higher Education Coordinating Commission, Oregon 40-40-20 Educational Attainment Infographic

THE OPPORTUNITY GAP

For the purposes of shaping our BAS we define the "opportunity gap" for our population in terms of access to higher education and specific pathways to a four-year college degree that meet the needs of our service area demographic.

The opportunity gap can also be described as an access gap, determined not simply by access to economic resources but by also by cultural factors, such as family background (first generation college), familiarity navigating institutions and knowledge bases of those with higher education experience, and psychological factors, such as self-efficacy, sense of agency, and self-esteem around learning.

ADDRESSING THE GAP

LCC's BAS in Business addresses the opportunity gap in the following crucial ways:

1. **Open enrollment**—offers some of the least stringent entry requirements in the state while maintaining appropriate rigor.
2. **Flexibility**—our courses are offered online and during evenings to enable access for working and place bound students.
3. **Affordability**—program cost is the lowest in our service area.
4. **Pathways to employment**—our Co-op program bridges both the classroom and workplace and opens doors to career level jobs.
5. **Support services**—help students navigate not only academic challenges but institutional and cultural barriers to accessing the full range of student resources.

MEETING OUR STUDENT POPULATION'S NEEDS

Adult / non-traditional students represent a significant portion of our anticipated BAS population with distinctive requirements for entering school, sustaining a course of study, and completing a four-year degree.

Our population will often have family obligations or work commitments that may make attending classes in person or during daytime hours nearly impossible. Some students may be place bound, for any number of reasons, including caring for dependent family members, or may otherwise be unable to travel outside the service area to attend an institution that may otherwise meet their needs.

In sum, our BAS attempts to cast a wide net of opportunity to help all students in our service area and socio-economic demographic access a four-year degree. Significantly, our design is particularly inclusive of underrepresented, underserved, and place bound students, many of whom also fit the socio-economic profiles and demographic of the most disadvantaged and vulnerable populations in our service area.

HECC STANDARDS AND PROMPTS (APPENDIX A)

AREA 2—STANDARD: EFFORTS TO MAXIMIZE USE OF STATE RESOURCES AND ACHIEVEMENT OF STATE EDUCATIONAL GOALS, WHILE AVOIDING UNNECESSARY DUPLICATION.

AREA 2A—CRITERIA: IDENTIFY SIMILAR PROGRAMS (AT ASSOCIATE AND BACCALAUREATE LEVELS) OFFERED BY OTHER EDUCATION INSTITUTIONS IN THE REGION AND STATE, AND DESCRIBE MEANINGFUL POINTS OF SIMILARITY AND DIFFERENTIATION BETWEEN THOSE PROGRAMS AND YOUR PROPOSAL (TABLE 3, BELOW).

Table 5: Institutional Comparison: Lane Community College in Context

Institution	Proximity to LCC	Program Description	Graduate s 2019-20 (IPEDS)	Comparisons / Contrasts	Level of Access	Annual In-State Tuition and Fees 2020-2021 (IPEDS)
Lane Community College (LCC)	—	BAS in Business Management application process in-progress	90 (AAS)	LCC's BAS will emphasize access, affordability, and applied education to meet the needs of employers in the service area of Lane County as well as the state of Oregon. The BAS in Business Management will help to fill the growing need for experienced and educated individuals in this field while contributing towards Oregon's higher education attainment and equity goals.	Open—students must hold associate's degree	\$5,153* <i>*LCC BAS tuition and fees are estimated amounts for 2023-24 launch, and to be finalized.</i>

University of Oregon (UO)	>2 mi	UO offers a BA/BS in Business Administration. The program offers a wide variety of concentrations.	645 (BS)	LCC's BAS will cater to a wider audience, including traditional-age students, transfer students, those wanting to change their careers or advance in a current career, and students in LCC's current Business Management program who want to seamlessly move into the BAS program.	Selective—academic requirements with limited seats	\$13,857
UO				LCC's BAS will provide more accessible opportunities for students who want to pursue applied business coursework, including online, hybrid, and in-person courses.		
UO				Admission to LCC's BAS is open, requiring only that students complete an associate degree in any field.		
UO				LCC's BAS accommodates and encourages students with associate's degrees in non-business disciplines to enter and complete the bachelor's degree program.		
Oregon State University (OSU)	46 mi	Offers a BA or BS in Business Administration. "Core business classes provide a solid business foundation. You explore modern management theories, relevant business practices and current industry trends." (From https://business.oregonstate.edu/programs/undergraduate)829	829 (BS)	OSU requires a minimum 41 credits of general education coursework, whereas LCC students in the Business Mgmt. AAS program are required to take 15 credits. Those LCC students who persist into the BAS in business degree, may round out directed electives with 16 credits of additional general education courses.	Selective—academic requirements with limited seats in certain majors	\$11,858
OSU				Both OSU and LCC offer many of the required and elective courses in person and/or online modalities, so students have flexibility completing degrees.		

OSU				OSU does not have an internship requirement, whereas LCC's degree will require students to complete practical cooperative education experience as part of the degree.		
OSU				LCC partners with OSU via articulation agreements to provide students a smooth transfer pathway.		
OSU				LCC's BAS accommodates and encourages students with associate degrees in non-business disciplines to enter and complete the bachelor's degree program.		
Bushnell University (BU)	>2 mi	Bushnell offers a BS in Business Administration (catalog): "[The]...purpose of the business administration program is to prepare students for careers as managers and leaders in either private or public sectors. In conjunction with the general education of the University, the program integrates the fundamental theories, concepts, and practices of business with Christian values and ethics" (<i>Catalog</i> , 2021-22).	30 (BS)	Bushnell offers a Bachelor of Science degree, not an applied bachelor's degree; does not include project management; religious focus; includes 3 semester credits (4.5 quarter credits) of internship, whereas LCC's degree requires a minimum of 6 credits of cooperative education		
BU				LCC's BAS accommodates and encourages students with associate degrees in non-business disciplines to enter and complete the bachelor's degree program.	Selective—highest cost among these institutions	\$32,320
BU				LCC partners with Bushnell via articulation agreements to provide students a smooth transfer pathway.		

Chemeketa Community College (CCC)	70 mi	Submitted Statement of need for BAS in Applied Management and Leadership	58 (AAS)	Chemeketa intends to offer a BAS in Applied Management and Leadership, serving primarily students in Yamhill, Polk, and Marion counties. LCC's BAS will primarily serve students in Lane County, including socioeconomically disadvantaged populations in Lane County and outlying areas.	Open—students must hold associate's degree	\$5,670
Chemeketa Community College (CCC)				LCC's BAS will have a more generalized focus to support the needs of the local workforce. Chemeketa is an integral partner in fulfilling the demand and attainment gaps in Oregon and our respective service areas.		
Umpqua Community College (UCC)	63 mi	Offers AAS and CTE programs	9 (AAS)	UCC does not offer a 4-year bachelor's degree but is included here as employers may be currently underfilling positions with applicants that hold associate degrees. As the next nearest institution to the south, we felt it important to note the potential for our BAS to appeal to students coming from nearby AAS programs.	Open	\$5,297
Linn-Benton Community College (LBCC)	44 mi	Offers AAS and CTE programs	36 (AAS)	As with UCC, LBCC does not offer a 4-year bachelor's degree. As the next nearest institution to the north, we felt it important to note the potential for our BAS to appeal to students coming from nearby AAS programs.	Open	\$5,487
Sources: IPEDS (2021), catalogs of respective institutions						

HECC STANDARDS AND PROMPTS (APPENDIX A)

AREA 2B—QUESTION: IN WHAT WAYS COULD YOUR INSTITUTION COLLABORATE WITH OTHER COLLEGES, UNIVERSITIES, INDUSTRY, OR COMMUNITY ORGANIZATIONS TO MINIMIZE COSTS TO STUDENTS AND MAXIMIZE EFFECTIVE USE OF STATE RESOURCES; TO ENRICH TEACHING & LEARNING, AND TO FACILITATE STUDENTS' PREPARATION TO ENTER AND SUCCEED IN POST-GRADUATION EMPLOYMENT?

Cooperation and collaboration are integral to the state institutions in LCC's service area and to fulfilling Oregon's educational goals.

In the context of the BAS degree program, **collaboration** takes two forms: 1) cooperative education and 2) articulation and transfer.

According to the HECC's CTE Approval Standards², under "alignment," we can address the issue of "collaboration" as follows:

Our degree program integration of curriculum with co-op learning is dependent upon relationships and reciprocal understanding among businesses in our community, and among the business leadership and related organizations in the service area of Lane County. This community is also served by other programs within or near our service area, such as the UO and OSU.

The integration of curriculum with the needs and perspective of the business community impacts our curriculum alignment with other institutions, also serving this same, broad, community, and similarly aligned—though our alignment is more enriching to students because of our program focus on applied learning through co-op experience, rather than mainly classroom, as well as more affordable to students, and hence more resource-effective.

Hence, our cooperation with other institutions, through common understanding and purpose, has the practical effect of creating cooperation to serve the educational needs of students and, more formally, aligning our curricula for ease of transfer and intra-institutional coursework credit and articulation.

The BAS curriculum is designed to meet employers' needs, allow students maximum transfer flexibility, and prevent excessive credit loss. LCC's course design, numbering, and learning objectives purposefully align with those of other institutions to facilitate transfer and minimize lost time to completion and costs to students.

Our BAS promotes cost efficiencies by allowing students to take upper-division courses at reduced/reasonable rates when compared to public universities. Additionally, the "price-performance" of LCC's BAS addresses the formidable supply gap among business disciplines in a way that is favorable and equitable to students by maximizing access and minimizing cost for students. Indeed, LCC's BAS will likely rank at the lowest cost bachelor's degree among all four-year institutions in LCC's service area and the state.

² Please see [HIGHER EDUCATION COORDINATING COMMISSION \(HECC\) APPROVAL STANDARDS](#) guidelines on Alignment for usage of term "articulation" specifically from section C.

Co-op learning, reflection, and integration

A distinguishing feature of LCC's BAS program, and of central importance to the learning experience for our BAS students, is co-op education. Co-op provides students with an enriched teaching and learning experience, and prepares them to enter and to succeed in post-graduation employment by embedding the student in a workplace environment that complements academic learning.

Reflection is an important part of the experiential learning our BAS offers, because it motivates students to synthesize classroom and cooperative learning and to identify and articulate relationships and insights from both academic study and practical experience as a way of forming meaningful knowledge. The curriculum design provides students with reflective opportunities as part of the co-op process.

The meaningful co-op experiences our BAS provides grants students "prior experience" in potential target industries and employers, as well as contact and networking opportunities and familiarity with workplace cultures, ahead of graduation and job-seeking.

Our degree program integration of curriculum with co-op learning is dependent upon relationships and reciprocal understanding among businesses in our community, and among the business leadership and related organizations in the service area of Lane County. This community is also served by other programs within or near our service area, such as the UO and OSU.

Consequently, we are engaged in several endeavors that we hope will lead to long-term collaboration. These preliminary discussions include pathways for students to continue graduate studies at institutions such as Bushnell University, Rennes School of Business in France, and Oregon State University, participating in alignment projects such as the Oregon CTE Program of Study Framework, and including the BAS in discussions around campus-community-corporate partnership, advisory committees, and other opportunities. We believe that as our curriculum develops this pathway will lead us to build upon existing relationships and develop strong partnerships with business and industry for the benefit of our students.

HECC STANDARDS AND PROMPTS (APPENDIX A)

AREA 3—STANDARD: EMPLOYERS/COMMUNITY HAS SUBSTANTIVE DEMAND FOR GRADUATES WITH BACCALAUREATE LEVEL DEGREE AND SPECIFIC COMPETENCIES STUDENTS ARE EXPECTED TO ACHIEVE IN THIS PROGRAM.

AREA 3—CRITERIA: DEMONSTRATE THAT EMPLOYER DEMAND EXCEEDS REGIONAL SUPPLY OF GRADUATES WITH BACHELOR'S DEGREES IN THE EMPLOYER-DESIRED FIELD OF STUDY. THIS MIGHT BE SUBSTANTIATED—FOR EXAMPLE—BY NUMBER OF POSITIONS WITH INSUFFICIENT CANDIDATE POOL OR BY OTHER INFORMATION WITHIN LETTERS OF SUPPORT FROM INDUSTRY EMPLOYERS. CALCULATE THE ESTIMATED ANNUAL GAP BETWEEN EMPLOYER DEMAND AND SUPPLY OF GRADUATES.

Lane Community College takes pride in being a partner of the business community throughout Lane County. The 4-year management degree is being developed by listening, analyzing and understanding what Lane County businesses need today and in the future for their applicants and employees.

SURVEY RESULT: VALUE OF THE APPLIED BACHELOR'S DEGREE

A survey completed by over 200 employers in Lane County indicates a lack of qualified local applicants. More importantly, these employers specified the qualifications and skills that are crucial to their companies and industries.

Through analysis of the qualitative, quantitative, and narrative responses Lane Community College has developed a clear picture of what Lane County employers need from our institution and its graduates.

Our survey elicited comments and data confirming a supply gap for graduates with crucial skill sets and experience. The results show both a *shortage of qualified students* as well as an *experiential gap*—a shortfall that our integrated classroom/co-op model addresses.

THE NEED: CUTTING EDGE SKILLS

Exploration of the skill gap among Lane County employers surfaced business qualifications and skills specific to particular occupations and industries:

“We need skills to fill some new job descriptions that aren’t typically included such as customer success manager”

“We need specific understanding of project management. Understanding the differences between stakeholders and sponsors, understanding how to assess and create a project timeline. Not everyone needs to be a project manager, but if everyone understood the cornerstones of project management, it would make life so much easier.”

—Employer survey respondents

EMPLOYERS POINT THE WAY

Key point: 68% of our employer respondents anticipate future workplace demands in their business, which will require skills gained in a four-year management degree and include:

- Technical Management
- Emerging Technologies Project Management
- New Solutions Adoption

Key point: 87% of surveyed Lane County employers reported a perceived lack of qualified applicants currently within Lane County to help manage business growth and meet future challenges.

LANE COMMUNITY COLLEGE LISTENS TO PRIVATE SECTOR INDUSTRY

Lane Community College has listened to our business partners and our BAS curriculum reflects the needs of industry in our service area. A key piece of the curriculum is a two-part, 300/400 level project management course that is integral to our 4-year degree. This twenty-two-week learning experience includes learning advanced project management software as well as preparing for project management certification, which is the gold standard for the workplace-ready job applicant.

The 4-year degree also offers a 400-level information systems course, which contributes to an understanding of strategic applications and the IT department's role within the organization. Understanding IT systems also includes learning how applications and IT systems help drive management goals and, with them, the future of companies. Project management and IT systems courses, in combination with other strategic, high-level courses, such as international business, provide hands-on, immersive training that address the needs of businesses in Lane County.

Employers envision the future workplace and its needs along with its challenges; Lane Communities College graduates will be equipped with the tools necessary for tackling the future workplace, successfully.

THE NEED—VERY SPECIFIC SKILLS FOR LANE COUNTY EMPLOYERS

THE NONPROFIT SECTOR

"Many local businesses struggle to find qualified, local candidates."

"The strong nonprofit sector in this community is particularly in need of trained professionals"

—Employer survey respondent

LANE COMMUNITY COLLEGE LISTENS TO THE NON-PROFIT SECTOR

Lane County has an unusually large nonprofit sector. Our BAS curriculum prepares graduates to enter employment in a nonprofit organization, where they can begin to have an impact.

The BAS curriculum includes a 400-level management course in "social innovation," which is designed to enable students to access opportunities in Lane County's non-profit sector.

This course not only prepares students to meet the needs of non-profit organizations, but also to serve the social responsibility needs of many larger companies.

THE EXPERIENTIAL SKILLS GAP

"We need applicants with skills they will use every day like current organizational, marketing automation, and customer management software. Applicants need to learn what is actually going on in a marketing department."

"Would be great to fill positions in areas like marketing and management in Eugene more often, we don't find qualified candidates locally as often as I wish we could." —Employer survey respondents

LANE LISTENS TO BUSINESS PARTNERS

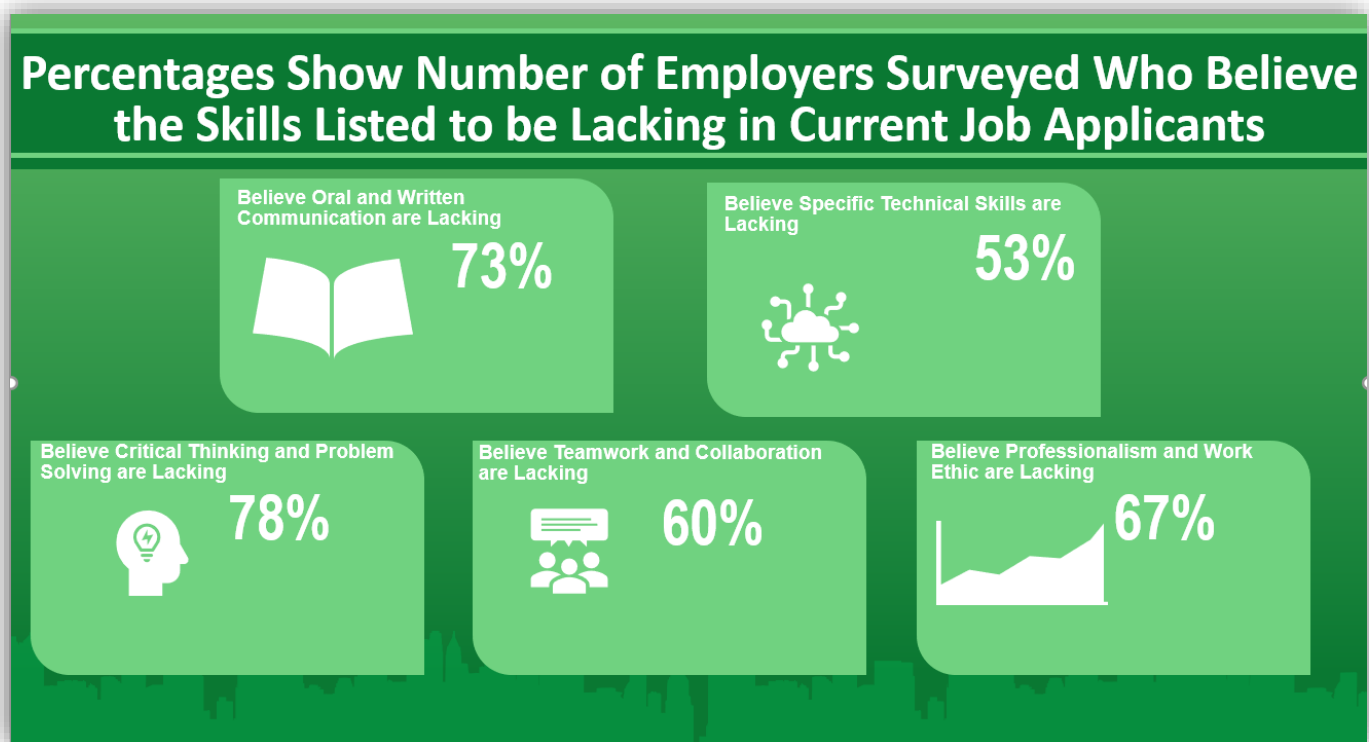
Marci Hansen, Lane business instructor and co-founder of a Eugene technology company that sold for the largest sum in Lane County history says:

"The 300 level Marketing Management course and the 400 level Business Analytics course directly speak to the needs of an up to date, sophisticated marketing department. The specific skills can be directly applied in a small business up to an enterprise position. The curriculum is also created in a way where it will grow, change, and update as business demands change."

PROFESSIONAL SKILLS GAPS

The following respondents, by percentage, point to professional "skills gaps" among current job applicants. The BAS degree program aims to close these skills gaps by ensuring its graduates possess the professional skills that Lane County workplaces require.

Table 6: Survey Result: Applicant Skills Gap



Employers listed specific, current and future professional skills that Lane County employees must have. The blend of professional skills that a 4-year degree provides contributes most to preparing desirable candidates and, therefore, we anticipate our graduates will be much sought-after by the local businesses who have articulated the need for currently lacking professional skills.

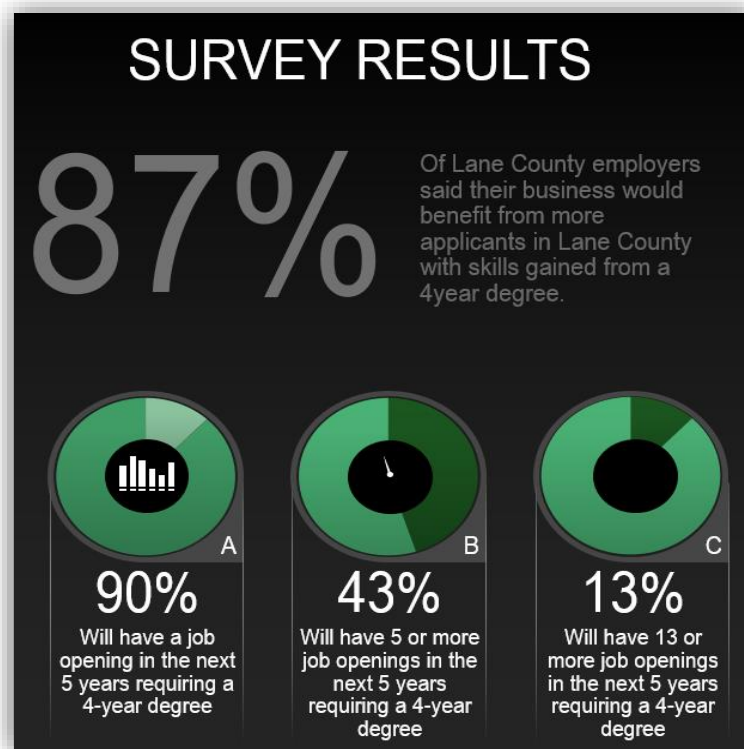
Judy, a Lane Community College business instructor, states:

"I believe with a 4-year degree our students would benefit from more teamwork, organization, time management, and communication skills, especially written communication. Teamwork and communication, specifically, were always the skills identified by local businesses when we surveyed them during meetings over the last several decades."

The needs of both service area partners and Lane BAS graduates are met by coursework that instills advanced professional skills in strategic management, executive level communication, and organizational management, such as 400 level courses in Strategic Management and Business Communication.

QUALIFIED APPLICANTS SHORTAGES

Table 7: Survey Result: Lane County Jobs Projections



The survey responses equate to between 1300–1400 new jobs in Lane County over the next five years. These figures track with Lane Occupational Employment projections for 2019-2029, from the Workforce and Economic Research Division, which projects 1380 jobs before 2029 for 4-year degree holding applicants in Lane County.

LOCAL SUPPLY GAP FOR QUALIFIED 4-YEAR APPLICANTS

Without a 4-year degree program at Lane, businesses could be forced to look outside the county to fill the positions. That could mean hiring people from outside the county and letting them work remotely, or it could mean moving businesses outside of Lane County entirely.

In a letter of support for the 4-year degree, the President of SheerID, David Shear, outlines the problem of trying to grow a business in Lane County with inadequate numbers of skilled employees:

"SheerID started in Eugene in 2011 and currently has nearly 200 employees worldwide. Most of our current and future positions require a 4-year degree, not only in the credentials but also in the skill and knowledge base. In the past, we have had to hire outside of Eugene, including opening an office in Portland, OR to find the employees we needed. We would have preferred to hire in Eugene but the skilled labor pool we required was not available."

The employers in Lane County have spoken. Their concerns are clear: they have current and upcoming positions but lack qualified applicants to fill them.

A 4-year degree is essential for balancing the supply of 4-year degree holders with the demands of businesses in the Lane Community college service area, as well as in Oregon as a whole.

As shown in other sections of this needs statement, Lane Community College can produce 4-year degree holder who will be uniquely prepared for the numerous current and future opportunities with local employers. Access to these opportunities is further strengthened by Lane's strong partnership with the local employer community.

A 4-YEAR DEGREE AND EXPERIENCE

While employers in Lane County require applicants with multiple years of higher education, this qualification alone is insufficient to meet employer demand or to represent a sufficiently prepared graduate. Workplace knowledge and the utilization of professional skills, in the organizational context, complement the knowledge and training provided by a four-year degree.

"Filling middle management positions requires either job experience or 4-year degrees. There is a lot of competition for those with experience, so having someone with a four-year degree as an option is beneficial."

In addition to the degree, I would like to see more graduates with job experience to gain the professional skills of teamwork, work ethic, collaboration, etc. Too many graduates do not have work experience."

—Employer survey respondents

LANE COMMUNITY COLLEGE CONTRIBUTES TO OUR SERVICE AREA QUALITY OF LIFE

The co-op portion of the Lane Community College four-year degree program includes three terms of direct experience working with local employers.

"For several years Columbia Bank has had an internship that has provided opportunities for scores of students to gain exposure to the banking and financial services industry, as well as provide an opportunity to collaborate with others in a professional, team-oriented setting."

—Employer survey respondent

Lane County employers struggle to fill specific needs, and the needs-gap includes some very position-specific needs. The BAS in Business addresses the labor gap for skilled 4-year degree holders, as our survey shows, and contributes to economic growth community well-being through

1. Learning experiences that integrate classroom and experiential learning—co-op—and instill relevant, applicable, and transferable skills and knowledge sets;
2. By providing employers with 4-year BAS degree holders who meet the occupational skills requirement of Lane County industry, our emerging reputation for a skilled and "ready" managerial workforce will continue to attract new business to the area and contribute to the overall quality of our community;
3. Addressing the supply gap, by providing a skilled, managerial workforce of 4-year degree holders, will meet current and future employer demand as well as attract new business to the area, contribute to Lane County's emerging reputation for a skilled and "ready workforce," and enhance the overall quality of our community.

Oregon faces an increase in the number of positions requiring a bachelor's degree and is not producing enough graduates to meet that demand. This gap is further addressed in Appendix B.

HECC STATEMENT OF NEED GUIDE—APPENDIX A

AREA 4 STANDARD: APPLIED BACCALAUREATE PROGRAM BUILDS UPON ACADEMIC, PROFESSIONAL, OR TECHNICAL DEGREE PROGRAM(S) OR COURSES ALREADY OFFERED.

AREA 4A—CRITERIA: DESCRIBE THE EXISTING PROFESSIONAL AND TECHNICAL DEGREE PROGRAM(S) THAT WILL BE USED AS THE FOUNDATION FOR THIS APPLIED BACCALAUREATE PROGRAM. INCLUDE HOW LONG THE PROGRAM HAS BEEN IN EXISTENCE, THE DATE OF ITS LAST REVIEW BY ITS DEPARTMENT WITHIN THE COLLEGE, AND THE ENROLLMENT HISTORY OF THE PROGRAM(S) OVER THE PAST SIX YEARS.

(Continued on next page)

EXISTING PROGRAM BACKGROUND, PROGRAM REVIEW, AND ENROLLMENT HISTORY

1. **Foundational program**—Lane's AAS in Accounting or AAS in Business are the programs that will be used as the foundation for the applied baccalaureate program.
2. **Length of program existence**—The AAS in Accounting and AAS in Business have been in existence, in some form, since 1965. The most recent iteration of these programs was launched in 2017.
3. **Date of last program review**—2017-2018; next review expected in 2023-2024.
4. **Enrollment history over the past six years**—See **Table 8**; additional disaggregated enrollment for all AAS programs available on page 71 of the appendix.

BAS Entry Options

Students may wish to enter the BAS with degrees other than an AAS in Accounting or an AAS in Business. We have considered this concern and developed our BAS curriculum to suit multiple entry pathways without requiring modification of those AAS degrees. Detailed information about these AAS degrees, including length of existence, date of last program review, and enrollments for the past six years is available on page 35 of the appendix.

These pathways are described in greater detail on page 29 ("Fast Lane to Business"). As a general overview, here are the primary pathways we see for students to enter the BAS:

1. Students in the workforce, who own their own business, or otherwise wish to enhance and specialize their existing education may **build upon their previous bachelor's degree** to complete the BAS in Business.
2. Students who are **transferring from other institutions** or who **already have an associate's degree**.
3. Students can also **start at Lane in one of our AAS programs and continue into the BAS**.

EXISTING PROGRAM BACKGROUND, PROGRAM REVIEW, AND ENROLLMENT HISTORY

Lane Community College has offered programs in Business and related occupations since the beginning of classes in 1965. As business education has evolved, so has LCC's offerings. Today, these comprise certificate and two-year associate degree programs that serve students who intend to enter the workforce, as well as those who intend to transfer to a four-year institution to complete a bachelor's degree.

PROGRAM REVIEW: The Business department completed the first year of a five-year program self-study in 2018, and it is scheduled to begin its next five-year program review in 2022. Total fall and annual enrollment for the previous six years is detailed in **Tables 8 and 9** on the following page. Additional disaggregated enrollment information is available in the appendix.

Table 8: Annual Enrollment, Business and Accounting Foundational Programs		
Academic Year	Business Management AAS	Accounting AAS
2016	-	157
2017	121	147
2018	159	151
2019	177	110
2020	196	96
2021	188	93

Table 9: Total Annual Enrollment, Business Department, by Declared Area of Study		
Academic Year	Transfer	CTE
2016	897	346
2017	852	292
2018	736	356
2019	753	382
2020	724	332
2021	659	320
2022*	580	297

*Criteria were changed slightly in 2022 due to the introduction of new data warehouse software. 2022 data as of March 9, 2022.

The LCC Business department currently offers an Associate of Applied Science (AAS) in Accounting and an AAS in Business, approved in 2017, among other credentials. These two AAS programs serve as the primary foundation for the BAS in Business, although we recognize that students may wish to enter from other programs, such as Dental Hygiene, Welding, and Media Arts, as examples. These students often wish to advance to occupations such as office managers, supervisors, and business owners, and the BAS is uniquely suited to help them make that advancement.

Students entering the BAS in Business must meet certain, attainable entry requirements, but they do *not* need to have a business background. For example, we anticipate that a number of students entering the BAS from the Apprenticeship Department will hold AAS degrees in Automotive Technology, Construction Technology, or degrees in other areas. Students may also enter from programs in Cybersecurity, Hotel, Restaurant, and Tourism Management, and Health Information Management, as further examples.

The low barrier for transfer and entry into the BAS argues for both the uniqueness of this degree program and points to key attributes in serving our population and demographics: equity, access, and diversity.

DIFFERENTIATING AAS AND BAS

The Associate of Applied Science (AAS) in Accounting and the AAS in Business serve as the core degree for the BAS in Business and as described above, create a pathway rounded out by electives.

However, many other AAS degrees from LCC can lead to the BAS in Business, although these pathways will require individualizing, according to the student's prior area of study. **Rather than requiring students to adapt to the BAS, we have chosen, whenever possible, to adapt the BAS to our students.**

FLEXIBLE PATHWAYS

Students entering the BAS in Business must meet certain, yet attainable, entry requirements. However, students do *not* need to have a business background to enter the BAS degree program; entry is open to anyone.

However, whether a student enters with an AAS degree in Accounting or Business, or another type of degree, *will determine* that student's pathway and coursework through the BAS.

As examples, students entering the BAS might already hold AAS degrees in areas such as (but not limited to) Early Childhood Development, Multimedia Design, and Dental Hygiene, or enter from programs such as Cybersecurity and Health Information Management, among others.

The open approach to entry or transfer into the BAS argues for both the uniqueness of the degree program and for accessibility—a key attribute for serving our population, given its demographics, and for ensuring an equitable and diverse student body.

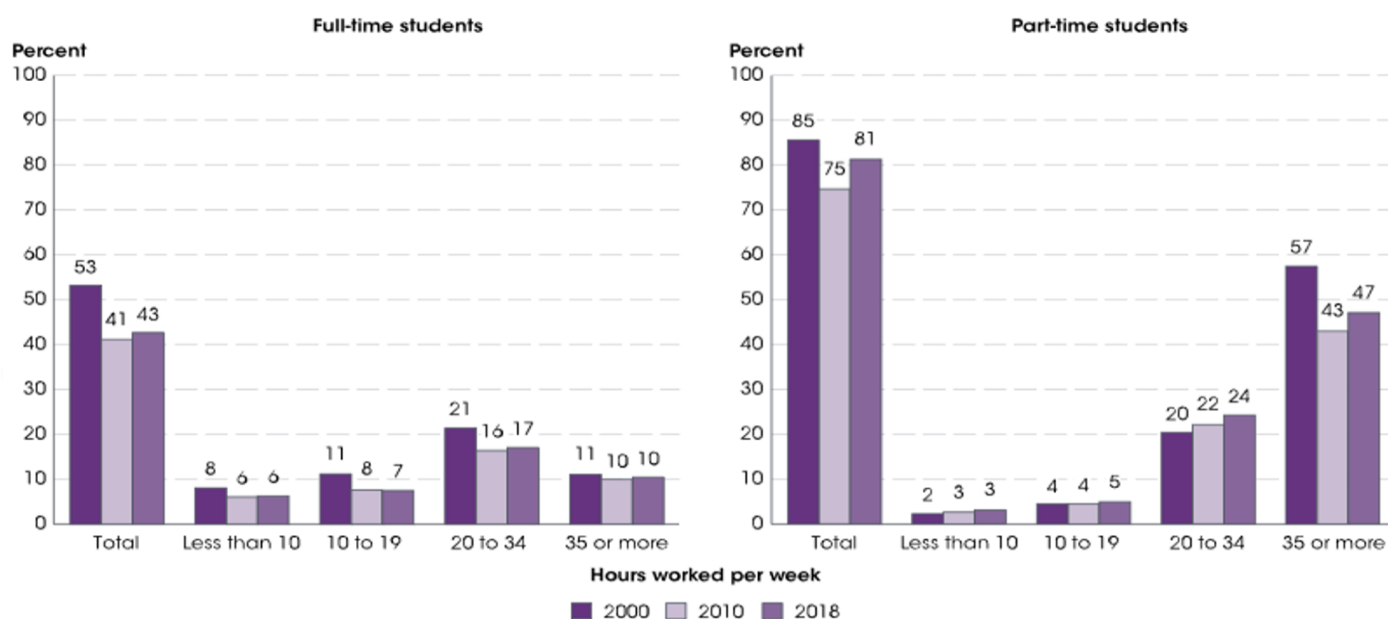
It is worth noting that completing one of the Lane's college's programs represents a significant student achievement. Students who complete our programs would be potential BAS candidates. A significant related note: most students in Lane's demographic leave a 2-year degree before completion or do not complete contiguous terms. Hence, students completing a Lane 2-year program have already demonstrated persistence and resilience, and their prior achievement would predict success in a 4-year BAS degree program.

DEFINING LCC'S STUDENT DEMOGRAPHIC AND SOCIO-ECONOMIC STATUS

In a July 2020 survey by Temple University, **63% of LCC students experienced some form of basic needs insecurity, such as food insecurity, housing insecurity, or homelessness.** In 2017, 27% of full-time students and 71% of part-time students nationwide worked 20 hours or more per week (U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS), October 2000, 2010, and 2018. See *Digest of Education Statistics 2019*, table [503.40](#).)

Table 10: Student Employment

Percentage of undergraduate students who were employed, by attendance status and hours worked per week: 2000, 2010, and 2018



Note: Students were classified as full time if they were taking at least 12 hours of classes during an average school week and as part time if they were taking fewer hours. Data are based on sample surveys of the civilian noninstitutionalized population, which excludes persons in the military and persons living in institutions (e.g., prisons or nursing facilities). Detail may not sum to totals because the percentages of hours worked per week exclude those who were employed but not at work during the survey week. Includes students ages 16 through 64. Although rounded numbers are displayed, the figures are based on unrounded data.

Source: U.S. Department of Commerce, Census Bureau, Current Population Survey (CPS), October 2000, 2010, and 2018. See *Digest of Education Statistics 2019*, table 503.40.

MEETING THE NEEDS OF OUR POPULATION

"Traditional" students, those without obligations other than attending school, or with only a part-time job in addition to school, are increasingly rare at LCC. This evolution in the demographic of college students has occurred at institutions throughout the US with demographics similar to those of LCC. Increasingly, institutions such as Lane must focus on the needs of non-traditional students, many who enter school later in life and may already have significant work and family responsibilities, encumbrances, and limitations in resources and logistics.

Access to an affordable 4-year college degree has special significance for Lane's student population and its demographic. This is characterized by low socio-economic status, sensitivity to economic downturn, persistent housing and food insecurity, limited financial resources, and the need to work while attending school.

Moreover, accessibility is especially vital to students who may wish to continue beyond the AAS, but who may be place bound for reasons of employment, family obligation, or a lack of resources to afford a commute or to live near a four-year institution they might attend. Hence, without a BAS at Lane such students might otherwise be unable to continue their education, and other 4-year programs simply tend to focus more on meeting the needs of traditional college students, rather than on those in our demographic.

Lane Community College's current Business offerings serve a diverse group of students that includes non-traditional students with families, jobs, and other commitments; first-generation students of all ages and backgrounds; international students; as well as "traditional" students. Their goals sometimes include transfer to a 4-year institution, but often the goals also include business ownership, entering the workforce, advancing at a current place of employment, and earning a higher salary.


For most LCC students, relocating outside of the service area to achieve these goals is not an option, and existing institutions are out of reach for a variety of financial, logistical, and cultural reasons, which are detailed in Area 2 of this statement of need.


FAST LANE TO BUSINESS

HOW WILL STUDENTS BE ABLE TO ACHIEVE SUFFICIENT KNOWLEDGE TO ENTER THE BAS IN BUSINESS FROM A NON-BUSINESS AAS PATHWAY PROGRAM?

To better understand the paths into and through the BAS for students with differing entering degrees, consider the following hypothetical students on the following pages:

ANA'S BAS PATHWAY	YEAR ONE	OVER THE SECOND YEAR: CO-OP
	<p>Ana completes the following 16 credits of directed electives her <i>first term</i>:</p> <ul style="list-style-type: none"> • Critical Thinking • Reading, Writing, and Digital Culture • Ethics • Technical Writing 	<p>During Ana's second year, the Co-operative Education department and her supervisor arrange a co-op experience for Ana <i>with her current employer</i>.</p> <p>Co-op allows Ana to integrate classroom and experiential learning.</p>
	OVER THE NEXT TWO TERMS <p>Ana completes these courses:</p> <ul style="list-style-type: none"> • Data Visualization • Advanced Excel • Human Resources • Digital Marketing • Accounting Concepts for Managers • Project Management • Small Business Management • Money and Banking 	FOR PROGRAM COMPLETION <p>Ana completes these courses:</p> <ul style="list-style-type: none"> • Marketing Management • Management Information Systems • Social Enterprise • Management Communications • Business Analytics • International Business • Project Management I and II • Strategic Management • Cross Cultural Management
<p>STUDENT PROFILE: ANA</p> <ul style="list-style-type: none"> • Key area of need or interest: Wants to continue studies without leaving her job. • Entering Degree: AAS in Business Management (2022) • Current Employment: Production Coordinator at local business 		

<p>BECKY'S BAS PATHWAY</p> 	<p>YEAR ONE</p> <p>Becky completes the following 16 credits of directed electives her <i>first term</i>:</p> <ul style="list-style-type: none"> • Excel • Leadership and Team Dynamics • Math in Society • Intro to Accounting Cycle OR Financial Accounting 	<p>OVER THE SECOND YEAR: CO-OP</p> <p>During Becky's second year, the Co-operative Education department arranges a co-op experience for Becky with a local employer.</p> <p>Co-op allows Becky to integrate classroom and experiential learning.</p> <p>After graduation, Becky works with the Small Business Development Center to plan for the launch of her own business.</p>
<p>STUDENT PROFILE: BECKY</p> <ul style="list-style-type: none"> • Key area of need or interest: Wants to start her own business. • Entering Degree: AAS in Multimedia Design (2016). • Current Employment: Works part-time at a design firm. 	<p>OVER THE NEXT TWO TERMS</p> <p>Becky completes the following courses:</p> <p>Data Visualization</p> <ul style="list-style-type: none"> • Advanced Excel • Human Resources • Digital Marketing • Accounting Concepts for Managers • Project Management • Small Business Management • Money and Banking 	<p>FOR PROGRAM COMPLETION</p> <p>Becky completes the following courses:</p> <ul style="list-style-type: none"> • Marketing Management • Management Information Systems • Social Enterprise • Management Communications • Business Analytics • International Business • Project Management I and II • Strategic Management • Cross Cultural Management

<p>JAY'S BAS PATHWAY</p> 	<p>YEAR ONE</p> <p>Jay completes the following 16 credits of directed electives his <i>first term</i>:</p> <ul style="list-style-type: none"> ● Ethics ● Critical Thinking ● Introduction to Literature ● Intro to Accounting Cycle <p style="text-align: center;">OR</p> <ul style="list-style-type: none"> ● Financial Accounting 	<p>OVER THE SECOND YEAR: CO-OP</p> <p>During Jay's second year, Co-operative Education department arranges for Jay to split his co-op experience between two employers in industries that interest him.</p> <p>Co-op allows Jay to integrate classroom and experiential learning.</p> <p>After graduation, one of Jay's co-op mentor-employers offers Jay an entry-level management position, where he begins his career.</p>
<p>STUDENT PROFILE: JAY</p> <ul style="list-style-type: none"> ● Key area of need or interest: Decided to pivot and pursue a 4-year degree in business, but GPA and cost create barriers to entry at other institutions. ● Entering Degree: AAS in Energy Management Technician (2022). ● Current Employment: About to graduate with his AAS. 	<p>OVER THE NEXT TWO TERMS</p> <p>Jay completes the following courses:</p> <ul style="list-style-type: none"> ● Data Visualization Advanced Excel ● Human Resources ● Digital Marketing ● Accounting Concepts for Managers ● Project Management ● Small Business Management 	<p>FOR PROGRAM COMPLETION</p> <p>Jay completes the following courses:</p> <ul style="list-style-type: none"> ● Marketing Management ● Management Information Systems ● Social Enterprise ● Management Communications ● Business Analytics ● International Business ● Project Management I and II ● Strategic Management ● Cross Cultural Management

COMPARISON WITH NEARBY PROGRAMS

Although the hypothetical examples provided above may be illustrative of the pathways our students will take through the BAS, it is reasonable to ask: Why don't students in our service area simply enroll in one of the 4-year degree programs offered locally, outside our service area, or through distance learning?

We have included a brief highlight of the difference between the BAS in Business at Lane and other potential options. (See Table 5, Institutional Comparison: Lane Community College in Context, above, for a more detailed comparison of institutions in and near our service area.) All information is drawn from the respective institutions' course catalogs and IPEDS data.

- **University of Oregon** is a vital and well-known part of the LCC service area and a committed partner institution. However, to enter the Lundquist School of Business at UO, students must meet selective admission requirements and contend for a limited number of seats. These boundaries are integral to the UO program and will inevitably exclude those non-traditional students whose life situations require a combination of flexible class schedules, online or evening course modalities and who may be first generation or come from non-academic backgrounds. Where do these students fit into higher education, and, more specifically find a suitable degree pathway?
- **Bushnell University** is a private, non-profit, faith-based institution and an important partner for LCC. Bushnell and Lane have articulation agreements to provide for strong transfer pathways between institutions. Nevertheless, Bushnell has a distinct mission, which may not appeal to all students, and it is also among the highest cost among comparative institutions offering a BAS.
- **Online options** are available to students from a wide variety of providers. These include other state institutions such as Eastern Oregon University and Oregon Institute of Technology, which require a greater number of general education courses than the LCC BAS and may draw from a limited selection of AAS fields.

While the degree options described above are essential to providing a variety of students with viable degree pathway options, the LCC BAS differs in three significant ways:

1. A focus on underrepresented and place bound Lane County students from backgrounds with low socio-economic status and first-generation college attendance;
2. Flexible course modalities, including online (both asynchronous and synchronous), hybrid, and evening/weekend attendance; and
3. Affordable programs that help promote social mobility and equity to underrepresented and place bound students in our service area.

HECC STATEMENT OF NEED GUIDE—APPENDIX A

AREA 4B—QUESTION: HOW MIGHT THIS EXISTING PROGRAM NEED TO BE REVISED TO BETTER INTEGRATE WITH AN APPLIED BACCALAUREATE PROGRAM?

A STUDENT-READY APPLIED BACCALAUREATE

After thorough consideration of this question, the existing programs do not need to be revised to integrate with the BAS in Business—instead, we have revised the BAS in Business to integrate with existing programs. As evidenced in the hypothetical scenarios in the previous section, the BAS in Business is designed to accommodate students from a range of backgrounds.

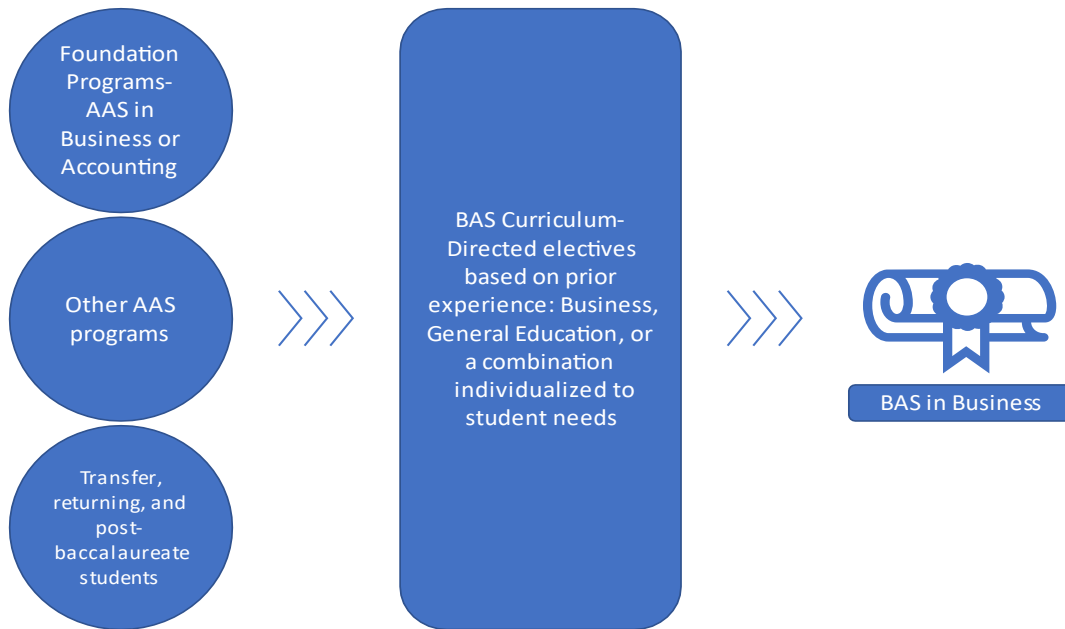
The traditional approach in education is to ask whether students are prepared for our degree—and, as described in Area 3 of this Statement of Need—this is indeed an important consideration that we have addressed, given the rigorous nature of the applied baccalaureate degree. More importantly, in designing the BAS, we also asked **“Is our degree ready for students?”** We recognize that there are many students who wish to advance in their careers, start and grow their businesses, and achieve a greater level of education, but who may not have a traditional business background. By advising these students individually, and carefully defining our learning outcomes around open and equitable access, we can offer pathways to achieving a BAS that is currently unavailable to students with degrees from other fields.

The foundational pathway for the BAS is an AAS in Business or an AAS in Accounting. However, the flexibility of our BAS degrees provides a pathway into the BAS for students from a range of programs, including transfer, returning, and post-baccalaureate students who may wish to continue with Lane to support their career growth and business performance.

We have considered points of entry into the BAS for students with AAS degrees in fields other than Accounting or Business. The BAS curriculum was developed for multiple pathways, without the need for additional prior coursework.

Detailed information about pathway AAS degrees, including length of existence, date of last program review, and enrollment for the past six years, is available in the Appendix.

Table 11: AAS Degree Pathways to BAS in Business



In designing the BAS, we aimed to provide optimal access to students who wish to take upper division business courses and ultimately finish a four-year degree, either with Lane or at another Oregon institution. Students coming from disciplines other than business may require additional coursework, which we address in an equitable and accessible way, as we have developed program standards and protocols.

Additionally, we anticipate that students may transfer *from* other four-year programs into LCC's BAS and/or enter with associate degrees in fields other than business. Consequently, our existing programs require minimal modification, because building multiple valid pathways into the BAS with minimum barriers for transfer or continuation has been part of our thinking and program design since the inception.

INTERDISCIPLINARY PATHWAYS

Students entering the BAS will take applied business classes during their first term. These students will develop a strong understanding of business fundamentals and will gain valuable exposure to other disciplines in the process of completing the BAS. The well-rounded nature of this experience is intended to promote the interdisciplinary skills required of future managers.

Students entering from other four-year institutions, certain transfer degrees, or with a level of completed business coursework will be appropriately advised to minimize transfer credit loss and time-to-completion while maintaining a high degree of access.

For further details, please refer to the BAS curriculum in the Appendix.

HECC STATEMENT OF NEED GUIDE—APPENDIX B

PART A: EXISTING OCCUPATIONS

AREA 1—CALCULATE DEMAND

AREA 1A—STANDARD: INVESTIGATE ANNUAL TREND DATA FOR EMPLOYMENT USING INFORMATION SUCH AS JOB TITLE, DEGREE LEVEL, AND RELEVANT COMPETENCIES FOR THE INTENDED INDUSTRY AND JOB ROLE (OCCUPATION) EXPECTED FOR GRADUATES OF THIS PROGRAM. RELY ON DATA BASED ON OCCUPATIONS THAT REQUIRE A BACHELOR'S DEGREE RATHER THAN MORE ADVANCED DEGREES. SIMILARLY, DON'T RELY SOLELY ON OCCUPATION TITLE; INSTEAD, ALSO INVESTIGATE AND COMPARE THE REQUIRED COMPETENCIES FOR THOSE POSITIONS. DON'T JUST ATTACH A GENERATED DATA REPORT; PROVIDE YOUR ANALYSIS THAT SYNTHESIZES KEY DATA POINTS FROM THOSE REPORTS.

Among all related business and management occupations (CIP 52.0201 Business Administration, General), Oregon is projected by Emsi Burning Glass (2021) to see a total growth of 9.8% from 2020-2030, compared to 1.8% nationwide. Additionally, Oregon's total labor market is expected to grow 11%, compared to 3.7% nationwide. This is significant, and part of the opportunity-context for the BAS program.

The Oregon Employment Department (2021) projects 8.9% growth for all management, business, and financial occupations in Lane County during the period 2019-2029, and **nearly all of these occupations will prefer or require a bachelor's degree.**

Among our indicator occupations, **Oregon on the whole** is projected to have an increase of **8,020** job openings between 2018 and 2028 (ONET).

Table 12: Sample Occupations, Growth, and Projected Openings Source: O*Net-Online (2021)

Occupation	Education Required	% Respondents requiring or preferring bachelor's degree	OTJ Training	Oregon Projected growth (2018-2028)	Oregon Projected job openings (2018-2028)
Marketing Manager (11-2021.00)	Most of these occupations require a four-year bachelor's degree, but some do not.	56	Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.	19%	560
General and Operations Managers (11-1021.00)	Most of these occupations require a four-year bachelor's degree, but some do not.	29	Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.	14%	3570
Human Resources Managers (11-3121.00)	Most of these occupations require a four-year bachelor's degree, but some do not.	74	Employees in these occupations usually need several years of work-related experience, on-the-job training, and/or vocational training.	15%	240
Project Management Specialists (13-1082.00)	Not available	Not available		13%	1950
Administrative Services Managers (11-3012)	Most occupations in this zone require training in vocational schools, related on-the-job experience, or an associate's degree.	24	Employees in these occupations usually need one or two years of training involving both on-the-job experience and informal training with experienced workers. A recognized apprenticeship program may be associated with these occupations.	12%	430
Management Analysts (13-1111)	Most of these occupations require graduate school. For example, they may require a master's degree, and some require a Ph.D., M.D., or J.D. (law degree).	38	Employees may need some on-the-job training, but most of these occupations assume that the person will already have the required skills, knowledge, work-related experience, and/or training.	23%	1270
Total					8020

While many of these occupations are presumed to require a bachelor's degree in order to ensure new hires have *the requisite skills for a given position*, employers are increasingly skeptical that individual employees possess the specific technical and professional skills that employers expect a 4-year degree holder has acquired. This skepticism is evidenced in our survey responses (see Appendix, below).

The BAS in Business addresses this discrepancy in two ways:

First, through the extensive cooperative education component of the degree—learning-centered partnerships with area employers—graduates will meet two major needs of employers: a) that graduates with a year or more of work experience understand the cultural aspects of the professional workplace, such as punctuality, courtesy, respect, and other so-called “soft” skills needed to be a collaborative team member; and b) that graduates with practical experience can apply their knowledge and skills to actual problems in the workplace.

The co-op component of LCC's BAS degree specifically aims to provide students with learning opportunities and experiences—academics, co-op, and reflective work—to fulfill and meet these requirements, if not exceed them.

Secondly, the BAS in Business learning outcomes mirror the skills-area-needs of employers. By focusing on such areas as communication, critical thinking, and teamwork, the program emphasizes those skills of greatest importance to business leaders across occupations and industries.

In terms of technical skills, BAS graduates will be expected to have proficiency in particular technologies. However, and more importantly, graduates will have the meta- and transferrable (knowing how to learn) skills to efficiently learn new technologies as they emerge and as employers implement them within organization workplaces.

Certain technical skills and their respective technologies, such as Excel, project management, and cost accounting, will be relevant for years to come; our graduates will have ample exposure and experience in these technologies. Nevertheless, graduates who possess adaptive strategies and habits of mind will be able to keep pace with technological innovation and cultural change, and thereby meet the future needs of employers in Lane County, and the state of Oregon, while advancing their own careers.

HECC STANDARDS AND PROMPTS (APPENDIX B)

PART A—1: CALCULATING DEMAND

AREA 1B—CRITERIA: DESCRIBE RECENT INDUSTRY TRENDS THAT INFLUENCE EMPLOYER DEMAND, USING RELIABLE INFORMATION SUCH AS INDUSTRY-PROVIDED DATA OR TRADE ASSOCIATION REPORTS THAT HELP SUBSTANTIATE THE NEED FOR THIS PROGRAM'S SPECIFIC DESIGN OR CONTENT. FOR EXAMPLE, SOME FIELDS REQUIRE A SPECIFIC COMPETENCY BUT DON'T NECESSARILY REQUIRE IT TO BE GAINED THROUGH A TRADITIONAL EDUCATION PROVIDER.

The world is undergoing substantial change in terms of labor markets and technological change, putting pressure on employers, employees, and higher education to adapt. The COVID-19 pandemic has accelerated this change, speeding up digitization by approximately three to four years (McKinsey, 2020). This has presumably had a transformative effect not only on business and education, but in the daily lives of students and employees around the world.

According to Dondi, Klier, Panier, and Schubert (2021), the technological transformations and emergence of new occupations is expected to reduce the need for manual and physical skills, while increasing the need for technological, social-emotional, and higher-level cognitive skills.

(See **Table 13** on next page)

Table 13: 56 Foundational Skills for Thriving in the Workplace

56 DELTAS¹ across 13 skill groups and four categories

Cognitive		Interpersonal	
Critical thinking <ul style="list-style-type: none"> ● Structured problem solving ● Logical reasoning ● Understanding biases ● Seeking relevant information 	Planning and ways of working <ul style="list-style-type: none"> ● Work-plan development ● Time management and prioritization ● Agile thinking 	Mobilizing systems <ul style="list-style-type: none"> ● Role modeling ● Win-win negotiations ● Crafting an inspiring vision ● Organizational awareness 	Developing relationships <ul style="list-style-type: none"> ● Empathy ● Inspiring trust ● Humility ● Sociability
Communication <ul style="list-style-type: none"> ● Storytelling and public speaking ● Asking the right questions ● Synthesizing messages ● Active listening 	Mental flexibility <ul style="list-style-type: none"> ● Creativity and imagination ● Translating knowledge to different contexts ● Adopting a different perspective ● Adaptability ● Ability to learn 	Teamwork effectiveness <ul style="list-style-type: none"> ● Fostering inclusiveness ● Motivating different personalities ● Resolving conflicts ● Collaboration ● Coaching ● Empowering 	
Self-leadership		Digital	
Self-awareness and self-management <ul style="list-style-type: none"> ● Understanding own emotions and triggers ● Self-control and regulation ● Understanding own strengths ● Integrity ● Self-motivation and wellness ● Self-confidence 		Digital fluency and citizenship <ul style="list-style-type: none"> ● Digital literacy ● Digital learning ● Digital collaboration ● Digital ethics 	
Entrepreneurship <ul style="list-style-type: none"> ● Courage and risk-taking ● Driving change and innovation ● Energy, passion, and optimism ● Breaking orthodoxies 		Software use and development <ul style="list-style-type: none"> ● Programming literacy ● Data analysis and statistics ● Computational and algorithmic thinking 	
Goals achievement <ul style="list-style-type: none"> ● Ownership and decisiveness ● Achievement orientation ● Grit and persistence ● Coping with uncertainty ● Self-development 		Understanding digital systems <ul style="list-style-type: none"> ● Data literacy ● Smart systems ● Cybersecurity literacy ● Tech translation and enablement 	

¹Distinct elements of talent.

The authors conducted research to identify 56 skills they believe will be essential to the success of future citizens, with the following findings:

Disruptive technology, as a trend, is prevalent in the current literature on workforce development. Shuttters (2021), analyzing labor trends through the year 2029, finds that "...future demand for nearly every type of labor skill and knowledge increases, while work activities shift from physical to more cognitive tasks." Additionally, "Of the nearly three million jobs projected to disappear by 2029 due to COVID, over 91% are among workers without a bachelor's degree."

Among institutions of higher education, there is a general movement to transform curriculum to adapt to technological disruption. Wingard & Farrugia (2021) offer a detailed analysis of the successes and failures of institutions to make this transition. While institutions are offering more flexible and diverse arrays of credentials and courses, and students are increasingly seeking continuing education and upskilling opportunities, challenges persist in bridging the gap between employers and recent graduates.

Challenges aside, individuals with bachelor's degrees still typically fare better than those without:

"Americans with a bachelor's degree make, on average, approximately \$19,000 more per year than those with an associate degree. Bachelor's degree holders, especially Millennials, are also less likely to be unemployed than peers who only have some college experience or an associate degree. In the recovery from the Great Recession, new jobs that emerged were much more likely to require a bachelor's degree than the jobs that were lost. We are likely to observe a similar pattern once we emerge from the current pandemic-induced recession, meaning that Americans will need more opportunities to earn a bachelor's degree." (Love, 2020)

Love (2020) examines the effects of Florida's approval and adoption of baccalaureate degrees offered by community colleges. They conclude that the result has been largely positive, in terms of degree attainment and wage growth, and while equity gaps, particularly in gender pay, persist as challenges:

"The FCS has done much to offer affordable access to bachelor's degree programs for Floridians across the state. With a wide range of programs tailored to local labor markets, residents—whether recent associate degree recipients or out of

college for decades—can access further education and training to open doors of opportunity. Baccalaureate graduates are overall experiencing wage gains as well as strong rates of employment or enrollment in further education."

Where do these trends leave the BAS in Business?

There are three guiding principles that steer our curriculum development to meet the needs of the future workforce: 1) a focus on lifelong learning, rather than rote skill acquisition, i.e. students will not only learn how to use Microsoft Excel, *per se*, but they will learn how to teach themselves new software—and software of the future; 2) an appropriate mix of technology skills, e.g. digital literacy, data analysis, and tech enablement, and professional skills, e.g. critical thinking, communication, and leadership; and 3) a focus on synthesis of co-op experience with academic instruction to instill both the practical experience of working for an employer and the appropriate context to most effectively use academic knowledge. These curriculum goals aim to develop graduates who will be future leaders and citizens of the world of tomorrow, despite accelerating levels of technological change and disruption.

HECC STANDARDS AND PROMPTS (APPENDIX B)

PART A—2: CALCULATING SUPPLY

AREA CRITERIA: LIST AND PROVIDE NAMES FOR ALL LOCAL AND REGIONAL SCHOOLS PROVIDING RELEVANT BACCALAUREATE DEGREES, AND THE NUMBER OF ANNUAL PROGRAM GRADUATES FOR EACH OF THOSE PROGRAMS. IF THE SUPPLY OF AVAILABLE GRADUATES IS LOW, SEPARATELY LIST AND PROVIDE DATA ON THE NUMBER OF ASSOCIATE-LEVEL GRADUATES IN YOUR AREA. THESE GRADUATES MIGHT POTENTIALLY BE IN THE HIRING POOL, ASSUMING EMPLOYERS MAY PREFER TO HIRE CANDIDATES WITH A BACHELOR'S DEGREE, BUT NOT BE ABLE TO FIND ENOUGH CANDIDATES TO REQUIRE IT. (THIS IS AN EXAMPLE OF AN INSIGHT YOU CAN OBTAIN FROM USING AN EMPLOYER SURVEY.)

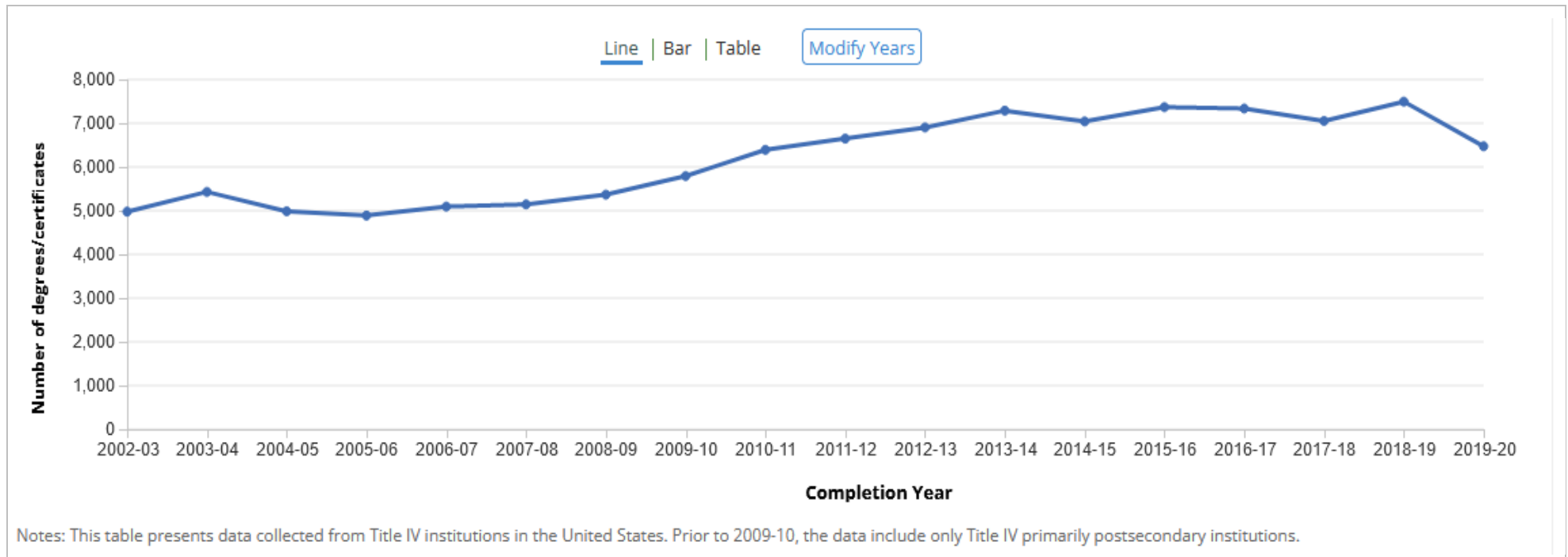
The supply of graduates from institutions within our service area, and within all of Oregon, is heavily dependent on the student enrollment pipeline and completion rate. Enrollments have been projected to drop over the coming years, due to economic and demographic trends, and, consequently, maintaining a pool of potential bachelor's degree recipients is of chief concern for filling the skills gap and demand for graduates that feeds into Oregon's economic growth and prosperity.

Table 14: Number of Graduates by Institution and Degree

Institution	Number of Graduates 2019-20 (IPEDS)	Degree Type
UO	645	(BS)
OSU	829	(BS)
Bushnell	30	(BS)
Chemeketa CC	58	(AAS)
Umpqua CC	9	(AAS)
Linn-Benton CC	36	(AAS)
Lane CC	90	(AAS)
Total	1697	

Source: IPEDS

Table 15: Number of Postsecondary Degree / Certificate Awards at Oregon Institutions by CIP Code (Business, Management, Marketing, and Related Support Services)



Source: U.S. Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data Systems (IPEDS), Completions component, 2019-20 provisional data.

HECC STANDARDS AND PROMPTS (APPENDIX B)

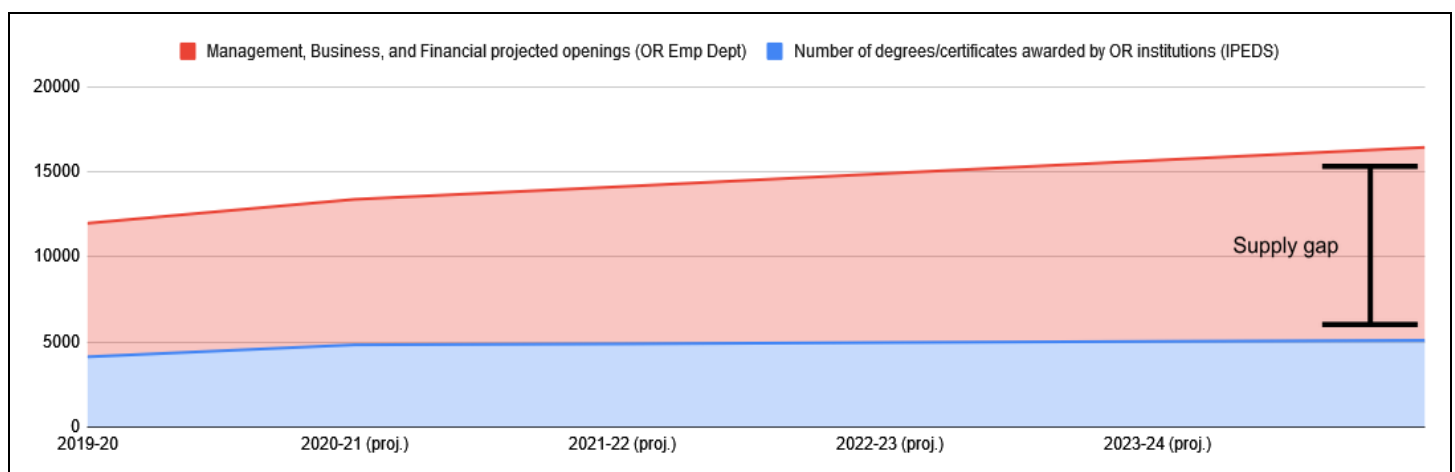
PART A—3: CALCULATING THE SUPPLY GAP

AREA CRITERIA: CALCULATE THE AVERAGE ANNUAL GAP FOR MULTIPLE RECENT YEARS, BETWEEN EMPLOYER DEMAND AND SUPPLY OF GRADUATES WITH EMPLOYER-DESIRED EDUCATION. ARE THE NUMBER OF CURRENT ANNUAL BACCALAUREATE GRADUATES SUFFICIENT TO MEET CURRENT AND PROJECTED DEMAND?

AREA QUESTIONS: IF NOT, HOW ARE EMPLOYERS RESPONDING? ARE EMPLOYERS HIRING THOSE WITH ASSOCIATE OR CERTIFICATE CREDENTIALS INSTEAD? IF EMPLOYERS ACCEPT LESS EDUCATION, DOES A BACHELOR'S DEGREE PLAY A ROLE IN ADVANCEMENT, EARNINGS LEVEL, OR PRIORITY HIRING CONSIDERATION? CONSIDER SOLICITING QUALITATIVE DATA (E.G., FEEDBACK FROM EMPLOYERS, OR ARTICLES/REPORTS FROM LABOR ORGANIZATIONS OR PROFESSIONAL ASSOCIATION) TO BETTER INFORM YOUR UNDERSTANDING OF THE OPPORTUNITY FOR YOUR PROPOSED PROGRAM.

Table 16 below illustrates the severity of the projected gap: while degree conferral in this field is projected to remain steady (and has done so over the past ten years), job openings are projected to increase by around 9% over the next ten years. Oregon cannot produce enough bachelor's degree holders to fill this gap with the current mix of programs.

Table 16: Oregon Projected Degree Conferral vs. Oregon Projected Job Openings in Management, Business, and Financial Categories Requiring Bachelor Degrees



Source: IPEDS (2021), Oregon Employment Department (2021)

As indicated on the previous page, and in our survey results (**See Tables 17 & 18**), there is, and will continue to be, a supply gap. Employers respond by underfilling positions or seeking employees elsewhere (as evidenced in letters of support from industry and employer survey results). Indeed, many local businesses struggle to find qualified, local candidates.

The strong nonprofit sector in this community is particularly in need of trained professionals. Consider the following comments from respondents to our survey:

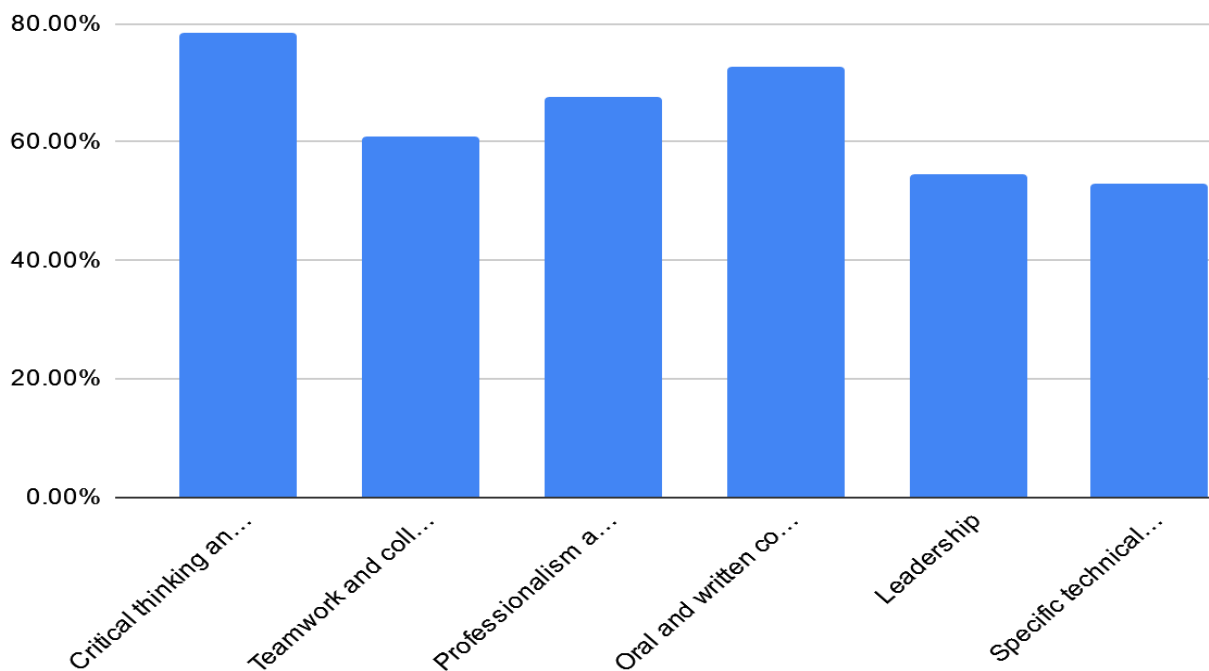
- “Communication skills are needed to speak about simplified explanations of solutions to complex problems. Some people know technical aspects while others know social/business aspects. Problems faced can involve many stakeholders and complex issues. We need leaders able to know the audience, get to the core problems, explain them simply, and offer specific actions/plans to meet the challenges is critical.”
 - “A four-year degree program will build stronger work ethic that is severely lacking in today’s environment. “
 - “I obtained a two-year degree with Lane and would've benefitted from a four-year all at LCC (transfer to UO was difficult from overall planning) and now that I'm in a professional management role I could see the benefit if students can continue at LCC for more growth.”
 - “Filling middle management positions require either job experience or 4-year degrees, and these positions are hard to fill. There is a lot of competition for those with experience, so having someone with a four-year degree as an option is beneficial.”
 - “In addition to the degree, I would like to see more graduates with job experience to gain the professional skills of teamwork, work ethic, collaboration, etc. Too many graduates do not have work experience.”
 - “I think this would be a very valuable degree program, as long as it is focused on the more technical aspects of business: decision science, statistics, economics and accounting. “
 - “Would be great to fill positions in areas like marketing and management in Eugene more often, we don't find qualified candidates locally as often as I wish we could.”
 - “As we move into international sales we need more and more expertise on international agreements, international shipping/customs expertise.”
 - “We need skills to fill some new job descriptions that aren't typically included such as customer success manager”

Table 17: Survey Responses—Professional Skills Gaps

Question: What skill gaps could be filled in your business by an increased number of 4-year degree holders in the local applicant pool? Choose all that apply.

Skill	Percentage	# of Responses
Critical thinking and problem solving	78.35%	152
Teamwork and collaboration	60.82%	118
Professionalism and work ethic	67.53%	131
Oral and written communication skills	72.68%	141
Leadership	54.64%	106
Specific technical skills	53.09%	103

Table 18: Professional Skills Gaps by Percentage



The supply gap can be understood in terms of sheer numbers of graduates as well as a skills gap, as evidenced by our survey results. Over 50% of respondents indicated that each of the skills listed above were needed AND missing in the current labor pool. Nearly 80% of respondents indicated that critical thinking and problem solving were missing and needed in the current workforce. Communication skills, critical thinking, and problem-solving were skill gaps seen by over 70% of respondents. 78% of respondents believe a 4-year degree holder would fill skill gaps that currently exist.

HECC STATEMENT OF NEED GUIDE—APPENDIX B

PART B: EMERGING OCCUPATIONS

AREA CRITERIA: NEWLY EMERGING OCCUPATIONS MAY HAVE INSUFFICIENT TREND DATA TO ESTIMATE DEMAND AND SUPPLY. IF SO, ONE ALTERNATIVE IS TO CONSIDER COLLECTING DATA VIA A SURVEY DISTRIBUTED THROUGH YOUR TECHNICAL OCCUPATION ADVISORY GROUP AND PROVIDED TO OTHER POTENTIAL COMMUNITY EMPLOYERS.

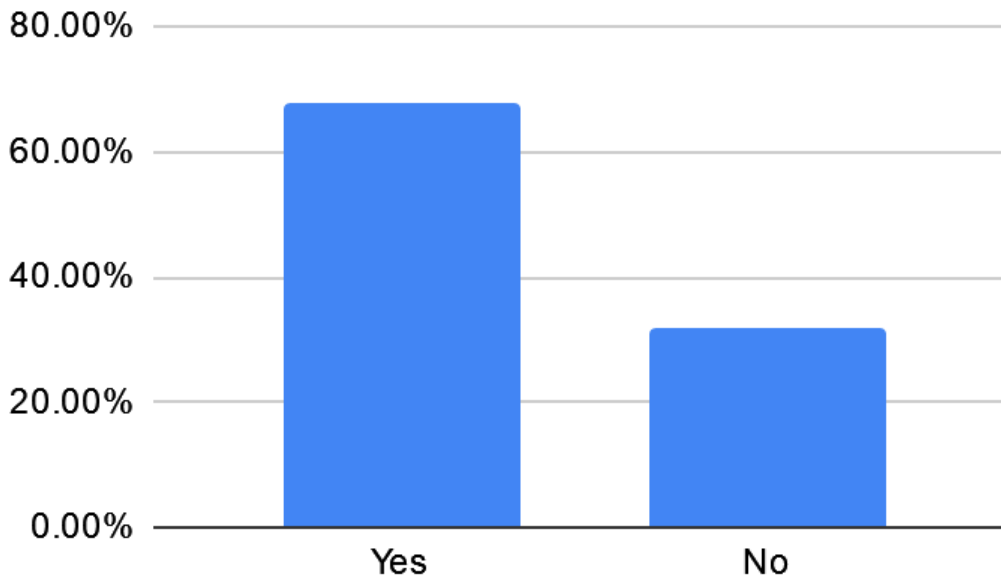
Our survey includes a representative sample of employers in Lane County, and it covers questions related to current employer needs as well as future employer needs.

Future needs largely align with trends related to the growth of disruptive technology and to the growing demand for employees who can effectively manage both creative and interpersonal tasks, as well as technical and technological ones.

Table 19: Survey Responses—Future Demand for 4-yr degrees

Question: Are there anticipated future demands in your business that will require skills gained in a four-year management degree? Examples may be: Technical Management, Emerging Technologies Project Management or New Solutions Adoption.		
Yes	68.04%	132
No	31.96%	62

Table 20: Percentage Future Demand for 4-yr Degrees



68% of respondents believe that Technical Management, Emerging Technologies Project Management, or New Solutions Adoption will be future skills needed in their businesses. The respondents anticipate future demands will require those skills gained by a 4-year degree holder.

The survey results largely mirror the research we found on trends related to future skills and how a four-year degree fits into the future of work. The BAS in Business is ideally suited to anticipate and meet these future demands.

Bachelor of Applied Science

STATEMENT OF NEED APPENDIX

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LETTERS OF RECOMMENDATION:

Marge Hamilton

Lane Community College

4000 E 30th Ave,

Eugene, OR 97405



Dear Ms Hamilton,

I am writing in support of Lane Community College's application to the Higher Education Coordinating Commission to offer an Applied Baccalaureate degree in Applied Leadership and Management through the business department. At Hummingbird Wholesale, we know the value of advanced management and leadership training and support a degree program at Lane that will allow more local students to advance their careers.

Hummingbird Wholesale strives to make organic, healthy food accessible to everyone while reducing waste. It is a natural fit for us to support Lane Community College in their effort to make education and leadership training more accessible. A 4-year degree with fewer barriers to entry through Lane Community College helps our Lane County citizens and helps Lane County businesses. It is an effort that could raise all levels of success for the community.

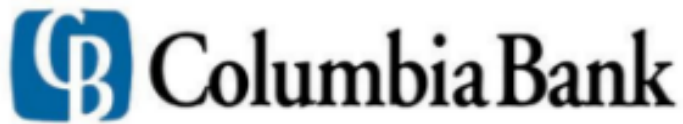
We believe that Lane's Applied Baccalaureate degree in Applied Leadership and Management through the business department will provide an important resource for employers in a variety of industries in the region. It will be a positive step in the growth of Lane County's business community.

As a company that needs to keep pace with the increasingly complex business landscape, having the opportunity to hire Managers with formal training would help us in our ability to execute well on our vision of a healthy future. For example, we plan to add a Finance Manager role in 2022 that would benefit from a pool of local candidates with a 4 year degree.

Sincerely,



Charles Tilt Co-Owner/CEO



October 7, 2021

This letter is in support of Lane Community College's application to the Higher Education Coordinating Commission to offer a Bachelor's degree through the Business Department at Lane Community College. At Columbia Bank we recognize and appreciate the value that advanced leadership training through a 4-year degree can provide to our teams and local communities. We support a degree program that will inspire and educate community members to advance in their careers.

Columbia Bank started in the Pacific Northwest nearly 30 years ago and is a full-service community bank. Building a sense of community is a core value at Columbia Bank. We firmly believe that we are only as strong as the communities we serve and recognize that ongoing education can be an extremely important part of growth. As an example of this, for several years Columbia Bank has had an internship program that has provided opportunities for scores of students to gain exposure to the banking and financial services industry, as well as provide an opportunity to collaborate with others in a professional, team-oriented setting.

The support to Lane Community College for the above-referenced degree is provided with the recognition that as our community members further enhance their knowledge, individuals and communities grow and prosper. Thank you,

Sincerely,

A handwritten signature in black ink, appearing to read 'Jeff Singer', with a stylized, overlapping loop structure.

Jeff Singer

Senior Vice-President



Dear Ms. Hamilton,

This letter is in support of Lane Community College's application to the Higher Education Coordinating Commission to offer a Bachelor Degree through the Business Department at Lane Community College. At SheerID we know the value of advanced leadership training for our workforce and wholeheartedly support a degree program that will allow working adults to advance in their careers.

SheerID started in Eugene 10 years ago and currently has nearly 200 employees. Most of our current and future positions require a 4-year degree, not only in the credentials but also in the skill and knowledge base. In the past, we have had to hire outside of Eugene, including opening an office in Portland to find the employees we needed. We would have preferred to hire in Eugene but the skilled labor pool we needed was not available. Lane Community College is a key asset to Lane County and the Eugene/Springfield area. Adding a 4-year degree would exponentially increase the value of the institution to this area.

We believe that Lane's 4-year degree through their business department will assist the citizens and businesses in Lane County grow.

Sincerely,

A handwritten signature in black ink, appearing to read "David Shear", with a horizontal line extending to the right.

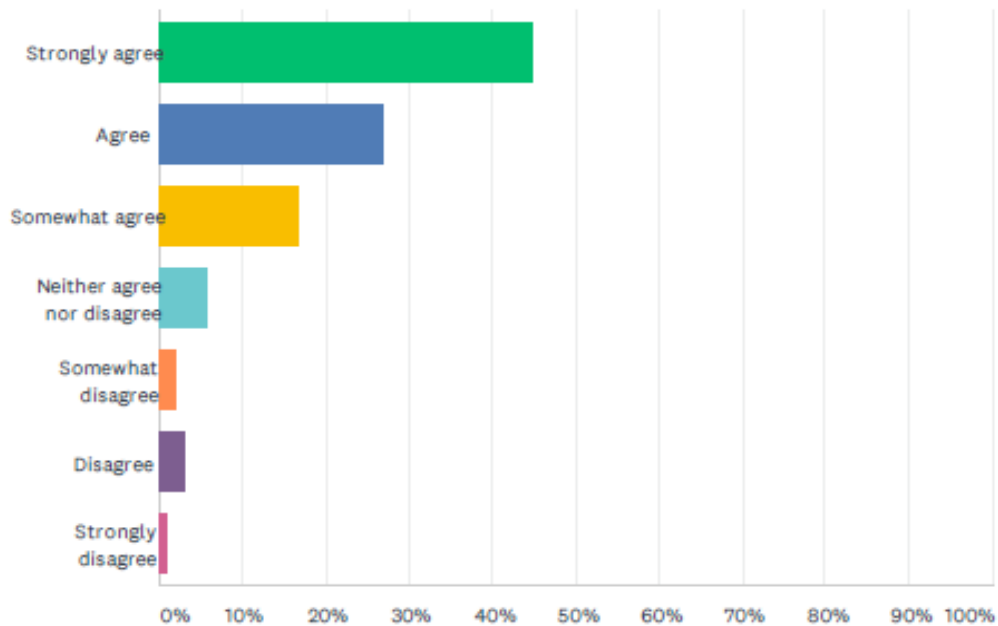
David Shear
President
SheerID

EMPLOYER SURVEY RESULTS

Lane Community College New 4-year Degree Needs Assessment Survey

Q1 Your business would benefit from an increase in job applicants in Lane County with skills they gathered during four years of a college education.

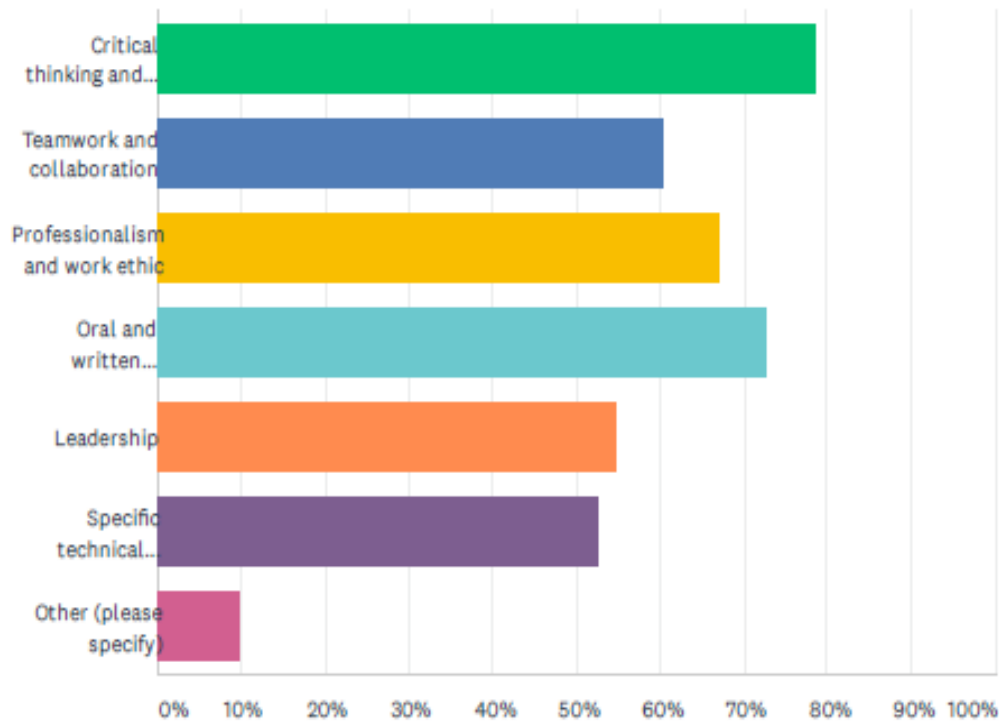
Answered: 197 Skipped: 2



ANSWER CHOICES	RESPONSES	
Strongly agree	44.67%	88
Agree	26.90%	53
Somewhat agree	16.75%	33
Neither agree nor disagree	5.58%	11
Somewhat disagree	2.03%	4
Disagree	3.05%	6
Strongly disagree	1.02%	2
TOTAL		197

Q2 What skill gaps could be filled in your business by an increased number of 4-year degree holders in the local applicant pool? Choose all that apply.

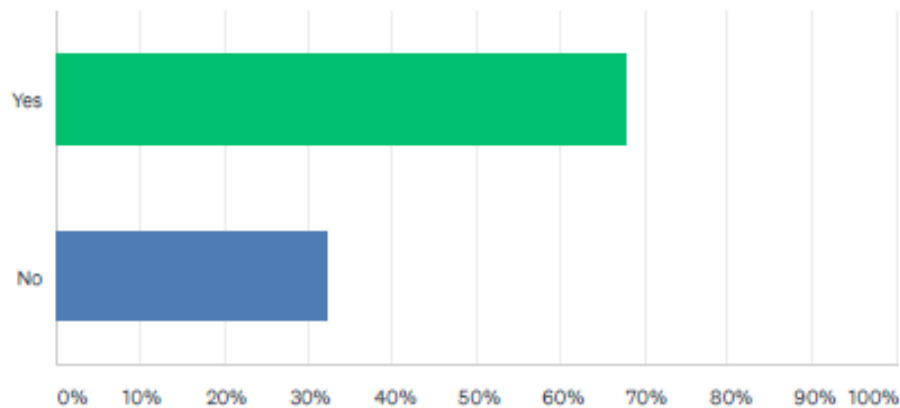
Answered: 195 Skipped: 4



ANSWER CHOICES	RESPONSES	
Critical thinking and problem solving	78.46%	153
Teamwork and collaboration	60.51%	118
Professionalism and work ethic	67.18%	131
Oral and written communication skills	72.82%	142
Leadership	54.87%	107
Specific technical skills	52.82%	103
Other (please specify)	9.74%	19
Total Respondents: 195		

Q3 Are there anticipated future demands in your business that will require skills gained in a four-year management degree? Examples may be: Technical Management, Emerging Technologies Project Management or New Solutions Adoption.

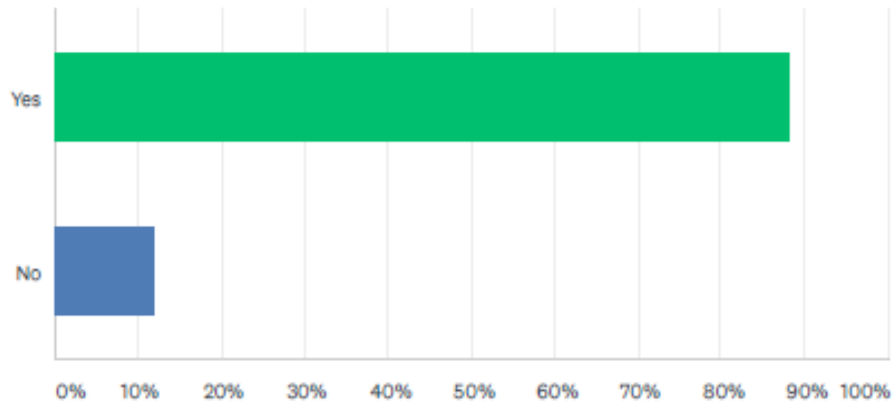
Answered: 195 Skipped: 4



ANSWER CHOICES	RESPONSES	
Yes	67.69%	132
No	32.31%	63
TOTAL		195

Q4 Do you perceive a lack of qualified applicants currently within Lane County to help manage business growth and meet future challenges?

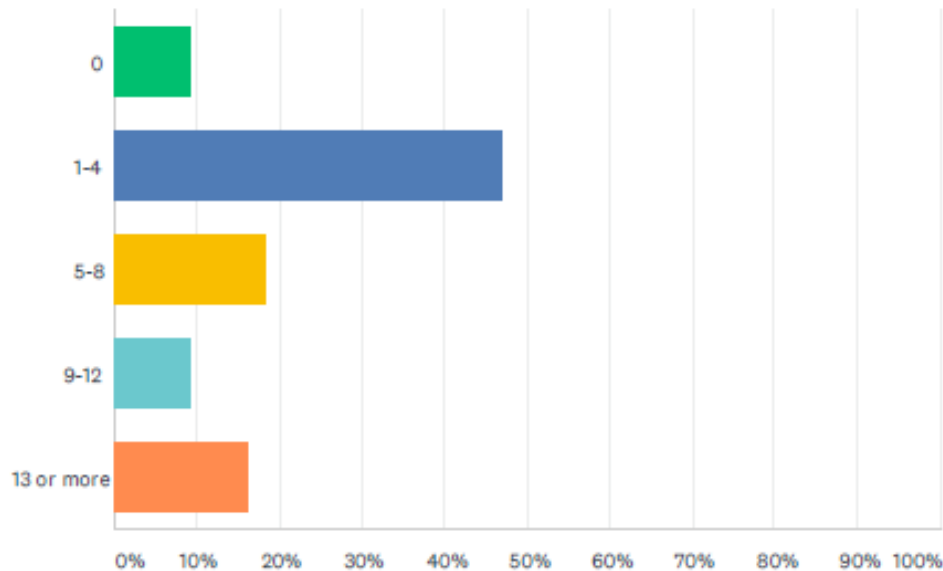
Answered: 194 Skipped: 5



ANSWER CHOICES	RESPONSES	
Yes	88.14%	171
No	11.86%	23
TOTAL		194

Q5 How many job vacancies do you anticipate over the next five years that would require or prefer a 4-year degree holder?

Answered: 196 Skipped: 3



ANSWER CHOICES	RESPONSES	
0	9.18%	18
1-4	46.94%	92
5-8	18.37%	36
9-12	9.18%	18
13 or more	16.33%	32
TOTAL		196

Q6 Any additional thoughts you have on the need for more graduates with four-year degrees in Lane County would be very valuable. Please include them here. Thank you!

Answered: 55 Skipped: 144

Question 6 Responses SEE NEXT THREE PAGES

- Many local businesses struggle to find qualified, local candidates. The strong nonprofit sector in this community is particularly in need of trained professionals.
- I see a need for quality education in all cases of personal service jobs and especially the hospitality industry
- Not a business owner, so not applicable.
- They are more trainable and can think problems/situations out
- Communication skills to speak about simplified explanations of solutions to complex problems. Some people know technical aspects while others know social/business aspects. Problems faced can involve many stakeholders and complex issues. Leaders able to know the audience, get to the core problems, explain them simply, and offer specific actions/plans to meet the challenges is critical.
- after graduation students more likely to contribute to the economy in the area.
- Please make sure that design tracks and technical (particularly coding/web developer) tracks have specific training in accessibility. This will be a bonus for any graduate to add to their resume for a huge range of positions.
- Skilled trade workers are needed in my business, hands on workers are essential. I see [a](#) employee with a 4 year degree anticipating a high income and less physical demand.
- Encouraging the trades as a career path to serve the community would be a huge help to so many contractors in our local area.
- The people I have hired in the past via LCC- both employees & interns have been outstanding
- We have 50 positions available now.
- 7th
- Want to make sure we are able to accommodate demand, i.e. not limit ourselves due to available teachers/professors and therefore limited number of courses/offerings/class sizes/number of students. Also, depending on the degree, continue to work with additional organizations for continued growth in internships or externships that could lead to potential jobs and careers with those particular companies. For example, if you have 10 organizations with student interns, find 5-10 more organizations to participate with onsite mentors for a total of 15-20 organizations offering internships and potential full-time jobs. Additionally, tap the shoulders of other prior graduates who are local and in Salem/Portland for continual internships or even Guest Speakers who can serve as a pipeline for the aforementioned. Finally, perhaps further partner with city council leaders or Lane County leaders on their ideas to help increase the average education and/or income in their respective geographical service areas to align with their strategies such that LCC connects the dots and directly aligns with (or is parallel to) local elected leaders growth plans. Thanks.
- Many of the job openings we have are for equipment operators. While this trade doesn't require a 4-year degree, having uneducated employees does present some road blocks. We're growing though and will continue to need additional management roles.
- I'm currently more concerned about people entering the trades than a 4-year degree since we're seeing a decline in that area. We need to encourage and develop good trade skill training programs to get people in the workforce as frontline employees.
- We are an engineering firm, so graduates with an engineering degree are where our core needs will continue to be

- Not sure why you seem so focused on graduates with a four-year degree. How about we focus on developing marketable skills in students, not just a degree?
- We use Solid work program here.
- Making a 4-year degree program available at LCC in Florence would allow many people to get a 4 year degree that would otherwise not have that opportunity
- CTE Degrees are what's needed
- A four-year degree program will build stronger work ethic that is severely lacking in today's environment. The bigger issue I see in my industry is a consistent decline in applicants with applied technology training in automobile and diesel repair and service. This represents a likely huge negative impact for consumers in the years to come.
- Strongly support it
- Our community has a much greater need for skilled individuals in technical areas not requiring a four-year degree such as plumbers, electricians, welders, machinists, etc.
- Making a way for more students to access education and graduate is an excellent pursuit. Thanks for all of your efforts!
- They need to have the ability to solve problems.
- I obtained a two-year degree with Lane and would've benefitted from a four-year all at LCC (transfer to UO was difficult from overall planning) and now that I'm in a professional management role I could see the benefit if students can continue at LCC for more growth.
- We need less 4-year degrees and more Trade apprentice type workers.
- We need it all. Everything from trade skills to fancy degrees. More training, more education, more of everything to improve the work force.
- I'm also ok with people with strong skills but without degrees. I am a big believer that life experiences can often equal a degree.
- The qualified applicants I need the most would be those with skilled labor. I find the lack of workers without training in specific trades, i.e. electricians, woodworkers, carpenters, etc., to be a serious problem. Because my business requires skilled laborers and they are in very short supply, it makes it extremely frustrating to complete jobs in a timely manner to the quality and craftsmanship that my clients have come to expect.
- Filling middle management positions require either job experience or 4-year degrees, and these positions are hard to fill. There is a lot of competition for those with experience, so having someone with a four-year degree as an option is beneficial.
- Our business depends more on workers who go through a 4-year apprenticeship then we do on college graduates.
- I always look to hire a 4-year college graduate first over an applicant with no college experience
- Haven't had good experience with 4-year degree applicants. More 2-year applicants would be great.
- We find on the job training and continuing education is a better source of education than a four-year degree. Four-year degrees are typically better suited for technical roles that require additional knowledge beyond a HS diploma.

- I would love to finish my OWN business degree without having to go to UofO. As a local business owner I just don't have time!
- Four-year degrees are great, but work experience is what is truly missing in the current workforce. Graduates come to work never having had the responsibility of showing up to a job, on time, on task, professionally dressed, motivated and ready to work.
- LCC needs to stay a Community College and serve the community for blue collar training and contribute to our workforce. We have universities for 4-year degrees. Trade college is what is needed and that should be where LCC is focused
- We also badly need trade-school graduates
- In addition to the degree, I would like to see more graduates with job experience to gain the soft skills of teamwork, work ethic, collaboration, etc. Too many graduates do not have work experience.
- I think this would be a very valuable degree program, as long as it is focused on the more technical aspects of business: decision science, statistics, economics and accounting. I don't need more management and leadership training for potential associates.
- more economical - I imagine many people that want a 4-year degree simply cannot afford UofO
- Better skills in problem solving, critical thinking and mediation. ALSO writing English
- I have retired from my consulting engineering business so I am projecting the needs if I were still in business. The degree itself is not the determining factor. Hard work and interest in the job are more important. Even though my engineering business was highly technical, the LCC Graduates I hired were, as a whole, much better employees, and more apt to learn the complex work we were doing than the master's degree engineers we hired. Than the
- There is a void between university of Oregon and available technical degree options in Eugene. I think a four-year degree plan at community colleges would help with that need, but I worry about being able to maintain accreditation
- valuable
- Other than the degree, which is important, there is need to apprise graduates of the process and time one must commit to advancing in a career. It is not instant gratification and thus, a course on grit and resiliency might be a good one to add. Thanks
- One trend we are seeing lately is the removal of a 4-year degree as a hard requirement on applications, to increase DEI.
- Finding ways to make technical skills / certifications acceptable without necessarily the need for a four-year degree, could also be very advantageous and quickly get people into technical fields.
- Workforce capacity is the largest single factor that prevents business growth in this area. And it is getting exponentially worse
- With the influx of an educated and skilled labor force migrating here for our quality of life, our local residents need tools like education to stay competitive.
- Would be great to fill positions in areas like marketing and management in Eugene more often, we don't find qualified candidates locally as often as I wish we could.
- As we move into international sales we need more and more expertise on international agreements, international shipping/customs expertise.
- Skills to fill some new job descriptions that aren't typically included such as customer success manager
- We find that I people hired with ties to the local area are much more likely to stay with the company longer than those that do not.

PROGRAM OUTCOMES**Program Outcomes**

1. Evaluate and implement effective communication across all levels of the organization.
 2. Explain the value of diversity, community, and teamwork as related to business ventures with attention to dynamics of power and privilege.
 3. Implement organizational management, human resource skills, and leadership strategies grounded in current theories and techniques for stability, growth, and change.
 4. Demonstrate critical thinking, teamwork, information literacy, and technical knowledge commensurate with management positions.
 5. Use analytical tools and information systems to evaluate and implement decision-making strategies to solve problems.
 6. Use project management techniques to develop realistic, comprehensive project plans, identify risk areas, monitor the plans, and solve problems.
 7. Apply principles of law and ethics to promote organizational outcomes and support social responsibility.
 8. Apply quantitative financial analysis to business decisions.
-

Top 5 skills among example occupations

	Program Outcome Alignment
Technology Skills	
Customer relationship management CRM software — Blackbaud The Raiser's Edge; Oracle Eloqua; QAD Marketing Automation; Salesforce software	1, 4, 5
Data base user interface and query software — Airtable; Amazon Redshift ; MySQL ; Yardi	4, 5
Enterprise resource planning ERP software — Microsoft Dynamics GP ; NetSuite ERP ; Oracle Hyperion ; Oracle JD Edwards EnterpriseOne	3, 4, 5
Project management software — Confluence ; Google Classroom; Oracle Primavera Enterprise Project Portfolio Management ; Slack	4, 6
Word processing software — 3M Post-it App; Google Docs ; Microsoft OneNote; Microsoft Word	4
Knowledge	
Administration and Management — Knowledge of business and management principles involved in strategic planning, resource allocation, human resources modeling, leadership technique, production methods, and coordination of people and resources.	3
English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of composition, and grammar.	1
Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes customer needs assessment, meeting quality standards for services, and evaluation of customer satisfaction.	1, 7
Sales and Marketing — Knowledge of principles and methods for showing, promoting, and selling products or services. This includes marketing strategy and tactics, product demonstration, sales techniques, and sales control systems.	1, 3, 5
Personnel and Human Resources — Knowledge of principles and procedures for personnel recruitment, selection, training, compensation and benefits, labor relations and negotiation, and personnel information systems.	1, 2, 3
Skills	
Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times.	1, 3
Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems.	4, 5
Reading Comprehension — Understanding written sentences and paragraphs in work related documents.	1
Speaking — Talking to others to convey information effectively.	1, 4
Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.	5
Work Activities	
Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.	1, 3, 4
Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems.	4, 5, 6
Organizing, Planning, and Prioritizing Work — Developing specific goals and plans to prioritize, organize, and accomplish your work.	3
Guiding, Directing, and Motivating Subordinates — Providing guidance and direction to subordinates, including setting performance standards and monitoring performance.	1, 3, 4
Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources.	3, 4
Detailed Work Activities	
Analyze data to inform operational decisions or activities.	5
Direct organizational operations, projects, or services.	1, 3, 8
Liaise between departments or other groups to improve function or communication.	1, 3
Develop detailed project plans.	6
Direct administrative or support services.	1, 3, 4, 8

SKILL LIST FOR EXAMPLE OCCUPATIONS

11-2021.00 - Marketing Managers

<https://www.onetonline.org/link/summary/11-2021.00>

Tasks

Identify, develop, or evaluate marketing strategy, based on knowledge of establishment objectives, market characteristics, and cost
Formulate, direct, or coordinate marketing activities or policies to promote products or services, working with advertising or
Evaluate the financial aspects of product development, such as budgets, expenditures, research and development appropriations,
Develop pricing strategies, balancing firm objectives and customer satisfaction.
Compile lists describing product or service offerings.

Technology Skills

Customer relationship management CRM software — Blackbaud The Raiser's Edge; Oracle Eloqua; QAD Marketing Automation;
Data base management system software — Apache Hive ; Apache Solr ; Elasticsearch ; Oracle PL/SQL
Data base user interface and query software — Airtable; Amazon Redshift ; MySQL ; Yardi
Graphics or photo imaging software — Adobe Systems Adobe Creative Cloud ; Adobe Systems Adobe Illustrator ; JamBoard;
Web platform development software — Cascading Style Sheets CSS ; Drupal ; Oracle JavaServer Pages JSP ; Ruby on Rails

Knowledge

Sales and Marketing — Knowledge of principles and methods for showing, promoting, and selling products or services. This
English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words,
Administration and Management — Knowledge of business and management principles involved in strategic planning, resource
Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This
Communications and Media — Knowledge of media production, communication, and dissemination techniques and methods. This

Skills

Active Learning — Understanding the implications of new information for both current and future problem-solving and decision-
Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking
Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or
Reading Comprehension — Understanding written sentences and paragraphs in work related documents.
Social Perceptiveness — Being aware of others' reactions and understanding why they react as they do.

Abilities

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and
Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
Written Comprehension — The ability to read and understand information and ideas presented in writing.
Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.
Written Expression — The ability to communicate information and ideas in writing so others will understand.

Work Activities

Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by
Establishing and Maintaining Interpersonal Relationships — Developing constructive and cooperative working relationships with
Interacting With Computers — Using computers and computer systems (including hardware and software) to program, write
Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve
Organizing, Planning, and Prioritizing Work — Developing specific goals and plans to prioritize, organize, and accomplish your work.

Detailed Work Activities

Develop marketing plans or strategies.
Evaluate program effectiveness.
Direct sales, marketing, or customer service activities.
Analyze data to inform operational decisions or activities.
Estimate cost or material requirements.

11-1021.00 - General and Operations Managers

<https://www.onetonline.org/link/summary/11-1021.00>

Tasks

Review financial statements, sales or activity reports, or other performance data to measure productivity or goal achievement or to identify Direct and coordinate activities of businesses or departments concerned with the production, pricing, sales, or distribution of products. Direct administrative activities directly related to making products or providing services. Prepare staff work schedules and assign specific duties. Monitor suppliers to ensure that they efficiently and effectively provide needed goods or services within budgetary limits.

Technology Skills

Customer relationship management CRM software — Oracle Eloqua; Sage ACT!; Salesforce software ; Sugar CRM
Data base user interface and query software — Airtable; Amazon Web Services AWS software ; Blackboard software; Yardi
Enterprise resource planning ERP software — Microsoft Dynamics GP ; NetSuite ERP ; Oracle Hyperion ; Oracle JD Edwards EnterpriseOne
Operating system software — Apple macOS ; Microsoft Windows ; Oracle Solaris ; Shell script
Project management software — Confluence ; Microsoft SharePoint ; Oracle Primavera Enterprise Project Portfolio Management ; Slack

Knowledge

Administration and Management — Knowledge of business and management principles involved in strategic planning, resource allocation, Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes Personnel and Human Resources — Knowledge of principles and procedures for personnel recruitment, selection, training, compensation and English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of Mathematics — Knowledge of arithmetic, algebra, geometry, calculus, statistics, and their applications.

Skills

Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as Coordination — Adjusting actions in relation to others' actions. Monitoring — Monitoring/Assessing performance of yourself, other individuals, or organizations to make improvements or take corrective Social Perceptiveness — Being aware of others' reactions and understanding why they react as they do. Speaking — Talking to others to convey information effectively.

Abilities

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences. Oral Expression — The ability to communicate information and ideas in speaking so others will understand. Problem Sensitivity — The ability to tell when something is wrong or is likely to go wrong. It does not involve solving the problem, only Speech Clarity — The ability to speak clearly so others can understand you. Written Comprehension — The ability to read and understand information and ideas presented in writing.

Work Activities

Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems. Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources. Coordinating the Work and Activities of Others — Getting members of a group to work together to accomplish tasks. Guiding, Directing, and Motivating Subordinates — Providing guidance and direction to subordinates, including setting performance standards

Detailed Work Activities

Analyze data to inform operational decisions or activities.
Analyze financial records to improve efficiency.
Direct organizational operations, projects, or services.
Direct sales, marketing, or customer service activities.
Prepare staff schedules or work assignments.

11-3121.00 - Human Resources Managers

<https://www.onetonline.org/link/summary/11-3121.00>

Tasks

Serve as a link between management and employees by handling questions, interpreting and administering contracts and helping resolve work-
Advise managers on organizational policy matters, such as equal employment opportunity and sexual harassment, and recommend needed
Analyze and modify compensation and benefits policies to establish competitive programs and ensure compliance with legal requirements.
Perform difficult staffing duties, including dealing with understaffing, refereeing disputes, firing employees, and administering disciplinary
Represent organization at personnel-related hearings and investigations.

Technology Skills

Accounting software — AccountantsWorld Payroll Relief; Intuit QuickBooks ; New World Systems Logos.NET; Sage 50

Enterprise resource planning ERP software — Microsoft Dynamics ; Microsoft Dynamics GP ; Oracle PeopleSoft ; SAP

Human resources software — ADP Workforce Now ; Human resource management software HRMS; Oracle Taleo ; peoplefluent Performance

Presentation software — Mentimeter; Microsoft PowerPoint

Time accounting software — ADP ezLaborManager; Kronos Workforce Timekeeper; Soft Trac Microix Timesheet; Stromberg Enterprise

Knowledge

Personnel and Human Resources — Knowledge of principles and procedures for personnel recruitment, selection, training, compensation and

Administration and Management — Knowledge of business and management principles involved in strategic planning, resource allocation, human

English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of

Law and Government — Knowledge of laws, legal codes, court procedures, precedents, government regulations, executive orders, agency

Education and Training — Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and

Skills

Management of Personnel Resources — Motivating, developing, and directing people as they work, identifying the best people for the job.

Speaking — Talking to others to convey information effectively.

Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.

Reading Comprehension — Understanding written sentences and paragraphs in work related documents.

Abilities

Oral Expression — The ability to communicate information and ideas in speaking so others will understand.

Written Comprehension — The ability to read and understand information and ideas presented in writing.

Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Speech Clarity — The ability to speak clearly so others can understand you.

Work Activities

Establishing and Maintaining Interpersonal Relationships — Developing constructive and cooperative working relationships with others, and

Resolving Conflicts and Negotiating with Others — Handling complaints, settling disputes, and resolving grievances and conflicts, or otherwise

Staffing Organizational Units — Recruiting, interviewing, selecting, hiring, and promoting employees in an organization.

Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems.

Detailed Work Activities

Liaise between departments or other groups to improve function or communication.

Advise others on legal or regulatory compliance matters.

Recommend organizational process or policy changes.

Administer compensation or benefits programs.

Analyze data to inform operational decisions or activities.

13-1082.00 - Project Management Specialists

<https://www.onetonline.org/link/summary/13-1082.00>

Tasks

Assign duties or responsibilities to project personnel.

Communicate with key stakeholders to determine project requirements and objectives.

Confer with project personnel to identify and resolve problems.

Create project status presentations for delivery to customers or project personnel.

Develop or update project plans including information such as objectives, technologies, schedules, funding, and staffing.

Technology Skills

Enterprise resource planning ERP software — Microsoft Dynamics GP ; NetSuite ERP ; Oracle Hyperion ; Oracle JD Edwards EnterpriseOne

Project management software — Confluence ; Google Classroom; Oracle Primavera Enterprise Project Portfolio Management ; Slack

Video conferencing software — Cisco Systems Webex; Google Meet; LogMeIn GoToMeeting; Zoom

Video creation and editing software — Flipgrid; Loom; Screencastify; YouTube

Word processing software — 3M Post-it App; Google Docs ; Microsoft OneNote; Microsoft Word

Knowledge

Not available

Skills

Not available

Abilities

Not available

Work Activities

Not available

Detailed Work Activities

Develop detailed project plans.

Manage information technology projects or system activities.

Participate in staffing decisions.

Assign duties or work schedules to employees.

Collaborate with others to resolve information technology issues.

11-3012 Administrative Services Managers

<https://www.onetonline.org/link/summary/11-3012.00>

Tasks

- Prepare and review operational reports and schedules to ensure accuracy and efficiency.
- Set goals and deadlines for the department.
- Acquire, distribute and store supplies.
- Analyze internal processes and recommend and implement procedural or policy changes to improve operations, such as supply changes or the
- Conduct classes to teach procedures to staff.

Technology Skills

- Accounting software — Fund accounting software; Intuit QuickBooks ; Sage 50 Accounting
- Data base user interface and query software — Data entry software ; FileMaker Pro; Microsoft Access ; Yardi
- Electronic mail software — Email software; IBM Notes ; Microsoft Outlook ; Novell GroupWise
- Enterprise resource planning ERP software — Microsoft Dynamics ; Microsoft Dynamics GP ; Oracle Hyperion ; Oracle PeopleSoft
- Word processing software — Google Docs ; Microsoft Word

Knowledge

- Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes customer
- Administration and Management — Knowledge of business and management principles involved in strategic planning, resource allocation, human
- English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of
- Clerical — Knowledge of administrative and clerical procedures and systems such as word processing, managing files and records, stenography
- Computers and Electronics — Knowledge of circuit boards, processors, chips, electronic equipment, and computer hardware and software,

Skills

- Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as
- Reading Comprehension — Understanding written sentences and paragraphs in work related documents.
- Time Management — Managing one's own time and the time of others.
- Speaking — Talking to others to convey information effectively.
- Coordination — Adjusting actions in relation to others' actions.

Abilities

- Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
- Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
- Written Comprehension — The ability to read and understand information and ideas presented in writing.
- Written Expression — The ability to communicate information and ideas in writing so others will understand.
- Deductive Reasoning — The ability to apply general rules to specific problems to produce answers that make sense.

Work Activities

- Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources.
- Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in
- Organizing, Planning, and Prioritizing Work — Developing specific goals and plans to prioritize, organize, and accomplish your work.
- Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems.
- Scheduling Work and Activities — Scheduling events, programs, and activities, as well as the work of others.

Detailed Work Activities

- Prepare operational budgets.
- Hire personnel.
- Direct administrative or support services.
- Develop organizational goals or objectives.
- Prepare operational progress or status reports.

13-1111 Management Analysts

<https://www.onetonline.org/link/summary/13-1111.00>

Tasks

Document findings of study and prepare recommendations for implementation of new systems, procedures, or organizational changes.
Interview personnel and conduct on-site observation to ascertain unit functions, work performed, and methods, equipment, and personnel used.
Analyze data gathered and develop solutions or alternative methods of proceeding.
Plan study of work problems and procedures, such as organizational change, communications, information flow, integrated production methods, Confer with personnel concerned to ensure successful functioning of newly implemented systems or procedures.

Technology Skills

Data base user interface and query software — Airtable; Blackboard software; Oracle JDBC ; Transact-SQL
Development environment software — Apache Ant ; Apache Kafka ; Common business oriented language COBOL ; Go
Enterprise resource planning ERP software — Microsoft Dynamics GP ; NetSuite ERP ; Oracle Hyperion ; Oracle JD Edwards EnterpriseOne
Object or component oriented development software — Advanced business application programming ABAP ; Apache Groovy ; jQuery ; Scala
Web platform development software — Backbone.js ; Google AngularJS ; Microsoft ASP.NET Core MVC ; Spring Framework

Knowledge

Administration and Management — Knowledge of business and management principles involved in strategic planning, resource allocation, human
English Language — Knowledge of the structure and content of the English language including the meaning and spelling of words, rules of
Customer and Personal Service — Knowledge of principles and processes for providing customer and personal services. This includes customer
Education and Training — Knowledge of principles and methods for curriculum and training design, teaching and instruction for individuals and
Psychology — Knowledge of human behavior and performance; individual differences in ability, personality, and interests; learning and motivation;

Skills

Active Listening — Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as
Critical Thinking — Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to
Reading Comprehension — Understanding written sentences and paragraphs in work related documents.
Judgment and Decision Making — Considering the relative costs and benefits of potential actions to choose the most appropriate one.
Speaking — Talking to others to convey information effectively.

Abilities

Oral Comprehension — The ability to listen to and understand information and ideas presented through spoken words and sentences.
Oral Expression — The ability to communicate information and ideas in speaking so others will understand.
Written Comprehension — The ability to read and understand information and ideas presented in writing.
Inductive Reasoning — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among
Written Expression — The ability to communicate information and ideas in writing so others will understand.

Work Activities

Provide Consultation and Advice to Others — Providing guidance and expert advice to management or other groups on technical, systems-, or
Making Decisions and Solving Problems — Analyzing information and evaluating results to choose the best solution and solve problems.
Analyzing Data or Information — Identifying the underlying principles, reasons, or facts of information by breaking down information or data into
Getting Information — Observing, receiving, and otherwise obtaining information from all relevant sources.
Communicating with Supervisors, Peers, or Subordinates — Providing information to supervisors, co-workers, and subordinates by telephone, in

Detailed Work Activities

Advise others on business or operational matters.
Prepare research reports.
Analyze jobs using observation, survey, or interview techniques.
Analyze business or financial data.
Confer with personnel to coordinate business operations.

BAS – BUSINESS COURSE LIST

Lane Community College BAS -Business Course List January 27, 2022 Draft		
Third Year		
Fall	Winter	Spring
Directed Elective	Data Visualization	Advance Excel
Directed Elective	Human Resources	Project Management
Directed Elective	Digital Marketing	Small Business Mgmt
Directed Elective	Accounting Concepts for Managers	Money and Banking
Fourth Year		
Fall	Winter	Spring
Marketing Management	Management Communications	Project Management 2
Management Info Systems	Business Analytics	Strategic Management
Social Enterprise	International Business	Cross Cultural Management
Co-Op	Co-Op	Co-Op
Directed Electives		
Non-Business AA Electives	Business AA Electives	
Excel	Business and Professional Communications	
Math in Society	Intro to Conflict Management	
Leadership and Team Dynamics	Principles of Economics: Micro	
Intro to Accounting Cycle	Principles of Economics: Macro	
OR Financial Accounting	Reading, Writing and Digital Culture	
	Math in Society II	
	Ethics	
	Critical Thinking	
	Technical Writing	

ALIGNMENT OF PROGRAM, VALUES, AND INSTITUTIONAL LEARNING OUTCOMES

PLO #	BAS-B Program Learning Outcomes	Lane's Values	Institutional Learning Outcomes (ILOs)
1	Evaluate and implement effective communication across organizations and to diverse audiences	Learning, Diversity, Collaboration and Partnership	Communicate Effectively
2	Explain the value of diversity and community with attention to the dynamics of power and privilege in business	Diversity, Collaboration and Partnership, Integrity, Accessibility	Engage Diverse Values with Civic and Ethical Awareness
3	Develop organizational management skills, human resources skills, and leadership strategies using skills grounded in current theories/techniques for stability, growth, and change	Collaboration and Partnership, Innovation, Integrity, Sustainability	Create Ideas and Solutions
4	Demonstrate innovation and critical thinking, teamwork, and technical and information literacy in the workplace	Collaboration and Partnership, Innovation, Accessibility	Think Critically
5	Analyze, evaluate, and implement decision-making strategies and problem-solving skills while applying data, analytical tools, and information systems	Learning, Innovation, Sustainability	Apply Learning
6	Develop comprehensive project plans, identify risk areas, and solve problems using appropriate project management techniques	Collaboration and Partnership, Innovation, Accessibility	Apply Learning
7	Distinguish between law and ethics; recommend acceptable resolutions of ethical issues and dilemmas to improve organizational outcomes	Diversity, Sustainability	Engage Diverse Values with Civic and Ethical Awareness
8	Prepare and explain cost control processes including the ability to establish a budget, prepare cost reports, and forecast expenditures	Learning, Innovation	Apply Learning

LCC SIX-YEAR PROGRAM ENROLLMENT, START DATE AND PROGRAM REVIEW

AAS Enrollments and Program Review

AAS Program	Date of Program Start	Program Enrollments						Program Review	
		AY17	AY18	AY19	AY20	AY21	AY22	1st Review	Next Review
Accounting, AAS	pre-2014	157	147	151	110	96	93	2017/18	2023/24
Automotive Technology, AAS	pre-2014	86	83	70	56	55	62	2020/21	2027/28
Aviation Professional Pilot, AAS	6/21/21						11	2023/24	2029/30
Aviation Unmanned Aircraft Systems, AAS	6/20/22			7	15	20	22	2023/24	2029/30
Aviation Maintenance Technician, AAS	pre-2014	57	43	36	44	43	43	2022/23	2028/29
Business Management, AAS	pre-2014		121	159	177	196	188	2017/18	2023/24
Computer Network Operations, AAS	pre-2014	148	149	133	97	53	54	2015/16	2026/27
Computer Programming, AAS	pre-2014	145	129	136	146	145	138	2015/16	2025/26
Construction Technology, AAS	pre-2014	73	93	104	103	83	69	2020/21	2026/27
Construction Trades, General Apprenticeship, AAS	pre-2014	18	15	12	9	7	3	N/A	N/A
Criminal Justice, AAS	pre-2014	76	91	97	68	88	63	2017/18	2023/24
Cybersecurity, AAS	9/3/19				44	65	81	2023/24	2030/31
Dental Hygiene, AAS	pre-2014	56	41	41	40	40	39	2024/25	2030/31
Diesel Technology, AAS	pre-2014	58	66	49	65	40	31	2020/21	2026/27
Drafting, AAS	pre-2014	50	44	59	55	39	48	2015/16	2022/23
Early Childhood Education, AAS	pre-2014	164	143	107	87	82	76	2015/16	2021/22
Electrician Apprenticeship Technologies, AAS	pre-2014	81	74	53	42	35	30	N/A	N/A
Energy Management Technician *** Building Controls Technician Option (online), AAS	6/16/13	9	10	7	16	15	21	2019/20	2026/27
Fabrication/Welding Technology, AAS	pre-2014	67	48	56	63	42	45	2020/21	2026/27
Graphic Design, AAS	pre-2014	130	129	147	132	110	104	2017/18	2024/25
Health Information Management, AAS	pre-2014	39	37	38	30	29	31	2024/25	2030/31
Human Services, AAS	pre-2014	203	137	109	110	80	80	2018/19	2025/26
Industrial Mechanics and Maintenance Technology Apprenticeship, AAS	pre-2014	6	3	3	1	1		N/A	N/A
Multimedia Design *** Animation Option	6/21/21						23	2025/26	2025/26
Multimedia Design, AAS	pre-2014	100	99	81	90	86	70	2018/19	2025/26
Music Technology and Sound Engineering, AAS	6/1/17		31	49	66	55	46	2016/17	2021/22
Nursing, AAS	pre-2014	152	169	173	174	177	182	2019/20	2027/28
Paramedicine, AAS	original pre-2014; new version 6/16/20	36	41	45	37	39	48	2020/21	2027/28
Physical Therapist Assistant, AAS	pre-2014	43	51	52	55	52	50	2015/16	2021/22
Sustainability Coordinator, AAS	pre-2014	16	8	13	10	9	9	2021/22	2027/28
Water Conservation Technician (online), AAS	pre-2014	10	8	6	4	8	6	2022/23	2028/29

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LANE COUNTY EMPLOYMENT PROJECTIONS 2019-2029

Lane County Employment Projections Full Table, 2019-2029
Oregon Employment Department, Workforce and Economic Research Division

Row	SOC Level	SOC Code	Standard Occupational Classification Title	2019 Employment	2029 Employment	Percent Change	Employment Change	Replacement Openings	Total Openings	Typical Entry-Level Education	Competitive Education
1	1	00-0000	Total, All Occupations	173,395	187,763	8.3%	14,368	209,948	224,316		
2			Management, Business, and Financial	15,581	16,962	8.9%	1,381	14,304	15,685		
3	2	11-0000	Management Occupations	9,447	10,395	10.0%	948	8,231	9,179		
4	3	11-1000	Top Executives	2,730	2,968	8.7%	238	2,459	2,697		
5	4	11-1011	Chief Executives	92	83	-9.8%	-9	62	53 Bachelor's degree	Bachelor's degree	
6	4	11-1021	General and Operations Managers	2,626	2,873	9.4%	247	2,388	2,635 Bachelor's degree	Bachelor's degree	
7	4	11-1031	Legislators	12	12	0.0%	0	9	9 Bachelor's degree	Bachelor's degree	
8	3	11-2000	Advertising, Marketing, Promotions, Public Relations, and Sales Managers	717	789	10.0%	72	665	737		
9	4	11-2011	Advertising and Promotions Managers	17	17	0.0%	0	16	16 Bachelor's degree	Bachelor's degree	
10	4	11-2021	Marketing Managers	178	200	12.4%	22	167	189 Bachelor's degree	Bachelor's degree	
11	4	11-2022	Sales Managers	411	450	9.5%	39	382	421 Bachelor's degree	Bachelor's degree	
12	4	11-2031	Public Relations and Fundraising Managers	111	122	9.9%	11	100	111 Bachelor's degree	Bachelor's degree	
13	3	11-3000	Operations Specialties Managers	1,824	2,050	12.4%	226	1,532	1,758		
14	4	11-3011	Administrative Services Managers	319	350	9.7%	31	279	310 Bachelor's degree	Bachelor's degree	
15	4	11-3021	Computer and Information Systems Managers	275	304	10.6%	29	226	255 Bachelor's degree	Bachelor's degree	
16	4	11-3031	Financial Managers	590	699	18.5%	109	496	605 Bachelor's degree	Bachelor's degree	
17	4	11-3051	Industrial Production Managers	213	228	7.0%	15	160	175 Bachelor's degree	Bachelor's degree	
18	4	11-3061	Purchasing Managers	75	80	6.7%	5	65	70 Bachelor's degree	Bachelor's degree	
19	4	11-3071	Transportation, Storage, and Distribution Managers	144	156	8.3%	12	119	131 Associate's degree	Bachelor's degree	
20	4	11-3111	Compensation and Benefits Managers	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
21	4	11-3121	Human Resources Managers	179	201	12.3%	22	161	183 Bachelor's degree	Bachelor's degree	
22	4	11-3131	Training and Development Managers	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
23	3	11-9000	Other Management Occupations	4,176	4,588	9.9%	412	3,575	3,987		
24	4	11-9013	Farmers, Ranchers, and Other Agricultural Managers	-	-	-	-	-	-	High school diploma or equivalent	Bachelor's degree
25	4	11-9021	Construction Managers	353	397	12.5%	44	270	314 Associate's degree	Bachelor's degree	
26	4	11-9031	Education Administrators, Preschool and Childcare Center/Program	122	133	9.0%	11	99	110 Associate's degree	Bachelor's degree	
27	4	11-9032	Education Administrators, Elementary and Secondary School	210	223	6.2%	13	168	181 Master's degree	Master's degree	
28	4	11-9033	Education Administrators, Postsecondary	220	243	10.5%	23	180	203 Master's degree	Doctoral or professional degree	
29	4	11-9039	Education Administrators, All Other	14	16	14.3%	2	12	14 Master's degree	Doctoral or professional degree	
30	4	11-9041	Architectural and Engineering Managers	82	87	6.1%	5	61	66 Bachelor's degree	Bachelor's degree	
31	4	11-9051	Food Service Managers	305	338	10.8%	33	368	401 High school diploma or equivalent	Associate's degree	
32	4	11-9061	Funeral Service Managers	-	-	-	-	-	-	Associate's degree	Associate's degree
33	4	11-9071	Gaming Managers	-	-	-	-	-	-	Postsecondary training (non-degree)	Associate's degree
34	4	11-9081	Lodging Managers	64	70	9.4%	6	69	75 High school diploma or equivalent	Associate's degree	
35	4	11-9111	Medical and Health Services Managers	427	510	19.4%	83	371	454 Bachelor's degree	Master's degree	
36	4	11-9121	Natural Sciences Managers	63	70	11.1%	7	59	66 Bachelor's degree	Master's degree	
37	4	11-9131	Postmasters and Mail Superintendents	13	12	-7.7%	-1	9	8 High school diploma or equivalent	Bachelor's degree	
38	4	11-9141	Property, Real Estate, and Community Association Managers	761	804	5.7%	43	602	645 High school diploma or equivalent	Postsecondary training (non-degree)	
39	4	11-9151	Social and Community Service Managers	316	349	10.4%	33	289	322 Bachelor's degree	Bachelor's degree	
40	4	11-9161	Emergency Management Directors	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
41	4	11-9199	Managers, All Other	1,022	1,125	10.1%	103	814	917 Bachelor's degree	Bachelor's degree	
42	2	13-0000	Business and Financial Operations Occupations	6,134	6,567	7.1%	433	6,073	6,506		
43	3	13-1000	Business Operations Specialists	4,206	4,590	9.1%	384	4,330	4,714		
44	4	13-1011	Agents and Business Managers of Artists, Performers, and Athletes	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
45	4	13-1020	Buyers and Purchasing Agents	377	376	-0.3%	-1	393	392 Bachelor's degree	Bachelor's degree	
46	4	13-1031	Claims Adjusters, Examiners, and Investigators	171	170	-0.6%	-1	144	143 High school diploma or equivalent	Bachelor's degree	
47	4	13-1041	Compliance Officers	189	214	13.2%	25	176	201 Bachelor's degree	Bachelor's degree	
48	4	13-1051	Cost Estimators	281	318	13.2%	37	296	333 Bachelor's degree	Bachelor's degree	
49	4	13-1071	Human Resources Specialists	507	548	8.1%	41	529	570 Bachelor's degree	Bachelor's degree	
50	4	13-1074	Farm Labor Contractors	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
51	4	13-1075	Labor Relations Specialists	117	115	-1.7%	-2	116	114 Bachelor's degree	Bachelor's degree	
52	4	13-1081	Logisticians	81	83	2.5%	2	78	80 Bachelor's degree	Bachelor's degree	
53	4	13-1111	Management Analysts	449	491	9.4%	42	443	485 Bachelor's degree	Master's degree	
54	4	13-1121	Meeting, Convention, and Event Planners	131	145	10.7%	14	157	171 Bachelor's degree	Bachelor's degree	
55	4	13-1131	Fundraisers	73	82	12.3%	9	80	89 Bachelor's degree	Bachelor's degree	
56	4	13-1141	Compensation, Benefits, and Job Analysis Specialists	42	45	7.1%	3	41	44 Bachelor's degree	Bachelor's degree	
57	4	13-1151	Training and Development Specialists	243	270	11.1%	27	275	302 Bachelor's degree	Bachelor's degree	
58	4	13-1161	Market Research Analysts and Marketing Specialists	383	460	20.1%	77	431	508 Bachelor's degree	Master's degree	
59	4	13-1199	Business Operations Specialists, All Other	1,149	1,259	9.6%	110	1,156	1,266 Bachelor's degree	Bachelor's degree	
60	3	13-2000	Financial Specialists	1,928	1,977	2.5%	49	1,743	1,792		
61	4	13-2011	Accountants and Auditors	796	826	3.8%	30	756	786 Bachelor's degree	Bachelor's degree	
62	4	13-2021	Appraisers and Assessors of Real Estate	61	64	4.9%	3	46	49 Associate's degree	Bachelor's degree	
63	4	13-2031	Budget Analysts	35	37	5.7%	2	28	30 Bachelor's degree	Bachelor's degree	
64	4	13-2041	Credit Analysts	47	47	0.0%	0	42	42 Bachelor's degree	Bachelor's degree	
65	4	13-2051	Financial Analysts	66	71	7.6%	5	58	63 Bachelor's degree	Master's degree	
66	4	13-2052	Personal Financial Advisors	167	175	4.8%	8	129	137 Bachelor's degree	Bachelor's degree	
67	4	13-2053	Insurance Underwriters	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
68	4	13-2061	Financial Examiners	32	34	6.3%	2	25	27 Bachelor's degree	Bachelor's degree	
69	4	13-2071	Credit Counselors	68	75	10.3%	7	60	67 Bachelor's degree	Bachelor's degree	
70	4	13-2072	Loan Officers	364	367	0.8%	3	306	309 Bachelor's degree	Bachelor's degree	
71	4	13-2081	Tax Examiners and Collectors, and Revenue Agents	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
72	4	13-2082	Tax Preparers	173	159	-8.1%	-14	189	175 Postsecondary training (non-degree)	Postsecondary training (non-degree)	
73	4	13-2099	Financial Specialists, All Other	91	98	7.7%	7	81	88 Bachelor's degree	Bachelor's degree	



Lane County Employment Projections Full Table, 2019-2029
Oregon Employment Department, Workforce and Economic Research Division

Row	SOC Level	SOC Code	Standard Occupational Classification Title	2019 Employment	2029 Employment	Percent Change	Employment Change	Replacement Openings	Total Openings	Typical Entry-Level Education	Competitive Education
74			Professional and Related	28,799	31,483	9.3%	2,684	28,065	30,749		
75	2	15-0000	Computer and Mathematical Occupations	3,384	3,816	12.8%	432	2,641	3,073		
76	3	15-1100	Computer Occupations	3,234	3,631	12.3%	397	2,523	2,920		
77	4	15-1111	Computer and Information Research Scientists	-	-	-	-	-	-	Master's degree	Doctoral or professional degree
78	4	15-1121	Computer Systems Analysts	242	251	3.7%	9	178	187	Bachelor's degree	Bachelor's degree
79	4	15-1122	Information Security Analysts	10	13	30.0%	3	9	12	Bachelor's degree	Bachelor's degree
80	4	15-1131	Computer Programmers	172	152	-11.6%	-20	114	94	Bachelor's degree	Bachelor's degree
81	4	15-1132	Software Developers, Applications	990	1,208	22.0%	218	774	992	Bachelor's degree	Bachelor's degree
82	4	15-1133	Software Developers, Systems Software	116	144	24.1%	28	92	120	Bachelor's degree	Bachelor's degree
83	4	15-1134	Web Developers	180	199	10.6%	19	144	163	Bachelor's degree	Bachelor's degree
84	4	15-1141	Database Administrators	76	84	10.5%	8	56	64	Bachelor's degree	Bachelor's degree
85	4	15-1142	Network and Computer Systems Administrators	228	238	4.4%	10	163	173	Bachelor's degree	Bachelor's degree
86	4	15-1143	Computer Network Architects	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
87	4	15-1151	Computer User Support Specialists	499	551	10.4%	52	430	482	Postsecondary training (non-degree)	Bachelor's degree
88	4	15-1152	Computer Network Support Specialists	160	179	11.9%	19	139	158	Postsecondary training (non-degree)	Bachelor's degree
89	4	15-1199	Computer Occupations, All Other	506	556	9.9%	50	385	435	Postsecondary training (non-degree)	Bachelor's degree
90	3	15-2000	Mathematical Science Occupations	150	185	23.3%	35	118	153		
91	4	15-2011	Actuaries	-	-	-	-	-	-	Master's degree	Master's degree
92	4	15-2031	Operations Research Analysts	62	82	32.3%	20	47	67	Bachelor's degree	Master's degree
93	4	15-2041	Statisticians	32	41	28.1%	9	28	37	Bachelor's degree	Master's degree
94	4	15-2090	Miscellaneous Mathematical Science Occupations	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
95	2	17-0000	Architecture and Engineering Occupations	1,559	1,738	11.5%	179	1,354	1,533		
96	3	17-1000	Architects, Surveyors, and Cartographers	247	290	17.4%	43	203	246		
97	4	17-1011	Architects, Except Landscape and Naval	106	126	18.9%	20	89	109	Bachelor's degree	Master's degree
98	4	17-1012	Landscape Architects	-	-	-	-	-	-	Bachelor's degree	Master's degree
99	4	17-1021	Cartographers and Photogrammetrists	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
100	4	17-1022	Surveyors	43	50	16.3%	7	34	41	Bachelor's degree	Bachelor's degree
101	3	17-2000	Engineers	774	859	11.0%	85	572	657		
102	4	17-2031	Biomedical Engineers	-	-	-	-	-	-	Bachelor's degree	Master's degree
103	4	17-2041	Chemical Engineers	-	-	-	-	-	-	Master's degree	Master's degree
104	4	17-2051	Civil Engineers	170	191	12.4%	21	141	162	Bachelor's degree	Master's degree
105	4	17-2061	Computer Hardware Engineers	18	20	11.1%	2	14	16	Bachelor's degree	Master's degree
106	4	17-2071	Electrical Engineers	73	79	8.2%	6	50	56	Bachelor's degree	Master's degree
107	4	17-2072	Electronics Engineers, Except Computer	94	101	7.5%	7	65	72	Bachelor's degree	Master's degree
108	4	17-2081	Environmental Engineers	48	51	6.3%	3	37	40	Bachelor's degree	Master's degree
109	4	17-2111	Health and Safety Engineers, Except Mining Safety Engineers and Inspectors	11	11	0.0%	0	7	7	Bachelor's degree	Master's degree
110	4	17-2112	Industrial Engineers	102	112	9.8%	10	73	83	Bachelor's degree	Master's degree
111	4	17-2131	Materials Engineers	-	-	-	-	-	-	Bachelor's degree	Master's degree
112	4	17-2141	Mechanical Engineers	109	120	10.1%	11	77	88	Bachelor's degree	Master's degree
113	4	17-2199	Engineers, All Other	97	109	12.4%	12	71	83	Bachelor's degree	Master's degree
114	3	17-3000	Drafters, Engineering Technicians, and Mapping Technicians	538	589	9.5%	51	579	630		
115	4	17-3011	Architectural and Civil Drafters	130	144	10.8%	14	142	156	Postsecondary training (non-degree)	Associate's degree
116	4	17-3012	Electrical and Electronics Drafters	-	-	-	-	-	-	Postsecondary training (non-degree)	Associate's degree
117	4	17-3013	Mechanical Drafters	60	60	0.0%	0	62	62	Postsecondary training (non-degree)	Associate's degree
118	4	17-3019	Drafters, All Other	71	81	14.1%	10	78	88	Postsecondary training (non-degree)	Associate's degree
119	4	17-3022	Civil Engineering Technicians	65	70	7.7%	5	65	70	Associate's degree	Associate's degree
120	4	17-3023	Electrical and Electronics Engineering Technicians	27	30	11.1%	3	27	30	Associate's degree	Associate's degree
121	4	17-3024	Electro-Mechanical Technicians	-	-	-	-	-	-	Associate's degree	Associate's degree
122	4	17-3025	Environmental Engineering Technicians	12	12	0.0%	0	12	12	Associate's degree	Associate's degree
123	4	17-3026	Industrial Engineering Technicians	12	13	8.3%	1	12	13	Associate's degree	Associate's degree
124	4	17-3027	Mechanical Engineering Technicians	-	-	-	-	-	-	Associate's degree	Associate's degree
125	4	17-3029	Engineering Technicians, Except Drafters, All Other	76	82	7.9%	6	77	83	Associate's degree	Associate's degree
126	4	17-3031	Surveying and Mapping Technicians	67	77	14.9%	10	85	95	High school diploma or equivalent	Postsecondary training (non-degree)
127	2	19-0000	Life, Physical, and Social Science Occupations	1,877	2,118	12.8%	241	1,972	2,213		
128	3	19-1000	Life Scientists	345	384	11.3%	39	356	395		
129	4	19-1012	Food Scientists and Technologists	23	24	4.4%	1	26	27	Bachelor's degree	Master's degree
130	4	19-1013	Soil and Plant Scientists	-	-	-	-	-	-	Bachelor's degree	Master's degree
131	4	19-1021	Biochemists and Biophysicists	-	-	-	-	-	-	Master's degree	Doctoral or professional degree
132	4	19-1023	Zoologists and Wildlife Biologists	42	47	11.9%	5	41	46	Bachelor's degree	Master's degree
133	4	19-1029	Biological Scientists, All Other	85	97	14.1%	12	83	95	Bachelor's degree	Master's degree
134	4	19-1031	Conservation Scientists	-	-	-	-	-	-	Bachelor's degree	Master's degree
135	4	19-1032	Foresters	85	93	9.4%	8	92	100	Bachelor's degree	Master's degree
136	4	19-1041	Epidemiologists	-	-	-	-	-	-	Doctoral or professional degree	Doctoral or professional degree
137	4	19-1042	Medical Scientists, Except Epidemiologists	9	11	22.2%	2	9	11	Doctoral or professional degree	Doctoral or professional degree
138	4	19-1099	Life Scientists, All Other	-	-	-	-	-	-	Bachelor's degree	Master's degree



Lane County Employment Projections Full Table, 2019-2029
Oregon Employment Department, Workforce and Economic Research Division

Row	SOC Level	SOC Code	Standard Occupational Classification Title	2019 Employment	2029 Employment	Percent Change	Employment Change	Replacement Openings	Total Openings	Typical Entry-Level Education	Competitive Education
139	3	19-2000	Physical Scientists	193	215	11.4%	22	201	223		
140	4	19-2012	Physicists	-	-	-	-	-	-	Master's degree	Doctoral or professional degree
141	4	19-2031	Chemists	55	63	14.6%	8	54	62	Bachelor's degree	Master's degree
142	4	19-2032	Materials Scientists	-	-	-	-	-	-	Bachelor's degree	Master's degree
143	4	19-2041	Environmental Scientists and Specialists, Including Health	62	67	8.1%	5	70	75	Bachelor's degree	Master's degree
144	4	19-2042	Geoscientists, Except Hydrologists and Geographers	-	-	-	-	-	-	Bachelor's degree	Master's degree
145	4	19-2043	Hydrologists	-	-	-	-	-	-	Bachelor's degree	Master's degree
146	4	19-2099	Physical Scientists, All Other	21	24	14.3%	3	19	22	Bachelor's degree	Master's degree
147	3	19-3000	Social Scientists and Related Workers	632	727	15.0%	95	565	660		
148	4	19-3011	Economists	35	41	17.1%	6	27	33	Bachelor's degree	Master's degree
149	4	19-3022	Survey Researchers	-	-	-	-	-	-	Bachelor's degree	Master's degree
150	4	19-3031	Clinical, Counseling, and School Psychologists	296	346	16.9%	50	225	275	Master's degree	Doctoral or professional degree
151	4	19-3039	Psychologists, All Other	-	-	-	-	-	-	Master's degree	Doctoral or professional degree
152	4	19-3041	Sociologists	10	12	20.0%	2	12	14	Master's degree	Doctoral or professional degree
153	4	19-3051	Urban and Regional Planners	76	83	9.2%	7	74	81	Bachelor's degree	Master's degree
154	4	19-3091	Anthropologists and Archeologists	-	-	-	-	-	-	Bachelor's degree	Master's degree
155	4	19-3092	Geographers	-	-	-	-	-	-	Bachelor's degree	Master's degree
156	4	19-3093	Historians	-	-	-	-	-	-	Master's degree	Doctoral or professional degree
157	4	19-3099	Social Scientists and Related Workers, All Other	121	138	14.1%	17	148	165	Bachelor's degree	Master's degree
158	3	19-4000	Life, Physical, and Social Science Technicians	707	792	12.0%	85	850	935		
159	4	19-4011	Agricultural and Food Science Technicians	43	46	7.0%	3	53	56	Associate's degree	Associate's degree
160	4	19-4021	Biological Technicians	-	-	-	-	-	-	Associate's degree	Bachelor's degree
161	4	19-4031	Chemical Technicians	62	69	11.3%	7	65	72	Associate's degree	Bachelor's degree
162	4	19-4061	Social Science Research Assistants	131	150	14.5%	19	166	185	Bachelor's degree	Bachelor's degree
163	4	19-4092	Forensic Science Technicians	-	-	-	-	-	-	Bachelor's degree	Master's degree
164	4	19-4093	Forest and Conservation Technicians	161	181	12.4%	20	203	223	High school diploma or equivalent	Associate's degree
165	4	19-4099	Life, Physical, and Social Science Technicians, All Other	121	136	12.4%	15	152	167	Associate's degree	Bachelor's degree
166	2	21-0000	Community and Social Service Occupations	3,841	4,356	13.4%	515	4,393	4,908		
167	3	21-1000	Counselors, Social Workers, and Other Community and Social Service Specialists	3,319	3,814	14.9%	495	3,778	4,273		
168	4	21-1012	Educational, Guidance, School, and Vocational Counselors	268	302	12.7%	34	291	325	Master's degree	Master's degree
169	4	21-1013	Marriage and Family Therapists	-	-	-	-	-	-	Master's degree	Master's degree
170	4	21-1015	Rehabilitation Counselors	212	240	13.2%	28	231	259	Master's degree	Master's degree
171	4	21-1018	Substance Abuse, Behavioral Disorder, and Mental Health Counselors	625	770	23.2%	145	714	859	Postsecondary training (non-degree)	Master's degree
172	4	21-1019	Counselors, All Other	-	-	-	-	-	-	Master's degree	Master's degree
173	4	21-1021	Child, Family, and School Social Workers	361	402	11.4%	41	373	414	Bachelor's degree	Master's degree
174	4	21-1022	Healthcare Social Workers	160	180	12.5%	20	166	186	Bachelor's degree	Master's degree
175	4	21-1023	Mental Health and Substance Abuse Social Workers	223	260	16.6%	37	235	272	Master's degree	Master's degree
176	4	21-1029	Social Workers, All Other	146	167	14.4%	21	153	174	Bachelor's degree	Master's degree
177	4	21-1091	Health Educators	63	70	11.1%	7	75	82	Bachelor's degree	Master's degree
178	4	21-1092	Probation Officers and Correctional Treatment Specialists	85	89	4.7%	4	73	77	Bachelor's degree	Bachelor's degree
179	4	21-1093	Social and Human Service Assistants	882	993	12.6%	111	1,115	1,226	High school diploma or equivalent	Associate's degree
180	4	21-1094	Community Health Workers	55	63	14.6%	8	67	75	Postsecondary training (non-degree)	Postsecondary training (non-degree)
181	4	21-1099	Community and Social Service Specialists, All Other	179	201	12.3%	22	215	237	High school diploma or equivalent	Associate's degree
182	3	21-2000	Religious Workers	522	542	3.8%	20	615	635		
183	4	21-2011	Clergy	306	317	3.6%	11	337	348	Bachelor's degree	Doctoral or professional degree
184	4	21-2021	Directors, Religious Activities and Education	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
185	4	21-2099	Religious Workers, All Other	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
186	2	23-0000	Legal Occupations	1,126	1,192	5.9%	66	844	910		
187	3	23-1000	Lawyers, Judges, and Related Workers	586	617	5.3%	31	288	319		
188	4	23-1011	Lawyers	537	565	5.2%	28	264	292	Doctoral or professional degree	Doctoral or professional degree
189	4	23-1012	Judicial Law Clerks	-	-	-	-	-	-	Doctoral or professional degree	Doctoral or professional degree
190	4	23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	17	20	17.7%	3	9	12	Doctoral or professional degree	Doctoral or professional degree
191	4	23-1022	Arbitrators, Mediators, and Conciliators	-	-	-	-	-	-	Bachelor's degree	Doctoral or professional degree
192	4	23-1023	Judges, Magistrate Judges, and Magistrates	19	19	0.0%	0	9	9	Doctoral or professional degree	Doctoral or professional degree
193	3	23-2000	Legal Support Workers	540	575	6.5%	35	556	591		
194	4	23-2011	Paralegals and Legal Assistants	336	376	11.9%	40	377	417	Associate's degree	Bachelor's degree
195	4	23-2091	Court Reporters	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
196	4	23-2093	Title Examiners, Abstractors, and Searchers	114	107	-6.1%	-7	98	91	High school diploma or equivalent	Postsecondary training (non-degree)
197	4	23-2099	Legal Support Workers, All Other	-	-	-	-	-	-	Postsecondary training (non-degree)	Associate's degree
198	2	25-0000	Education, Training, and Library Occupations	14,166	15,326	8.2%	1,160	13,620	14,780		
199	3	25-1000	Postsecondary Teachers	2,128	2,346	10.2%	218	1,849	2,067		
200	4	25-1011	Business Teachers, Postsecondary	126	150	19.1%	24	114	138	Master's degree	Doctoral or professional degree
201	4	25-1021	Computer Science Teachers, Postsecondary	56	62	10.7%	6	49	55	Master's degree	Doctoral or professional degree
202	4	25-1022	Mathematical Science Teachers, Postsecondary	96	106	10.4%	10	83	93	Master's degree	Doctoral or professional degree
203	4	25-1031	Architecture Teachers, Postsecondary	78	85	9.0%	7	67	74	Master's degree	Doctoral or professional degree
204	4	25-1042	Biological Science Teachers, Postsecondary	53	61	15.1%	8	47	55	Master's degree	Doctoral or professional degree
205	4	25-1051	Atmospheric, Earth, Marine, and Space Sciences Teachers, Postsecondary	30	32	6.7%	2	25	27	Master's degree	Doctoral or professional degree
206	4	25-1052	Chemistry Teachers, Postsecondary	55	60	9.1%	5	47	52	Master's degree	Doctoral or professional degree
207	4	25-1053	Environmental Science Teachers, Postsecondary	-	-	-	-	-	-	Master's degree	Doctoral or professional degree
208	4	25-1054	Physics Teachers, Postsecondary	35	38	8.6%	3	30	33	Master's degree	Doctoral or professional degree
209	4	25-1061	Anthropology and Archeology Teachers, Postsecondary	39	43	10.3%	4	34	38	Master's degree	Doctoral or professional degree
210	4	25-1062	Area, Ethnic, and Cultural Studies Teachers, Postsecondary	16	18	12.5%	2	14	16	Master's degree	Doctoral or professional degree
211	4	25-1063	Economics Teachers, Postsecondary	25	27	8.0%	2	22	24	Master's degree	Doctoral or professional degree
212	4	25-1064	Geography Teachers, Postsecondary	19	20	5.3%	1	16	17	Master's degree	Doctoral or professional degree
213	4	25-1065	Political Science Teachers, Postsecondary	55	60	9.1%	5	47	52	Master's degree	Doctoral or professional degree

Lane County Employment Projections Full Table, 2019-2029
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Row	SOC Level	SOC Code	Standard Occupational Classification Title	2019 Employment	2029 Employment	Percent Change	Employment Change	Replacement Openings	Total Openings	Typical Entry-Level Education	Competitive Education
214	4	25-1066	Psychology Teachers, Postsecondary	56	65	16.1%	9	50	59	Master's degree	Doctoral or professional degree
215	4	25-1067	Sociology Teachers, Postsecondary	22	24	9.1%	2	19	21	Master's degree	Doctoral or professional degree
216	4	25-1069	Social Sciences Teachers, Postsecondary, All Other	53	57	7.6%	4	45	49	Master's degree	Doctoral or professional degree
217	4	25-1071	Health Specialties Teachers, Postsecondary	87	106	21.8%	19	80	99	Master's degree	Doctoral or professional degree
218	4	25-1081	Education Teachers, Postsecondary	58	63	8.6%	5	50	55	Master's degree	Doctoral or professional degree
219	4	25-1082	Library Science Teachers, Postsecondary	-	-	-	-	-	-	Master's degree	Doctoral or professional degree
220	4	25-1112	Law Teachers, Postsecondary	55	61	10.9%	6	48	54	Master's degree	Doctoral or professional degree
221	4	25-1113	Social Work Teachers, Postsecondary	11	12	9.1%	1	9	10	Master's degree	Doctoral or professional degree
222	4	25-1121	Art, Drama, and Music Teachers, Postsecondary	220	240	9.1%	20	191	211	Master's degree	Doctoral or professional degree
223	4	25-1122	Communications Teachers, Postsecondary	125	135	8.0%	10	108	118	Master's degree	Doctoral or professional degree
224	4	25-1123	English Language and Literature Teachers, Postsecondary	-	-	-	-	-	-	Master's degree	Doctoral or professional degree
225	4	25-1124	Foreign Language and Literature Teachers, Postsecondary	-	-	-	-	-	-	Master's degree	Doctoral or professional degree
226	4	25-1125	History Teachers, Postsecondary	66	72	9.1%	6	57	63	Master's degree	Doctoral or professional degree
227	4	25-1126	Philosophy and Religion Teachers, Postsecondary	-	-	-	-	-	-	Master's degree	Doctoral or professional degree
228	4	25-1193	Recreation and Fitness Studies Teachers, Postsecondary	91	99	8.8%	8	79	87	Master's degree	Doctoral or professional degree
229	4	25-1194	Vocational Education Teachers, Postsecondary	46	46	0.0%	0	38	38	Master's degree	Doctoral or professional degree
230	4	25-1199	Postsecondary Teachers, All Other	279	301	7.9%	22	240	262	Master's degree	Doctoral or professional degree
231	3	25-2000	Preschool, Primary, Secondary, and Special Education School Teachers	3,308	3,506	6.0%	198	2,728	2,926		
232	4	25-2011	Preschool Teachers, Except Special Education	802	857	6.9%	55	833	888	Associate's degree	Bachelor's degree
233	4	25-2012	Kindergarten Teachers, Except Special Education	-	-	-	-	-	-	Bachelor's degree	Master's degree
234	4	25-2021	Elementary School Teachers, Except Special Education	1,085	1,144	5.4%	59	822	881	Bachelor's degree	Master's degree
235	4	25-2022	Middle School Teachers, Except Special and Career/Technical Education	635	669	5.4%	34	481	515	Bachelor's degree	Master's degree
236	4	25-2031	Secondary School Teachers, Except Special and Career/Technical Education	400	423	5.8%	23	288	311	Bachelor's degree	Master's degree
237	4	25-2051	Special Education Teachers, Preschool	-	-	-	-	-	-	Bachelor's degree	Master's degree
238	4	25-2052	Special Education Teachers, Kindergarten and Elementary School	69	74	7.3%	5	54	59	Bachelor's degree	Master's degree
239	4	25-2053	Special Education Teachers, Middle School	-	-	-	-	-	-	Bachelor's degree	Master's degree
240	4	25-2054	Special Education Teachers, Secondary School	-	-	-	-	-	-	Bachelor's degree	Master's degree
241	4	25-2059	Special Education Teachers, All Other	-	-	-	-	-	-	Bachelor's degree	Master's degree
242	3	25-3000	Other Teachers and Instructors	1,108	1,202	8.5%	94	1,317	1,411		
243	4	25-3011	Adult Basic and Secondary Education and Literacy Teachers and Instructors	-	-	-	-	-	-	Bachelor's degree	Master's degree
244	4	25-3021	Self-Enrichment Education Teachers	369	420	13.8%	51	450	501	High school diploma or equivalent	Postsecondary training (non-degree)
245	4	25-3097	Teachers and Instructors, All Other, Except Substitute Teachers	-	-	-	-	-	-	Bachelor's degree	Master's degree
246	4	25-3098	Substitute Teachers	338	355	5.0%	17	395	412	Bachelor's degree	Master's degree
247	3	25-4000	Librarians, Curators, and Archivists	342	349	2.1%	7	429	436		
248	4	25-4011	Archivists	-	-	-	-	-	-	Master's degree	Master's degree
249	4	25-4012	Curators	-	-	-	-	-	-	Master's degree	Master's degree
250	4	25-4013	Museum Technicians and Conservators	-	-	-	-	-	-	Bachelor's degree	Master's degree
251	4	25-4021	Librarians	162	173	6.8%	11	167	178	Master's degree	Master's degree
252	4	25-4031	Library Technicians	159	153	-3.8%	-6	239	233	Postsecondary training (non-degree)	Postsecondary training (non-degree)
253	3	25-9000	Other Education, Training, and Library Occupations	7,280	7,923	8.8%	643	7,297	7,940		
254	4	25-9011	Audio-Visual and Multimedia Collections Specialists	-	-	-	-	-	-	Associate's degree	Bachelor's degree
255	4	25-9021	Farm and Home Management Advisors	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
256	4	25-9031	Instructional Coordinators	144	161	11.8%	17	141	158	Bachelor's degree	Master's degree
257	4	25-9041	Teacher Assistants	1,825	1,921	5.3%	96	1,974	2,070	High school diploma or equivalent	Associate's degree
258	4	25-9099	Education, Training, and Library Workers, All Other	5,295	5,823	10.0%	528	5,167	5,695	Bachelor's degree	Bachelor's degree
259	2	27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	2,846	2,937	3.2%	91	3,241	3,332		
260	3	27-1000	Art and Design Workers	826	892	8.0%	66	870	936		
261	4	27-1011	Art Directors	82	86	4.9%	4	91	95	Bachelor's degree	Bachelor's degree
262	4	27-1012	Craft Artists	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
263	4	27-1013	Fine Artists, Including Painters, Sculptors, and Illustrators	-	-	-	-	-	-	Associate's degree	Bachelor's degree
264	4	27-1014	Multimedia Artists and Animators	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
265	4	27-1019	Artists and Related Workers, All Other	-	-	-	-	-	-	High school diploma or equivalent	Bachelor's degree
266	4	27-1021	Commercial and Industrial Designers	26	27	3.9%	1	27	28	Bachelor's degree	Bachelor's degree
267	4	27-1022	Fashion Designers	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
268	4	27-1023	Floral Designers	94	106	12.8%	12	99	111	High school diploma or equivalent	Postsecondary training (non-degree)
269	4	27-1024	Graphic Designers	300	330	10.0%	30	314	344	Associate's degree	Bachelor's degree
270	4	27-1025	Interior Designers	44	50	13.6%	6	47	53	Associate's degree	Bachelor's degree
271	4	27-1026	Merchandise Displayers and Window Trimmers	135	143	5.9%	8	138	146	High school diploma or equivalent	Associate's degree
272	4	27-1027	Set and Exhibit Designers	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
273	4	27-1029	Designers, All Other	19	20	5.3%	1	19	20	Bachelor's degree	Bachelor's degree
274	3	27-2000	Entertainers and Performers, Sports and Related Workers	844	905	7.2%	61	1,148	1,209		
275	4	27-2012	Producers and Directors	71	67	-5.6%	-4	68	64	Bachelor's degree	Bachelor's degree
276	4	27-2021	Athletes and Sports Competitors	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
277	4	27-2022	Coaches and Scouts	330	374	13.3%	44	514	558	High school diploma or equivalent	Bachelor's degree
278	4	27-2023	Umpires, Referees, and Other Sports Officials	-	-	-	-	-	-	High school diploma or equivalent	Bachelor's degree
279	4	27-2031	Dancers	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
280	4	27-2032	Choreographers	-	-	-	-	-	-	High school diploma or equivalent	Associate's degree
281	4	27-2041	Music Directors and Composers	79	80	1.3%	1	95	96	Bachelor's degree	Master's degree
282	4	27-2042	Musicians and Singers	307	324	5.5%	17	376	393	High school diploma or equivalent	High school diploma or equivalent
283	4	27-2099	Entertainers and Performers, Sports and Related Workers, All Other	-	-	-	-	-	-	High school diploma or equivalent	Associate's degree
284	3	27-3000	Media and Communication Workers	697	705	1.2%	8	755	763		
285	4	27-3011	Radio and Television Announcers	91	77	-15.4%	-14	97	83	Bachelor's degree	Bachelor's degree
286	4	27-3012	Public Address System and Other Announcers	-	-	-	-	-	-	High school diploma or equivalent	Bachelor's degree
287	4	27-3021	Broadcast News Analysts	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
288	4	27-3022	Reporters and Correspondents	37	30	-18.9%	-7	42	35	Bachelor's degree	Bachelor's degree



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289	4	27-3031	Public Relations Specialists	149	168	12.8%	19	165	184	Bachelor's degree	Bachelor's degree
290	4	27-3041	Editors	116	113	-2.6%	-3	125	122	Bachelor's degree	Bachelor's degree
291	4	27-3042	Technical Writers	13	13	0.0%	0	13	13	Bachelor's degree	Bachelor's degree
292	4	27-3043	Writers and Authors	162	162	0.0%	0	169	169	Bachelor's degree	Bachelor's degree
293	4	27-3091	Interpreters and Translators	71	83	16.9%	12	77	89	High school diploma or equivalent	Bachelor's degree
294	4	27-3099	Media and Communication Workers, All Other	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
295	3	27-4000	Media and Communication Equipment Workers	479	435	-9.2%	-44	488	424		
296	4	27-4011	Audio and Video Equipment Technicians	95	100	5.3%	5	104	109	Postsecondary training (non-degree)	Postsecondary training (non-degree)
297	4	27-4012	Broadcast Technicians	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
298	4	27-4013	Radio Operators	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
299	4	27-4014	Sound Engineering Technicians	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
300	4	27-4021	Photographers	209	171	-18.2%	-38	188	150	High school diploma or equivalent	Bachelor's degree
301	4	27-4031	Camera Operators, Television, Video, and Motion Picture	20	23	15.0%	3	21	24	High school diploma or equivalent	Associate's degree
302	4	27-4032	Film and Video Editors	-	-	-	-	-	-	Associate's degree	Bachelor's degree
303	4	27-4099	Media and Communication Equipment Workers, All Other	28	27	-3.6%	-1	29	28	High school diploma or equivalent	High school diploma or equivalent
304			Health Care	14,664	17,157	17.0%	2,493	12,278	14,771		
305	2	29-0000	Healthcare Practitioners and Technical Occupations	9,160	10,564	15.3%	1,404	5,419	6,823		
306	3	29-1000	Health Diagnosing and Treating Practitioners	6,206	7,230	16.5%	1,024	3,189	4,213		
307	4	29-1011	Chiropractors	79	79	0.0%	0	21	21	Doctoral or professional degree	Doctoral or professional degree
308	4	29-1021	Dentists, General	124	140	12.9%	16	39	55	Doctoral or professional degree	Doctoral or professional degree
309	4	29-1022	Oral and Maxillofacial Surgeons	-	-	-	-	-	-	Doctoral or professional degree	Doctoral or professional degree
310	4	29-1029	Dentists, All Other Specialists	-	-	-	-	-	-	Doctoral or professional degree	Doctoral or professional degree
311	4	29-1031	Dietitians and Nutritionists	71	81	14.1%	10	48	58	Bachelor's degree	Bachelor's degree
312	4	29-1041	Optometrists	31	31	0.0%	0	9	9	Doctoral or professional degree	Doctoral or professional degree
313	4	29-1051	Pharmacists	353	368	4.3%	15	162	177	Doctoral or professional degree	Doctoral or professional degree
314	4	29-1061	Anesthesiologists	-	-	-	-	-	-	Doctoral or professional degree	Doctoral or professional degree
315	4	29-1062	Family and General Practitioners	132	148	12.1%	16	41	57	Doctoral or professional degree	Doctoral or professional degree
316	4	29-1063	Internists, General	28	31	10.7%	3	9	12	Doctoral or professional degree	Doctoral or professional degree
317	4	29-1064	Obstetricians and Gynecologists	-	-	-	-	-	-	Doctoral or professional degree	Doctoral or professional degree
318	4	29-1065	Pediatricians, General	49	54	10.2%	5	15	20	Doctoral or professional degree	Doctoral or professional degree
319	4	29-1066	Psychiatrists	-	-	-	-	-	-	Doctoral or professional degree	Doctoral or professional degree
320	4	29-1067	Surgeons	33	35	6.1%	2	10	12	Doctoral or professional degree	Doctoral or professional degree
321	4	29-1069	Physicians and Surgeons, All Other	497	566	13.9%	69	155	224	Doctoral or professional degree	Doctoral or professional degree
322	4	29-1071	Physician Assistants	151	202	33.8%	51	100	151	Master's degree	Master's degree
323	4	29-1081	Podiatrists	-	-	-	-	-	-	Doctoral or professional degree	Doctoral or professional degree
324	4	29-1122	Occupational Therapists	131	151	15.3%	20	79	99	Master's degree	Doctoral or professional degree
325	4	29-1123	Physical Therapists	312	375	20.2%	63	143	206	Doctoral or professional degree	Doctoral or professional degree
326	4	29-1125	Recreational Therapists	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
327	4	29-1126	Respiratory Therapists	-	-	-	-	-	-	Associate's degree	Bachelor's degree
328	4	29-1127	Speech-Language Pathologists	-	-	-	-	-	-	Master's degree	Doctoral or professional degree
329	4	29-1128	Exercise Physiologists	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
330	4	29-1129	Therapists, All Other	-	-	-	-	-	-	Bachelor's degree	Master's degree
331	4	29-1131	Veterinarians	154	187	21.4%	33	65	98	Doctoral or professional degree	Doctoral or professional degree
332	4	29-1141	Registered Nurses	3,185	3,729	17.1%	544	1,846	2,390	Bachelor's degree	Bachelor's degree
333	4	29-1151	Nurse Anesthetists	-	-	-	-	-	-	Master's degree	Master's degree
334	4	29-1161	Nurse Midwives	24	28	16.7%	4	14	18	Master's degree	Master's degree
335	4	29-1171	Nurse Practitioners	130	167	28.5%	37	79	116	Master's degree	Master's degree
336	4	29-1181	Audiologists	-	-	-	-	-	-	Doctoral or professional degree	Doctoral or professional degree
337	4	29-1199	Health Diagnosing and Treating Practitioners, All Other	-	-	-	-	-	-	Doctoral or professional degree	Doctoral or professional degree
338	3	29-2000	Health Technologists and Technicians	2,796	3,158	13.0%	362	2,136	2,498		
339	4	29-2010	Clinical Laboratory Technologists and Technicians	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
340	4	29-2021	Dental Hygienists	200	230	15.0%	30	144	174	Associate's degree	Bachelor's degree
341	4	29-2031	Cardiovascular Technologists and Technicians	63	71	12.7%	8	36	44	Associate's degree	Associate's degree
342	4	29-2032	Diagnostic Medical Sonographers	57	72	26.3%	15	35	50	Associate's degree	Bachelor's degree
343	4	29-2033	Nuclear Medicine Technologists	17	19	11.8%	2	9	11	Associate's degree	Bachelor's degree
344	4	29-2034	Radiologic Technologists	168	192	14.3%	24	98	122	Associate's degree	Bachelor's degree
345	4	29-2035	Magnetic Resonance Imaging Technologists	30	35	16.7%	5	18	23	Associate's degree	Associate's degree
346	4	29-2041	Emergency Medical Technicians and Paramedics	140	146	4.3%	6	95	101	Postsecondary training (non-degree)	Postsecondary training (non-degree)
347	4	29-2052	Pharmacy Technicians	457	501	9.6%	44	386	430	Postsecondary training (non-degree)	Postsecondary training (non-degree)
348	4	29-2053	Psychiatric Technicians	-	-	-	-	-	-	Postsecondary training (non-degree)	Associate's degree
349	4	29-2055	Surgical Technologists	162	185	14.2%	23	140	163	Postsecondary training (non-degree)	Associate's degree
350	4	29-2056	Veterinary Technologists and Technicians	144	192	33.3%	48	136	184	Associate's degree	Associate's degree
351	4	29-2057	Ophthalmic Medical Technicians	140	169	20.7%	29	125	154	Postsecondary training (non-degree)	Postsecondary training (non-degree)
352	4	29-2061	Licensed Practical and Licensed Vocational Nurses	458	491	7.2%	33	361	394	Postsecondary training (non-degree)	Postsecondary training (non-degree)
353	4	29-2071	Medical Records and Health Information Technicians	242	283	16.9%	41	167	208	Postsecondary training (non-degree)	Associate's degree
354	4	29-2081	Opticians, Dispensing	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
355	4	29-2091	Orthotists and Prosthetists	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
356	4	29-2092	Hearing Aid Specialists	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
357	4	29-2099	Health Technologists and Technicians, All Other	152	172	13.2%	20	110	130	Postsecondary training (non-degree)	Postsecondary training (non-degree)
358	3	29-9000	Other Healthcare Practitioners and Technical Occupations	158	176	11.4%	18	94	112		
359	4	29-9011	Occupational Health and Safety Specialists	95	102	7.4%	7	56	63	Bachelor's degree	Bachelor's degree
360	4	29-9012	Occupational Health and Safety Technicians	11	12	9.1%	1	7	8	Bachelor's degree	Bachelor's degree
361	4	29-9091	Athletic Trainers	-	-	-	-	-	-	Bachelor's degree	Master's degree
362	4	29-9092	Genetic Counselors	-	-	-	-	-	-	Master's degree	Master's degree
363	4	29-9099	Healthcare Practitioners and Technical Workers, All Other	29	32	10.3%	3	17	20	Associate's degree	Associate's degree

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Row	SOC Level	SOC Code	Standard Occupational Classification Title	2019 Employment	2029 Employment	Percent Change	Employment Change	Replacement Openings	Total Openings	Typical Entry-Level Education	Competitive Education
364	2	31-0000	Healthcare Support Occupations	5,504	6,593	19.8%	1,089	6,859	7,948		
365	3	31-1000	Nursing, Psychiatric, and Home Health Aides	-	-	-	-	-	-		
366	4	31-1011	Home Health Aides	709	886	25.0%	177	894	1,071	Less than high school	Postsecondary training (non-degree)
367	4	31-1013	Psychiatric Aides	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
368	4	31-1014	Nursing Assistants	1,392	1,591	14.3%	199	1,672	1,871	Postsecondary training (non-degree)	Postsecondary training (non-degree)
369	4	31-1015	Orderlies	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
370	3	31-2000	Occupational Therapy and Physical Therapist Assistants and Aides	-	-	-	-	-	-		
371	4	31-2011	Occupational Therapy Assistants	15	20	33.3%	5	19	24	Associate's degree	Associate's degree
372	4	31-2012	Occupational Therapy Aides	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
373	4	31-2021	Physical Therapist Assistants	47	56	19.2%	9	64	73	Associate's degree	Associate's degree
374	4	31-2022	Physical Therapist Aides	-	-	-	-	-	-	High school diploma or equivalent	Associate's degree
375	3	31-9000	Other Healthcare Support Occupations	2,845	3,438	20.8%	593	3,588	4,181		
376	4	31-9011	Massage Therapists	284	349	22.9%	65	369	434	Postsecondary training (non-degree)	Postsecondary training (non-degree)
377	4	31-9091	Dental Assistants	512	591	15.4%	79	618	697	Postsecondary training (non-degree)	Postsecondary training (non-degree)
378	4	31-9092	Medical Assistants	1,325	1,680	26.8%	355	1,655	2,010	Postsecondary training (non-degree)	Postsecondary training (non-degree)
379	4	31-9093	Medical Equipment Preparers	110	124	12.7%	14	133	147	Postsecondary training (non-degree)	Postsecondary training (non-degree)
380	4	31-9094	Medical Transcriptionists	79	75	-5.1%	-4	108	104	Postsecondary training (non-degree)	Associate's degree
381	4	31-9095	Pharmacy Aides	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
382	4	31-9096	Veterinary Assistants and Laboratory Animal Caretakers	118	156	32.2%	38	221	259	High school diploma or equivalent	Postsecondary training (non-degree)
383	4	31-9097	Phlebotomists	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
384	4	31-9099	Healthcare Support Workers, All Other	212	235	10.9%	23	254	277	High school diploma or equivalent	Postsecondary training (non-degree)
385			Service	34,222	38,247	11.8%	4,025	55,489	59,514		
386	2	33-0000	Protective Service Occupations	2,509	2,733	8.9%	224	2,828	3,052		
387	3	33-1000	Supervisors of Protective Service Workers	314	336	7.0%	22	239	261		
388	4	33-1011	First-Line Supervisors of Correctional Officers	-	-	-	-	-	-	High school diploma or equivalent	Bachelor's degree
389	4	33-1012	First-Line Supervisors of Police and Detectives	-	-	-	-	-	-	High school diploma or equivalent	Bachelor's degree
390	4	33-1021	First-Line Supervisors of Fire Fighting and Prevention Workers	108	113	4.6%	5	70	75	High school diploma or equivalent	Bachelor's degree
391	4	33-1099	First-Line Supervisors of Protective Service Workers, All Other	98	112	14.3%	14	100	114	High school diploma or equivalent	Bachelor's degree
392	3	33-2000	Fire Fighting and Prevention Workers	359	382	6.4%	23	254	277		
393	4	33-2011	Firefighters	351	373	6.3%	22	246	268	Postsecondary training (non-degree)	Associate's degree
394	4	33-2021	Fire Inspectors and Investigators	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
395	4	33-2022	Forest Fire Inspectors and Prevention Specialists	-	-	-	-	-	-	High school diploma or equivalent	Associate's degree
396	3	33-3000	Law Enforcement Workers	648	671	3.6%	23	474	497		
397	4	33-3012	Correctional Officers and Jailers	65	62	-4.6%	-3	56	53	High school diploma or equivalent	Postsecondary training (non-degree)
398	4	33-3021	Detectives and Criminal Investigators	-	-	-	-	-	-	Associate's degree	Bachelor's degree
399	4	33-3041	Parking Enforcement Workers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
400	4	33-3051	Police and Sheriff's Patrol Officers	545	576	5.7%	31	394	425	High school diploma or equivalent	Associate's degree
401	3	33-9000	Other Protective Service Workers	1,188	1,344	13.1%	156	1,861	2,017		
402	4	33-9011	Animal Control Workers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
403	4	33-9021	Private Detectives and Investigators	14	14	0.0%	0	13	13	Associate's degree	Associate's degree
404	4	33-9031	Gaming Surveillance Officers and Gaming Investigators	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
405	4	33-9032	Security Guards	855	984	15.1%	129	1,183	1,312	High school diploma or equivalent	High school diploma or equivalent
406	4	33-9091	Crossing Guards	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
407	4	33-9092	Lifeguards, Ski Patrol, and Other Recreational Protective Service Workers	72	77	6.9%	5	180	185	High school diploma or equivalent	High school diploma or equivalent
408	4	33-9093	Transportation Security Screeners	56	64	14.3%	8	57	65	High school diploma or equivalent	High school diploma or equivalent
409	4	33-9099	Protective Service Workers, All Other	137	146	6.6%	9	341	350	High school diploma or equivalent	High school diploma or equivalent
410	2	35-0000	Food Preparation and Serving Related Occupations	16,180	17,588	8.7%	1,408	29,331	30,739		
411	3	35-1000	Supervisors of Food Preparation and Serving Workers	1,164	1,271	9.2%	107	1,829	1,936		
412	4	35-1011	Chefs and Head Cooks	132	144	9.1%	12	181	193	Postsecondary training (non-degree)	Postsecondary training (non-degree)
413	4	35-1012	First-Line Supervisors of Food Preparation and Serving Workers	1,032	1,127	9.2%	95	1,648	1,743	High school diploma or equivalent	Postsecondary training (non-degree)
414	3	35-2000	Cooks and Food Preparation Workers	4,397	4,828	9.8%	431	6,976	7,407		
415	4	35-2011	Cooks, Fast Food	438	402	-8.2%	-36	594	558	Less than high school	High school diploma or equivalent
416	4	35-2012	Cooks, Institution and Cafeteria	620	688	11.0%	68	925	993	Less than high school	High school diploma or equivalent
417	4	35-2013	Cooks, Private Household	11	12	9.1%	1	16	17	Postsecondary training (non-degree)	Postsecondary training (non-degree)
418	4	35-2014	Cooks, Restaurant	1,613	1,885	16.9%	272	2,474	2,746	Less than high school	High school diploma or equivalent
419	4	35-2015	Cooks, Short Order	229	224	-2.2%	-5	320	315	Less than high school	High school diploma or equivalent
420	4	35-2019	Cooks, All Other	111	120	8.1%	9	163	172	Less than high school	High school diploma or equivalent
421	4	35-2021	Food Preparation Workers	1,375	1,497	8.9%	122	2,484	2,806	Less than high school	High school diploma or equivalent
422	3	35-3000	Food and Beverage Serving Workers	9,580	10,379	8.3%	799	18,600	19,399		
423	4	35-3011	Bartenders	811	873	7.6%	62	1,481	1,543	Less than high school	Postsecondary training (non-degree)
424	4	35-3021	Combined Food Preparation and Serving Workers, Including Fast Food	4,025	4,549	13.0%	524	7,634	8,158	Less than high school	High school diploma or equivalent
425	4	35-3022	Counter Attendants, Cafeteria, Food Concession, and Coffee Shop	1,316	1,344	2.1%	28	2,887	2,915	Less than high school	High school diploma or equivalent
426	4	35-3031	Waiters and Waitresses	3,013	3,135	4.1%	122	5,900	6,022	Less than high school	High school diploma or equivalent
427	4	35-3041	Food Servers, Nonrestaurant	415	478	15.2%	63	698	761	Less than high school	High school diploma or equivalent
428	3	35-9000	Other Food Preparation and Serving Related Workers	1,039	1,110	6.8%	71	1,926	1,997		
429	4	35-9011	Dining Room and Cafeteria Attendants and Bartender Helpers	148	162	9.5%	14	265	279	Less than high school	High school diploma or equivalent
430	4	35-9021	Dishwashers	455	467	2.6%	12	732	744	Less than high school	High school diploma or equivalent
431	4	35-9031	Hosts and Hostesses, Restaurant, Lounge, and Coffee Shop	240	261	8.8%	21	574	595	Less than high school	High school diploma or equivalent
432	4	35-9099	Food Preparation and Serving Related Workers, All Other	196	220	12.2%	24	355	379	Less than high school	High school diploma or equivalent
433	2	37-0000	Building and Grounds Cleaning and Maintenance Occupations	5,588	6,275	12.3%	687	7,734	8,421		
434	3	37-1000	Supervisors of Building and Grounds Cleaning and Maintenance Workers	423	483	14.2%	60	505	565		
435	4	37-1011	First-Line Supervisors of Housekeeping and Janitorial Workers	225	254	12.9%	29	272	301	High school diploma or equivalent	Postsecondary training (non-degree)
436	4	37-1012	First-Line Supervisors of Landscaping, Lawn Service, and Groundskeeping Workers	198	229	15.7%	31	233	264	High school diploma or equivalent	Postsecondary training (non-degree)
437	3	37-2000	Building Cleaning and Pest Control Workers	3,746	4,146	10.7%	400	5,244	5,644		
438	4	37-2011	Janitors and Cleaners, Except Maids and Housekeeping Cleaners	2,301	2,578	12.0%	277	3,213	3,490	Less than high school	High school diploma or equivalent

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439	4	37-2012	Maids and Housekeeping Cleaners	1,368	1,477	8.0%	109	1,916	2,025	Less than high school	High school diploma or equivalent
440	4	37-2019	Building Cleaning Workers, All Other	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
441	4	37-2021	Pest Control Workers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
442	3	37-3000	Grounds Maintenance Workers	1,419	1,646	16.0%	227	1,985	2,212	Less than high school	High school diploma or equivalent
443	4	37-3011	Landscaping and Groundskeeping Workers	1,151	1,326	15.2%	175	1,604	1,779	Less than high school	High school diploma or equivalent
444	4	37-3012	Pesticide Handlers, Sprayers, and Applicators, Vegetation	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
445	4	37-3013	Tree Trimmers and Pruners	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
446	4	37-3019	Grounds Maintenance Workers, All Other	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
447	2	39-0000	Personal Care and Service Occupations	9,945	11,651	17.2%	1,706	15,596	17,302		
448	3	39-1000	Supervisors of Personal Care and Service Workers	384	423	10.2%	39	396	435		
449	4	39-1010	First-Line Supervisors of Gaming Workers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
450	4	39-1021	First-Line Supervisors of Personal Service Workers	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
451	3	39-2000	Animal Care and Service Workers	193	225	16.6%	32	337	369		
452	4	39-2011	Animal Trainers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
453	4	39-2021	Nonfarm Animal Caretakers	-	-	-	-	-	-	Less than high school	Postsecondary training (non-degree)
454	3	39-3000	Entertainment Attendants and Related Workers	194	194	0.0%	0	434	434		
455	4	39-3011	Gaming Dealers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
456	4	39-3021	Motion Picture Projectionists	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
457	4	39-3031	Ushers, Lobby Attendants, and Ticket Takers	61	58	-4.9%	-3	145	142	Less than high school	High school diploma or equivalent
458	4	39-3091	Amusement and Recreation Attendants	70	75	7.1%	5	167	172	Less than high school	High school diploma or equivalent
459	4	39-3093	Locker Room, Coatroom, and Dressing Room Attendants	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
460	4	39-3099	Entertainment Attendants and Related Workers, All Other	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
461	3	39-4000	Funeral Service Workers	-	-	-	-	-	-		
462	4	39-4021	Funeral Attendants	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
463	4	39-4031	Morticians, Undertakers, and Funeral Directors	-	-	-	-	-	-	Associate's degree	Associate's degree
464	3	39-5000	Personal Appearance Workers	864	940	8.8%	76	1,098	1,174		
465	4	39-5012	Hairdressers, Hairstylists, and Cosmetologists	631	685	8.6%	54	819	873	Postsecondary training (non-degree)	Postsecondary training (non-degree)
466	4	39-5092	Manicurists and Pedicurists	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
467	4	39-5094	Skincare Specialists	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
468	3	39-6000	Baggage Porters, Bellhops, and Concierges	-	-	-	-	-	-		
469	4	39-6011	Baggage Porters and Bellhops	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
470	4	39-6012	Concierges	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
471	3	39-7000	Tour and Travel Guides	30	30	0.0%	0	52	52		
472	4	39-7010	Tour and Travel Guides	30	30	0.0%	0	52	52	High school diploma or equivalent	High school diploma or equivalent
473	3	39-9000	Other Personal Care and Service Workers	8,234	9,790	18.9%	1,556	13,215	14,771		
474	4	39-9011	Childcare Workers	891	952	6.9%	61	1,374	1,435	High school diploma or equivalent	Postsecondary training (non-degree)
475	4	39-9021	Personal Care Aides	3,037	3,799	25.1%	762	4,764	5,526	Less than high school	High school diploma or equivalent
476	4	39-9031	Fitness Trainers and Aerobics Instructors	689	792	15.0%	103	1,230	1,333	High school diploma or equivalent	Postsecondary training (non-degree)
477	4	39-9032	Recreation Workers	444	489	10.1%	45	775	820	High school diploma or equivalent	Bachelor's degree
478	4	39-9041	Residential Advisors	94	109	16.0%	15	154	169	High school diploma or equivalent	Bachelor's degree
479	4	39-9099	Personal Care and Service Workers, All Other	3,079	3,649	18.5%	570	4,918	5,488	High school diploma or equivalent	High school diploma or equivalent
480			Sales and Related	18,228	18,916	3.8%	688	25,415	26,103		
481	2	41-0000	Sales and Related Occupations	18,228	18,916	3.8%	688	25,415	26,103		
482	3	41-1000	Supervisors of Sales Workers	2,330	2,407	3.3%	77	2,551	2,628		
483	4	41-1011	First-Line Supervisors of Retail Sales Workers	1,969	2,043	3.8%	74	2,205	2,279	High school diploma or equivalent	Postsecondary training (non-degree)
484	4	41-1012	First-Line Supervisors of Non-Retail Sales Workers	361	364	0.8%	3	346	349	High school diploma or equivalent	Associate's degree
485	3	41-2000	Retail Sales Workers	10,537	10,771	2.2%	234	16,909	17,143		
486	4	41-2011	Cashiers	3,799	3,751	-1.3%	-48	7,121	7,073	Less than high school	High school diploma or equivalent
487	4	41-2012	Gaming Change Persons and Booth Cashiers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
488	4	41-2021	Counter and Rental Clerks	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
489	4	41-2022	Parts Salespersons	634	681	7.4%	47	791	838	Less than high school	High school diploma or equivalent
490	4	41-2031	Retail Salespersons	5,591	5,801	3.8%	210	8,320	8,530	Less than high school	High school diploma or equivalent
491	3	41-3000	Sales Representatives, Services	1,444	1,501	4.0%	57	1,648	1,705		
492	4	41-3011	Advertising Sales Agents	97	89	-8.3%	-8	126	118	High school diploma or equivalent	Bachelor's degree
493	4	41-3021	Insurance Sales Agents	441	486	10.2%	45	451	496	Postsecondary training (non-degree)	Bachelor's degree
494	4	41-3031	Securities, Commodities, and Financial Services Sales Agents	290	283	-2.4%	-7	271	264	Bachelor's degree	Bachelor's degree
495	4	41-3041	Travel Agents	59	59	0.0%	0	78	78	High school diploma or equivalent	Postsecondary training (non-degree)
496	4	41-3099	Sales Representatives, Services, All Other	557	584	4.9%	27	722	749	High school diploma or equivalent	Postsecondary training (non-degree)
497	3	41-4000	Sales Representatives, Wholesale and Manufacturing	1,596	1,761	10.3%	165	1,761	1,926		
498	4	41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	142	159	12.0%	17	158	175	Bachelor's degree	Bachelor's degree
499	4	41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	1,454	1,602	10.2%	148	1,603	1,751	High school diploma or equivalent	Associate's degree
500	3	41-9000	Other Sales and Related Workers	2,321	2,476	6.7%	155	2,546	2,701		
501	4	41-9011	Demonstrators and Product Promoters	148	161	8.8%	13	264	277	High school diploma or equivalent	High school diploma or equivalent
502	4	41-9012	Models	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
503	4	41-9021	Real Estate Brokers	526	557	5.9%	31	515	546	Postsecondary training (non-degree)	Postsecondary training (non-degree)
504	4	41-9022	Real Estate Sales Agents	1,217	1,289	5.9%	72	1,190	1,262	Postsecondary training (non-degree)	Postsecondary training (non-degree)
505	4	41-9031	Sales Engineers	85	97	14.1%	12	100	112	Bachelor's degree	Bachelor's degree
506	4	41-9041	Telemarketers	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
507	4	41-9099	Sales and Related Workers, All Other	311	341	9.7%	30	424	454	High school diploma or equivalent	High school diploma or equivalent
508			Office and Administrative Support	25,182	25,590	1.6%	408	29,735	30,143		
509	2	43-0000	Office and Administrative Support Occupations	25,182	25,590	1.6%	408	29,735	30,143		
510	3	43-1000	Supervisors of Office and Administrative Support Workers	-	-	-	-	-	-		
511	4	43-1011	First-Line Supervisors of Office and Administrative Support Workers	-	-	-	-	-	-	High school diploma or equivalent	Associate's degree
512	3	43-2000	Communications Equipment Operators	-	-	-	-	-	-		
513	4	43-2011	Switchboard Operators, Including Answering Service	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent

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514	4	43-2099	Communications Equipment Operators, All Other	-	-	-	-	-	-	High school diploma or equivalent	Associate's degree
515	3	43-3000	Financial Clerks	3,850	3,825	-0.7%	-25	4,435	4,410	High school diploma or equivalent	High school diploma or equivalent
516	4	43-3011	Bill and Account Collectors	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
517	4	43-3021	Billing and Posting Clerks	415	475	14.5%	60	483	543	High school diploma or equivalent	High school diploma or equivalent
518	4	43-3031	Bookkeeping, Accounting, and Auditing Clerks	2,467	2,410	-2.3%	-57	2,842	2,785	Postsecondary training (non-degree)	Associate's degree
519	4	43-3041	Gaming Cage Workers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
520	4	43-3051	Payroll and Timekeeping Clerks	181	178	-1.7%	-3	197	194	High school diploma or equivalent	Postsecondary training (non-degree)
521	4	43-3061	Procurement Clerks	75	76	1.3%	1	79	80	High school diploma or equivalent	Bachelor's degree
522	4	43-3071	Tellers	442	423	-4.3%	-19	521	502	High school diploma or equivalent	High school diploma or equivalent
523	4	43-3099	Financial Clerks, All Other	62	67	8.1%	5	69	74	High school diploma or equivalent	High school diploma or equivalent
524	3	43-4000	Information and Record Clerks	6,271	6,484	3.4%	213	8,014	8,227	High school diploma or equivalent	High school diploma or equivalent
525	4	43-4011	Brokerage Clerks	15	16	6.7%	1	16	17	High school diploma or equivalent	High school diploma or equivalent
526	4	43-4021	Correspondence Clerks	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
527	4	43-4031	Court, Municipal, and License Clerks	163	171	4.9%	8	155	163	High school diploma or equivalent	Postsecondary training (non-degree)
528	4	43-4041	Credit Authorizers, Checkers, and Clerks	19	17	-10.5%	-2	18	16	High school diploma or equivalent	Postsecondary training (non-degree)
529	4	43-4051	Customer Service Representatives	1,885	1,888	0.2%	3	2,514	2,517	High school diploma or equivalent	High school diploma or equivalent
530	4	43-4061	Eligibility Interviewers, Government Programs	110	118	7.3%	8	108	116	High school diploma or equivalent	Postsecondary training (non-degree)
531	4	43-4071	File Clerks	125	110	-12.0%	-15	145	130	High school diploma or equivalent	High school diploma or equivalent
532	4	43-4081	Hotel, Motel, and Resort Desk Clerks	233	235	0.9%	2	396	398	High school diploma or equivalent	High school diploma or equivalent
533	4	43-4111	Interviewers, Except Eligibility and Loan	781	869	11.3%	88	1,015	1,103	High school diploma or equivalent	High school diploma or equivalent
534	4	43-4121	Library Assistants, Clerical	69	66	-4.4%	-3	102	99	High school diploma or equivalent	Postsecondary training (non-degree)
535	4	43-4131	Loan Interviewers and Clerks	258	266	3.1%	8	266	274	High school diploma or equivalent	High school diploma or equivalent
536	4	43-4141	New Accounts Clerks	95	82	-13.7%	-13	102	89	High school diploma or equivalent	Bachelor's degree
537	4	43-4151	Order Clerks	181	177	-2.2%	-4	206	202	High school diploma or equivalent	Postsecondary training (non-degree)
538	4	43-4161	Human Resources Assistants, Except Payroll and Timekeeping	104	104	0.0%	0	118	118	High school diploma or equivalent	Postsecondary training (non-degree)
539	4	43-4171	Receptionists and Information Clerks	1,072	1,164	8.6%	92	1,502	1,594	High school diploma or equivalent	High school diploma or equivalent
540	4	43-4181	Reservation and Transportation Ticket Agents and Travel Clerks	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
541	4	43-4199	Information and Record Clerks, All Other	456	493	8.1%	37	549	586	High school diploma or equivalent	High school diploma or equivalent
542	3	43-5000	Material Recording, Scheduling, and Distributing Workers	4,885	5,169	5.8%	284	5,768	6,052	High school diploma or equivalent	High school diploma or equivalent
543	4	43-5011	Cargo and Freight Agents	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
544	4	43-5021	Couriers and Messengers	235	247	5.1%	12	230	242	High school diploma or equivalent	High school diploma or equivalent
545	4	43-5031	Police, Fire, and Ambulance Dispatchers	95	100	5.3%	5	92	97	High school diploma or equivalent	High school diploma or equivalent
546	4	43-5032	Dispatchers, Except Police, Fire, and Ambulance	156	154	-1.3%	-2	146	144	High school diploma or equivalent	High school diploma or equivalent
547	4	43-5041	Meter Readers, Utilities	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
548	4	43-5051	Postal Service Clerks	90	95	5.6%	5	70	75	High school diploma or equivalent	High school diploma or equivalent
549	4	43-5052	Postal Service Mail Carriers	347	368	6.1%	21	265	286	High school diploma or equivalent	High school diploma or equivalent
550	4	43-5053	Postal Service Mail Sorters, Processors, and Processing Machine Operators	135	135	0.0%	0	112	112	High school diploma or equivalent	High school diploma or equivalent
551	4	43-5061	Production, Planning, and Expediting Clerks	240	269	12.1%	29	265	294	High school diploma or equivalent	Bachelor's degree
552	4	43-5071	Shipping, Receiving, and Traffic Clerks	880	922	4.8%	42	894	936	High school diploma or equivalent	High school diploma or equivalent
553	4	43-5081	Stock Clerks and Order Fillers	2,631	2,795	6.2%	164	3,611	3,775	Less than high school	High school diploma or equivalent
554	4	43-5111	Weighers, Measurers, Checkers, and Samplers, Recordkeeping	39	41	5.1%	2	45	47	High school diploma or equivalent	High school diploma or equivalent
555	3	43-6000	Secretaries and Administrative Assistants	4,657	4,619	-0.8%	-38	5,192	5,154	High school diploma or equivalent	Associate's degree
556	4	43-6011	Executive Secretaries and Executive Administrative Assistants	480	401	-12.8%	-79	482	423	High school diploma or equivalent	Associate's degree
557	4	43-6012	Legal Secretaries	125	115	-8.0%	-10	134	124	Postsecondary training (non-degree)	Associate's degree
558	4	43-6013	Medical Secretaries	1,314	1,562	18.9%	248	1,610	1,858	High school diploma or equivalent	Postsecondary training (non-degree)
559	4	43-6014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	2,758	2,541	-7.9%	-217	2,966	2,749	High school diploma or equivalent	Associate's degree
560	3	43-9000	Other Office and Administrative Support Workers	4,212	4,191	-0.5%	-21	4,950	4,929	High school diploma or equivalent	High school diploma or equivalent
561	4	43-9011	Computer Operators	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
562	4	43-9021	Data Entry Keyers	118	93	-21.2%	-25	122	97	High school diploma or equivalent	High school diploma or equivalent
563	4	43-9022	Word Processors and Typists	16	11	-31.3%	-5	16	11	High school diploma or equivalent	Postsecondary training (non-degree)
564	4	43-9031	Desktop Publishers	-	-	-	-	-	-	Postsecondary training (non-degree)	Associate's degree
565	4	43-9041	Insurance Claims and Policy Processing Clerks	263	292	11.0%	29	276	305	High school diploma or equivalent	Postsecondary training (non-degree)
566	4	43-9051	Mail Clerks and Mail Machine Operators, Except Postal Service	26	26	0.0%	0	29	29	High school diploma or equivalent	High school diploma or equivalent
567	4	43-9061	Office Clerks, General	3,171	3,118	-1.7%	-53	3,764	3,711	High school diploma or equivalent	Postsecondary training (non-degree)
568	4	43-9071	Office Machine Operators, Except Computer	29	24	-17.2%	-5	34	29	High school diploma or equivalent	High school diploma or equivalent
569	4	43-9081	Proofreaders and Copy Markers	-	-	-	-	-	-	High school diploma or equivalent	Bachelor's degree
570	4	43-9111	Statistical Assistants	-	-	-	-	-	-	Bachelor's degree	Master's degree
571	4	43-9199	Office and Administrative Support Workers, All Other	556	600	7.9%	44	672	716	High school diploma or equivalent	High school diploma or equivalent
572			Farming, Fishing, and Forestry	2,096	2,142	2.2%	46	3,437	3,483		
573	2	45-0000	Farming, Fishing, and Forestry Occupations	2,096	2,142	2.2%	46	3,437	3,483		
574	3	45-1000	Supervisors of Farming, Fishing, and Forestry Workers	-	-	-	-	-	-		
575	4	45-1011	First-Line Supervisors of Farming, Fishing, and Forestry Workers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
576	3	45-2000	Agricultural Workers	1,087	1,196	10.0%	109	1,857	1,966		
577	4	45-2011	Agricultural Inspectors	-	-	-	-	-	-	Bachelor's degree	Bachelor's degree
578	4	45-2021	Animal Breeders	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
579	4	45-2041	Graders and Sorters, Agricultural Products	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
580	4	45-2091	Agricultural Equipment Operators	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
581	4	45-2092	Farmworkers and Laborers, Crop, Nursery, and Greenhouse	758	845	11.5%	87	1,308	1,395	Less than high school	High school diploma or equivalent
582	4	45-2093	Farmworkers, Farm, Ranch, and Aquacultural Animals	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
583	4	45-2099	Agricultural Workers, All Other	34	39	14.7%	5	59	64	High school diploma or equivalent	High school diploma or equivalent
584	3	45-3000	Fishing and Hunting Workers	-	-	-	-	-	-		
585	4	45-3011	Fishers and Related Fishing Workers	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
586	3	45-4000	Forest, Conservation, and Logging Workers	890	826	-7.2%	-64	1,402	1,338		
587	4	45-4011	Forest and Conservation Workers	178	182	2.3%	4	318	322	High school diploma or equivalent	High school diploma or equivalent
588	4	45-4021	Fallers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent

Lane County Employment Projections Full Table, 2019-2029

Oregon Employment Department, Workforce and Economic Research Division

Row	SOC Level	SOC Code	Standard Occupational Classification Title	2019 Employment	2029 Employment	Percent Change	Employment Change	Replacement Openings	Total Openings	Typical Entry-Level Education	Competitive Education
589	4	45-4022	Logging Equipment Operators	365	339	-7.1%	-26	563	537	High school diploma or equivalent	High school diploma or equivalent
590	4	45-4023	Log Graders and Skidders	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
591	4	45-4029	Logging Workers, All Other	234	207	-11.5%	-27	353	326	High school diploma or equivalent	High school diploma or equivalent
592			Construction and Extraction	6,840	7,637	11.7%	797	7,956	8,753		
593	2	47-0000	Construction and Extraction Occupations	6,840	7,637	11.7%	797	7,956	8,753		
594	3	47-1000	Supervisors of Construction and Extraction Workers	434	483	11.3%	49	477	526		
595	4	47-1011	First-Line Supervisors of Construction Trades and Extraction Workers	434	483	11.3%	49	477	526	High school diploma or equivalent	Postsecondary training (non-degree)
596	3	47-2000	Construction Trades Workers	5,784	6,468	11.8%	684	6,667	7,351		
597	4	47-2021	Brickmasons and Blockmasons	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
598	4	47-2031	Carpenters	1,013	1,115	10.1%	102	1,101	1,203	High school diploma or equivalent	Postsecondary training (non-degree)
599	4	47-2041	Carpet Installers	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
600	4	47-2042	Floor Layers, Except Carpet, Wood, and Hard Tiles	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
601	4	47-2043	Floor Sanders and Finishers	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
602	4	47-2044	Tile and Marble Setters	129	155	20.2%	26	139	165	Less than high school	High school diploma or equivalent
603	4	47-2051	Cement Masons and Concrete Finishers	250	284	13.6%	34	280	314	Less than high school	High school diploma or equivalent
604	4	47-2053	Terrazzo Workers and Finishers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
605	4	47-2061	Construction Laborers	1,527	1,721	12.7%	194	1,806	2,000	Less than high school	High school diploma or equivalent
606	4	47-2071	Paving, Surfacing, and Tamping Equipment Operators	38	43	13.2%	5	50	55	High school diploma or equivalent	High school diploma or equivalent
607	4	47-2073	Operating Engineers and Other Construction Equipment Operators	291	316	8.6%	25	350	375	High school diploma or equivalent	Postsecondary training (non-degree)
608	4	47-2081	Drywall and Ceiling Tile Installers	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
609	4	47-2082	Tapers	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
610	4	47-2111	Electricians	716	799	11.6%	83	878	961	High school diploma or equivalent	Postsecondary training (non-degree)
611	4	47-2121	Glaziers	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
612	4	47-2131	Insulation Workers, Floor, Ceiling, and Wall	84	85	1.2%	1	97	98	Less than high school	High school diploma or equivalent
613	4	47-2141	Painters, Construction and Maintenance	372	404	8.6%	32	393	425	Less than high school	High school diploma or equivalent
614	4	47-2151	Pipelayers	38	45	18.4%	7	46	53	High school diploma or equivalent	Postsecondary training (non-degree)
615	4	47-2152	Plumbers, Pipefitters, and Steamfitters	499	575	15.2%	76	596	672	High school diploma or equivalent	Postsecondary training (non-degree)
616	4	47-2171	Reinforcing Iron and Rebar Workers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
617	4	47-2181	Roofers	378	424	12.2%	46	414	460	Less than high school	High school diploma or equivalent
618	4	47-2211	Sheet Metal Workers	164	179	9.2%	15	186	201	High school diploma or equivalent	Postsecondary training (non-degree)
619	4	47-2221	Structural Iron and Steel Workers	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
620	4	47-2231	Solar Photovoltaic Installers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
621	3	47-3000	Helpers, Construction Trades	-	-	-	-	-	-	-	-
622	4	47-3011	Helpers-Brickmasons, Blockmasons, Stonemasons, and Tile and Marble Setters	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
623	4	47-3012	Helpers-Carpenters	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
624	4	47-3013	Helpers-Electricians	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
625	4	47-3014	Helpers-Painters, Paperhangers, Plasterers, and Stucco Masons	58	60	3.5%	2	79	81	Less than high school	High school diploma or equivalent
626	4	47-3015	Helpers-Pipelayers, Plumbers, Pipefitters, and Steamfitters	26	31	19.2%	5	38	43	High school diploma or equivalent	High school diploma or equivalent
627	4	47-3016	Helpers-Roofers	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
628	4	47-3019	Helpers, Construction Trades, All Other	43	46	7.0%	3	60	63	Less than high school	High school diploma or equivalent
629	3	47-4000	Other Construction and Related Workers	368	406	10.3%	38	454	492		
630	4	47-4011	Construction and Building Inspectors	108	131	21.3%	23	148	171	High school diploma or equivalent	Associate's degree
631	4	47-4031	Fence Erectors	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
632	4	47-4041	Hazardous Materials Removal Workers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
633	4	47-4051	Highway Maintenance Workers	138	145	5.1%	7	157	164	High school diploma or equivalent	High school diploma or equivalent
634	4	47-4061	Rail-Track Laying and Maintenance Equipment Operators	7	7	0.0%	0	7	7	High school diploma or equivalent	High school diploma or equivalent
635	4	47-4071	Septic Tank Servicers and Sewer Pipe Cleaners	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
636	4	47-4090	Miscellaneous Construction and Related Workers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
637	3	47-5000	Extraction Workers	-	-	-	-	-	-	-	-
638	4	47-5021	Earth Drillers, Except Oil and Gas	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
639	4	47-5081	Helpers-Extraction Workers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
640	4	47-5099	Extraction Workers, All Other	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
641			Installation, Maintenance, and Repair	6,593	7,080	7.4%	487	6,700	7,187		
642	2	49-0000	Installation, Maintenance, and Repair Occupations	6,593	7,080	7.4%	487	6,700	7,187		
643	3	49-1000	Supervisors of Installation, Maintenance, and Repair Workers	442	472	6.8%	30	419	449		
644	4	49-1011	First-Line Supervisors of Mechanics, Installers, and Repairers	442	472	6.8%	30	419	449	High school diploma or equivalent	Postsecondary training (non-degree)
645	3	49-2000	Electrical and Electronic Equipment Mechanics, Installers, and Repairers	466	494	6.0%	28	509	537		
646	4	49-2011	Computer, Automated Teller, and Office Machine Repairers	130	132	1.5%	2	139	141	High school diploma or equivalent	Postsecondary training (non-degree)
647	4	49-2021	Radio, Cellular, and Tower Equipment Installers and Repairers	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
648	4	49-2022	Telecommunications Equipment Installers and Repairers, Except Line Installers	142	156	9.9%	14	165	179	Postsecondary training (non-degree)	Postsecondary training (non-degree)
649	4	49-2092	Electric Motor, Power Tool, and Related Repairers	41	43	4.9%	2	43	45	Postsecondary training (non-degree)	Postsecondary training (non-degree)
650	4	49-2093	Electrical and Electronics Installers and Repairers, Transportation Equipment	-	-	-	-	-	-	Postsecondary training (non-degree)	Associate's degree
651	4	49-2094	Electrical and Electronics Repairers, Commercial and Industrial Equipment	54	56	3.7%	2	48	50	Postsecondary training (non-degree)	Associate's degree
652	4	49-2095	Electrical and Electronics Repairers, Powerhouse, Substation, and Relay	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
653	4	49-2096	Electronic Equipment Installers and Repairers, Motor Vehicles	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
654	4	49-2097	Electronic Home Entertainment Equipment Installers and Repairers	24	24	0.0%	0	26	26	Postsecondary training (non-degree)	Postsecondary training (non-degree)
655	4	49-2098	Security and Fire Alarm Systems Installers	32	37	15.6%	5	42	47	Postsecondary training (non-degree)	Postsecondary training (non-degree)
656	3	49-3000	Vehicle and Mobile Equipment Mechanics, Installers, and Repairers	2,241	2,363	5.4%	122	2,255	2,377		
657	4	49-3011	Aircraft Mechanics and Service Technicians	57	61	7.0%	4	48	52	Postsecondary training (non-degree)	Associate's degree
658	4	49-3021	Automotive Body and Related Repairers	156	165	5.8%	9	155	164	High school diploma or equivalent	Postsecondary training (non-degree)
659	4	49-3022	Automotive Glass Installers and Repairers	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
660	4	49-3023	Automotive Service Technicians and Mechanics	664	666	0.3%	2	648	650	Postsecondary training (non-degree)	Associate's degree
661	4	49-3031	Bus and Truck Mechanics and Diesel Engine Specialists	497	546	9.9%	49	482	531	High school diploma or equivalent	Postsecondary training (non-degree)
662	4	49-3041	Farm Equipment Mechanics and Service Technicians	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
663	4	49-3042	Mobile Heavy Equipment Mechanics, Except Engines	391	412	5.4%	21	399	420	High school diploma or equivalent	Postsecondary training (non-degree)

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Row	SOC Level	SOC Code	Standard Occupational Classification Title	2019 Employment	2029 Employment	Percent Change	Employment Change	Replacement Openings	Total Openings	Typical Entry-Level Education	Competitive Education
664	4	49-3043	Rail Car Repairers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
665	4	49-3051	Motorboat Mechanics and Service Technicians	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
666	4	49-3052	Motorcycle Mechanics	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
667	4	49-3053	Outdoor Power Equipment and Other Small Engine Mechanics	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
668	4	49-3091	Bicycle Repairers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
669	4	49-3092	Recreational Vehicle Service Technicians	107	119	11.2%	12	124	136	Postsecondary training (non-degree)	Associate's degree
670	4	49-3093	Tire Repairers and Changers	145	153	5.5%	8	164	172	High school diploma or equivalent	High school diploma or equivalent
671	3	49-9000	Other Installation, Maintenance, and Repair Occupations	3,444	3,751	8.9%	307	3,517	3,824	-	-
672	4	49-9011	Mechanical Door Repairers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
673	4	49-9012	Control and Valve Installers and Repairers, Except Mechanical Door	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
674	4	49-9021	Heating, Air Conditioning, and Refrigeration Mechanics and Installers	230	263	14.4%	33	240	273	Postsecondary training (non-degree)	Postsecondary training (non-degree)
675	4	49-9031	Home Appliance Repairers	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
676	4	49-9041	Industrial Machinery Mechanics	515	565	9.7%	50	495	545	High school diploma or equivalent	Postsecondary training (non-degree)
677	4	49-9043	Maintenance Workers, Machinery	64	65	1.6%	1	58	59	High school diploma or equivalent	High school diploma or equivalent
678	4	49-9044	Millwrights	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
679	4	49-9051	Electrical Power-Line Installers and Repairers	53	59	11.3%	6	47	53	Postsecondary training (non-degree)	Postsecondary training (non-degree)
680	4	49-9052	Telecommunications Line Installers and Repairers	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
681	4	49-9062	Medical Equipment Repairers	33	34	3.0%	1	35	36	Postsecondary training (non-degree)	Associate's degree
682	4	49-9063	Musical Instrument Repairers and Tuners	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
683	4	49-9064	Watch Repairers	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
684	4	49-9069	Precision Instrument and Equipment Repairers, All Other	-	-	-	-	-	-	Associate's degree	Associate's degree
685	4	49-9071	Maintenance and Repair Workers, General	1,662	1,821	9.6%	159	1,688	1,847	High school diploma or equivalent	Postsecondary training (non-degree)
686	4	49-9091	Coin, Vending, and Amusement Machine Servicers and Repairers	26	29	11.5%	3	32	35	High school diploma or equivalent	High school diploma or equivalent
687	4	49-9094	Locksmiths and Safe Repairers	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
688	4	49-9095	Manufactured Building and Mobile Home Installers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
689	4	49-9096	Riggers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
690	4	49-9097	Signal and Track Switch Repairers	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
691	4	49-9098	Helpers—Installation, Maintenance, and Repair Workers	138	148	7.3%	10	182	192	High school diploma or equivalent	High school diploma or equivalent
692	4	49-9099	Installation, Maintenance, and Repair Workers, All Other	279	301	7.9%	22	311	333	High school diploma or equivalent	High school diploma or equivalent
693			Production	10,072	10,678	6.0%	606	12,189	12,795		
694	2	51-0000	Production Occupations	10,072	10,678	6.0%	606	12,189	12,795		
695	3	51-1000	Supervisors of Production Workers	685	755	10.2%	70	736	806	-	-
696	4	51-1011	First-Line Supervisors of Production and Operating Workers	685	755	10.2%	70	736	806	High school diploma or equivalent	Bachelor's degree
697	3	51-2000	Assemblers and Fabricators	997	1,067	7.0%	70	1,161	1,231	-	-
698	4	51-2021	Coil Winders, Tapers, and Finishers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
699	4	51-2028	Electrical, Electronic, and Electromechanical Assemblers, Except Coil Winders, Tapers, and Finishers	159	277	74.2%	118	248	366	High school diploma or equivalent	High school diploma or equivalent
700	4	51-2031	Engine and Other Machine Assemblers	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
701	4	51-2041	Structural Metal Fabricators and Fitters	315	285	-9.5%	-30	314	284	High school diploma or equivalent	Postsecondary training (non-degree)
702	4	51-2091	Fiberglass Laminators and Fabricators	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
703	4	51-2098	Assemblers and Fabricators, All Other, Including Team Assemblers	517	499	-3.5%	-18	592	574	High school diploma or equivalent	High school diploma or equivalent
704	3	51-3000	Food Processing Workers	984	1,076	9.4%	92	1,393	1,485	-	-
705	4	51-3011	Bakers	396	445	12.4%	49	574	623	Less than high school	High school diploma or equivalent
706	4	51-3021	Butchers and Meat Cutters	182	195	7.1%	13	233	246	Less than high school	Postsecondary training (non-degree)
707	4	51-3022	Meat, Poultry, and Fish Cutters and Trimmers	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
708	4	51-3023	Slaughtering and Meat Packers	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
709	4	51-3091	Food and Tobacco Roasting, Baking, and Drying Machine Operators and Tenders	19	22	15.8%	3	28	31	Less than high school	High school diploma or equivalent
710	4	51-3092	Food Batchmakers	224	244	8.9%	20	347	367	High school diploma or equivalent	High school diploma or equivalent
711	4	51-3093	Food Cooking Machine Operators and Tenders	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
712	4	51-3099	Food Processing Workers, All Other	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
713	3	51-4000	Metal Workers and Plastic Workers	1,900	1,999	5.2%	99	2,140	2,239	-	-
714	4	51-4011	Computer-Controlled Machine Tool Operators, Metal and Plastic	171	171	0.0%	0	176	176	High school diploma or equivalent	Postsecondary training (non-degree)
715	4	51-4012	Computer Numerically Controlled Machine Tool Programmers, Metal and Plastic	37	49	32.4%	12	44	56	Postsecondary training (non-degree)	Postsecondary training (non-degree)
716	4	51-4021	Extruding and Drawing Machine Setters, Operators, and Tenders, Metal and Plastic	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
717	4	51-4022	Forging Machine Setters, Operators, and Tenders, Metal and Plastic	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
718	4	51-4023	Rolling Machine Setters, Operators, and Tenders, Metal and Plastic	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
719	4	51-4031	Cutting, Punching, and Press Machine Setters, Operators, and Tenders, Metal and Plastic	156	157	0.6%	1	175	176	High school diploma or equivalent	High school diploma or equivalent
720	4	51-4032	Drilling and Boring Machine Tool Setters, Operators, and Tenders, Metal and Plastic	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
721	4	51-4033	Grinding, Lapping, Polishing, and Buffing Machine Tool Setters, Operators, and Tenders, Metal and Plastic	54	54	0.0%	0	62	62	High school diploma or equivalent	High school diploma or equivalent
722	4	51-4034	Lathe and Turning Machine Tool Setters, Operators, and Tenders, Metal and Plastic	16	16	0.0%	0	18	18	High school diploma or equivalent	High school diploma or equivalent
723	4	51-4035	Milling and Planing Machine Setters, Operators, and Tenders, Metal and Plastic	13	11	-15.4%	-2	12	10	High school diploma or equivalent	High school diploma or equivalent
724	4	51-4041	Machinists	381	411	7.9%	30	403	433	High school diploma or equivalent	Postsecondary training (non-degree)
725	4	51-4071	Foundry Mold and Coremakers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
726	4	51-4072	Molding, Coremaking, and Casting Machine Setters, Operators, and Tenders, Metal and Plastic	62	62	0.0%	0	68	68	High school diploma or equivalent	High school diploma or equivalent
727	4	51-4081	Multiple Machine Tool Setters, Operators, and Tenders, Metal and Plastic	81	87	7.4%	6	88	94	High school diploma or equivalent	High school diploma or equivalent
728	4	51-4111	Tool and Die Makers	18	19	5.6%	1	19	20	Postsecondary training (non-degree)	Associate's degree
729	4	51-4121	Welders, Cutters, Solderers, and Brazers	531	584	10.0%	53	611	664	High school diploma or equivalent	Postsecondary training (non-degree)
730	4	51-4122	Welding, Soldering, and Brazing Machine Setters, Operators, and Tenders	24	26	8.3%	2	27	29	High school diploma or equivalent	Postsecondary training (non-degree)
731	4	51-4192	Laying Out Workers, Metal and Plastic	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
732	4	51-4193	Plating and Coating Machine Setters, Operators, and Tenders, Metal and Plastic	15	16	6.7%	1	17	18	High school diploma or equivalent	High school diploma or equivalent
733	4	51-4194	Tool Grinders, Filers, and Sharpeners	111	109	-1.8%	-2	158	156	High school diploma or equivalent	High school diploma or equivalent
734	4	51-4199	Metal Workers and Plastic Workers, All Other	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
735	3	51-5100	Printing Workers	247	250	1.2%	3	283	286	-	-
736	4	51-5111	Prepress Technicians and Workers	20	17	-15.0%	-3	23	20	High school diploma or equivalent	Postsecondary training (non-degree)
737	4	51-5112	Printing Press Operators	188	193	2.7%	5	205	210	High school diploma or equivalent	High school diploma or equivalent
738	4	51-5113	Print Binding and Finishing Workers	39	40	2.6%	1	55	56	High school diploma or equivalent	High school diploma or equivalent

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Row	SOC Level	SOC Code	Standard Occupational Classification Title	2019 Employment	2029 Employment	Percent Change	Employment Change	Replacement Openings	Total Openings	Typical Entry-Level Education	Competitive Education
739	3	51-6000	Textile, Apparel, and Furnishings Workers	381	398	4.5%	17	482	499		
740	4	51-6011	Laundry and Dry-Cleaning Workers	100	105	5.0%	5	137	142	Less than high school	High school diploma or equivalent
741	4	51-6021	Pressers, Textile, Garment, and Related Materials	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
742	4	51-6031	Sewing Machine Operators	127	137	7.9%	10	148	158	Less than high school	High school diploma or equivalent
743	4	51-6041	Shoe and Leather Workers and Repairers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
744	4	51-6052	Tailors, Dressmakers, and Custom Sewers	-	-	-	-	-	-	Less than high school	Postsecondary training (non-degree)
745	4	51-6062	Textile Cutting Machine Setters, Operators, and Tenders	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
746	4	51-6092	Fabric and Apparel Patternmakers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
747	4	51-6093	Upholsterers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
748	4	51-6099	Textile, Apparel, and Furnishings Workers, All Other	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
749	3	51-7000	Woodworkers	1,223	1,253	2.5%	30	1,473	1,503		
750	4	51-7011	Cabinetmakers and Bench Carpenters	297	317	6.7%	20	318	338	High school diploma or equivalent	High school diploma or equivalent
751	4	51-7021	Furniture Finishers	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
752	4	51-7041	Sawing Machine Setters, Operators, and Tenders, Wood	454	450	-0.9%	-4	523	519	High school diploma or equivalent	High school diploma or equivalent
753	4	51-7042	Woodworking Machine Setters, Operators, and Tenders, Except Sawing	255	256	0.4%	1	356	357	High school diploma or equivalent	High school diploma or equivalent
754	4	51-7099	Woodworkers, All Other	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
755	3	51-8000	Plant and System Operators	209	212	1.4%	3	210	213		
756	4	51-8012	Power Distributors and Dispatchers	-	-	-	-	-	-	High school diploma or equivalent	Bachelor's degree
757	4	51-8013	Power Plant Operators	-	-	-	-	-	-	Postsecondary training (non-degree)	Bachelor's degree
758	4	51-8021	Stationary Engineers and Boiler Operators	45	45	0.0%	0	48	48	High school diploma or equivalent	High school diploma or equivalent
759	4	51-8031	Water and Wastewater Treatment Plant and System Operators	98	97	-1.0%	-1	89	88	Postsecondary training (non-degree)	Postsecondary training (non-degree)
760	4	51-8091	Chemical Plant and System Operators	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
761	4	51-8092	Gas Plant Operators	-	-	-	-	-	-	High school diploma or equivalent	Master's degree
762	4	51-8099	Plant and System Operators, All Other	23	25	8.7%	2	27	29	High school diploma or equivalent	Postsecondary training (non-degree)
763	3	51-9000	Other Production Occupations	3,446	3,668	6.4%	222	4,311	4,533		
764	4	51-9011	Chemical Equipment Operators and Tenders	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
765	4	51-9012	Separating, Filtering, Clarifying, Precipitating, and Still Machine Setters, Operators, and Tenders	150	168	12.0%	18	182	200	High school diploma or equivalent	High school diploma or equivalent
766	4	51-9021	Crushing, Grinding, and Polishing Machine Setters, Operators, and Tenders	101	105	4.0%	4	120	124	High school diploma or equivalent	High school diploma or equivalent
767	4	51-9022	Grinding and Polishing Workers, Hand	62	54	-12.9%	-8	68	60	Less than high school	High school diploma or equivalent
768	4	51-9023	Mixing and Blending Machine Setters, Operators, and Tenders	336	382	13.7%	46	418	484	High school diploma or equivalent	High school diploma or equivalent
769	4	51-9031	Cutters and Trimmers, Hand	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
770	4	51-9032	Cutting and Slicing Machine Setters, Operators, and Tenders	28	30	7.1%	2	36	38	High school diploma or equivalent	High school diploma or equivalent
771	4	51-9041	Extruding, Forming, Pressing, and Compacting Machine Setters, Operators, and Tenders	241	248	2.9%	7	265	272	High school diploma or equivalent	High school diploma or equivalent
772	4	51-9051	Furnace, Kiln, Oven, Drier, and Kettle Operators and Tenders	59	59	0.0%	0	63	63	High school diploma or equivalent	High school diploma or equivalent
773	4	51-9061	Inspectors, Testers, Sorters, Samplers, and Weighers	390	371	-4.9%	-19	469	450	High school diploma or equivalent	Postsecondary training (non-degree)
774	4	51-9071	Jewelers and Precious Stone and Metal Workers	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
775	4	51-9081	Dental Laboratory Technicians	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
776	4	51-9082	Medical Appliance Technicians	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
777	4	51-9083	Ophthalmic Laboratory Technicians	38	43	13.2%	5	50	55	High school diploma or equivalent	High school diploma or equivalent
778	4	51-9111	Packaging and Filling Machine Operators and Tenders	429	464	8.2%	35	518	553	High school diploma or equivalent	High school diploma or equivalent
779	4	51-9121	Coating, Painting, and Spraying Machine Setters, Operators, and Tenders	144	157	9.0%	13	163	176	High school diploma or equivalent	High school diploma or equivalent
780	4	51-9122	Painters, Transportation Equipment	118	125	5.9%	7	133	140	High school diploma or equivalent	High school diploma or equivalent
781	4	51-9123	Painting, Coating, and Decorating Workers	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
782	4	51-9141	Semiconductor Processors	-	-	-	-	-	-	High school diploma or equivalent	Associate's degree
783	4	51-9151	Photographic Process Workers and Processing Machine Operators	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
784	4	51-9191	Adhesive Bonding Machine Operators and Tenders	176	182	3.4%	6	234	240	High school diploma or equivalent	High school diploma or equivalent
785	4	51-9192	Cleaning, Washing, and Metal Pickling Equipment Operators and Tenders	-	-	-	-	-	-	Less than high school	High school diploma or equivalent
786	4	51-9193	Cooling and Freezing Equipment Operators and Tenders	25	28	12.0%	3	31	34	High school diploma or equivalent	High school diploma or equivalent
787	4	51-9194	Etchers and Engravers	-	-	-	-	-	-	High school diploma or equivalent	Postsecondary training (non-degree)
788	4	51-9195	Molders, Shapers, and Casters, Except Metal and Plastic	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
789	4	51-9196	Paper Goods Machine Setters, Operators, and Tenders	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
790	4	51-9197	Tire Builders	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
791	4	51-9198	Helpers—Production Workers	465	514	10.5%	49	721	770	Less than high school	High school diploma or equivalent
792	4	51-9199	Production Workers, All Other	343	374	9.0%	31	415	446	High school diploma or equivalent	High school diploma or equivalent
793			Transportation and Material Moving	11,050	11,800	6.8%	750	14,266	15,016		
794	2	53-0000	Transportation and Material Moving Occupations	11,050	11,800	6.8%	750	14,266	15,016		
795	3	53-1000	Supervisors of Transportation and Material Moving Workers	324	344	6.2%	20	356	376		
796	4	53-1011	Aircraft Cargo Handling Supervisors	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
			First-Line Supervisors of Transportation and Material Moving Workers, Except Aircraft Cargo Handling Supervisors	-	-	-	-	-	-	High school diploma or equivalent	Associate's degree
797	4	53-1048	Air Transportation Workers	69	76	10.1%	7	69	76		
798	3	53-2000	Commercial Pilots	42	46	9.5%	4	44	48	Associate's degree	Bachelor's degree
799	4	53-2012	Air Traffic Controllers	-	-	-	-	-	-	Postsecondary training (non-degree)	Postsecondary training (non-degree)
800	4	53-2021	Airfield Operations Specialists	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
801	4	53-2022	Motor Vehicle Operators	5,603	6,053	8.0%	450	6,847	7,297		
802	3	53-3000	Bus Drivers, Transit and Intercity	376	401	6.7%	25	490	515	High school diploma or equivalent	High school diploma or equivalent
803	4	53-3021	Bus Drivers, School or Special Client	835	896	7.3%	61	1,092	1,153	High school diploma or equivalent	High school diploma or equivalent
804	4	53-3022	Driver/Sales Workers	997	1,012	1.5%	15	1,143	1,158	High school diploma or equivalent	High school diploma or equivalent
805	4	53-3031	Heavy and Tractor-Trailer Truck Drivers	1,978	2,151	8.8%	173	2,347	2,520	Postsecondary training (non-degree)	Postsecondary training (non-degree)
806	4	53-3032	Light Truck or Delivery Services Drivers	992	1,104	11.3%	112	1,191	1,303	High school diploma or equivalent	High school diploma or equivalent
807	4	53-3033	Taxi Drivers and Chauffeurs	282	336	19.2%	54	335	389	Less than high school	High school diploma or equivalent
808	4	53-3041	Motor Vehicle Operators, All Other	143	153	7.0%	10	249	259	High school diploma or equivalent	High school diploma or equivalent
809	4	53-3099	Rail Transportation Workers	86	90	4.7%	4	82	86		
810	3	53-4000	Locomotive Engineers	41	43	4.9%	2	39	41	High school diploma or equivalent	High school diploma or equivalent
811	4	53-4011	Railroad Brake, Signal, and Switch Operators	-	-	-	-	-	-	High school diploma or equivalent	High school diploma or equivalent
812	4	53-4021		-	-	-	-	-	-		

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Row	SOC Level	SOC Code	Standard Occupational Classification Title	2019 Employment	2029 Employment	Percent Change	Employment Change	Replacement Openings	Total Openings	Typical Entry-Level Education	Competitive Education
813	4	53-4031	Railroad Conductors and Yardmasters	-s	-s	-s	-s	-s	-s	-s High school diploma or equivalent	High school diploma or equivalent
814	3	53-6000	Other Transportation Workers	799	826	3.4%	27	1,190	1,217	-s	High school diploma or equivalent
815	4	53-6021	Parking Lot Attendants	-s	-s	-s	-s	-s	-s	-s Less than high school	High school diploma or equivalent
816	4	53-6031	Automotive and Watercraft Service Attendants	649	665	2.5%	16	971	987	Less than high school	High school diploma or equivalent
817	4	53-6041	Traffic Technicians	15	15	0.0%	0	16	16	Postsecondary training (non-degree)	Bachelor's degree
818	4	53-6051	Transportation Inspectors	-s	-s	-s	-s	-s	-s	-s High school diploma or equivalent	Postsecondary training (non-degree)
819	4	53-6061	Transportation Attendants, Except Flight Attendants	-s	-s	-s	-s	-s	-s	-s High school diploma or equivalent	High school diploma or equivalent
820	4	53-6099	Transportation Workers, All Other	-s	-s	-s	-s	-s	-s	-s High school diploma or equivalent	High school diploma or equivalent
821	3	53-7000	Material Moving Workers	4,169	4,411	5.8%	242	5,722	5,964	-s	High school diploma or equivalent
822	4	53-7011	Conveyor Operators and Tenders	26	26	0.0%	0	31	31	Less than high school	High school diploma or equivalent
823	4	53-7021	Crane and Tower Operators	-s	-s	-s	-s	-s	-s	-s Less than high school	High school diploma or equivalent
824	4	53-7032	Excavating and Loading Machine and Dragline Operators	74	79	6.8%	5	91	96	Less than high school	High school diploma or equivalent
825	4	53-7041	Holst and Winch Operators	15	14	-6.7%	-1	17	16	Less than high school	High school diploma or equivalent
826	4	53-7051	Industrial Truck and Tractor Operators	732	779	6.4%	47	850	897	Less than high school	High school diploma or equivalent
827	4	53-7061	Cleaners of Vehicles and Equipment	563	601	6.8%	38	847	885	Less than high school	High school diploma or equivalent
828	4	53-7062	Laborers and Freight, Stock, and Material Movers, Hand	1,510	1,651	9.3%	141	2,195	2,336	Less than high school	High school diploma or equivalent
829	4	53-7063	Machine Feeders and Offbearers	423	428	1.2%	5	562	567	Less than high school	High school diploma or equivalent
830	4	53-7064	Packers and Packers, Hand	382	362	-5.2%	-20	536	516	Less than high school	High school diploma or equivalent
831	4	53-7072	Pump Operators, Except Wellhead Pumpers	-s	-s	-s	-s	-s	-s	-s Less than high school	High school diploma or equivalent
832	4	53-7081	Refuse and Recyclable Material Collectors	208	218	4.8%	10	294	304	Less than high school	High school diploma or equivalent
833	4	53-7121	Tank Car, Truck, and Ship Loaders	-s	-s	-s	-s	-s	-s	-s Less than high school	High school diploma or equivalent
834	4	53-7199	Material Moving Workers, All Other	114	125	9.7%	11	150	161	Less than high school	High school diploma or equivalent
835			Nonclassifiable	68	71	4.4%	3	114	117		
836	2	66-0000	Nonclassifiable Occupations	68	71	4.4%	3	114	117		
837	4	66-2041	Non-covered Agricultural Workers**	68	71	4.4%	3	114	117	Less than high school	High school diploma or equivalent

Notes:

All data includes self-employment.

- s - means suppressed for confidentiality or insufficient data.

** Non-covered agricultural workers are workers employed by agricultural firms who are not covered by unemployment insurance. The number of non-covered agricultural workers by occupation is not available.

[Data Sources and Limitations](#)

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