Market Opportunity Scan: Undergraduate Bachelor's Programs

Prepared for Western Oregon University

August 2018

In the following report, Hanover presents the results of a market opportunity scan of undergraduate bachelor's programs in Oregon, specifically highlighting potential fields for program development at Western Oregon University.

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Recommendations

Based on an analysis of national and state bachelor's completion trends and labor market outlook, Hanover Research recommends that Western Oregon University:

Dedicate resources toward expanding programs offered within the Computer Science Division. Degree completions in Computer Science grew at an annualized rate of 46 percent in Oregon and 17.8 percent in the United States, making it the program with the fastest-growing student demand at all geography levels. According to the Bureau of Labor Statistics (BLS), computer and information technology occupations will grow faster than average through 2026 due to developments in cloud computing, big data, and information security (BLS). WOU should consider further developing its computer science program through more active marketing and recruitment for its existing offerings or through developing additional offerings that meet student and labor market demand.

Develop new programs in high-growth or emerging fields such as Public Health or Marketing based on existing course offerings. Several programs with positive student and labor market demand indicators at the state or national level share some commonalities (e.g., courses, relevant faculty) with WOU's existing programs. For example, a new Marketing program may be able to share courses with the existing Business programs, and additional programs in Public Health could share resources with the existing Community Health Education program.

Develop specializations in established programs already offered at Western Oregon University. WOU currently offers several programs, such as Psychology, Political Science, and History, that are experiencing below-average growth in degree completions but are still projected to have an above-average number of annual job openings over the next decade. WOU may consider developing additional concentrations or unique elements within these programs to differentiate itself from competitors with similar offerings in established fields.

Develop new or existing programs

- Computer Science
- Marketing/Marketing Management
- Public Health, General

Target emerging fields in relation to existing strengths and priorities

- Clinical Laboratory Science/Medical Technology
- Food Science
- Athletic Training/Trainer

Customize/Refine established fields to attract target students

- Psychology, General
- Political Science and Government, General
- History, General

Avoid declining fields with limited employment prospects

- Art History, Criticism, and Conservation
- Visual and Performing Arts, General
- Marine Biology and Biological Oceanography

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Introduction

To assist Western Oregon University as it develops and expands its bachelor's degree program portfolio, Hanover Research conducted a market opportunity scan to determine how student and labor market indicators may affect programs' viability. This scan focuses on bachelor's degrees in Oregon.

The following slides provide a broad overview of opportunities for program expansion or development based on student degree completions trends and occupational projections. These data speak to broad market demand for the range of programs under examination. This research is a first step in exploring high-growth, potentially emerging, and established programs that Western Oregon University may wish to further explore through in-depth market analysis studies.

Research Questions

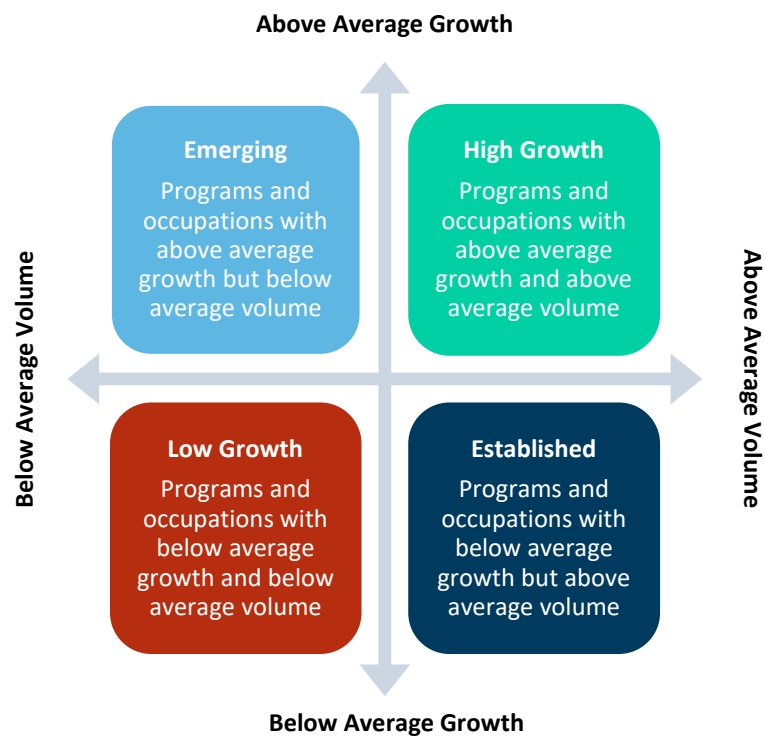| Student Demand Analysis	Labor Market Demand Analysis	Areas of Opportunity	Insights
▪ Which academic programs are likely to be attractive to students? ▪ Which academic programs are experiencing growth?	▪ Where is labor market growth particularly strong, and do programs exist to prepare students to enter those fields? ▪ What job opportunities will be available to graduates of particular academic programs? ▪ Where will graduates be able to get jobs, given labor market estimates?	▪ What is the student and labor market outlook for graduate programs that align with Western Oregon University's existing capabilities? ▪ What gaps exist in Oregon's programming that Western Oregon University may be able to fill, particularly in niche opportunity areas?	▪ Which programs present the best potential opportunities for program expansion or development? ▪ Which potentially emerging programs should be monitored or further researched?

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Student and Labor Market Demand Quadrants

Hanover assesses the viability of new programs by organizing degree programs and associated occupations into four categories (shown below) both nationally and in Oregon. In particular, the following pages highlight high-growth, (potentially) emerging, established, and low-growth fields in Oregon as well as specific details on job postings and labor market demand.

Approach to Recommendations

After assessing quadrants for student degree completions and employment projections individually, Hanover compares student demand and labor market demand for each program to determine an overall recommendation (e.g., high-growth programs aligned with high-growth occupations lead to a recommendation of "develop").

Above Average Growth

Emerging

Programs and occupations with above average growth but below average volume

High Growth

Programs and occupations with above average growth and above average volume

Low Growth

Programs and occupations with below average growth and below average volume

Established

Programs and occupations with below average growth but above average volume

Below Average Volume / **Above Average Volume**

Below Average Growth

Develop

Fields with high student and labor market demand growth typically represent strong opportunities for new program development or expansion of existing programs.

Target

Fields emerging in both categories, or high growth in one category but emerging in another may represent promising opportunities for niche or near-future program areas when they align with an institution's capabilities and strategic priorities.

Customize/Refine

Established fields represent opportunities for development or expansion, but in order to attract students institutions will need to differentiate programs from competitors and offer strong career preparation in a competitive market.

Avoid

Low-growth fields rarely present promising opportunities for program development; however, the small volume of degree completions and/or employment opportunities may skew growth trends in these fields.

Key Findings

Student and labor market demand indicators reveal 16 high-growth bachelor's degree programs in Oregon. In particular, the field of computer science has an especially positive outlook based on demand indicators, with high projected growth in both student and labor market demand at the state and national level. Degree completions in computer science grew at an annualized rate of 46 percent between 2012 and 2016 in Oregon, and related occupations are projected to grow 22.3 percent between 2014 and 2024.

Hanover also identified seven emerging fields that had a low volume of degree completions and annual job openings but above-average growth rates in both student demand and the labor market. Emerging fields are diverse, encompassing areas throughout the humanities and sciences. Associated occupations for these fields are projected to grow by at least 14 percent through 2024 for all emerging programs. In addition, two of these programs—Athletic Training and Clinical Laboratory Science/Medical Technology—are high-growth programs at the national level.

Furthermore, state student and labor market demand indicators reveal 14 programs with emerging student demand (i.e., below-average completions volume but above-average growth) aligned with high-growth occupations. These fields may represent promising areas for development as students seek higher education to meet growing labor market demand. The three programs with the highest annualized degree completions growth rates in Oregon are 1) Hospital and Health Care Facilities Administration/Management, 2) Manufacturing Engineering, and 3) Mathematics and Computer Science. These programs all grew at an annualized rate greater than 39 percent, and related occupations are projected to grow by more than 15 percent by 2024.

Student and labor market trends also indicate 10 low-growth bachelor's degree programs in Oregon. Low-growth programs are those that demonstrate below-average volumes of degree completions and job openings and below-average growth rates in both student and labor market demand. WOU should avoid developing new programs in these fields as it evaluates opportunities for expansion.
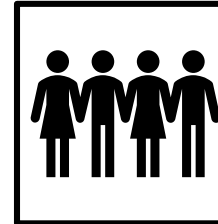
MOST DEGREE COMPLETIONS

Oregon: Psychology
National: Business Administration and Management, General

FASTEST-GROWING PROGRAM

Oregon: Health/Medical Preparatory Programs, Other
National: Research and Experimental Psychology, other
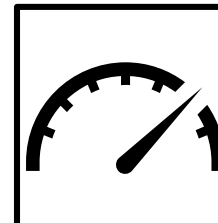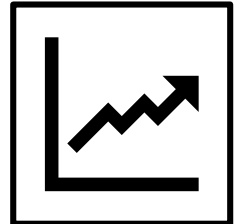
MOST ANNUAL JOB OPENINGS

Oregon: Business/Commerce, General
National: Business Administration and Management, General

FASTEST-GROWING OCCUPATIONS

Oregon: Physical Therapy Technician/Assistant
National: Physical Therapy Technician/Assistant
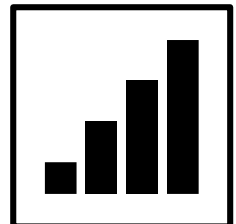
Key Findings

Based on state student demand and labor market indicators, **Western Oregon University currently does not offer any high-growth or emerging programs.** However, WOU does have several programs that are high-growth at the national level, such as Computer and Information Sciences and Mathematics, which also demonstrate high growth in neighboring states' labor markets. However, several programs related to existing WOU offerings are currently in high demand in Oregon. For example, Marketing/Marketing Management, Consumer Merchandising/Retailing Management, and Finance are all high-growth programs in the state that may fit well within WOU's Division of Business and Economics.

In addition, **Hanover identified 11 established bachelor's degree programs (i.e., above-average completions volume but below-average growth) currently offered at WOU.** In many cases, the market for established programs is crowded and multiple institutions are competing over a pool of prospective students that is not growing. For example, Oregon institutions reported offering 19 psychology programs in 2016. Efforts to increase enrollment in established programs often focus on differentiating the existing programs from competitors' offerings. This may include strategies such as adding coursework that targets skills needed for in-demand occupations or providing additional applied learning opportunities, such as research or internship programs.

Western Oregon University offers **four low-growth bachelor's degree programs (i.e., below-average completions volume and below-average growth) according to state demand indicators.** These programs are 1) Geology/Earth Science, 2) Public Health Education and Promotion, 3) Natural Sciences, and 4) Visual and Performing Arts. However, demand indicators at the national level are still above average for Geology/Earth Sciences and Public Health Education and Promotion.
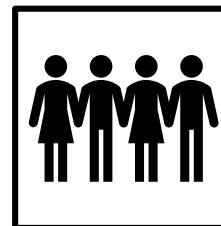
MOST DEGREE COMPLETIONS

Oregon: Psychology
National: Psychology

FASTEST-GROWING PROGRAM

Oregon: Design and Visual Communications
National: Fire Services Administration
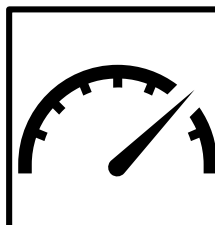
MOST ANNUAL JOB OPENINGS

Oregon: Business/Commerce, General
National: Business/Commerce, General

FASTEST-GROWING OCCUPATIONS

Oregon: Sign Language Interpretation and Translation
National: Sign Language Interpretation and Translation
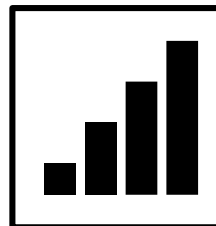
Note: Includes only programs offered at Western Oregon University, as reported through IPEDS.

Western Oregon University Programs Overview

Market Opportunity Scan: Undergraduate Bachelor's Programs

Hanover identified zero bachelor's programs with high-growth or emerging demand indicators at Western Oregon University. Hanover did identify **11 established programs** and **four low-growth bachelor's degree programs** at the institution. In addition, WOU offers **three programs with mixed student demand indicators** connected to high-growth occupations.

Legend: ● Established   ● Low Growth   ○ Mixed

Y-axis: Projected 10-Year Employment growth, 2014-2024 (0% to 25%)
X-axis: Annualized Degree Completions Growth Rate, 2012-2016 (-35% to 35%)

Labeled programs:
- Computer and Information Sciences, General
- Political Science and Government, General
- Business/Commerce, General
- Anthropology
- Mathematics and Computer Science
- Spanish Language and Literature
- Public Health Education and Promotion
- Speech Communication and Rhetoric
- Visual and Performing Arts, General
- Sociology
- Psychology, General
- History, General
- English Language and Literature, General
- Teacher Education, Multiple Levels
- Natural Sciences
- Art/Art Studies, General
- Music, General
- Geology/Earth Science, General

Source: IPEDS and Projections Central
Note: The size of the bubble is proportional to the volume of student degree completions in 2016. The smallest bubble, Mathematics and Computer Science, represents 15 degree completions, while the largest bubble, Psychology, represents 1,371 completions. Hanover excluded those programs with fewer than 10 completions.

Oregon Bachelor's Programs Overview – High-Growth Fields

Market Opportunity Scan: Undergraduate Bachelor's Programs

Student degree completion trends and employment projections indicate there are **16 high-growth bachelor's degree programs** in Oregon (i.e., above average student and labor market demand growth and volume). High-growth fields typically offer promising opportunities for program expansion or new program development.

Source: IPEDS and Projections Central

Note: The size of the bubble is proportional to the volume of student degree completions in 2016. The smallest bubble, Chemical Engineering, represents 88 degree completions, while the largest bubble, Registered Nursing/Registered Nurse, represents 994 completions.

Oregon Bachelor's Programs Overview – Emerging Fields

Market Opportunity Scan: Undergraduate Bachelor's Programs

Hanover identified **seven potentially emerging bachelor's programs** (i.e., above-average student and labor market demand growth but below-average completion and jobs volume). Along with high-growth fields, emerging programs may also present opportunities for expansion of existing programs or new program development.
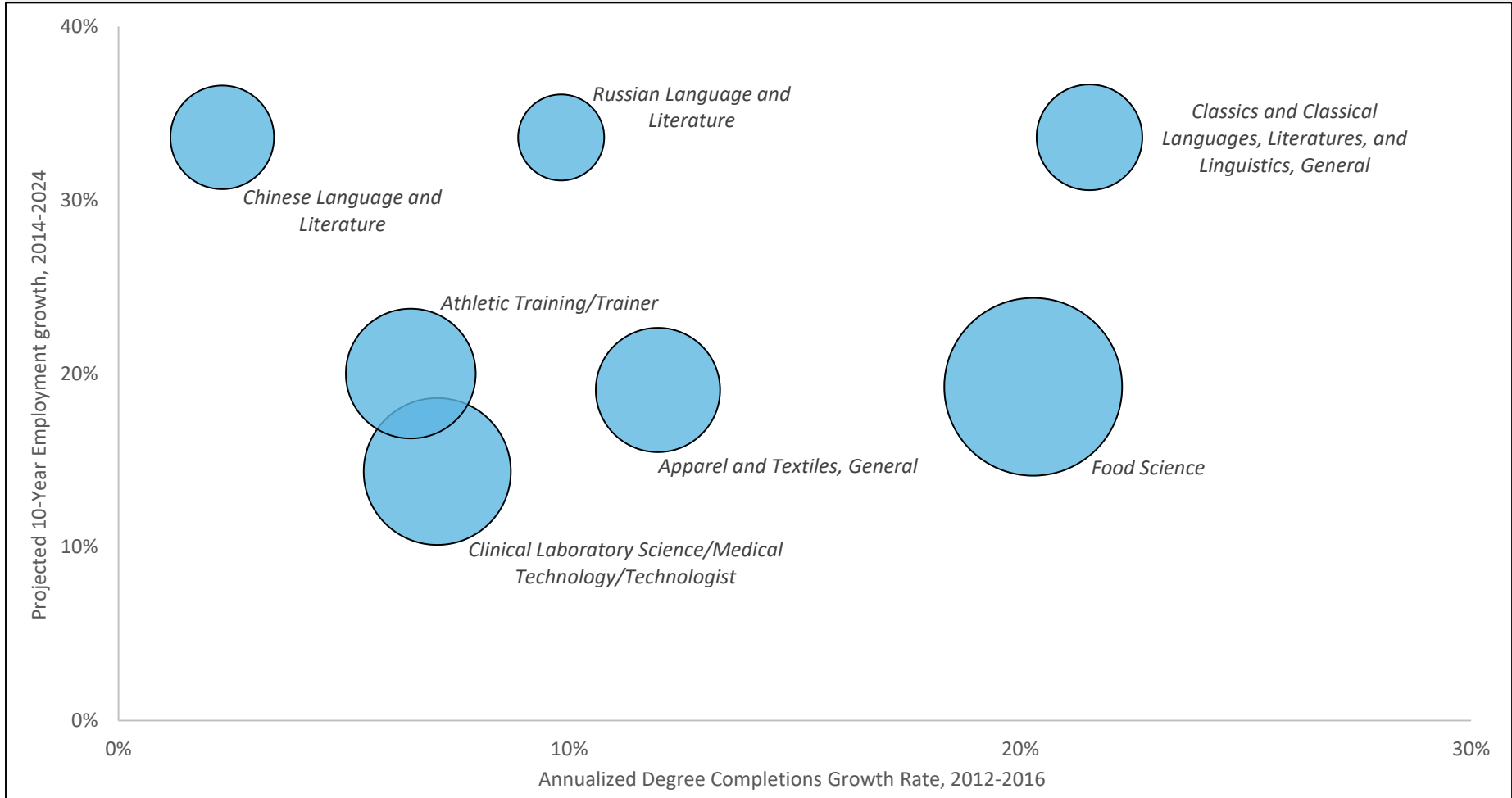
Bubble chart. Y-axis: Projected 10-Year Employment growth, 2014-2024 (0% to 40%). X-axis: Annualized Degree Completions Growth Rate, 2012-2016 (0% to 30%).

Bubbles:
- Chinese Language and Literature (~2%, ~33%)
- Russian Language and Literature (~9%, ~33%)
- Classics and Classical Languages, Literatures, and Linguistics, General (~21%, ~33%)
- Athletic Training/Trainer (~6%, ~20%)
- Apparel and Textiles, General (~12%, ~19%)
- Food Science (~20%, ~19%)
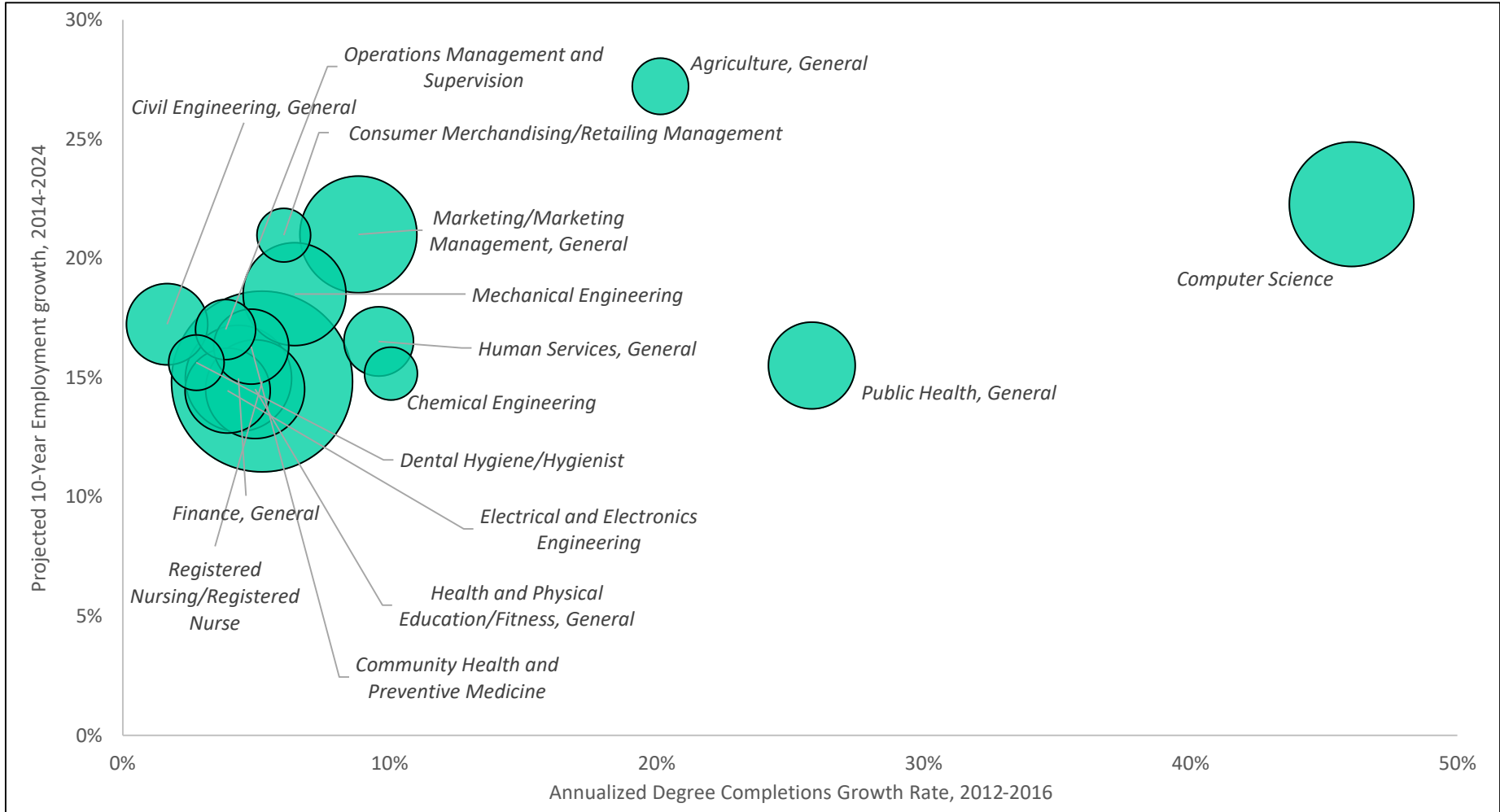- Clinical Laboratory Science/Medical Technology/Technologist (~7%, ~14%)

Source: IPEDS and Projections Central

Note: The size of the bubble is proportional to the volume of student degree completions in 2016. The smallest bubble, Russian Language and Literature, represents 16 degree completions, while the largest bubble, Food Science, represents 67 completions. The small volume of degree completions and/or employment opportunities may skew growth trends in these fields. As a result, Hanover excluded those programs with fewer than 10 degree completions in 2016.

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Hanover identified the **15 bachelor's programs with mixed demand indicators** (i.e., student and labor market indicators offer different perspectives of potential market demand) that have the highest projected rates of job growth in Oregon. Hanover identified **14 bachelor's programs with emerging student demand** (i.e., above-average growth but below-average volume) connected to high-growth occupations. Additionally, **one established program with high student volume** is connected to high-growth occupations.

- Mixed (Established - High Growth) ○ Mixed (Emerging - High Growth)

Chart axis — Y: Projected 10-Year Employment growth, 2014-2024 (0% to 30%); X: Annualized Degree Completions Growth Rate, 2012-2016 (0% to 70%)

Bubble labels:
- Accounting
- Accounting and Business/Management
- Information Technology
- Web Page, Digital/Multimedia and Information Resources Design
- Computer Software Technology/Technician
- Manufacturing Engineering
- Engineering, Other
- Industrial Engineering
- Bioengineering and Biomedical Engineering
- Mathematics and Computer Science
- Hospital and Health Care Facilities Administration/Management
- Engineering, General
- Forest Engineering
- Health/Health Care Administration/Management
- Environmental/Environmental Health Engineering

Oregon Bachelor's Programs Overview – Established Fields

Market Opportunity Scan: Undergraduate Bachelor's Programs

Student degree completion trends and employment projections indicate there are **15 established bachelor's degree programs** in Oregon (i.e., above-average completion and job volume but below-average student and labor demand growth). WOU may consider devoting resources towards differentiating the established programs it offers from those of other competitors in the state.

Chart: Projected 10-Year Employment growth, 2014-2024 (y-axis, 0% to 16%) vs. Annualized Degree Completions Growth Rate, 2012-2016 (x-axis, -12% to 4%)

Labeled fields: Spanish Language and Literature, Sociology, Political Science and Government, General, Anthropology, Human Resources Management/Personnel Administration, General, Speech Communication and Rhetoric, International Relations and Affairs, History, General, Art/Art Studies, General, Psychology, General, Teacher Education, Multiple Levels, Elementary Education and Teaching, English Language and Literature, General, Journalism, Music, General
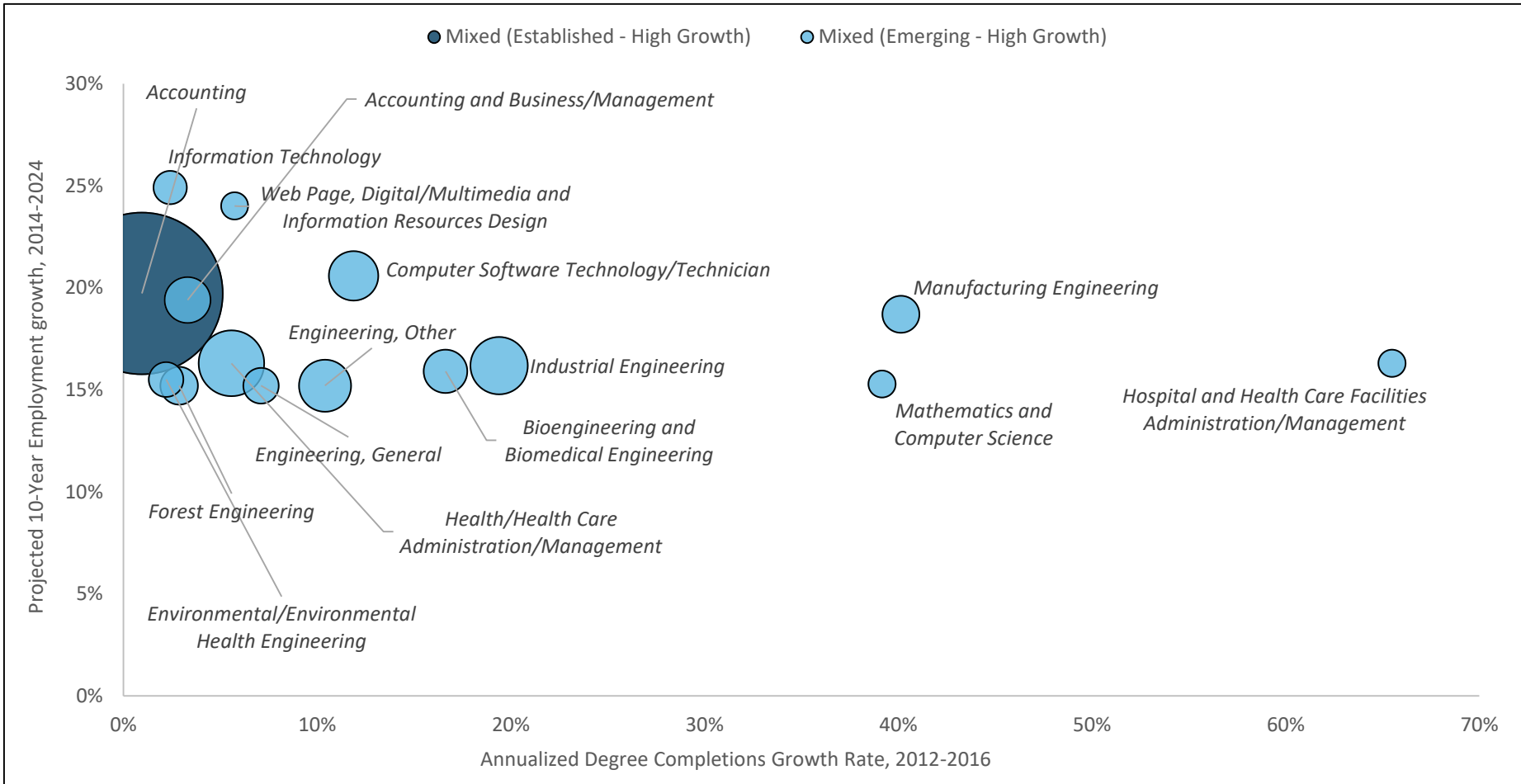
Source: IPEDS and Projections Central

Note: The size of the bubble is proportional to the volume of student degree completions in 2016. The smallest bubble, Teacher Education, represents 93 degree completions, while the largest bubble, Psychology, represents 1,371 completions.

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Oregon Bachelor's Programs Overview – Low-Growth Fields

Market Opportunity Scan: Undergraduate Bachelor's Programs

Hanover identified the **10 low-growth bachelor's degree programs** in Oregon (i.e., below-average student and labor market growth and volume) with the largest volume of degree completions in 2016. Low-growth fields typically indicate areas to avoid when considering new program development or program expansion.
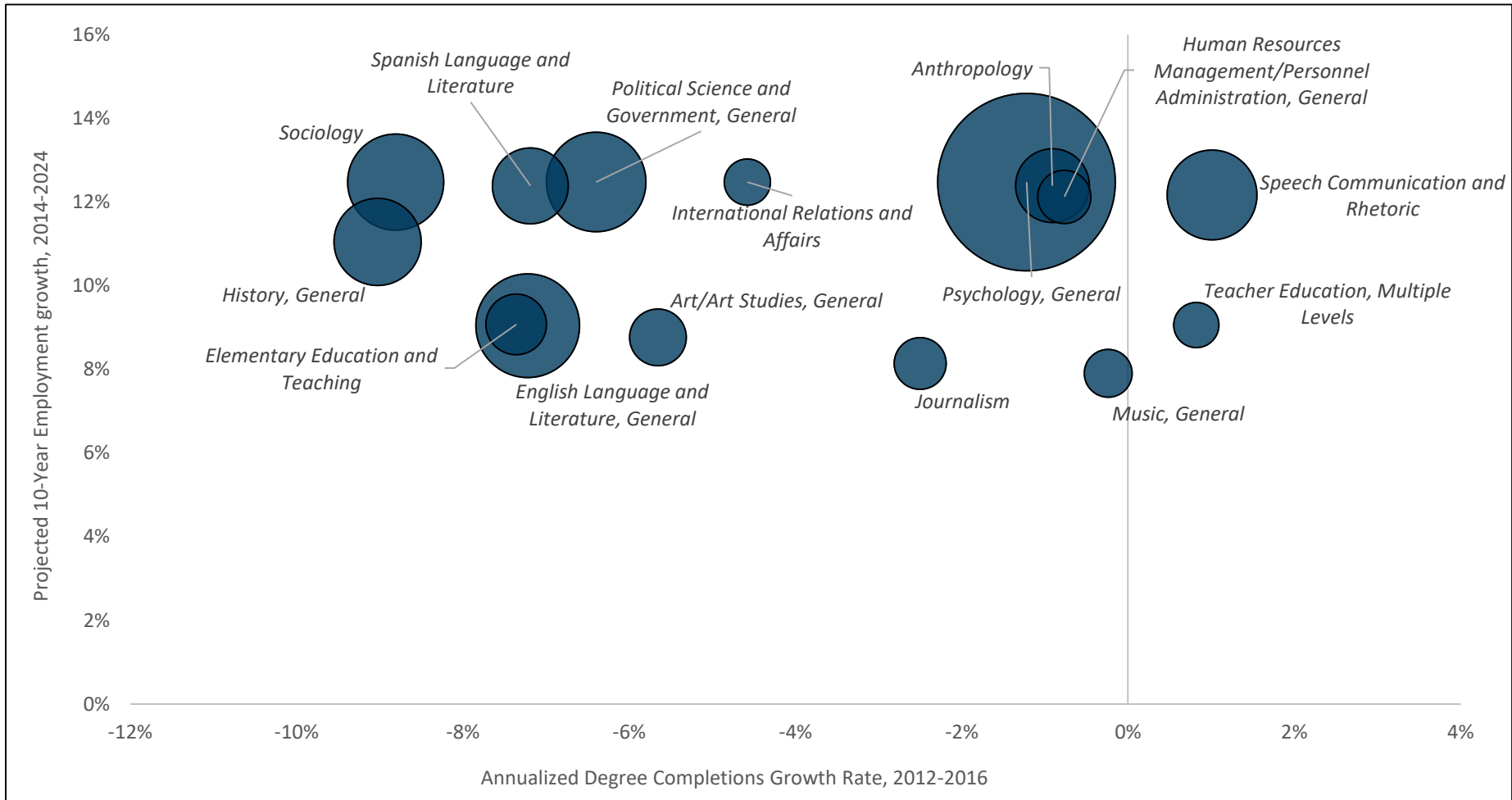

Source: IPEDS and Projections Central

Note: The size of the bubble is proportional to the volume of student degree completions in 2016. The smallest bubble, Marine Biology and Biological Oceanography, represents 16 degree completions, while the largest bubble, Bible/Biblical Studies, represents 81 completions.

Hanover analyzed national student degree completion trends and employment projections to identify **nine high-growth bachelor's programs** (i.e., above-average student and labor market demand growth and volume) in the United States. These are programs that demonstrated mixed demand indicators or low volumes of completion in Oregon. However, given strong national demand, these programs may represent market opportunity gaps or opportunities for further program development.
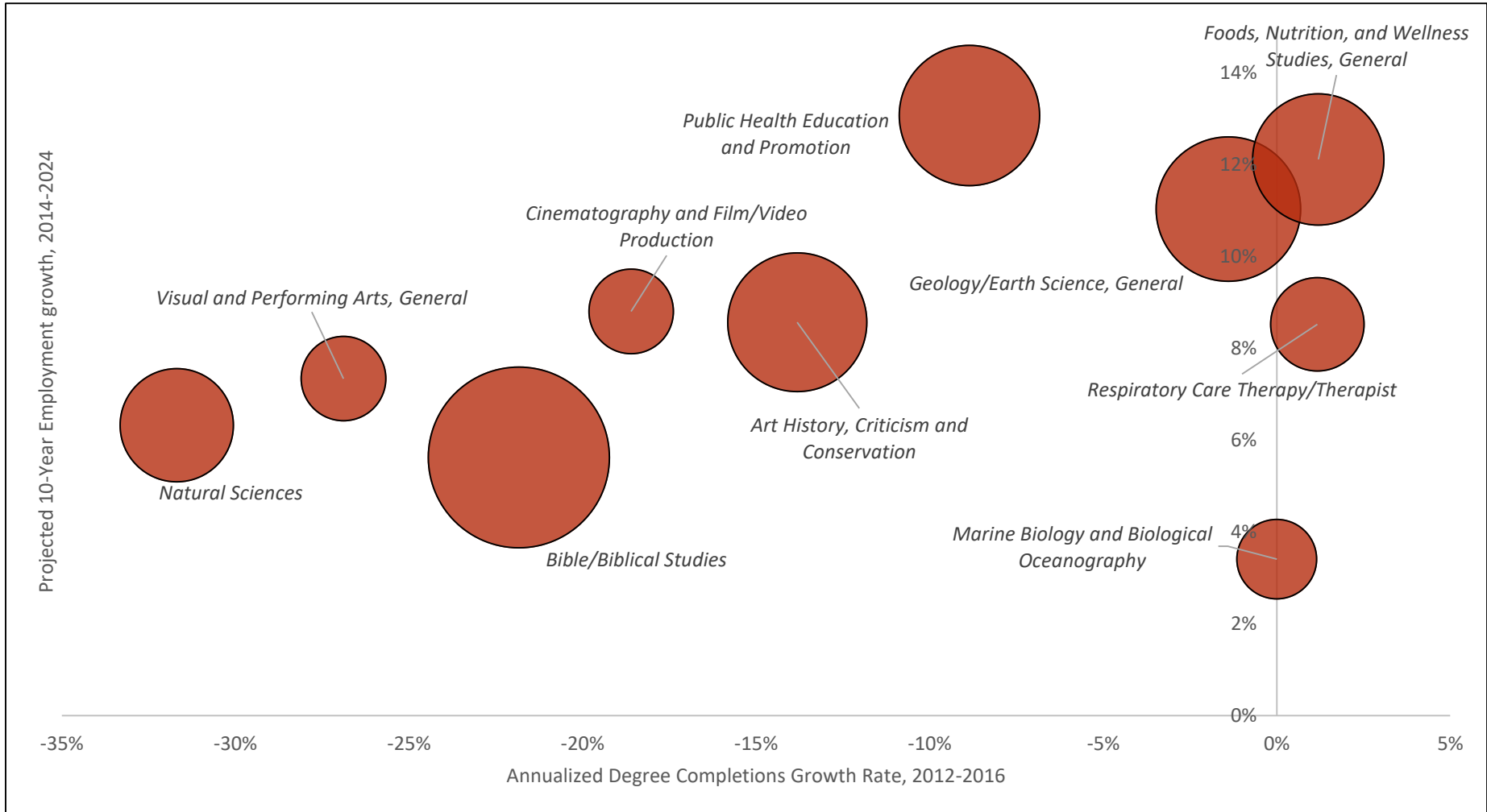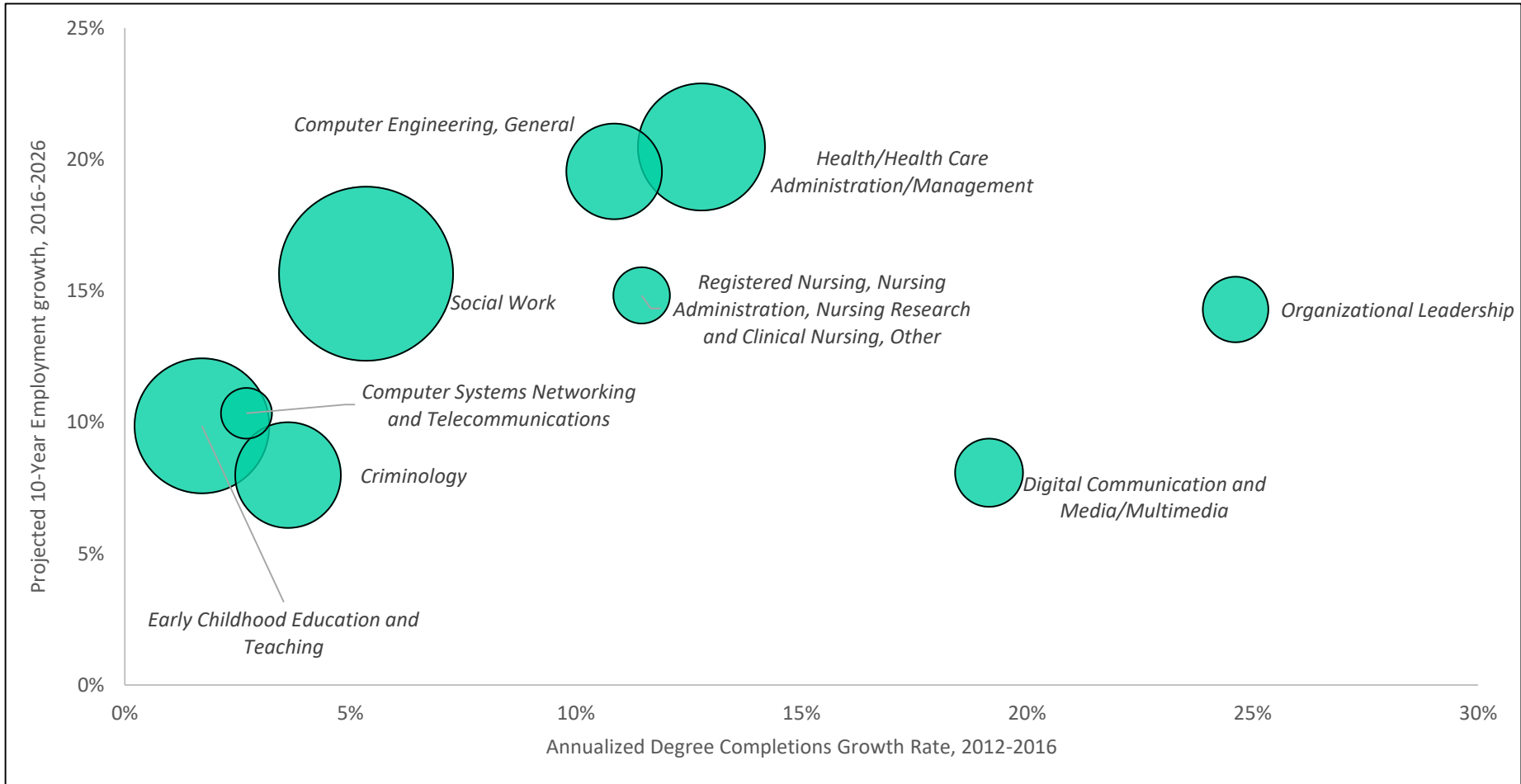

Source: IPEDS and Bureau of Labor Statistics

Note: The size of the bubble is proportional to the volume of student degree completions in 2016. The smallest bubble, Computer Systems Networking and Telecommunications, represents 1,923 degree completions, while the largest bubble, Social Work, represents 21,633 completions.

Salem Labor Market – Industry Distribution

Market Opportunity Scan: Undergraduate Bachelor's Programs

Top Six Sectors of Industry in Salem by Job Volume, 2018

Health Care and Social Assistance

28,523 jobs

Retail Trade

19,670 jobs

Public Administration

19,400 jobs

Accommodation and Food Service

14,518 jobs

Manufacturing

13,480 jobs

Educational Services

13,438 jobs

Source: JobsEQ

Salem Employment Share by Industry Sector, 2018

Industry Sector	Share
Health Care and Social Assistance	**15.7%**
Retail Trade	**10.8%**
Public Administration	**10.7%**
Accommodation and Food Services	**8.0%**
Manufacturing	**7.4%**
Educational Services	**7.4%**
Agriculture, Forestry, Fishing and Hunting	**7.4%**
Construction	**6.8%**
Administrative/Support/Waste...	**4.8%**
Other Services (except Public Administration)	**4.5%**
Professional, Scientific, and Technical Services	**3.4%**
Transportation and Warehousing	**3.4%**
Finance and Insurance	**2.7%**
Wholesale Trade	**2.2%**
Arts, Entertainment, and Recreation	**1.4%**
Real Estate and Rental and Leasing	**1.3%**
Information	**0.9%**
Management of Companies and Enterprises	**0.9%**
Utilities	**0.2%**
Mining, Quarrying, and Oil and Gas Extraction	**0.2%**

Salem Labor Market – Real-Time Job Postings Analysis

Market Opportunity Scan: Undergraduate Bachelor's Programs

Top Occupations by Job Postings Volume

Occupation	Volume
Social and Human Service Assistants	151
Management Analysts	136
Business Operations Specialists, All Other	127
Human Resources Specialists	117
Sales Representatives, Services, All Other	115
Medical and Health Services Managers	103
Software Developers, Applications	98
Registered Nurses	97
Accountants	81
Computer Systems Analysts	81
Financial Managers, Branch or Department	63
Information Technology Project Managers	57
Computer User Support Specialists	55

Top Employers by Job Postings Volume

Employer	Volume
State of Oregon	544
Salem Health	78
Wolters Kluwer	67
ATI Forged Products	63
American Express	58
Sirius Computer Solutions	52
VIPKID	38
Oregon Health Authority	35
FieldCore	34
Legacy Health	34
WorkSource Oregon	32
CSI	28
Willamette University	28

Source: JobsEQ
Note: Total job postings in Salem for the past 180 days as of August 2018 for relevant occupations at the bachelor's degree level

Oregon Labor Market – Industry and Occupation Analysis
Market Opportunity Scan: Undergraduate Bachelor's Programs

Top Six Sectors of Industry in Oregon by Job Volume, 2018

Health Care and Social Assistance
286,639 jobs

Retail Trade
219,415 jobs

Manufacturing
195,538 jobs

Accommodation and Food Service
186,805 jobs

Educational Services
150,370 jobs

Construction
116,150 jobs

Source: JobsEQ

Potential Gaps in Knowledge Occupations, Oregon 2018

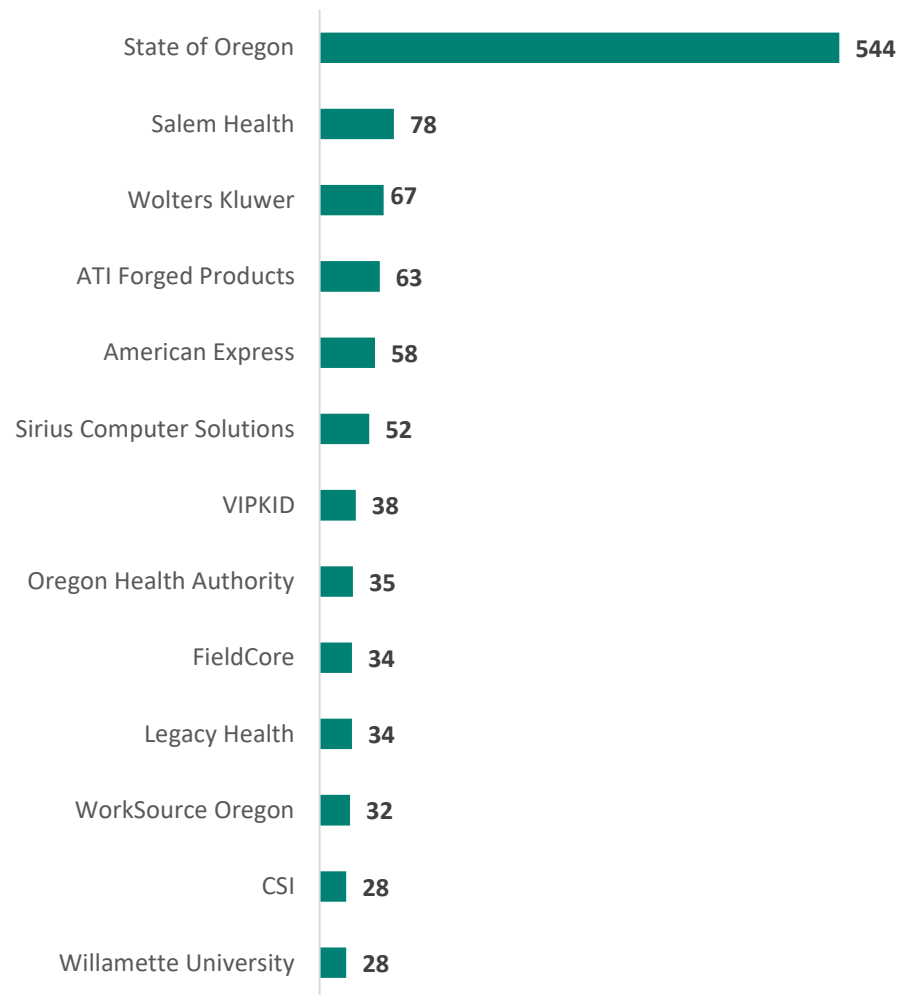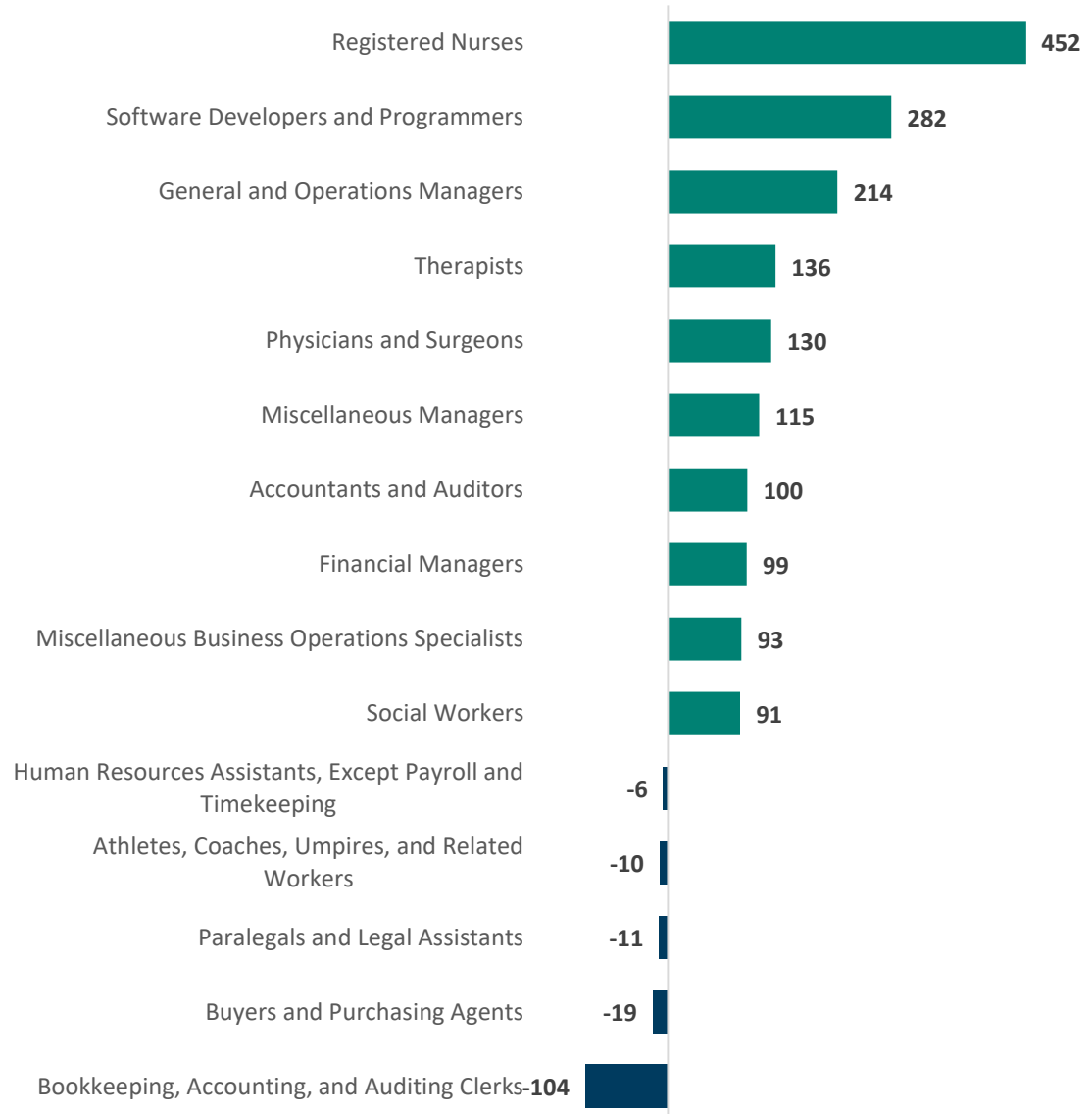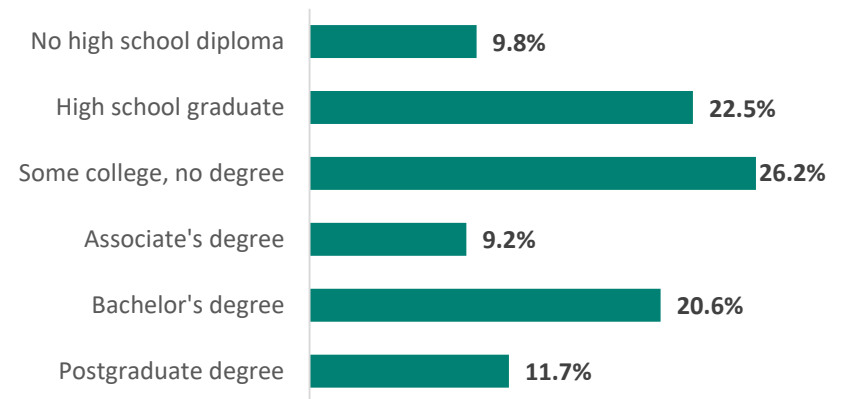| Occupation	Value
Registered Nurses	452
Software Developers and Programmers	282
General and Operations Managers	214
Therapists	136
Physicians and Surgeons	130
Miscellaneous Managers	115
Accountants and Auditors	100
Financial Managers	99
Miscellaneous Business Operations Specialists	93
Social Workers	91
Human Resources Assistants, Except Payroll and Timekeeping	-6
Athletes, Coaches, Umpires, and Related Workers	-10
Paralegals and Legal Assistants	-11
Buyers and Purchasing Agents	-19
Bookkeeping, Accounting, and Auditing Clerks	-104

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Oregon Labor Market – Real-Time Job Postings Analysis

Market Opportunity Scan: Undergraduate Bachelor's Programs

Top Occupations by Job Postings Volume

Occupation	Volume
Registered Nurses	2,259
Sales Representatives, Services, All Other	1,807
Software Developers, Applications	1,768
Management Analysts	1,218
Social and Human Service Assistants	1,192
Marketing Managers	1,160
Human Resources Specialists	1,095
Financial Managers, Branch or Department	1,014
Medical and Health Services Managers	994
Business Operations Specialists, All Other	845
Computer User Support Specialists	817
Sales Managers	735
Accountants	696

Educational Attainment, Age 25-64

Attainment	Percent
No high school diploma	9.8%
High school graduate	22.5%
Some college, no degree	26.2%
Associate's degree	9.2%
Bachelor's degree	20.6%
Postgraduate degree	11.7%

Top 5 Employers by Job Posting Volume

1. Nike (1,582)
2. Providence Health & Services (1,209)
3. State of Oregon (983)
4. WorkSource Oregon (550)
5. Oregon State University (548)

Top 5 Locations by Job Posting Volume

1. Portland (10,041)
2. Beaverton (2,370)
3. Salem (1,718)
4. Hillsboro (1,515)
5. Eugene (1,094)

Source: JobsEQ

Note: Total job postings in Oregon for the past 180 days as of August 2018 for relevant occupations at the bachelor's degree level

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Student Demand Methodology

Hanover uses the most recent five years of completions data (2012-2016) from the National Center for Education Statistics (NCES) to estimate student demand for specific degree programs. The NCES uses a taxonomic system of numeric codes to classify postsecondary academic programs, known as the Classification of Instructional Programs (CIP) system. Definitions for each CIP code can be located at the NCES' **CIP user site**.

All award conferral data presented in this report were drawn from the NCES's Integrated Postsecondary Education Data Center (IPEDS).

Note: When interpreting completions data, some considerations should be taken into account:

- Institutions classify their programs independently, meaning that two programs that share identical content could hypothetically be classified under different CIP codes. In addition, it cannot be assumed that IPEDS completions reported under an individual CIP code always correspond directly to an individual program at an institution.

- Newer programs may be excluded from completions data, as these programs have yet to graduate students.

- Data on online programs are limited; there is not yet any way to determine the exact number or types of degrees conferred online at a given institution. At present, IPEDS indicates only whether a given degree may be completed online.

Hanover selected CIP codes aligned with Western Oregon University's interest in bachelor's degree programs. This includes all programs within CIP codes for which completions were reported at the national level between 2012 and 2016.

Hanover classified programs based on state growth indicators. The **high-growth programs** are those with higher than average annual conferral growth as well as higher than average degree conferral volume at the relevant award level in 2016. Programs categorized as "emerging" show above-average conferral growth but below-average conferral volume in 2016.

Classification Thresholds for Degree Programs

	Bachelor's	
	National	**Oregon**
Annualized Growth	1.7%	1.2%
Average Volume	1,904	86

Labor Demand Methodology

To analyze the employment outlook for graduates with education in the academic fields of interest, Hanover examines labor projections, which align with six-digit occupations as defined by the BLS Standard Occupational Code (SOC) system. The SOC system is analogous to the CIP system, and the two are connected by the CIP-SOC crosswalk. The CIP-SOC crosswalk maps individual six-digit CIP codes to six-digit SOC codes. Hanover uses the CIP-SOC crosswalk to select occupations related to relevant CIP codes. Hanover also considers educational attainment levels of current workers when selecting relevant occupations. For bachelor's degrees, at least 22.8 percent of workers in the associated occupation must hold a bachelor's degree.

Note: When interpreting occupational projections data, some considerations should be taken into account:

- SOC categories may be broad and include a range of positions; as such, some projections may overestimate demand related to specific fields.

- CIP-SOC Crosswalk may not identify all SOC codes potentially related to the degree topic or field.

National employment projections for 2016 to 2026 are drawn from the Bureau of Labor Statistics, which published revised data in October 2017. State and regional employment projections are drawn from Projections Central, a repository maintained by the Projections Managing Partnership that offers state-level occupational projections data for a standard 10-year period (2014 to 2024).

Program findings and recommendations are based on the aggregate growth and annual job opening volume of all associated occupations. Hanover classifies **high growth occupations** as those with <u>faster than average</u> projected employment growth as well as <u>above</u> the projected average annual job openings. **Emerging occupations** demonstrate faster than average projected employment growth but below average projected annual job openings.

Classification Thresholds for Occupations

	National	Oregon
Average Growth Rate	7.4%	13.9%
Average Annual Openings	22,885	97