OREGON HIGHER EDUCATION
COORDINATING COMMISSION

STRATEGIC CAPITAL DEVELOPMENT PLAN

SMITHGROUP | NCHEMS

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TABLE OF CONTENTS

ACKNOWLEDGMENTS

HIGHER EDUCATION COORDINATING COMMISSION (HECC)

- Ben Cannon
- Jim Pinkard
- Bruce Johnson

LEADERSHIP AT EIGHT OREGON UNIVERSITY CAMPUSES

- Eastern Oregon University (EOU)
- Oregon Institute of Technology (Oregon Tech)
- Oregon State University – Cascades (OSU – Cascades)
- Oregon State University – Corvallis (OSU – Corvallis)
- Portland State University (PSU)
- Southern Oregon University (SOU)
- University of Oregon (UO)
- Western Oregon University (WOU)

SMITHGROUP

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OREGON HIGHER EDUCATION COORDINATING COMMISSION
STRATEGIC CAPITAL DEVELOPMENT PLAN

EXECUTIVE SUMMARY

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PURPOSE

The Oregon Higher Education Coordinating Commission (HECC) has adopted a visionary, strategic framework plan for advancing post-secondary goals for the state. It is within the context of this 2017–2020 strategic framework that this study was conducted to holistically review the capital needs of the State. The study's purpose is to develop a long-range planning process in support of these goals. As outlined in the solicitation documents, the state's higher education capital needs are expected to be driven by "demographic, economic, other environmental and industry factors" and this study serves to help guide the HECC evaluation of university-submitted capital project proposals. There is also the expressed expectation that this plan will promote cost-effective means to maintain and increase the utilization and productivity of existing capital assets and to be developed with input from key stakeholders.

To provide a high-level summary of state capital needs for public universities based on demographic, economic, industry, and other environmental factors

To identify potential future capital portfolio according to ideal usage and utilization

To estimate space needs for different disciplines, by degree levels and function, by region based on data availability

Developed in partnerships with public universities, stakeholdres, and legislators, with support from outside experts

This process was not intended to supersede the planning efforts of the individual governing boards and their campuses, but rather to provide a statewide perspective on capital needs. This process also did not involve a strategic planning exercise to assess the strengths of individual institutions nor does it address the strategic approach or specific project-based solutions for addressing statewide needs relative to each campus or how such initiatives might relate to future institutional roles and missions. However, as noted in the key findings and recommendations, the assessment of additional space needs for some campuses is, in fact, related to the alignment (or lack thereof) of potential new programs with issues of institutional role and mission and in relationship to state priorities.

The findings that follow were drawn from an extensive data collection effort, including but not limited to:

- Analysis of Oregon's institutions' space inventories and usage
- Aggregate data supplied by HECC on student enrollments
- Publicly available data
- Two statewide tours involving each campus, which included focus groups with institutional leaders, representatives from local education and employer communities, and facility tours.

KEY FINDINGS

1. Achieving the 40% goal of baccalaureate and above in the 40-40-20 plan is not dependent on significant capital investments in new physical facilities, but investments in capital renewal may accelerate progress toward that goal by addressing deficiencies in existing facilities

Oregon is more highly educated than the nation as a whole, with over 34% of residents in 2017 having a bachelor's degree or better. Based on population trends—aging and migration especially (where Oregon benefits from attracting college-educated residents from elsewhere)—Oregon is on a path to achieving its goal of having 40% of the population with a bachelor's degree by 2030. Achieving that level of educational attainment level by Oregon's stated target of 2025 is likely not significantly improved by substantial new investments that would take years to come online before the first students (who themselves will take time to complete a baccalaureate degree) would be impacted. Educational attainment and income go mostly hand-in-hand throughout Oregon, with higher levels of both occurring in the Portland metro area and in Benton and Deschutes counties.

However, it should be noted these data stand in stark contrast to Oregon's low high school graduation and college-going rates direct from high school, relative to the U.S. And at 24 percentage points, Oregon faces a larger-than-average gap in the educational attainment of underrepresented racial/ethnic minorities, an issue compounded by the growing diversity of high school graduating classes.

2. Enrollment history and future demographics do not forecast statewide capacity issues

As the following sections describe in greater detail, Oregon's population is aging relatively rapidly while also growing more diverse. Statewide, Oregon is anticipating relatively modest growth of about 5–7% among people with ages below 35, while larger percentage increases are expected at older ranges (apart from the 55–64 year old group), and especially among those 65 and older. Projecting out the number of high school graduates yields a small increase by 2025 before the number drops substantially. At no point in the years to come can Oregon confidently expect the number of high school graduates to exceed the 2009 peak of over 38,000, although a short-lived spike in 2025–2026 will come close to equaling it. This modest growth does not warrant significant capital expansion for two reasons. Practically speaking, it remains to be seen if any capital projects, if funded in the near term, could be brought on-line and occupied in time for the peak demand mid-decade. More importantly, though, it stands to reason that any short term enrollment peaks could be handled primarily through scheduling and staffing strategies in lieu of capital construction that will have long term, life cycle costs far exceeding the brief period of need. In fact, most campuses have more space in 2019 than they had in 2009.

In terms of additional enrollment potential, Oregon already boasts relatively high participation rates of adults compared to other states , though improvement is certainly possible. Further, Oregon can expect the number of likely college students from traditional age groups to remain relatively stable over the next decade.

However, the statewide view obscures some important regional variation. Most notably is the growth that has occurred in Central Oregon, where Deschutes County is the only part of the state with unusually large population increases in the most recent decade, and which are likely to continue. More modest growth occurred in the Portland metropolitan area, while the eastern and southern parts of the state saw their populations decline.

In general, all of these population changes mirror the statewide trend in which increases will be greatest among older residents and, to a lesser extent, middle-age ranges, including in Central Oregon. As this pertains to enrollment planning, though, there is only modest and temporary growth anticipated for the typical college aged students.

In combination with the project team's modeling efforts, Oregon's population trends indicate that demand for undergraduate enrollments is unlikely to change dramatically in the years ahead, assuming no major change in participation rates of recent high school graduates or adults. Statewide, Oregon's public four-year institutions are projected to see very little change in FTE enrollments between 2018–19 and 2029–30, peaking with just over 1,800 additional FTE in 2025–26 before experiencing a rather abrupt decline over just a couple of years. Even substantial increases in college-going and retention are unlikely to yield new sources of demand that will put a long-term strain on the existing capacity of Oregon's public four-year sector overall.

There is likely to be greater pressure on enrollment demand in the Central Oregon region, but satisfying that demand by expanding the OSU - Cascades campus substantially will likely come primarily from students from that area who currently elect to attend institutions elsewhere in the state. In some cases, reshuffling these students closer to home will likely exacerbate challenges facing Southern Oregon University and other regional institutions that are seeing the population of likely college students in their own surrounding counties fall off dramatically. In general, resident, on-campus enrollment growth is a zero net-sum game statewide.

Meanwhile, each of the individual institutions have made their own enrollment projections for the years to come and, despite the evidence of limited population growth, all of them are anticipating growth in on-campus enrollments (and some are planning to aggressively expand online programming as well). With the population projections as they are, this growth would have to come from just a few places:

- Nonresident recruitment. Some institutions—like Eastern Oregon University—are planning to more thoroughly plumb markets in other states for students. Many of Oregon's public four-year institutions are already heavily reliant on nonresident recruitment to fill undergraduate classes; it is unclear how much more attractive they can be or the extent to which the state is willing to support that growth with capital investment. Moreover, other nearby states have similar projections of likely high school graduates—growth through 2025 or 2026 followed by a substantial drop—that Oregon has. This suggests that the competition for students throughout the multi-state region will not be favorable to substantial enrollment growth over the long-term.
- Improved participation rates of in-state students. Attracting more Oregonians to attend college may be the best option. Given Oregon's relatively low college-going rate, there appears to be room to enroll a greater share of high school graduates from the state. In addition, while Oregon boasts an above-average rate of adults who are enrolled in postsecondary, it is increasingly clear that states will likely need to reach out to and enroll more adult learners. Less clear is whether new students induced to enroll in college will attend a public four-year institution as opposed to a public two-year institution, especially in a state where tuition is free for some recent high school graduates. Enrollment among adults is equally if not more difficult to predict, given the degree to which their decisions are often closely tied to prevailing economic conditions. Such volatility affects enrollment projections at four-year institutions, but it is much likelier to be concentrated in the two-year sector.
- Improved rates of transfer from public two-year institutions.
- Improved retention.

Regardless, modeling of student flows for improved college-going rates and improved retention does not significantly change the conclusion that investing in new capital construction to support enrollment growth in one region will likely have negative implications for others. Furthermore, the team's assessment of space needs does not identify significant capacity issues, although there may be localized needs as noted below.

3. There are statewide occupational needs in Health and STEM-related fields

The project team assessed the extent to which needs for new or different facilities may be driven by the need to develop academic programming in order to respond to workforce development requirements. Oregon has seen a substantial amount of economic change in the past decade, driven by steep increases in employment in industries like information and services and in financial services, while there has been a decrease in areas of historical strength, such as manufacturing and natural resources, as well as wholesale trade. These growing industries have generally greater requirements for education. Correspondingly, some of the most important sources of occupational demand anticipated in Oregon are in business, information technology, and health care.

The project team's analysis suggests there is room to grow enrollment in programs that help to fill these occupational demands, as Oregon produces relatively few graduates in relationship to numbers of employees in STEM and health care fields, and therefore would appear to be reliant on importation to get those workers. The project team generally found that institutions were not reporting feeling pinched by unmet demand in programs related to these areas, but that generally, the challenges of meeting workforce demand were driven more by a lack of students in the pipeline rather than a lack of available programs. This broad finding is not consistent across all regions or programs, as there was reportedly a challenge in program capacity in health care and, to a lesser degree, in engineering. But creating new programs to meet needs in either of these areas is enormously costly and has significant implications for institutional mission. These are discussed further in Findings 2 and 6, and the statewide summary, Section 1 of this report. In summary, though, it is not clear that the presence of any program gap identified in these findings should result in the development of new programs where they don't already exist, given a state with stable enrollment demand and the potential for alternative or collaborative program delivery. Specific programs demand gaps are discussed further below.

Statewide, Oregon sees a program demand gap for engineering technologies, engineering, and computer & information sciences. In other words, there is currently a shortage of completions to fill related occupational areas. Each of these are highly supported for increasing programs/number of completions at the bachelor's degree level, and all but engineering are also seeing a large gap at the master's degree level (engineering master's degrees see a moderate gap across the state). Within computer and information sciences, cybersecurity and data analytics saw around 2,400 job postings each in the past year. These latter growth fields do not typically have laboratory intensive or discipline-specific space needs, and the general surplus of classroom space indicates capacity for growth. However, as discussed further in this report, existing space may not be located or configured so as to effectively meet the needs of growth in these programs.

In terms of health fields, Oregon is experiencing a gap of around 1,100 for registered nurses (bachelor's degree). It should also be noted that the RN is typically an Associate degree, and none of the public universities are currently training directly for an RN. In fact, any institution that is offering a BSN is already working with OHSU to do so. Physical therapists, pharmacists, occupational therapists, and speech-language pathologists are also experiencing strong demand with few completions across the state. Other healthcare areas of interest to public universities are radiology, dieticians, dental assistants, kinesiology, and nurse practitioners. All of these program areas are experiencing moderate demand and may not be as relevant, unless for a particular region or specialized institution. This report includes a recommendation specific to statewide occupational demands in the health care fields.

Business occupations represent another area experiencing large bachelor's and master's degree gaps. However, this is a fairly broad area where graduates come from a variety of academic programs. Furthermore, all institutions have applicable programs, and business-related jobs are filled by graduates of many programs. Therefore, a concomitant space need is not identified.

Education, on the other hand, is experiencing a surplus of completions compared to job demand at the master's degree level (surplus of around 3,400). There are a high number of completions in master's degree education programs, from public universities and also from private institutions in the state. However, we believe that the imbalance is due to a significant portion of the people completing graduate programs in education who are already employed as teachers, for whom a graduate degree is the primary means for advancing earning potential. The bachelor's degree level education programs are experiencing a gap of around 1,600, although some of this gap is driven by occupations such as teacher assistants and preschool teachers that pay relatively low wages. Furthermore, it should be noted that existing academic programs should be scalable for higher enrollment if needed.

In terms of the sciences, biological & biomedical sciences bachelor's degree programs are experiencing a surplus in the state, but small gaps at the graduate levels. This is partially likely due to biology being a common field of study for students, even those who don't end up in biology fields. In addition, natural resources & conservation programs see higher gaps than physical science programs across the state. While not directly tied to the sciences, but somewhat linked, public universities expressed interest in sustainability studies and environmental studies. Both of these program areas are experiencing decent gaps (approximately 400 and 500, respectively, at the bachelor's degree level). Graduates of these types of programs can go into a wide variety of fields.

Public universities also expressed interest in public health and human development & family services. The latter is seeing a gap of almost 760 at the bachelor's degree level, with public universities comprising around 77% of state completions for the program area. Public health, on the other hand, is seeing a surplus at the bachelor's degree level when looking across three specific public health programs. Graduate public programs are somewhat more supported at the state level.

It should be noted that the relationship of supply and demand for specific jobs at specific education levels is estimated based on a methodology developed by Emsi, which appo rtions the number of openings that are anticipated based on the educational level of incumbents in the population, as well as a crosswalk between academic programs and occupations. These estimates may best be interpreted in terms of their relative magnitude, since any crosswalk between programs and occupations, and between educational levels and job occupants, will imperfectly reflect the reality of how career pathways evolve and how occupations can be linked to multiple programs (and vice versa).

4. Utilization analysis and space needs assessments also indicate some room for growth, though specific program areas may need localized attention

A detailed utilization analysis of classrooms and teaching labs was performed for all eight campuses in the study using course schedule data provided by each institution. The following chart summarizes the use of scheduled classroom space on the eight campuses in the study. Statewide, classrooms are scheduled an average of 24 hours per week. This is less than the targets recommended by the consulting team of 36 room hours of use per week for the research universities and 30 weekly room hours of use for the regional universities.

Statewide, the average student station was occupied on average 16 hours per week, whereas the recommended targets are 24 for the research universities (36 weekly room hours at 67% occupancy) and 20 for the regional universities (30 weekly room hours at 67% occupancy). The gap between actual and recommended targets indicate that there is additional capacity for accommodating any enrollment growth that may materialize.

There are also opportunities for greater classroom use through improved scheduling practices. The figure below charts the statewide averages of classroom use throughout the week, 8AM to 8PM. The percentage refers to the number of classrooms used versus the classrooms available.

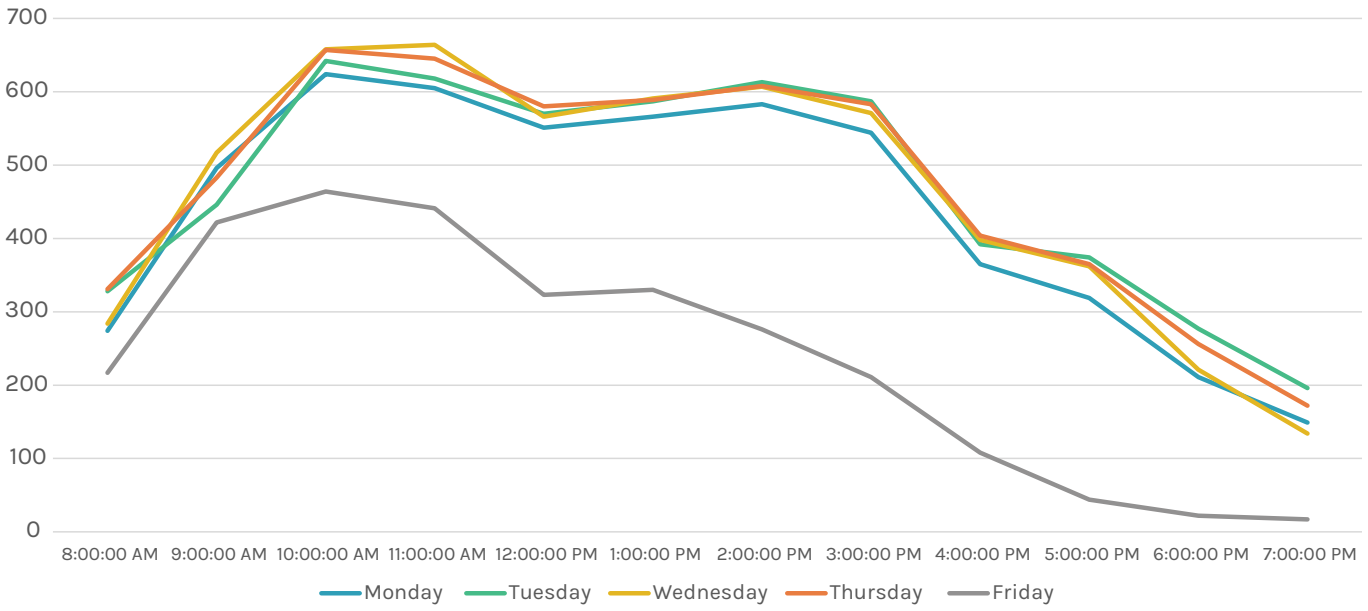
Teaching labs utilization was also analyzed using course schedules obtained from each campus.

ALL OREGON UNIVERSITIES
SCHEDULED CLASSROOM USE BY DAY & TIME

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% in Use	Rooms in Use	% in Use	Rooms in Use	% in Use	Rooms in Use	% in Use	Rooms in Use	% in Use	Rooms in Use	% in Use
8:00:00 AM	274	29.5%	328	35.3%	284	30.5%	331	35.6%	217	23.3%	287	30.8%
9:00:00 AM	496	53.3%	446	48.0%	517	55.6%	483	51.9%	422	45.4%	473	50.8%
10:00:00 AM	624	67.1%	642	69.0%	658	70.8%	657	70.6%	464	49.9%	609	65.5%
11:00:00 AM	605	65.1%	618	66.5%	664	71.4%	645	69.4%	441	47.4%	595	63.9%
12:00:00 PM	551	59.2%	570	61.3%	566	60.9%	580	62.4%	323	34.7%	518	55.7%
1:00:00 PM	566	60.9%	587	63.1%	591	63.5%	589	63.3%	330	35.5%	533	57.3%
2:00:00 PM	583	62.7%	613	65.9%	607	65.3%	608	65.4%	276	29.7%	537	57.8%
3:00:00 PM	544	58.5%	587	63.1%	571	61.4%	583	62.7%	211	22.7%	499	53.7%
4:00:00 PM	365	39.2%	392	42.2%	398	42.8%	404	43.4%	108	11.6%	333	35.8%
5:00:00 PM	319	34.3%	374	40.2%	362	38.9%	365	39.2%	44	4.7%	293	31.5%
6:00:00 PM	211	22.7%	277	29.8%	221	23.8%	256	27.5%	22	2.4%	197	21.2%
7:00:00 PM	149	16.0%	196	21.1%	134	14.4%	172	18.5%	17	1.8%	134	14.4%

Total Classrooms = 930

OVERALL CLASSROOM USE BY DAY OF WEEK



Overall, the space needs assessment showed that in the Fall 2018 term the eight campuses collectively had a 9% surplus of academic and academic support space, as indicated in the following chart. Individually, there is generally a surplus of academic space and a deficit of academic support space, highlighting that while the campus may have enough space, it may need to be repurposed or reconfigured to more effectively achieve student success.

STATEWIDE SPACE NEEDS | 2018

Academic Space	Existing	Guideline	Surplus/ (Deficit)	Percent
Eastern Oregon University	79,163	37,353	41,810	53%
Oregon Institute of Technology	128,340	87,015	41,325	32%
Oregon State University - Cascades	29,708	23,021	6,687	23%
Oregon State University - Corvallis	570,148	543,204	26,944	5%
Portland State University	392,504	463,574	(71,070)	-18%
Southern Oregon University	141,832	103,658	38,174	27%
University of Oregon	479,613	442,512	37,101	8%
Western Oregon University	133,454	118,304	15,150	11%
Statewide	1,954,762	1,818,641	136,121	7%
Academic Support Space	**Existing**	**Guideline**	**Surplus/ (Deficit)**	**Percent**
Eastern Oregon University	118,547	133,261	(14,714)	-12%
Oregon Institute of Technology	154,497	135,940	18,557	12%
Oregon State University - Cascades	30,050	58,215	(28,165)	-94%
Oregon State University - Corvallis	2,635,308	2,162,998	472,310	18%
Portland State University	1,101,910	1,245,240	(143,330)	-13%
Southern Oregon University	274,919	244,692	30,227	11%
University of Oregon	1,923,368	1,809,692	113,676	6%
Western Oregon University	292,558	297,146	(4,588)	-2%
Statewide	6,531,157	6,087,184	443,973	7%
Totals Including Inactive/Conversion Space*	**Existing**	**Guideline**	**Surplus/ (Deficit)**	**Percent**
Eastern Oregon University	200,155	170,614	29,541	15%
Oregon Institute of Technology	330,662	222,955	107,707	33%
Oregon State University - Cascades	59,758	81,236	(21,478)	-36%
Oregon State University - Corvallis	3,281,064	2,706,202	574,862	18%
Portland State University	1,517,044	1,708,814	(191,770)	-13%
Southern Oregon University	420,453	348,350	72,103	17%
University of Oregon	2,408,487	2,252,204	156,283	6%
Western Oregon University	460,516	415,450	45,066	10%
Statewide	8,678,139	7,905,825	772,314	9%

* Includes academic and academic support space temporarily unused due to remodeling and rehabilitation.

Academic space is defined as:

- Classroom and Classroom Service Space
- Teaching Laboratories and Lab Service Space
- Open Laboratories and Lab Service Space

Academic support space is defined as:

- Offices and Office Service Space
- Library and Collaborative Learning Space
- Assembly and Exhibit Space
- Physical Plant Space
- Other Department Space

Guidelines were established for each of these space categories based upon nationally recognized standards, consultant experience, and unique, individual campus circumstances.

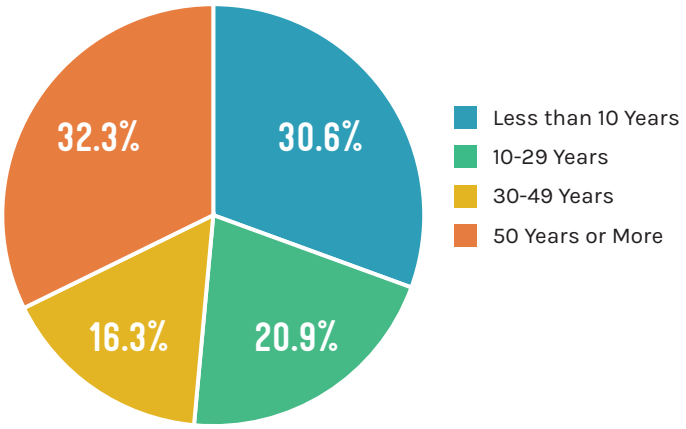
Using the student flow modeled by the project team, the modest 2029 enrollment projection did not produce any appreciable impact upon overall space needs. However, continued growth in academic programs such as Engineering, Computer Science (including IT and data analytics) and health care, may cause pressure points in these colleges. For example, OSU - Corvallis College of Engineering academic space is deficit by 98%, 67,388 ASF, even though the campus has a 5% overall academic space surplus.

5. Existing facility assets have serious age, quality and suitability issues that compromise both efficiency and effectiveness

Space assets are among the most valuable resources that a University owns. In Oregon, University space represents a $10.1B asset, as determined by current replacement values collected by the HECC. This becomes even more significant when one considers that the first cost (construction) of a facility has been shown to represent about a third of the building's life cycle cost.[1] Space is also mission critical for delivery of academic programs and a strategic resource to be deployed in support of strategic goals. It therefore merits responsible stewardship and attention.

In accordance with data collected by the HECC and reviewed and analyzed by the project team, Oregon universities control practically 20M Gross Square Feet of space in 663 buildings. Of these buildings 253, or 29%, have a renovation reported. Of the 651 buildings with an age and/or renovation reported, and accounting for the year of the renovation, almost a third (32.3%) are 50 years or older, and approximately one half (48.6%) are more than 30 years old.[2]

ALL OREGON UNIVERSITIES AGE OF BUILDING/RENOVATION (N=651)



1 Rodney Rose, "Buildings - The Gifts that keep on Taking; A Framework for Integrated Decision Making," published by APPA 1999.

2 This likely understates the age of buildings because the year of the last major renovation was used to determine a revised building age, although it is unlikely that every renovation was comprehensive in its scope. These renovations likely left some major buildings systems untouched.

This is significant because the useful life of most major buildings systems (e.g., roofing, electrical, mechanical) is typically in the 30–40 year range. The age of buildings, however, should not come as a surprise. There is a longstanding tradition of higher education in the state, with the average age of the institutions themselves over 100 years. A nation-wide construction boom in higher education saw the construction of many facilities in the 1960's and 1970's, in response to the baby boom generation. Unfortunately, these buildings are now 50–60 years old as well.

In the last 20–30 years in particular, the condition of higher education facilities has been a focus of leading organizations, such as APPA, the preeminent association of higher education facility managers and administrators, and NACUBO, the National Association of College and University Business Officers. A survey of literature from these two groups, some published jointly, forms the basis of leading best practices and recommendations.

Oregon's higher education facilities constitute both an asset and a liability. One must consider the following factors is assessing the existing building inventory:

- Mid-century buildings are purpose-built and generally inflexible
- Initial first costs may have been lowered at the expense of life cycle costs
- Older buildings are less efficient and more costly to operate
- Building Codes, including fire and life safety, have changed significantly in the last 50 years
- Environmental Health and Safety regulations have changed significantly in the last 50 years
- Depreciation and wear may be accelerated by climate, intensity of use and ongoing maintenance funding levels

A stewardship model advanced by APPA recommends annual investments in facilities equivalent to 1.5% of current replacement value (CRV) for maintenance and 2.5% for capital renewal.[3] The aim of maintenance is to preserve and sustain building operation for the functions as originally intended. However, as noted above, a fifty year old building may not be well suited for current needs, as codes, regulations and the programs it serves may have all changed. For example, a large auditorium in a 1960's classroom building may be functional as a lecture hall, however it may not meet ADA accessibility requirements. Furthermore, it would not suitable for smaller sections using an active learning pedagogy, which research has shown to yield better student learning outcomes. Therefore, two important measures of a facility condition assessment are sufficiency and also suitability.

While significant investments have been made by the state and universities in Capital Improvement and Renewal, there is a backlog of maintenance needs. In fact, by one estimate from 2016, there is a $480M backlog throughout the university system.[4] A more recent estimate of just the backlog is $635M. That number does not include the full scope of deferred maintenance which by some estimates may be $1.0M to $1.5M depending on the definition of what is deferred. Furthermore, given the age and number of unrenovated buildings in the portfolio, there is a clear need for renewal and replacement of buildings and building systems that have exceeded their useful life. This concern was uniformly expressed and consistently emphasized during interviews with administrators and facility managers conducted at each main campus. This concern was also reinforced by on-site observations during campus and facility tours.

3 Harvey Kaiser, APPA Book of Knowledge, "Capital Renewal and Deferred Maintenance." Copyright 2016.

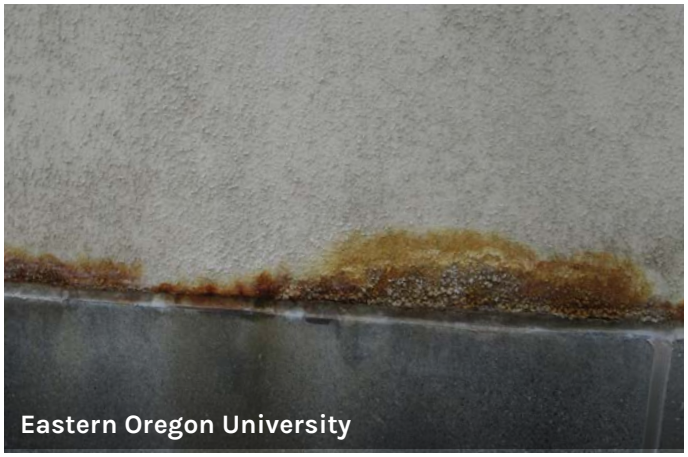
4 "Approaches to Deferred Maintenance," presented by Mike Green (VP of Finance & Administration, OSU) and Greg Perkinson (VP for Finance & Administration, SOU). Sightlines, 2016.


University of Oregon


Portland State University


Portland State University


Oregon Institute of Technology


Eastern Oregon University


University of Oregon

The space analysis supports the conclusion that the majority of university classrooms, central to student learning, are highly traditional and not well suited to accommodate new instructional modalities that research has shown to be more effective with student learning and success. For example, active learning classrooms require 25–35 assignable square feet per student station (ASF/SS), and the statewide average analyzed by this study is 19 ASF/SS. This mismatch between facilities and best practices is understandable because the field of learning science did not exist before 1990 and has rapidly advanced in the last 20 years.

Moreover, recent research funded by the National Science Foundation of women and minorities who have left STEM fields of studies indicates a large gap in the desire for active and engaging learning environments and the actual classroom experience.[5] Current theories of student success also place a premium on student engagement within a learning community or student organization and making positive connections with peers, faculty and staff. This is particularly important for first generation students for whom interpersonal connections and support systems play an important role in retention and perseverance. It is important for these students to feel welcomed and comfortable in navigating the myriad of programs and services which can help them succeed.

Evaluating the existing building inventory through the lens of data-informed learning science, older buildings are highly ill-suited for effective learning environments for the 21st Century. For example, classrooms may be improperly sized and configured, with inflexible, fixed furniture. Mid-century buildings, focused more on student through-put rather than student success, are characterized by double loaded corridors which do not provide space for group study or team work, let alone the important interactions that occur outside the classroom between students and faculty. These facilities may be efficient in delivering lectures to large number of students or circulating them from one class to another, but they are not effective at promoting student success.

It should also be noted that buildings may not be configured well for the programs they house in relation to the students they serve. As the composition and demographics of the student body has changed (along with advances in psychiatry and neuroscience), an array of student services has been developed ranging from tutoring to disability services, financial assistance to counseling. These programs, many of which did not exist in their current state 20 years ago, have often been located opportunistically as space became available and therefore do not benefit from adjacencies that are client or student-centered. Modern university buildings are student centric in both the arrangement of programs and services as well as in the type of spaces which welcome and invite students to engage in university life.

Finally, it should be noted that modern educational facilities are more efficient on a number of levels. First, space planning standards for office work environments have evolved and are typically more efficient than those of 30-50 years ago. Secondly, and importantly, two thirds of a building's life cycle cost relates to on going operations and maintenance. Modern buildings are significantly more energy efficient. The capital renewal of existing buildings offer not only enhanced effectiveness in program delivery but also greater efficiency in operational costs.

5 Melissa H. Dancy, Katherine Rainey, Roslyn Mickelson, Elizabeth Stearns, and Stephanie Moller, *Influences of teaching style and perceived care of instructor on retention of underrepresented groups in STEM.* Department of Physics, University of Colorado - Boulder, CO 80309. Department of Sociology, University of North Carolina - Charlotte, NC 28223.

6. Institution role and mission are not well defined; they lack clarity regarding mission differentiation, and for some institutions; additional space needs largely depend on this

There is a notable absence of clear, differentiated missions for Oregon's institutions of higher education. This is particularly true of OSU - Cascades where the ambiguity about mission makes the determination of space needs particularly difficult. Is the Cascades campus an extension of OSU and its mission with the attendant needs for research space as well as instructional space, or is it a regional instructional institution (like Eastern, Southern, etc.)? For purposes of our analyses we have assumed that it is a regional teaching institution. The state has sufficient research university capacity at OSU and UO. It lacks instructional capacity at the baccalaureate level in Deschutes and immediately adjacent counties. The same questions might be raised about the extent to which Portland State University should be focused on research and whether Western Oregon University should have a health care focus, for example. While both research and health care programs have regional economic and occupational value, there is a larger public policy question of where new capital investments should be made to support them, either directly or indirectly.

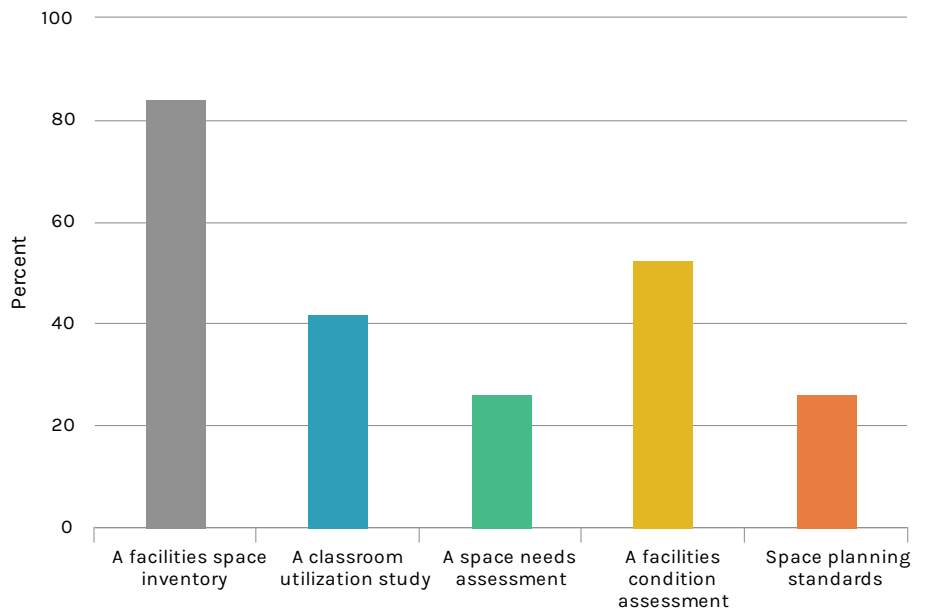
7. Statewide and Institutional capital planning practices are not fully aligned with best practices

In an ideal, integrated planning process, institutions routinely conduct strategic planning exercises that consider statewide goals as well as other external and environmental factors, such as demographics and market demands. Often a SWOT-C (strengths, weaknesses, opportunities, threats and challenges) exercise is conducted as part of the strategic planning process and this is linked to the institution's role and mission. With strategic goals identified, a facilities master planning process can be initiated with an evaluation of existing space, conditions, and utilization, followed by an assessment of the space needs which enable and support the physical implementation of institutional strategic plans. These high level needs assessments are then translated into a capital projects plan, which is often a rolling, five year list of projects updated on an annual basis.

Research and surveys conducted by the project team indicate that state governing boards, coordinating commissions and university systems have adopted a variety of policies and procedures to ensure consistent, best practices with regard to capital planning efforts. Statewide organizations in California, Connecticut, Florida, Georgia, North Carolina, North Dakota, Pennsylvania, Texas, Tennessee, Utah and Virginia, are among many others that have adopted well defined practices. Additionally, Smithgroup partnered with SHEEO (State Higher Education Executive Officers) to survey SHEEO membership regarding some of these best practices. There were almost two dozen responses from a wide variety of boards of education, coordinating commissions and university systems. These included leading organizations in California, Connecticut, Florida, Georgia, Pennsylvania, North Carolina, Ohio, Tennessee and Virginia.

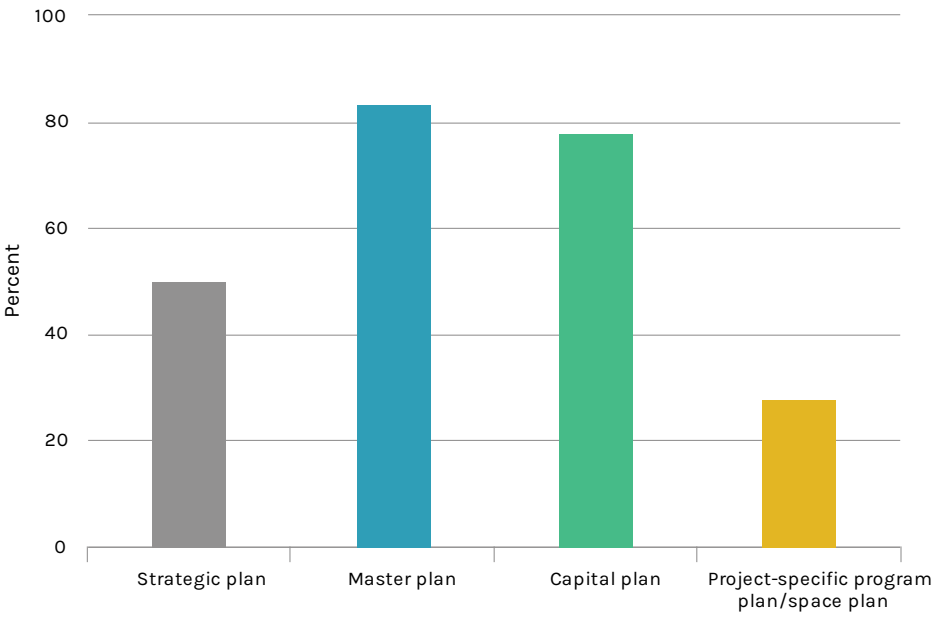
On the question of statewide or system-wide reports, an overwhelming majority (in excess of 80%) responded that a facilities inventory was required, followed by a facilities condition assessment and a classroom utilization study.

SURVEY QUESTION 3. IS THERE A STATEWIDE OF SYSTEM-WIDE REQUIREMENT TO HAVE OR REPORT (CHECK ALL THAT APPLY):



In terms of planning-specific documents that were required, a high majority required master plans and capital plans; approximately 50% required strategic plans.

SURVEY QUESTION 4. IS THERE A STATEWIDE OR SYSTEM-WIDE REQUIREMENT TO HAVE A (CHECK ALL THAT APPLY):



For this study of Oregon institutions, strategic plans, master plans and capital plans were requested of all institutions. All but one of the institutions provided a capital projects plan, but the majority did not provide either a strategic plan or a campus facilities master plan. In the SmithGroup/SHEEO survey, a majority of respondents (64%) said that a campus master was a prerequisite for capital funding appropriations.

One of the issues related to supporting the planning efforts are the staffing resources allocated to them. Of the respondents in the survey, eight identified as institutions, and of those, six (75%) reported having a planning office.

During on-campus visits and the legislative hearing attended by the project team, concerns were expressed about the prioritization process. In the survey, the highest rated factor in the state level capital funding prioritization, scoring at 80%, was the institution's own priority ranking of that project. However, in follow-up to the question, of those identifying this as a factor, 75% reported that the final prioritization was based not on each institution's #1 priority, but rather on the merits of the individual projects.

Finally, with regard to institutional role and mission, 43% reported that they were set in statute and 71% responded that they were reviewed and approved by a statewide body.

RECOMMENDATIONS

1. Invest in capital improvement and replacement

The first priority of Oregon's statewide capital plan should be to focus on the improvement and renewal of the existing capital assets. These assets, valued at $10B and consisting of over 17M GSF, should be preserved and protected through investment. One half of the existing building stock have already served their expected life cycle, but they can be renewed to extend their useful life for another life cycle. Repurposing of existing facilities is more typically more economical than constructing new, and it can lower operating costs while increasing effectiveness.

Data analysis and student flow models show that sustained resident enrollment growth is not likely due to statewide demographic projections over the next 10 years. Therefore, future capital needs will not be driven, in large part, by capacity related issues, but rather qualitative ones. Qualitative issues exist for a variety of reasons, which include: building repair backlog, building code changes, accessibility issues, changing pedagogy and evolving program needs. As part of a stewardship model of managing these assets, renewal can also improve student services and learning effectiveness. This becomes increasingly important for student success, especially within the context of increasing access to underrepresented populations.

While renovation and renewal should be considered before proposing new construction, there may be cases where rehabilitation of existing assets is shown not to be justified. In these circumstances, replacement of buildings is preferred. Removal (i.e., demolition) of inefficient, obsolete facilities with large repair backlogs and high operating costs should also be a goal of this plan.

This analysis shows that at a high level, there are sufficient amounts of space and capacity for the foreseeable future. At a more detailed and localized level, there may be mismatches between space efficiencies available and program specific space needs on a campus. In recognition of this potential, several planning process improvements are also proposed.

2. Incentivize collaboration and shared or on-line programming in ways to reduce demands for new space

Collaboration can introduce efficiencies across the system and reinforce appropriate mission differentiation if properly coordinated and incentivized. It could apply to both courses and programs, though the focus of this recommendation is at the program level since delivery of complete programs is required to meet workforce needs. An incentive mechanism to promote collaborative delivery of programs could take several forms, all of which would reduce overall demand for additional facilities:

(a) A policy that allocates tuition revenues to the institution that enrolls the student and provides the administrative and student support services that support that enrollment, and allocates the state funding associated with the FTEs taught to the institution that provides the instruction.

(b) A policy that splits the revenue (tuition plus state appropriation) in a specified way to the collaborating institutions—50/50, 60/40, etc.

(c) Creation of set-aside funding pool of funds (taken off the top of the overall appropriation amount to public institutions,) to which institutions can only gain access through collaborative instruction—student credit hours taught by one institution at the site of another institution or via distance delivery. The larger the share of collaborative credit hours taught the greater the proportion of this pool the collaborating institutions receive. The existence of this funding pool would reflect that reality that collaborative delivery has added development costs in the short term. It would also serve to provide an ongoing incentive sufficient to induce institutions to seek efficiencies through collaboration across campuses rather than develop duplicative courses and programs.

There may be other approaches that could be developed but these provide a starting point for discussion.

3. Improve and enhance statewide and institutional planning practices

3.1 Pay particular attention to the incentives in the resource allocation model and modify the model to reward improved service delivery and cost-effectiveness

3.2 Define role and mission

As noted elsewhere, there is a lack of clear differentiated mission for Oregon's institutions of higher education, and this ambiguity can lead to counterproductive competition and the potential for inefficient program delivery and capital investment.

3.3 Address strategic statewide program needs

There is a lack of clarity in the broader statewide 40-40-20 strategic plan concerning what level and kinds of degrees and credentials should be included in the first of the two 40% segments. For the scope of this project, the project team was focused only on the first 40 of Oregonians holding at least a bachelor's degree. However, the public four-year institutions offer programs at multiple degree levels, and there can be different space requirements for baccalaureate degrees and doctoral degrees in the same fields. The HECC strategic plan could offer guidance on what fields of degrees might be the focus of policy efforts and also investment.

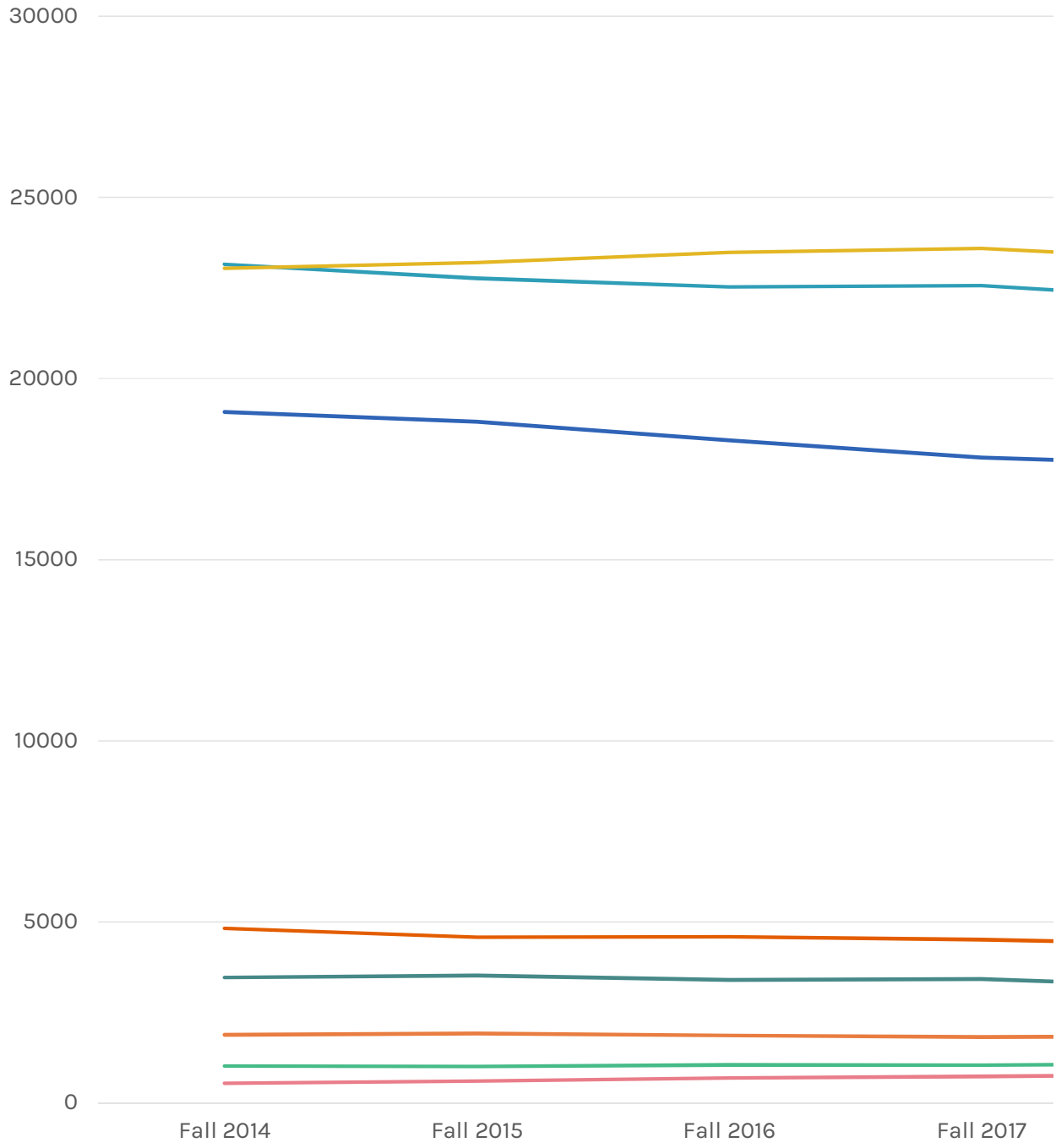
3.4 Coordinate and encourage alternative and collaborative program delivery

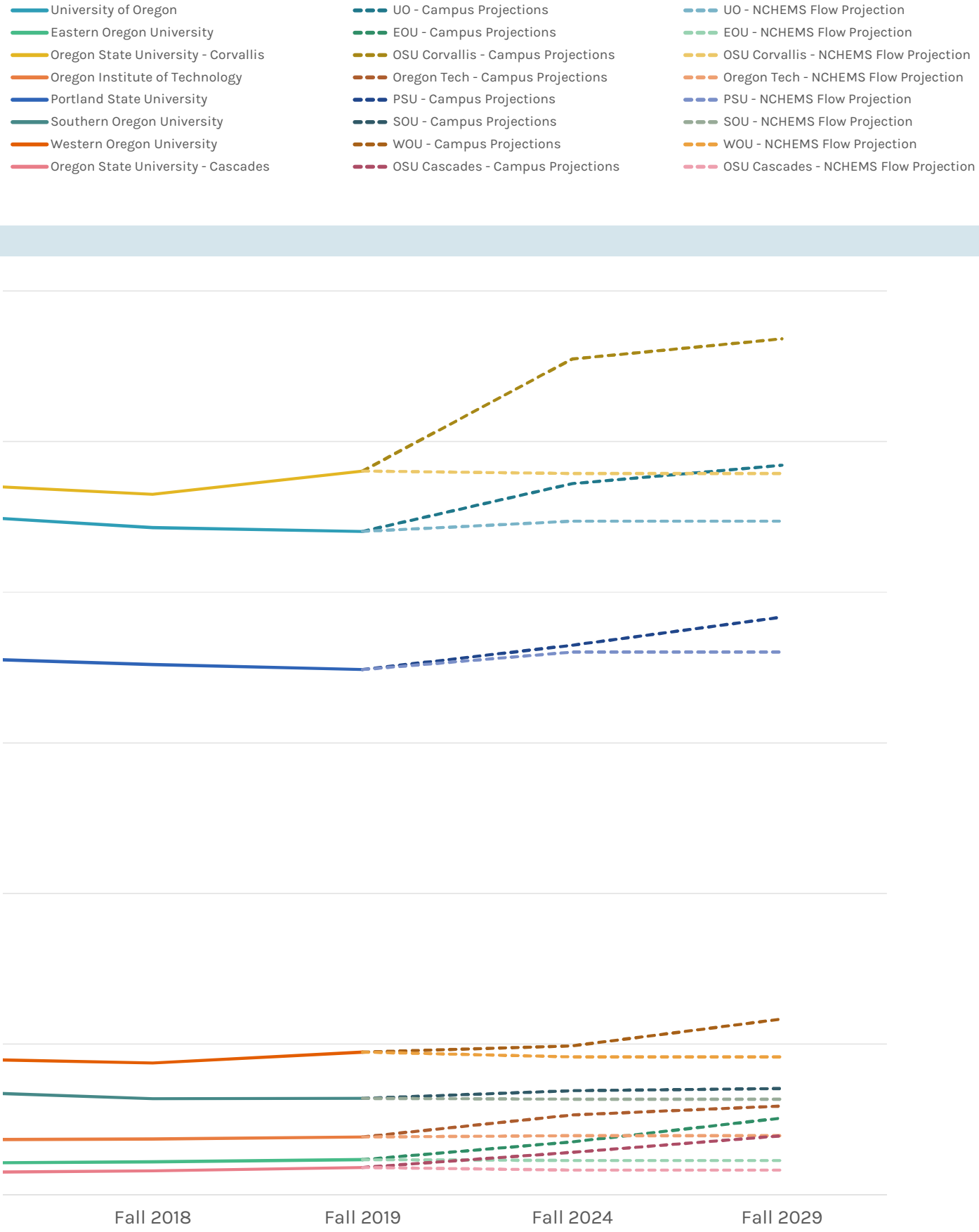
A lack of statewide coordination related to online/alternative and collaborative program delivery means that at least two institutions—Oregon State and Eastern Oregon—are engaged in developing online programming at a substantial scale. Moreover, the state lacks a means to more intentionally encourage efforts to develop and deliver programs in a complementary way across institutions—either online or in person—which could yield better efficiencies and limit expenditures on bricks-and-mortar facilities. IT and RN to BSN programs are possible examples where program demands could be met virtually. Greater flexibility in the definition of capital funding could facilitate investment in the infrastructure needed to reform curriculum and the systems that could foster collaboration across institutional boundaries.

3.5 Promulgate a coordinated and strategic approach to institutional enrollment management

As indicated in the summary of institutional enrollment projections, there is a broad disconnect between institutional optimism and demographic realities. The collection of institutional projections do not sum to a realistic statewide total, and there as no consistency in the way in which institutions developed their projections. The following diagram graphically illustrates the divergence of on-campus enrollment projections in comparison with the student flow model developed for this study, and this was addressed in the findings section on demographics.

OREGON HISTORICAL ON-CAMPUS ENROLLMENT (FTE) WITH PROJECTIONS




University of Oregon
Eastern Oregon University
Oregon State University - Corvallis
Oregon Institute of Technology
Portland State University
Southern Oregon University
Western Oregon University
Oregon State University - Cascades
UO - Campus Projections
EOU - Campus Projections
OSU Corvallis - Campus Projections
Oregon Tech - Campus Projections
PSU - Campus Projections
SOU - Campus Projections
WOU - Campus Projections
OSU Cascades - Campus Projections
UO - NCHEMS Flow Projection
EOU - NCHEMS Flow Projection
OSU Corvallis - NCHEMS Flow Projection
Oregon Tech - NCHEMS Flow Projection
PSU - NCHEMS Flow Projection
SOU - NCHEMS Flow Projection
WOU - NCHEMS Flow Projection
OSU Cascades - NCHEMS Flow Projection
Fall 2018
Fall 2019
Fall 2024
Fall 2029

However, enrollment is a major driver of space and is therefore critical to an assessment of space needs. In fact, enrollment planning and management is multi-dimensional in that they also drive factors such as student body composition, program demand, program delivery, and identity in the market place, all of which have both strategic and tactical implications. Many Oregon institutions have chosen to take a conservative approach to forecasting enrollment (and therefore tuition revenue), and this is appropriate given the demographic data. And while some institutions may grow resident, on-campus enrollment, it would be at the expense of causing losses elsewhere. Therefore, policy makers will need to balance these competing needs and a more coordinated, comprehensive approach to enrollment planning will ensure that any capacity driven capital requests are understood on a systemic basis.

There is also room for improvement to have a more granular conversation at the level of specific academic program needs, particularly as it pertains to capital improvement and renewal. As enrollment growth may be seen in one program area, there will likely be a decline in others. These declines may not necessarily offset the space needed for growth, but a systemic understanding of both leads to a more informed analysis of possible solutions.

3.6 Define terms for capital planning and embrace a broader definition of capital investment

Literature published by APPA and NACUBO identify best practices in which it is constructive to provide clear definition of capital planning terms to ensure a shared language and understanding around complex concepts in facility management. For the purpose of this study, the project team used "Capital Improvement and Renewal" to include projects which address longstanding maintenance needs, replacement of either buildings or building systems which have served their useful life, and issues of obsolescence or functional suitability. However, it was difficult to gain consensus from multiple stakeholders on the meaning of various terms, since there were different connotations or meanings associated with each. This is understandable, since those in the fields of accounting and finance, the legislature, administration, facilities management and the professional services fields of architecture and engineering all have their own governing regulations and terminologies. There has been considerable literature published on the subject of capital planning in the last 20-30 years, and a variety of terms are used such as "capital renewal and major maintenance", "renewal and replacement", "recapitalization", and "capital renewal and replacement." Therefore, it becomes useful to spell these out for developing a common language that can be used for strategic capital planning consistently with all constituent parties.

Like most other states, Oregon uses a definition of what qualifies as capital expenditures that is narrowly focused on physical assets. One drawback is that obsolete and unnecessary existing facilities cannot be demolished, even though maintaining them largely empty and unused has annual operating costs for the state and the institution's students. This may be the result of accounting definitions and bond requirements, but non-bondable options should be included as part of a comprehensive and strategic capital plan.

Finally, in the capital planning process, project categories can be defined by four basic drivers: (a) capacity need (b) facility quality (c) campus infrastructure, or (d) special need (e.g., a shared performing arts facility). (note: citation/footnote needed) Although it is not critical to adopt these project categories, it may be useful to think in these terms. The recommendation of this report is to focus on investments related to improving the quality and suitability of existing facilities, not capacity or special needs. It should be noted however, that infrastructure needs are typically not included in discussions of deferred maintenance or capital funding, and although they were not raised within the scope of this study, there may be valid needs which should be addressed.

3.7 Add professional staff at HECC with architectural/engineering or facilities experience

Many leading state systems and coordinating commissions have professional staff experienced in facilities management or credentialed in planning, architecture or engineering, who support and coordinate capital planning efforts. The Department of Administrative Services uses a model with a State Architect position, which has contributed to successful capital program management. Given the magnitude of investment in capital projects and the need to be highly strategic with future resources, very modest staffing costs can be leveraged to great gains. This will enable HECC to better support the regional institutions, while raising the level of engagement with the professionally staffed research institutions.

3.8 Require and/or fund facility space inventories and management; encourage development of uniform utilization standards

The adage that "one can only manage what one measures" is particularly applicable to space assets. In order to assess future needs, it is fundamentally necessary to first understand what space exists and how it is being used. The consistent gathering of both space and utilization data is therefore recommended.

The development and maintenance of a room-level space inventory is a clear best practice and should be a prerequisite for capital funding. It should be recognized, however, that there is a spectrum of practices across the universities, and either one-time or ongoing funding of planning and space management activities would be worthwhile. A cornerstone of university space management system is a software application to manage the university's space assets and a process (inclusive of staffing) to maintain the data. The software platform should allow for exports of space data into common formatting for use by HECC. Quantifiable data about space assets can then be used to inform capital planning decisions. The lack of consistent space data at all institutions made it exceedingly difficult to conduct this study and produce reliable space analytics comparable for all universities.

As it has been noted, "improving utilization is…the most cost effective strategy…because it improves return on existing investments."[6] Requiring reports on classroom and teaching lab utilization is also required by many coordinating boards and systems.

As also noted with funding of facility demolition, activities involving space planning and utilization may not be bondable, but should serve a key role in a comprehensive capital plan.

3.9 Develop and maintain facility condition assessments which account for both functionality and suitability to inform asset management goals

It is recommended that HECC require (and/or recommend the funding of) facility assessments to evaluate existing facilities for both condition and suitability. A facility condition assessment should consider not only the age and performance of building components and systems, but also the suitability of the facility for academic program delivery. A large, raked auditorium may be fully functional for lectures, but completely ill-suited to deliver instruction in an active-learning, team-based environment shown to have better student outcomes.

3.10 Promote Institutional Strategic and Master Planning

Each institution should routinely engage in planning activities that consider statewide needs, develop strategic goals in line with role and mission, and produce data informed facility plans.

6 "Planning and Managing Campus Facilities." Edited by William, Daigneau, copyright 2003 APPA and NACUBO.

3.11 Require that all capital project proposals include an analysis of long term operating impacts, including maintenance and renewal costs, as well as alternatives

It would be highly preferable that a prerequisite for capital project funding be that the institution have a plan for funding the lifecycle maintenance and renewal of the facility out of institutional operating funds. But this necessarily shifts the discussion from funding of capital investment to operating costs. At the least, a best practice is to ensure that these lifecycle costs are understood and acknowledged as part of a "stewardship model."[7] Additionally, a review of project alternatives ensures that less capital intensive options are considered.

3.12 Fine tune capital funding prioritization process

The project team has provided a series of comments and perspectives on the capital prioritization rubric throughout the term of the study. The overarching theme is for the process to become more responsive to statewide needs that could potentially transcend individual institution needs. As noted in the section on capital planning procedures, some systems and coordinating commissions prioritize projects on the basis of each project's merit, rather than a equal distribution of the top, board-ranked projects. Such a process helps ensures that the state's priorities are paramount. Ultimately, the rubric should align funding for capital projects with statewide strategic goals articulated by the HECC, in consideration of demographics, educational attainment, increased access, and occupational demand, among others. Heavily weighting compliance with the HECC statewide strategy moves the process toward one that is less reactive to individual institutional initiatives and proactive in supporting statewide priorities.

4. Define Institutional Role and Mission

In a survey of state higher education executive officers across the nation (jointly conducted with SHEEO) for this study, 43% of respondents indicated that role and mission were set in state statute and over 71% were reviewed regularly. Such an approach when conducted on a statewide scale will serve to coordinate both efforts and investments, result in greater efficiencies and avoid costly duplication of programs and facilities.

We therefore urge HECC to undertake an effort to more rigorously define missions for the public higher education institutions in the state. This definition should include assignment of:

a) Audiences to be served by institutions—geographic, prior academic preparation (selectivity), etc.

b) Arrays of programs to be offered—levels and academic fields, particularly professional fields

c) Unique roles—land grant, health sciences, etc.

As an example of the last point, the absence of a statewide plan for delivery of health professions education in the state results in a unbalanced and inefficient response to occupational needs. Healthcare is a growing industry in the state and almost all institutions are proposing addition of programs to train professionals in one health care specialty or another. Not including OHSU in the study leads to uncertainty about its role in this arena, especially their intent/willingness to partner with other institutions in the delivery of health professions programs. We recommend that HECC undertakes a study of the best ways to respond to programmatic needs in this arena before moving ahead with either:

- Approval of mission changes that would expand institutional missions to include health professions programs (for example, at Western)
- Approval of additional health care programs as stand-alone programs (i.e., not delivered in partnership with OSHU)

We suggest that HECC take a look at the mission statements embedded in policy in the state of Arkansas for guidance with best practices.

7 "Buildings - The Gifts that keep on Taking; A Framework for Integrated Decision Making," by Rodney Rose, published by APPA 1999.

PROCESS OVERVIEW

DATA COLLECTION

Data gathering was extensive and used multiple sources:

- Room level space inventory, requested from each institution
- Course schedule data (requested from each institution)
- Staffing data (requested from each institution)
- Research expenditures (each institution and National Science Foundation, NCES)
- Building age and GSF data (collected by HECC from each institution)
- Historical enrollment data and projections (collected by HECC from each institution)
- Demographics, Census data
- Occupational and job posting data (EMSI, plus other sources)
- Geographic regions associated with each institution (confirmed resulting regional designations with HECC)
- Strategic Plans, Master Plans, and Capital Plans (requested from each institution)
- Deferred Maintenance data
- State Architect building data
- Research of best practices, SHEEO survey, Rubric review

SITE VISITS

The project conducted site visits to each of the seven main campuses plus visits to the OSU - Cascades campus in Bend and Oregon Tech facility in Wilsonville. Meetings were held with campus representatives as deemed appropriate by each institution. Staff present ranged from facility managers, planners and architects to senior administrators. During these meetings, basic information was reviewed and discussed regarding the campus, its facilities, strategic and capital plans, enrollment plans and other data points. Time was set aside to tour campus facilities, as guided by the host institutions. This gave the team a first-hand look at the facilities and issues facing each campus.

During this first round of visits, meetings with HECC personnel, the Population Center at PSU, and legislative staff were also arranged.

The project team then undertook a second round of site visits to each of the eight campuses, during which the project team participated in meetings with educators, representatives of local employers, and workforce and economic development experts from the region. Included in the educators' meeting were institutional administrators along with representatives of the local K–12 district or districts as well as the local community

college. A major focus of the discussions concerned the institution's enrollment plans, how they developed their enrollment projections, and their intended strategies for achieving them. The site visits also addressed the institution's plans for program development or enhancement in connection to workforce and economic development needs. These conversations tied into the kind of space needs the institutions were seeing, in terms of new facilities as well as existing spaces that are no longer effectively serving a purpose.

ANALYSIS

It is increasingly evident that postsecondary education and training and related capital expenditures should be closely aligned with workforce demands, both generally—as in postsecondary education provides a wide array of transferrable skills, and specifically—as in the array of academic programs available at public institutions across the state should be capable of supplying appropriately trained talent to meet workforce goals. With that in mind, this strategic capital plan approached the needs of the state and its seven (or eight, depending on how one categorizes the OSU - Cascades campus) public four-year institutions from a regional perspective. This plan uses the state's workforce investment areas to draw regions that define each institution's primary service area, and then uses those regions to assess the extent to which demand for enrollment will come from students in those areas, as well as to assess the extent to which employment demand can be best met with what array of academic programs.

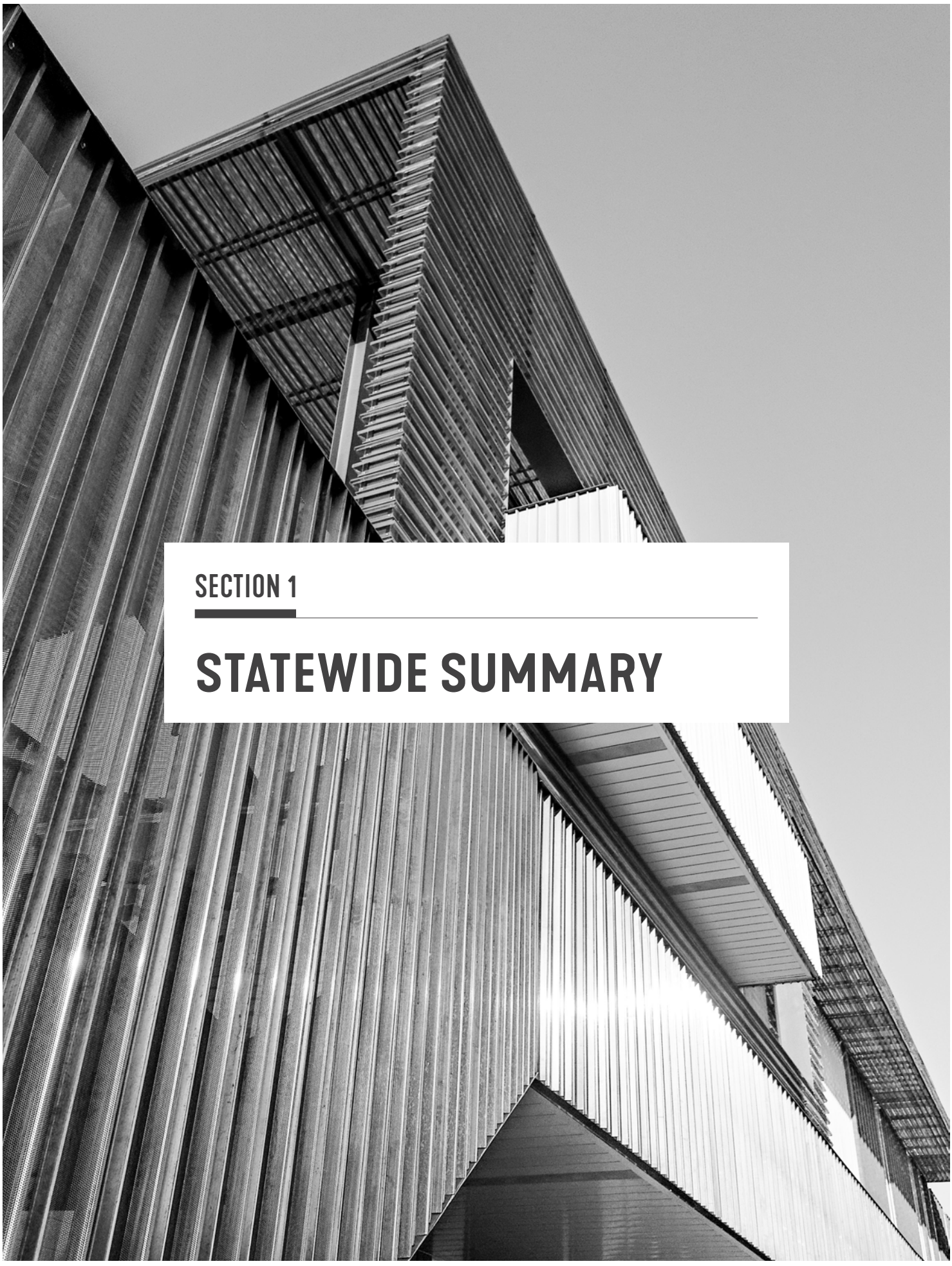
To assess the extent to which space needs may be created by additional enrollments, the project team analyzed a wide array of data addressing population trends and projections; expected enrollments from the traditional pipeline of students completing high school and enrolling directly in one of Oregon's public four-year institutions, from out-of-state students, and from non-traditionally aged adult enrollments; and from the potential improvement in retention rates.

In addition to looking at recent data, the project team also modeled the enrollment impacts of potential changes in all of these data at the state level and for each of the eight campuses, using a heuristic tool—NCHEMS' Student Flow model—which has seen common use in other states but was modified with Oregon-specific data for this project. The data used for the models relied on each institution's enrollments traced to students' county of origin within Oregon, as well as out-of-state enrollees and transfers. Scenarios of likely future enrollment took the three forms for each of the institutions (and OSU - Cascades), all of which were based on projected population change by age for the primary service area defined for each institution. These models:

1. Assumed all most recently measured rates of recruitment and retention would remain constant.
2. Assumed an across-the-board five percent increase in the most recently measured rates of recruitment and retention.
3. Estimated the across-the-board percentage increase in recruitment and retention rates that would be necessary for each institution to reach its own enrollment projection for 2030.

In addition, space models were created for each institution using the room level facility data, which was linked to enrollment, staffing and course data in specialized software developed for this purpose. The models were constructed using nationally recognized space planning guidelines and informed by the consultants' extensive experience and benchmarking data.

Linking these datasets also allowed utilization analytics to be run for classrooms and teaching laboratories, and these are summarized in the section on key findings.



SECTION 1

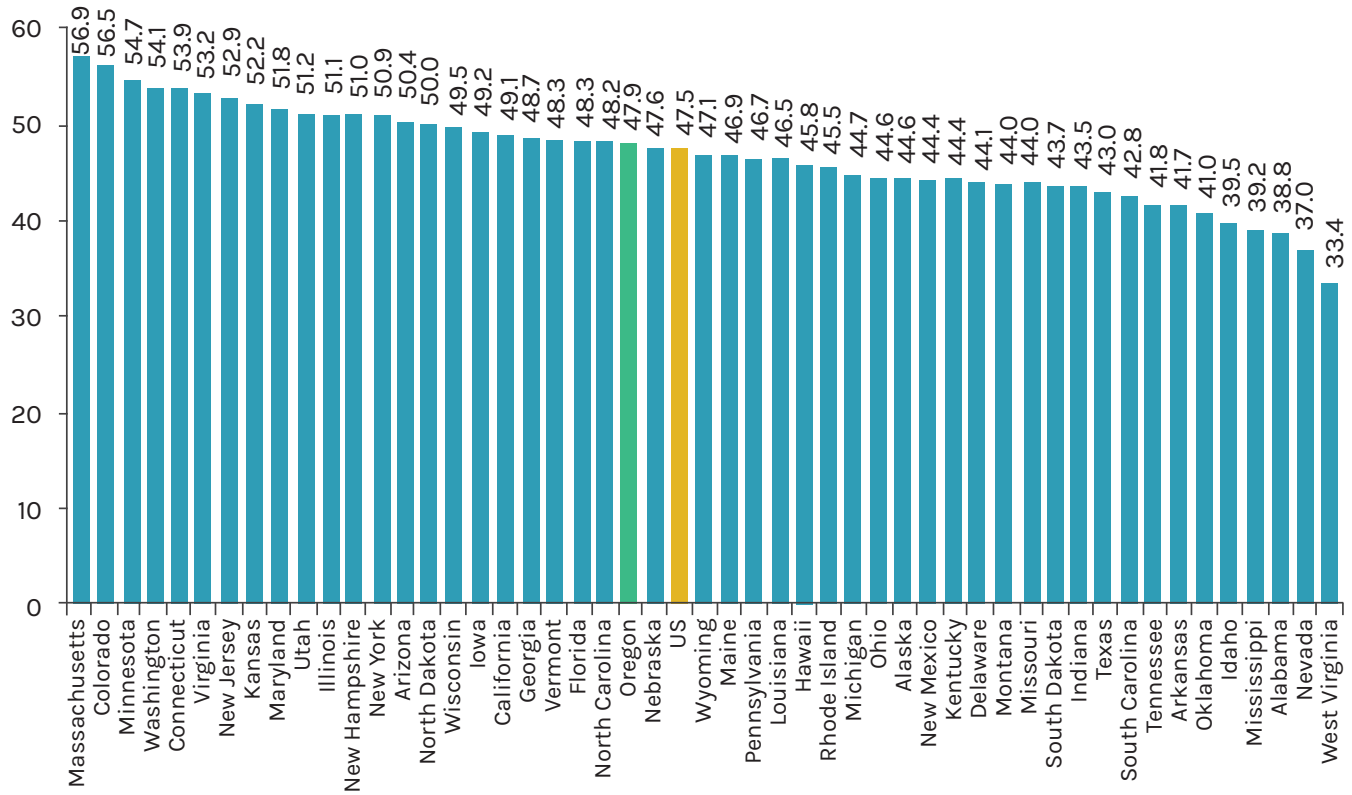
STATEWIDE SUMMARY

STATEWIDE
ENROLLMENT & WORKFORCE DEMAND ANALYSIS

POPULATION TRENDS AND CHARACTERISTICS

- Oregon is slightly more well educated than the nation as a whole, with just under 48 percent of the working-age population with a certificate or higher.
- In 2017, about 34.5 percent of working-age Oregonians had a bachelor's degree or better. Assuming trends in population, net migration, and rising educational attainment continue, Oregon's bachelor's or better educational attainment rate will reach 40.3 percent by 2030.[1]

ADULTS AGE 25–64 WITH A HIGH-QUALITY CERTIFICATE AND HIGHER, BY STATE, 2017

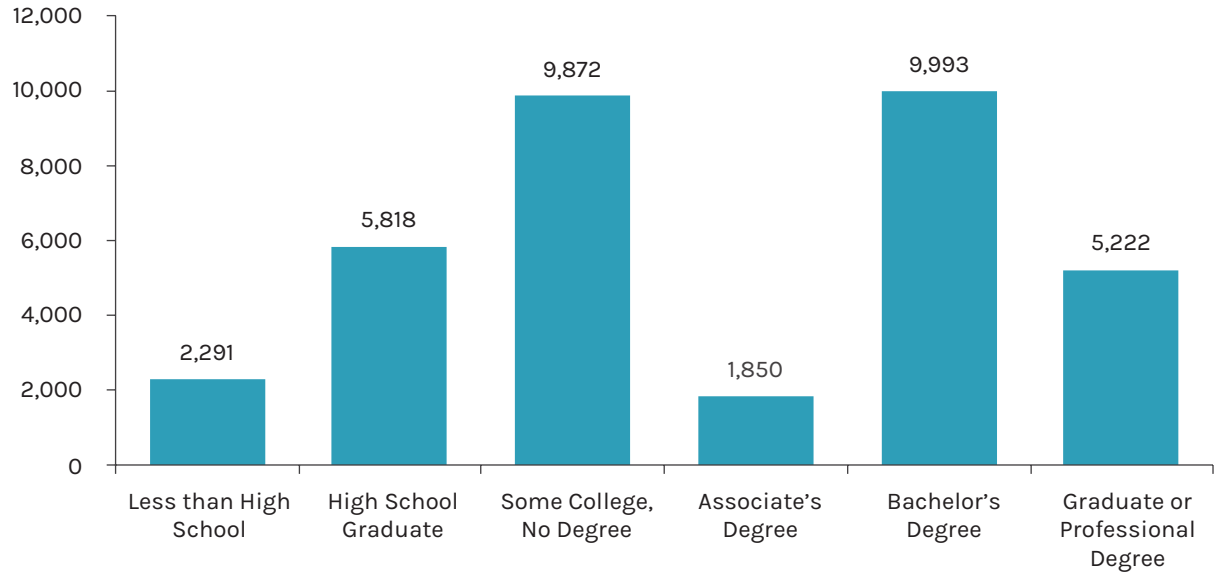


Sources: Certificate-holder data is the best available estimate based on Georgetown CEW updated calculations using SIPP 2008 Wave 12 data (2012) and IPEDS (2014). Found in Stronger Nation 2016 report; Data for percent of residents with an associates and higher from U.S. Census Bureau, 2016 American Community Survey; Table B15001

- One of the reasons that Oregon is in position to achieve its educational attainment target by 2030 is due to its ability to attract in-migrants. Between 2012–16, people at all education levels, but especially among those with some college but no degree and those with bachelor's degrees, moved to Oregon in numbers that surpassed those who moved away.

1 NCHEMS calculations of U.S. Census Bureau data.

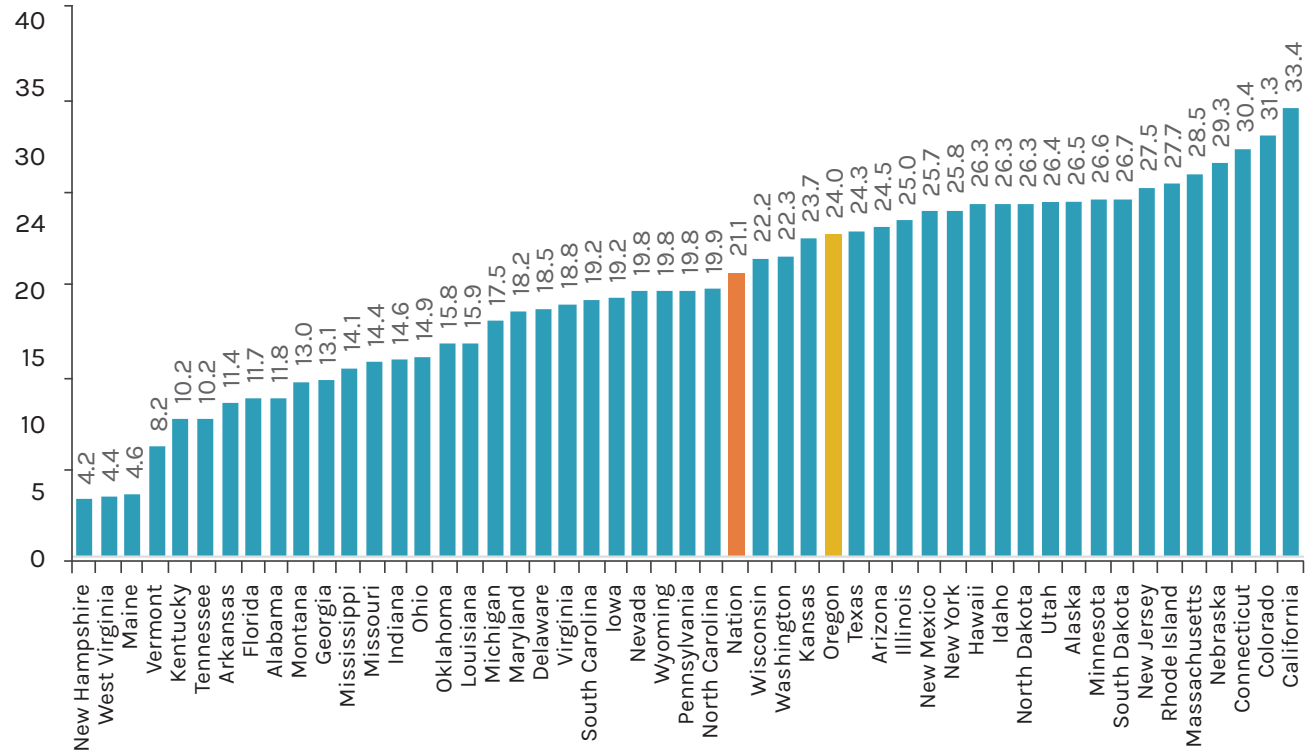
OREGON AVERAGE ANNUAL NET MIGRATION OF 22–64 YEAR OLDS BY EDUCATION LEVEL, 2012-16



Source: U.S. Census Bureau, 2012–16 American Community Survey (ACS) Five-Year Public Use Microdata Sample.

- Unfortunately, at 24 percentage points Oregon has a larger-than-average gap in educational attainment between white and underrepresented populations.

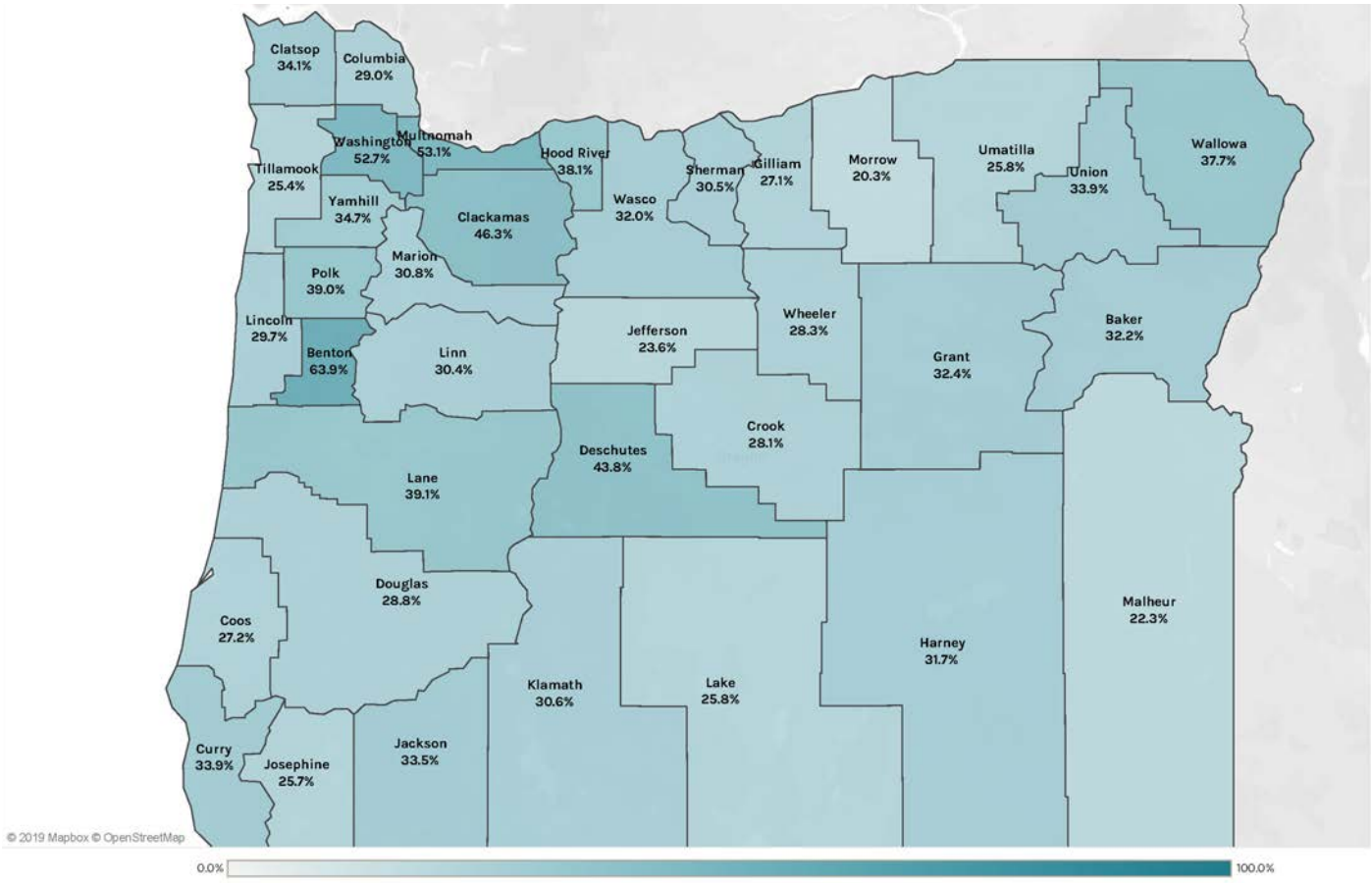
DIFFERENCES IN COLLEGE ATTAINMENT BETWEEN WHITES AND RACIAL/ETHNIC MINORITIES, AGES 25–64, 2016.



Source: U.S. Census Bureau, 2016 American Community Survey One-Year Public Use Microdata Sample.

- Educational attainment rates are widely varied across the state, with the most well-educated populations residing in and around Portland and Benton County, plus Deschutes County. Counties in the south and east of the state are substantially less well educated.

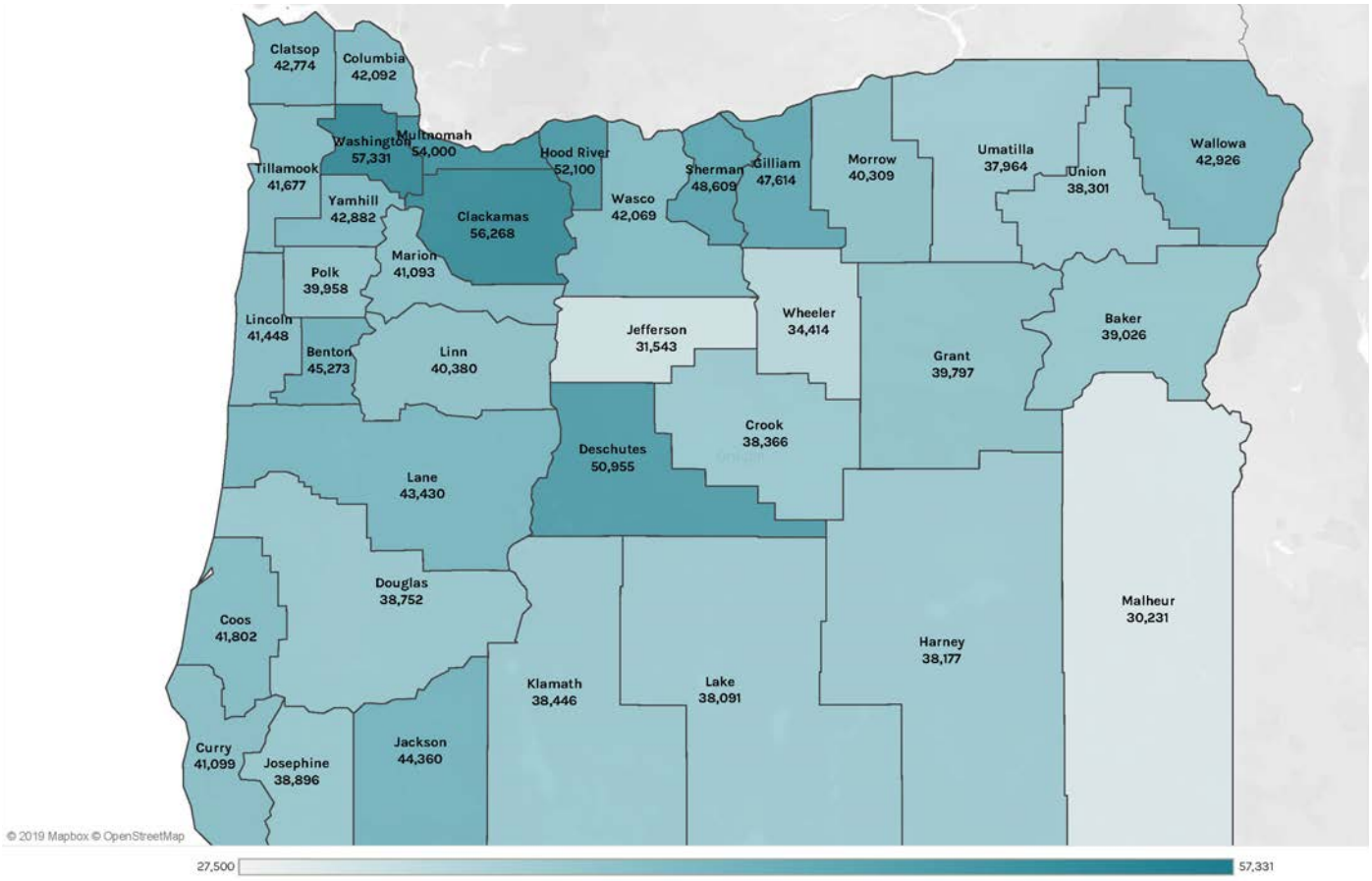
PERCENT OF ADULTS AGED 25–64 WITH COLLEGE DEGREES – ASSOCIATE & HIGHER – BY COUNTY (2013–17)



Source: U.S. Census Bureau, 2013–17 American Community Survey Five-Year Estimates; Table B15001.

- There is a high correlation between educational attainment and earnings generally in the U.S., so it is no surprise to see per capita income levels match the concentration of residents with postsecondary degrees by county in the state. What is notable is the extent of the range, with residents in Washington County making nearly twice that of residents of Malheur County. Though that gap is mitigated by differences in the cost of living between expensive areas in and around Portland relative to rural parts of the state, it reflects a wide variation in how affordable college expenses (including living costs) will be for students from different origins.

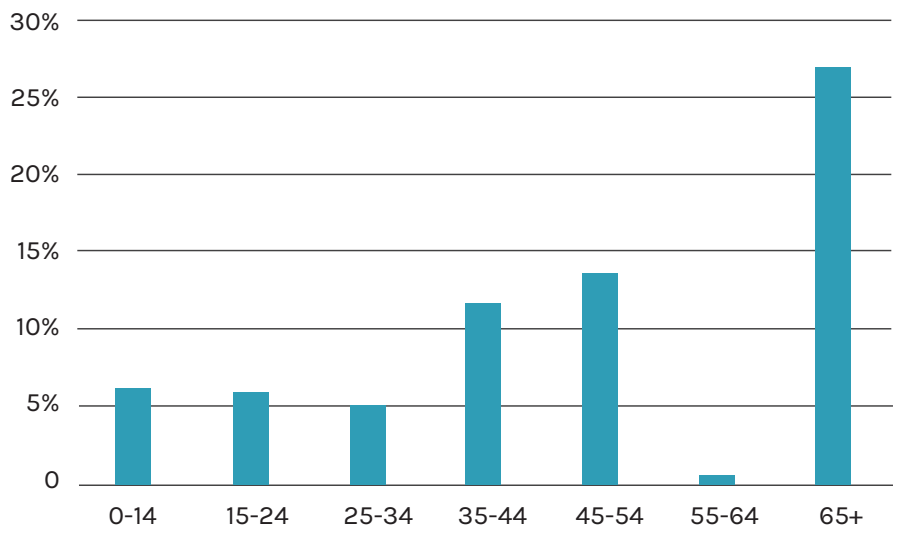
PER CAPITA INCOME BY COUNTY IN OREGON, 2017



Source: U.S. Bureau of Economic Analysis.

- Oregon's Population Projection Center expects increases across all age groups between 2020 and 2030, with expected increases of around just over five percent for age groups under 35, increases of 12–13 percent for ages between 35 and 55, essentially flat growth among older working-age populations, and a dramatic increase of greater than 25 percent among retiree-aged populations. The expected increase among 15–24 year olds—those approaching and in the traditional college-age groups—comes to just over 31,000 additional residents.
- The population projections put forth by PSU's Population Research Center appear to rely on an a substantial jump upwards in net migration.

PERCENT CHANGE IN PROJECTED POPULATION BY AGE BAND, 2020–2030



Source: Population Research Center, Portland State University.

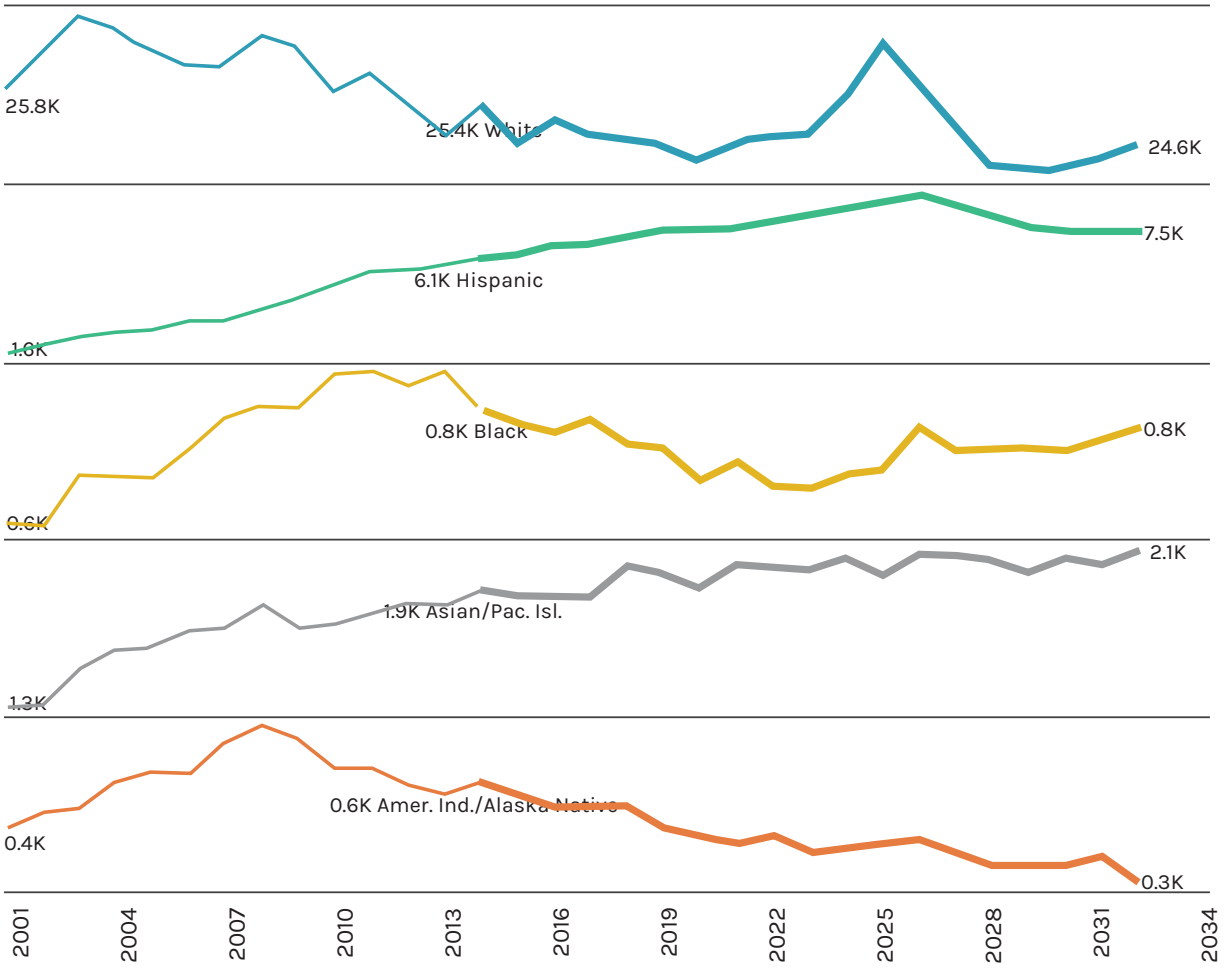
- Projections of high school graduates expected to be produced in Oregon over the next 15 years indicate the continuation of a gradual downward trend in their number. This decline stretches back to the peak of over 38,300 graduates in 2009. It will settle around 36,000 graduates before a short-lived spike in 2025–26. Over those two years, numbers are expected to bump upwards by about 2,100 high school graduates, or about six percent. This spike will see the count of high school graduates reach nearly all the way back to the 2009 peak before a steep drop to about 35,000 in 2029 that, if true, will be the lowest number in 25 years.
- It is worth noting that prior to the 2009 peak, Oregon (and other states) saw near-constant, rapid growth in the number of high school graduates—and the enrollment demand that came along with them. This stretched well back into the 1990s, and institutional responses to this massive change in demand often resulted in adding facilities and personnel, along with the development of policies and practices that no longer snugly fit the demographic future we see ahead.

OVERALL HIGH SCHOOL GRADUATE TRENDS | OREGON

Source: Western Interstate Commission for Higher Education, *Knocking at the College Door*: Projections of High School Graduates, 2016. *Notes*: Projections begin with Class of 2012 for Public and Private together, 2014 for Public only.

- Moreover, the racial/ethnic composition of the population that will drive much of Oregon's demand for postsecondary education is rapidly changing. Most notably will be rapid decline of white, non-Hispanic high school graduates after 2025. Consistent growth among Hispanic populations through 2035, plus a less acute drop in subsequent years than that of whites, as well as steady or slow growth in black and Asian/pacific islander populations, will together result in much greater racial/ethnic diversity statewide. Given the extent to which underrepresented racial/ethnic minority populations share characteristics associated with reduced chances of success in college—low socioeconomic and first-generation status, especially—Oregon's public institutions will need to be ready to respond appropriately, potentially including with efforts to promote student success that may have facilities requirements.

PUBLIC SCHOOL TRENDS | OREGON

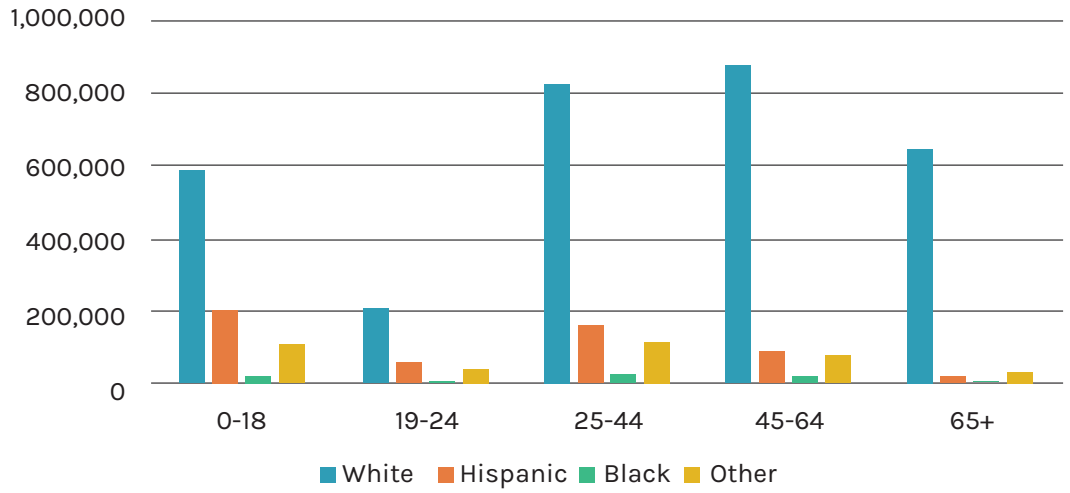


Source: Western Interstate Commission for Higher Education, *Knocking at the College Door*: Projections of High School Graduates, 2016. *Notes:* Projections begin with Class of 2014 (thicker line).

- Looking beyond high school graduates at changes in Oregon's population yields similar findings: Oregon saw increases in population among all age ranges and all race/ethnicities between 2000 and 2017, with the notable exception of white youth. In fact, Oregon's white population—its most well educated, is rapidly aging. Meanwhile, Hispanic populations grew fastest among the minors.

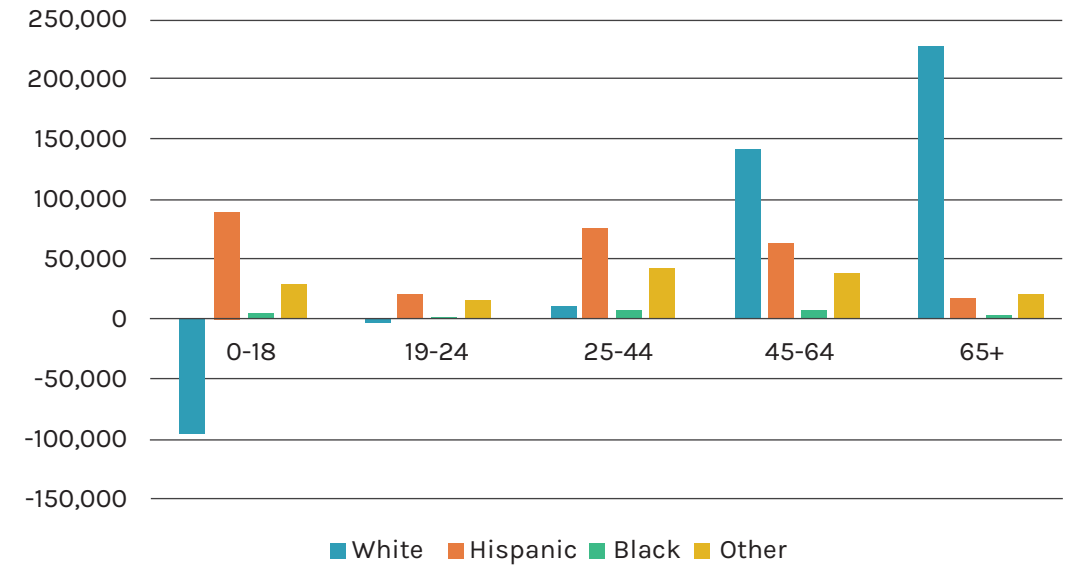
- The 19–24 year olds, who represent the bulk of the traditional college-age population, changed hardly at all over the same period.
- Even among older adults who may be seeking a postsecondary education, the population in Oregon will be more racially/ethnically diverse as time goes by.

OREGON POPULATION BY AGE AND RACE/ETHNICITY, 2017



Source: U.S. Census Bureau, Population Division; SC-EST2017-ALLDATA6: Annual State Resident Population Estimates for 6 Race Groups (5 Race Alone Groups and Two or More Races) by Age, Sex, and Hispanic Origin: April 1, 2010 to July 1, 2017; File: 7/1/2017 State Characteristics Population Estimates; Release Date: June 2018.

CHANGE IN OREGON POPULATION BY AGE AND RACE/ETHNICITY, 2000–2017

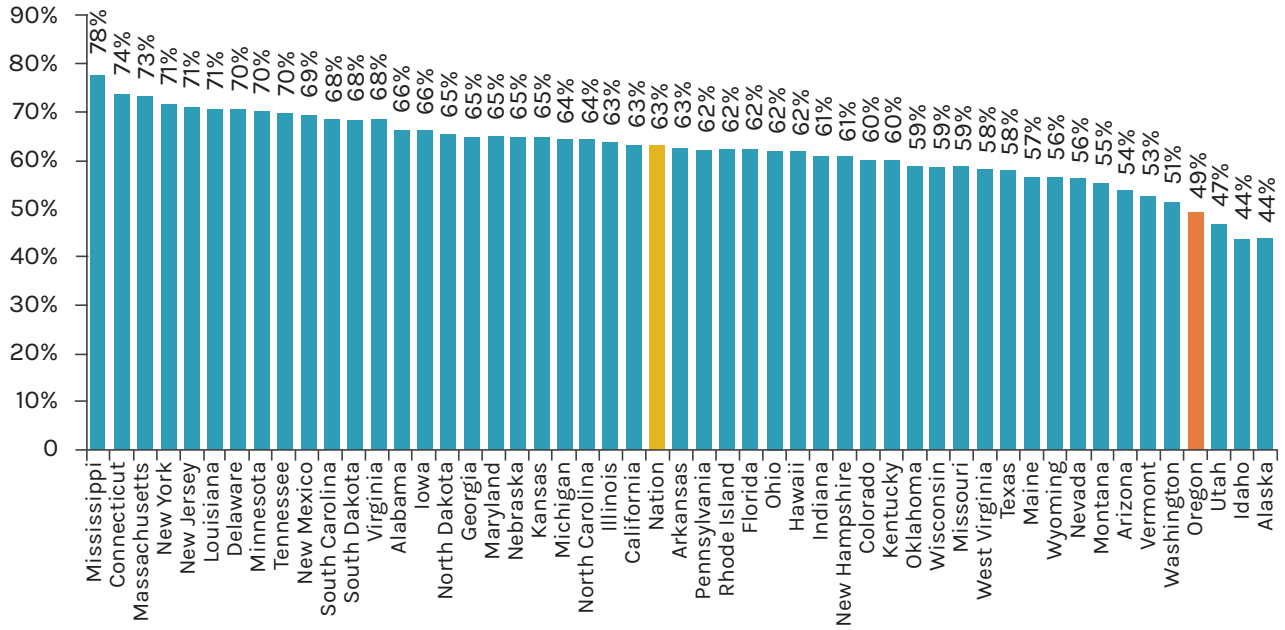


Source: U.S. Census Bureau, 2000 Census; Summary File 1; U.S. Census Bureau, Population Division; SC-EST2017-ALLDATA6: Annual State Resident Population Estimates for 6 Race Groups (5 Race Alone Groups and Two or More Races) by Age, Sex, and Hispanic Origin: April 1, 2010 to July 1, 2017; File: 7/1/2017 State Characteristics Population Estimates; Release Date: June 2018.

PROJECTING ENROLLMENT DEMAND

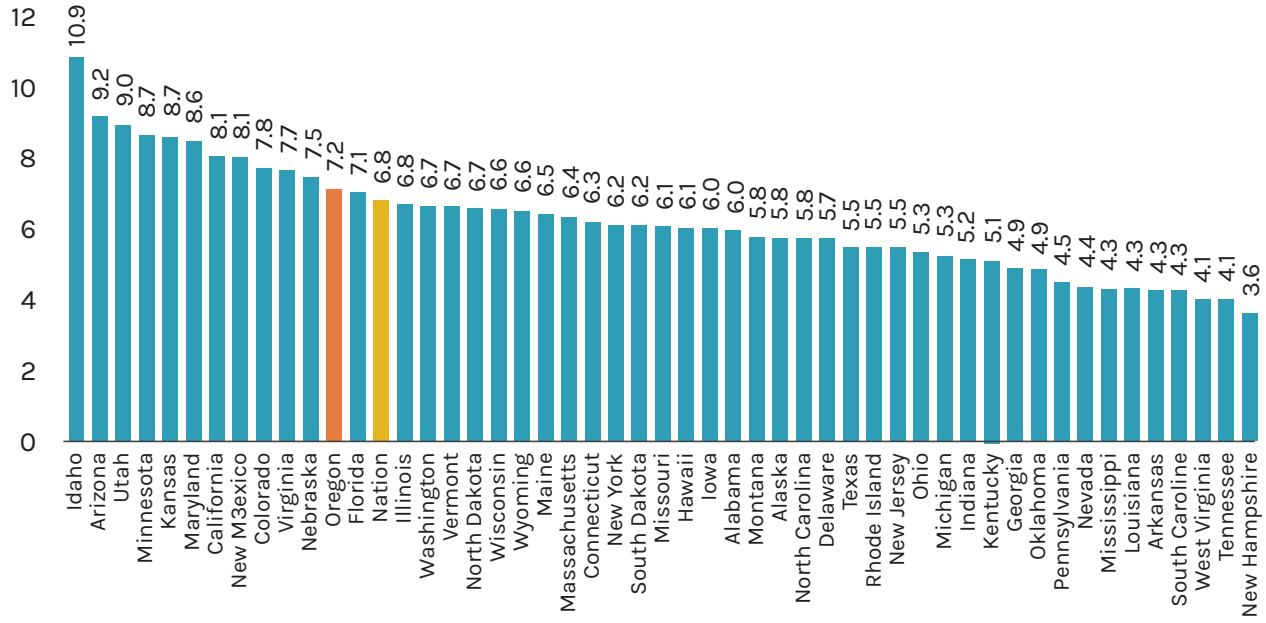
- The rate at which recent high school graduates in Oregon elect to attend college anywhere in the US within 12 months of high school graduation is among the lowest in the country, while the participation rate among adult learners exceeds the national average.

PERCENT OF HIGH SCHOOL GRADUATES WHO ENROLL IN POSTSECONDARY INSTITUTIONS WITHIN 12 MONTHS, 2016



Source: Western Interstate Commission for Higher Education, *Knocking at the College Door: Projections of High School Graduates*, 2016; NCES, IPEDS Fall 2016 Residency and Migration File; ef2016c Provisional Release Data File.

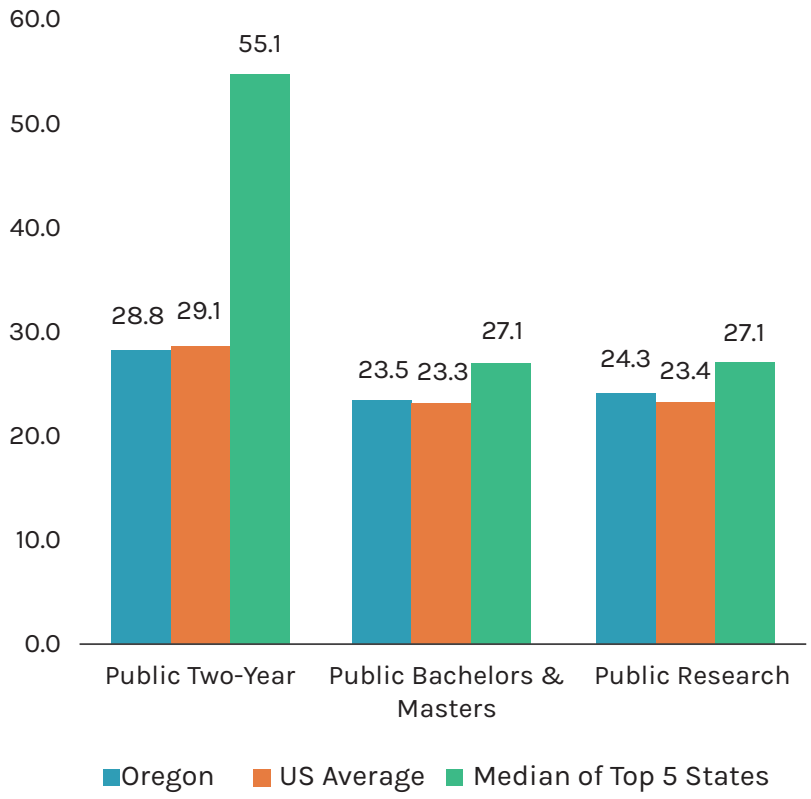
UNDERGRADUATE ENROLLMENT AGE 25–49 AS A PERCENT OF POPULATION AGE 25–49 WITH LESS THAN AN ASSOCIATE'S DEGREE, 2017



Sources: NCES, IPEDS Fall 2015 Enrollment File; ef2015b Provisional Release Data File; U.S. Census Bureau, 2015 American Community Survey One-Year Public Use Microdata Sample.

- Oregon is competitive with national averages in the rate of degree completers to enrolled students, which is a measure of productivity and throughput. It falls well short of best-performing states in all three sectors, but the comparison among public two-year institutions is led by states with technical institutes rather than traditional community colleges.

UNDERGRADUATE DEGREES AND CREDENTIALS AWARDED PER 100 FTE UNDERGRADUATES



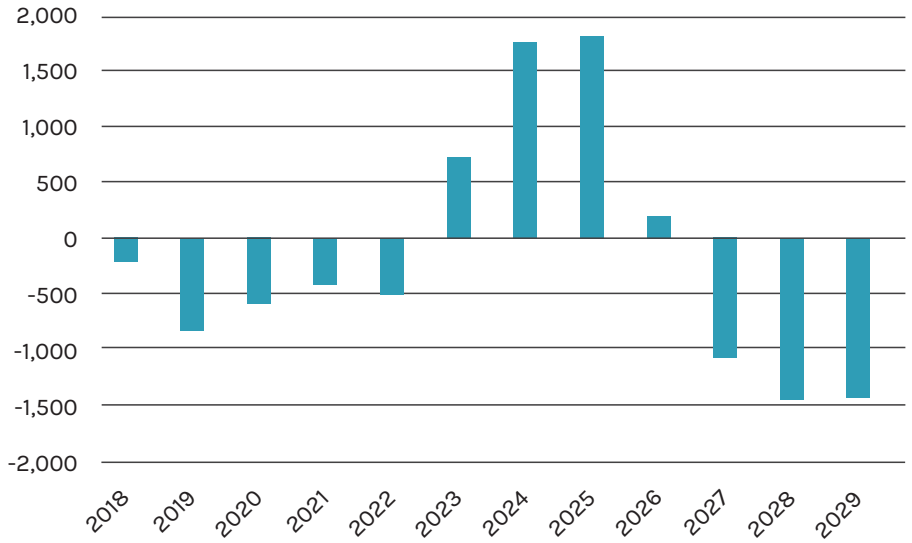
Source: NCES IPEDS.

To assess the likely need for space caused by undergraduate enrollment demand, NCHEMS modeled enrollment projections for each of Oregon's public four-year institutions based on the following assumptions:

- Ratio of high school graduates to 9th graders[2]
- College-going rate of recent high school graduates to enrollment at an Oregon public four-year institution[3]
- Participation rate per 100,000 population of 20–49 year olds enrolling for the first-time at an Oregon public four-year institution[4]
- Enrollment of first-time students from out-of-state[5]
- Ratio of transfer students from public two-year to public four-year institutions to the total enrollment of public two-year institutions [6]
- Retention and completion rates[7] remain steady
- Projected population changes for each institution's designated service areas[8]
- County-of-origin of undergraduate enrollment[9]
- The current proportional mix on on-campus and online students remains constant

This modeling suggests that, barring significant changes in recruitment or retention, Oregon's public four-year institutions will see very little change in FTE enrollments between 2018–19 and 2029–30, peaking with just over 1,800 additional FTE in 2025–26 before experiencing a rather abrupt decline over just a couple of years. Overall, however, the greatest projected increase amounts to just 2.5 percent of total statewide enrollments in 2017–18.

EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017



Note: Data shows the difference between the expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect no assumed changes in the most recent data for recruitment and retention.

2 NCES CCD, Western Interstate Commission for Higher Education, Knocking at the College Door, knocking.wiche.edu.

3 Enrollment by county (Oregon HECC), high school graduates (oregonlive.com), Residence and Migration (NCES IPEDS)

4 Enrollment by county (HECC), Residence and Migration (NCES IPEDS).

5 Enrollment of non-resident students (HECC), Residence and Migration (NCES IPEDS)

6 Oregon HECC.

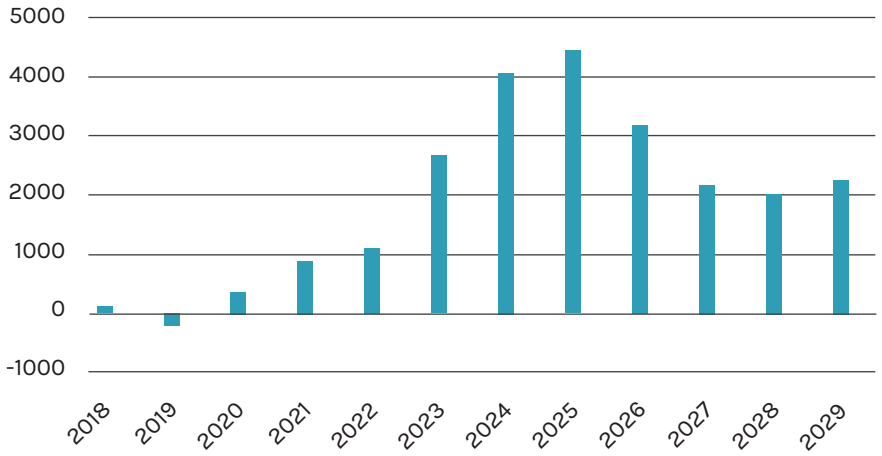
7 NCES IPEDS.

8 Office of Economic Analysis, Oregon Department of Administrative Services.

9 Oregon HECC.

Even under optimistic assumptions about statewide improvements in recruiting and retaining students, NCHEMS' model would not yield substantially large enrollment increases. For example, adjusting each of the following parameters—enrollment of in-state students, out-of-state students, and transfer students, as well as retention rates—by five percent at all public four-year institutions yields an enrollment increase of about 4,500 FTE in the peak year of 2025–26, or about 6 percent over the 2017–18 enrollment level. In subsequent years, enrollments anticipated from this kind of hypothetical across-the-board improvement will remain positive but only by about half the peak amount.

EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017, ASSUMING A 5% INCREASE IN RECRUITMENT AND RETENTION MEASURES

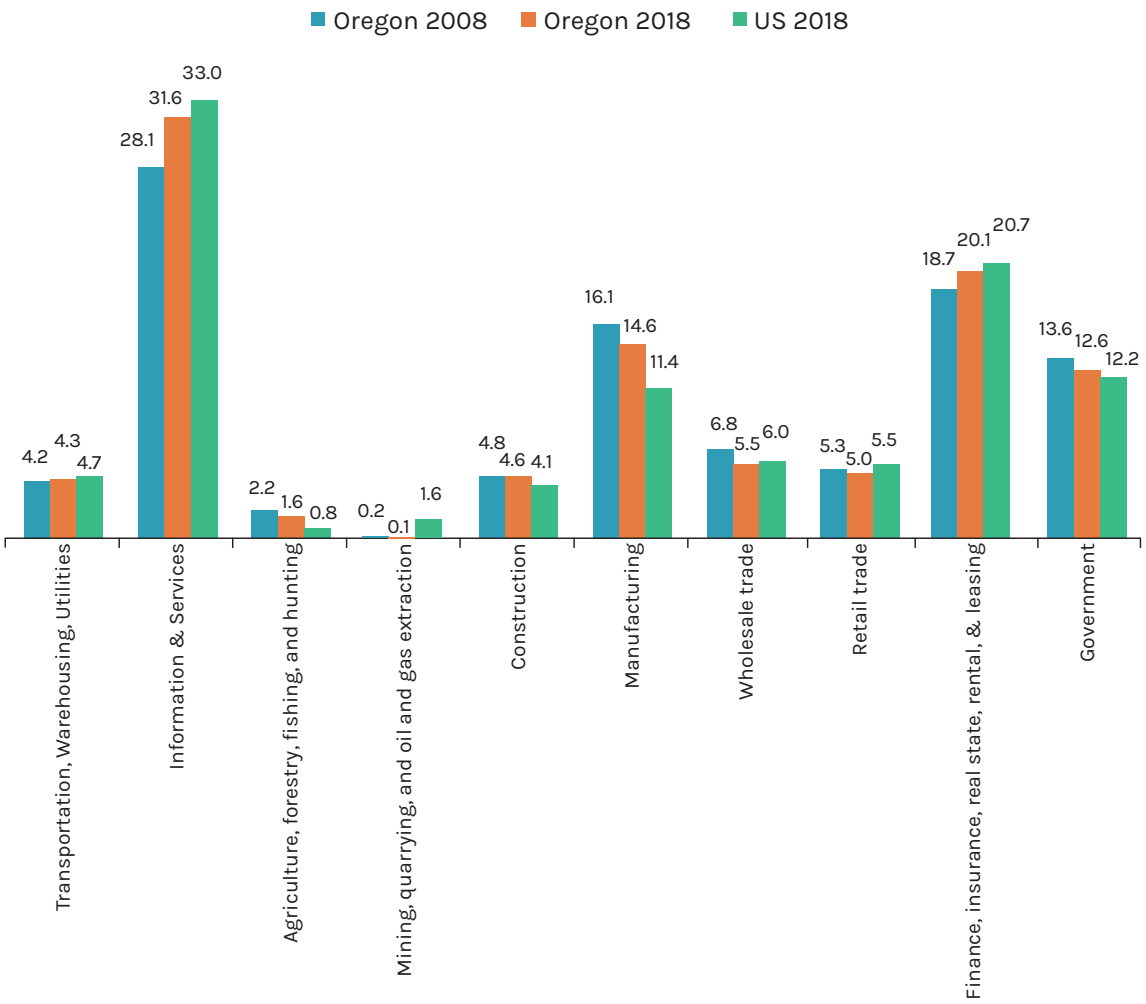


Note: Data shows the difference between expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect a 5% increase in each of the recruitment measures for different student categories—in-state students, out-of-state students, and transfer students—as well as retention rates from the first- to the second year. No change in the high school graduation rate is assumed.

ALIGNING EDUCATIONAL SUPPLY WITH EMPLOYMENT DEMAND IN OREGON

- Oregon's economy has undergone some dramatic change in the decade between 2008 and 2018. Most notably has been the rapid increase in industries for which jobs commonly require a postsecondary education. Increases in these jobs has come at the expense of industries that are home to occupations with lower educational demands. Namely, Oregon's information and services and its financial services industries have comprised a rapidly growing proportion of Oregon's gross state product, while manufacturing, wholesale trade, and natural resources-based industries have contracted, although the latter remains large relative to its share of the national economy.

PERCENT OF TOTAL GROSS STATE PRODUCT BY INDUSTRY AND COMPARISON TO THE NATION



Source: U.S. Bureau of Economic Analysis.

- Oregon's projected occupational needs demonstrate a growing need for talent to fill occupations with postsecondary education credentials, often at the bachelor's degree level, especially in broad categories related to positions in management and healthcare. While these jobs are not always at the high end in terms of the number of annual openings expected, they rise in the list when it is sorted based on the anticipated growth.

Occupation Title	Employment, 2016	Employment 2026	Net Change	Percent Change	Average Annual Openings, Growth	Average Annual Openings, Replacement	Average Annual Openings, Total
Total, All Occupations	2,045,907	2,291,921	246,014	12.00%	24601.4	238,331	262,932
Food Preparation & Serving Related	176,927	201,998	25,071	14.20%	2507.1	31,888	34,395
Management Occupations	133,136	153,542	20,406	15.30%	2040.6	11,026	13,066
Healthcare Practitioners & Technical	106,709	125,471	18,762	17.60%	1876.2	5,864	7,740
Sales & Related	215,676	233,857	18,181	8.40%	1818.1	30,106	31,924
Transportation & Material Moving	130,342	147,309	16,967	13.00%	1696.7	16,786	18,483
Construction & Extraction	100,674	117,099	16,425	16.30%	1642.5	10,719	12,361
Personal Care & Service	94,824	110,886	16,062	16.90%	1606.2	14,940	16,547
Office & Administrative Support	276,889	292,508	15,619	5.60%	1561.9	31,644	33,206
Education, Training, & Library	118,642	132,177	13,535	11.40%	1353.5	10,952	12,306
Business & Financial Operations	90,581	103,468	12,887	14.20%	1288.7	8,605	9,893
Healthcare Support	52,170	63,013	10,843	20.80%	1084.3	6,385	7,469
Computer & Mathematical	54,443	64,925	10,482	19.30%	1048.2	3,889	4,938
Building & Grounds Cleaning & Maintenance	67,148	76,536	9,388	14.00%	938.8	8,931	9,869
Installation, Maintenance, & Repair	68,234	75,369	7,135	10.50%	713.5	6,768	7,481
Production	120,532	127,345	6,813	5.70%	681.3	13,929	14,611
Architecture & Engineering	43,023	48,863	5,840	13.60%	584	3,265	3,849
Farming, Fishing, & Forestry	46,062	51,285	5,223	11.30%	522.3	7,018	7,540
Community & Social Service	37,764	42,716	4,952	13.10%	495.2	4,287	4,782
Arts, Design, Entertainment, Sports, & Media	39,789	44,598	4,809	12.10%	480.9	3,963	4,444
Life, Physical, & Social Science	21,447	23,929	2,482	11.60%	248.2	2,064	2,312
Protective Service	34,410	36,806	2,396	7.00%	239.6	4,034	4,273
Legal	14,071	15,460	1,389	9.90%	138.9	880	1,019

Source: Oregon Employment Department, www.qualityinfo.org.

- On a statewide basis, Oregon employers in a number of industries face especially high hurdles in filling jobs, with health care, construction, and manufacturing reportedly among the most difficult. A look at these data at the occupational level is more revealing, especially given the much higher wages reported on this table, which likely indicates that these are jobs less prone to turnover. Clearly they are also jobs that have higher postsecondary education demands, as well, and they include technicians and tradespeople, health care providers, and professional technical people like engineers and software developers.

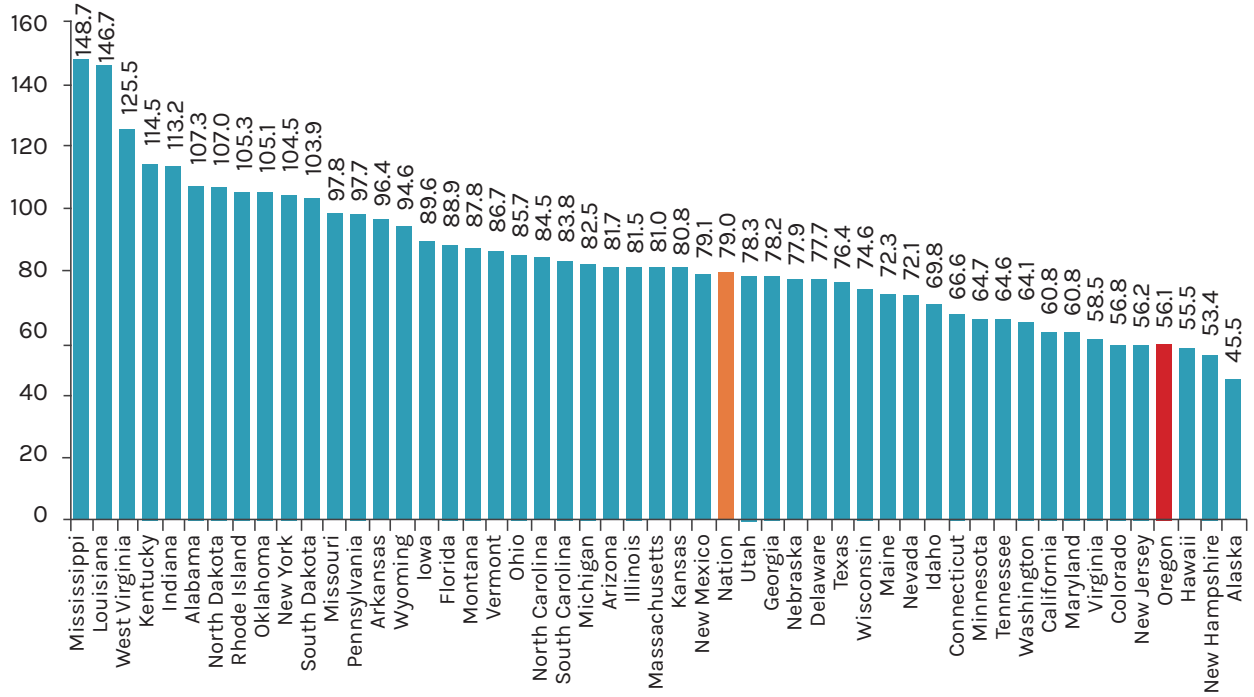
Industry	Vacancies	Average Wage	Full-time	Permanent	Require Ed Beyond HS	Require Experience
All Industries	**33,023**	**$18.76**	**80%**	**91%**	**34%**	**67%**
Health care and social assistance	5,536	$18.09	59%	98%	44%	61%
Construction	4,829	$24.20	99%	97%	40%	83%
Manufacturing	4,187	$21.07	98%	96%	30%	83%
Leisure and hospitality	3,816	$12.87	53%	84%	8%	41%
Administrative, management, and waste services	3,345	$17.07	89%	90%	30%	60%
Retail trade	2,462	$14.06	72%	96%	13%	46%
Professional and technical services	1,968	$25.75	86%	89%	79%	91%
Natural resources and mining	1,870	$15.13	92%	52%	6%	42%
Other services	1,301	$17.74	83%	91%	46%	77%
Wholesale trade	1,239	$20.75	96%	98%	33%	85%
Transportation, warehousing, and utilities	1,225	$21.02	80%	87%	48%	76%
Financial activities	590	$17.47	61%	89%	64%	84%
Private education services	380	$14.63	34%	67%	42%	81%
Information	250	$19.46	98%	100%	53%	84%

OREGON'S DIFFICULT-TO-FILL VACANCIES BY OCCUPATION, 2018

Occupation Title	Difficult-to-Fill Vacancies	Average Wage	Require Ed Beyond HS	Require Experience	Difficult % of All Vacancies
Heavy and Tractor-Trailer Truck Drivers	1,664	$22.13	79%	93%	86%
Automotive Service Technicians and Mechanics	576	$19.51	70%	90%	75%
Electricians	540	$34.89	93%	97%	96%
Plumbers, Pipefitters, and Steamfitters	416	$31.72	90%	100%	100%
Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	359	$26.07	55%	88%	48%
Interior Designers	301	$27.27	100%	100%	99%
Registered Nurses	289	$33.90	99%	71%	43%
Bus and Truck Mechanics and Diesel Engine Specialists	204	$25.54	60%	98%	69%
Industrial Engineers	203	$43.59	100%	100%	100%
Sales Engineers	187	$38.65	100%	100%	100%
Software Developers, Applications	183	$29.61	100%	100%	94%
Security and Fire Alarm Systems Installers	180	$30.46	100%	100%	97%
Sheet Metal Workers	178	$35.93	84%	100%	100%
Tax Preparers	169	$18.32	100%	100%	54%
Bookkeeping, Accounting, and Auditing Clerks	168	$16.06	67%	93%	26%
Tile and Marble Setters	159	$22.59	92%	100%	100%
Patternmakers, Metal and Plastic	142	$31.25	100%	100%	100%
Cost Estimators	142	$60.94	68%	100%	100%
Licensed Practical and Licensed Vocational Nurses	129	$23.64	100%	84%	59%
Sales Managers	129	$48.77	84%	100%	86%
Massage Therapists	117	$25.60	77%	53%	98%
Business Operations Specialists, All Other	114	$18.79	61%	92%	32%
General and Operations Managers	110	$21.06	66%	100%	30%
Physical Therapists	109	$32.63	100%	98%	88%
Accountants and Auditors	109	$20.70	100%	78%	64%
Interviewers, Except Eligibility and Loan	109	$17.01	98%	98%	88%
Social and Community Service Managers	107	$24.91	66%	100%	49%
Computer User Support Specialists	105	$19.09	98%	99%	33%

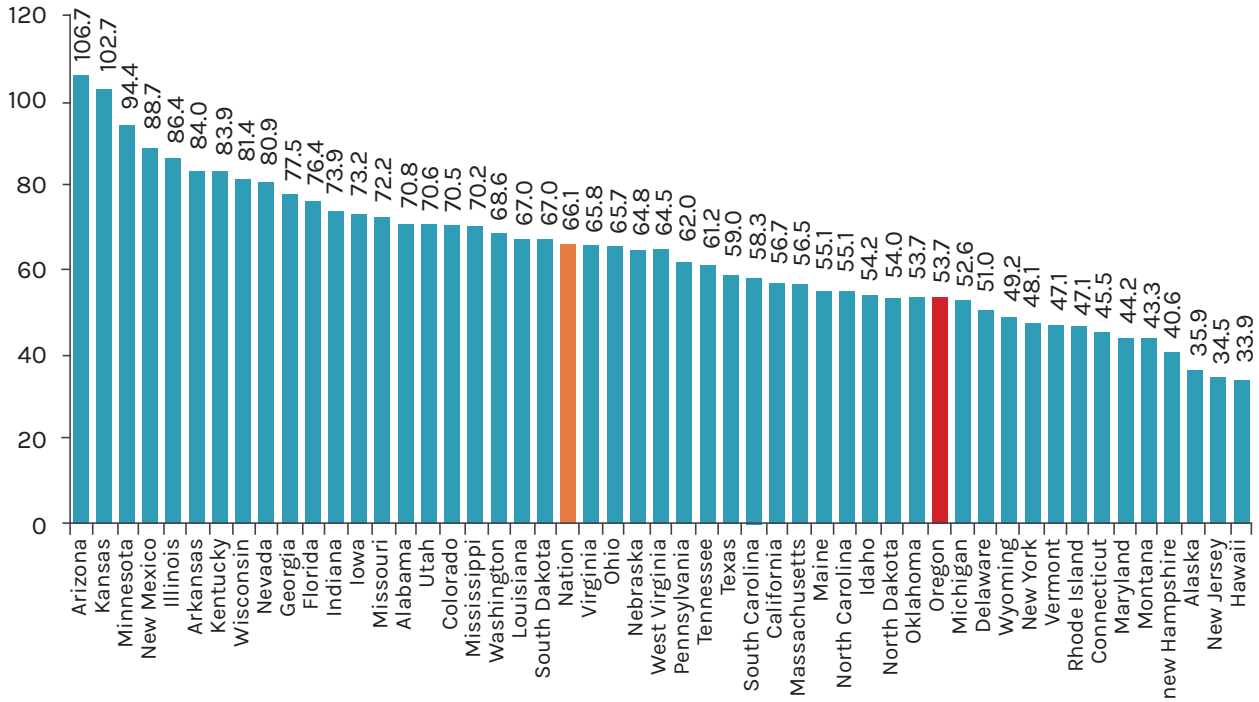
- Oregon's demand for credentialed talent in STEM and health care fields is not uncommon, but its production of degrees in those fields is generally low in relation to the presence of employment prospects in broadly relevant areas. These relatively low rates are a product of the growth in the related industries and are likely also owing to Oregon's ability to attract talent from elsewhere.

STEM CREDENTIALS AWARDED PER 1,000 STEM EMPLOYEES, 2015–16



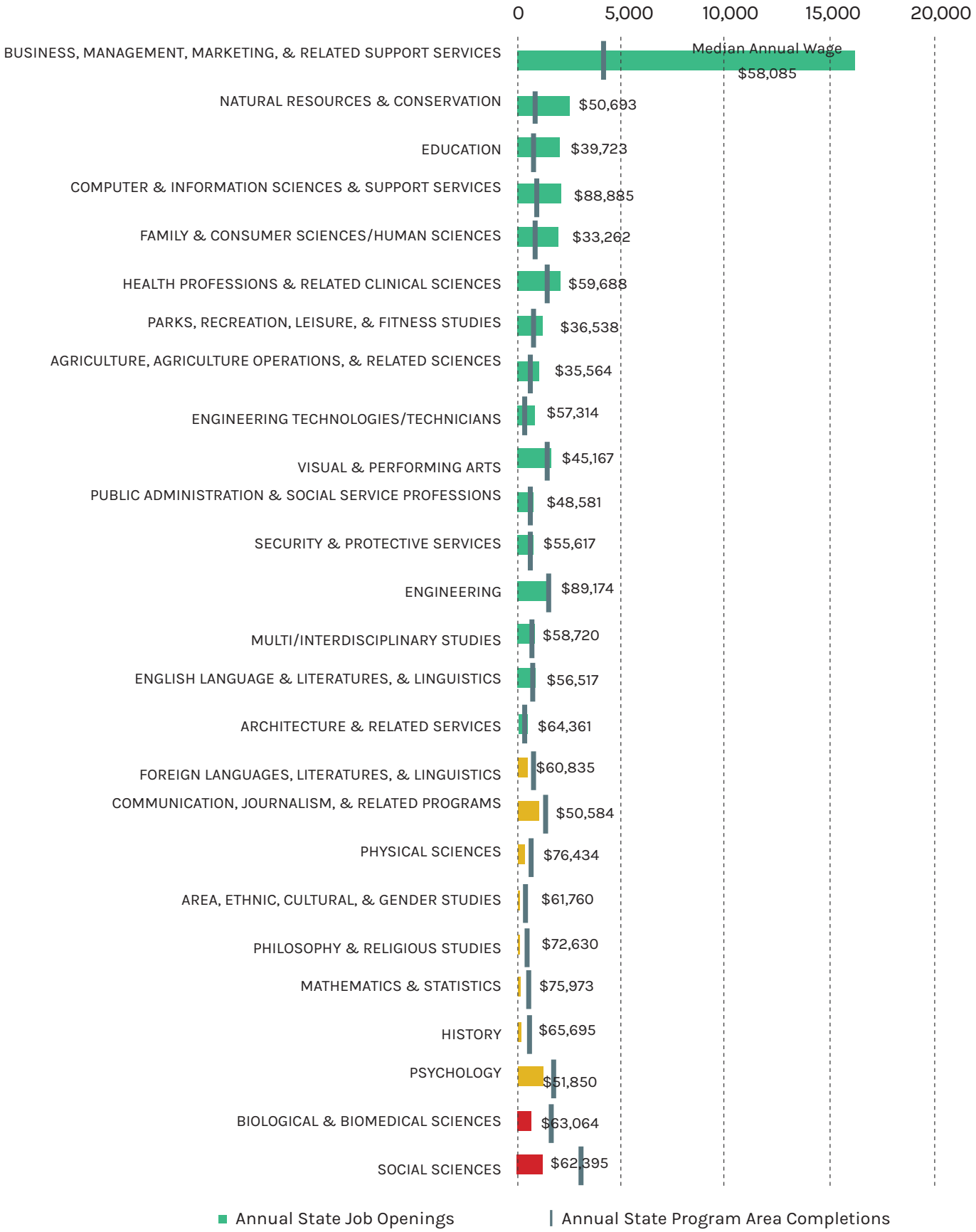
Source: NCES, IPEDS 2015–16 Completions File; U.S. Census Bureau, 2016 American Community Survey.

HEALTH CREDENTIALS AWARDED PER 1,000 HEALTH EMPLOYEES, 2015–16



Source: NCES, IPEDS 2015–16 Completions File; U.S. Census Bureau, 2016 American Community Survey.

- There are many challenges that come with attempting to link employment demand—via projected occupational openings—and the supply of talent with the appropriate credentials—generally measured based on the number, type, and level of postsecondary credentials awarded. Among the problems is how common it is for programmatic areas to be loosely coupled. That is rife for graduates of liberal arts programs, but it can also exist for graduates in more vocationally oriented programs. And recent research has suggested that many college graduates do not really "settle" into careers until their third job after completing their education. These issues notwithstanding, it is still helpful to view the relationship between occupational demand and educational supply at a high level. It is most useful to look for broad patterns and at overall magnitudes rather than at specific data that distract with a promise of what is ultimately false precision, especially at the baccalaureate level. In this case, Emsi data reinforce the broader points above, by suggesting that there are demands in Oregon that are less likely to be filled given current production of graduates in fields like information technology, health care, and education. Emsi data also indicate that the largest demand is in business fields, although these jobs often wind up filled by graduates from other programs, and also include a large number of jobs in retail sales and other occupations that can often be transitional.


0
5,000
10,000
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20,000
Median Annual Wage
BUSINESS, MANAGEMENT, MARKETING, & RELATED SUPPORT SERVICES
$58,085
NATURAL RESOURCES & CONSERVATION
$50,693
EDUCATION
$39,723
COMPUTER & INFORMATION SCIENCES & SUPPORT SERVICES
$88,885
FAMILY & CONSUMER SCIENCES/HUMAN SCIENCES
$33,262
HEALTH PROFESSIONS & RELATED CLINICAL SCIENCES
$59,688
PARKS, RECREATION, LEISURE, & FITNESS STUDIES
$36,538
AGRICULTURE, AGRICULTURE OPERATIONS, & RELATED SCIENCES
$35,564
ENGINEERING TECHNOLOGIES/TECHNICIANS
$57,314
VISUAL & PERFORMING ARTS
$45,167
PUBLIC ADMINISTRATION & SOCIAL SERVICE PROFESSIONS
$48,581
SECURITY & PROTECTIVE SERVICES
$55,617
ENGINEERING
$89,174
MULTI/INTERDISCIPLINARY STUDIES
$58,720
ENGLISH LANGUAGE & LITERATURES, & LINGUISTICS
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ARCHITECTURE & RELATED SERVICES
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FOREIGN LANGUAGES, LITERATURES, & LINGUISTICS
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COMMUNICATION, JOURNALISM, & RELATED PROGRAMS
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PHYSICAL SCIENCES
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AREA, ETHNIC, CULTURAL, & GENDER STUDIES
$61,760
PHILOSOPHY & RELIGIOUS STUDIES
$72,630
MATHEMATICS & STATISTICS
$75,973
HISTORY
$65,695
PSYCHOLOGY
$51,850
BIOLOGICAL & BIOMEDICAL SCIENCES
$63,064
SOCIAL SCIENCES
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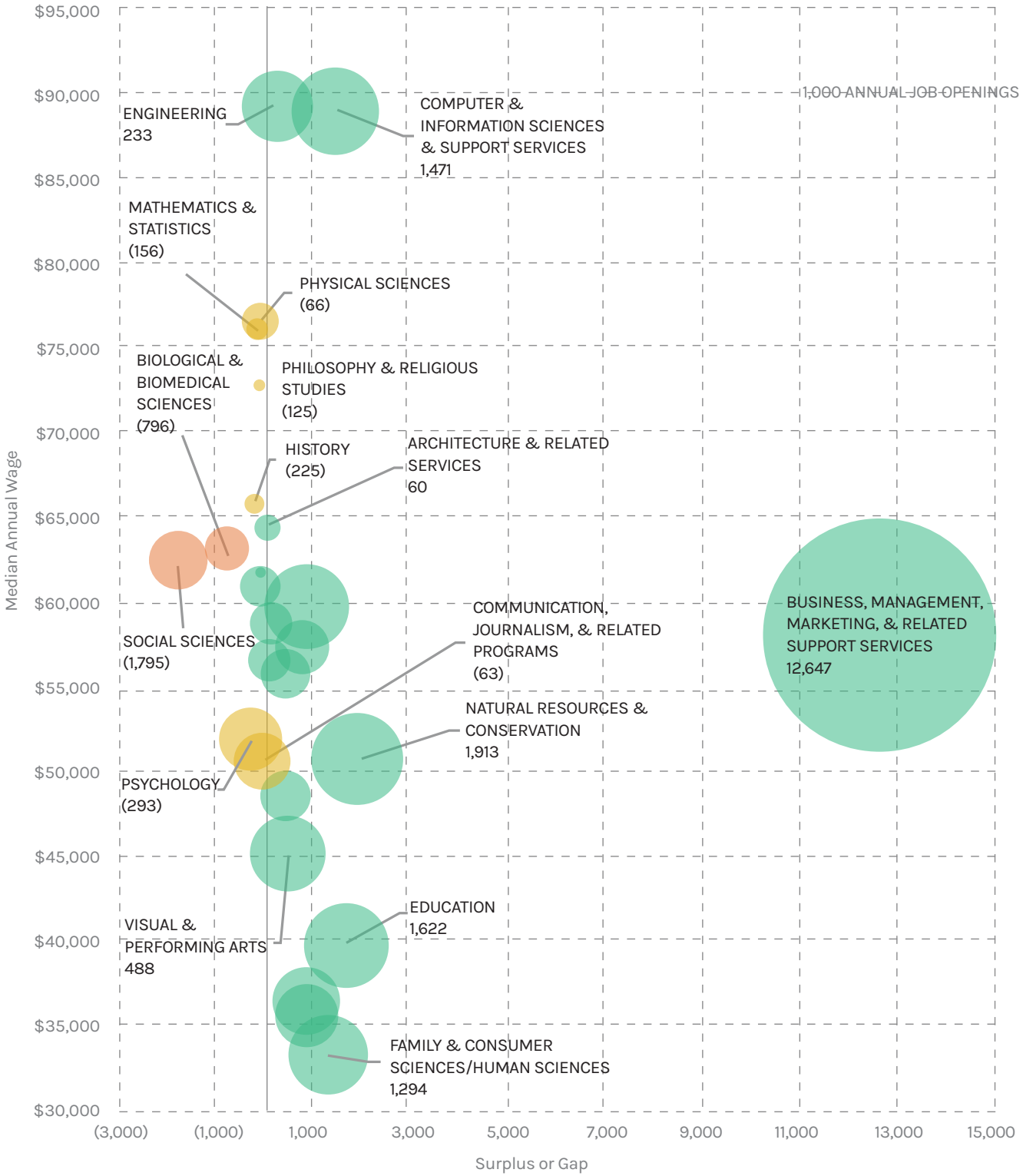
Annual State Job Openings
Annual State Program Area Completions

Source: EMSI.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Median Annual Wage
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3,000
5,000
7,000
9,000
11,000
13,000
15,000
Surplus or Gap
1,000 ANNUAL JOB OPENINGS
ENGINEERING
233
COMPUTER & INFORMATION SCIENCES & SUPPORT SERVICES
1,471
MATHEMATICS & STATISTICS
(156)
PHYSICAL SCIENCES
(66)
BIOLOGICAL & BIOMEDICAL SCIENCES
(796)
PHILOSOPHY & RELIGIOUS STUDIES
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HISTORY
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ARCHITECTURE & RELATED SERVICES
60
SOCIAL SCIENCES
(1,795)
COMMUNICATION, JOURNALISM, & RELATED PROGRAMS
(63)
BUSINESS, MANAGEMENT, MARKETING, & RELATED SUPPORT SERVICES
12,647
NATURAL RESOURCES & CONSERVATION
1,913
PSYCHOLOGY
(293)
EDUCATION
1,622
VISUAL & PERFORMING ARTS
488
FAMILY & CONSUMER SCIENCES/HUMAN SCIENCES
1,294

Source: EMSI.

The foregoing summarizes the analysis of the most important factors that will drive space needs on the campuses of Oregon's public four-year institutions, namely changes in overall enrollment demand, sources of that demand by key demographic characteristics, and the mixture of academic programs that are needed to meet anticipated statewide and regional workforce needs when those programs require specialized or substantially different space (such as laboratories or clinical spaces). Space needs at these institutions may also be driven by research activities or related public/private enterprise spaces designed to help develop technologies and speed them to market. These space needs are real and contribute substantially to economic development, but generally fall outside the scope of Oregon's statewide strategic plan which is aimed at achieving the 40-40-20 educational attainment targets.

These analyses lead us to conclude that Oregon is unlikely to see long-term substantial growth in demand for postsecondary enrollment that itself will justify substantial new capital investments to serve more students. This statewide conclusion masks some variation, especially in the fastest-growing part of the state, Central Oregon and Deschutes County, which is the only place where demand is likely to rise more or less continuously through 2030. Further development of the OSU - Cascades campus will likely attract more residents in Central Oregon to attend college closer to home rather than travel west of the Cascades as they currently do. But in all probability, the resulting enrollment demand will reflect a reshuffling of students among Oregon's institutions, rather than substantial growth in total enrollments. That is because there is little evidence to suggest that students from any place in Oregon are crowded out by the presence of students who hail from Central Oregon, and because there is already a major point of open access in Deschutes County in the form of Central Oregon Community College. If, however, Oregon is successful at substantially improving its comparatively low high school graduate and college-going rates, there will be additional postsecondary enrollment demand. Even under the optimistic scenarios modeled – in which those input measures, as well as adult participation rates, transfer rates, out-of-state recruitment, and retention rates are all hypothetically boosted by five percent – there is only a modest 5-7 percent projected increase in FTE enrollments, although these improvements in enrollment counts are more likely to remain positive through 2030 (recall that current population trends suggest that enrollment demand after 2026 will actually fall below 2018 levels).

With respect to academic program needs, Oregon mirrors most other states in terms of the greatest needs being at the sub-baccalaureate/skilled trades level. But at the baccalaureate and above level, the most acute programmatic needs with the tightest relationship to documented occupational demand are in health care, in software development, and in education. Not all of these added needs come with substantial demands for additional space. Health care professions likely have the greatest need. But whether institutions that currently do not have health care as a core component of their missions (Western Oregon University, for example) should develop programs and related space not currently in their inventory is less obvious. It is likely a better solution for Oregon to address these capital needs through a combination of carefully coordinating institutional missions and by incentivizing collaborations between institutions like OHSU that have the capacity to deliver the needed programs. Incentive funding may be important in that regard, and such an approach can also help address some of any currently unanticipated enrollment demand that may result from improvements in college-going rates.

Space needs may arise from changing pedagogical practices that are known to achieve better student success. Paired with the existence of a sizeable inventory of older buildings that do not offer much in the way of flexible learning spaces, Oregon's capital strategic plan should attempt to renew such spaces in ways that achieve academic and workforce goals. Given the lack of substantial increases in expected enrollment and limited adjustments in the academic program array that will necessitate a lot of major new projects, Oregon may need to establish priorities that

- Intelligently renew existing space
- Providing funding incentives that induce productive collaboration and innovative delivery models across institutional boundaries that address programmatic needs.

Finally, a full determination of facilities needs has been hampered by:

1. The absence of clear missions for Oregon institutions of higher education. This is particularly true of OSU - Cascades where the ambiguity about mission makes determination of space needs particularly difficult. Is the campus an extension of OSU and its mission with the attendant needs for research space as well as instructional space or is it a regional instructional institution (like Eastern, Southern, etc.)? For purposes of our analyses we have assumed that it is a regional teaching institution. The state has sufficient research university capacity at OSU and UO. It lacks instructional capacity at the baccalaureate level in Deschutes and immediately adjacent counties. But it is not the province of a facilities study to specify institutional missions. We urge HECC to undertake an effort to more rigorously define missions for the public higher education institutions in the state. This definition should include assignment of:
    a. Audiences to be served by institutions—geographic, prior academic preparation (selectivity), etc.
    b. Array of programs to be offered—levels and academic fields, particularly professional fields
    c. Unique roles—land grant, health sciences, etc.
2. The absence of a statewide plan for delivery of health professions education in the state. Healthcare is a growing industry in the state and almost all institutions are proposing addition of programs to train professionals in one health care specialty or another. Not including OHSU in the study leads to uncertainty about the role in this arena, especially their intent/willingness to partner with other institutions in the delivery of health professions programs. We urge the HECC to undertake a study of the best ways to respond to programmatic needs in this arena before moving ahead with either:
    a. Approval of mission changes that would expand institutional missions to include health professions programs (for example, at Western)
    b. Approval of additional health care programs as stand-alone programs (i.e., not delivered in partnership with OSHU)

STATEWIDE FACILITIES INFORMATION

AGE OF BUILDINGS

Institution	# of Buildings	# of Buildings with Age/ Renovation Year	Average Age of Building/ Renovation (N=648)	Total gsf (N=859)	Total gsf for Buildings with Age (N=859)	Renovated Buildings gsf (N=243)	% gsf Renovated	# of Buildings Renovated	% of Buildings Renovated (N=863)	Total CRV (N=852)
Eastern Oregon University	13	13	25	406,694	406,694	262,767	64.6%	4	30.8%	$210,437,135
Oregon Institute of Technology	33	29	31	817,789	810,113	274,902	33.6%	6	18.2%	$214,710,111
Oregon State University - Cascades	3	3	2	114,229	114,229	43,353	38.0%	1	33.3%	$54,691,560
Oregon State University - Corvallis	528	325	38	7,778,101	5,718,628	4,240,095	54.5%	104	19.7%	$3,966,010,083
Portland State University	38	38	28	3,973,240	3,973,240	2,985,589	75.1%	19	50.0%	$1,612,655,535
Southern Oregon University	40	38	28	1,354,206	1,353,906	825,885	61.0%	23	57.5%	$673,279,315
University of Oregon	167	164	27	4,416,497	4,412,177	3,606,074	81.7%	83	49.7%	$3,045,951,511
Western Oregon University	41	41	42	866,473	866,473	449,825	51.9%	13	31.7%	$380,202,775
All Oregon Universities	**863**	**651**	**33**	19,727,229	**17,655,460**	**12,688,490**	**64.3%**	**253**	**29.3%**	**$10,157,938,025**

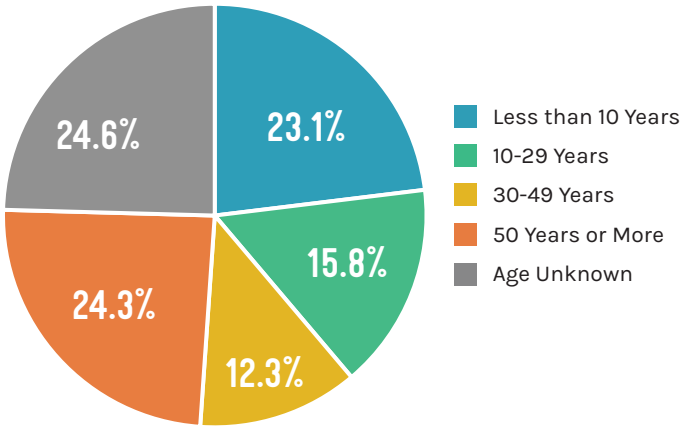
AGE GROUPING OF BUILDINGS | INCLUDES AGE UNKNOWN BUILDINGS

Institution	Less than 10 Years		10-29 Years		30-49 Years		50 Years or More		Age Unknown		Total	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Eastern Oregon University	4	30.8%	4	30.8%	4	30.8%	1	7.7%		0.0%	13	100.0%
Oregon Institute of Technology	6	18.2%	8	24.2%	4	12.1%	11	33.3%	4	12.1%	33	100.0%
Oregon State University - Cascades	3	100.0%		0.0%		0.0%		0.0%		0.0%	3	100.0%
Oregon State University - Corvallis	84	15.9%	52	9.8%	60	11.4%	129	24.4%	203	38.4%	528	100.0%
Portland State University	10	26.3%	17	44.7%	4	10.5%	7	18.4%		0.0%	38	100.0%
Southern Oregon University	11	27.5%	13	32.5%	4	10.0%	10	25.0%	2	5.0%	40	100.0%
University of Oregon	72	43.1%	32	19.2%	22	13.2%	38	22.8%	3	1.8%	167	100.0%
Western Oregon University	9	22.0%	10	24.4%	8	19.5%	14	34.1%		0.0%	41	100.0%
All Oregon Universities	**199**	**23.1%**	**136**	**15.8%**	**106**	**12.3%**	**210**	**24.3%**	**212**	**24.6%**	**863**	**100.0%**

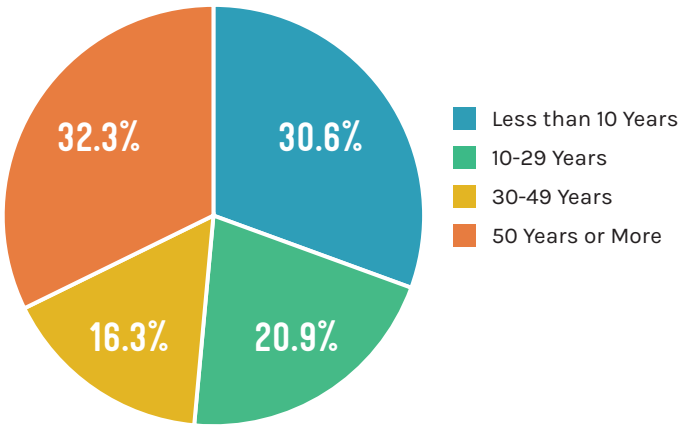
AGE GROUPING OF BUILDINGS | AGE UNKNOWN BUILDINGS EXCLUDED

Institution	Less than 10 Years		10-29 Years		30-49 Years		50 Years or More		Total	
	Count	Percent	Count	Percent	Count	Percent	Count	Percent	Count	Percent
Eastern Oregon University	4	30.8%	4	30.8%	4	30.8%	1	7.7%	13	100.0%
Oregon Institute of Technology	6	20.7%	8	27.6%	4	13.8%	11	37.9%	29	100.0%
Oregon State University - Cascades	3	100.0%		0.0%		0.0%		0.0%	3	100.0%
Oregon State University - Corvallis	84	25.8%	52	16.0%	60	18.5%	129	39.7%	325	100.0%
Portland State University	10	26.3%	17	44.7%	4	10.5%	7	18.4%	38	100.0%
Southern Oregon University	11	28.9%	13	34.2%	4	10.5%	10	26.3%	38	100.0%
University of Oregon	72	43.9%	32	19.5%	22	13.4%	38	23.2%	164	100.0%
Western Oregon University	9	22.0%	10	24.4%	8	19.5%	14	34.1%	41	100.0%
All Oregon Universities	**199**	**30.6%**	**136**	**20.9%**	**106**	**16.3%**	**210**	**32.3%**	**651**	**100.0%**

ALL OREGON UNIVERSITIES AGE OF BUILDING/RENOVATION (N=863)



ALL OREGON UNIVERSITIES AGE OF BUILDING/RENOVATION (N=651)

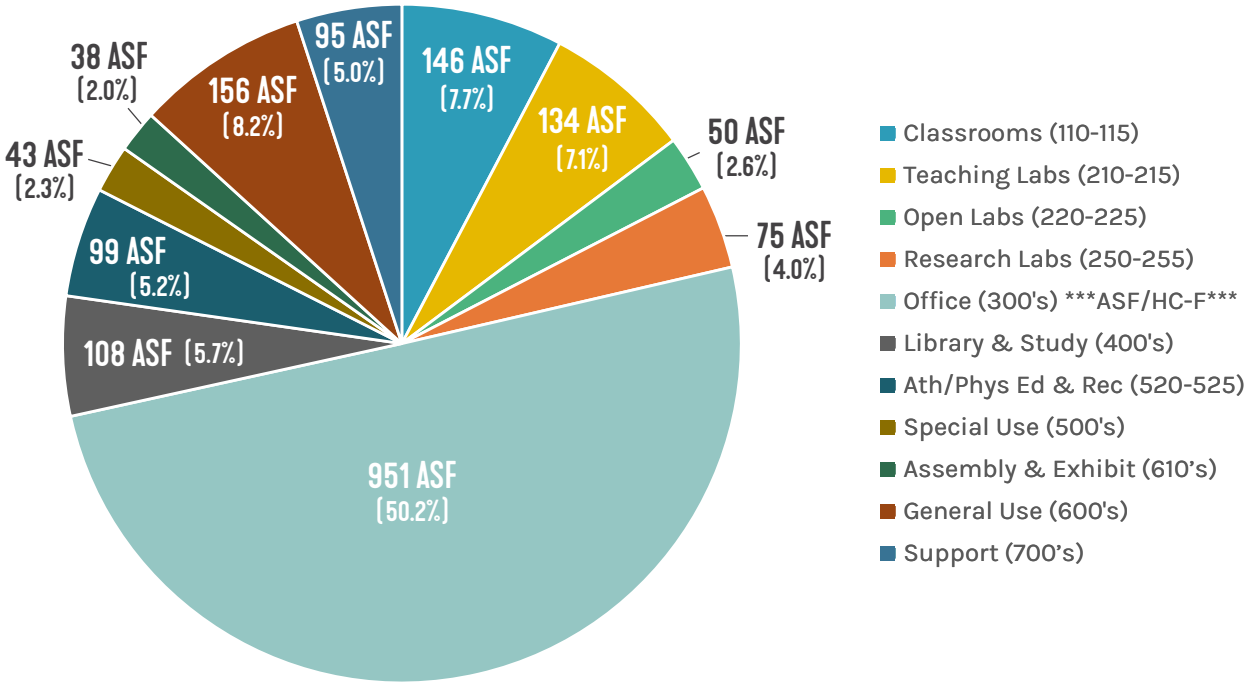


SPACE DATA

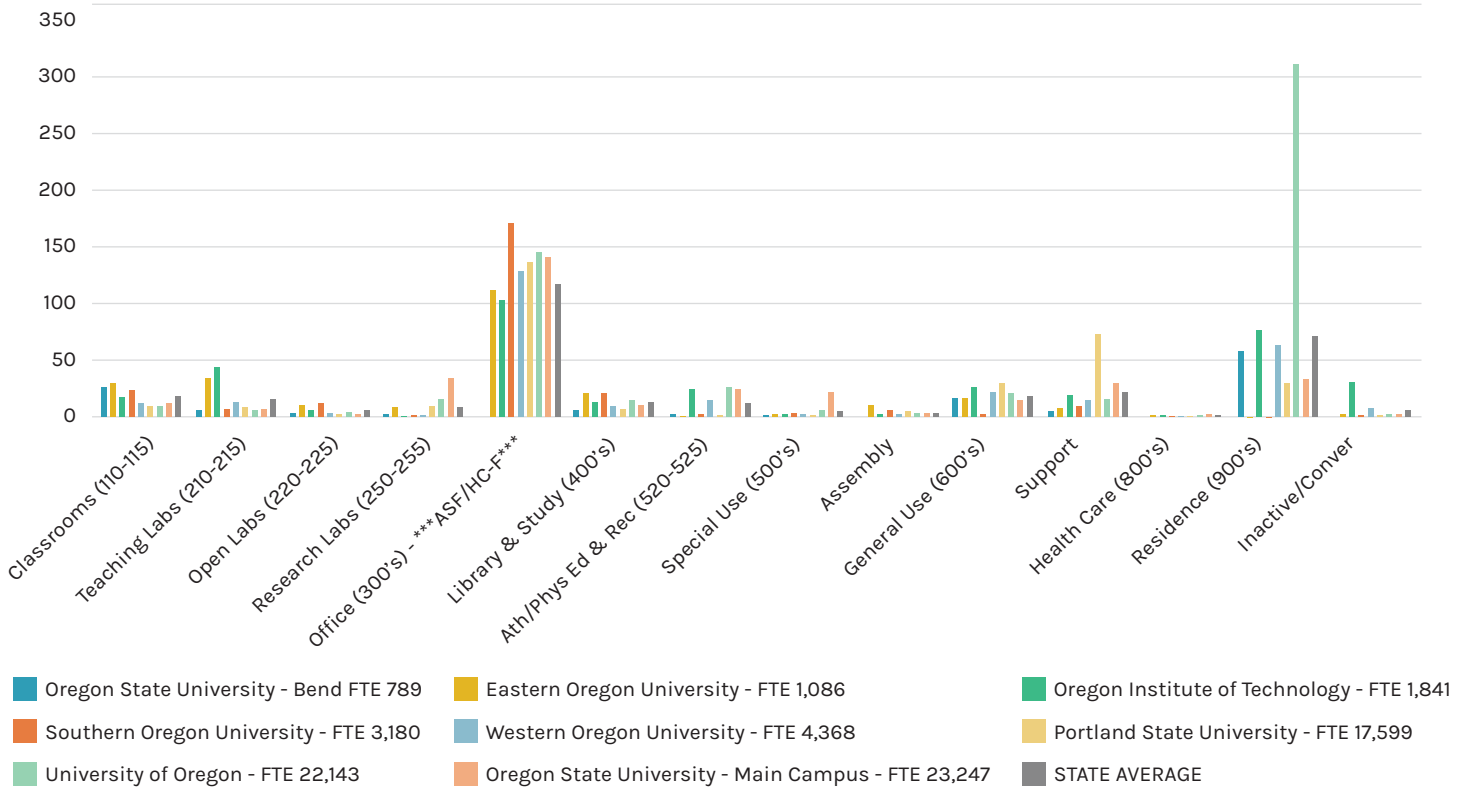
ASF/FTE	Oregon State University - Bend - FTE 789	Eastern Oregon University - FTE 1,086	Oregon Institute of Technology - FTE 1,841	Southern Oregon University - FTE 3,180	Western Oregon University - FTE 4,368	Portland State University - FTE 17,599	University of Oregon - FTE 22,143	Oregon State University - Main Campus - FTE 23,247	All Oregon Universities
Classrooms (110-115)	27	31	18	24	13	10	10	13	146
Teaching Labs (210-215)	6	36	46	8	14	9	7	8	134
Open Labs (220-225)	4	12	6	13	4	3	5	3	50
Research Labs (250-255)	2	9		1	1	10	17	35	75
Office (300's) - ***ASF/HC-F***		114	104	171	130	139	148	144	951
Library & Study (400's)	6	22	14	22	10	8	15	11	108
Ath/Phys Ed & Rec (520-525)	2	0	25	3	15	1	27	26	99
Special Use (500's)	1	3	2	4	3	1	6	23	43
Assembly & Exhibit (610's)	0	12	3	7	3	5	4	4	38
General Use (600's)	18	18	27	3	23	31	21	15	156
Support (700's)	5	8	20	10	15	74	17	31	95
TOTAL ASF	**71**	**265**	**265**	**266**	**231**	**221**	**277**	**298**	**1895**

*Support Modified to remove parking garages (740)

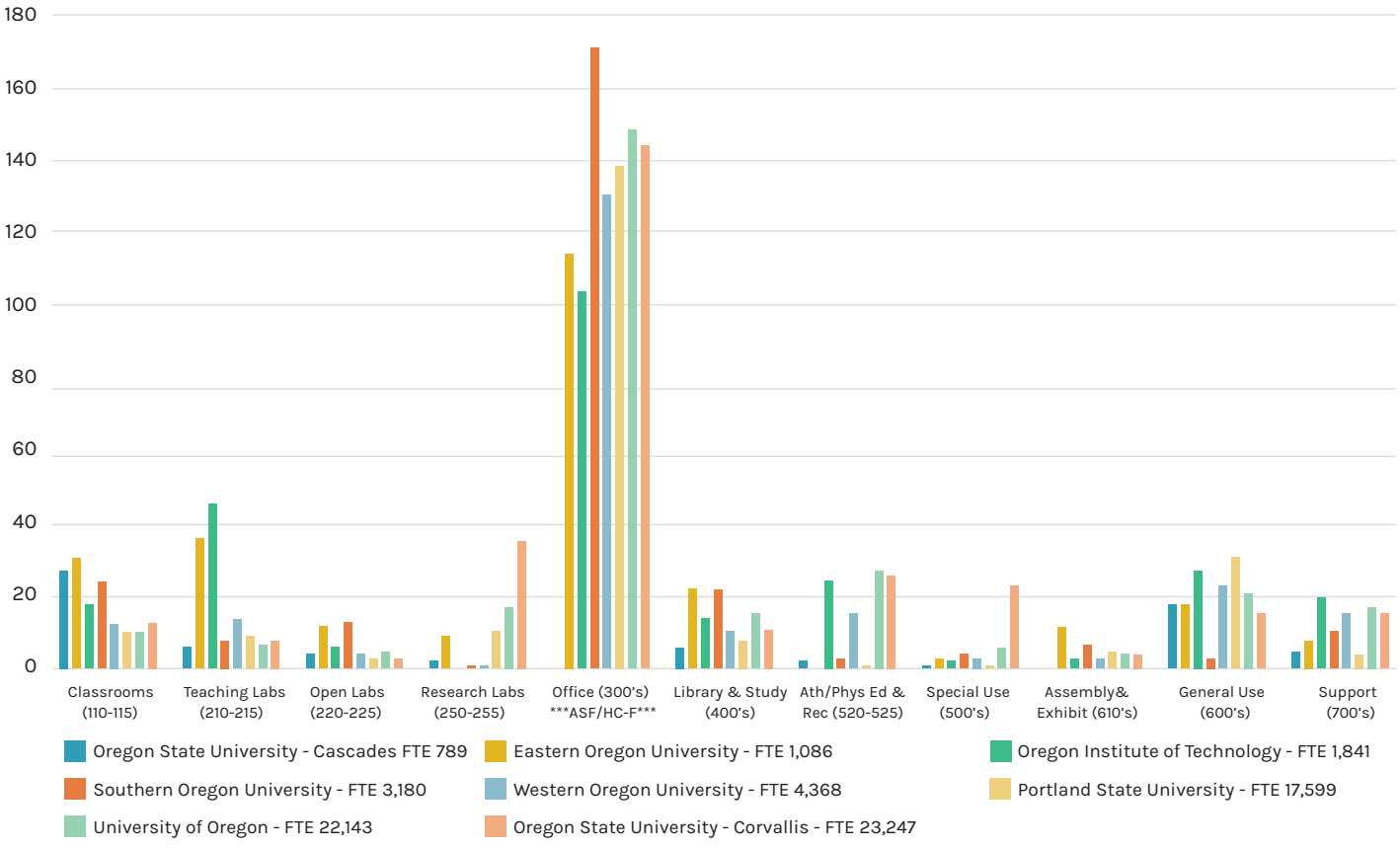
SPACE DATA | ALL OREGON UNIVERSITIES BY ROOM USE TYPE



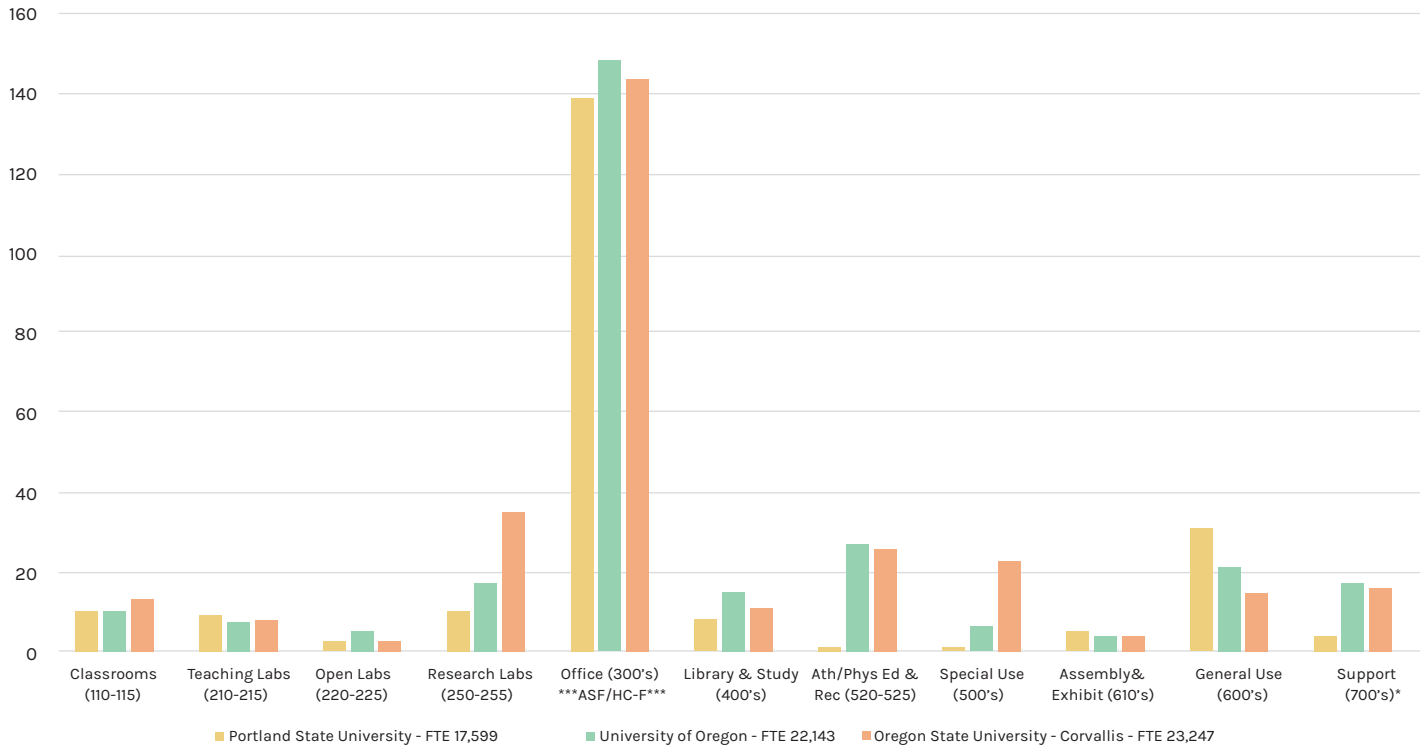
ASF/FTE BY FICM CATEGORY FOR EACH UNIVERSITY IN OREGON



ASF/FTE BY FICM CATEGORY FOR EACH UNIVERSITY IN OREGON

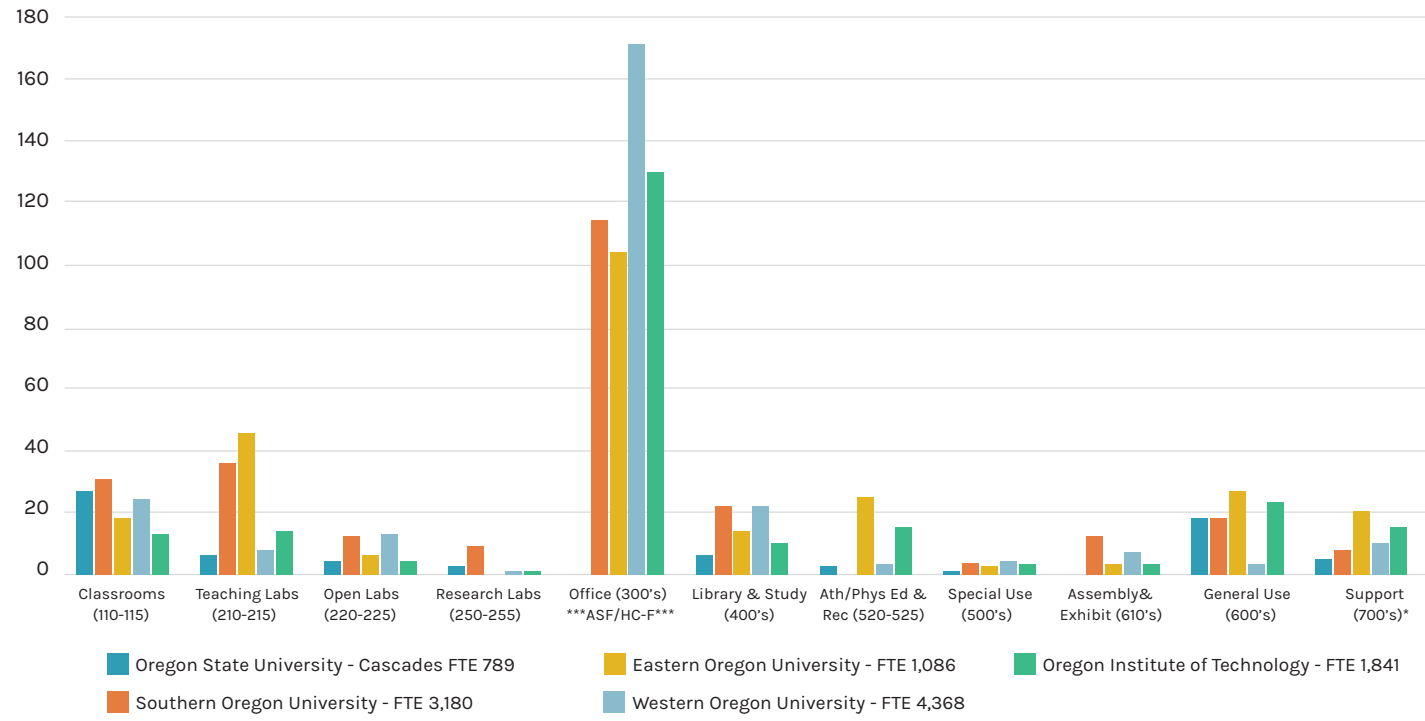


ASF/FTE BY SPACE CATEGORY FOR FLAGSHIP UNIVERSITIES IN OREGON



*Support Modified to remove parking garages (740)

ASF/FTE BY SPACE CATEGORY FOR REGIONAL UNIVERSITIES IN OREGON



STATEWIDE UTILIZATION & SPACE ANALYSIS

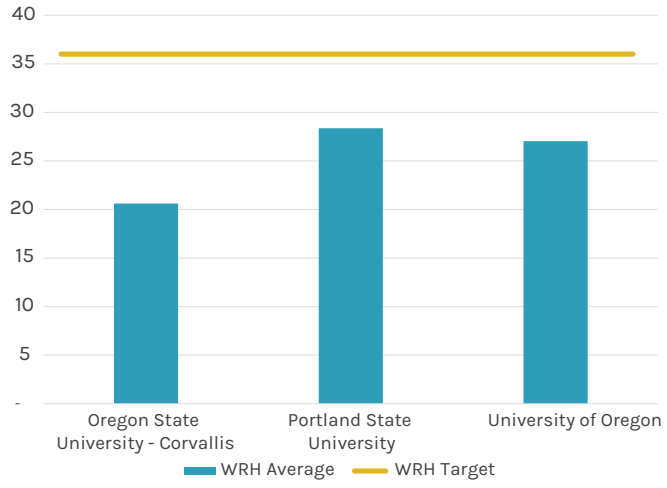
STATEWIDE UTILIZATION OF SCHEDULED CLASSROOM SPACE

The following charts summarize the use of scheduled classroom space on the eight campuses in the study. The expectation for scheduled classroom use varies by type of institution.

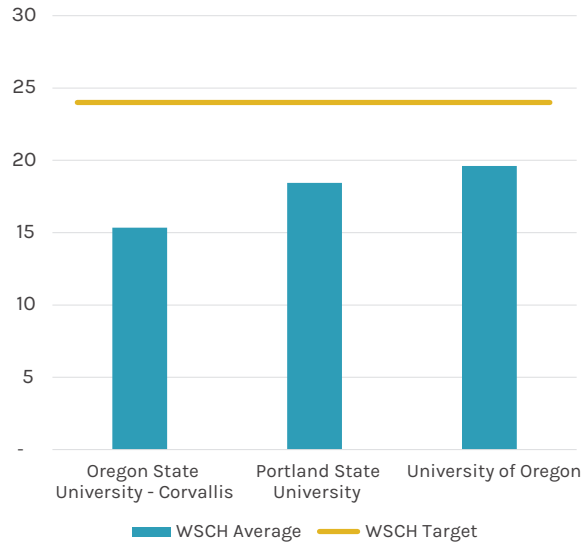
For a large research intensive or urban university, the expectation is 36 hours per week with 67% of the student stations occupied when the room is in use. This equates to 24 weekly hours of occupancy for each student station. This guideline was used for: University of Oregon, Oregon State University – Corvallis, and Portland State University. The three institutions did not meet this expectation, with weekly room hours between 21 and 27, weekly student contact hours between 15 and 20, and student station occupancy of 62% and 63%.

Classroom Utilization	WRH Average	WSCH Average	SSO %
Oregon State University - Corvallis	20.61	15.35	62%
Portland State University	28.36	18.44	63%
University of Oregon	27.04	19.61	63%

LARGE RESEARCH INTENSIVE OR URBAN UNIVERSITY CLASSROOM WEEKLY ROOM HOURS (WRH)



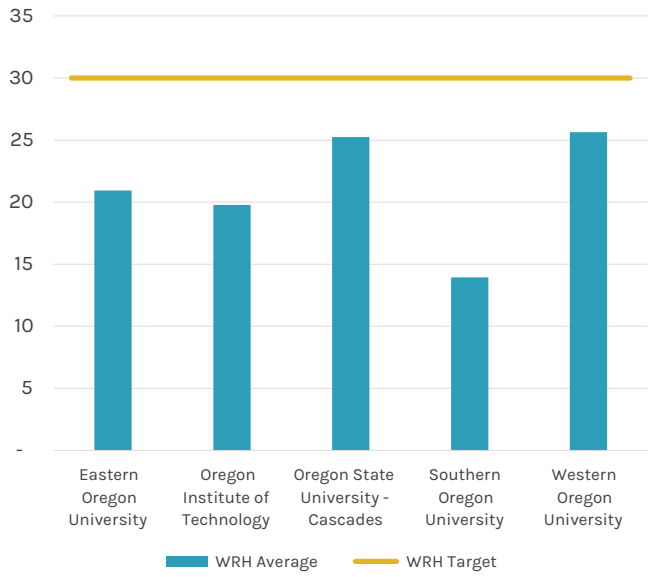
LARGE RESEARCH INTENSIVE OR URBAN UNIVERSITY CLASSROOM WEEKLY STUDENT CONTACT HOURS (WSCH)



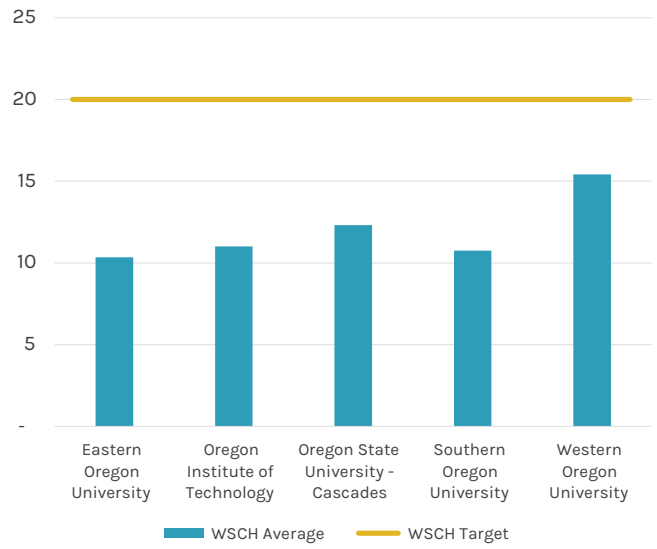
At smaller institutions the utilization expectation is typically less. For this study an expectation of 30 hours per week at 67% student station occupancy, or 20 weekly hours of use for each student station was used for: Western Oregon University, Southern Oregon University, Eastern Oregon University, Oregon State university – Cascades, and Oregon Institute of Technology. The five institutions did not meet this expectation, with weekly room hours between 14 and 26, weekly student contact hours between 10 and 15, and student station occupancy between 49% and 66%. OSU - Cascades has the highest room hours per week and SOU has the highest student station occupancy.

Classroom Utilization	WRH Average	WSCH Average	SSO %
Eastern Oregon University	20.93	10.34	54%
Oregon Institute of Technology	19.79	11.01	58%
Oregon State University - Cascades	25.25	12.31	49%
Southern Oregon University	13.93	10.75	66%
Western Oregon University	25.64	15.42	60%

REGIONAL CLASSROOM WEEKLY ROOM HOURS (WRH)



REGIONAL CLASSROOM WEEKLY STUDENT CONTACT HOURS (WSCH)



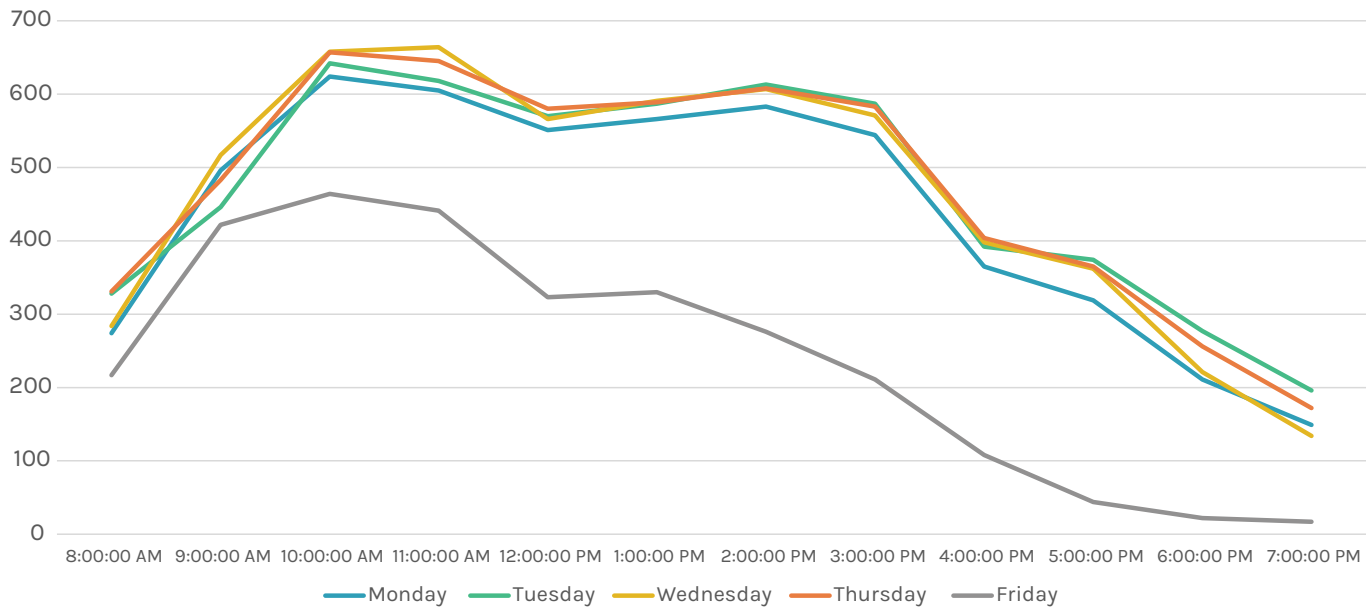
In reviewing the time of day and day of the week that classrooms are in use statewide, the pattern is consistent with typical university scheduling. Courses are scheduled most frequently from mid-morning through mid-afternoon Monday through Thursday, with limited use on Friday. To increase utilization, scheduling practices can be modified. Institutions have found that students are willing to take classes at times not traditionally assumed to be acceptable.

ALL OREGON UNIVERSITIES
SCHEDULED CLASSROOM USE BY DAY & TIME

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% in Use	Rooms in Use	% in Use	Rooms in Use	% in Use	Rooms in Use	% in Use	Rooms in Use	% in Use	Rooms in Use	% in Use
8:00:00 AM	274	29.5%	328	35.3%	284	30.5%	331	35.6%	217	23.3%	287	30.8%
9:00:00 AM	496	53.3%	446	48.0%	517	55.6%	483	51.9%	422	45.4%	473	50.8%
10:00:00 AM	624	67.1%	642	69.0%	658	70.8%	657	70.6%	464	49.9%	609	65.5%
11:00:00 AM	605	65.1%	618	66.5%	664	71.4%	645	69.4%	441	47.4%	595	63.9%
12:00:00 PM	551	59.2%	570	61.3%	566	60.9%	580	62.4%	323	34.7%	518	55.7%
1:00:00 PM	566	60.9%	587	63.1%	591	63.5%	589	63.3%	330	35.5%	533	57.3%
2:00:00 PM	583	62.7%	613	65.9%	607	65.3%	608	65.4%	276	29.7%	537	57.8%
3:00:00 PM	544	58.5%	587	63.1%	571	61.4%	583	62.7%	211	22.7%	499	53.7%
4:00:00 PM	365	39.2%	392	42.2%	398	42.8%	404	43.4%	108	11.6%	333	35.8%
5:00:00 PM	319	34.3%	374	40.2%	362	38.9%	365	39.2%	44	4.7%	293	31.5%
6:00:00 PM	211	22.7%	277	29.8%	221	23.8%	256	27.5%	22	2.4%	197	21.2%
7:00:00 PM	149	16.0%	196	21.1%	134	14.4%	172	18.5%	17	1.8%	134	14.4%

Total Classrooms = 930

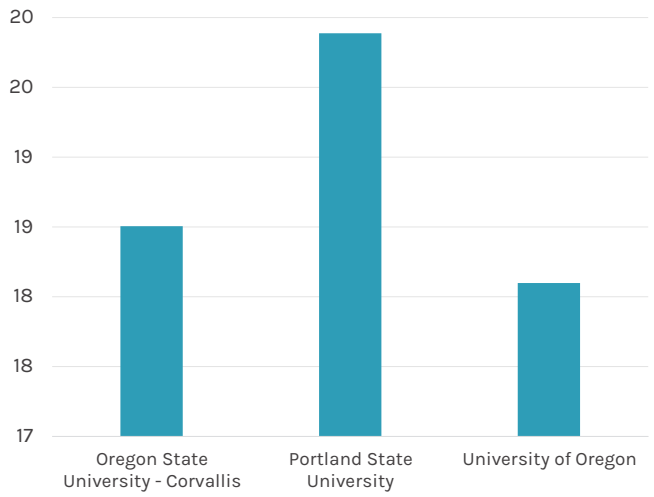
OVERALL CLASSROOM USE BY DAY OF WEEK



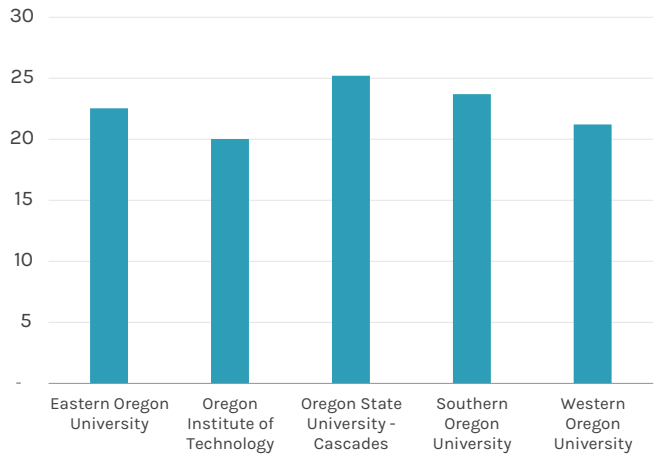
None of the institutions met their expected utilization. However, when classroom space need is determined, another factor, the amount of space per student station is taken-into-account. Modern pedagogy requires more space per student in the classroom to accommodate active and collaborative learning. Therefore, even though a campus may not meet utilization expectations, a need for more classroom space overall has been identified on several campuses, indicating that fewer, larger classrooms are needed.

The data suggest that larger research institutions of UO and OSU have smaller, more traditional classroom space that is in need of reconfiguration in order to accommodate more effective active learning pedagogy.

LARGE RESEARCH INTENSIVE OR URBAN UNIVERSITY CLASSROOM ASF PER STATION



REGIONAL CLASSROOM ASF PER STATION



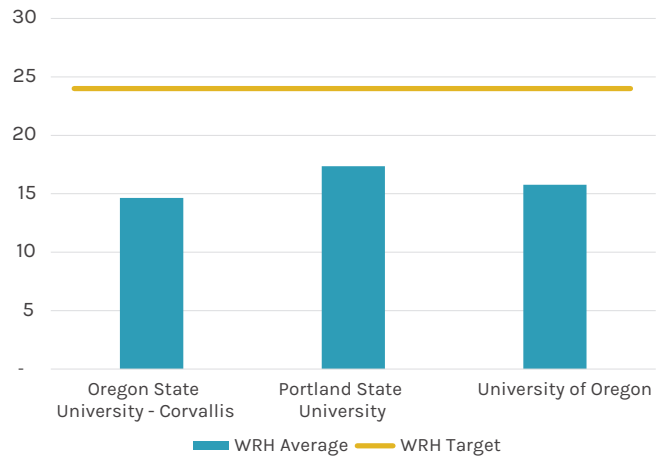
STATEWIDE UTILIZATION OF SCHEDULED TEACHING LABORATORIES

The following charts summarize the use of scheduled teaching laboratories on the eight campuses in the study. Teaching laboratories are defined as spaces that are configured for a specific discipline and require special equipment making the room inappropriate for teaching other courses. The expectation for teaching lab utilization varies by type of institution.

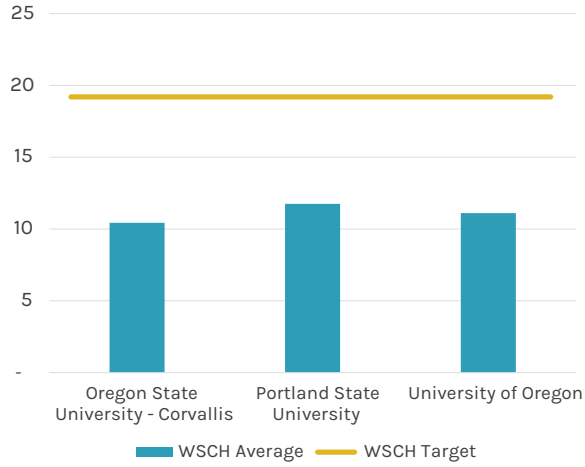
At large universities a typical expectation is for scheduled use 24 hours per week with 80% student station occupancy, or approximately 19 hours of occupancy for each student station. The three Oregon institutions in this category, OSU - Corvallis, UO, and PSU did not meet this expectation. Weekly rooms hours are between 15 and 17, and weekly student contact hours between 10 and 12.

Teaching Lab Utilization	WRH Average	WSCH Average
Oregon State University - Corvallis	14.65	10.43
Portland State University	17.35	11.76
University of Oregon	15.76	11.10

LARGE RESEARCH INTENSIVE OR URBAN UNIVERSITY TEACHING LABORATORY WEEKLY ROOM HOURS (WRH)



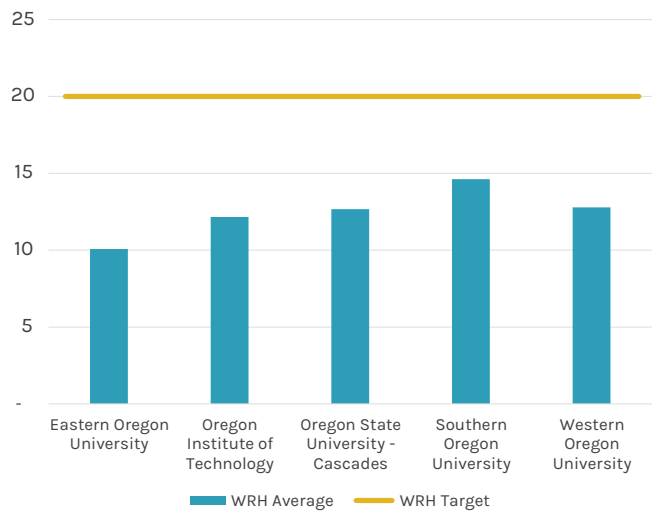
LARGE RESEARCH INTENSIVE OR URBAN UNIVERSITY TEACHING LABORATORY WEEKLY STUDENT CONTACT HOURS (WSCH)



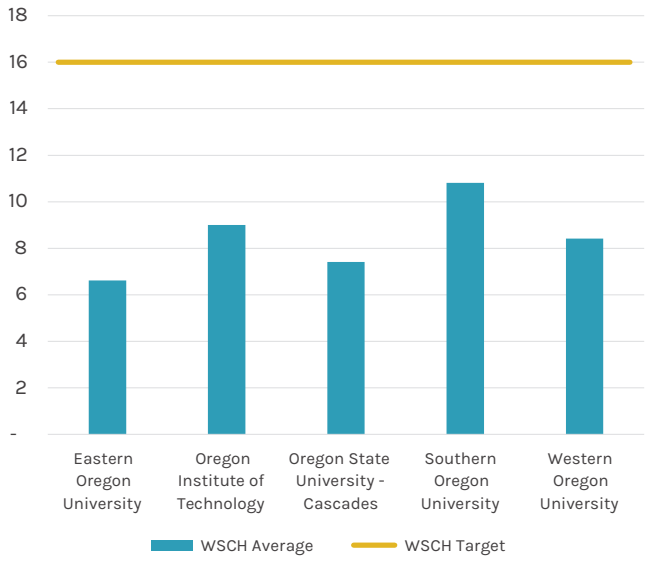
Smaller, regional institution expectations are typically 20 hours per week at 75% occupancy, 15 weekly hours per student station. This criteria was used for WOU, SOU, Oregon Tech, EOU, and OSU – Cascades. These institutions did not meet the expectation, with weekly room hours between 10 and 15, and weekly student contact hours between 7 and 11.

Teaching Lab Utilization	WRH Average	WSCH Average
Eastern Oregon University	10.07	6.62
Oregon Institute of Technology	12.15	9.01
Oregon State University - Cascades	12.67	7.42
Southern Oregon University	14.63	10.82
Western Oregon University	12.78	8.42

REGIONAL TEACHING LABORATORY
WEEKLY ROOM HOURS (WRH)



REGIONAL TEACHING LABORATORY
WEEKLY STUDENT CONTACT HOURS (WSCH)



All the institutions have excess capacity in this category. However, this analysis does not address the quality or type of the teaching laboratory space, which varies considerably from campus to campus and discipline to discipline. The quality of a space may make it less useful for a range of programs within a specific discipline, indicating that renovation could improve utilization. There are also programs that require a highly specialized lab that will be under-scheduled, particularly on smaller campuses.

STATEWIDE SPACE NEEDS

CURRENT

In the Fall 2018 term the eight campuses collectively had a surplus of 772,314 Assignable Square Feet (ASF), a 9% surplus of academic and academic support space, as indicated in the following chart. Individually, there is generally a surplus of academic space and a deficit of academic space, highlighting that while the campus may have enough space it is the wrong type of space to achieve student success.

STATEWIDE SPACE NEEDS | 2018

Academic Space	Existing	Guideline	Surplus/ (Deficit)	Percent
Eastern Oregon University	79,163	37,353	41,810	53%
Oregon Institute of Technology	128,340	87,015	41,325	32%
Oregon State University - Cascades	29,708	23,021	6,687	23%
Oregon State University - Corvallis	570,148	543,204	26,944	5%
Portland State University	392,504	463,574	(71,070)	-18%
Southern Oregon University	141,832	103,658	38,174	27%
University of Oregon	479,613	442,512	37,101	8%
Western Oregon University	133,454	118,304	15,150	11%
Statewide	1,954,762	1,818,641	136,121	7%

Academic Support Space	Existing	Guideline	Surplus/ (Deficit)	Percent
Eastern Oregon University	118,547	133,261	(14,714)	-12%
Oregon Institute of Technology	154,497	135,940	18,557	12%
Oregon State University - Cascades	30,050	58,215	(28,165)	-94%
Oregon State University - Corvallis	2,635,308	2,162,998	472,310	18%
Portland State University	1,101,910	1,245,240	(143,330)	-13%
Southern Oregon University	274,919	244,692	30,227	11%
University of Oregon	1,923,368	1,809,692	113,676	6%
Western Oregon University	292,558	297,146	(4,588)	-2%
Statewide	6,531,157	6,087,184	443,973	7%

Totals Including Inactive/Conversion Space*	Existing	Guideline	Surplus/ (Deficit)	Percent
Eastern Oregon University	200,155	170,614	29,541	15%
Oregon Institute of Technology	330,662	222,955	107,707	33%
Oregon State University - Cascades	59,758	81,236	(21,478)	-36%
Oregon State University - Corvallis	3,281,064	2,706,202	574,862	18%
Portland State University	1,517,044	1,708,814	(191,770)	-13%
Southern Oregon University	420,453	348,350	72,103	17%
University of Oregon	2,408,487	2,252,204	156,283	6%
Western Oregon University	460,516	415,450	45,066	10%
Statewide	8,678,139	7,905,825	772,314	9%

* Includes academic and academic support space temporarily unused due to remodeling and rehabilitation.

SPACE GUIDELINES

Academic space is defined as:

- Classroom and Classroom Service Space
- Teaching Laboratories and Lab Service Space
- Open Laboratories and Lab Service Space

Academic support space is defined as:

- Offices and Office Service Space
- Library and Collaborative Learning Space
- Assembly and Exhibit Space
- Physical Plant Space
- Other Department Space

Guidelines were established for each of these space categories based upon nationally recognized standards and individual campus unique circumstances.

Classrooms are defined as regularly scheduled general purpose teaching spaces that can accommodate a variety of academic disciplines. Guidelines for classrooms are dependent upon the size and type of institution. For the three large research intensive and urban universities, Portland State, University of Oregon, and Oregon State, a guideline of 36 hours of use per week with 67% of the student stations (seats) filled and 25 ASF per student station was used. For the other five campuses, the utilization expectation was reduced to 30 hours per week.

Teaching laboratories are defined as teaching spaces configured and equipped for a specific academic discipline and not readily usable by other disciplines. Utilization expectations vary depending upon the size and type of institution. For this study, the expectation for the three large universities was established as 24 hours per week with 80% student station occupancy. For the five regional universities, the utilization expectation was reduced to 20 hours per week at 75% student station occupancy. The size of the student station is determined by the academic discipline. For example, a biology lab requires more space per student than a computer lab.

Open laboratories are unscheduled or randomly scheduled spaces that are equipped for a specific academic discipline. Examples are nursing skills labs, computer labs with unique software, and makerspaces. A space guideline for this space is typically ASF per full time equivalent student. The established guideline is 7 ASF per FTE.

Offices and service space guidelines establish an ASF per space category such as faculty, staff, dean, president, etc. which includes individual workspace and a factor for conference/collaboration space, and service spaces such as breakrooms and storage. Typical office parameters were applied evenly for all institutions in the study.

Library guidelines have traditionally been established by providing a space allocation for the collection, reader stations, and service space. With the change in the purpose and function of the library to a learning commons and collaborative learning space, the traditional approach to determining library space needs has changed to an allocation per full time equivalent student. For this study, a guideline of 15 ASF per FTE was set, with an additional 3 ASF per FTE at the two research intensive campuses, University of Oregon and Oregon State, to acknowledge the collection requirements of a research university.

Assembly and exhibit space guidelines are determined based upon the size of the campus and the arts programs offered. A base minimum of 5,600 ASF for small campuses is increased to 16,000 ASF if the institution has an active fine arts program. For campuses with an FTE of 5,000 or more, the base is 22,450 ASF with an additional 6 ASF per FTE, and an additional 5,000 ASF for an active music program.

Physical plant space is the space required to maintain the campus. The guideline is 5% of the space on campus.

Other department space includes campus wide meeting rooms, armories, media production space, greenhouses, animal facilities, field buildings, health care facilities, etc. The guideline is based upon student FTE with a factor for institution type. The guideline for this study was established at 8 ASF per FTE with the exception that Oregon State University was increased to 20 ASF per FTE to account for the agricultural and animal facilities on campus.

2029 INSTITUTION PROJECTIONS

Incorporating the ten-year enrollment projections from the individual institutions, there is a 3% (297,610 ASF) deficit in academic and academic support space statewide. The space needs vary from a surplus of 222,743 ASF at Oregon State - Corvallis to a deficit of 360,483 ASF at Portland State. The greatest percentage surplus, 13%, is at Southern Oregon. The greatest percentage deficit is at Oregon State – Cascades, 160%, with existing space of 57,555 ASF and a need of 149,762 ASF. Southern Oregon is the only campus with a surplus in both academic and academic support space. Note that these surpluses and deficits are based upon existing space in the Fall of 2018 and do not include projects currently in construction or that have been approved for construction. The following chart indicates the totals for each campus.

STATEWIDE SPACE NEEDS | 2029 INSTITUTION PROJECTIONS

Academic Space	Existing	Guideline	Surplus/ (Deficit)	Percent
Eastern Oregon University	79,163	81,011	(1,848)	-2%
Oregon Institute of Technology	128,340	136,058	(7,718)	-6%
Oregon State University - Cascades	29,208	53,539	(24,331)	-83%
Oregon State University - Corvallis	570,148	645,716	(75,568)	-13%
Portland State University	392,504	529,158	(136,654)	-35%
Southern Oregon University	141,832	111,347	30,485	21%
University of Oregon	479,613	478,408	1,205	0%
Western Oregon University	138,932	153,284	(14,352)	-10%
Statewide	1,959,740	2,188,521	(228,781)	-12%
Academic Support Space	**Existing**	**Guideline**	**Surplus/ (Deficit)**	**Percent**
Eastern Oregon University	118,547	183,791	(65,244)	-55%
Oregon Institute of Technology	154,497	178,445	(23,948)	-16%
Oregon State University - Cascades	28,347	96,223	(67,876)	-239%
Oregon State University - Corvallis	2,635,308	2,412,605	222,703	8%
Portland State University	1,101,910	1,348,369	(246,459)	-22%
Southern Oregon University	274,919	254,178	20,741	8%
University of Oregon	1,923,368	1,945,733	(22,365)	-1%
Western Oregon University	292,558	365,681	(73,123)	-25%
Statewide	6,529,454	6,785,025	(255,571)	-4%
Totals Including Inactive/Conversion Space	**Existing**	**Guideline**	**Surplus/ (Deficit)**	**Percent**
Eastern Oregon University	200,155	264,802	(64,647)	-32%
Oregon Institute of Technology	330,662	314,503	16,159	5%
Oregon State University - Cascades	57,555	149,762	(92,207)	-160%
Oregon State University - Corvallis	3,281,064	3,058,321	222,743	7%
Portland State University	1,517,044	1,877,527	(360,483)	-24%
Southern Oregon University	420,453	365,525	54,928	13%
University of Oregon	2,408,487	2,424,141	(15,654)	-1%
Western Oregon University	460,516	518,965	(58,449)	-13%
Statewide	8,675,936	8,973,546	(297,610)	-3%

2029 NCHEMS STUDENT FLOW PROJECTIONS

Incorporating the ten-year NCHEMS student flow model for potential enrollments, there is a 9% surplus of space statewide in 2029 (749,471 ASF) as indicated in the following chart. Deficits at Oregon State – Cascades and Portland State are offset by surpluses at all of the other campuses. Acknowledging that this enrollment projection model and space needs analysis is a realistic outlook for the ten-year statewide space need, there is the potential to realign programs with space available, encourage geographic migration of students within the state, and define the mission of OSU - Cascades.

STATEWIDE SPACE NEEDS | 2029 NCHEMS STUDENT FLOW PROJECTIONS

Academic Space	Existing	Guideline	Surplus/ (Deficit)	Percent
Eastern Oregon University	79,163	38,114	41,049	52%
Oregon Institute of Technology	128,340	89,969	38,371	30%
Oregon State University - Cascades	29,208	23,321	5,887	20%
Oregon State University - Corvallis	570,148	552,903	17,245	3%
Portland State University	392,504	496,301	(103,797)	-26%
Southern Oregon University	141,832	99,981	41,851	30%
University of Oregon	479,613	441,257	38,356	8%
Western Oregon University	138,932	121,700	17,232	12%
Statewide	1,959,740	1,863,546	96,194	5%
Academic Support Space	**Existing**	**Guideline**	**Surplus/ (Deficit)**	**Percent**
Eastern Oregon University	118,547	131,677	(13,130)	-11%
Oregon Institute of Technology	154,497	133,176	21,321	14%
Oregon State University - Cascades	28,347	60,549	(32,202)	-114%
Oregon State University - Corvallis	2,635,308	2,123,253	512,055	19%
Portland State University	1,101,910	1,301,796	(199,886)	-18%
Southern Oregon University	274,919	245,232	29,687	11%
University of Oregon	1,923,368	1,766,120	157,248	8%
Western Oregon University	292,558	301,116	(8,558)	-3%
Statewide	6,529,454	6,062,919	466,535	7%
Totals Including Inactive/Conversion Space	**Existing**	**Guideline**	**Surplus/ (Deficit)**	**Percent**
Eastern Oregon University	200,155	169,791	30,364	15%
Oregon Institute of Technology	330,662	223,145	107,517	33%
Oregon State University - Cascades	57,555	83,870	(26,315)	-46%
Oregon State University - Corvallis	3,281,064	2,676,156	604,908	18%
Portland State University	1,517,044	1,798,097	(281,053)	-19%
Southern Oregon University	420,453	345,213	75,240	18%
University of Oregon	2,408,487	2,207,377	201,110	8%
Western Oregon University	460,516	422,816	37,700	8%
Statewide	8,675,936	7,926,465	749,471	9%

Statewide academic program completions increased by 26% from a total of 17,999 to 22,652 during the eight years from 2010 to 2017. Discrete program completions varied substantially, from an increase of 222% in the computer and information sciences IPEDS category to a decrease of 41% in the legal professions category. Other categories with significant increases were engineering (86%), health professions and related programs (58%), natural resources and conservation (66%), communication programs (66%), and parks, recreation, leisure, and fitness studies (65%). This pattern is consistent with only minor variation across the individual institutions. Additional detail is provided in each campus analysis.

STATEWIDE PROGRAM COMPLETION RATES

7 Institution Total

	2010	2011	2012	2013	2014	2015	2016	2017	Line
Agriculture Agriculture Operations and Related Sciences	263	243	254	337	360	377	414	397	
Natural Resources and Conservation	412	474	604	574	712	692	642	683	
Architecture and Related Services	296	269	351	328	295	315	299	307	
Area Ethnic Cultural Gender and Group Studies	89	96	100	116	107	101	101	107	
Communication Journalism and Related Programs	595	656	772	805	872	1,005	988	986	
Computer and Information Sciences and Support Services	296	329	373	409	448	578	700	952	
Education	1,695	1,780	1,572	1,638	1,507	1,476	1,547	1,576	
Engineering	959	1,124	1,226	1,220	1,372	1,437	1,569	1,780	
Engineering Technologies and Engineering-related Fields	181	177	145	160	130	147	168	147	
Foreign Languages Literatures and Linguistics	483	492	545	519	507	446	433	382	
Family and Consumer Sciences/Human Sciences	425	442	515	540	601	566	604	545	
Legal Professions and Studies	196	184	166	161	190	128	143	115	
English Language and Literature/Letters	643	542	602	607	519	492	410	413	
Liberal Arts and Sciences General Studies and Humanities	629	665	740	676	609	580	479	424	
Biological and Biomedical Sciences	786	753	825	949	1,080	1,064	1,126	1,166	
Mathematics and Statistics	217	228	210	232	237	254	251	282	
Multi/Interdisciplinary Studies	664	718	749	733	722	613	604	666	
Parks Recreation Leisure and Fitness Studies	276	309	324	366	348	457	464	455	
Philosophy and Religious Studies	109	126	144	118	111	120	78	89	
Physical Sciences	356	351	389	433	470	467	490	500	
Psychology	866	930	1,125	1,124	1,137	1,162	1,043	1,196	
Homeland Security Law Enforcement Firefighting and Related Protective Service	257	298	381	430	399	417	368	358	
Public Administration and Social Service Professions	523	535	549	564	571	601	579	576	
Social Sciences	1,829	1,942	2,143	2,306	2,378	2,285	2,314	2,336	
Visual and Performing Arts	913	862	925	987	992	1,007	980	1,014	
Health Professions and Related Programs	984	1,003	1,254	1,282	1,450	1,482	1,562	1,553	
Business Management Marketing and Related Support Services	2,680	2,765	2,928	2,938	3,020	2,982	3,125	3,409	
History	377	369	358	344	277	257	240	238	
Total	17,999	18,662	20,269	20,896	21,421	21,508	21,721	22,652	

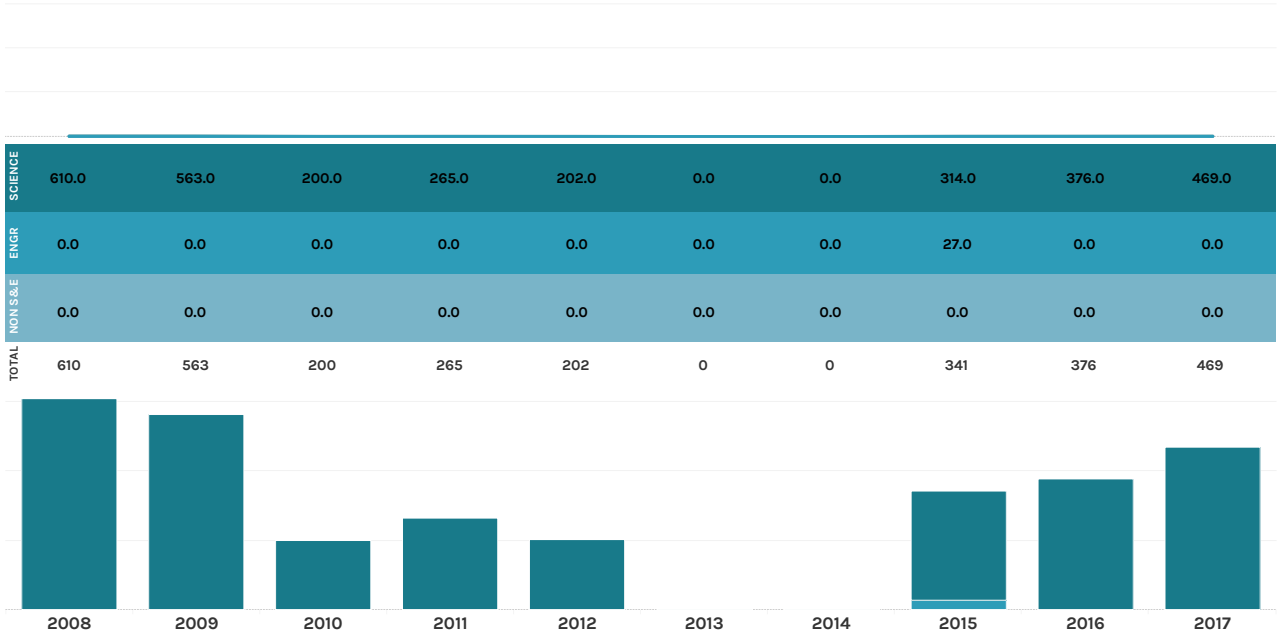
STATEWIDE RESEARCH EXPENDITURES

Research universities have an important role to play in not only knowledge creation, but also economic development. R&D activity generates start-up companies and technology transfer to the private sector, which in turn spurs growth and creates high-paying jobs. There are many examples of Oregon's research universities working in partnership with and supporting private industry sectors. They also attract students from around the country and raise the visibility and reputation of Oregon's institutions.

However, this study was limited in scope to focus on the first 40% goal of the 40-40-20 strategic plan, which is met by undergraduate degrees. In contrast, research is by and large supported through doctoral degree programs. Therefore, within the framework of the 40-40-20 plan, capital investment in research is not seen as contributing to the first 40% goal.

With that said, we have looked at the performance of all Oregon institutions with regard to federally sponsored research programs, as this may inform a discussion of role and mission, and which universities should be investing in research. The tables below show the seven institutions (excluding the Cascades campus as it is included in reporting for Corvallis and research activity there is very small by comparison) and expenditures as reported by the National Science Foundation National Center for Education Statistics.

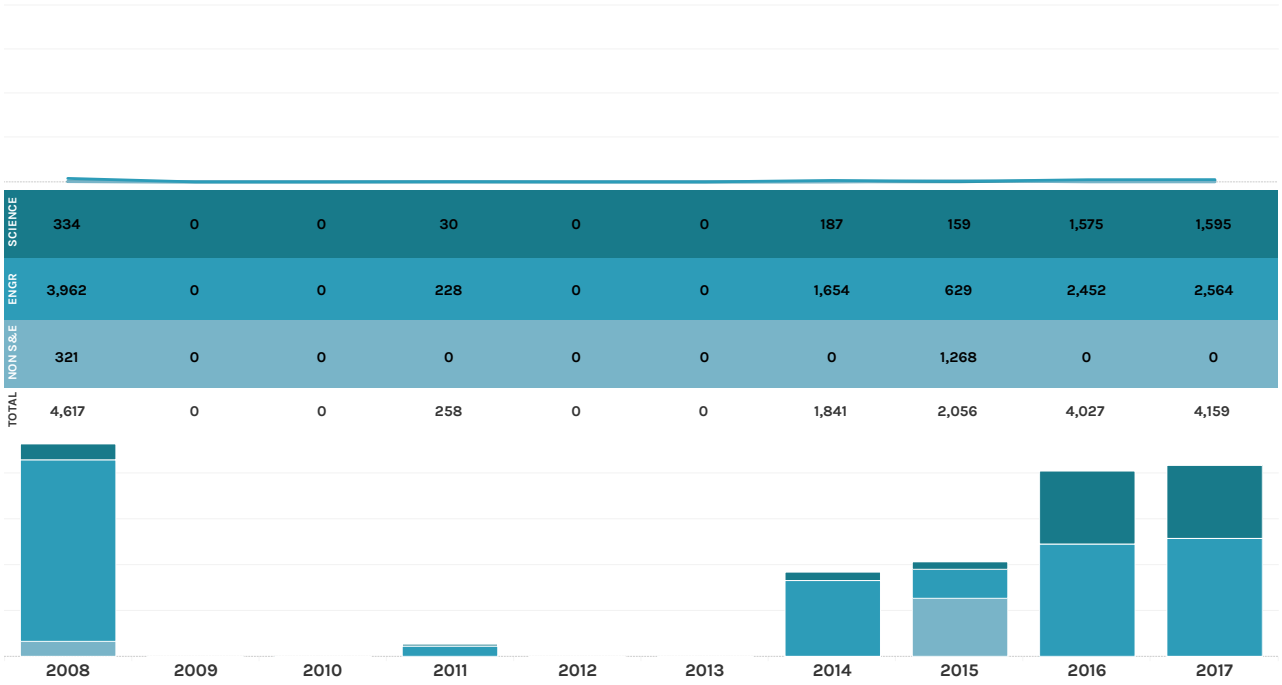
EASTERN OREGON UNIVERSITY | R&D EXPENDITURES



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SCIENCE	610.0	563.0	200.0	265.0	202.0	0.0	0.0	314.0	376.0	469.0
ENGR	0.0	0.0	0.0	0.0	0.0	0.0	0.0	27.0	0.0	0.0
NON S&E	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
TOTAL	610	563	200	265	202	0	0	341	376	469

Total R&D expenditures annually reported to the National Science Foundation.
Dollar amounts are in thousands.

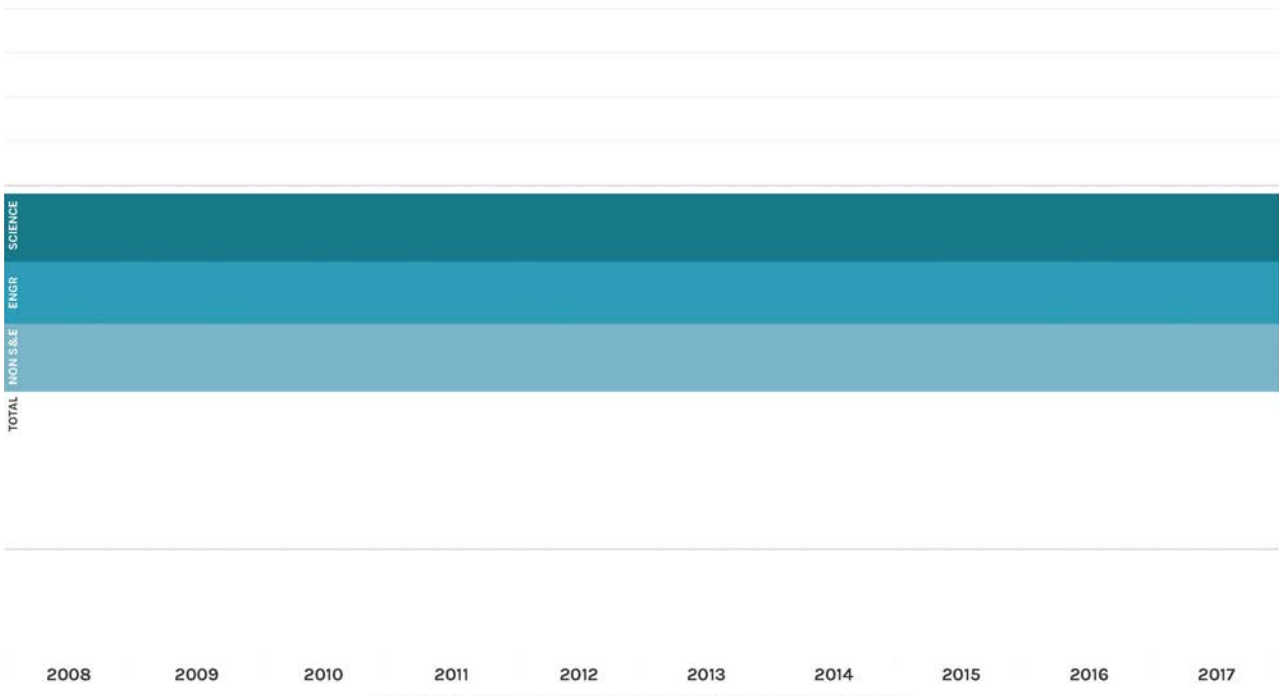
OREGON INSTITUTE OF TECHNOLOGY | R&D EXPENDITURES



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SCIENCE	334	0	0	30	0	0	187	159	1,575	1,595
ENGR	3,962	0	0	228	0	0	1,654	629	2,452	2,564
NON S&E	321	0	0	0	0	0	0	1,268	0	0
TOTAL	4,617	0	0	258	0	0	1,841	2,056	4,027	4,159

Total R&D expenditures annually reported to the National Science Foundation.
Dollar amounts are in thousands.

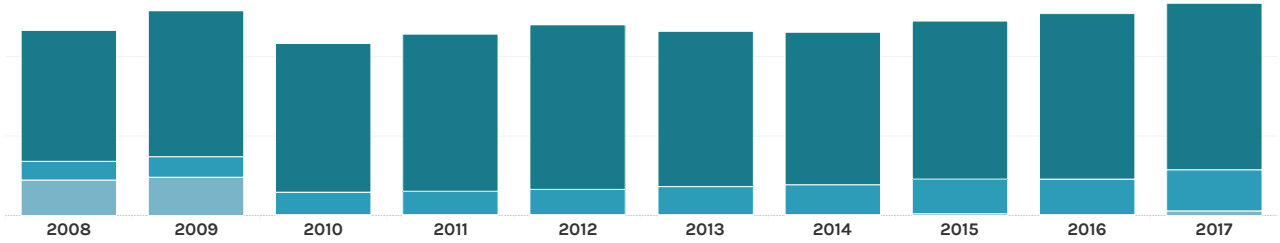
OREGON STATE UNIVERSITY - CASCADES | R&D EXPENDITURES



Total R&D expenditures annually reported to the National Science Foundation.
Dollar amounts are in thousands.

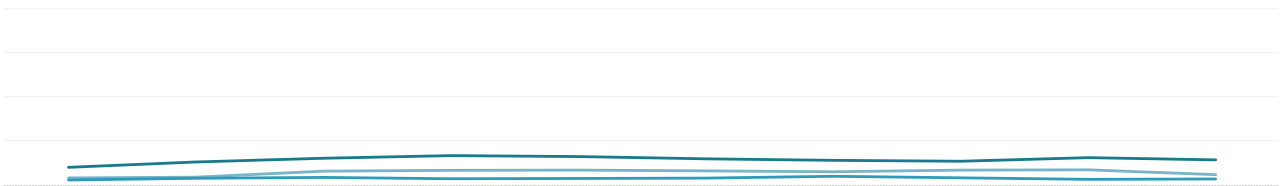
OREGON STATE UNIVERSITY - CORVALLIS | R&D EXPENDITURES

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SCIENCE	165,027	183,877	187,439	198,663	207,561	195,958	192,282	199,764	208,551	209,709
ENGR	23,029	25,184	27,961	29,089	32,010	35,384	37,174	43,110	43,990	51,184
NON S&E	45,302	48,503	1,195	1,062	936	1,335	1,507	2,443	1,734	6,175
TOTAL	233,358	257,564	216,595	228,814	240,507	232,677	230,963	245,317	254,275	267,068

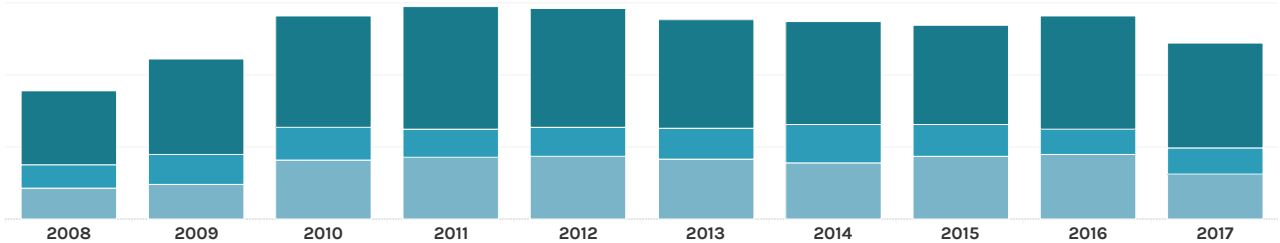


Total R&D expenditures annually reported to the National Science Foundation.
Dollar amounts are in thousands.

PORTLAND STATE UNIVERSITY | R&D EXPENDITURES

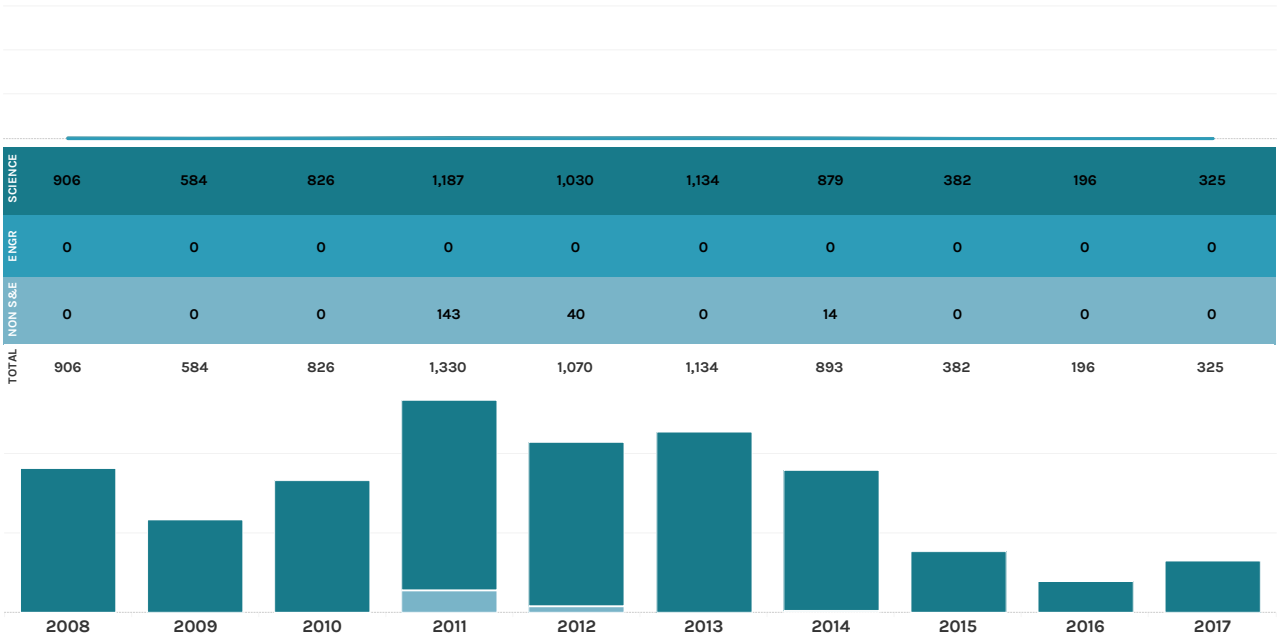


	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SCIENCE	20,675	26,732	30,949	33,944	32,862	30,297	28,590	27,566	31,626	29,107
ENGR	6,332	8,298	9,254	7,748	8,077	8,488	10,544	8,789	7,091	7,488
NON S&E	8,698	9,544	16,330	17,283	17,550	16,650	15,653	17,517	17,855	12,369
TOTAL	35,705	44,574	56,533	58,975	58,489	55,435	54,787	53,872	56,572	48,964



Total R&D expenditures annually reported to the National Science Foundation.
Dollar amounts are in thousands.

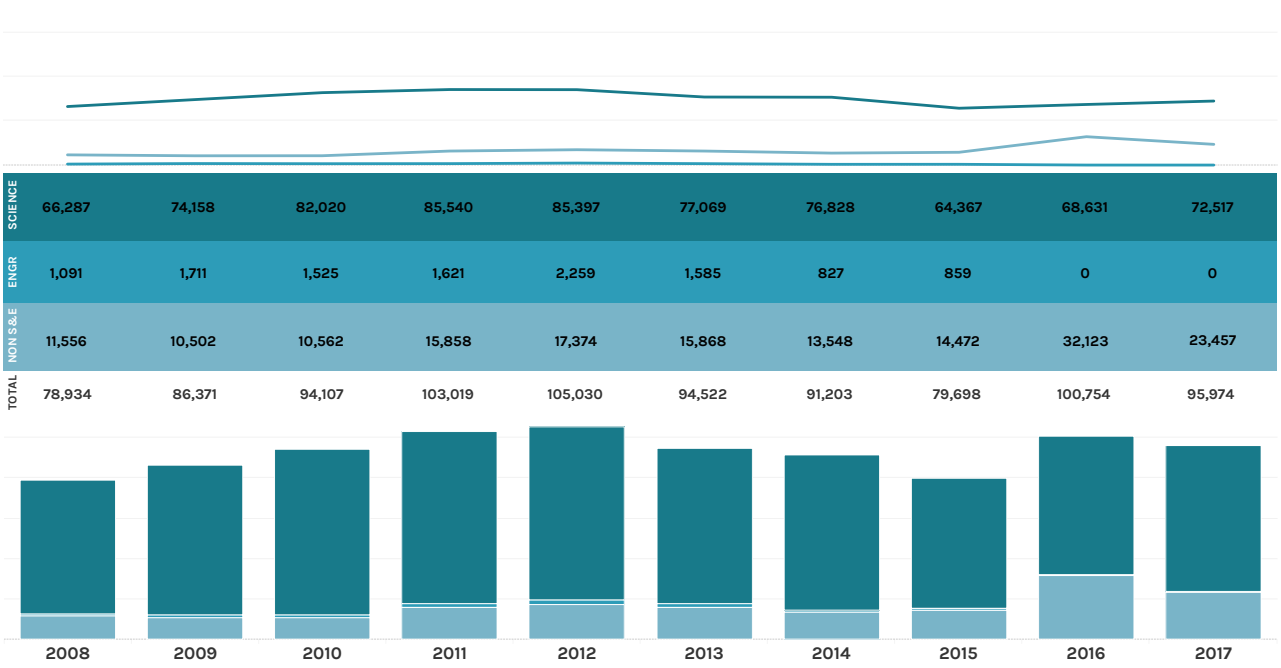
SOUTHERN OREGON UNIVERSITY | R&D EXPENDITURES



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SCIENCE	906	584	826	1,187	1,030	1,134	879	382	196	325
ENGR	0	0	0	0	0	0	0	0	0	0
NON S&E	0	0	0	143	40	0	14	0	0	0
TOTAL	906	584	826	1,330	1,070	1,134	893	382	196	325

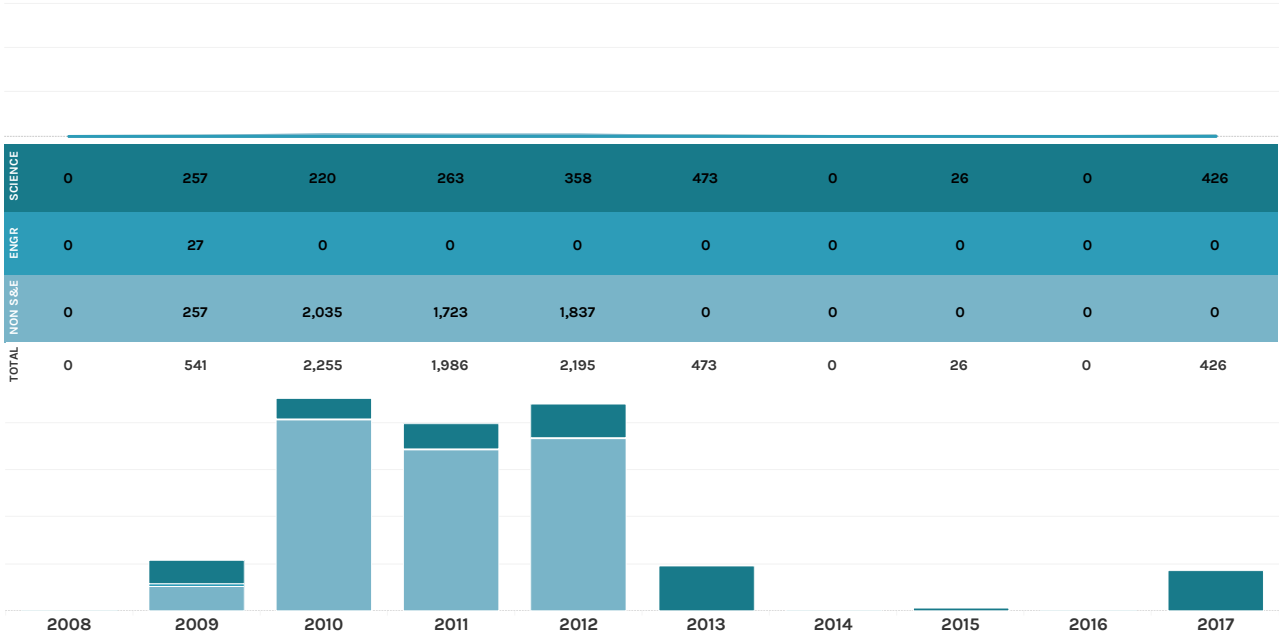
Total R&D expenditures annually reported to the National Science Foundation.
Dollar amounts are in thousands.

UNIVERSITY OF OREGON | R&D EXPENDITURES



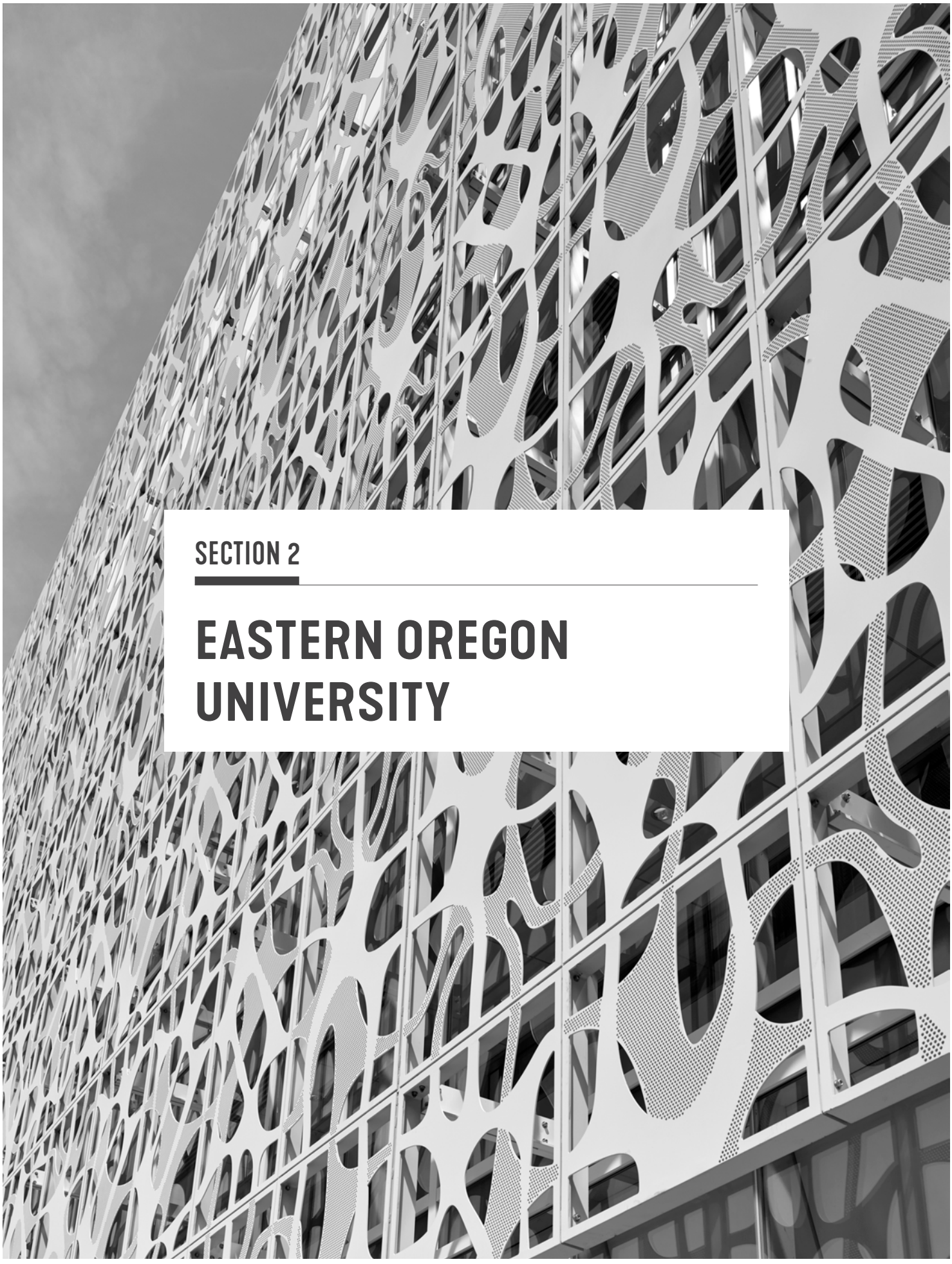
	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SCIENCE	66,287	74,158	82,020	85,540	85,397	77,069	76,828	64,367	68,631	72,517
ENGR	1,091	1,711	1,525	1,621	2,259	1,585	827	859	0	0
NON S&E	11,556	10,502	10,562	15,858	17,374	15,868	13,548	14,472	32,123	23,457
TOTAL	78,934	86,371	94,107	103,019	105,030	94,522	91,203	79,698	100,754	95,974

Total R&D expenditures annually reported to the National Science Foundation.
Dollar amounts are in thousands.



	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
SCIENCE	0	257	220	263	358	473	0	26	0	426
ENGR	0	27	0	0	0	0	0	0	0	0
NON S&E	0	257	2,035	1,723	1,837	0	0	0	0	0
TOTAL	0	541	2,255	1,986	2,195	473	0	26	0	426

Total R&D expenditures annually reported to the National Science Foundation.
Dollar amounts are in thousands.



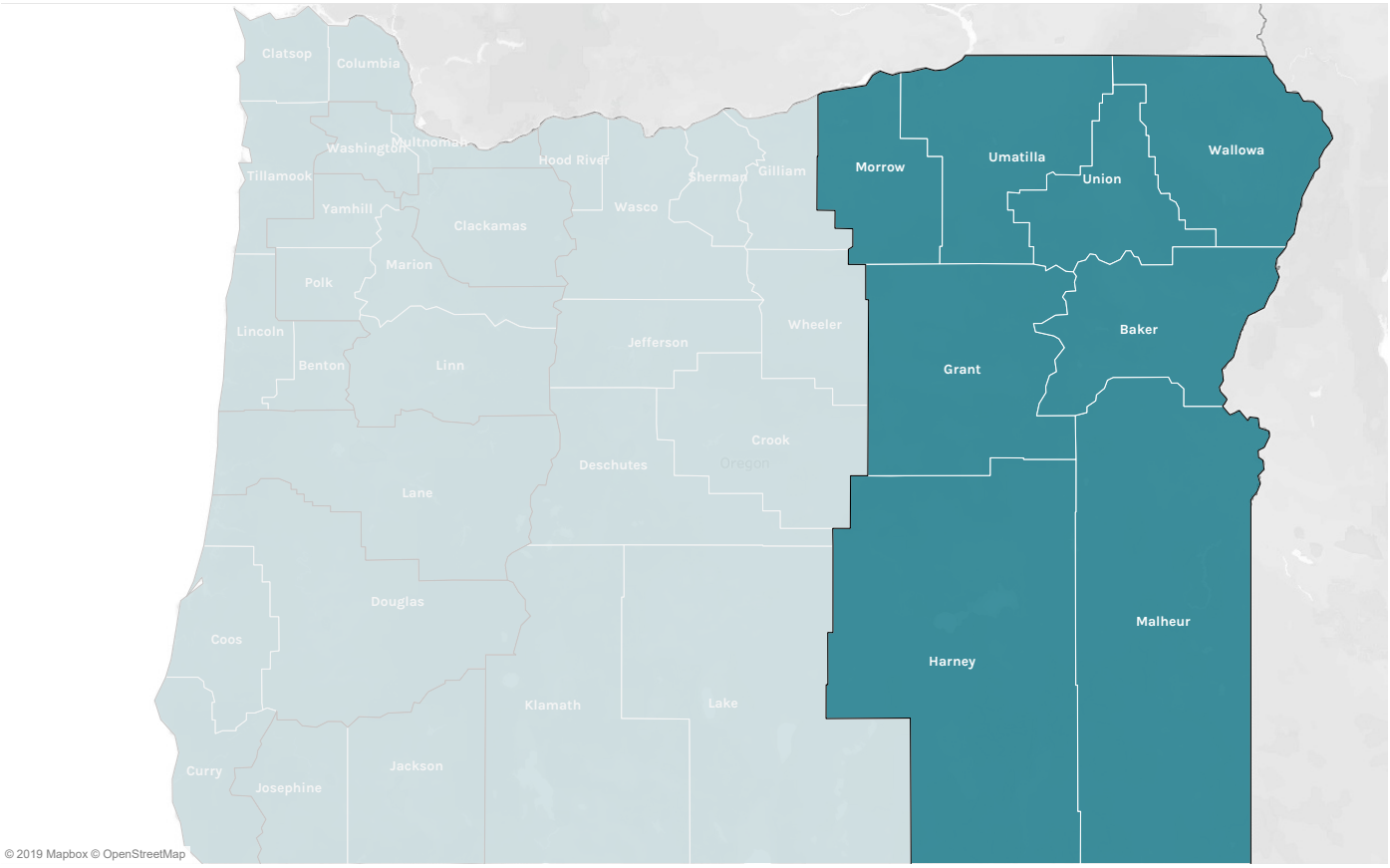
SECTION 2

EASTERN OREGON UNIVERSITY

EASTERN OREGON UNIVERSITY
ENROLLMENT & WORKFORCE DEMAND ANALYSIS

Eastern Oregon University's primary service region (Figure 1) is comprised of the Eastern Oregon Workforce Board. This workforce board's geographic range is the largest in the state and includes the following counties: Baker, Grant, Harney, Malheur, Morrow, Umatilla, Union, and Wallowa.

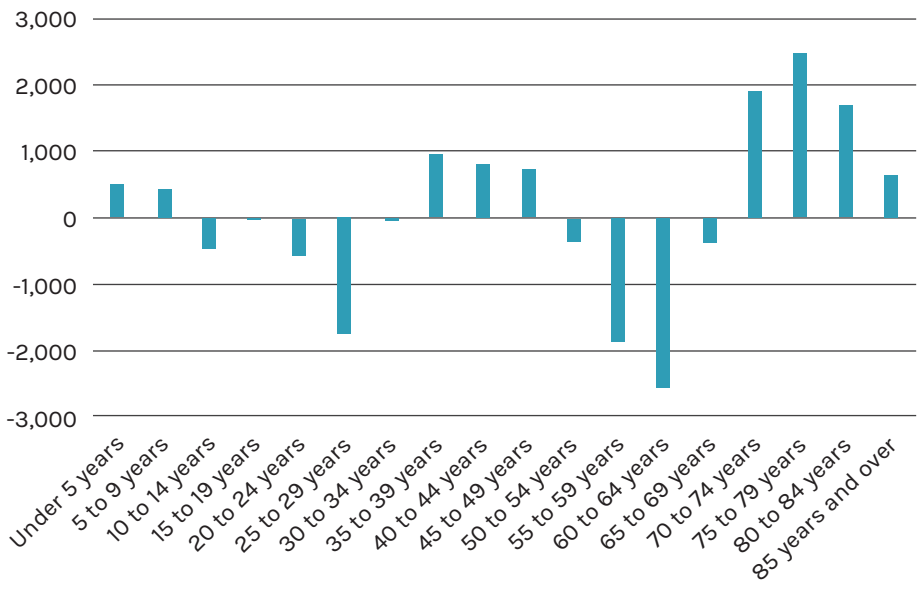
FIGURE 1. EASTERN OREGON UNIVERSITY PRIMARY SERVICE REGION



POPULATION

Between 2010 and 2018, the population in the counties that comprise the primary service area grew for EOU grew by just 8,048, or just over half of one percent per year[1]. Population change by age was mostly bimodal, with growth among age groups above 70 and between 35 and 50 (the latter of which likely helped boost the number of young children as well). But these increases were offset by significant drops among those between 50 and 70 and between 10 and 30 (Figure 2).

FIGURE 2. CHANGE BETWEEN 2010-2018 IN EOU PRIMARY SERVICE AREA COUNTIES BY AGE

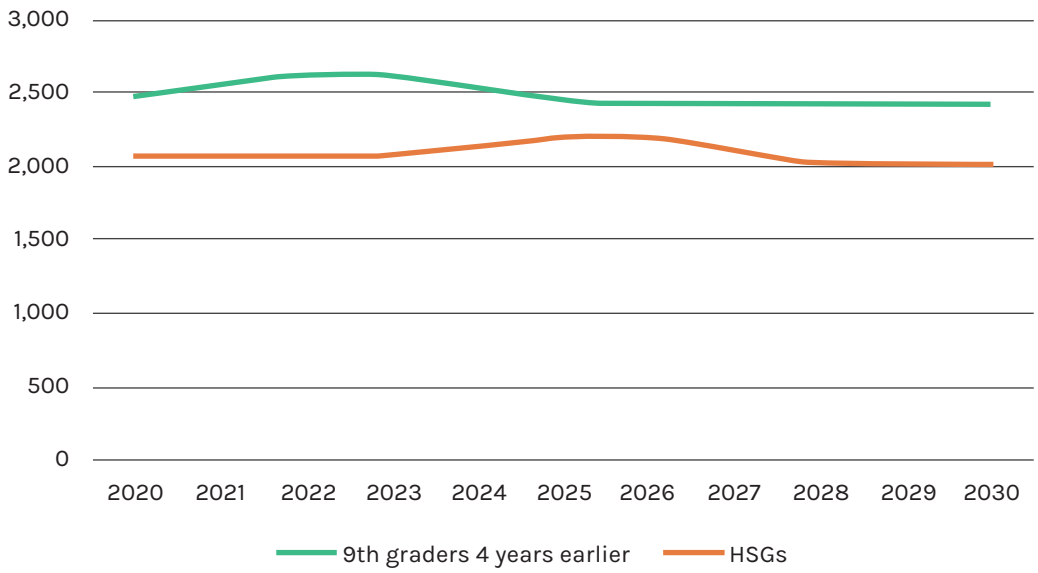


Source: EMSI, 2019.

1 Portland State University, Population Research Center.

Population growth between 2020 and 2030 is expected to be slow, especially among traditionally college-aged individuals, and the projected number of ninth graders and high school graduates is expected to barely change at all, rising a little more than 100 by 2026 before the number of high school graduates drops substantially (Figure 3).

FIGURE 3. PROJECTED NINTH GRADERS AND HIGH SCHOOL GRADUATES



Sources: WICHE, NCES CCD, oregonlive.com.

ENROLLMENT PROJECTIONS AND PATTERNS

The eight counties in EOU's primary service area are collectively expected to see population fall between 2020 and 2030, before a modest recovery is expected by 2040. The opposite scenario is expected for individuals between 15–24—modest growth before 2030 leading to a sustained decline—that has clear implications for postsecondary enrollment demand in the next two decades.

EOU attracts 36 percent of its first-time students from out-of-state, especially from Idaho and Washington, which together accounted for almost two-thirds of EOU's non-residents in 2016–17.[2] Among Oregon residents, however, EOU draws 75 percent of its Oregonians from a greater number of counties than other public four-year institutions in the state—its reach includes some counties in the Portland metropolitan area—due to the large and relatively sparsely populated geographic area that makes up EOU's primary service area. The counties that collectively provide three-quarters of EOU's resident undergraduates are: Union, Umatilla, Multnomah, Baker, Clackamas, Marion, Malheur, Deschutes, Washington, Douglas, Lane, and Grant (Figure 4). Still, its student body is heavily representative of the eastern half of the state, and EOU is clearly the institution of choice for most college-bound students from the counties in its service area (Figure 5).

In addition to its first-time students, EOU also draws most of its transfer students from institutions outside of Oregon, which collectively were the source of as many inbound students as the four Oregon community colleges that supplied the highest volume of transfer students, which were mostly located in relative proximity to EOU, apart from Chemeketa (Table 1).

TABLE 1. FALL 2018 TRANSFER STUDENT INSTITUTION OF ORIGIN

Community Colleges	
Blue Mountain Community College	178
Treasure Valley Community College	101
Mount Hood Community College	97
Chemeketa Community College	85
Portland Community College	80
Central Oregon Community College	59
Umpqua Community College	46
Clackamas Community College	38
Southwestern Oregon Community College	35
Lane Community College	34
Rogue Community College	18
Linn-Benton Community College	17
Columbia Gorge Community College	13
Klamath Community College	13
Other Oregon 4-Year Institutions	
Oregon State University	19
Western Oregon University	15
Other or Unknown	
Other US college or university	546
Unknown	57
Oregon independent college or university	15

2 NCES IPEDS.

FIGURE 4. SHARE OF RESIDENT UNDERGRADUATE ENROLLMENT BY COUNTY

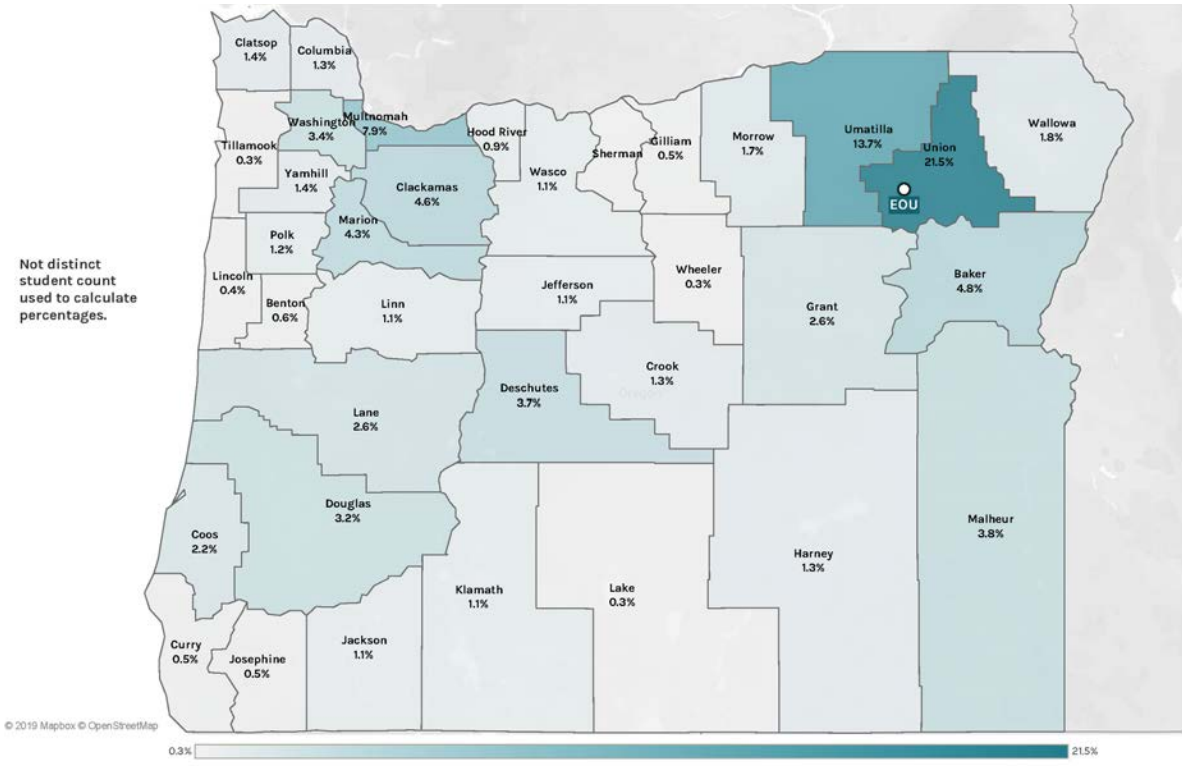
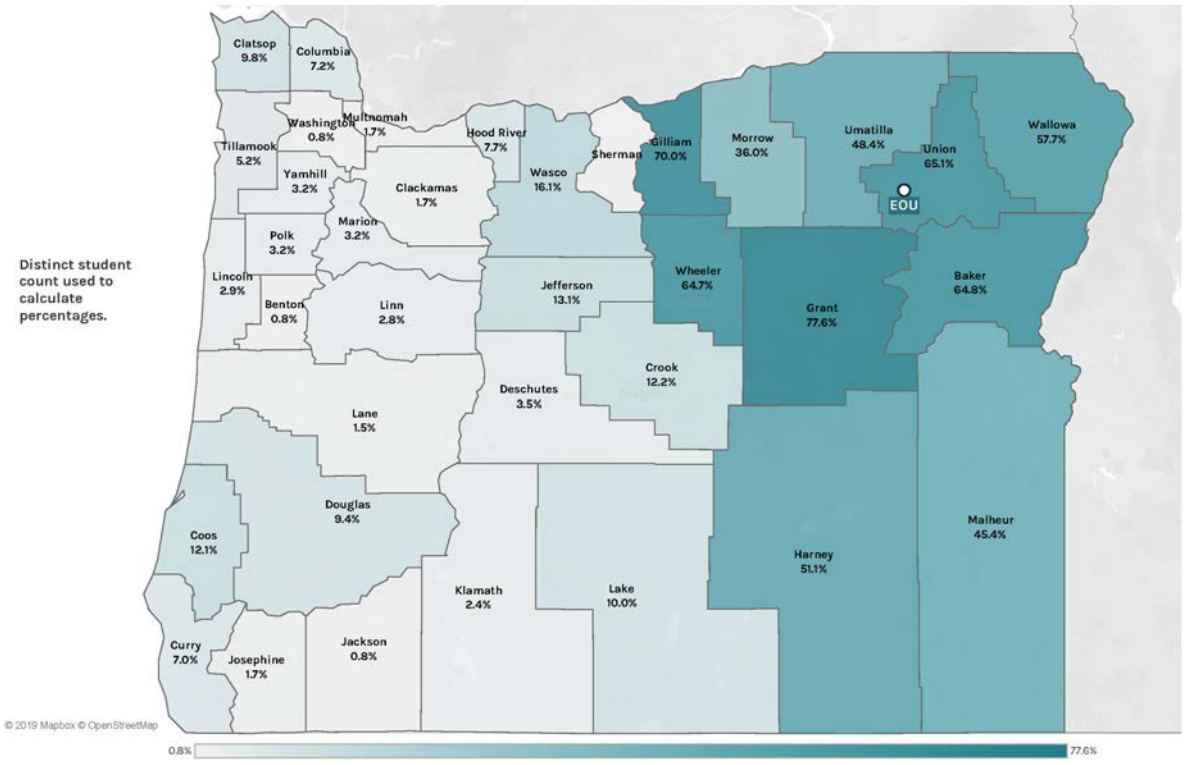


FIGURE 5. SHARE OF COLLEGE-GOING STUDENTS FROM EACH COUNTY ATTENDING EOU



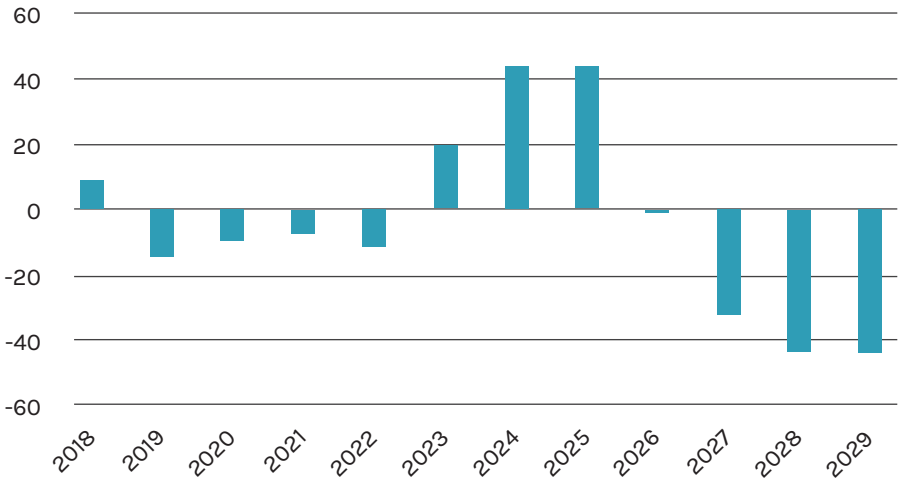
PROJECTING CAPACITY NEEDS DUE TO ENROLLMENT

To assess the likely need for space caused by undergraduate enrollment demand, NCHEMS modeled enrollment projections for each of Oregon's public four-year institutions based on the following assumptions:

- Ratio of high school graduates to 9th graders[3]
- College-going rate of recent high school graduates to enrollment at an Oregon public four-year institution[4]
- Participation rate per 100,000 population of 20–49 year olds enrolling for the first-time at an Oregon public four-year institution[5]
- Enrollment of first-time students from out-of-state[6]
- Ratio of transfer students from public two-year to public four-year institutions to the total enrollment of public two-year institutions[7]
- Retention and completion rates[8] remain steady
- Projected population changes for each institution's designated service areas[9]
- County-of-origin of undergraduate enrollment[10]
- The current proportional mix on on-campus and online students remains constant

This modeling suggests that, barring significant changes in recruitment or retention, EOU will see consistent enrollment levels over the period 2018–19 and 2029–30, peaking with 45 additional FTE in 2024–25 before beginning a steady decline in 2026–27 (Figure 6). Since EOU reports that its online FTE accounted for 40 percent of total FTE enrollment in 2017–18, the model predicts on-campus enrollment to only rise by 27 FTE.

FIGURE 6. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017

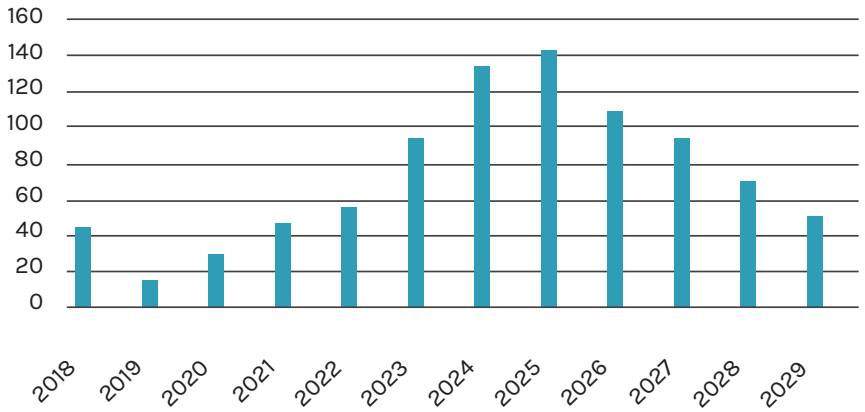


Note: Data shows the difference between the expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect no assumed changes in the most recent data for recruitment and retention.

3 NCES CCD, Western Interstate Commission for Higher Education, *Knocking at the College Door*, knocking.wiche.edu.
4 Enrollment by county (Oregon HECC), high school graduates (oregonlive.com), Residence and Migration (NCES IPEDS).
5 Enrollment by county (HECC), Residence and Migration (NCES IPEDS).
6 Enrollment of non-resident students (HECC), Residence and Migration (NCES IPEDS).
7 Oregon HECC.
8 NCES IPEDS.
9 Office of Economic Analysis, Oregon Department of Administrative Services.
10 Oregon HECC.

Even under an optimistic assumption about EOU's capacity to improve recruitment and retention of students, NCHEMS' model would not yield substantially large enrollment increases. For example, adjusting each of the following parameters—enrollment of in-state students, out-of-state students, and transfer students, as well as retention rates—by five percent yields an enrollment increase of just 144 FTE in the peak year, which amounts to 86 additional on-campus FTE, before enrollments fall back off (Figure 7).

FIGURE 7. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017, ASSUMING A 5% INCREASE IN RECRUITMENT AND RETENTION MEASURES



Note: Data shows the difference between expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect a 5% increase in each of the recruitment measures for different student categories—in-state students, out-of-state students, and transfer students—as well as retention rates from the first- to the second year. No change in the high school graduation rate is assumed.

Neither the default forecast nor the optimistic one should require additional physical space to accommodate the anticipated change in enrollment demand.

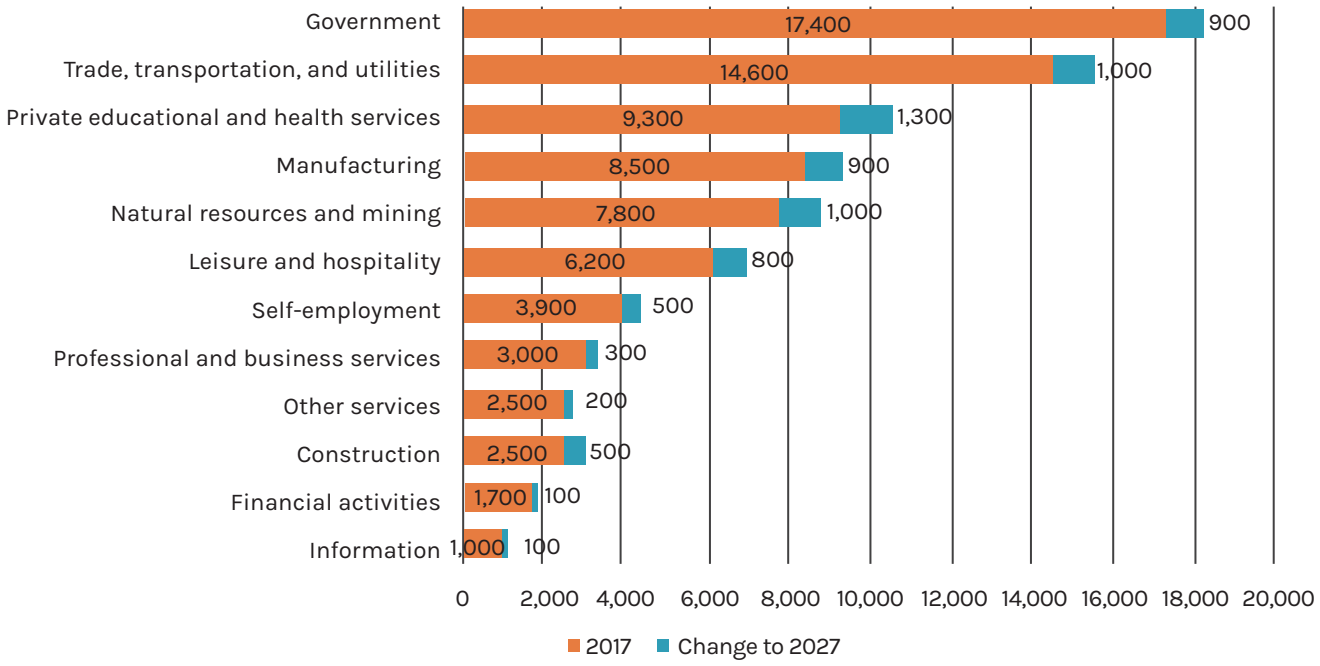
In order for EOU to reach its on-campus enrollment forecast for 2029, which would require it to enroll about 2,500 additional on-campus FTEs (again assuming that it retains a 60/40 mix of on-campus to online enrollments), NCHEMS' model assumes that it would have to improve its recruitment and retention by over 60 percent across the board.

ECONOMY AND WORKFORCE NEEDS

The occupational projections for jobs requiring baccalaureate-level education in Eastern Oregon are traditional fields already being provided by EOU—education and business management and finance. To the extent that there are needs for programs beyond those already being offered, they would be in specialties within the allied health professions, physical therapy/kinesiology, in particular. These programs, if offered, should be offered by OHSU; EOU has no capacity that could be used as a base for providing such programs. Based on the interviews, there are opportunities for EOU to develop programs that would a) serve the region and/or b) attract additional students. EOU is really the only remotely nearby option for individuals seeking a baccalaureate degree or for businesses who are seeking a supply of appropriate talent, which helps explain why so many of the local needs appear to be under-supplied in Figure 11. Those that would be of greatest service to the region are specializations within business (rural business/sustainability, agriculture) and within social work (health care and mental health care). Those that might attract new students include e-sports and outdoor recreation.

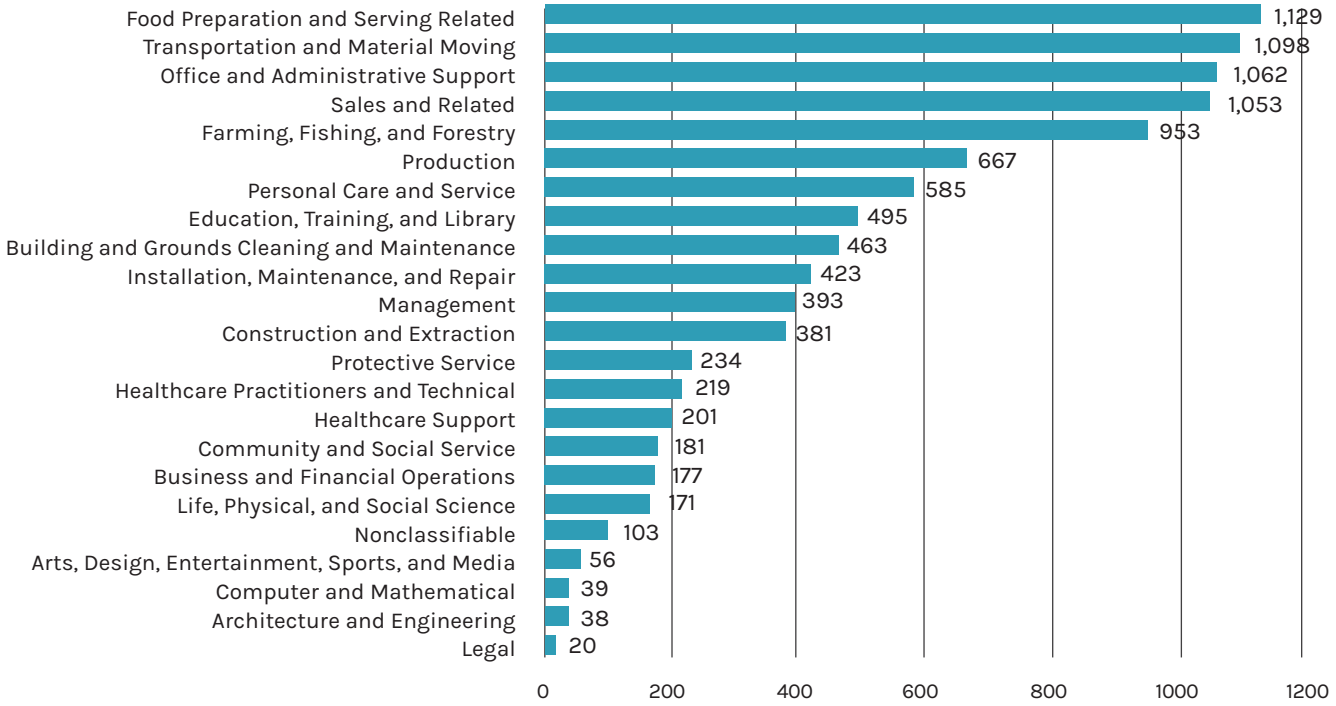
With the exception of any programs that might be offered in collaboration with OHSU (expansion of Nursing, Physical Therapy) there are no needs for unique instructional spaces. Facilities requirements will be determined by enrollment numbers and pedagogy, not programs. (See Figure 12)

FIGURE 8. EMPLOYMENT GROWTH BY INDUSTRY, 2017–2027
EASTERN OREGON UNIVERSITY SERVICE AREA



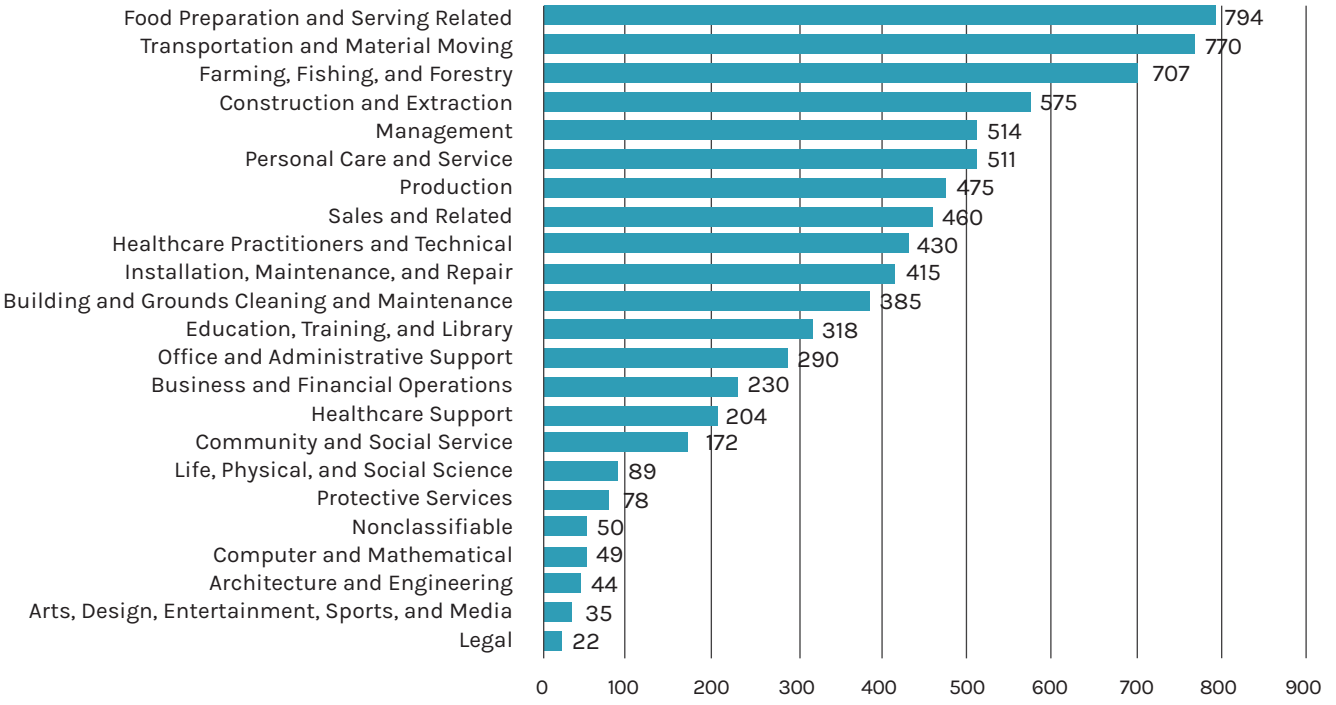
Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 9. TOTAL ANNUAL OPENINGS BY OCCUPATION, 2017–2027, EASTERN OREGON UNIVERSITY SERVICE AREA



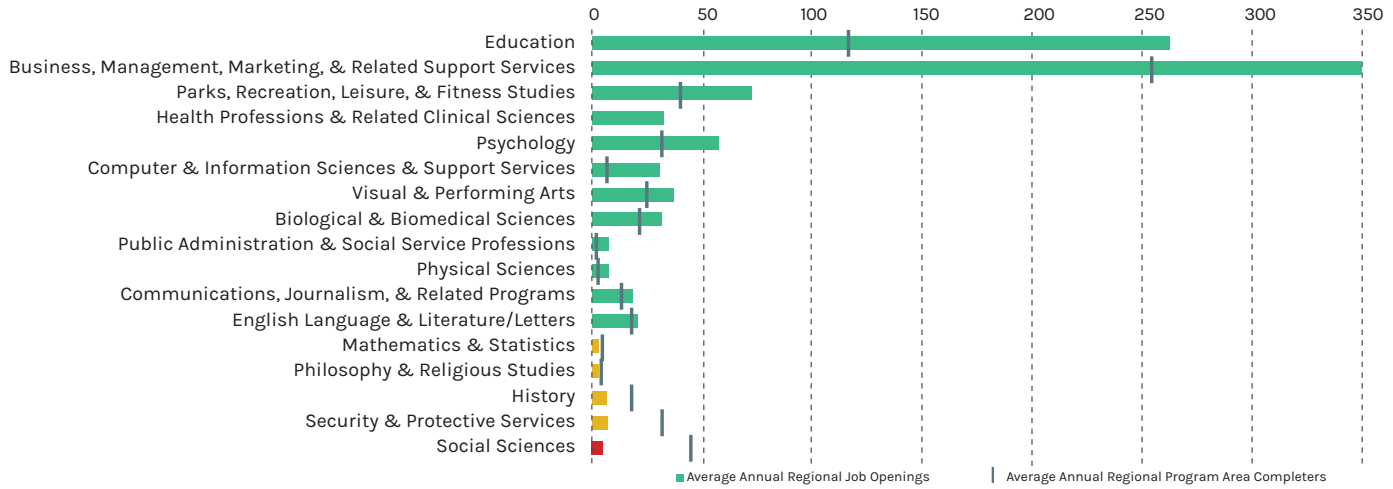
Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 10. GROWTH IN EMPLOYMENT BY OCCUPATION, 2017–2027, EASTERN OREGON UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 11. GAPS AT THE BACHELOR'S AND ABOVE DEGREE LEVEL (2-DIGIT CIP)



Source: EMSI, 2019.

FIGURE 12. PROGRAM ADDITIONS

Bachelor's degree level program additions

SOC Code	SOC Title	BACH Job Opening in the EOU Service	BACH Program Completers in the EOU Service Region	BACH Gap	Median Hourly Wage
29-1141	Registered Nurses	46	0	46	$37.07
19-4093	Forest and Conservation Technicians	28	0	28	$16.06
21-1093	Social and Human Service Assistants	20	0	20	$15.65
41-3099	Sales Representatives, Services, All Other	13	0	13	$23.94
41-3021	Insurances Sales Agents	11	0	11	$24.02
33-3051	Police and Sheriff's Patrol Officers	11	0	11	$29.93
25-9099	Education, Training, and Library Workers, All Other	10	0	10	$20.75
41-9022	Real Estate Sales Agents	9	0	9	$21.41
21-1092	Probation Officers and Correctional treatment Specialists	6	0	6	$28.71
13-1028	Buyers and Purchasing Agents	6	0	6	$30.00
17-2051	Civil Engineers	5	0	5	$35.18
29-2018	Clinical Laboratory Technologists and Technicians	5	0	5	$28.95
41-9021	Real Estate Brokers	5	0	5	$25.58
19-1031	Conservation Scientists	5	0	5	$30.94
41-3031	Securities, Commodities, and Financial Services Sales Agents	5	0	5	$19.62

Master's degree level program additions

SOC Code	SOC Title	MAST Job Openings in the EOU Service Region	MAST Program Completers in the EOU Service Region	MAST Gap	Median Hourly Wage
29-1171	Nurse Practitioners	7	0	7	$46.85
29-1071	Physician Assistants	4	0	4	$50.69
21-1127	Speech-Language Pathologists	3	0	3	$33.38

Source: EMSI, 2019.

EASTERN OREGON UNIVERSITY FACILITIES INFORMATION

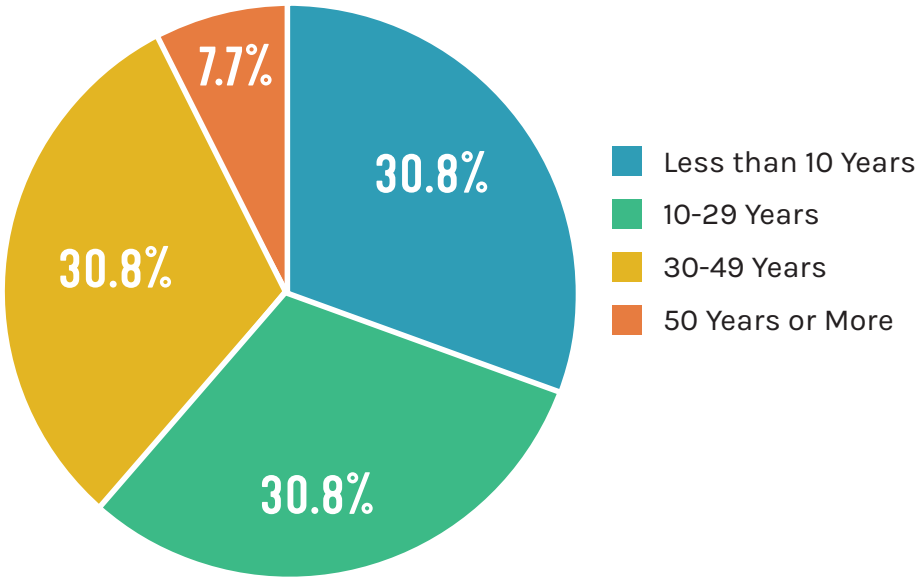
Fall 2018 facilities data for Eastern Oregon University is summarized below. Included is general information about the 13 buildings on campus: average age of the buildings, total floor area on campus, and replacement value. A pie chart highlights the percentage of buildings in each age category. A block diagram makes visible the proportion of space on campus in each space category.

EASTERN OREGON UNIVERSITY

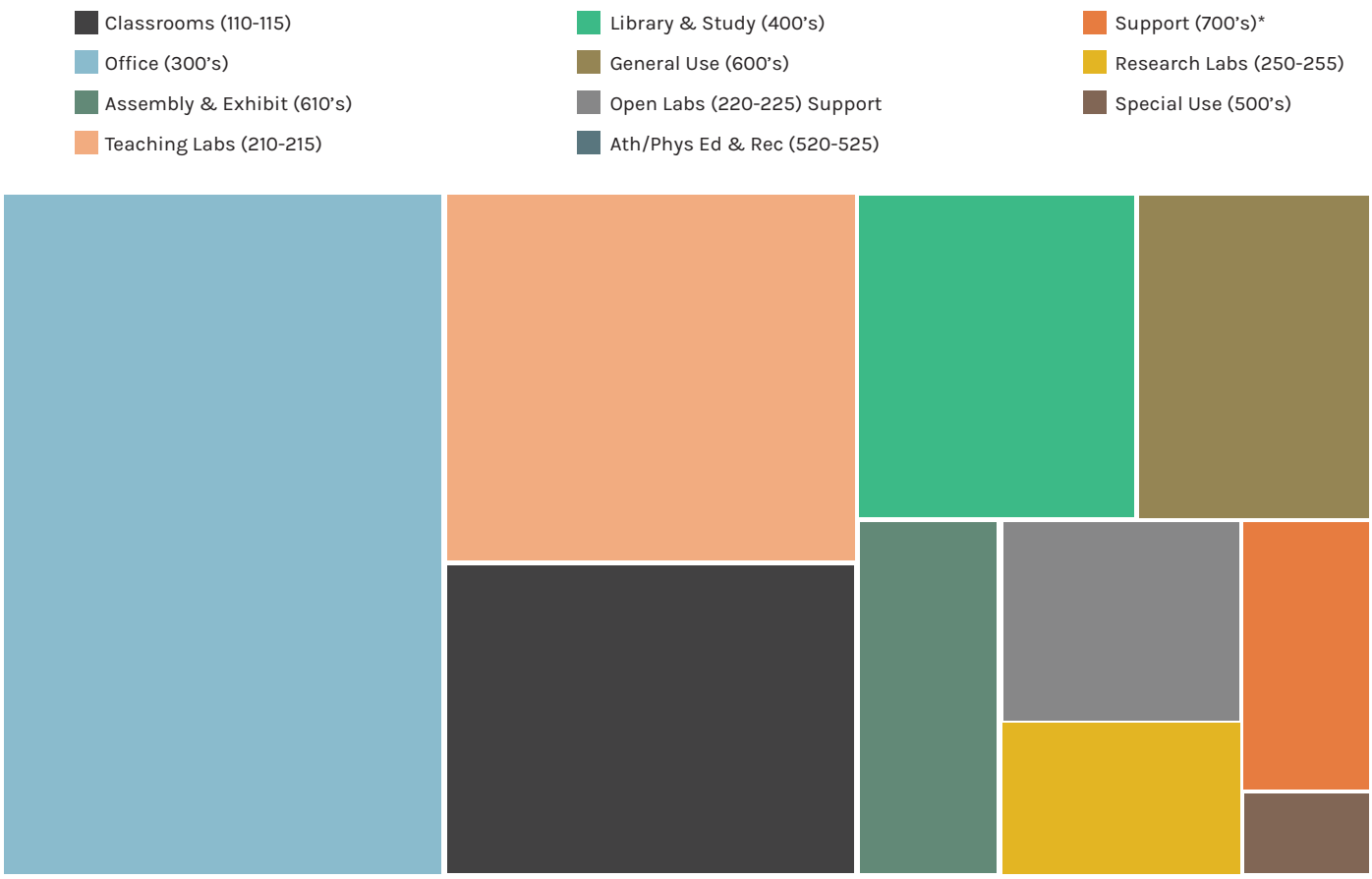
Number of Buildings:	13
Number of Buildings with Age/Renovation Year	13
Average Age of Building/Renovation:	25 years
Total Gross Square Feet:	406,694
Total Gross Square Feet for Buildings with Year:	406,694
Total Renovated Gross Square Feet for Buildings with Year:	262,757
Percentage Gross Square Feet Renovated:	64.6%
Number of Buildings Renovated:	4
Percentage of Buildings Renovated:	30.8%
Total Current Replacement Value of All EOU Buildings:	$210,437,135

Age Grouping of Buildings		
	Count	Percentage
Less than 10 Years Old	4	30.8%
10 to 29 Years Old	4	30.8%
30 to 49 Years Old	4	30.8%
50 Years Old or More	1	7.7%

EASTERN OREGON UNIVERSITY AGE OF BUILDING/RENOVATION (N=13)



EASTERN OREGON UNIVERSITY ASF BY SPACE CATEGORY



EASTERN OREGON UNIVERSITY SPACE ANALYSIS

The Fall 2018 term use of scheduled teaching space on the Eastern Oregon University campus was analyzed to determine if additional capacity is available in existing space. Campus space needs for academic and academic support space were analyzed for the Fall 2018 term to compare existing space use with the space guidelines established for this study. The guidelines were then applied to two future enrollment projection scenarios to determine the quantity of space needed and how the need compares to the quantity and type of space available on campus.

FALL 2018 SCHEDULED TEACHING SPACE UTILIZATION

CLASSROOM UTILIZATION

There are 30 scheduled classrooms on the EOU campus, with a total of 1,362 student stations (seats in the classroom). During the Fall 2018 term, the classrooms were scheduled, on average, 21 hours per week with 54% of the seats in the classroom filled. The classrooms are located in six buildings. The following chart indicates the scheduled use of the classrooms in each building.

CLASSROOM UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Ackerman	*ACK*	7	889	23	21	10.9	20	52%
Badgley Hall	*BH*	6	1,386	24	30	10.9	23	44%
Inlow Hall	*IH*	2	769	25	19	7.0	11	57%
Loso Hall	*LH*	5	674	23	19	15.0	24	69%
Quinn Coliseum	*QC*	1	917	38	23	8.5	9	94%
Zabel Hall	*ZH*	9	1,149	26	21	8.6	22	51%
Total No. of Rooms = 30		**AVERAGE**	**1,023**	**22.5** *	**22**	**10.3**	**21**	**54%**
Total No. of Stations = 1362		**Total ASF**	**30,702**					

At 10.3 weekly hours of use for each classroom seat, the utilization does not meet the guideline of 20 weekly seat hours, 30 weekly room hours, and 67% student station occupancy.

The greatest number of classrooms in use at any one time was 25 on Monday morning at 10:00, as indicated in the following chart. Classroom use is greatest in the morning, with over half of the rooms scheduled Friday afternoon.

SCHEDULED CLASSROOM USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	12	40%	12	40%	8	27%	14	47%	9	30%	11	37%
9:00 AM	20	67%	20	67%	15	50%	21	70%	19	63%	19	63%
10:00 AM	25	83%	20	67%	17	57%	20	67%	23	77%	21	70%
11:00 AM	23	77%	17	57%	19	63%	20	67%	16	53%	19	63%
12:00 PM	13	43%	8	27%	8	27%	8	27%	11	37%	10	32%
1:00 PM	20	67%	21	70%	11	37%	20	67%	16	53%	18	59%
2:00 PM	18	60%	20	67%	11	37%	20	67%	14	47%	17	55%
3:00 PM	6	20%	6	20%	5	17%	5	17%	1	3%	5	15%
4:00 PM	4	13%	3	10%	6	20%	2	7%	0	0%	3	10%
5:00 PM	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
6:00 PM	2	7%	2	7%	2	7%	0	0%	2	7%	2	5%
7:00 PM	2	7%	2	7%	2	7%	0	0%	2	7%	2	5%

Total classrooms = 30

TEACHING LAB UTILIZATION

There are 27 scheduled teaching laboratories on the EOU campus, with a total of 597 student stations. During the Fall 2018 term, the labs were scheduled, on average, 10 hours per week with 63% of the stations occupied. The labs are located in four buildings. The following chart indicates the scheduled use of the teaching labs in each building.

TEACHING LABORATORY UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Badgley Hall	*BH*	14	1,015	50	12	8.1	11	64%
Loso Hall	*LH*	11	1,091	52	11	5.0	9	58%
Quinn Coliseum	*QC*	1	781	24	15	5.7	11	51%
Zabel Hall	*ZH*	1	1,055	75	19	8.3	6	138%
Total No. of Rooms = 27		**AVERAGE**	**1,039**	**47.0** *	**12**	**6.6**	**10**	**63%**
Total No. of Stations = 597		**Total ASF**	**28,047**					

At 6.6 hours per week of student station occupancy, the utilization does not meet the guideline of 15 weekly seat hours, 20 weekly room hours. The student station occupancy of 63% when the room is scheduled is close to the 70% expectation.

Labs are scheduled primarily on Monday, Tuesday, and Wednesday afternoon, as indicated in the chart below.

SCHEDULED TEACHING LABORATORY USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	2	7%	4	15%	1	4%	4	15%	3	11%	3	10%
9:00 AM	4	15%	7	26%	4	15%	7	26%	4	15%	5	19%
10:00 AM	4	15%	7	26%	5	19%	5	19%	3	11%	5	18%
11:00 AM	3	11%	4	15%	4	15%	2	7%	2	7%	3	11%
12:00 PM	4	15%	4	15%	3	11%	4	15%	4	15%	4	14%
1:00 PM	9	33%	3	11%	8	30%	3	11%	4	15%	5	20%
2:00 PM	12	44%	8	30%	14	52%	5	19%	2	7%	8	30%
3:00 PM	6	22%	7	26%	8	30%	4	15%	0	0%	5	19%
4:00 PM	6	22%	9	33%	8	30%	5	19%	0	0%	6	21%
5:00 PM	2	7%	3	11%	3	11%	2	7%	0	0%	2	7%
6:00 PM	3	11%	2	7%	6	22%	1	4%	0	0%	2	9%
7:00 PM	3	11%	2	7%	5	19%	1	4%	1	4%	2	9%

Total laboratories = 27

CAMPUS SPACE NEEDS

Existing space on campus is organized into three categories as follows:

- Academic Space—classrooms, teaching labs, open labs
- Academic Support Space—offices, library and collaborative learning, assembly and exhibit, physical plant, other department space
- Inactive/Conversion Space—space currently in renovation or not usable for some other reason

In the Fall 2018 term, Eastern Oregon University had a surplus of 27,095 ASF of usable space plus 2,445 ASF of inactive/conversion space, as indicated in the chart below. A deficit in office space and other department space is offset by a surplus in academic space.

SPACE NEEDS ANALYSIS - BASE YEAR, FALL 2018

	2018 *Student FTE = 1,086*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	31,954	19,166	12,788	40%
Teaching Laboratories & Service	34,920	7,120	27,800	80%
Open Laboratories & Service	12,289	11,067	1,222	10%
Academic Space Subtotal	*79,163*	*37,353*	*41,810*	*53%*
Academic Support Space				
Offices & Service	60,926	76,745	(15,819)	(26%)
Library & Collaborative Learning Space	24,887	16,290	8,597	35%
Assembly & Exhibit	12,707	16,000	(3,293)	(26%)
Physical Plant	12,581	11,578	1,003	8%
Other Department Space	7,446	12,648	(5,202)	(70%)
Academic Support Space Subtotal	*118,547*	*133,261*	*(14,714)*	*(12%)*
CAMPUS TOTAL	**197,710**	**170,615**	**27,095**	**14%**
Inactive/Conversion Space	*2,445*			
Outside Organizations	*21,301*			

The campus enrollment projection of 2,541 student FTE in 2029 yields a total space need of 264,802 ASF. Current total space on campus of 200,155 ASF does not meet this need. Proposed programs in physical therapy, outdoor recreation, and rural business development can be accommodated in the space types currently on campus.

SPACE NEEDS ANALYSIS, CAMPUS ENROLLMENT PROJECTIONS - TARGET YEAR, FALL 2029

	Campus Projections *Student FTE = 2,541*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	31,954	44,391	(12,437)	(39%)
Teaching Laboratories & Service	34,920	16,424	18,496	53%
Open Laboratories & Service	12,289	20,195	(7,906)	(64%)
Academic Space Subtotal	*79,163*	*81,011*	*(1,848)*	*(2%)*
Academic Support Space				
Offices & Service	60,926	92,750	(31,824)	(52%)
Library & Collaborative Learning Space	24,887	38,115	(13,228)	(53%)
Assembly & Exhibit	12,707	16,000	(3,293)	(26%)
Physical Plant	12,581	13,846	(1,265)	(10%)
Other Department Space	7,446	23,080	(15,634)	(210%)
Academic Support Space Subtotal	*118,547*	*183,791*	*(65,244)*	*(55%)*
CAMPUS TOTAL	**197,710**	**264,802**	**(67,092)**	**(34%)**
Inactive/Conversion Space	*2,445*			
Outside Organizations	*21,083*			

The NCHEMS student flow model enrollment projection of 1,131 student FTE in 2029 yields a total space need of 169,791 ASF which can be accommodated with current space on campus. Deficits in academic support space are offset by surpluses in academic space, indicating that reconfiguration of existing space could solve any space type shortages.

SPACE NEEDS ANALYSIS , NCHEMS STUDENT FLOW MODEL - TARGET YEAR, FALL 2029

	NCHEMS Flow *Student FTE = 1,131*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	31,954	19,455	12,499	39%
Teaching Laboratories & Service	34,920	7,130	27,790	80%
Open Laboratories & Service	12,289	11,529	760	6%
Academic Space Subtotal	*79,163*	*38,114*	*41,049*	*52%*
Academic Support Space				
Offices & Service	60,926	76,745	(15,819)	(26%)
Library & Collaborative Learning Space	24,887	16,965	7,922	32%
Assembly & Exhibit	12,707	16,000	(3,293)	(26%)
Physical Plant	12,581	8,791	3,790	30%
Other Department Space	7,446	13,176	(5,730)	(77%)
Academic Support Space Subtotal	*118,547*	*131,677*	*(13,130)*	*(11%)*
CAMPUS TOTAL	**197,710**	**169,791**	**27,919**	**14%**
Inactive/Conversion Space	*2,445*			
Outside Organizations	*21,083*			

Academic program completions were analyzed to determine if there would be a significant difference in the type of academic space Eastern Oregon University will need in the future as compared to the current space mix. The change in the number of completions between 2010 and 2017, as indicated in the IPEDS summary chart below, was compared to the change in projected enrollment to 2029. During the study period, EOU completions increased by 10%. The enrollment projection from the University is a 9 percent increase and the NCHEMS student flow model projects an increase of 1 percent.

Programs that have seen significant increases in completions during the study period include IPEDS categories: English (142%), Mathematics and Statistics (100%), Parks, Recreation, Leisure, and Fitness Studies (100%), Public Administration (100%), and Social Sciences (95%). The 2018 space needs analysis indicates a surplus of academic space. The EOU enrollment projection yields a deficit of classroom and open lab space, but a surplus of teaching lab space. Since the high completion programs at EOU are classroom intensive rather than lab intensive, reconfiguring of existing space would meet the space need.

PROGRAM COMPLETION RATES

Institution Name: Eastern Oregon University (UnitID: 208646)

	2010	2011	2012	2013	2014	2015	2016	2017	Line
Communication Journalism and Related Programs	10	5	8	9	17	10	16	14	
Computer and Information Sciences and Support Services	7	6	8	6	5	9	8	3	
Education	181	146	154	121	145	97	125	131	
English Language and Literature/Letters	12	10	9	17	19	11	14	29	
Liberal Arts and Sciences General Studies and Humanities	103	110	123	132	117	169	124	108	
Biological and Biomedical Sciences	26	10	16	28	25	22	24	21	
Mathematics and Statistics	4	6	6	13	16	3	5	8	
Multi/Interdisciplinary Studies	12	12							
Parks Recreation Leisure and Fitness Studies	22	25	34	26	31	41	37	44	
Philosophy and Religious Studies			14	9	7	3	9	2	
Physical Sciences	4	4	1	4	4	2	3	4	
Psychology	21	21	27	16	33	34	36	26	
Homeland Security Law Enforcement Firefighting and Related Protection	10	25	22	41	35	26	44	26	
Public Administration and Social Service Professions			1	0	0	4	3	2	
Social Sciences	22	24	35	40	33	51	41	43	
Visual and Performing Arts	14	14	24	20	29	29	25	18	
Health Professions and Related Programs							0	3	
Business Management Marketing and Related Support Services	227	203	242	277	271	241	281	256	
History	10	12	10	12	14	19	19	16	
Total	685	633	734	771	801	771	814	754	

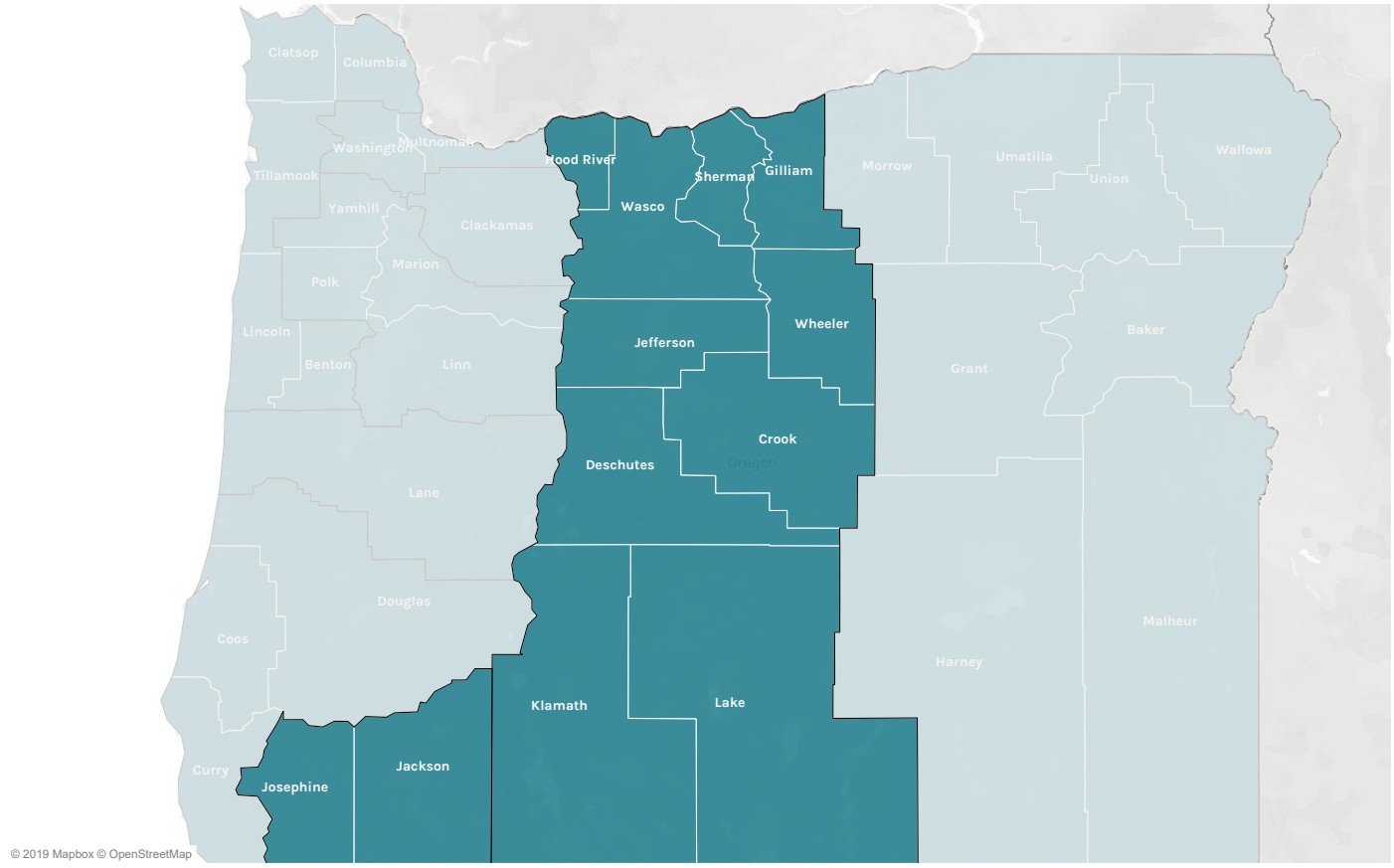
SECTION 3

OREGON INSTITUTE OF TECHNOLOGY

OREGON INSTITUTE OF TECHNOLOGY
ENROLLMENT & WORKFORCE DEMAND ANALYSIS

Oregon Tech's primary service region (Figure 1) is comprised of the East Cascade Works and the Rogue Workforce Partnership workforce investment areas. These areas are comprised of the following 12 counties: Crook, Deschutes, Gilliam, Hood River, Jackson, Jefferson, Josephine, Klamath, Lake, Sherman, Wasco, and Wheeler.

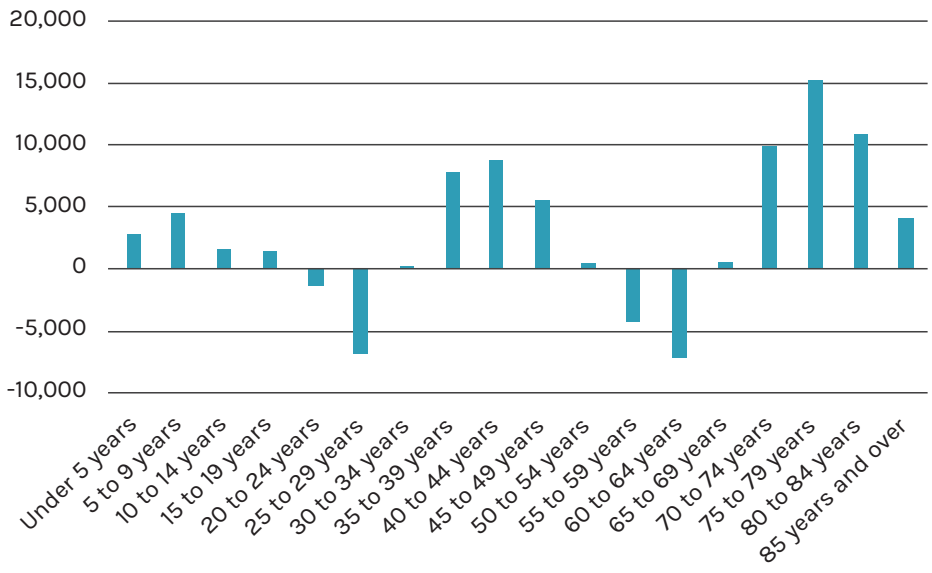
FIGURE 1. OREGON INSTITUTE OF TECHNOLOGY PRIMARY SERVICE REGION



POPULATION

Between 2010 and 2018, the population in the counties that comprise the primary service area grew for Oregon Tech grew by 61,389, or about 1.25 percent per year[1]. As has been evident elsewhere in the state, the largest growth has been among older populations, but, driven by increases in the East Cascade Works region, population in Oregon Tech's service area also has seen healthy growth in the middle-age ranges and among children, although the traditional college-age population has been basically flat (Figure 2).

FIGURE 2. CHANGE BETWEEN 2010-2018 IN OREGON TECH PRIMARY SERVICE AREA COUNTIES BY AGE

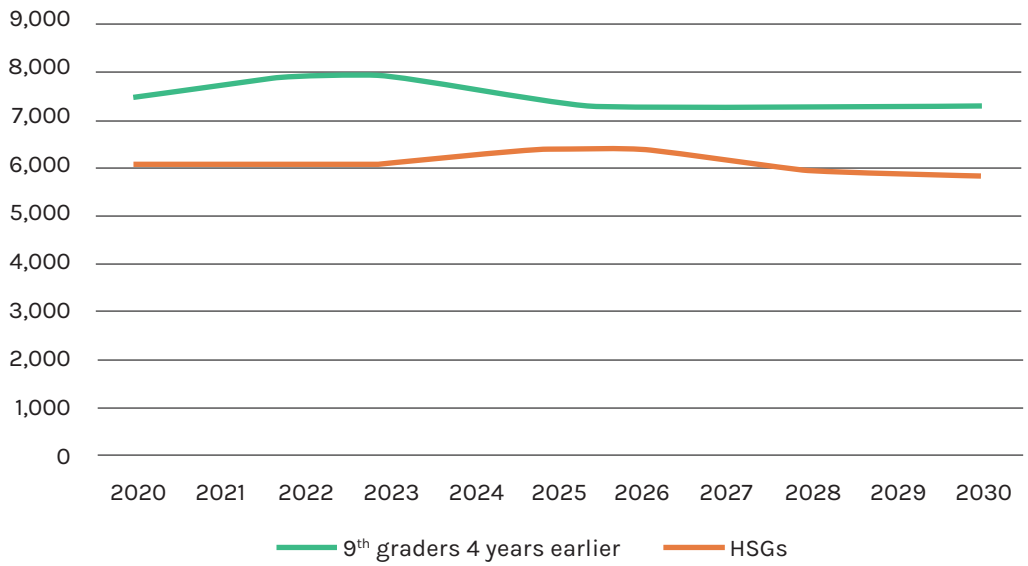


Source: EMSI, 2019.

1 Portland State University, Population Research Center.

Population growth between 2020 and 2030 is expected to be fastest among middle-age individuals in Oregon Tech's service area. Modest growth is also expected among ninth graders and the number of high school graduates projected will spike between 2025 and 2026, rising by about six percent, before falling rapidly below anticipated 2020 levels (Figure 3).

FIGURE 3. PROJECTED NINTH GRADERS AND HIGH SCHOOL GRADUATES



Sources: WICHE, NCES CCD, oregonlive.com.

ENROLLMENT PROJECTIONS AND PATTERNS

The twelve counties in Oregon Tech's primary service area are collectively expected to see population rise consistently through the next two decades, but most of that increase is anticipated in the East Cascades workforce region.

Oregon Tech attracts over a quarter of its first-time students from out-of-state, especially California, which provided about four of every 10 of Oregon Tech's non-resident students in 2016–17[2]. Among Oregon residents, however, Oregon Tech draws 75 percent from a large group of counties, more than any other public four-year institutions in the state except EOU—its reach includes some counties in the Portland metropolitan area—likely due in part to the unique set of academic programs that it offers, as well as the presence of its campus in Wilsonville near Portland. The counties that collectively provide three-quarters of Oregon Tech's resident undergraduates are: Klamath, Washington, Clackamas, Multnomah, Marion, Jackson, Lane, Deschutes, Union, and Josephine. In spite of its ability to attract students from counties near the Portland metropolitan area, Oregon Tech remains critical to postsecondary access for the counties that surround its main campus in Klamath Falls, as indicated by the large shares of college-bound students from those counties who opt to attend Oregon Tech (Figure 5).

Oregon Tech is also successful at attracting transfer students from out-of-state institutions, which collectively sent about as many students to Oregon Tech as did the four highest volume sources from Oregon's community colleges. The Oregon community colleges that ship transfer students to Oregon Tech in are primarily scattered in and around Portland and in southern Oregon, but Oregon Tech gets consistently large numbers of transfer students from a large number of Oregon's community college—at least 45 from nine community colleges—compared to other public four-years in the state relative to its overall enrollment (Table 1).

TABLE 1. FALL 2018 TRANSFER STUDENT INSTITUTION OF ORIGIN

Community Colleges	
Portland Community College	299
Klamath Community College	179
Chemeketa Community College	130
Rogue Community College	114
Mount Hood Community College	75
Clackamas Community College	67
Lane Community College	57
Central Oregon Community College	55
Umpqua Community College	46
Southwestern Oregon Community College	27
Linn-Benton Community College	22
Blue Mountain Community College	12

Other Oregon 4-Year Institutions	
Portland State University	50
Oregon University	49
Southern Oregon University	24
University of Oregon	14
Western Oregon University	13
Eastern Oregon University	10

Other or Unknown	
Other US college or university	666
Unknown	64
Oregon independent college or university	16
Foreign College of university	10

2 NCES IPEDS.

FIGURE 4. SHARE OF RESIDENT UNDERGRADUATE ENROLLMENT BY COUNTY

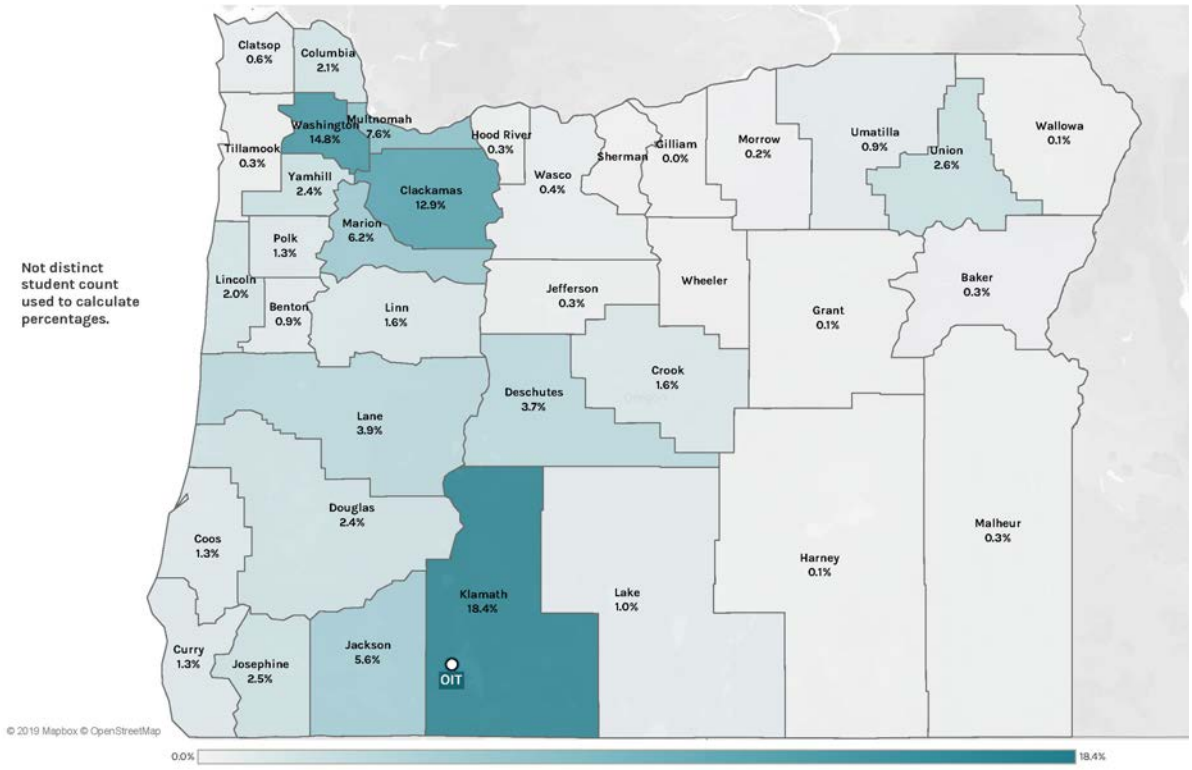
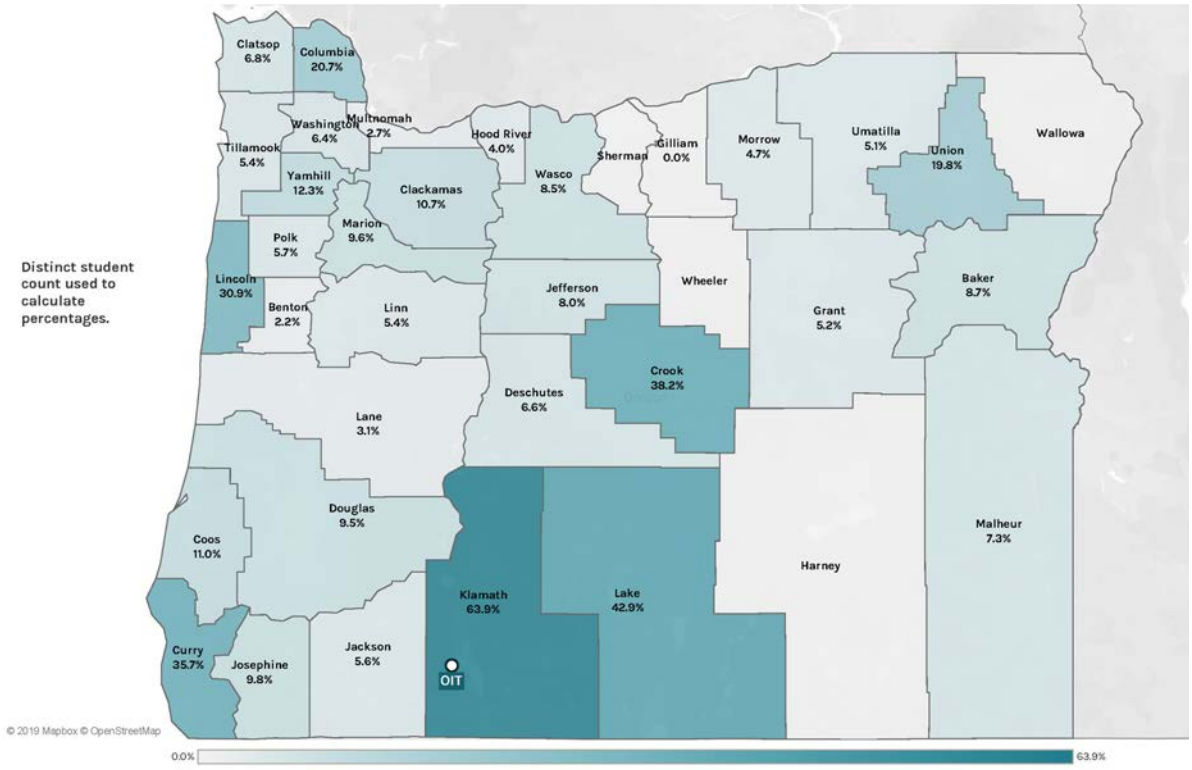


FIGURE 5. SHARE OF COLLEGE-GOING STUDENTS FROM EACH COUNTY ATTENDING OREGON TECH



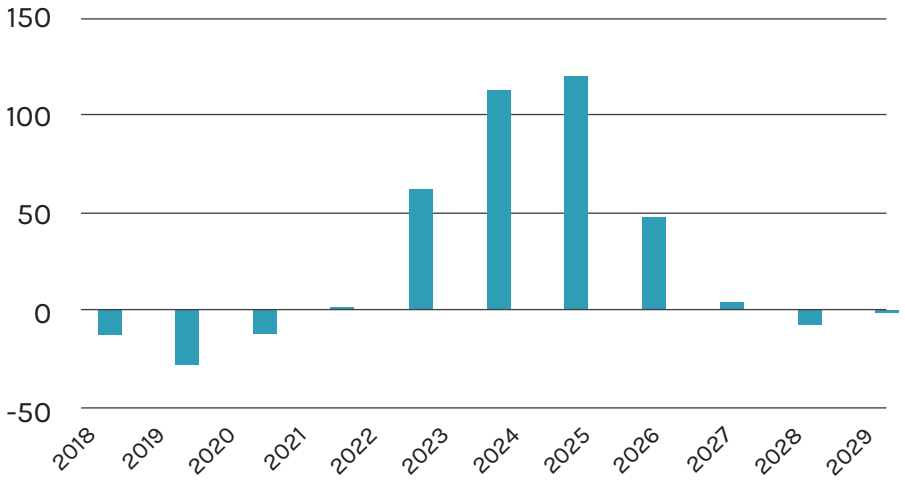
PROJECTING CAPACITY NEEDS DUE TO ENROLLMENT

To assess the likely need for space caused by undergraduate enrollment demand, NCHEMS modeled enrollment projections for each of Oregon's public four-year institutions based on the following assumptions:

- Ratio of high school graduates to 9th graders[3]
- College-going rate of recent high school graduates to enrollment at an Oregon public four-year institution[4]
- Participation rate per 100,000 population of 20–49 year olds enrolling for the first-time at an Oregon public four-year institution[5]
- Enrollment of first-time students from out-of-state[6]
- Ratio of transfer students from public two-year to public four-year institutions to the total enrollment of public two-year institutions[7]
- Retention and completion rates[8] remain steady
- Projected population changes for each institution's designated service areas[9]
- County-of-origin of undergraduate enrollment[10]
- The current proportional mix on on-campus and online students remains constant

This modeling suggests that, barring significant changes in recruitment or retention, Oregon Tech will see consistent enrollment levels over the period 2018–19 and 2029–30, peaking with 120 additional FTE in 2025–26 before beginning a steady decline (Figure 6).

FIGURE 6. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017

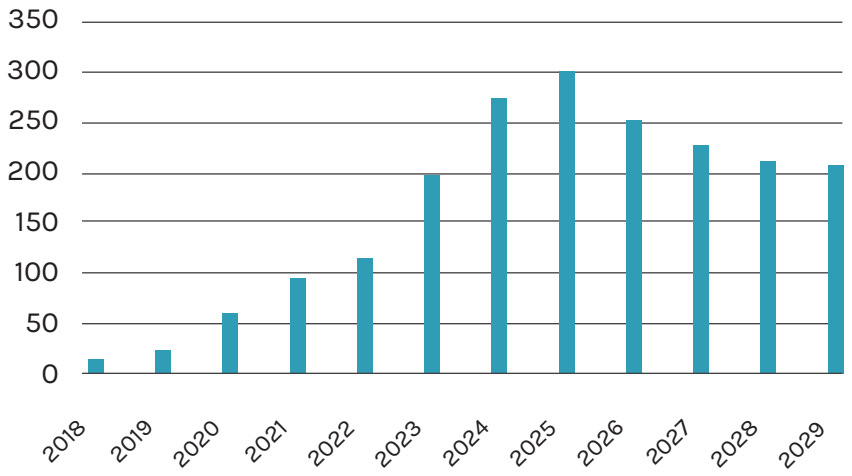


Note: Data shows the difference between the expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect no assumed changes in the most recent data for recruitment and retention.

3 NCES CCD, Western Interstate Commission for Higher Education, *Knocking at the College Door*, knocking.wiche.edu.
4 Enrollment by county (Oregon HECC), high school graduates (oregonlive.com), Residence and Migration (NCES IPEDS).
5 Enrollment by county (HECC), Residence and Migration (NCES IPEDS).
6 Enrollment of non-resident students (HECC), Residence and Migration (NCES IPEDS).
7 Oregon HECC.
8 NCES IPEDS.
9 Office of Economic Analysis, Oregon Department of Administrative Services.
10 Oregon HECC.

Even under optimistic assumptions about Oregon Tech's capacity to improve recruitment and retention of students, NCHEMS' model would not yield substantially large enrollment increases. For example, adjusting each of the following parameters—enrollment of in-state students, out-of-state students, and transfer students, as well as retention rates—by five percent yields an enrollment increase of 301 FTE in the peak year of 2025–26. While that represents an increase of nearly 10 percent, projections indicate that growth in enrollment is unlikely to continue in subsequent years but would more likely decline somewhat (Figure 7).

FIGURE 7. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017, ASSUMING A 5% INCREASE IN RECRUITMENT AND RETENTION MEASURES



Note: Data shows the difference between expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect a 5% increase in each of the recruitment measures for different student categories—in-state students, out-of-state students, and transfer students—as well as retention rates from the first- to the second year. No change in the high school graduation rate is assumed.

In order for Oregon Tech to reach its enrollment forecast for 2029, which would require it to enroll about 1,650 additional FTEs, NCHEMS' model assumes that it would have to improve its recruitment and retention by over 25 percent across the board.

Two significant factors might determine the extent to which Oregon Tech's future enrollment will fit the scenarios outlined above. First is the extent to which Oregon Tech develops programming at its Wilsonville campus – our modeling did not directly address the extent to which the population in the counties surrounding Portland affects Oregon Tech's access to students. Given their collective size, these counties feed all of Oregon's public four-year institutions, even when the specific institution's ability to penetrate those potential enrollment markets is not deep. But Oregon Tech's Wilsonville campus gives it direct access to those students, especially given the somewhat unique set of academic programs that it can offer students. Second, this modeling shows increases in part due to growth in the East Cascades Works part of Oregon Tech's designated service area, which includes some of the fastest growing counties in the state. However, to the degree that efforts to develop and expand the OSU-Cascades campus are successful, that expansion may come at some cost to Oregon Tech's ability to recruit students out of those places to its main campus in Klamath Falls, especially if there is a significant overlap in programmatic offerings.

ECONOMY AND WORKFORCE NEEDS

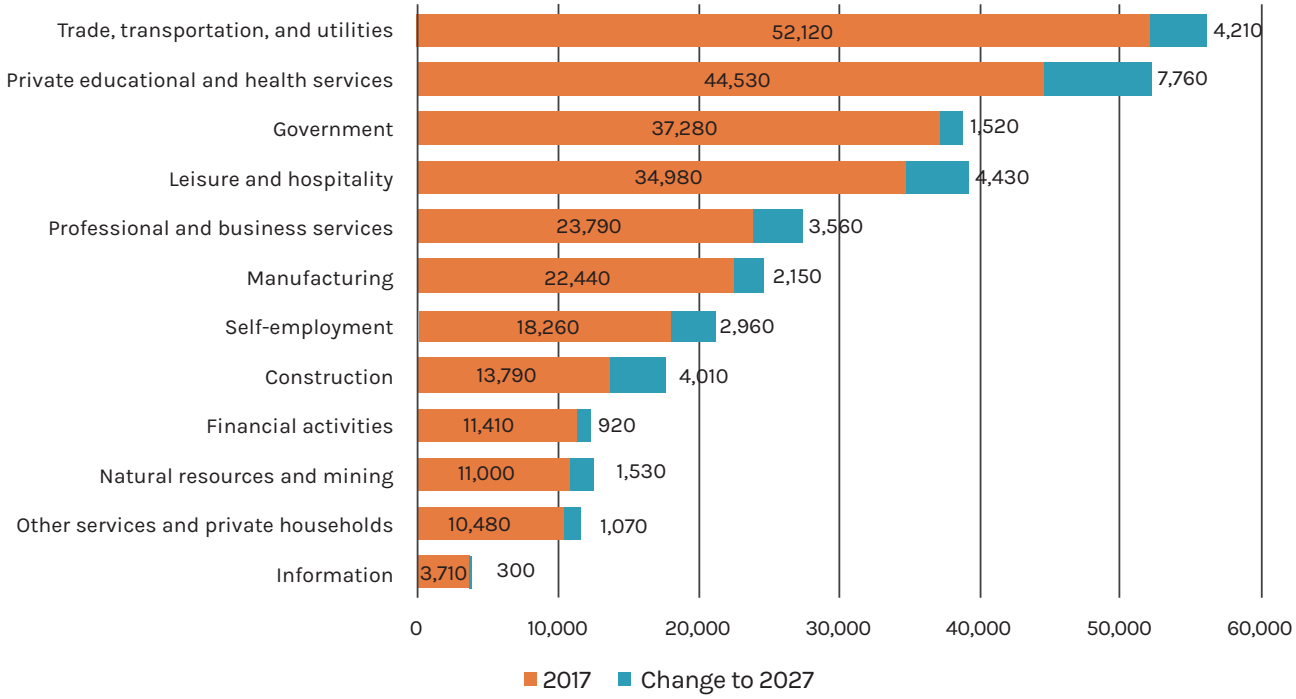
The largest industry sector in the Oregon Tech service region is trade, transportation, and utilities. It is the utilities component that is of particular relevance to Oregon Tech. Other large sectors that employ a significant cadre of college graduates are:

- Private educational and health services
- Government
- Professional and business services
- Finance

Of these, educational and health services is the sector projected to exhibit the largest growth (Figure 8).

Occupations that are projected to have large numbers of annual openings (many of which require college degrees) are in the fields of management and finance and health care practitioners and allied health professionals. The fields of computing and engineering are projected to have substantially fewer openings. (Figure 9).

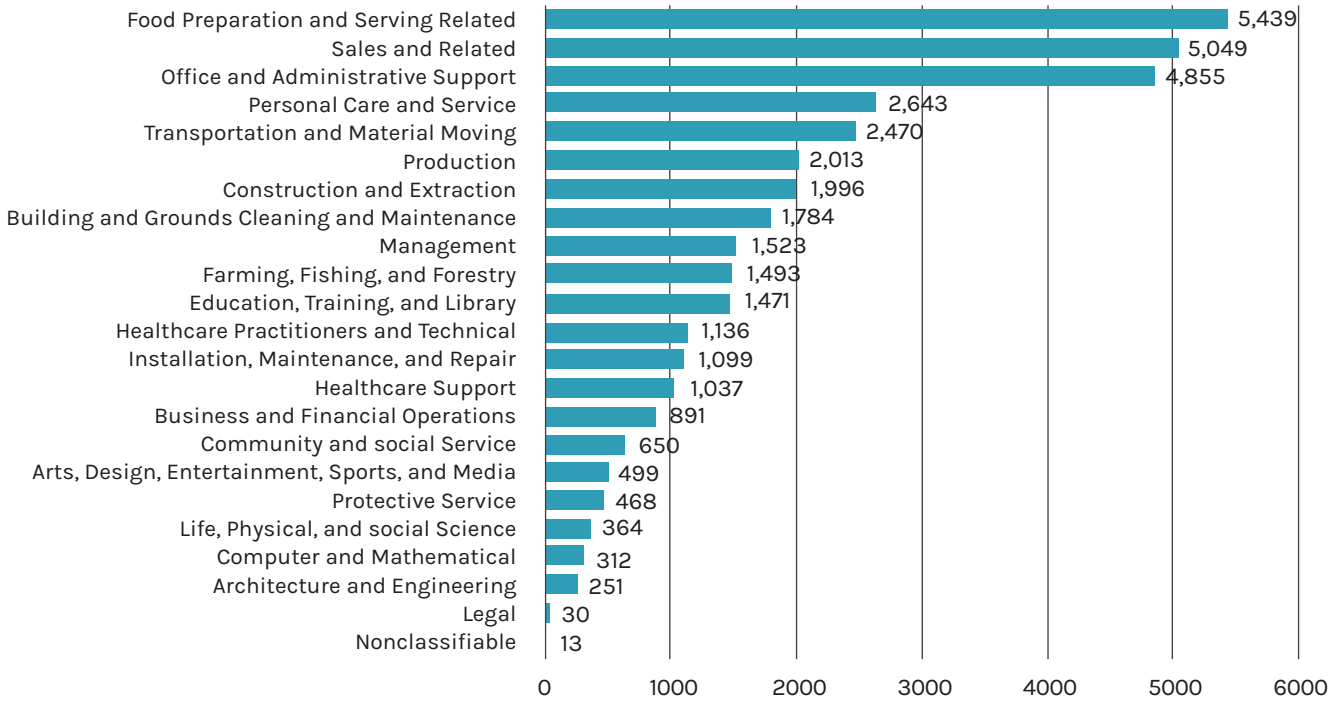
FIGURE 8. EMPLOYMENT GROWTH BY INDUSTRY, 2017–2027
OREGON INSTITUTE OF TECHNOLOGY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 9.

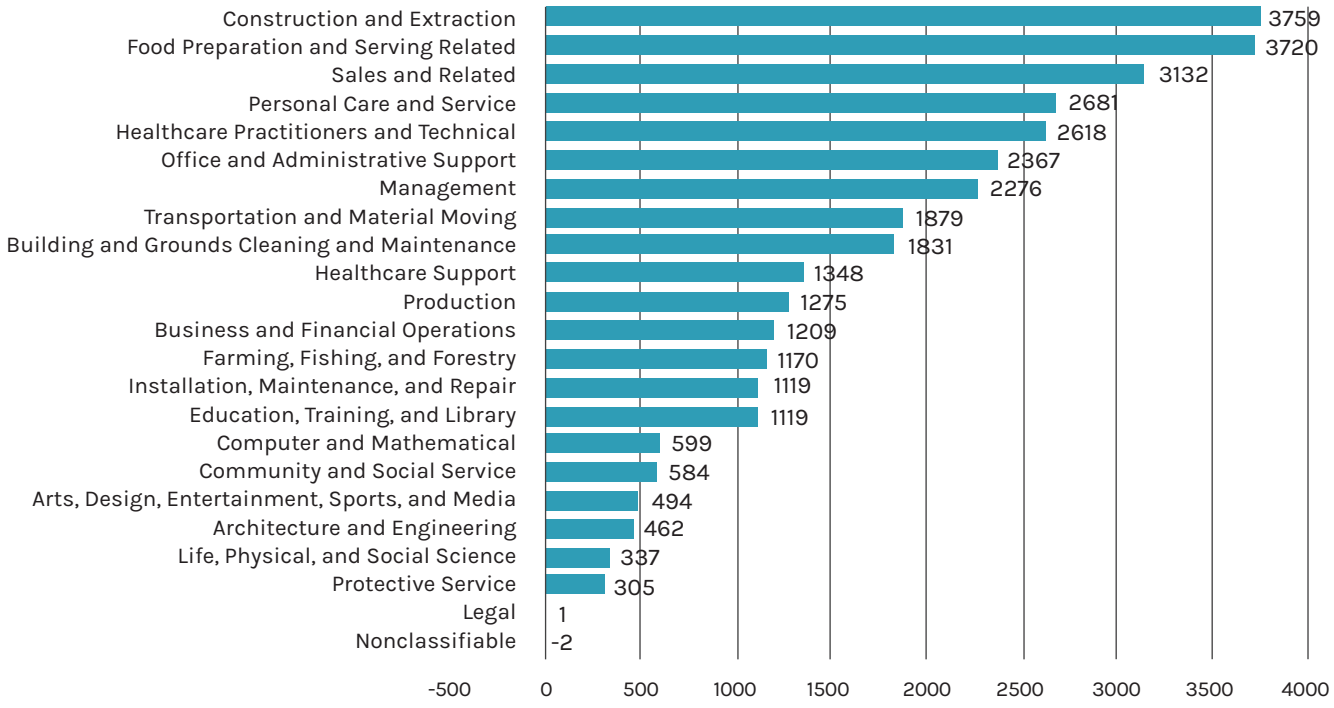
TOTAL ANNUAL OPENINGS BY OCCUPATION, 2017–2027, OREGON INSTITUTE OF TECHNOLOGY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 10.

GROWTH IN EMPLOYMENT BY OCCUPATION, 2017–2027, OREGON INSTITUTE OF TECHNOLOGY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

Emsi data generally reinforce these findings, pointing to large gaps between demand and supply in:

- Business, management, and marketing
- Accounting
- Health and health care administration
- Manufacturing engineering technology

In the area of health care, the largest gap (like in most other regions of the state) is for registered nurses. There are also gaps between demand and supply in areas such as nurse practitioners, physician assistants, and occupational therapists (Figure 11).

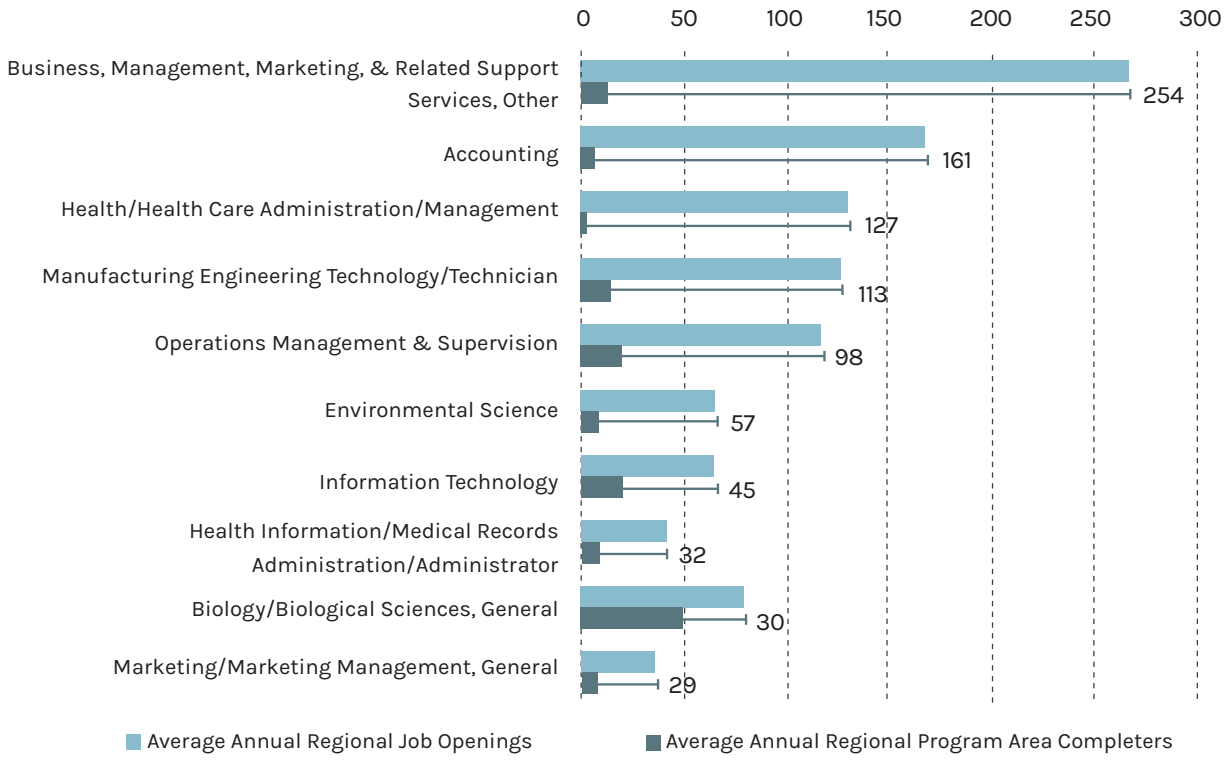
Most of the need is in areas in which Oregon Tech already has programs, although in many cases the programs are for too small to meet demand. The exception is in the health fields where Oregon Tech has partnered with OHSU and a local hospital to respond to regional needs. It can be presumed that specialized space for additional health programs will be in facilities other than those owned and operated by Oregon Tech. (Figure 12)

During the interviews, Oregon Tech indicated an interest in adding programs in:

- Biomedical engineering
- Renewable energy (a graduate program)
- Hydroelectric operations

These programs would require specialized space.

FIGURE 11. GAPS AT THE BACHELOR'S AND ABOVE DEGREE LEVEL (2-DIGIT CIP)



Source: EMSI, 2019.

FIGURE 12. PROGRAM ADDITIONS

Bachelor's degree level program additions

SOC Code	SOC Title	BACH Job Opening in the Oregon Tech Service	BACH Program Completers in the Oregon Tech Service Region	BACH Gap	Median Hourly Wage
29-1141	Registered Nurses	263	0	263	$40.86
21-1021	Child, Family, and School Social Workers	70	13	57	$22.57
25-9099	Education, Training, and Library Workers, All Other	55	0	55	$13.89
41-9022	Real Estate Sales Agents	50	0	50	$21.60
41-3021	Insurance Sales Agents	44	0	44	$22.45
19-4093	Forest and Conservation Technicians	44	0	44	$16.63
25-2021	Elementary School Teachers, Except Special Education	115	75	41	$32.69
41-3031	Securities, Commodities, and Financial Services Sales Agents	36	0	36	$24.42
27-1024	Graphic Designers	37	6	31	$18.21
13-1028	Buyers and Purchasing Agents	30	0	30	$23.70
27-1026	Merchandise Displayers and Window Trimmers	29	0	29	$16.06
43-5061	Production, Planning, and Expediting clerks	26	0	26	$17.79
21-1032	Mental Health and Substance Abuse Social Workers	30	4	25	$24.09
21-1022	Healthcare Social Workers	28	4	24	$29.62
41-9021	Real Estate Brokers	24	0	24	$27.08
33-3051	Police and Sheriff's Patrol Officers	26	3	23	$33.81
25-2022	Middle School Teachers, Except Special and Career/Technical Education	39	18	21	$34.88
21-1029	Social Workers, All Other	19	0	19	$25.36
11-9141	Property, Real Estate, and Community Association Managers	18	0	18	$23.05
13-1151	Training and Development Specialists	18	0	18	$24.98

Master's degree level program additions

SOC Code	SOC Title	MAST Job Openings in the Oregon Tech Service Region	MAST Program Completers in the Oregon Tech Service Region	MAST Gap	Median Hourly Wage
29-1171	Nurse Practitioners	31	0	31	$52.59
29-1071	Physician Assistants	19	0	19	$52.55
21-1012	Educational. Guidance, School, and Vocational Counselors	18	0	18	$25.36
29-1127	Speech-Language Pathologists	15	0	15	$30.13
29-1122	Occupational Therapists	15	0	15	$41.33
21-1015	Rehabilitation Counselors	15	0	15	$13.72
25-4021	Librarians	12	0	12	$26.45
21-1013	Marriage and Family Therapists	7	0	7	$20.17
29-1129	Therapists, All Other	6	0	6	$19.95
19-3051	Urban and Regional Planners	6	0	5	$30.44

Source: EMSI, 2019.

OREGON INSTITUTE OF TECHNOLOGY FACILITIES INFORMATION

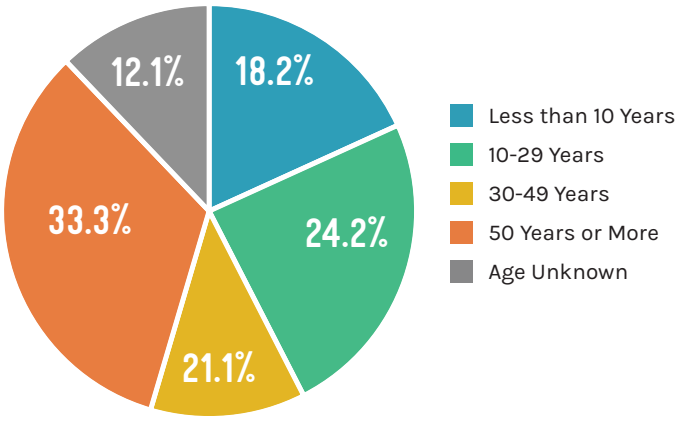
Fall 2018 facilities data for the Oregon Institute of Technology is summarized below. Included is general information about the 33 buildings on campus: average age of the buildings, total floor area on campus, and replacement value. Two pie charts highlight the percentage of buildings in each age category. The first includes a category for buildings of unknown age. The second illustrates the percentage of buildings in each age category of buildings with known age only. A block diagram makes visible the proportion of space on campus in each space category.

OREGON INSTITUTE OF TECHNOLOGY

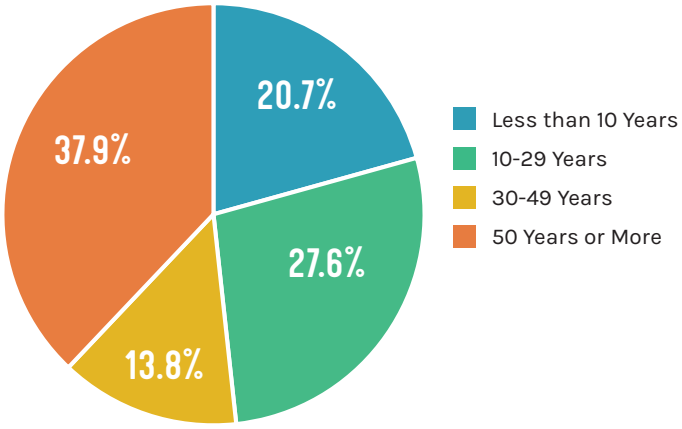
Number of Buildings:	33
Number of Buildings with Age/Renovation Year:	29
Average Age of Building/Renovation:	31
Total Gross Square Feet:	817,789
Total Gross Square Feet for Buildings with Year:	810,113
Total Renovated Gross Square Feet:	274,902
Percentage Gross Square Feet Renovated:	33.6%
Number of Buildings Renovated:	6
Percentage of Buildings Renovated:	18.2%
Total Current Replacement Value of All Oregon Tech Buildings:	$214,710,111

Age Grouping of Buildings		
	Count	Percentage
Less than 10 Years Old	6	18.2%
10 to 29 Years Old	8	24.2%
30 to 49 Years Old	4	12.1%
50 Years Old or More	11	33.3%
Age Unknown	4	12.1%

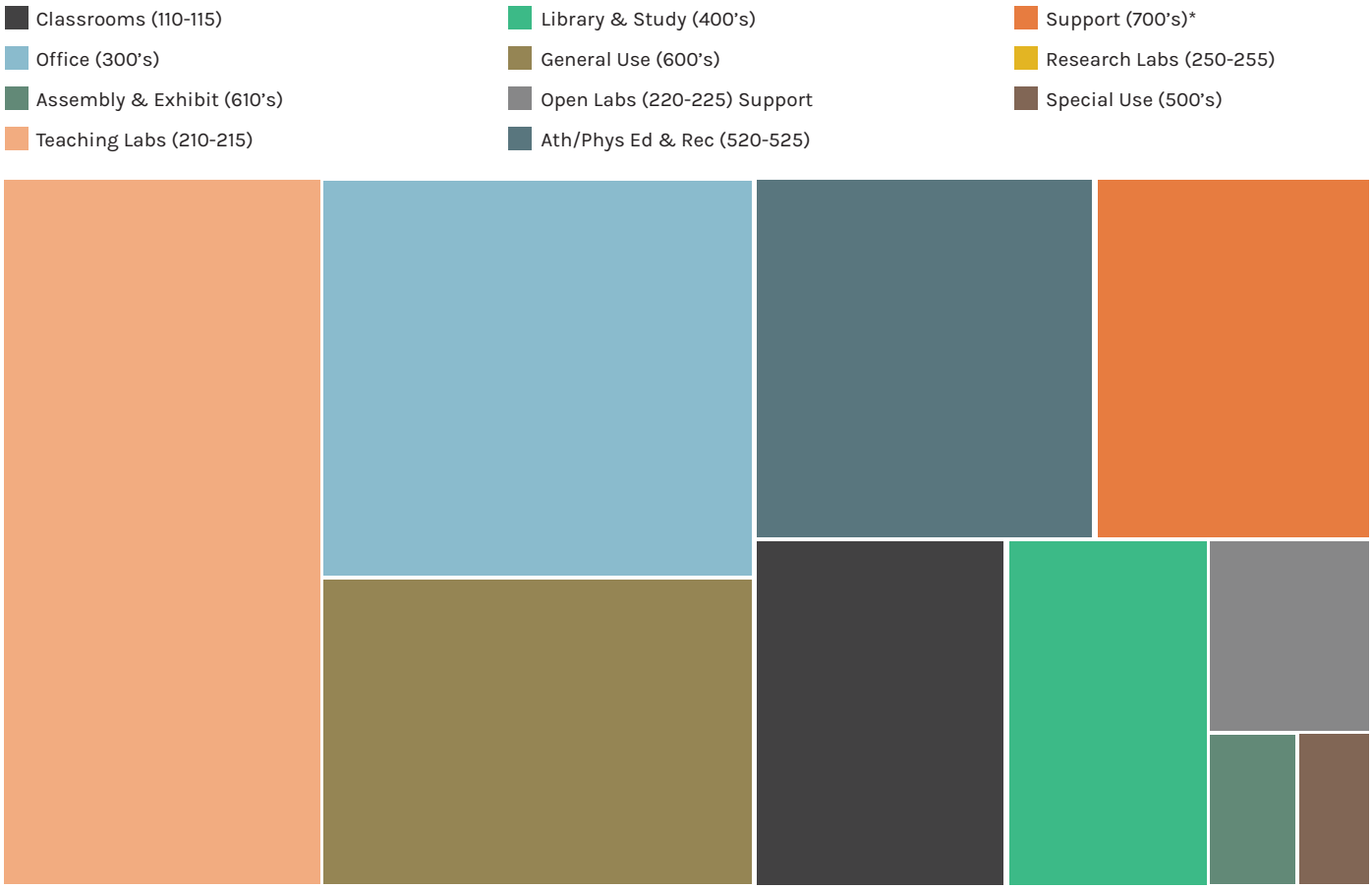
OREGON INSTITUTE OF TECHNOLOGY AGE OF BUILDING/RENOVATION (N=33)



OREGON INSTITUTE OF TECHNOLOGY AGE OF BUILDING/RENOVATION (N=29)



OREGON INSTITUTE OF TECHNOLOGY ASF BY SPACE CATEGORY



OREGON INSTITUTE OF TECHNOLOGY SPACE ANALYSIS

The Fall 2018 term use of scheduled teaching space on the Oregon Institute of Technology campus was analyzed to determine if additional capacity is available in existing space. Campus space needs for academic and academic support space were analyzed for the Fall 2018 term to compare existing space use with the space guidelines established for this study. The guidelines were then applied to two future enrollment projection scenarios to determine the quantity of space needed and how the need compares to the quantity and type of space available on campus.

FALL 2018 SCHEDULED TEACHING SPACE UTILIZATION

CLASSROOM UTILIZATION

There are 42 scheduled classrooms on the Oregon Tech campus, with a total of 1605 student stations (seats in the classroom). During the Fall 2018 term, the classrooms were scheduled, on average, 20 hours per week with 58% of the seats in the classroom filled. The classrooms are located in six buildings. The following chart indicates the scheduled use of the classrooms in each building.

CLASSROOM UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Boivin Hall	*0022*	5	636	23	17	12.3	21	56%
DOW Center for Health Professions	*0027*	7	1,062	25	25	11.5	20	56%
Owens Hall	*0001*	18	735	21	19	11.5	22	56%
Purvine Hall	*0012*	11	665	20	21	8.7	14	67%
Semon Hall	*0002*	1	968	32	19	18.9	29	65%
Total No. of Rooms = 42		**AVERAGE**	**765**	**20.0** *	**20**	**11.0**	**20**	**58%**
Total No. of Stations = 1605		**Total ASF**	**32,124**					

At 11 weekly hours of use for each classroom seat, the utilization does not meet the guideline of 20 weekly seat hours, 30 weekly room hours, and 67% student station occupancy.

The greatest number of classrooms in use at any one time was 33 on Monday and Wednesday at 9:00, as indicated in the following chart. While there appears to be opportunity for greater classroom use on Tuesday and Thursday, when compared with the teaching lab scheduling below, campus pedagogy is classroom instruction on Monday, Wednesday, Friday and lab instruction on Tuesday and Thursday.

SCHEDULED CLASSROOM USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	16	38%	9	21%	16	38%	10	24%	15	36%	13	31%
9:00 AM	33	79%	11	26%	33	79%	13	31%	32	76%	24	58%
10:00 AM	32	76%	14	33%	32	76%	15	36%	30	71%	25	59%
11:00 AM	32	76%	17	40%	31	74%	15	36%	26	62%	24	58%
12:00 PM	27	64%	16	38%	26	62%	12	29%	20	48%	20	48%
1:00 PM	32	76%	13	31%	31	74%	11	26%	26	62%	23	54%
2:00 PM	24	57%	1	2%	21	50%	5	12%	18	43%	14	33%
3:00 PM	14	33%	12	29%	12	29%	8	19%	7	17%	11	25%
4:00 PM	6	14%	10	24%	7	17%	7	17%	2	5%	6	15%
5:00 PM	8	19%	7	17%	7	17%	4	10%	2	5%	6	13%
6:00 PM	4	10%	2	5%	1	2%	2	5%	0	0%	2	4%
7:00 PM	3	7%	1	2%	0	0%	2	5%	0	0%	1	3%

Total classrooms = 42

TEACHING LAB UTILIZATION

There are 65 scheduled teaching laboratories on the Oregon Tech campus, with a total of 1353 student stations. During the Fall 2018 term, the labs were scheduled, on average, 12 hours per week with 69% of the stations occupied. The labs are located in eight buildings. The following chart indicates the scheduled use of the teaching labs in each building.

TEACHING LABORATORY UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Boivin Hall	*0022*	9	1,002	47	15	9.9	15	67%
Cornett Hall	*0007*	6	1,099	63	18	7.2	6	92%
DOW Center for Health Professions	*0027*	25	974	48	10	6.8	10	67%
Learning Resource Center	*0009*	1	853	47	14	6.8	9	76%
Miller Hall - modular/storage	*0024*	1	670	0	14	0.0	3	0%
Owens Hall	*0001*	4	992	40	14	7.9	16	50%
Purvine Hall	*0012*	13	978	55	14	10.0	12	79%
Semon Hall	*0002*	6	1,512	46	23	13.6	21	63%
Total No. of Rooms = 65		**AVERAGE**	**1,035**	**49.7** *	**14**	**9.0**	**12**	**69%**
Total No. of Stations = 1353		**Total ASF**	**67,251**					

At 9 hours per week of student station occupancy, the utilization does not meet the guideline of 15 weekly seat hours, 20 weekly room hours. The student station occupancy of 69% when the room is scheduled is close to the 70% expectation.

Labs are scheduled primarily on Tuesday and Thursday, as indicated in the chart below.

SCHEDULED TEACHING LABORATORY USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	5	8%	27	42%	5	8%	19	29%	4	6%	12	18%
9:00 AM	11	17%	29	45%	12	18%	23	35%	10	15%	17	26%
10:00 AM	13	20%	31	48%	14	22%	25	38%	11	17%	19	29%
11:00 AM	10	15%	28	43%	11	17%	32	49%	10	15%	18	28%
12:00 PM	7	11%	29	45%	8	12%	30	46%	7	11%	16	25%
1:00 PM	13	20%	28	43%	13	20%	32	49%	11	17%	19	30%
2:00 PM	16	25%	3	5%	13	20%	8	12%	6	9%	9	14%
3:00 PM	17	26%	25	38%	18	28%	27	42%	3	5%	18	28%
4:00 PM	10	15%	27	42%	12	18%	27	42%	1	2%	15	24%
5:00 PM	5	8%	24	37%	7	11%	24	37%	0	0%	12	18%
6:00 PM	2	3%	1	2%	2	3%	5	8%	0	0%	2	3%
7:00 PM	2	3%	1	2%	1	2%	4	6%	0	0%	2	2%

Total laboratories = 65

CAMPUS SPACE NEEDS

Existing space on campus is organized into three categories as follows:

- Academic Space—classrooms, teaching labs, open labs
- Academic Support Space—offices, library and collaborative learning, assembly and exhibit, physical plant, other department space
- Inactive/Conversion Space—space currently in renovation or not usable for some other reason

In the Fall 2018 term, Oregon Institute of Technology had a surplus of 59,883 ASF of usable space plus 47,825 ASF of inactive/conversion space, as indicated in the chart below. A deficit in open lab space is offset by a surplus of classroom and teaching lab space. A significant surplus in physical plant space provides the opportunity to repurpose some of it into other uses. The inactive/conversion space in Fall 2018 was in Cornett Hall, which is finishing a major renovation project.

SPACE NEEDS ANALYSIS - BASE YEAR, FALL 2018

	2018 *Student FTE = 1,841*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	32,538	27,145	5,393	17%
Teaching Laboratories & Service	84,288	44,344	39,944	47%
Open Laboratories & Service	11,514	15,526	(4,012)	(35%)
Academic Space Subtotal	*128,340*	*87,015*	*41,325*	*32%*
Academic Support Space				
Offices & Service	64,606	66,345	(1,739)	(3%)
Library & Collaborative Learning Space	26,124	27,615	(1,491)	(6%)
Assembly & Exhibit	5,086	5,600	(514)	(10%)
Physical Plant	36,888	18,636	18,253	49%
Other Department Space	21,793	17,744	4,049	19%
Academic Support Space Subtotal	*154,497*	*135,940*	*18,558*	*12%*
CAMPUS TOTAL	**282,837**	**222,954**	**59,883**	**21%**
Inactive/Conversion Space	*47,825*			
Outside Organizations	*736*			

The campus enrollment projection of 2,940 student FTE in 2029 yields a total space need of 314,503 ASF. Current total space on campus of 330,662 ASF meets this need. A new engineering building is in construction, assuring that not only the right quantity, but also the right type of space is available. Growth programs at the campus during the past 10 years have been engineering and health professions aligning with the current and soon to be completed space on campus.

SPACE NEEDS ANALYSIS, CAMPUS ENROLLMENT PROJECTIONS - TARGET YEAR, FALL 2029

	Campus Projections *Student FTE = 2,940*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	32,538	42,631	(10,093)	(31%)
Teaching Laboratories & Service	84,288	68,928	15,360	18%
Open Laboratories & Service	11,514	24,500	(12,986)	(113%)
Academic Space Subtotal	*128,340*	*136,058*	*(7,718)*	*(6%)*
Academic Support Space				
Offices & Service	64,606	82,130	(17,524)	(27%)
Library & Collaborative Learning Space	26,124	44,100	(17,976)	(69%)
Assembly & Exhibit	5,086	5,600	(514)	(10%)
Physical Plant	36,888	18,615	18,273	50%
Other Department Space	21,793	28,000	(6,207)	(28%)
Academic Support Space Subtotal	*154,497*	*178,445*	*(23,948)*	*(16%)*
CAMPUS TOTAL	**282,837**	**314,503**	**(31,666)**	**(11%)**
Inactive/Conversion Space	*47,825*			
Outside Organizations	*736*			

The NCHEMS student flow model enrollment projection of 1,954 student FTE in 2029 yields a total space need of 223,145 ASF. Current and soon to be completed space on campus easily satisfies this need. The indicated deficit in open lab space can be accommodated in teaching labs and other space deficits are minimal, easily accommodated by repurposing existing space.

SPACE NEEDS ANALYSIS , NCHEMS STUDENT FLOW MODEL - TARGET YEAR, FALL 2029

	NCHEMS Flow *Student FTE = 1,954*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	32,538	28,177	4,361	13%
Teaching Laboratories & Service	84,288	45,314	38,974	46%
Open Laboratories & Service	11,514	16,478	(4,964)	(43%)
Academic Space Subtotal	*128,340*	*89,969*	*38,371*	*30%*
Academic Support Space				
Offices & Service	64,606	66,345	(1,739)	(3%)
Library & Collaborative Learning Space	26,124	29,310	(3,186)	(12%)
Assembly & Exhibit	5,086	5,600	(514)	(10%)
Physical Plant	36,888	13,089	23,799	65%
Other Department Space	21,793	18,832	2,961	14%
Academic Support Space Subtotal	*154,497*	*133,176*	*21,321*	*14%*
CAMPUS TOTAL	**282,837**	**223,145**	**59,692**	**21%**
Inactive/Conversion Space	*47,825*			
Outside Organizations	*736*			

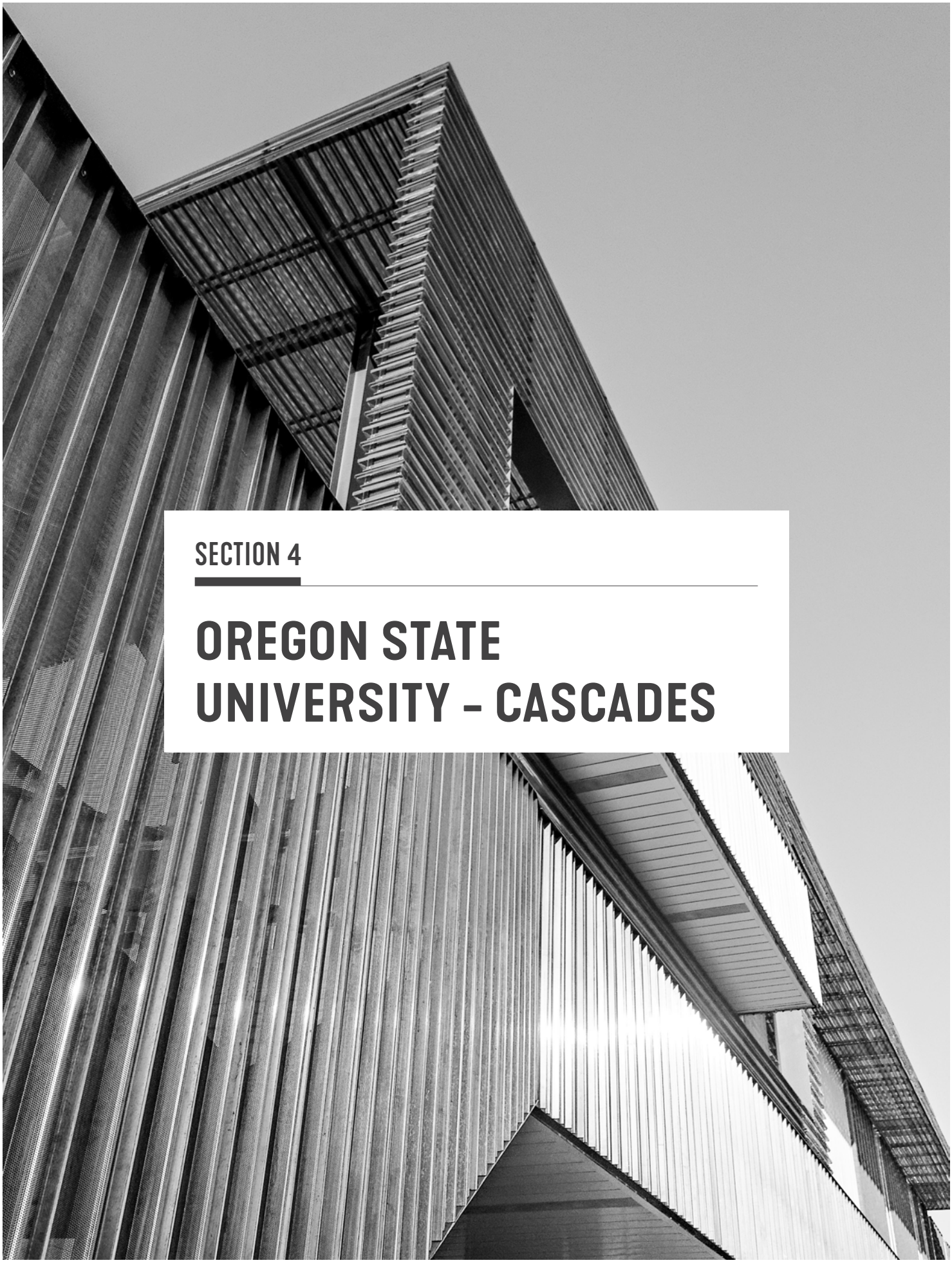
Academic program completions were analyzed to determine if there would be a significant difference in the type of academic space Oregon Institute of Technology will need in the future as compared to the current space mix. The change in the number of completions between 2010 and 2017, as indicated in the IPEDS summary chart below, was compared to the change in projected enrollment to 2029. During the study period, Oregon Tech completions increased by 35%. The enrollment projection from the University is a 60 percent increase and the NCHEMS student flow model projects an increase of 6 percent.

Engineering, Engineering Technologies, and Related Fields have seen an increase in completions during the study period of 68%. The 2018 space needs analysis indicates a surplus of classroom and teaching lab space, and a deficit of open lab space. Teaching labs may currently be under-scheduled so that they can be used as open labs. The Oregon Tech enrollment projection yields a deficit of classroom and open lab space, but a surplus of teaching lab space. Since the majority of academic programs at Oregon Tech are lab intensive, reconfiguring of existing space would meet the space need.

PROGRAM COMPLETION RATES

Institution Name: Oregon Institute of Technology (UnitID: 209506)

	2010	2011	2012	2013	2014	2015	2016	2017	Line
Natural Resources and Conservation	1	5	5	4	5	11	14	3	
Communication Journalism and Related Programs	10	13	8	16	12	4	8	4	
Computer and Information Sciences and Support Services	17	18	14	33	25	21	19	23	
Engineering	47	71	76	106	94	97	140	156	
Engineering Technologies and Engineering-related Fields	119	131	104	117	98	105	130	123	
Liberal Arts and Sciences General Studies and Humanities	5		1	0	0	1	1		
Biological and Biomedical Sciences	14	11	11	13	17	21	20	28	
Mathematics and Statistics	1	5	3	7	4	4	5	7	
Psychology	30	36	38	29	40	36	31	31	
Health Professions and Related Programs	282	271	320	295	349	336	343	346	
Business Management Marketing and Related Support Services	50	27	41	42	43	46	48	56	
Total	576	588	621	662	687	682	759	777	



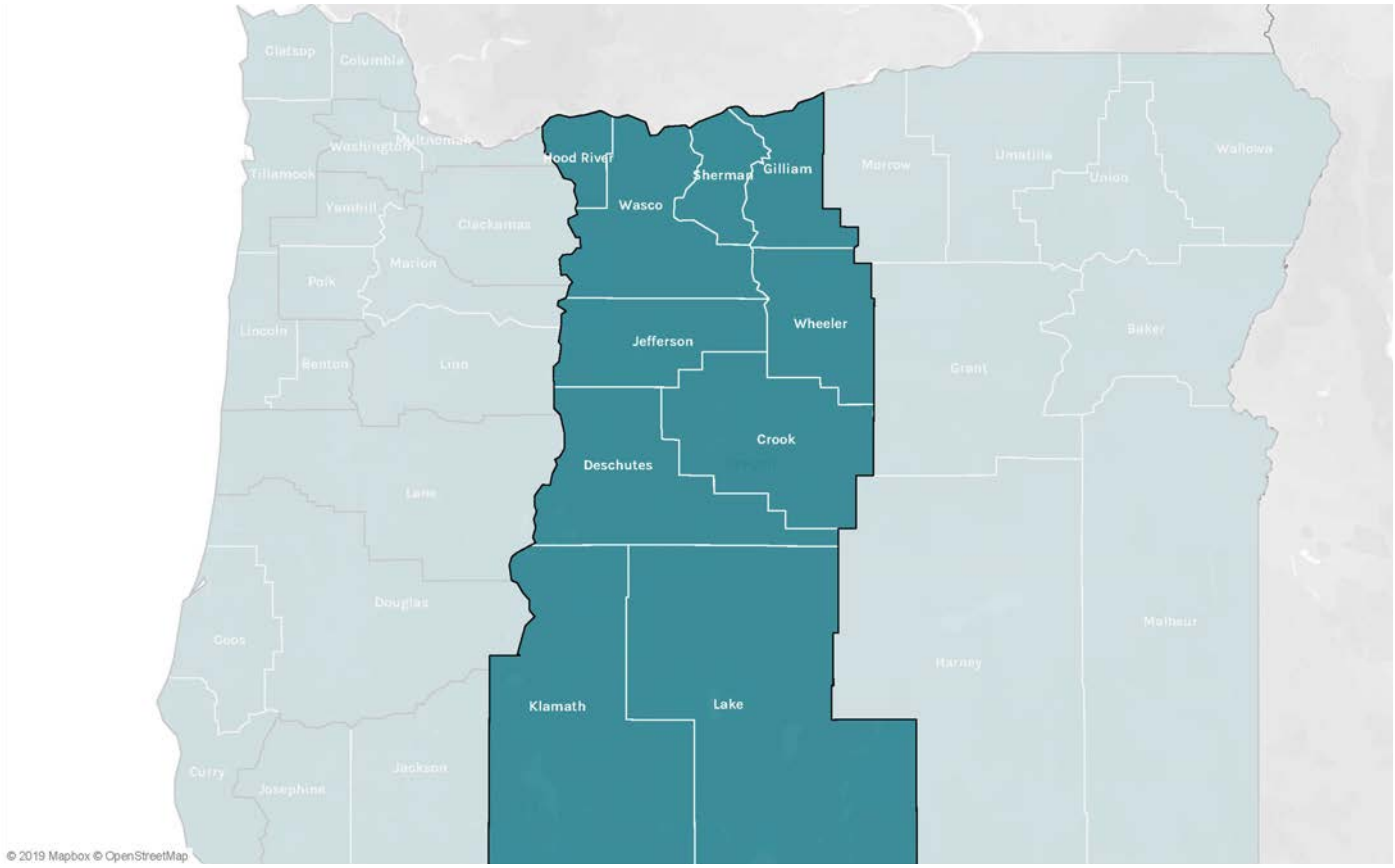
SECTION 4

OREGON STATE UNIVERSITY – CASCADES

OREGON STATE UNIVERSITY – CASCADES
ENROLLMENT & WORKFORCE DEMAND ANALYSIS

OSU-Cascades' primary service region (Figure 1) is comprised of the geographic areas covered by East Cascades Works. This Workforce Investment Area includes the following counties: Crook, Deschutes, Gilliam, Hood River, Jefferson, Klamath, Lake, Sherman, Wasco, and Wheeler.

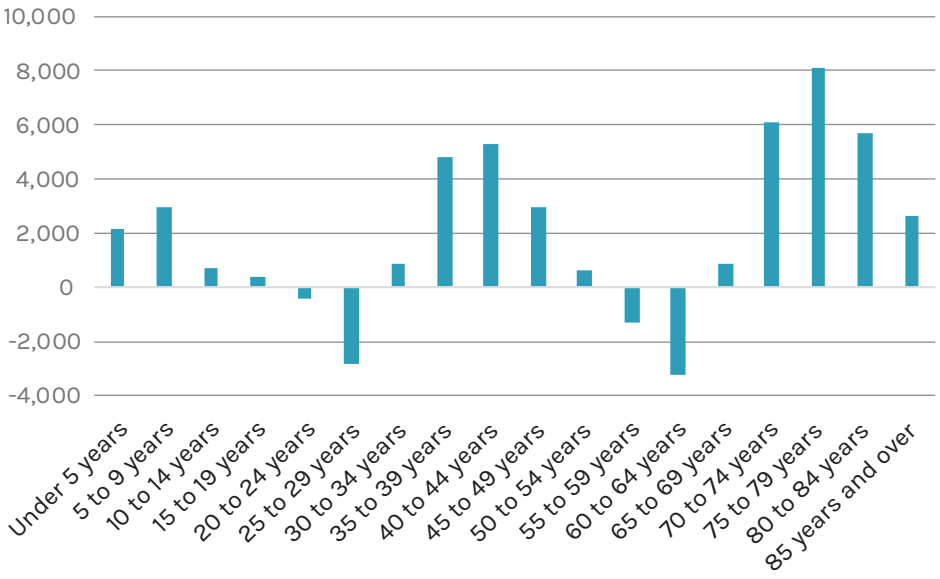
FIGURE 1. OREGON STATE UNIVERSITY – CASCADES PRIMARY SERVICE REGION



POPULATION

Between 2010 and 2018, the population in the counties that comprise the primary service area grew for OSU - Cascades grew by 41,713, or about 1.6 percent per year, easily the fastest growing region of the state. Population growth was evident across nearly every age band over that period, most prominently among residents over 70 years of age. But apart from declines in a handful of age bands—between 20–29 and between 55–65—the region saw growth. Still, enrollment demand is still driven by those at or approaching traditional college ages and, even in East Cascades, growth in that range was generally weakest (Figure 2).

FIGURE 2. CHANGE BETWEEN 2010–2018 IN OSU-CASCADES PRIMARY SERVICE AREA COUNTIES BY AGE

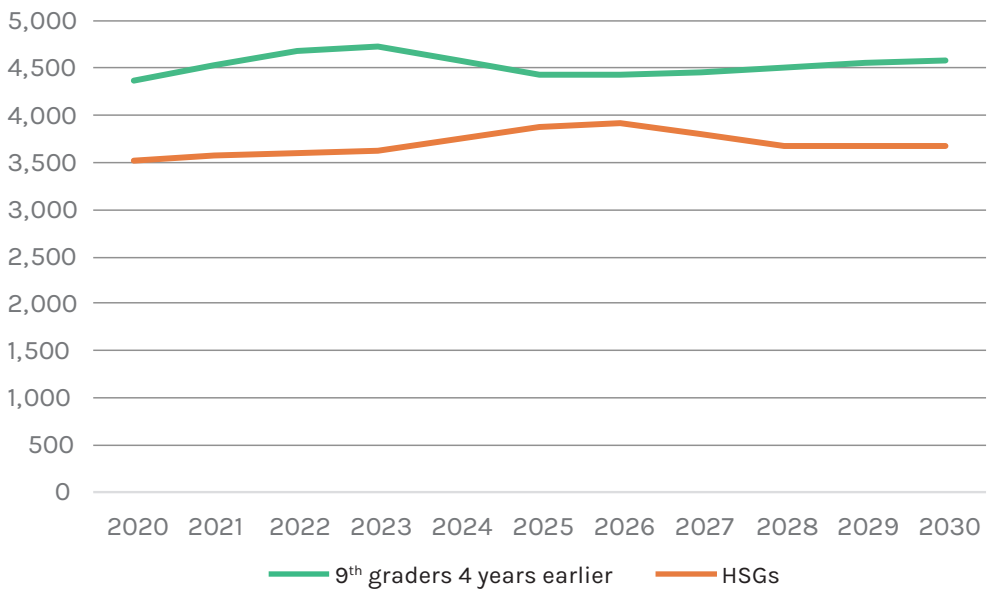


Source: EMSI, 2019.

1 Portland State University, Population Research Center.

Population growth between 2020 and 2030 is expected to be robust among all age groups in this region of the state. Even projections of ninth graders and of high school graduates trends upward, unlike other parts of the state, though at a much less dramatic pace as other age groups are expected to do (Figure 3).

FIGURE 3. PROJECTED NINTH GRADERS AND HIGH SCHOOL GRADUATES



Sources: WICHE, NCES CCD, oregonlive.com.

ENROLLMENT PROJECTIONS AND PATTERNS

Likely due to the relative newness of the Cascades campus, very few students from outside of Oregon are enrolled there. Moreover, OSU - Cascades' draw among Oregon residents also remains extremely limited. Nearly two-thirds of all its students are from Deschutes County, with Clackamas and Jefferson each providing between four and five percent (Figure 4). OSU - Cascades' penetration of the college student market is also most concentrated in Deschutes, Crook, and Jefferson County, yet at most it attracts about a quarter of those who attend college. Clearly, OSU - Cascades is offering a convenient access point to a four-year institution to prospective students from the counties nearby its campus in Bend. Yet many residents still travel some distance to attend college, as reflected by the fact that OSU's main campus in Corvallis outdraws OSU - Cascades for residents of all three previously named counties. An important consideration for HECC is how growth at OSU - Cascades may have potential impacts on enrollments at other institutions under its coordination.

Not surprisingly given their close proximity and long collaborative history, OSU - Cascades' principal source for transfer students is Central Oregon Community College. No other institution approaches COCC in supplying students to OSU - Cascades (Table 1).

TABLE 1. FALL 2018 TRANSFER STUDENT INSTITUTION OF ORIGIN

Community Colleges	
Central Oregon Community College	398
Portland Community College	19
Linn-Benton Community College	17
Chemeketa Community College	14
Lane Community College	11

Other or Unknown	
Other US college or university	130

FIGURE 4. SHARE OF RESIDENT UNDERGRADUATE ENROLLMENT BY COUNTY

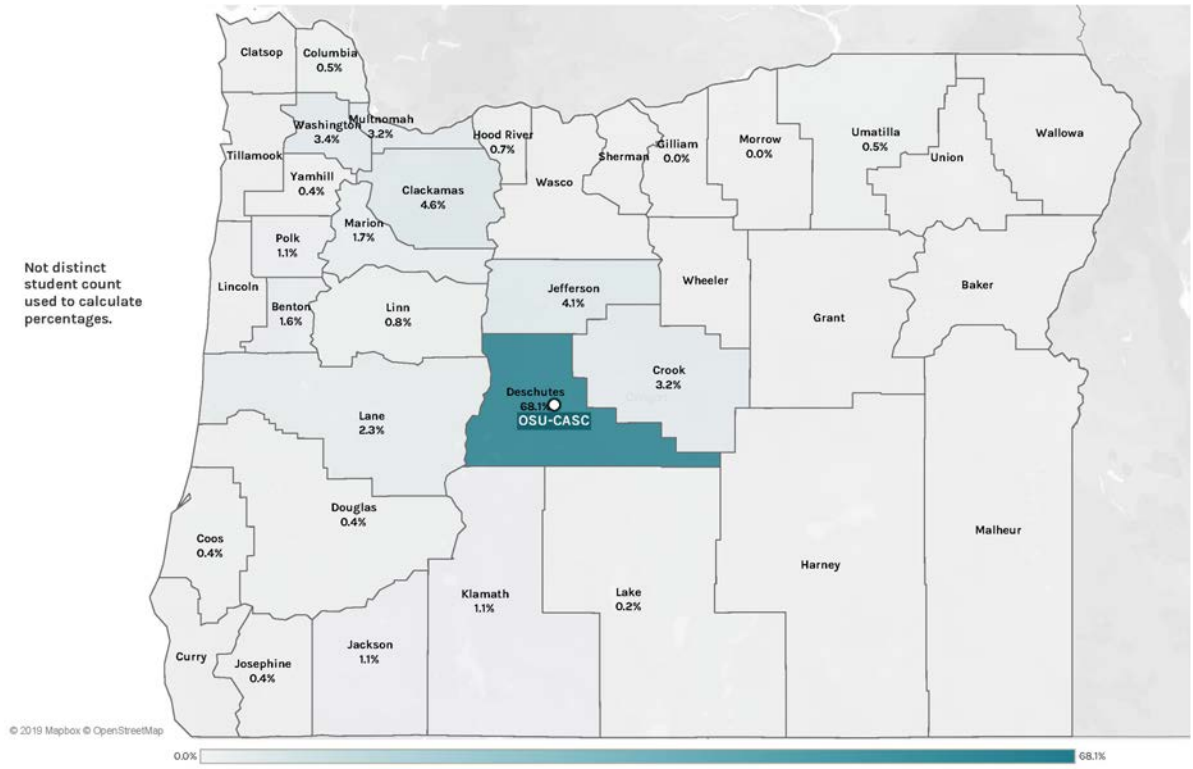
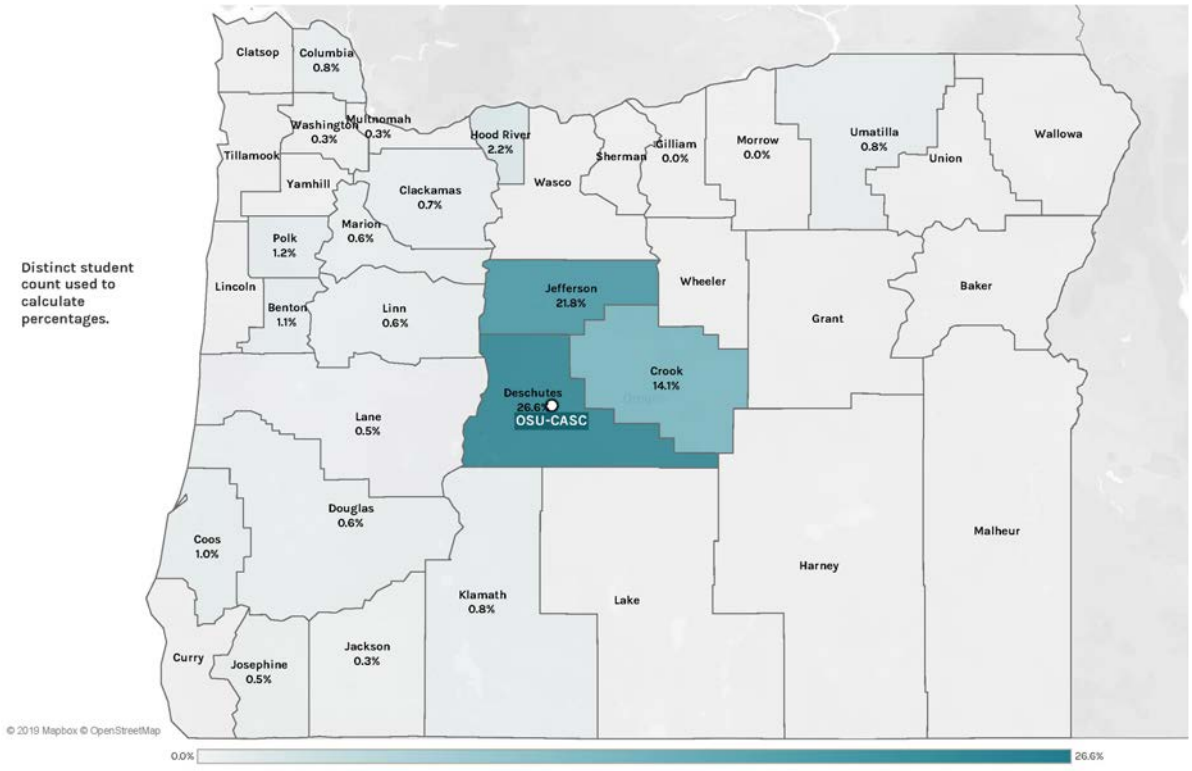


FIGURE 5. SHARE OF COLLEGE-GOING STUDENTS FROM EACH COUNTY ATTENDING OSU - CASCADES



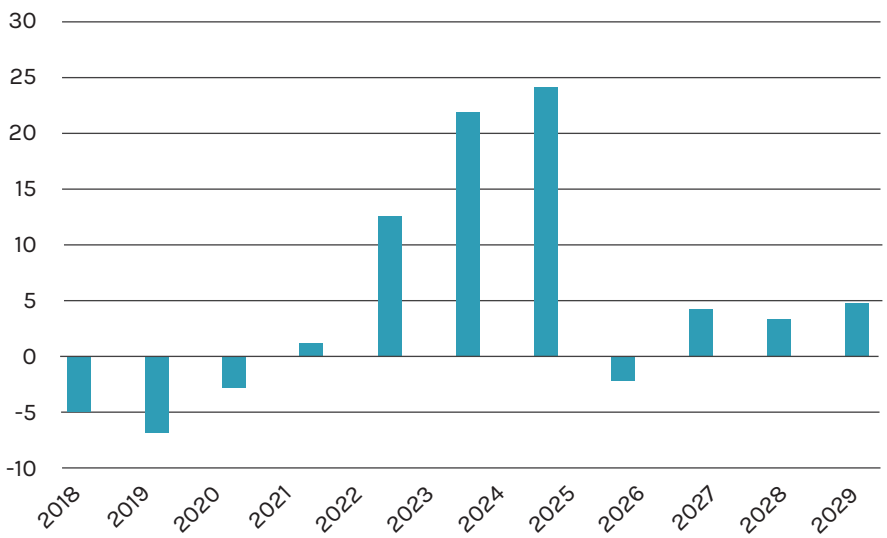
PROJECTING CAPACITY NEEDS DUE TO ENROLLMENT

To assess the likely need for space caused by undergraduate enrollment demand, NCHEMS modeled enrollment projections for each of Oregon's public four-year institutions based on the following assumptions:

- Ratio of high school graduates to 9th graders[2]
- College-going rate of recent high school graduates to enrollment at an Oregon public four-year institution[3]
- Participation rate per 100,000 population of 20–49 year olds enrolling for the first-time at an Oregon public four-year institution[4]
- Enrollment of first-time students from out-of-state[5]
- Ratio of transfer students from public two-year to public four-year institutions to the total enrollment of public two-year institutions[6]
- Retention and completion rates[7] remain steady
- Projected population changes for each institution's designated service areas[8]
- County-of-origin of undergraduate enrollment[9]
- The current proportional mix on on-campus and online students remains constant

Notwithstanding the fact that the East Cascades region—and Deschutes County in particular—is growing faster than elsewhere in the state, NCHEMS' modeling does not suggest massive growth at OSU - Cascades based solely on trend data. This modeling suggests that the campus is likely to add just 24 FTE in 2025–26 at the peak—which still represents nearly a five percent increase over the 2017–18 base year given OSU - Cascades' relatively small size, before enrollment falls back slightly. (Figure 6).

FIGURE 6. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017

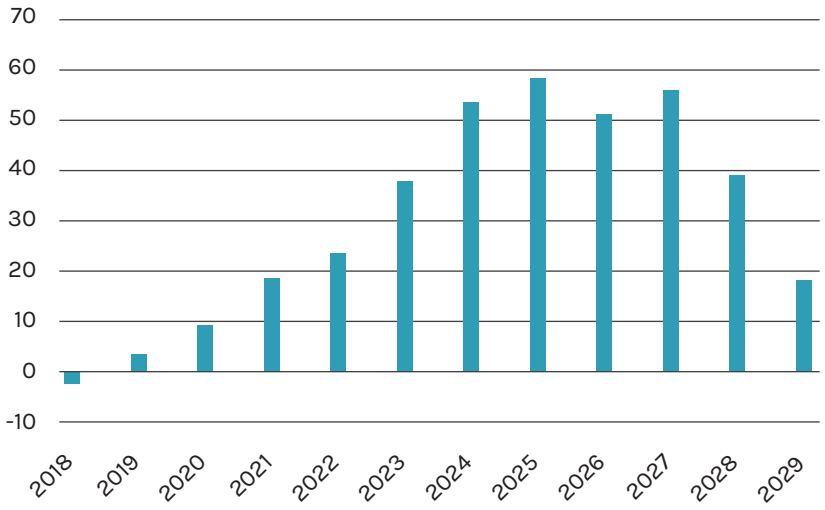


Note: Data shows the difference between the expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect no assumed changes in the most recent data for recruitment and retention.

2 NCES CCD, Western Interstate Commission for Higher Education, *Knocking at the College Door*, knocking.wiche.edu.
3 Enrollment by county (Oregon HECC), high school graduates (oregonlive.com), Residence and Migration (NCES IPEDS).
4 Enrollment by county (HECC), Residence and Migration (NCES IPEDS).
5 Enrollment of non-resident students (HECC), Residence and Migration (NCES IPEDS).
6 Oregon HECC.
7 NCES IPEDS.
8 Office of Economic Analysis, Oregon Department of Administrative Services.
9 Oregon HECC.

Under more optimistic assumptions in which OSU - Cascades boosts its recruitment and retention of students by five percent across the board, NCHEMS' model would yield enrollment increases rising to 10–12 percent above 2017–18 levels, or about 50–60 additional FTE, and holding steady there for several years. (Figure 7).

FIGURE 7. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017, ASSUMING A 5% INCREASE IN RECRUITMENT AND RETENTION MEASURES



Note: Data shows the difference between expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect a 5% increase in each of the recruitment measures for different student categories—in-state students, out-of-state students, and transfer students—as well as retention rates from the first- to the second year. No change in the high school graduation rate is assumed.

OSU - Cascades has ambitious enrollment growth targets under which they are aiming at adding over 1,200 FTEs between 2017 and 2029. Based on data available, NCHEMS' modeling suggests that would require an across-the board improvement in recruitment and retention of dramatic scale. After achieving near perfect first-to-second year retention, OSU - Cascades would need to double its successful recruitment of in-state (direct from high school as well as adults) and out-of-state students. Such improvements are not quite as daunting when you factor in how a relatively few students can make a big difference at a small, young institution like OSU - Cascades, but they cannot occur without additional space and extra resources to better serve the students they do have. As noted elsewhere, given the demographic picture elsewhere in Oregon, OSU - Cascades' success in achieving these goals will likely come at some other institution's expense.

ECONOMY AND WORKFORCE NEEDS

The largest industries that are likely to employ substantial numbers of college graduates in the OSU - Cascades service are:

- Government
- Private educational and health services
- Professional and business services

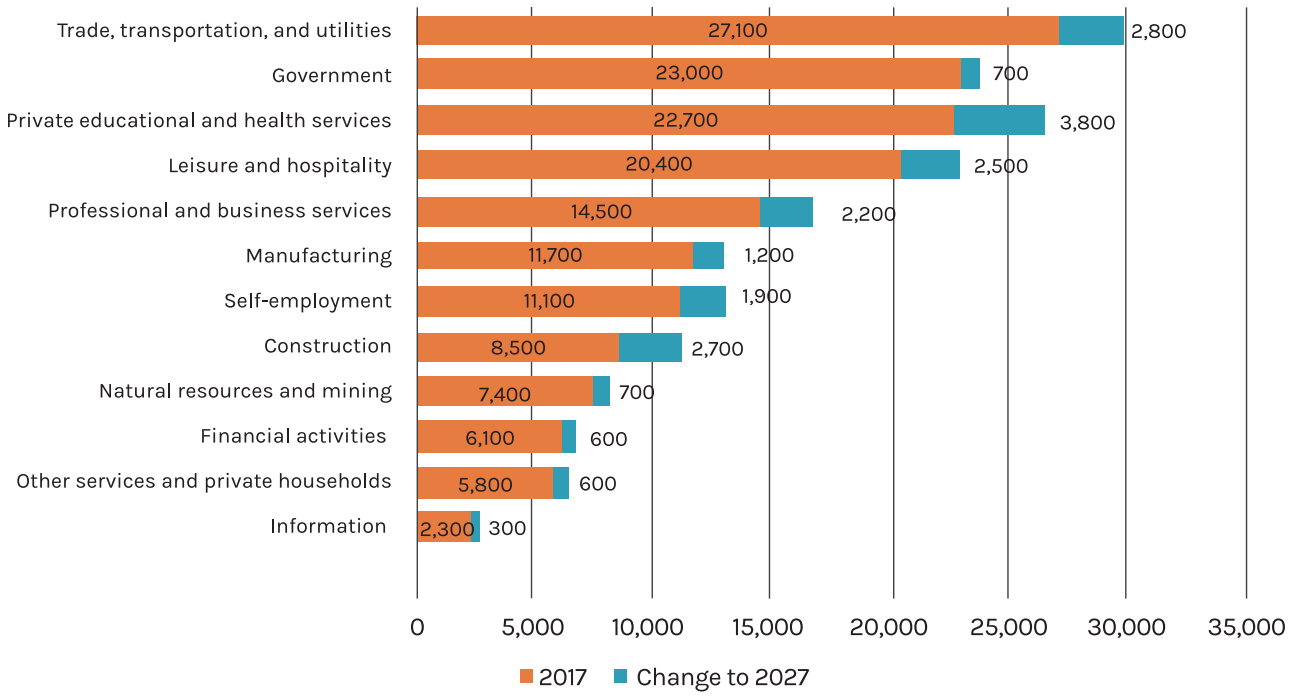
It is noted that leisure and hospitality is a major industry in the region and, while it does not employ a high proportion of baccalaureate degree-holders, is an important industry to be served by OSU - Cascades. (See Figure 8)

The occupations requiring a college education with the largest number of annual openings in the region are:

- Management (plus business and financial operations)
- Education
- Healthcare practitioners and allied health professionals (Figure 9)

The largest growth occupations are these same three, although not in the same order—the category of health care practitioners moves to the top of the list (Figure 10).

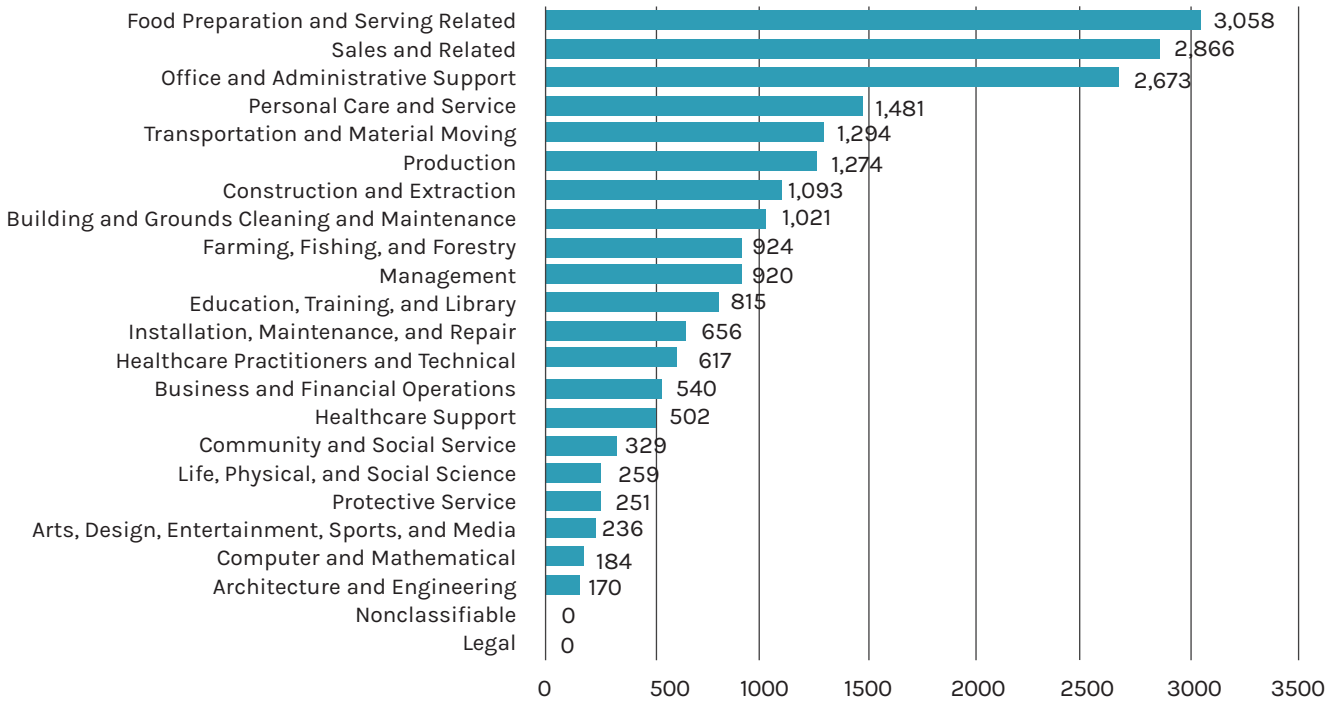
FIGURE 8. EMPLOYMENT GROWTH BY INDUSTRY, 2017–2027
OREGON STATE UNIVERSITY - CASCADES SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 9.

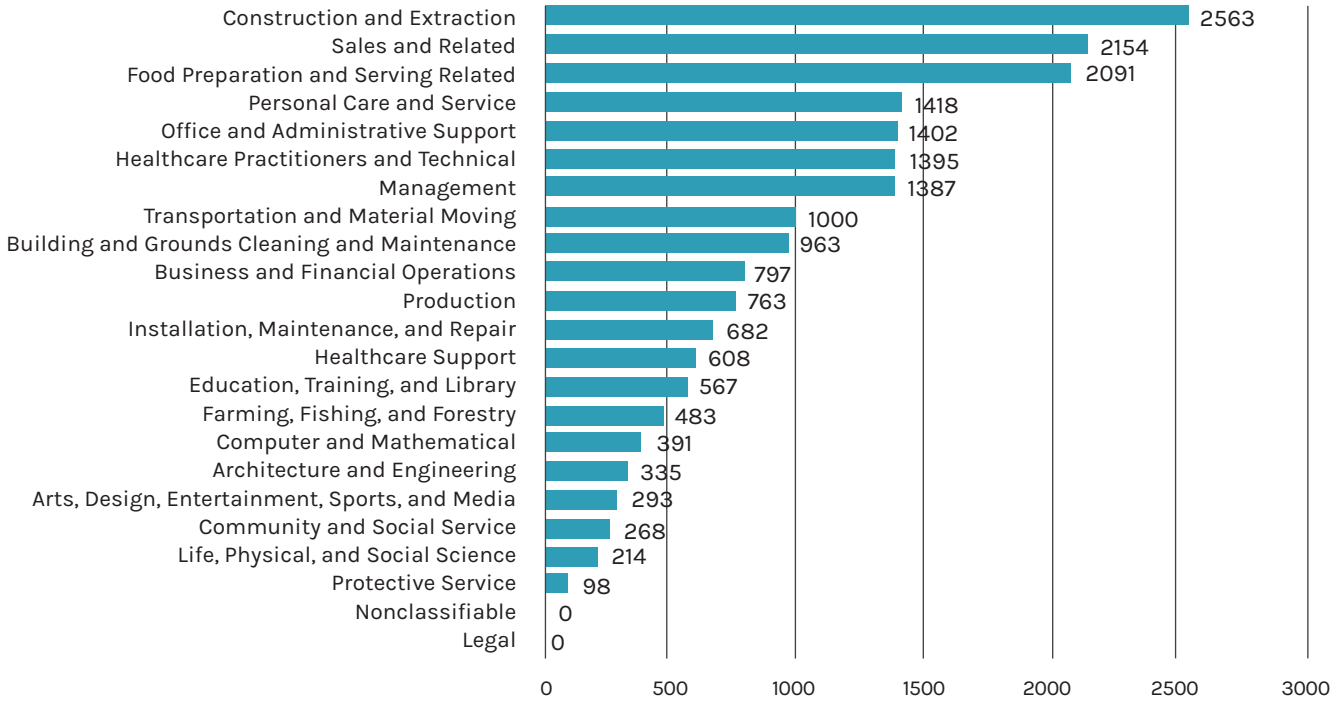
TOTAL ANNUAL OPENINGS BY OCCUPATION, 2017–2027,
OREGON STATE UNIVERSITY - CASCADES SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 10.

GROWTH IN EMPLOYMENT BY OCCUPATION, 2017–2027,
OREGON STATE UNIVERSITY - CASCADES SERVICE AREA



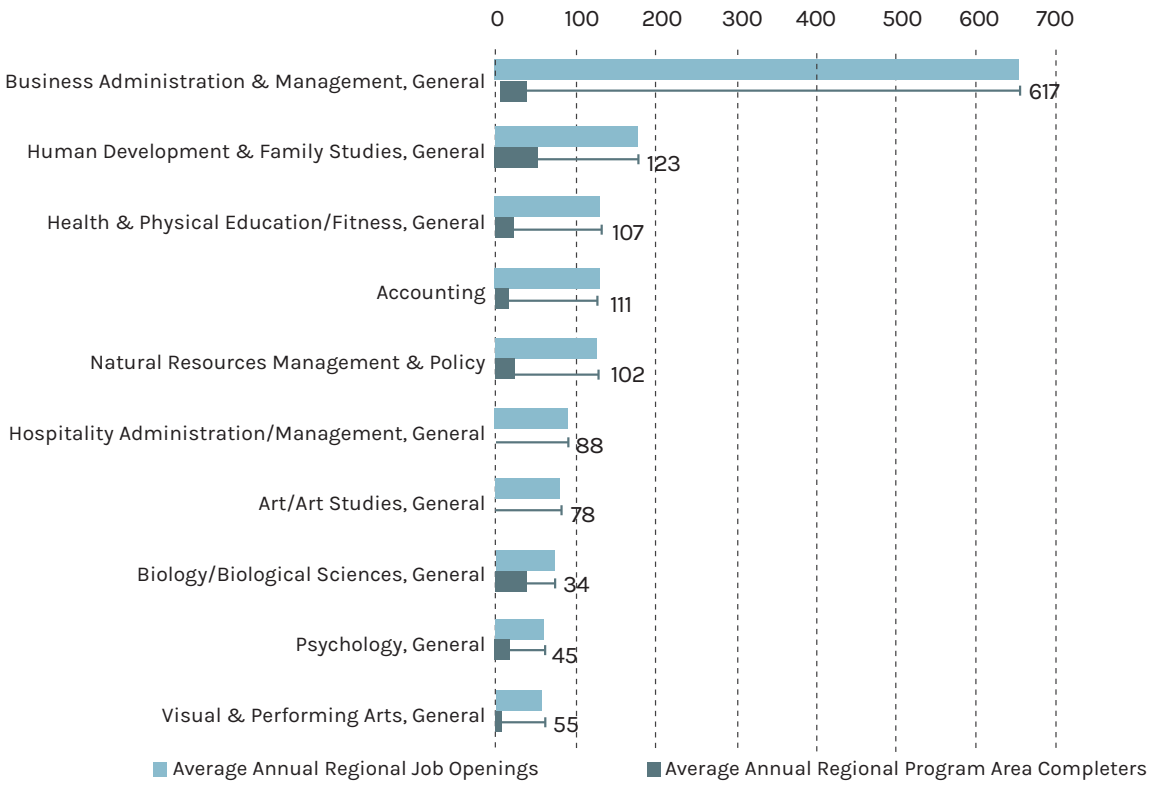
Source: State of Oregon Employment Department, qualityinfo.org.

The Emsi data are consistent with these findings, drawing attention to unmet needs in business and accounting, natural resources management and policy, and hospitality. The needs in the arena of healthcare professionals are overwhelmingly for additional registered nurses. While there are projections for other health professionals—nurse practitioners, physician assistants, OTs—these needs are not sufficiently large to justify creation of new programs in the region. (Figure 11, Figure 12)

During the site visit interest was expressed in adding the following programs:

- BSN completion
- Kinesiology
- Outdoor products engineering
- Business management

FIGURE 11. TOP BACHELOR'S DEGREE LEVEL GAPS



Source: EMSI, 2019.

FIGURE 12. PROGRAM ADDITIONS

Bachelor's degree level program additions

SOC Code	SOC Title	BACH Job Openings in the OSU-Cascades Service Region	BACH Program Completers in the OSU-Cascades	BACH Gap	Median Hourly Wage
29-1141	Registered Nurses	144	0	144	$41.83
25-9099	Education, Training, and Library Workers, All Other	36	0	36	$13.84
41-9022	Real Estate Sales Agents	31	0	31	$21.60
11-9021	Construction Managers	28	2	26	$29.38
17-2051	Civil Engineers	26	2	23	$34.18
27-1026	Merchandise Displayers and Window Trimmers	23	0	23	$16.08
41-3031	Securities, Commodities, and Financial Services Sales Agents	22	0	22	$23.16
41-3021	Insurance Sales Agents	20	0	20	$20.64
11-9111	Medical and Health Services Managers	22	2	19	$44.75
33-3051	Police and Sheriff's Patrol Officers	18	0	18	$33.56
13-1028	Buyers and Purchasing Agents	16	0	16	$24.71
41-9021	Real Estate Brokers	15	0	15	$27.32
13-2052	Personal Financial Advisors	13	0	13	$30.82
19-2031	Chemists	13	0	13	$31.20
43-5061	Production, Planning, and Expediting Clerks	11	0	11	$20.95
11-9141	Property, Real Estate, and Community Association Managers	11	0	11	$22.90
13-1081	Logisticians	11	0	11	$49.16
13-1051	Cost Estimators	14	4	10	$28.19
11-3011	Administrative Services Managers	10	0	10	$35.26

Master's degree level program additions

SOC Code	SOC Title	MAST Job Openings in the OSU-Cascades Service Region	MAST Program Completers in the OSU-Cascades	MAST Gap	Median Hourly Wage
29-1171	Nurse Practitioners	11	0	11	$46.98
29-1071	Physician Assistants	10	0	10	$51.82
29-1127	Speech-Language Pathologists	8	0	8	$32.75
29-1122	Occupational Therapists	7	0	7	$42.37

Source: EMSI, 2019.

OREGON STATE UNIVERSITY – CASCADES FACILITIES INFORMATION

Fall 2018 facilities data for Oregon State University - Cascades is summarized below. Included is general information about the three buildings on campus: average age of the buildings, total floor area on campus, and replacement value. All the buildings are less than 10 years old. A block diagram makes visible the proportion of space on campus in each space category.

For this study, building age was calculated from CIR data, either the "Age of Building or Beneficial Occupancy Year" or the "Age of Last Renovation – Year". On the OSU – Cascades campus, two of the buildings were constructed in the last ten years. One was constructed in 1997, occupied by the campus in 2008, and received minor renovations in the last ten years. Therefore, it is included in the less than ten years old category, even though it is an older building.

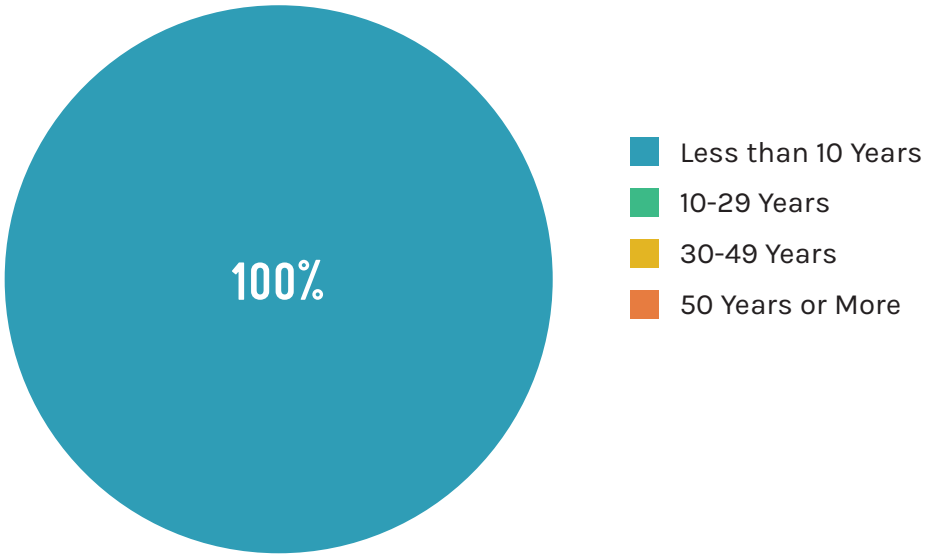
OREGON STATE UNIVERSITY – CASCADES

Number of Buildings:	3
Number of Buildings with Age/Renovation Year:	3
Average Age of Building/Renovation:	2 years
Total Gross Square Feet:	114,229
Total Gross Square Feet with Year:	114,229
Total Renovated Gross Square Feet:	43,353
Percentage Gross Square Feet Renovated:	38.0%
Number of Buildings Renovated:	1
Percentage of Buildings Renovated:	33.3%
Total Current Replacement Value of All OSU Buildings:	$54,691,560

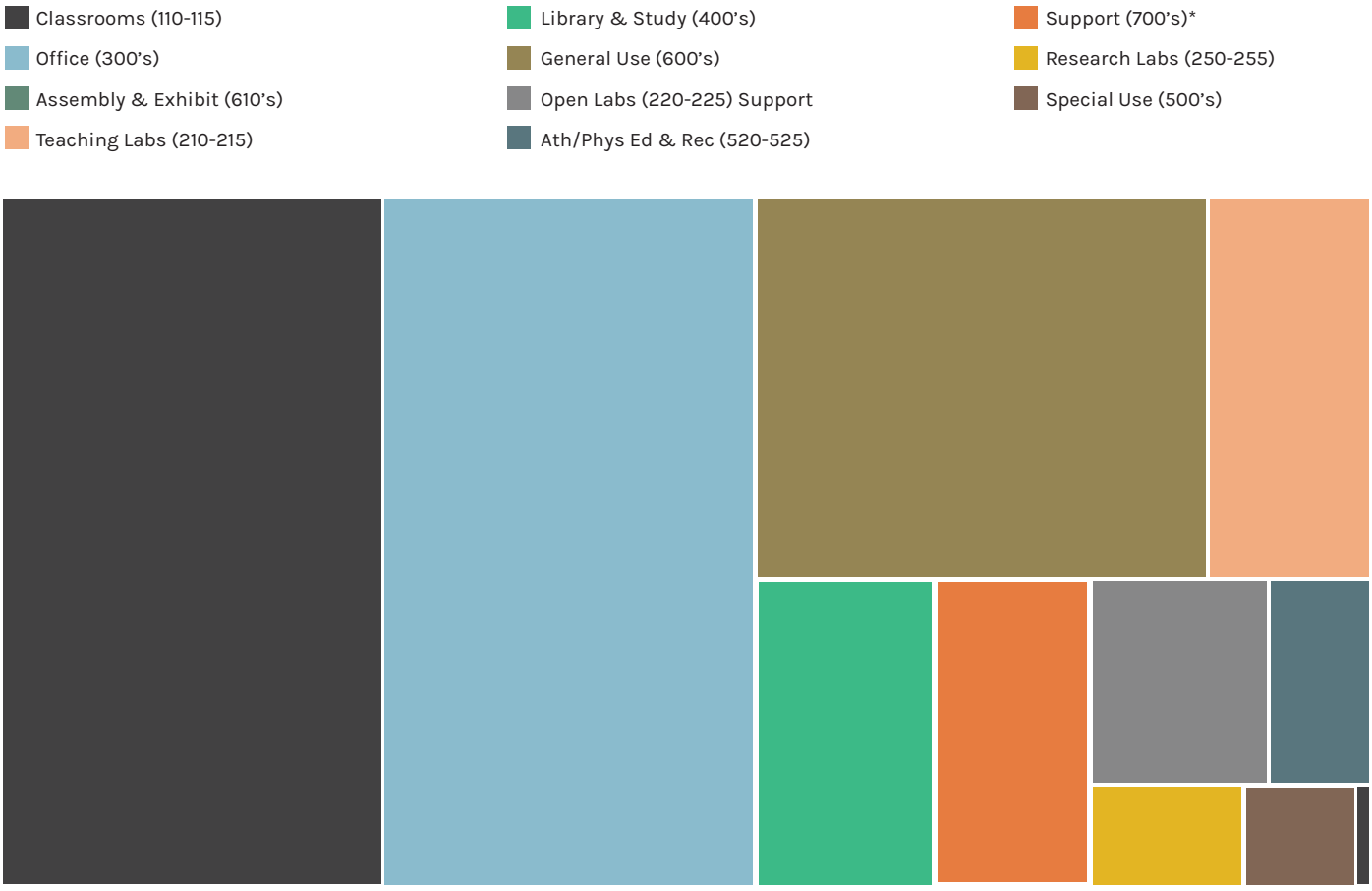
Age Grouping of Buildings		
	Count	Percentage
Less than 10 Years Old	3	100%
10 to 29 Years Old	0	0.0%
30 to 49 Years Old	0	0.0%
50 Years Old or More	0	0.0%
Age Unknown	0	0.0%

Note: Only have CRV for 2 buildings

OREGON STATE UNIVERSITY – CASCADES
AGE OF BUILDING/RENOVATION



OREGON STATE UNIVERSITY – CASCADES ASF BY SPACE CATEGORY



OREGON STATE UNIVERSITY – CASCADES SPACE ANALYSIS

The Fall 2018 term use of scheduled teaching space on the Oregon State University – Cascades campus was analyzed to determine if additional capacity is available in existing space. Campus space needs for academic and academic support space were analyzed for the Fall 2018 term to compare existing space use with the space guidelines established for this study. The guidelines were then applied to two future enrollment projection scenarios to determine the quantity of space needed and how the need compares to the quantity and type of space available on campus.

FALL 2018 SCHEDULED TEACHING SPACE UTILIZATION

CLASSROOM UTILIZATION

There are 20 scheduled classrooms on the Cascades campus, with a total of 836 student stations (seats in the classroom). During the Fall 2018 term, the classrooms were scheduled, on average, 25 hours per week with 49% of the seats in the classroom filled. The classrooms are located in three buildings. The following chart indicates the scheduled use of the classrooms in each building.

CLASSROOM UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Obsidian Hall	*0927*	4	1,329	31	18	12.5	32	41%
OSU Cascades Graduate And Research Center	*0925*	8	801	19	15	11.9	22	53%
Tykeson Hall	*0926*	8	1,169	24	24	12.5	26	50%
Total No. of Rooms = 20		**AVERAGE**	**1,053**	**25.2** *	**19**	**12.3**	**25**	**49%**
Total No. of Stations = 836		**Total ASF**	**21,069**					

At 12.3 weekly hours of use for each classroom seat, the utilization does not meet the guideline of 20 weekly seat hours, 30 weekly room hours, and 67% student station occupancy.

The greatest number of classrooms in use at any one time was 16 on Wednesday afternoon at 4:00, as indicated in the following chart. Classroom use is greatest mid-day and late afternoon Monday through Thursday.

SCHEDULED CLASSROOM USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	5	25%	7	35%	5	25%	6	30%	3	15%	5	26%
9:00 AM	11	55%	10	50%	10	50%	9	45%	9	45%	10	49%
10:00 AM	13	65%	11	55%	13	65%	12	60%	9	45%	12	58%
11:00 AM	17	85%	17	85%	17	85%	17	85%	8	40%	15	76%
12:00 PM	6	30%	10	50%	8	40%	11	55%	8	40%	9	43%
1:00 PM	6	30%	4	20%	4	20%	4	20%	8	40%	5	26%
2:00 PM	15	75%	12	60%	15	75%	12	60%	7	35%	12	61%
3:00 PM	14	70%	12	60%	14	70%	14	70%	5	25%	12	59%
4:00 PM	11	55%	11	55%	14	70%	13	65%	1	5%	10	50%
5:00 PM	11	55%	12	60%	15	75%	14	70%	1	5%	11	53%
6:00 PM	8	40%	9	45%	11	55%	8	40%	0	0%	7	36%
7:00 PM	5	25%	4	20%	6	30%	2	10%	0	0%	3	17%

Total classrooms = 20

TEACHING LAB UTILIZATION

There are 3 scheduled teaching laboratories on the Cascades campus, with a total of 72 student stations. During the Fall 2018 term, the labs were scheduled, on average, 13 hours per week with 59% of the stations occupied. The labs are located in one building, Tykeson Hall. The following chart indicates the scheduled use of the teaching labs in the building.

TEACHING LABORATORY UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Tykeson Hall	*0926*	3	1,253	52	14	7.4	13	59%
Total No. of Rooms = 3		**AVERAGE**	**1,253**	**52.2** *	**14**	**7.4**	**13**	**59%**
Total No. of Stations = 72		**Total ASF**	**3,760**					

At 7.4 hours per week of student station occupancy, the utilization does not meet the guideline of 15 weekly seat hours, 20 weekly room hours. The student station occupancy of 59% when the room is scheduled does not meet the 70% expectation.

Labs are scheduled primarily on Tuesday and Thursday afternoon from 2:00 to 5:00, as indicated in the chart below.

SCHEDULED TEACHING LABORATORY USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	1	33%	0	0%	1	33%	0	0%	1	33%	1	20%
9:00 AM	1	33%	0	0%	1	33%	1	33%	1	33%	1	27%
10:00 AM	0	0%	0	0%	1	33%	1	33%	1	33%	1	20%
11:00 AM	0	0%	0	0%	1	33%	1	33%	0	0%	0	13%
12:00 PM	0	0%	0	0%	1	33%	1	33%	1	33%	1	20%
1:00 PM	0	0%	0	0%	0	0%	1	33%	1	33%	0	13%
2:00 PM	0	0%	2	67%	0	0%	3	100%	1	33%	1	40%
3:00 PM	0	0%	2	67%	0	0%	3	100%	0	0%	1	33%
4:00 PM	0	0%	3	100%	1	33%	3	100%	0	0%	1	47%
5:00 PM	0	0%	1	33%	1	33%	1	33%	0	0%	1	20%
6:00 PM	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
7:00 PM	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%

Total laboratories = 3

CAMPUS SPACE NEEDS

Existing space on campus is organized into three categories as follows:

- Academic Space—classrooms, teaching labs, open labs
- Academic Support Space—offices, library and collaborative learning, assembly and exhibit, physical plant, other department space
- Inactive/Conversion Space—space currently in renovation or not usable for some other reason

In the Fall 2018 term, Oregon State University - Cascades had a deficit of 21,478 ASF, as indicated in the chart below. A surplus of scheduled teaching space was offset by significant deficits in student support space, open labs, collaboration space, assembly space, and offices.

Of the total 59,758 ASF of academic and academic support space on campus, 11,599 ASF is located in Obsidian Hall and the Residence Hall. These buildings are owned by the campus auxiliary and space is leased for academic use.

SPACE NEEDS ANALYSIS - BASE YEAR, FALL 2018

	2018 *Student FTE = 789*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	21,617	11,539	10,078	47%
Teaching Laboratories & Service	5,047	2,669	2,378	47%
Open Laboratories & Service	3,044	8,813	(5,769)	(190%)
Academic Space Subtotal	*29,708*	*23,021*	*6,687*	*23%*
Academic Support Space				
Offices & Service	21,139	27,108	(5,969)	(28%)
Library & Collaborative Learning Space	2,948	11,835	(8,887)	(301%)
Assembly & Exhibit	100	5,600	(5,500)	(5,500%)
Physical Plant	3,870	3,600	270	7%
Other Department Space	1,993	10,072	(8,079)	(405%)
Academic Support Space Subtotal	*30,050*	*58,215*	*(28,165)*	*(94%)*
CAMPUS TOTAL	**59,758**	**81,236**	**(21,478)**	**(36%)**

The campus enrollment projection of 1,951 student FTE in 2029 yields a total space need of 149,762 ASF. Total space on campus of 57,555 ASF has been adjusted, removing current off campus leased space, and does not meet this need. There are significant deficits in all space categories. It should be noted that Academic Building 2, with approximately 30,000 ASF, is not included in this analysis as specific space information is not available.

SPACE NEEDS ANALYSIS, CAMPUS ENROLLMENT PROJECTIONS - TARGET YEAR, FALL 2029

	Campus Projections *Student FTE = 1,951*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	21,617	28,257	(6,640)	(31%)
Teaching Laboratories & Service	5,047	6,501	(1,454)	(29%)
Open Laboratories & Service	2,544	18,781	(16,237)	(638%)
Academic Space Subtotal	*29,208*	*53,539*	*(24,331)*	*(83%)*
Academic Support Space				
Offices & Service	19,436	30,035	(10,599)	(55%)
Library & Collaborative Learning Space	2,948	29,265	(26,317)	(893%)
Assembly & Exhibit	100	5,600	(5,500)	(5,500%)
Physical Plant	3,870	9,859	(5,989)	(155%)
Other Department Space	1,993	21,464	(19,471)	(977%)
Academic Support Space Subtotal	*28,347*	*96,223*	*(67,876)*	*(239%)*
CAMPUS TOTAL	**57,555**	**149,762**	**(92,207)**	**(160%)**

The NCHEMS student flow model enrollment projection of 811 student FTE in 2029 yields a total space need of 83,870 ASF, a 26,315 ASF deficit. Even when Academic Building 2 is completed it is anticipated that there will be deficits in student support and engagement space.

SPACE NEEDS ANALYSIS , NCHEMS STUDENT FLOW MODEL - TARGET YEAR, FALL 2029

	NCHEMS Flow *Student FTE = 811*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	21,617	11,594	10,023	46%
Teaching Laboratories & Service	5,047	2,669	2,378	47%
Open Laboratories & Service	2,544	9,058	(6,514)	(256%)
Academic Space Subtotal	*29,208*	*23,321*	*5,887*	*20%*
Academic Support Space				
Offices & Service	19,436	27,108	(7,672)	(39%)
Library & Collaborative Learning Space	2,948	12,165	(9,217)	(313%)
Assembly & Exhibit	100	5,600	(5,500)	(5,500%)
Physical Plant	3,870	5,324	(1,454)	(38%)
Other Department Space	1,993	10,352	(8,359)	(419%)
Academic Support Space Subtotal	*28,347*	*60,549*	*(32,202)*	*(114%)*
CAMPUS TOTAL	**57,555**	**83,870**	**(26,315)**	**(46%)**

SECTION 5

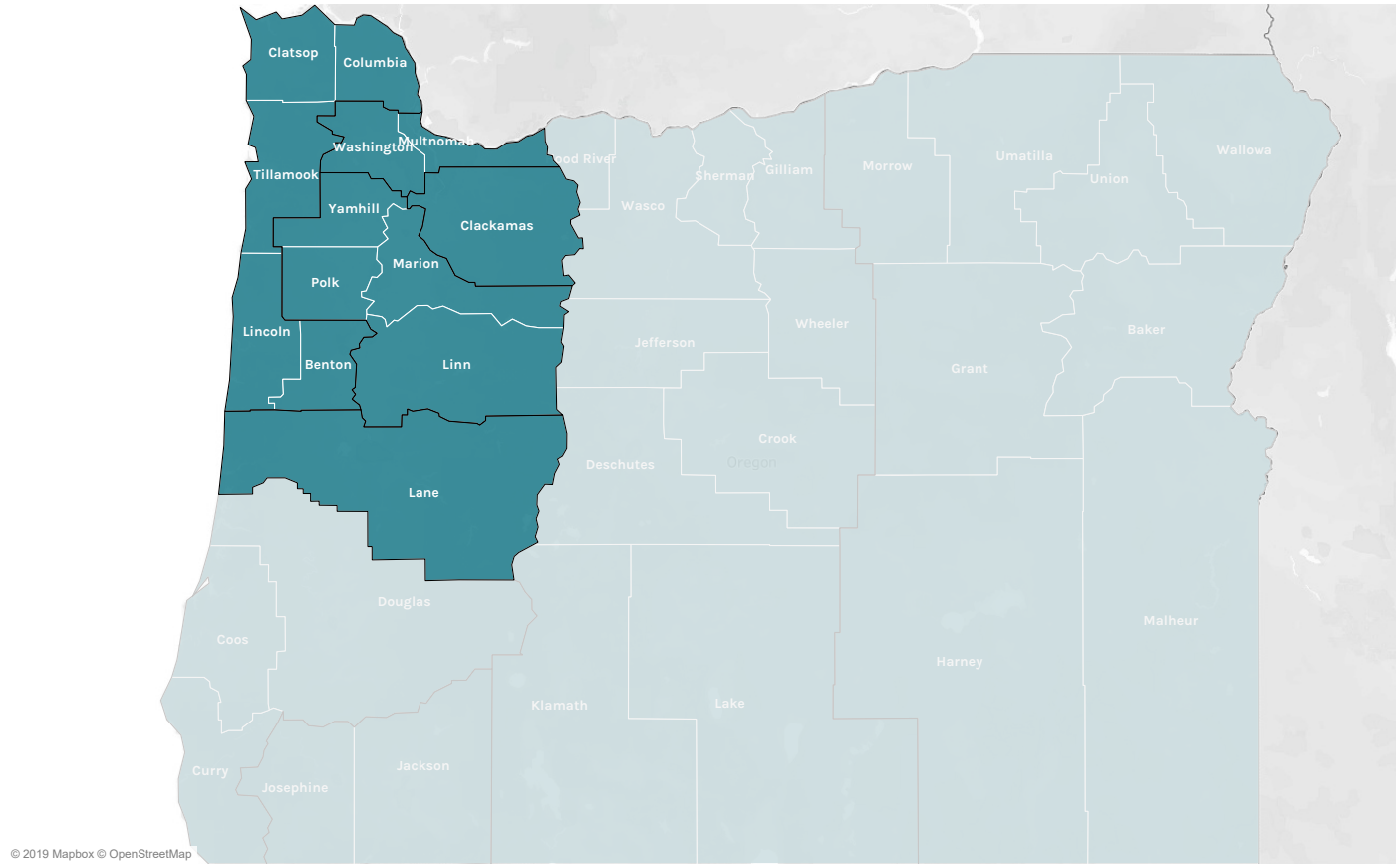
OREGON STATE UNIVERSITY – CORVALLIS

OREGON STATE UNIVERSITY – CORVALLIS
ENROLLMENT & WORKFORCE DEMAND ANALYSIS

This profile addresses Oregon State University's main campus in Corvallis; a separate profile addresses its Cascades campus.

OSU - Corvallis' primary service region (Figure 1) is comprised of five workforce investment areas covering the most populated areas of the state, including the Portland-Metro Workforce Development Board, Northwest Oregon Works, Clackamas Workforce Partnership, Willamette Workforce Partnership, and the Lane Workforce Partnership. These areas are comprised of the following counties: Benton, Clackamas, Clatsop, Columbia, Lane, Lincoln, Linn, Marion, Multnomah, Polk, Tillamook, Washington, and Yamhill.

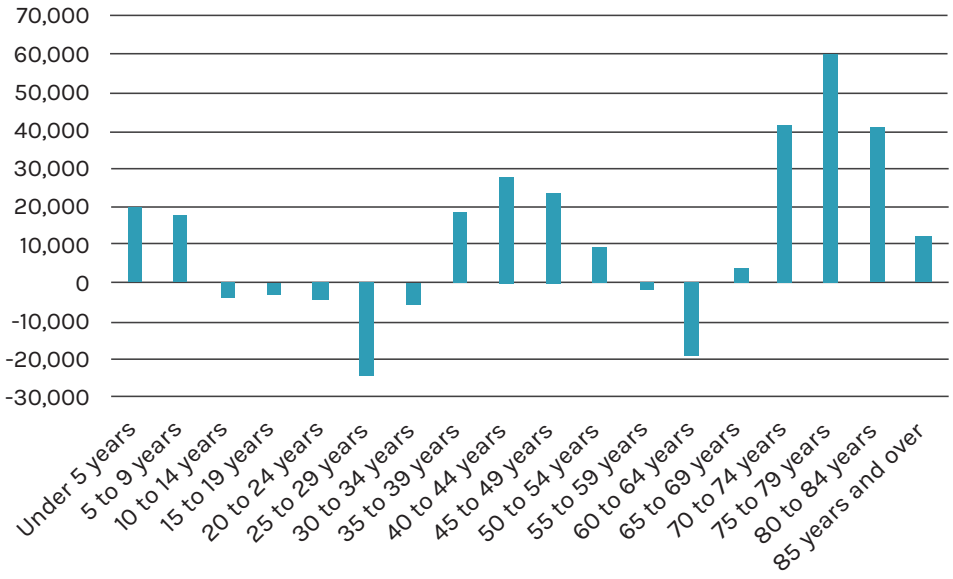
FIGURE 1. OREGON STATE UNIVERSITY SERVICE REGION



POPULATION

Between 2010 and 2018, the population in the counties that comprise the primary service area grew for OSU - Corvallis grew by nearly 290,000, or just over 1.25 percent per year.[1] Broadly consistent with other parts of the state, the population in OSU - Corvallis' primary service area grew especially among the elderly, with increases also among middle-age Oregonians between 35–55 and children under 10, while the traditional college-age population has been down (Figure 2).

FIGURE 2. CHANGE BETWEEN 2010–2018 IN OSU PRIMARY SERVICE AREA COUNTIES BY AGE

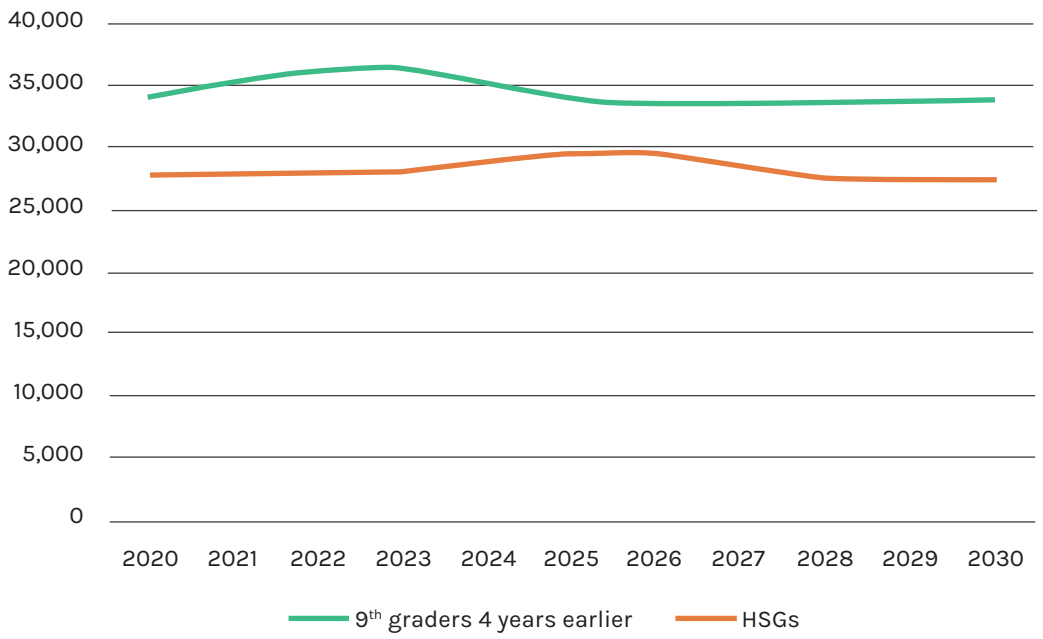


Source: EMSI, 2019.

1 Portland State University, Population Research Center.

Population growth between 2020 and 2030 is expected to be much faster among middle-age individuals between 25–49 than among the traditional college-age populations in OSU - Corvallis' service area. Modest growth is also expected among ninth graders and the number of high school graduates projected will spike between 2025 and 2026, rising by over seven percent, before falling rapidly below anticipated 2020 levels (Figure 3).

FIGURE 3. PROJECTED NINTH GRADERS AND HIGH SCHOOL GRADUATES



Sources: WICHE, NCES CCD, oregonlive.com.

ENROLLMENT PROJECTIONS AND PATTERNS

OSU - Corvallis attracts nearly three of every 10 members of its first-year class from out-of-state, especially California, which supplied almost half (48 percent) of OSU's non-resident students in 2016–17[2]. Among Oregon residents, however, OSU has a wide reach in the state, owing to its land-grant mission. While it enrolls residents of each of Oregon's counties, a claim not all of the public universities can make, it still draws 75 percent of its residents from just eight counties: Washington, Clackamas, Multnomah, Marion, Benton, Lane, Linn, and Deschutes. As the largest institution in the state, it attracts at least 15 percent of college-bound residents of almost all of Oregon's counties, with the exception of counties in southern Oregon, as well as Union County (Figure 5).

OSU - Corvallis is also successful at attracting transfer students from community colleges located nearby, as well as in Portland, and OSU - Corvallis is also an attractive option for students transferring in from institutions outside of Oregon (Table 1).

TABLE 1. FALL 2018 TRANSFER STUDENT INSTITUTION OF ORIGIN

Community Colleges	
Linn-Benton Community College	866
Chemeketa Community College	662
Portland Community College	599
Central Oregon Community College	332
Lane Community College	287
Clackamas Community College	245
Umpqua Community College	131
Mount Hood Community College	124
Rogue Community College	96
Southwestern Oregon Community College	74
Blue Mountain Community College	66
Treasure Mountain Community College	39
Columbia Gorge Community College	34
Klamath Community College	31
Clatsop Community College	29

Other Oregon 4-Year Institutions	
University of Oregon	98
Portland State University	83
Western Oregon University	74
Eastern Oregon University	42
Southern Oregon University	41
Oregon Institution of Technology	27

Other or Unknown	
Other US college or university	2897
Unknown	960
Oregon independent college or university	98

2 NCES IPEDS.

FIGURE 4. SHARE OF RESIDENT UNDERGRADUATE ENROLLMENT BY COUNTY

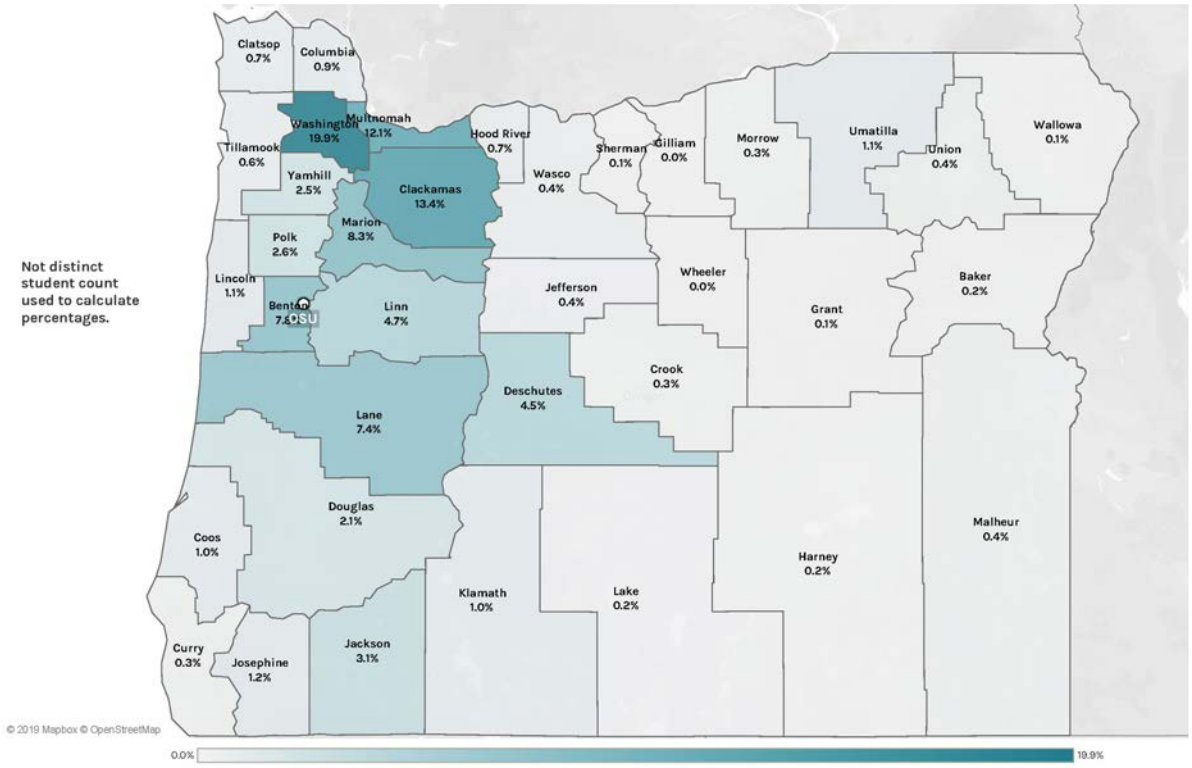
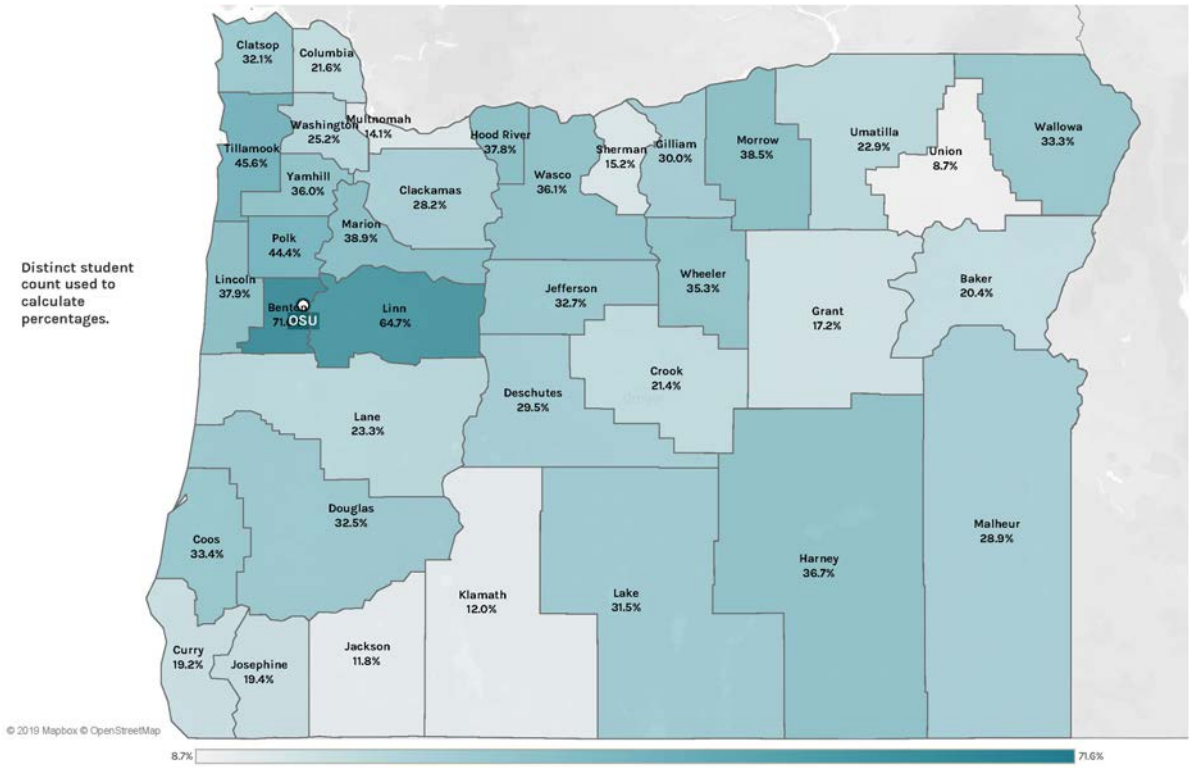


FIGURE 5. SHARE OF COLLEGE-GOING STUDENTS FROM EACH COUNTY ATTENDING OSU - CORVALLIS



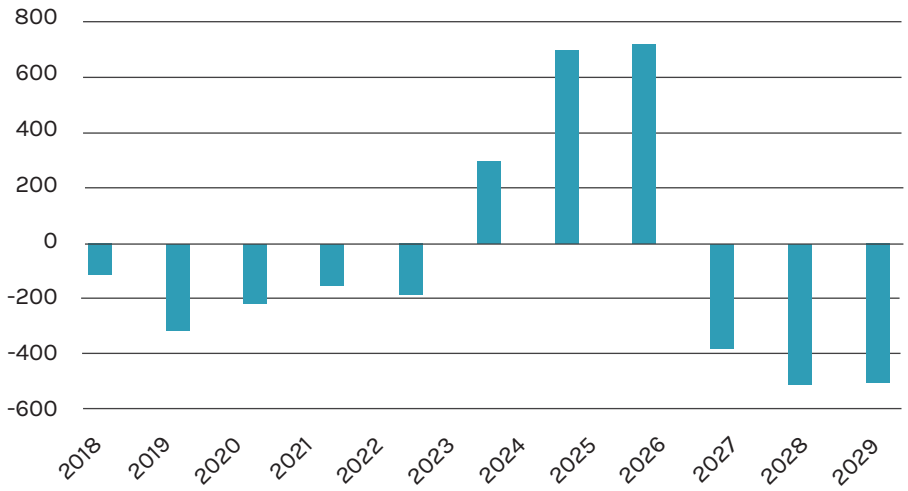
PROJECTING CAPACITY NEEDS DUE TO ENROLLMENT

To assess the likely need for space caused by undergraduate enrollment demand, NCHEMS modeled enrollment projections for each of Oregon's public four-year institutions based on the following assumptions:

- Ratio of high school graduates to 9th graders[3]
- College-going rate of recent high school graduates to enrollment at an Oregon public four-year institution[4]
- Participation rate per 100,000 population of 20–49 year olds enrolling for the first-time at an Oregon public four-year institution[5]
- Enrollment of first-time students from out-of-state[6]
- Ratio of transfer students from public two-year to public four-year institutions to the total enrollment of public two-year institutions[7]
- Retention and completion rates[8] remain steady
- Projected population changes for each institution's designated service areas[9]
- County-of-origin of undergraduate enrollment[10]
- The current proportional mix on on-campus and online students remains constant

This modeling suggests that, barring significant changes in recruitment or retention, OSU - Corvallis will actually struggle to keep its enrollment at 2017–18 levels for several years, before they temporarily rise by 720 FTE between 2023–24 through 2025–26. From that point forward, enrollments are likely to fall substantially over just a few years (Figure 6).

FIGURE 6. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017

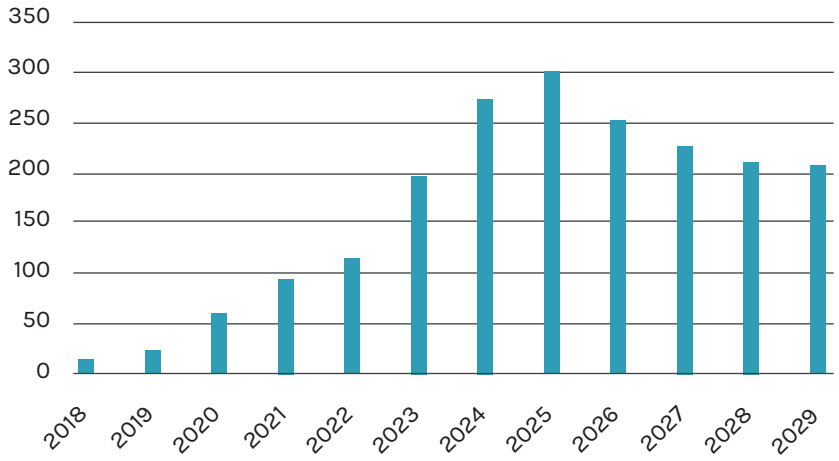


Note: Data shows the difference between the expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect no assumed changes in the most recent data for recruitment and retention.

3 NCES CCD, Western Interstate Commission for Higher Education, *Knocking at the College Door*, knocking.wiche.edu.
4 Enrollment by county (Oregon HECC), high school graduates (oregonlive.com), Residence and Migration (NCES IPEDS).
5 Enrollment by county (HECC), Residence and Migration (NCES IPEDS).
6 Enrollment of non-resident students (HECC), Residence and Migration (NCES IPEDS).
7 Oregon HECC.
8 NCES IPEDS.
9 Office of Economic Analysis, Oregon Department of Administrative Services.
10 Oregon HECC.

Using optimistic assumptions about OSU - Corvallis' capacity to improve recruitment and retention of students, NCHEMS' modeling paints a less bleak picture. While the anticipated enrollment spikes before falling as under the steady state assumptions above, the spike reaches an additional 1,713 FTE, and the subsequent decline still leaves OSU - Corvallis with enrollment about 500 FTE above the 2017-18 level. These results relate to adjusting key parameters (enrollment of in-state students, out-of-state students, and transfer students, as well as retention rates) by five percent (Figure 7). As a selective institution, OSU - Corvallis already recruits students who are better prepared for academic success than some of the other public four-year institutions in the state, while it also has relatively greater resources to devote to retention efforts, both of which suggest that the hypothetical improvement in retention rates assumed here will have unusually large effects on enrollment compared to less selective, well-resourced institutions.

FIGURE 7. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017, ASSUMING A 5% INCREASE IN RECRUITMENT AND RETENTION MEASURES



Note: Data shows the difference between expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect a 5% increase in each of the recruitment measures for different student categories—in-state students, out-of-state students, and transfer students—as well as retention rates from the first- to the second year. No change in the high school graduation rate is assumed.

Neither the default forecast nor the optimistic one should require the investment of resources needed to meet the anticipated enrollment demand, given OSU - Corvallis' overall size makes even the optimistically derived spike only adds roughly seven percent to the 2017–18 enrollment total before falling back.

In order for OSU - Corvallis to achieve its on-campus enrollment target for 2029, under which it would enroll over 4,800 additional on-campus FTEs (as well as grow enrollments at its branch campuses and its distance-learning operation), NCHEMS estimates that it would have to improve its recruitment and retention by about 18 percent across the board.

ECONOMY AND WORKFORCE NEEDS

The largest industries in the OSU - Corvallis service region that require a workforce with substantial proportions of college graduates are:

- Private educational and health services
- Government
- Professional and business services
- Financial services

The information industry is relatively small. Health and professional and business services are the industries projected to have the largest growth over the next two decades (Figure 8).

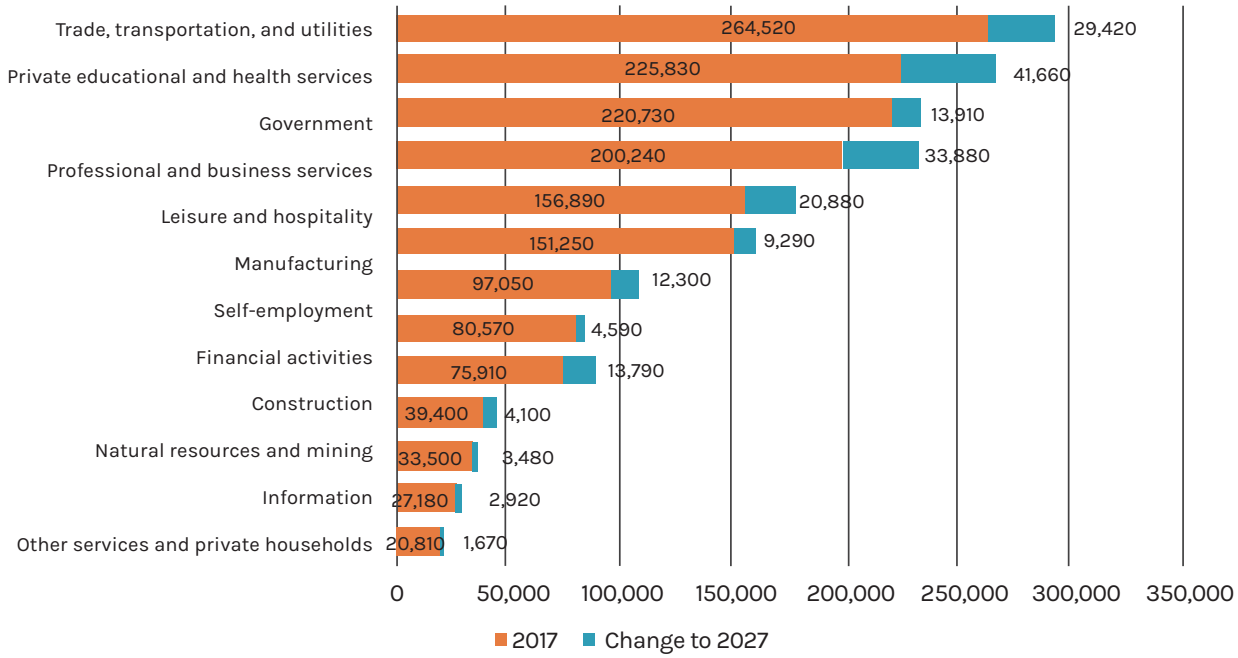
The occupations requiring a college degree with the largest number of annual openings are the fields of

- Management
- Education
- Healthcare practitioners and allied health professionals

Occupation in the areas of computing and engineering are projected to have fewer, but still sizeable numbers of annual openings (Figure 2).

The occupations requiring a college degree with the largest projected growth are in the fields of management and business, healthcare practitioners, education and computing. Engineering occupations will grow more slowly but numbers will still be notable.

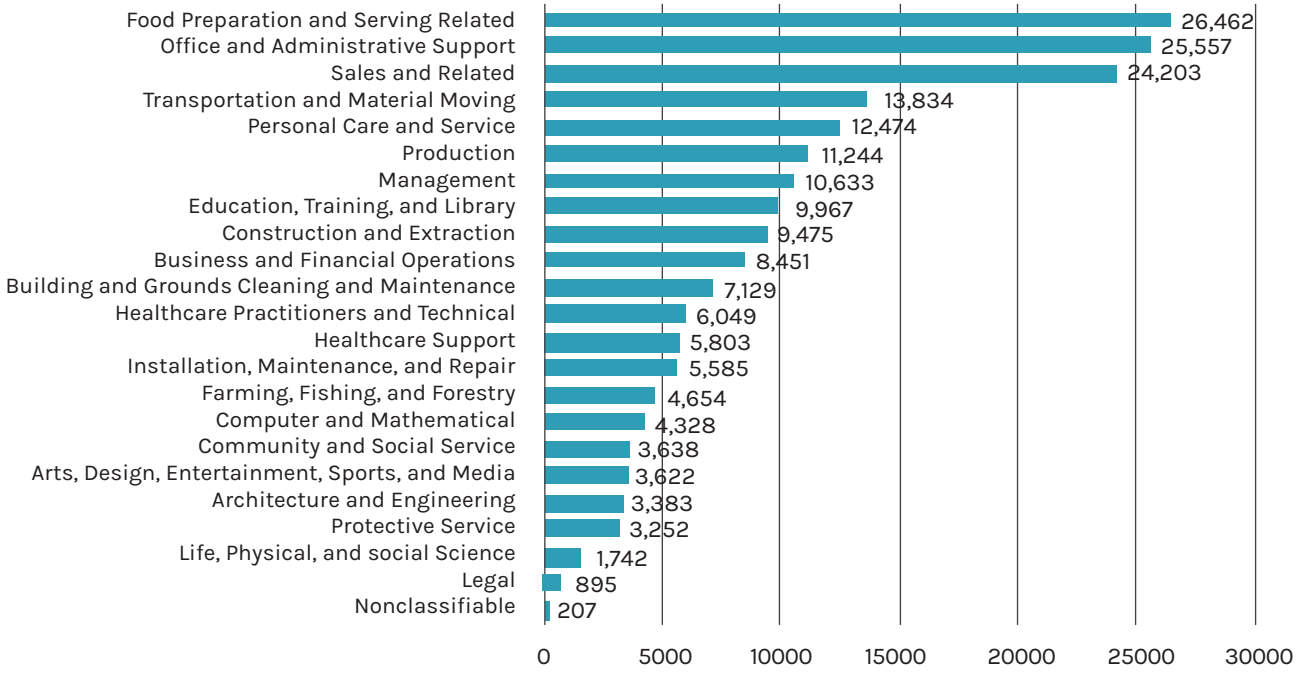
FIGURE 8. EMPLOYMENT GROWTH BY INDUSTRY, 2017–2027
OREGON STATE UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 9.

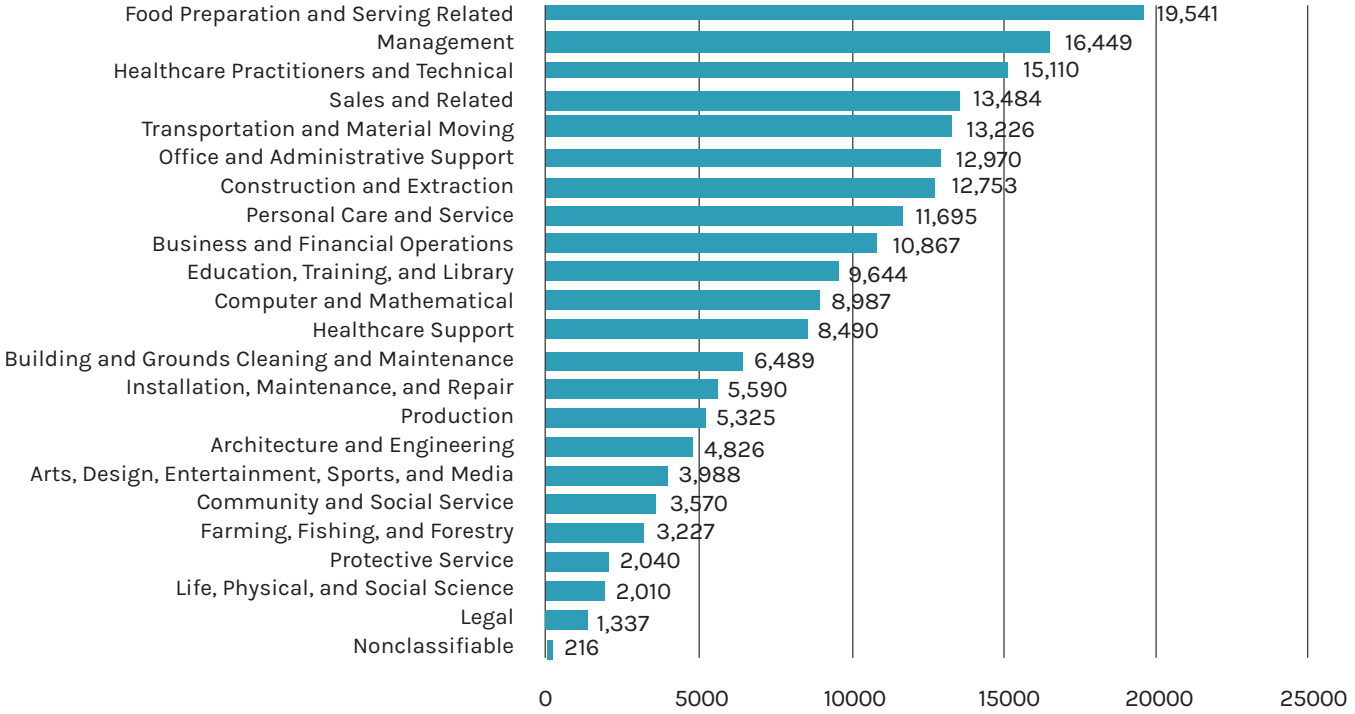
TOTAL ANNUAL OPENINGS BY OCCUPATION, 2017–2027, OREGON STATE UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 10.

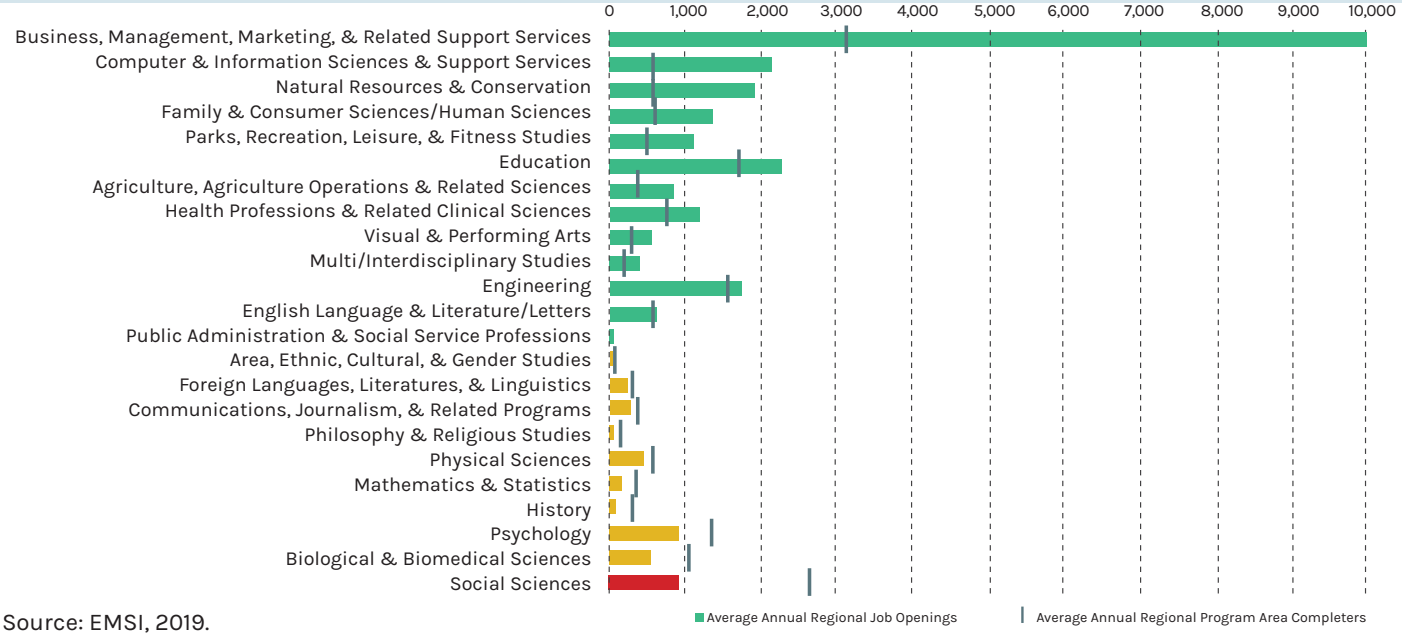
GROWTH IN EMPLOYMENT BY OCCUPATION, 2017–2027, OREGON STATE UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

The data from Emsi are consistent with these findings (Figure 4). The Emsi data reveal demand at the graduate level for a variety of health programs (Table 1).

FIGURE 11. GAPS AT THE BACHELOR'S AND ABOVE DEGREE LEVEL (2-DIGIT CIP)



Source: EMSI, 2019.

FIGURE 12. PROGRAM ADDITIONS

Bachelor's degree level program additions

SOC Code	SOC Title	BACH Job Opening in the OSU Service	BACH Program Completers in the OSU Service Region	BACH Gap	Median Hourly Wage
41-3021	Insurance Sales Agents	314	0	314	$23.81
23-2011	Paralegals and Legal Assistants	213	1	212	$24.38
25-9099	Education, Training, and Library Workers, All Other	205	0	205	$17.50
27-1026	Merchandise Displayers and Window Trimmers	132	0	132	$14.00
43-5061	Production, Planning, and Expediting Clerks	132	0	132	$21.41
13-1151	Training and Development Specialists	136	8	128	$29.95
11-9141	Property, Real Estate, and Community Association Managers	120	2	117	$24.49
33-3051	Police and Sheriff's Patrol Officers	124	10	114	$35.22
41-9021	Real Estate Brokers	92	2	90	$27.45
21-1029	Social Workers, All Other	86	4	82	$26.37
41-3011	Advertising Sales Agents	96	19	76	$18.89
21-1099	Community and Social Service Specialists, All Other	81	12	70	$17.96
41-9031	Sales Engineers	68	0	68	$53.58
53-2011	Airline Pilots, Copilots, and Flight Engineers	66	0	66	$116.31
17-1011	Architects, Except Landscape and Naval	87	27	60	$32.56
53-2012	Commercial Pilots	57	0	57	$27.07
21-1092	Probation Officers and Correctional Treatment Specialists	53	4	49	$29.86
13-1141	Compensation, Benefits, and Job Analysis Specialists	45	2	43	$32.69
43-3061	Procurement Clerks	37	0	37	$19.73
25-2054	Special Education Teachers, Secondary School	30	1	30	$37.98

Master's degree level program additions					
SOC Code	SOC Title	MAST Job Openings in the OSU Service Region	MAST Program Completers in the OSU Service Region	MAST Gap	Median Hourly Wage
29-1171	Nurse Practitioners	101	1	100	$56.76
29-1127	Speech-Language Pathologists	100	3	97	$40.95
29-1122	Occupational Therapists	67	0	67	$44.46
29-1129	Therapists, All Other	23	0	23	$19.29
21-1019	Counselors, All Other	17	2	15	$22.30
29-1151	Nurse Anesthetists	15	0	14	$169.15
29-1161	Nurse Midwives	6	0	6	$52.50

Doctoral degree level program additions					
SOC Code	SOC Title	PHD Job Openings in the OSU Service Region	PHD Program Completers in the OSU Service Region	PHD Level Gap	Median Hourly Wage
29-1123	Physical Therapists	95	6	90	$41.25
29-1021	Dentists, General	72	3	69	$77.73
29-1011	Chiropractors	29	2	27	$31.81
29-1062	Family and General Practitioners	49	29	19	$94.98
29-1061	Anesthesiologists	17	0	17	$219.37
29-1065	Pediatricians, General	16	0	16	$96.70
29-1063	Internists, General	14	0	14	$90.87
23-1023	Judges, Magistrate Judges, and Magistrates	9	2	7	$64.91
29-1081	Podiatrists	7	0	7	$28.06
23-1021	Administrative Law Judges, Adjudicators, and Hearing Officers	9	2	7	$54.15
29-1064	Obstetricians and Gynecologists	6	0	6	$111.25
29-1181	Audiologists	5	0	5	$35.89
23-1022	Arbitrators, Mediators, and Conciliators	3	1	3	$23.55
23-1012	Judicial Law Clerks	2	1	1	$14.57

Source: EMSI, 2019.

OREGON STATE UNIVERSITY – CORVALLIS FACILITIES INFORMATION

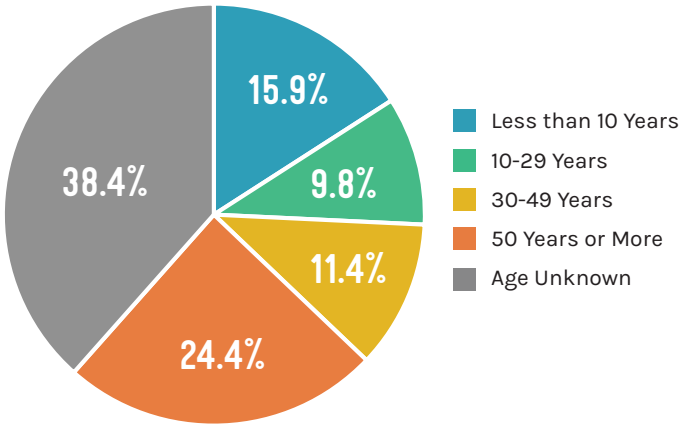
Fall 2018 facilities data for Oregon State University - Corvallis is summarized below. Included is general information about the 528 buildings on campus: average age of the buildings, total floor area on campus, and replacement value. Two pie charts highlight the percentage of buildings in each age category. The first includes a category for buildings of unknown age. The second illustrates the percentage of buildings in each age category of buildings with known age only. A block diagram makes visible the proportion of space on campus in each space category.

OREGON STATE UNIVERSITY – CORVALLIS

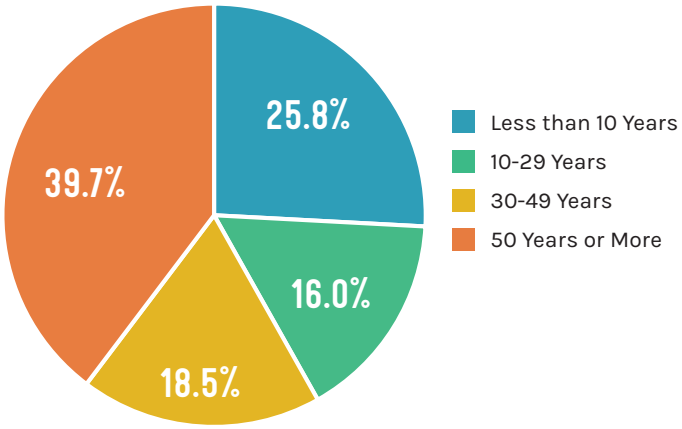
Number of Buildings:	528
Number of Buildings with Age/Renovation Year:	325
Average Age of Building/Renovation:	38
Total Gross Square Feet:	7,778,101
Total Gross Square Feet with Buildings with Year:	5,718,628
Total Renovated Gross Square Feet:	4,240,095
Percentage Gross Square Feet Renovated:	54.5%
Number of Buildings Renovated:	104
Percentage of Buildings Renovated:	19.7%
Total Current Replacement Value of All OSU-Corvallis Buildings:	$3,966,010,083

Age Grouping of Buildings		
	Count	Percentage
Less than 10 Years Old	84	15.9%
10 to 29 Years Old	52	9.8%
30 to 49 Years Old	60	11.4%
50 Years Old or More	129	24.4%
Age Unknown	203	38.4%

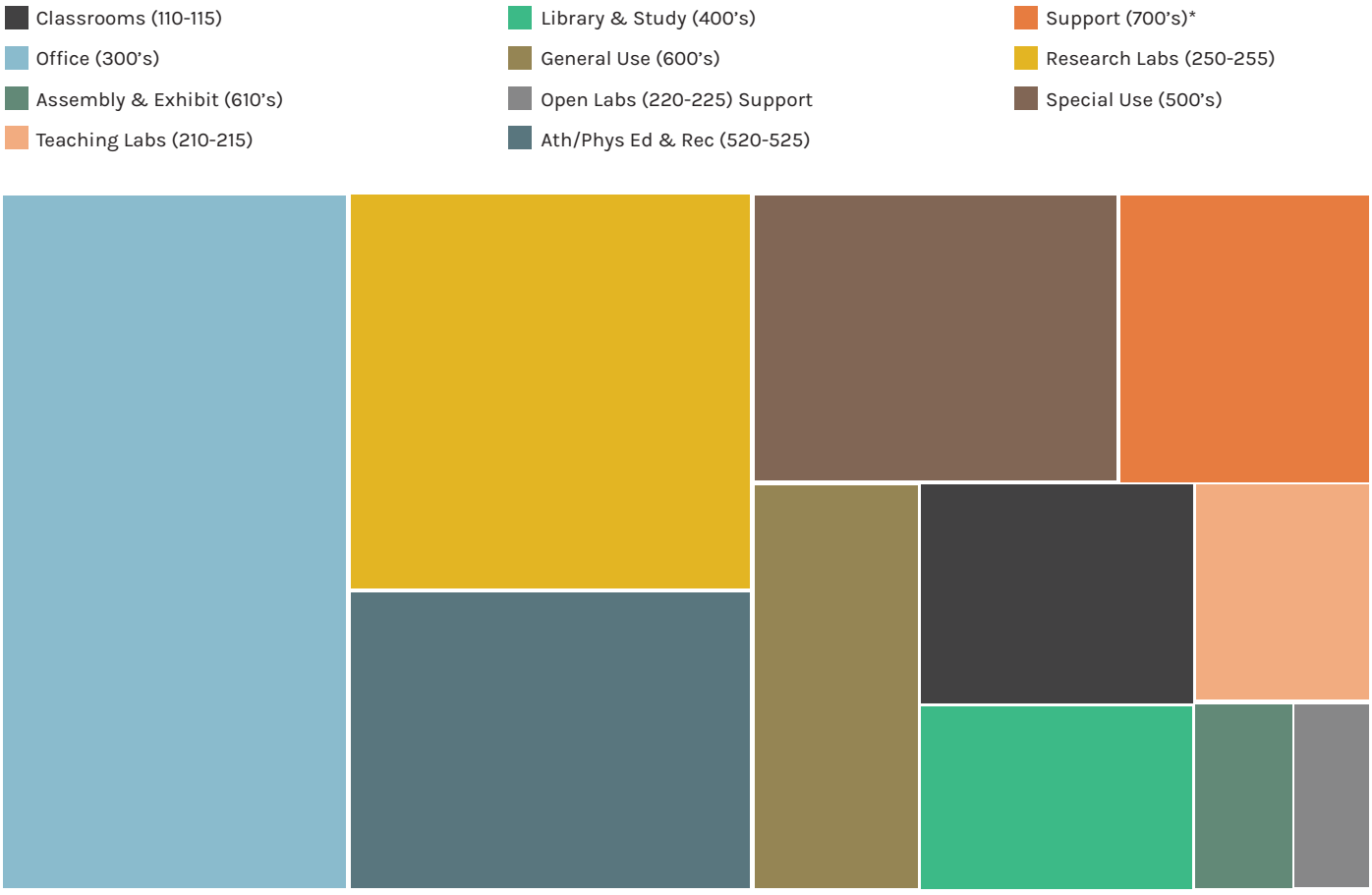
OREGON STATE UNIVERSITY – CORVALLIS AGE OF BUILDING/RENOVATION (N=528)



OREGON STATE UNIVERSITY – CORVALLIS AGE OF BUILDING/RENOVATION (N=325)



OREGON STATE UNIVERSITY – CORVALLIS ASF BY SPACE CATEGORY



OREGON STATE UNIVERSITY – CORVALLIS SPACE ANALYSIS

The Fall 2018 term use of scheduled teaching space on the Oregon State University - Corvallis campus was analyzed to determine if additional capacity is available in existing space. Campus space needs for academic and academic support space were analyzed for the Fall 2018 term to compare existing space use with the space guidelines established for this study. The guidelines were then applied to two future enrollment projection scenarios to determine the quantity of space needed and how the need compares to the quantity and type of space available on campus.

FALL 2018 SCHEDULED TEACHING SPACE UTILIZATION

CLASSROOM UTILIZATION

There are 298 scheduled classrooms on the OSU - Corvallis campus, with a total of 15,645 student stations (seats in the classroom). During the Fall 2018 term, the classrooms were scheduled, on average, 21 hours per week with 62% of the seats in the classroom filled. The classrooms are located in 62 buildings. The following chart indicates the scheduled use of the classrooms in each building.

CLASSROOM UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Agricultural & Life Sciences Bldg	*0079*	6	968	17	23	6.5	16	44%
Asian & Pacific Cultural Center	*0826*	1	1,002	20	35	2.9	4	70%
Austin Hall	*0090*	10	1,486	25	46	21.4	32	71%
Batcheller Hall	*0009*	3	765	18	29	11.6	17	70%
Beth Ray Center For Academic Support	*0206*	2	638	23	22	13.2	17	78%
Bexell Hall	*0018*	14	862	24	25	16.5	24	62%
Burt Hall	*0068*	2	730	19	17	2.7	7	36%
Callahan Hall	*0192*	1	673	23	11	1.5	4	38%
Cascade Hall	*0058*	7	630	4	3	11.0	2	76%
Centro Cultural Cesar Chavez	*0813*	1	984	20	15	0.6	2	30%
Community Hall	*0027*	6	924	17	13	6.9	20	29%
Cordley Hall	*0073*	4	1,376	17	74	13.3	17	66%
Covell Hall	*0007*	3	1,043	12	59	21.6	27	69%
Crop Science Building	*0080*	3	1,013	16	21	14.1	14	73%
Dearborn Hall	*0011*	1	1,738	10	107	27.6	43	64%
Dixon Recreation Center	*0145*	2	1,002	33	20	5.7	9	61%
Dryden Hall	*0151*	2	465	17	14	1.5	3	57%
Fairbanks Hall	*0087*	4	501	18	21	11.3	16	71%
Gilbert Hall	*0015*	3	647	18	8	1.5	3	33%
Gilbert Hall Addition	*0012*	1	658	15	28	13.2	21	63%
Gilkey Hall	*0037*	5	514	18	21	23.9	33	74%
Gilmore Annex	*0091*	1	332	18	5	0.3	1	28%
Gilmore Hall	*0084*	1	767	19	27	11.8	22	55%
Gleeson Hall	*0016*	2	1,035	15	36	15.7	27	57%
Harris Black Cultural Center	*0835*	1	985	20	16	0.6	2	32%
Heckart Lodge	*0116*	1	698	19	20	4.5	8	54%
Hovland Hall	*0092*	2	474	15	19	10.3	15	65%
International Living Learning Center	*0207*	27	510	19	18	16.7	26	68%
James E. Oldfield Animal Teaching Facility	*0364*	2	1,136	35	19	10.2	21	48%
Johnson Hall	*0008*	2	1,945	23	44	17.6	21	60%
Joyce Collin Furman Hall	*0028*	6	1,025	18	34	16.4	24	57%
Kearney Hall	*0001*	7	1,128	21	40	21.5	28	67%
Kelley Engineering Center	*0003*	3	1,213	22	34	16.3	23	61%
Kidder Hall	*0034*	13	714	13	23	19.0	18	65%
Langton Hall	*0105*	2	922	27	15	9.5	21	50%
Learning Innovation Center	*0023*	15	2,430	23	92	21.1	31	68%
Linus Pauling Science Center	*0071*	2	1,588	17	66	31.4	21	86%
Magruder Hall	*0153*	3	1,308	19	64	13.8	15	95%
McAlexander Fieldhouse	*0053*	4	699	26	12	2.3	5	40%
Milam Hall	*0081*	17	1,077	19	37	10.7	22	61%
Moreland Hall	*0106*	8	603	20	20	22.0	32	64%
Nash Hall	*0021*	6	844	17	22	7.6	16	43%
Native American Longhouse Eena Haws	*0085*	1	1,509	20	27	0.7	2	36%
Navy ROTC Armory	*0117*	5	456	13	9	2.6	4	57%

CLASSROOM UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018 (CONT.)

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Owen Hall	*0022*	5	961	14	47	16.4	23	65%
Pharmacy	*0030*	3	872	19	39	19.1	22	61%
Poling Hall	*0112*	1	1,490	30	32	13.0	20	65%
Portland Center - Meier & Frank	*2108*	4	1,008	17	7	0.7	2	27%
Radiation Center	*0098*	2	583	15	14	3.8	9	39%
Reed Lodge	*0118*	1	217	20	8	4.2	5	81%
Richardson Hall	*0148*	2	1,172	22	19	7.6	22	35%
Rogers Hall	*0019*	4	886	22	25	14.7	24	60%
Shepard Hall	*0014*	3	492	15	22	18.9	28	69%
Strand Agriculture Hall	*0038*	21	829	22	19	15.1	23	62%
The Valley Library	*0036*	1	2,833	35	22	0.8	3	27%
Waldo Hall	*0102*	7	524	15	14	9.2	21	42%
Weatherford Hall	*0109*	1	843	21	25	14.0	21	68%
Weniger Hall	*0017*	12	1,114	16	40	19.6	23	64%
Wiegand Hall	*0128*	4	1,222	15	49	10.4	18	50%
Wilkinson Hall	*0070*	9	1,161	20	41	16.5	17	60%
Withycombe Hall	*0075*	4	1,548	16	48	12.6	18	47%
Women's Building	*0086*	2	722	19	15	7.8	20	37%
Total No. of Rooms = 298	**AVERAGE**		**972**	**18.5** *	**31**	**15.3**	**21**	**62%**
Total No. of Stations = 15645	**Total ASF**		**289,521**					

At 15.3 weekly hours of use for each classroom seat, the utilization does not meet the guideline of 24 weekly seat hours, 36 weekly room hours, and 67% student station occupancy.

The greatest number of classrooms in use at any one time was 204 on Tuesday and Wednesday at 2:00, as indicated in the following chart. Classroom use is generally higher mid-day Monday through Thursday with a greater utilization than typical on Friday.

SCHEDULED CLASSROOM USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	89	30%	127	43%	96	32%	131	44%	122	41%	113	38%
9:00 AM	161	54%	165	55%	173	58%	189	63%	180	60%	174	58%
10:00 AM	165	55%	191	64%	189	63%	191	64%	165	55%	180	60%
11:00 AM	149	50%	174	58%	194	65%	184	62%	159	53%	172	58%
12:00 PM	158	53%	183	61%	160	54%	178	60%	82	28%	152	51%
1:00 PM	170	57%	185	62%	182	61%	181	61%	84	28%	160	54%
2:00 PM	162	54%	198	66%	182	61%	186	62%	84	28%	162	54%
3:00 PM	166	56%	188	63%	178	60%	176	59%	87	29%	159	53%
4:00 PM	115	39%	141	47%	110	37%	139	47%	52	17%	111	37%
5:00 PM	72	24%	106	36%	81	27%	100	34%	15	5%	75	25%
6:00 PM	31	10%	84	28%	40	13%	90	30%	3	1%	50	17%
7:00 PM	27	9%	76	26%	21	7%	80	27%	0	0%	41	14%

Total classrooms = 298

TEACHING LAB UTILIZATION

There are 119 scheduled teaching laboratories on the OSU - Corvallis campus, with a total of 3,938 student stations. During the Fall 2018 term, the labs were scheduled, on average, 15 hours per week with 63% of the stations occupied. The labs are located in 36 buildings. The following chart indicates the scheduled use of the teaching labs in each building.

TEACHING LABORATORY UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Agricultural & Life Sciences Bldg	*0079*	3	892	31	17	7.7	13	59%
Austin Hall	*0090*	2	1,244	24	36	13.0	18	77%
Batcheller Hall	*0009*	1	1,130	35	23	19.3	27	72%
Bexell Hall	*0018*	1	1,014	32	24	4.5	5	90%
Burt Hall	*0068*	1	474	17	8	3.5	13	27%
Cascade Hall	*0058*	2	847	27	9	9.9	6	85%
Community Hall	*0027*	1	779	65	8	14.4	22	66%
Cordley Hall	*0073*	11	1,039	38	19	11.0	14	79%
Dearborn Hall	*0011*	7	1,229	22	16	16.6	20	58%
Fairbanks Hall	*0087*	6	1,110	40	18	10.9	16	72%
Gilbert Hall Addition	*0012*	5	3,754	21	17	8.8	11	39%
Graf Hall	*0006*	3	997	27	16	4.8	11	47%
International Living Learning Center	*0207*	2	477	20	14	4.1	6	65%
James E. Oldfield Animal Teaching Facility	*0364*	3	546	14	5	7.1	5	47%
Johnson Hall	*0008*	1	1,249	39	22	18.3	27	68%
Joyce Collin Furman Hall	*0028*	1	938	19	21	9.7	24	40%
Kidder Hall	*0034*	2	1,296	41	19	18.5	31	60%
Langton Hall	*0105*	3	1,138	24	10	14.1	20	44%
Linus Pauling Science Center	*0071*	4	1,342	20	23	13.9	41	34%
Magruder Hall	*0153*	5	920	13	40	7.4	5	96%
Merryfield Hall	*0002*	1	2,275	57	19	6.6	14	47%
Milam Hall	*0081*	5	1,155	23	13	5.6	9	58%
Milne Computer Center	*0020*	1	555	28	18	8.4	9	92%
Nash Hall	*0021*	2	1,558	13	21	14.6	11	68%
Owen Hall	*0022*	2	1,239	28	33	16.0	22	71%
Pharmacy	*0030*	1	1,189	20	23	9.1	24	38%
Reed Lodge	*0118*	1	510	20	16	6.9	12	58%
Richardson Hall	*0148*	3	790	24	10	4.8	15	29%
Rogers Hall	*0019*	5	1,383	30	18	8.5	19	61%
Snell Hall	*0100*	8	958	9	3	5.1	3	39%
Vet Horse Barn (Pole Bldg)	*0155*	2	1,465	18	28	2.9	2	97%
Waldo Hall	*0102*	1	526	26	0	0.0	0	0%
Weniger Hall	*0017*	15	1,085	28	25	22.9	21	89%
Wiegand Hall	*0128*	2	829	41	5	0.7	2	42%
Wilkinson Hall	*0070*	2	727	15	9	13.0	12	54%
Withycombe Hall	*0075*	4	2,011	16	9	1.3	9	53%
Total No. of Rooms = 119 *Total No. of Stations = 3938*		**AVERAGE** **Total ASF**	**1,203** **143,203**	**36.4** *	**18**	**10.4**	**15**	**63%**

At 15 hours per week of student station occupancy, the utilization does not meet the guideline of 19 weekly seat hours, 24 weekly room hours. The average student station occupancy of 63% when the room is scheduled is below the 80% expectation.

Labs are scheduled primarily on Tuesday, Wednesday, Thursday, with higher than typical use on Friday as indicated in the chart below.

SCHEDULED TEACHING LABORATORY USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	4	3%	24	20%	8	7%	22	18%	20	17%	16	13%
9:00 AM	19	16%	43	36%	28	24%	44	37%	39	33%	35	29%
10:00 AM	25	21%	56	47%	36	30%	54	45%	34	29%	41	34%
11:00 AM	26	22%	57	48%	45	38%	55	46%	33	28%	43	36%
12:00 PM	29	24%	50	42%	41	34%	48	40%	20	17%	38	32%
1:00 PM	36	30%	52	44%	55	46%	51	43%	21	18%	43	36%
2:00 PM	39	33%	58	49%	54	45%	62	52%	22	18%	47	39%
3:00 PM	38	32%	54	45%	52	44%	58	49%	20	17%	44	37%
4:00 PM	25	21%	38	32%	39	33%	45	38%	11	9%	32	27%
5:00 PM	18	15%	27	23%	24	20%	29	24%	7	6%	21	18%
6:00 PM	15	13%	17	14%	14	12%	12	10%	2	2%	12	10%
7:00 PM	14	12%	16	13%	13	11%	10	8%	2	2%	11	9%

Total laboratories = 119

CAMPUS SPACE NEEDS

Existing space on campus is organized into three categories as follows:

- Academic Space—classrooms, teaching labs, open labs
- Academic Support Space—offices, library and collaborative learning, assembly and exhibit, physical plant, other department space
- Inactive/Conversion Space—space currently in renovation or not usable for some other reason

In the Fall 2018 term, Oregon State University had a surplus of 499,254 ASF of usable space plus 75,608 ASF of inactive/conversion space, as indicated in the chart below. Engineering, a growing program on campus, has expressed a need for makerspace and capstone project space, which is reflected in the deficit in open labs. There is also a desire for smaller course sections, indicating that the surplus in classroom space could be used to reconfigure classrooms for new pedagogy.

SPACE NEEDS ANALYSIS - BASE YEAR, FALL 2018

	2018 *Student FTE = 23,247*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	304,313	215,313	89,000	29%
Teaching Laboratories & Service	193,678	156,944	36,734	19%
Open Laboratories & Service	72,157	170,947	(98,790)	(137%)
Academic Space Subtotal	*570,148*	*543,204*	*26,944*	*5%*
Academic Support Space				
Offices & Service	1,206,588	891,405	315,183	26%
Library & Collaborative Learning Space	254,243	418,446	(164,203)	(65%)
Assembly & Exhibit	93,472	136,932	(43,460)	(46%)
Physical Plant	370,109	227,795	142,314	38%
Other Department Space	710,896	488,420	222,476	31%
Academic Support Space Subtotal	*2,635,308*	*2,162,998*	*472,310*	*18%*
CAMPUS TOTAL	**3,205,456**	**2,706,202**	**499,254**	**16%**

The campus enrollment projection of 28,414 student FTE in 2029 yields a total space need of 3,058,321 ASF. Current total academic and academic support space on campus of 3,281,064 ASF meets this need. However, the surplus space may be in locations not appropriate for high growth programs such as engineering, computer and information sciences, natural resources and conservation, and health professions. Repurposing or replacement of existing space may be required.

SPACE NEEDS ANALYSIS, CAMPUS ENROLLMENT PROJECTIONS - TARGET YEAR, FALL 2029

Space Category	Campus Projections *Student FTE = 28,414* Existing ASF	Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)
Academic Space				
Classroom & Service	304,313	259,842	44,471	15%
Teaching Laboratories & Service	193,678	188,047	5,631	3%
Open Laboratories & Service	72,157	197,827	(125,670)	(174%)
Academic Space Subtotal	*570,148*	*645,716*	*(75,568)*	*(13%)*
Academic Support Space				
Offices & Service	1,206,588	982,785	223,803	19%
Library & Collaborative Learning Space	254,243	511,452	(257,209)	(101%)
Assembly & Exhibit	93,472	167,934	(74,462)	(80%)
Physical Plant	370,109	185,214	184,895	50%
Other Department Space	710,896	565,220	145,676	20%
Academic Support Space Subtotal	*2,635,308*	*2,412,605*	*222,703*	*8%*
CAMPUS TOTAL	**3,205,456**	**3,058,321**	**147,135**	**5%**

The NCHEMS student flow model enrollment projection of 23,943 student FTE in 2029 yields a total space need of 2,676,156 ASF. Open lab and collaborative learning space needs are significant.

SPACE NEEDS ANALYSIS , NCHEMS STUDENT FLOW MODEL - TARGET YEAR, FALL 2029

	NCHEMS Flow *Student FTE = 23,943*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	304,313	219,073	85,240	28%
Teaching Laboratories & Service	193,678	157,766	35,912	19%
Open Laboratories & Service	72,157	176,064	(103,907)	(144%)
Academic Space Subtotal	*570,148*	*552,903*	*17,245*	*3%*
Academic Support Space				
Offices & Service	1,206,588	891,405	315,183	26%
Library & Collaborative Learning Space	254,243	430,974	(176,731)	(70%)
Assembly & Exhibit	93,472	141,108	(47,636)	(51%)
Physical Plant	370,109	156,726	213,383	58%
Other Department Space	710,896	503,040	207,856	29%
Academic Support Space Subtotal	*2,635,308*	*2,123,253*	*512,055*	*19%*
CAMPUS TOTAL	**3,205,456**	**2,676,156**	**529,300**	**17%**

Academic program completions were analyzed to determine if there would be a significant difference in the type of academic space Oregon State University will need in the future as compared to the current space mix. The change in the number of completions between 2010 and 2017, as indicated in the IPEDS summary chart below, was compared to the change in projected enrollment to 2029. During the study period, OSU completions increased by 52%. The enrollment projection from the University is a 22 percent increase and the NCHEMS student flow model projects an increase of 3 percent.

Programs that have seen significant increases in completions during the study period include IPEDS categories: Ethnic Studies (150%), Computer and Information Sciences (506%), Communication, Journalism, and Related Studies (172%), Social Sciences (96%), Physical Sciences (79%), and Engineering (74%). The 2018 space needs analysis indicates a surplus of teaching lab space and a significant deficit in open lab space, highlighting that teaching labs are likely under-scheduled in order to be used as open labs. The teaching lab surplus is also not evenly distributed. Engineering teaching lab space has a 22% deficit and engineering open lab space is in deficit by 137%. Earth, Ocean, and Atmospheric Sciences has a 148% deficit in teaching lab space.

Overall academic lab space is in deficit by 62,056 ASF. In addition to construction of new space, reconfiguration or replacement of existing lab space will be needed to align with individual discipline teaching and open lab needs and to provide labs in appropriate locations on campus.

PROGRAM COMPLETION RATES

Institution Name: Oregon State University (UnitID: 209542)

	2010	2011	2012	2013	2014	2015	2016	2017	Line
Agriculture Agriculture Operations and Related Sciences	263	243	254	337	360	377	414	397	
Natural Resources and Conservation	257	279	337	341	422	415	388	433	
Area Ethnic Cultural Gender and Group Studies	14	9	20	22	22	20	20	35	
Communication Journalism and Related Programs		64	70	65	86	135	161	174	
Computer and Information Sciences and Support Services	98	100	108	142	192	270	359	594	
Education	267	306	272	246	233	225	265	236	
Engineering	666	687	811	778	913	937	1037	1162	
Foreign Languages Literatures and Linguistics	36	43	32	28	38	25	25	21	
Family and Consumer Sciences/Human Sciences	377	385	452	479	530	491	541	479	
English Language and Literature/Letters	154	70	85	78	102	81	76	73	
Liberal Arts and Sciences General Studies and Humanities	188	190	240	185	176	135	93	75	
Biological and Biomedical Sciences	255	249	281	285	363	347	369	419	
Mathematics and Statistics	59	62	59	64	64	76	98	92	
Multi/Interdisciplinary Studies	173	178	177	186	200	123	106	88	
Parks Recreation Leisure and Fitness Studies	181	196	175	237	225	283	306	301	
Philosophy and Religious Studies	15	19	13	12	9	16	6	13	
Physical Sciences	118	113	126	142	150	162	171	174	
Psychology	114	107	129	157	137	179	193	194	
Public Administration and Social Service Professions	22	16	18	25	26	34	25	22	
Social Sciences	196	192	251	281	329	358	365	385	
Visual and Performing Arts	122	107	131	100	84	88	84	97	
Health Professions and Related Programs	299	310	375	428	469	528	556	555	
Business Management Marketing and Related Support Services	557	554	581	581	702	667	675	739	
History	59	59	58	57	59	53	54	49	
Total	4,490	4,538	5,055	5,256	5,891	6,025	6,387	6,807	

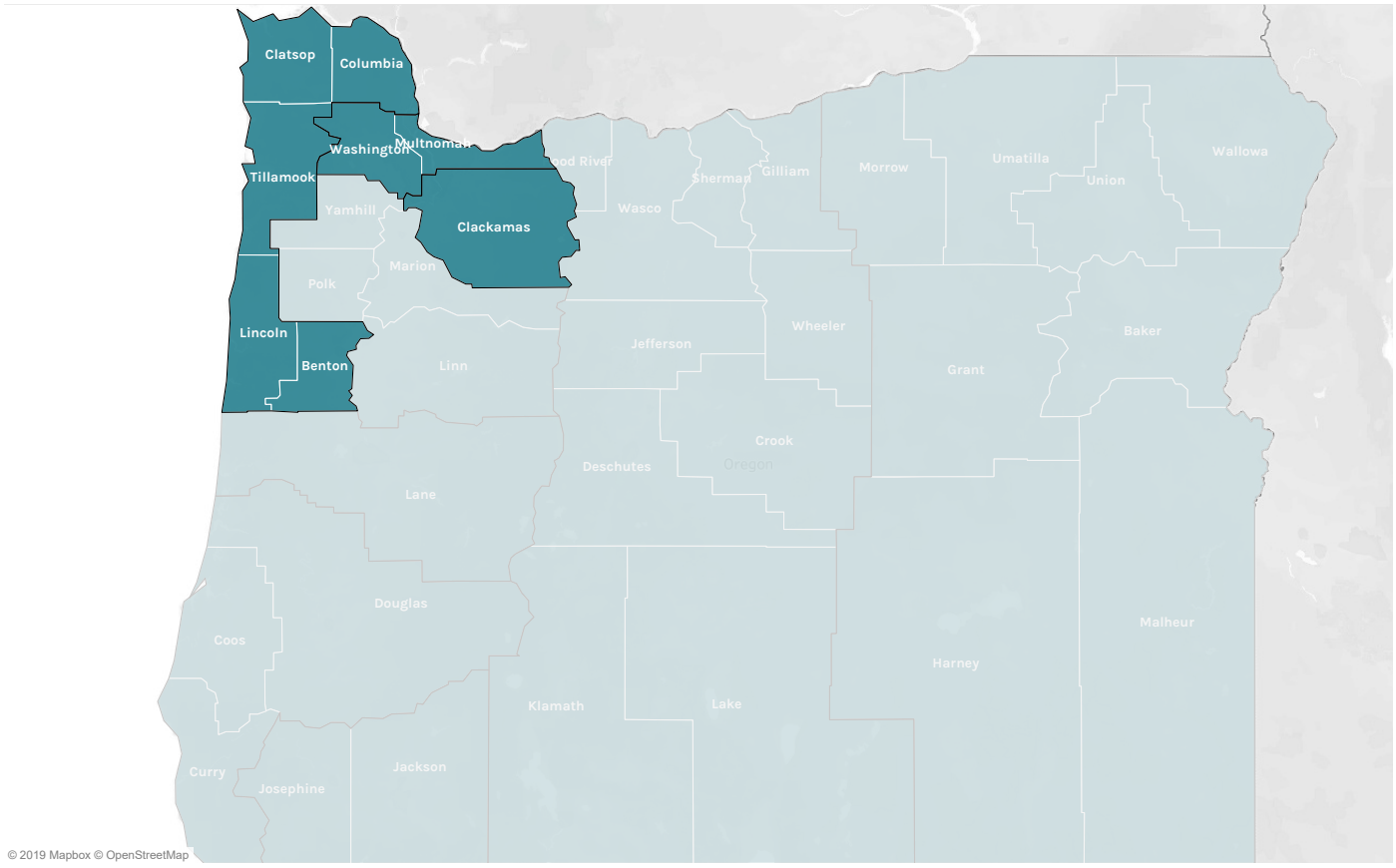
SECTION 6

PORTLAND STATE UNIVERSITY

PORTLAND STATE UNIVERSITY
ENROLLMENT & WORKFORCE DEMAND ANALYSIS

PSU's primary service region (Figure 1) is comprised of the geographic areas covered by the Portland Metro Workforce Development Board, Clackamas Workforce Partnership, and the Northwest Oregon Works. These two Workforce Investment Areas include the following counties: Clackamas, Clatsop, Columbia, Lincoln, Multnomah, Tillamook, and Washington.

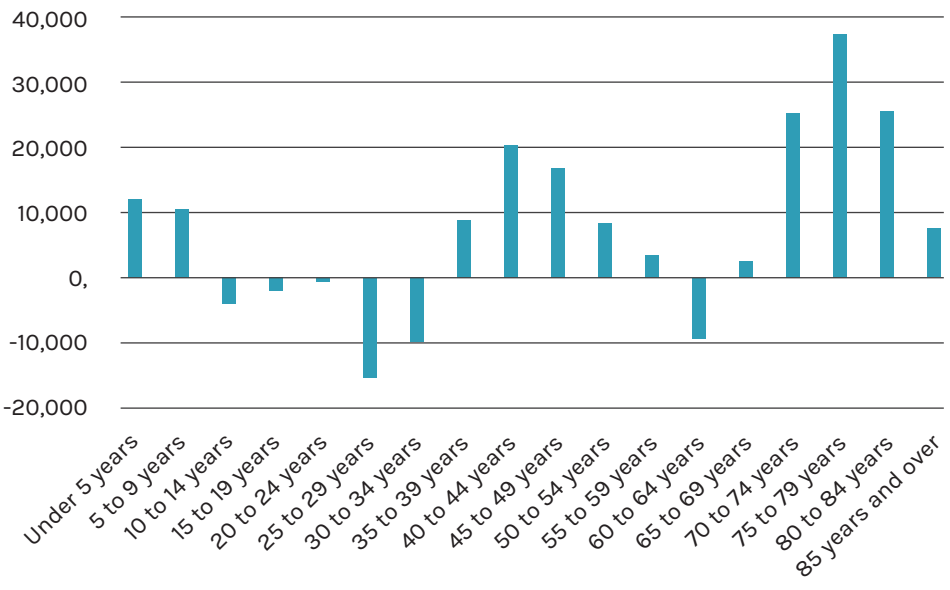
FIGURE 1. PORTLAND STATE UNIVERSITY PRIMARY SERVICE REGION



POPULATION

Between 2010 and 2018, the population in the counties that comprise the primary service area grew for PSU grew by 206,000, or about 1.43 percent per year[1]. Population growth was evident across nearly every age band over that period, most prominently among Oregonians over 70 years of age. But increases also occurred among those in the prime working age range and among children. Population change was more negative in the ranges leading up to and through college and early adulthood (Figure 2).

FIGURE 2. CHANGE BETWEEN 2010-2018 IN PSU PRIMARY SERVICE AREA COUNTIES BY AGE

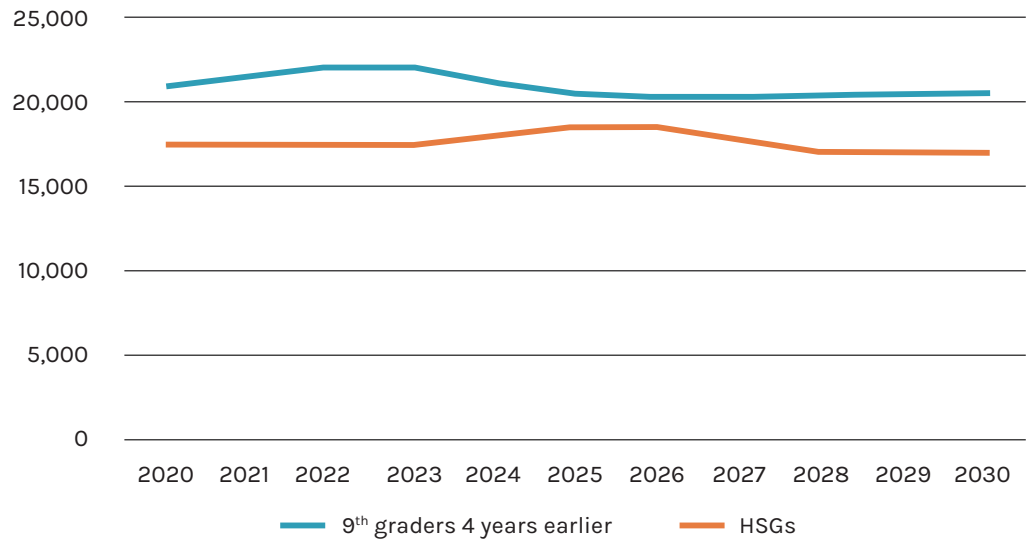


Source: EMSI, 2019.

1 Portland State University, Population Research Center.

Population growth between 2020 and 2030 is expected to be robust among those over 25 especially. Projections of high school and the traditionally college age is less bullish; and the number of ninth graders and high school graduates is expected to climb initially before tapering off (Figure 3).

FIGURE 3. PROJECTED NINTH GRADERS AND HIGH SCHOOL GRADUATES



Sources: WICHE, NCES CCD, oregonlive.com.

ENROLLMENT PROJECTIONS AND PATTERNS

Situated as it is in a major city along the Oregon-Washington border, PSU attracts just over one-third of its entering class from out-of-state. About 18 percent of PSU's non-residents in 2016–17 crossed over the river from Washington and about 34 percent making the trek from California.[2]

Among Oregon residents, however, PSU draws the vast bulk of its students from in and around Portland: Multnomah, Washington, and Clackamas counties collectively account for eight of 10 Oregonians attending PSU. (Figure 4). The size of the contingent from those counties also reflects their relatively large population, but PSU is a major access point for postsecondary education for counties throughout the northwestern part of the state; in fact, about 85 percent of all the residents enrolled in Oregon's public four-year institutions from Sherman County attend PSU.

In addition to its first-time students, PSU also draws a sizeable number of transfer students from institutions nearby, especially the community colleges in Portland, Clackamas, Hood River, as well as students transferring in from institutions outside of Oregon (Table 1).

TABLE 1. FALL 2018 TRANSFER STUDENT INSTITUTION OF ORIGIN

Community Colleges	
Portland Community College	3407
Mount Hood Community College	695
Clackamas Community College	653
Chemeketa Community College	319
Lane Community College	179
Central Oregon Community College	115
Linn-Benton Community College	91
Rogue Community College	57
Umpqua Community College	38
Clatsop Community College	38
Southwestern Oregon Community College	33
Columbia Gorge Community College	33
Blue Mountain Community College	32
Klamath Community College	13

Other Oregon 4-Year Institutions	
Oregon State University	298
University of Oregon	216
Southern Oregon University	82
Western Oregon University	64
Oregon Institute of Technology	19
Eastern Oregon University	13

Other or Unknown	
Other U.S. college or university	2740
Unknown	1036
Oregon independent college or university	272
Foreign College or university	243

2 NCES IPEDS.

FIGURE 4. SHARE OF RESIDENT UNDERGRADUATE ENROLLMENT BY COUNTY

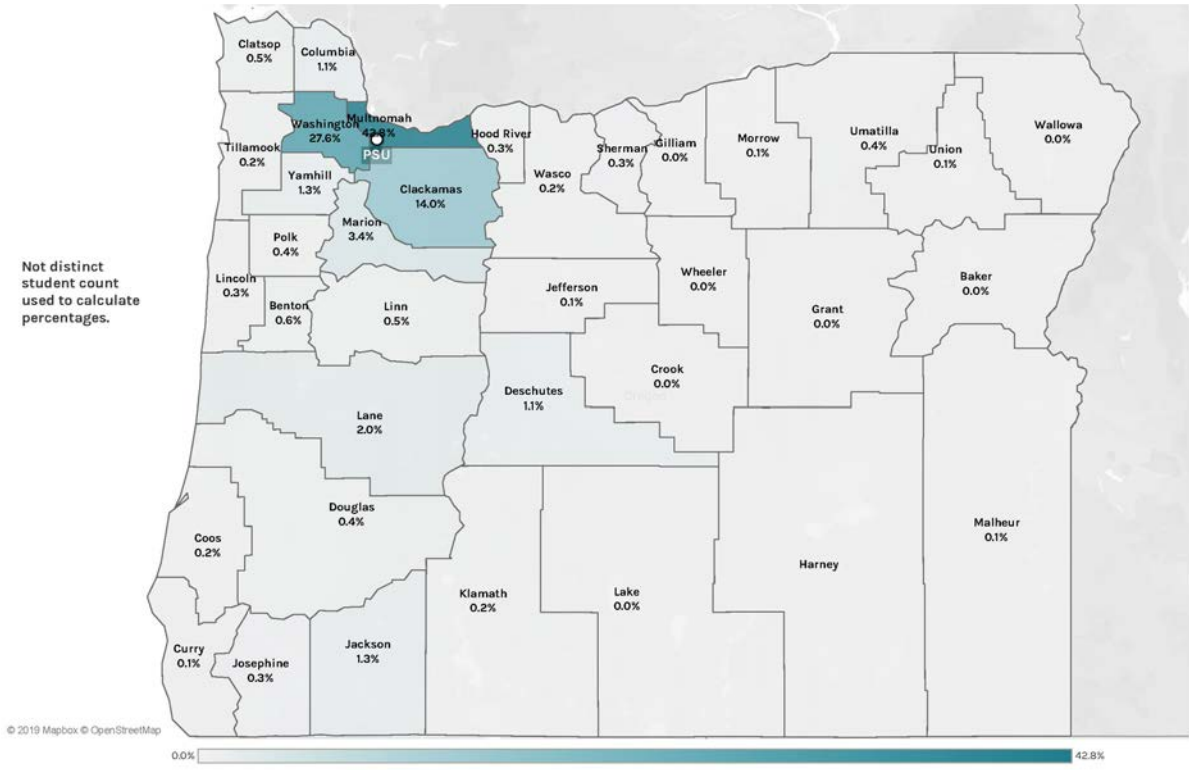
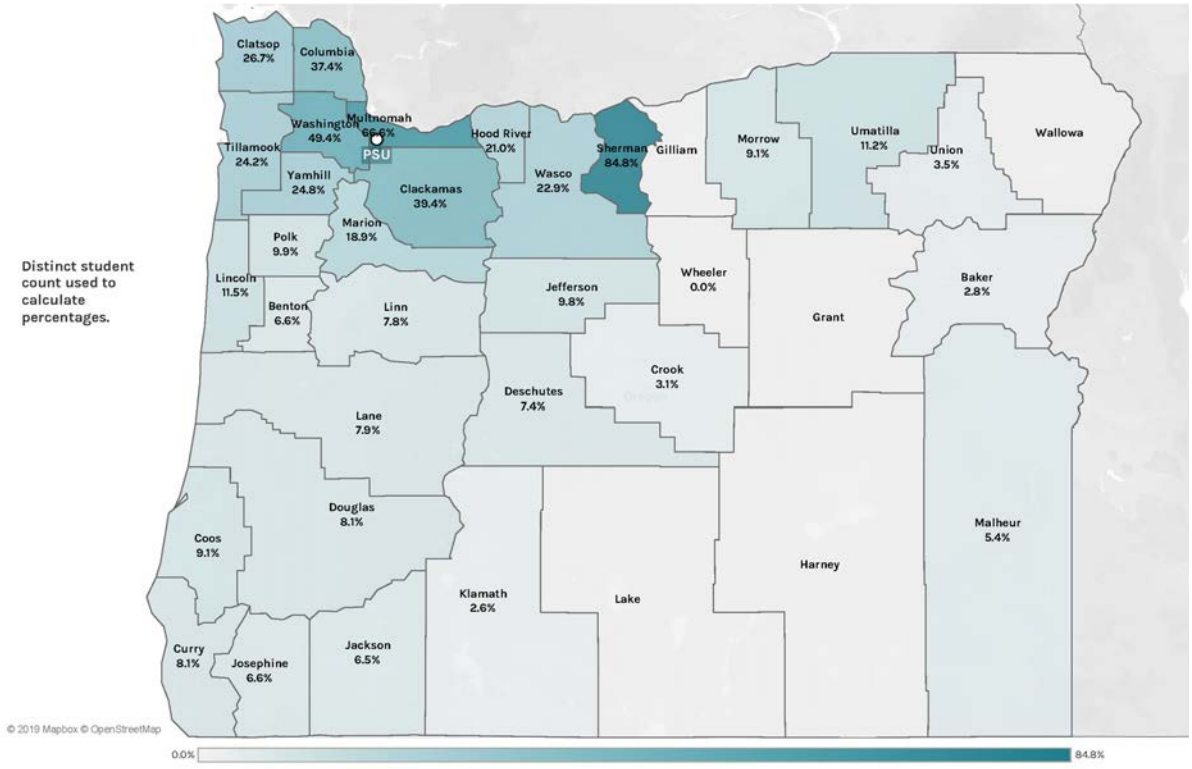


FIGURE 5. SHARE OF COLLEGE-GOING STUDENTS FROM EACH COUNTY ATTENDING PSU



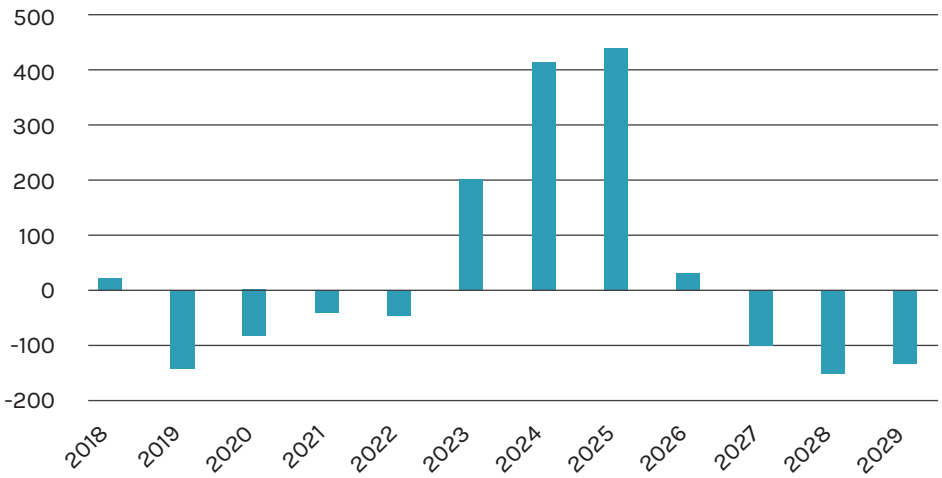
PROJECTING CAPACITY NEEDS DUE TO ENROLLMENT

To assess the likely need for space caused by undergraduate enrollment demand, NCHEMS modeled enrollment projections for each of Oregon's public four-year institutions based on the following assumptions:

- Ratio of high school graduates to 9th graders[3]
- College-going rate of recent high school graduates to enrollment at an Oregon public four-year institution[4]
- Participation rate per 100,000 population of 20–49 year olds enrolling for the first-time at an Oregon public four-year institution[5]
- Enrollment of first-time students from out-of-state[6]
- Ratio of transfer students from public two-year to public four-year institutions to the total enrollment of public two-year institutions[7]
- Retention and completion rates[8] remain steady
- Projected population changes for each institution's designated service areas[9]
- County-of-origin of undergraduate enrollment[10]
- The current proportional mix on on-campus and online students remains constant

This modeling suggests that, assuming trends continue indefinitely, PSU will see enrollment hold relatively steady over the coming decade, with modest declines over the first half followed by an upward bump in undergraduate FTEs reaching over additional 400 by 2025–26—a boost only amounting to a bit over two percent of total 2017–18 levels—before it falls back (Figure 6).

FIGURE 6. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017

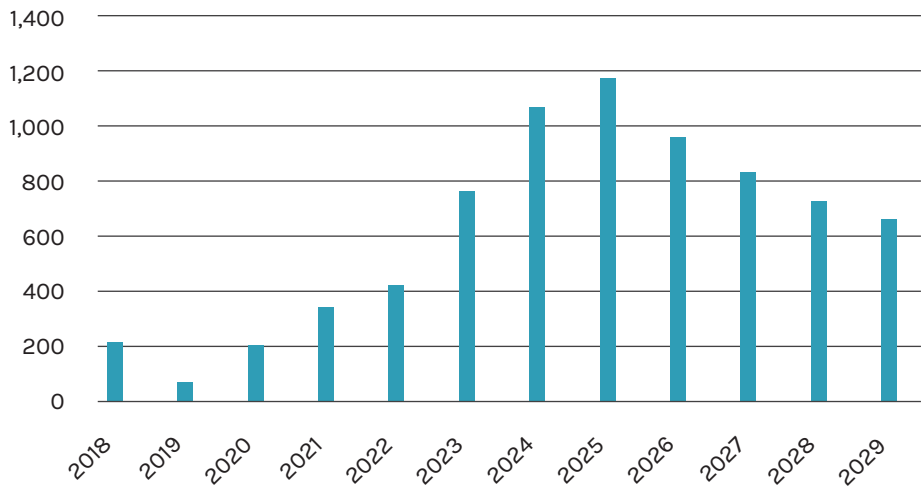


Note: Data shows the difference between the expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect no assumed changes in the most recent data for recruitment and retention.

3 NCES CCD, Western Interstate Commission for Higher Education, *Knocking at the College Door*, knocking.wiche.edu.
4 Enrollment by county (Oregon HECC), high school graduates (oregonlive.com), Residence and Migration (NCES IPEDS).
5 Enrollment by county (HECC), Residence and Migration (NCES IPEDS).
6 Enrollment of non-resident students (HECC), Residence and Migration (NCES IPEDS).
7 Oregon HECC.
8 NCES IPEDS.
9 Office of Economic Analysis, Oregon Department of Administrative Services.
10 Oregon HECC.

Under more optimistic assumptions in which PSU boosts its recruitment and retention of students by five percent across the board, NCHEMS' model would still only yield enrollment increases equivalent to about seven percent of 2017–18 levels, with increases peaking at about 1,200 additional FTEs in 2025–26. (Figure 7).

FIGURE 7. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017, ASSUMING A 5% INCREASE IN RECRUITMENT AND RETENTION MEASURES



Note: Data shows the difference between expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect a 5% increase in each of the recruitment measures for different student categories—in-state students, out-of-state students, and transfer students—as well as retention rates from the first- to the second year. No change in the high school graduation rate is assumed.

Neither the default forecast nor the optimistic one should require additional physical space to accommodate the anticipated change in enrollment demand, especially given the extent to which anticipated peak years are quickly followed by softening enrollment.

In order for PSU to reach its on-campus enrollment forecast for 2029, which would require it to enroll about 1,350 additional FTEs in 2029, NCHEMS' model assumes that it would have to improve its recruitment and retention by about seven percent across the board.

ECONOMY AND WORKFORCE NEEDS

The largest industries likely to hire a significant number of college graduates in the PSU service area are

- Professional & business services
- Education and health services
- Government
- Finance

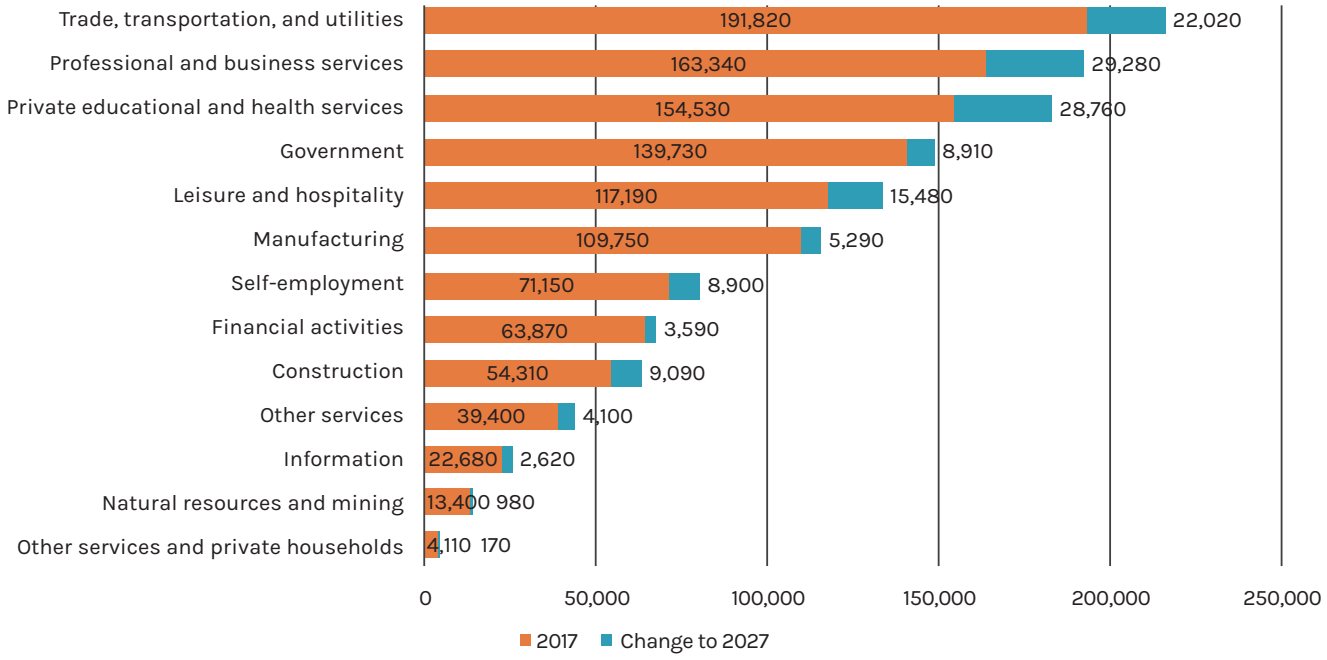
Relative to other industries, the information industry is small. Nevertheless, in absolute numbers, it is a much larger industry in the Portland area than in other parts of the state (Figure 1).

The projected numbers of annual openings for occupations requiring a college degree are highest in management (plus business and financial operations), education, healthcare practitioners, and computing. There are fewer, but still significant, projected openings for engineers (Figure 2). The projected growth is consistent with this list, but on a different order:

- Management (plus business and financial operations)
- Healthcare practitioners
- Computing
- Education
- Engineering

The Emsi data reinforce these findings, doubling down on the importance of business with all its variations—accounting, finance, marketing, and computer services—as being the programs that need to produce more graduates to meet workforce needs (Figure 4, Table 1).

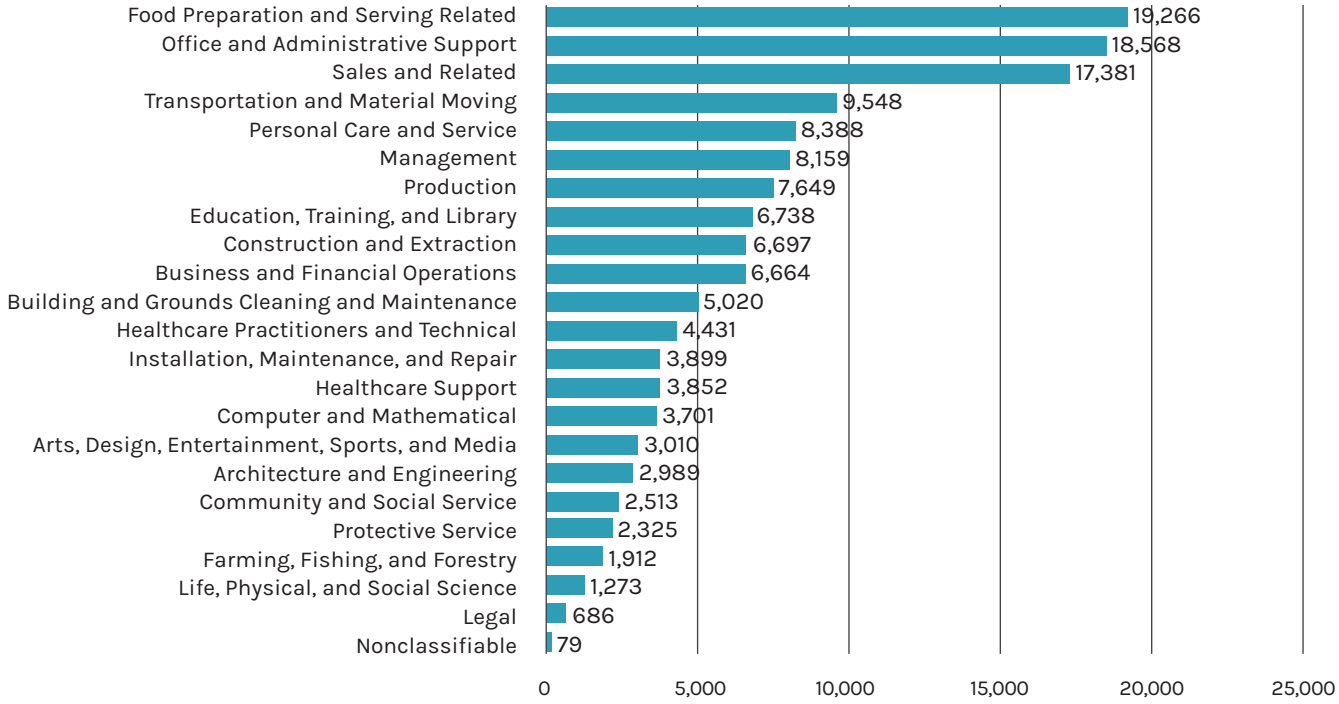
FIGURE 8. EMPLOYMENT GROWTH BY INDUSTRY, 2017–2027
PORTLAND STATE UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 9.

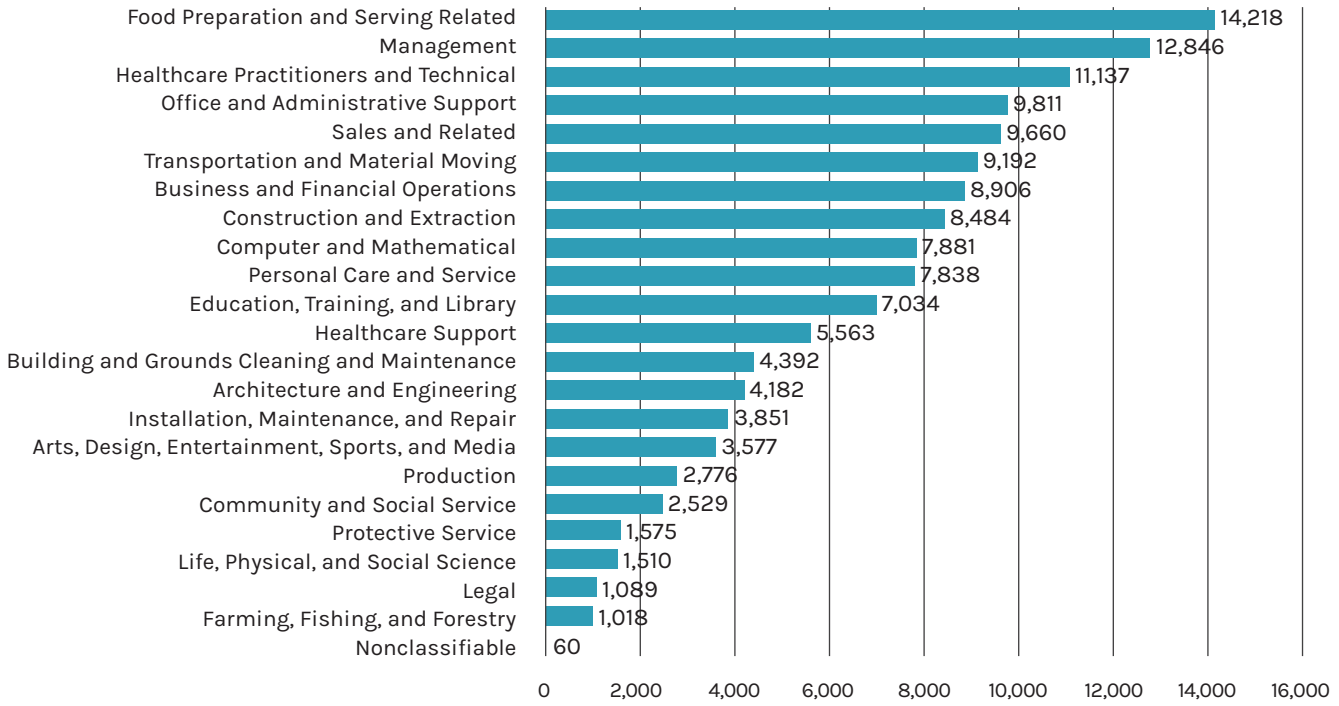
TOTAL ANNUAL OPENINGS BY OCCUPATION, 2017–2027, PORTLAND STATE UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

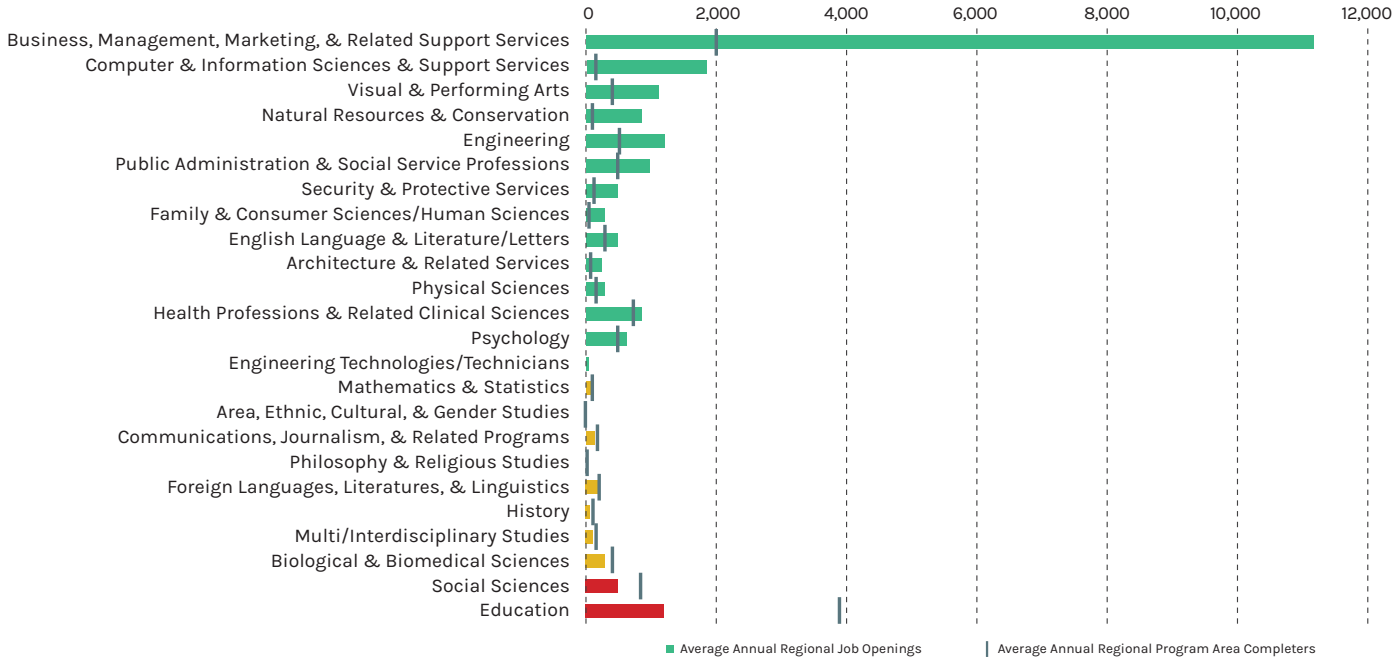
FIGURE 10.

GROWTH IN EMPLOYMENT BY OCCUPATION, 2017–2027, PORTLAND STATE UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 11. GAPS AT THE BACHELOR'S AND ABOVE DEGREE LEVEL (2-DIGIT CIP)



Source: EMSI, 2019.

FIGURE 12. PROGRAM ADDITIONS

Bachelor's degree level program additions

SOC Code	SOC Title	BACH Job Openings in the PSU Service Region	BACH Program Completers in the PSU Service Region	BACH Gap	Median Hourly Wage
29-1141	Registered Nurses	819	343	476	$44.62
17-2112	Industrial Engineers	181	1	180	$49.63
23-2011	Paralegals and Legal Assistants	163	1	162	$25.44
25-9099	Education, Training, and Library Workers, All Other	124	0	124	$17.75
27-1026	Merchandise Displayers and Window Trimmers	108	0	108	$13.93
27-1025	Interior Designers	69	1	68	$19.57
53-2011	Airline Pilots, Copilots, and Flight Engineers	60	0	60	$117.62
53-2031	Flight Attendants	31	0	31	$32.51
53-2012	Commercial Pilots	27	0	27	$23.95
41-3041	Travel Agents	25	0	25	$16.25
43-3061	Procurement Clerks	24	0	24	$20.62

Master's degree level program additions					
SOC Code	SOC Title	MAST Job Openings in the PSU Service Region	MAST Program Completers in the PSU Service Region	MAST Gap	Median Hourly Wage
29-1171	Nurse Practitioners	68	1	67	$58.51
29-1127	Speech-Language Pathologists	56	2	54	$42.39
29-1122	Occupational Therapists	43	0	43	$45.64
29-1129	Therapists, All Other	16	0	16	$19.23
29-1151	Nurse Anesthetists	7	0	7	$87.93
29-1161	Nurse Midwives	4	0	4	$52.39

Doctoral degree level program additions					
SOC Code	SOC Title	PHD Job Openings in the PSU Service Region	PHD Program Completers in the PSU Service Region	PHD Gap	Median Hourly Wage
29-1051	Pharmacists	74	5	69	$64.12
29-1123	Physical Therapists	56	3	53	$40.91
29-1021	Dentists, General	53	3	51	$76.37
29-1069	Physicians and Surgeons, All Other	135	101	34	$85.51
29-1011	Chiropractors	22	2	20	$31.48
29-1065	Pediatricians, General	11	0	11	$96.26

Source: EMSI, 2019.

Emsi data also point to unfulfilled demand in the region for a whole array of health and allied health professionals. With OHSU only a short distance away, there is no reason for PSU to develop programs that respond to these needs.

- The programs needed to respond to workforce needs in the Portland area are already in place at PSU, although some expansion of offerings, particularly in computer science to encompass data sciences and AI, would be warranted. There are no new programs required that would generate needs for specialized facilities.

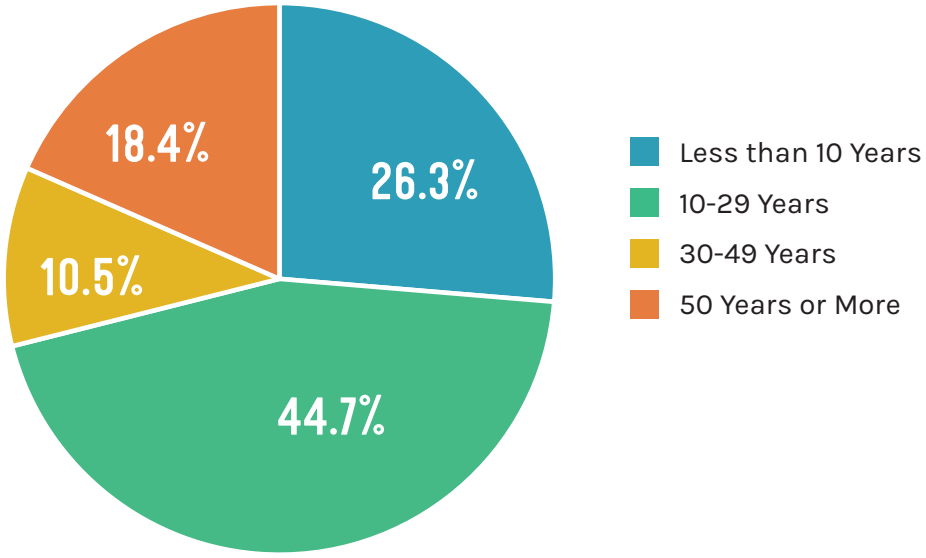
PORTLAND STATE UNIVERSITY FACILITIES INFORMATION

Fall 2018 facilities data for Portland State University is summarized below. Included is general information about the 38 buildings on campus: average age of the buildings, total floor area on campus, and replacement value. A pie chart highlights the percentage of buildings in each age category. A block diagram makes visible the proportion of space on campus in each space category.

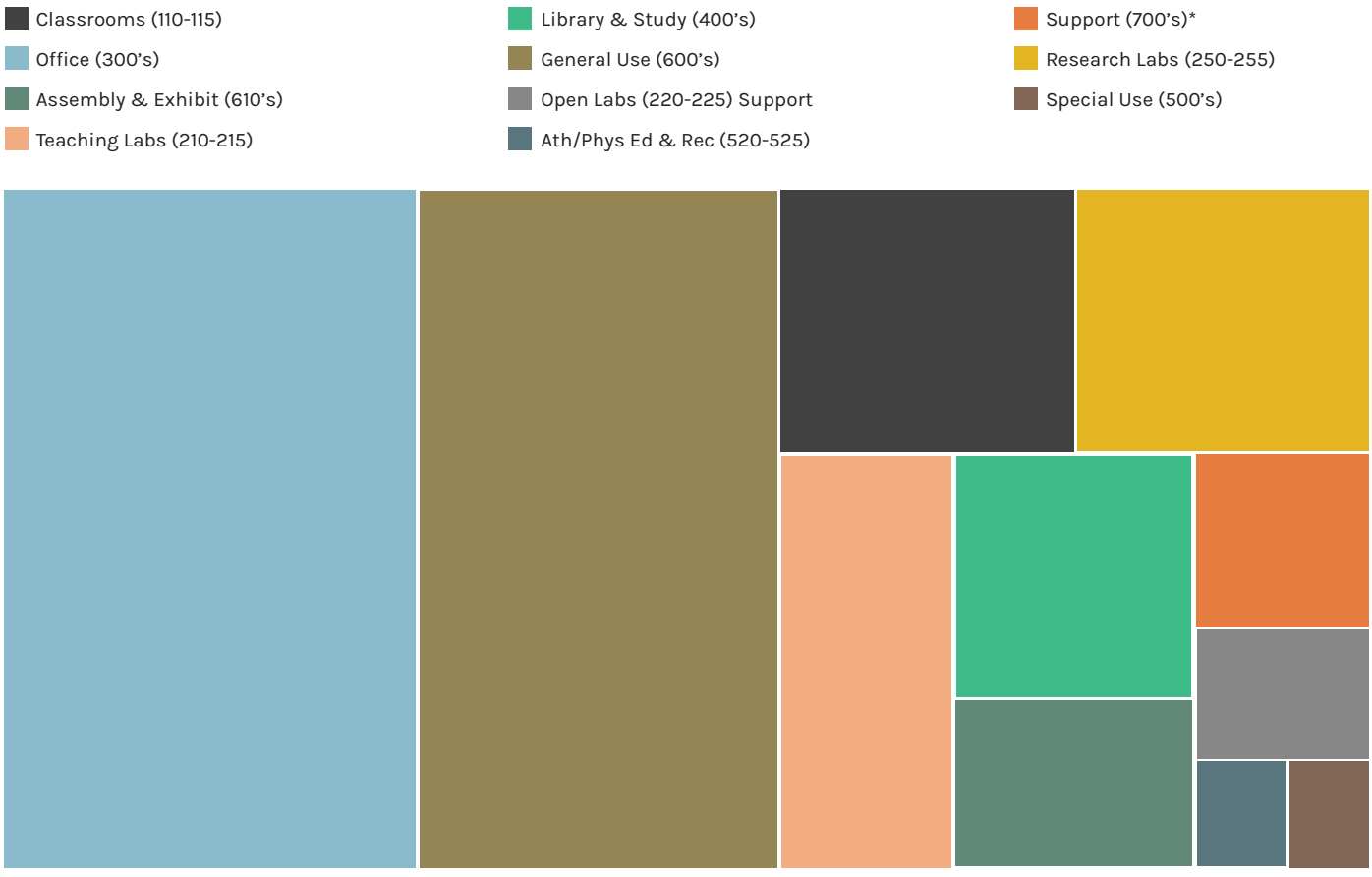
PORTLAND STATE UNIVERSITY	
Number of Buildings:	38
Number of Buildings with Age/Renovation Year:	38
Average Age of Building/Renovation:	28
Total Gross Square Feet:	3,973,240
Total Gross Square Feet for Buildings with Year:	3,973,240
Total Renovated Gross Square Feet:	2,985,589
Percentage Gross Square Feet Renovated:	75.1%
Number of Buildings Renovated:	19
Percentage of Buildings Renovated:	50.0%
Total Current Replacement Value of All PSU Buildings:	$1,612,655,535

Age Grouping of Buildings		
	Count	Percentage
Less than 10 Years Old	10	21.6%
10 to 29 Years Old	17	48.6%
30 to 49 Years Old	4	10.8%
50 Years Old or More	7	18.9%
Age Unknown	0	0.0%

PORTLAND STATE UNIVERSITY
AGE OF BUILDING/RENOVATION (N=37)



PORTLAND STATE UNIVERSITY ASF BY SPACE CATEGORY



PORTLAND STATE UNIVERSITY SPACE ANALYSIS

The Fall 2018 term use of scheduled teaching space on the Portland State University campus was analyzed to determine if additional capacity is available in existing space. Campus space needs for academic and academic support space were analyzed for the Fall 2018 term to compare existing space use with the space guidelines established for this study. The guidelines were then applied to two future enrollment projection scenarios to determine the quantity of space needed and how the need compares to the quantity and type of space available on campus.

FALL 2018 SCHEDULED TEACHING SPACE UTILIZATION

CLASSROOM UTILIZATION

There are 182 scheduled classrooms on the PSU campus, with a total of 8,756 student stations (seats in the classroom). During the Fall 2018 term, the classrooms were scheduled, on average, 28 hours per week with 63% of the seats in the classroom filled. The classrooms are located in 28 buildings. The following chart indicates the scheduled use of the classrooms in each building.

CLASSROOM UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
ACADEMIC AND STUDENT RECREATION CENTER - PSU	*B0253A*	7	1,598	26	37	16.4	34	66%
ART BUILDING & ANNEX	*B0039A*	1	1,573	23	31	11.9	26	46%
BROADWAY RESIDENCE HALL	*B0254*	5	775	25	20	21.3	32	70%
CRAMER HALL	*B0015*	42	864	20	31	19.8	29	68%
CROWN PLAZA BUILDING	*B0016*	3	1,143	0	0	---	0	0%
DOUGLAS FIR TRAILERS	*B0137*	6	846	29	18	14.2	21	65%
ENGINEERING BUILDING (Est)	*B0038*	4	881	16	34	20.7	36	54%
FIFTH AVENUE CINEMA	*B0011A*	2	1,876	19	54	11.0	21	54%
FOURTH AVENUE BUILDING & PARKING - PSU (Est)	*B0036A*	13	791	24	18	17.4	30	54%
HELEN GORDON CHILD DEVELOPMENT CENTER	*B0013*	1	778	20	22	1.7	3	58%
HOFFMANN HALL	*B0034*	1	3,719	13	138	16.1	32	51%
KARL MILLER CENTER	*B0009*	21	1,170	22	34	25.4	38	67%
LINCOLN HALL	*B0001*	4	870	20	29	25.5	37	70%
NATIVE AMERICAN STUDENT COMMUNITY CENTER	*B0040*	1	507	20	19	11.8	15	77%
ONDINE RESIDENCE HALL/ FIFTH AVE CINEMA & PARKING	*B0011*	6	805	22	24	21.8	32	64%
PARKMILL	*B0028*	10	655	19	20	15.8	24	62%
PSC - PETER W. STOTT CENTER	*B0004*	5	891	25	19	10.9	20	52%
ROBERTSON LIFE SCIENCES BUILDING - PSU (Excl. Parking & Retail)	*B0263*	1	4,160	10	241	16.9	29	59%
SCIENCE AND EDUCATION CENTER & PARKING	*B0041A*	4	526	22	16	13.9	20	68%
SCIENCE BUILDING ONE	*B0003*	2	1,211	16	27	7.6	18	32%
SCIENCE RESEARCH & TEACHING CENTER	*B0005*	9	682	20	20	22.5	33	63%
SHATTUCK HALL & ANNEX	*B0025*	3	2,084	11	40	18.9	16	57%
STEPHEN EPLER RESIDENCE HALL	*B0042*	4	688	26	17	20.9	32	65%
UNIVERSITY CENTER BUILDING & PARKING	*B0200A*	1	727	18	17	6.0	14	43%
UNIVERSITY POINTE AT COLLEGE STATION - PSU	*B0010*	4	1,098	21	28	11.7	30	57%
UNIVERSITY TECHNOLOGY SERVICES	*B0251*	12	874	20	25	15.9	27	60%
URBAN CENTER BUILDING	*B0037*	8	642	19	19	16.9	23	58%
WESTERN HEMLOCK TRAILERS	*B0136*	2	844	26	15	9.6	19	50%
Total No. of Rooms = 182	**AVERAGE**		**957**	**19.9** *	**28**	**18.4**	**28**	**63%**
Total No. of Stations = 8756	**Total ASF**		**174,137**					

At 18.4 weekly hours of use for each classroom seat, the utilization does not meet the guideline of 24 weekly seat hours, 36 weekly room hours. Student station occupancy of 63% is slightly lower than the 67% expectation.

The greatest number of classrooms in use at any one time was 157 on Thursday from 10:00 to noon, as indicated in the following chart. Classroom use is generally high from mid-morning through the afternoon. Friday use is low.

SCHEDULED CLASSROOM USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	34	19%	34	19%	38	21%	38	21%	9	5%	31	17%
9:00 AM	81	45%	46	25%	87	48%	54	30%	45	25%	63	34%
10:00 AM	133	73%	151	83%	141	77%	157	86%	76	42%	132	72%
11:00 AM	135	74%	151	83%	143	79%	157	86%	83	46%	134	74%
12:00 PM	119	65%	131	72%	127	70%	138	76%	71	39%	117	64%
1:00 PM	101	55%	132	73%	111	61%	138	76%	60	33%	108	60%
2:00 PM	126	69%	132	73%	136	75%	138	76%	38	21%	114	63%
3:00 PM	126	69%	130	71%	135	74%	133	73%	40	22%	113	62%
4:00 PM	87	48%	89	49%	94	52%	89	49%	17	9%	75	41%
5:00 PM	113	62%	125	69%	120	66%	115	63%	17	9%	98	54%
6:00 PM	114	63%	120	66%	119	65%	109	60%	13	7%	95	52%
7:00 PM	78	43%	69	38%	75	41%	58	32%	13	7%	59	32%

Total classrooms = 182

TEACHING LAB UTILIZATION

There are 141 scheduled teaching laboratories on the PSU campus, with a total of 3,803 student stations. During the Fall 2018 term, the labs were scheduled, on average, 17 hours per week with 67% of the stations occupied. The labs are located in 15 buildings. The following chart indicates the scheduled use of the teaching labs in each building.

TEACHING LABORATORY UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
ACADEMIC AND STUDENT RECREATION CENTER - PSU	*B0253A*	1	1,179	25	30	29.0	45	65%
ART BUILDING & ANNEX	*B0039A*	12	1,075	46	14	22.4	21	81%
CRAMER HALL	*B0015*	20	735	28	16	12.3	24	64%
DOUGLAS FIR TRAILERS	*B0137*	5	1,073	29	20	13.6	24	53%
ENGINEERING BUILDING (Est)	*B0038*	7	1,492	49	16	4.6	8	51%
FOURTH AVENUE BUILDING & PARKING - PSU (Est)	*B0036A*	5	1,070	50	15	16.3	19	75%
KARL MILLER CENTER	*B0009*	2	1,135	12	15	11.0	10	54%
LINCOLN HALL	*B0001*	23	975	32	17	8.7	17	54%
PP - PONDEROSA PINE TRAILERS	*B0135*	4	934	26	15	9.1	20	41%
ROBERTSON LIFE SCIENCES BUILDING - PSU (Excl. Parking & Retail)	*B0263*	17	1,260	43	17	17.3	16	87%
SCIENCE BUILDING ONE	*B0003*	5	1,121	46	21	6.5	7	87%
SCIENCE RESEARCH & TEACHING CENTER	*B0005*	12	1,151	39	17	17.5	21	71%
SHATTUCK HALL & ANNEX	*B0025*	22	889	40	13	7.8	12	70%
UNIVERSITY CENTER BUILDING & PARKING	*B0200A*	2	926	15	9	7.3	5	71%
URBAN CENTER BUILDING	*B0037*	4	717	39	13	9.0	12	62%
Total No. of Rooms = 141	**AVERAGE**		**1,018**	**37.7** *	**16**	**11.8**	**17**	**67%**
Total No. of Stations = 3803	**Total ASF**		**143,473**					

At 11.8 hours per week of student station occupancy, the utilization does not meet the guideline of 19 weekly seat hours, 24 weekly room hours. The average student station occupancy of 67% when the room is scheduled is below the 80% expectation.

Labs are scheduled consistently Monday through Thursday with lower use on Friday. The maximum number of labs scheduled simultaneously is 83.

SCHEDULED TEACHING LABORATORY USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	11	8%	23	16%	15	11%	21	15%	5	4%	15	11%
9:00 AM	36	26%	50	35%	42	30%	44	31%	14	10%	37	26%
10:00 AM	57	40%	71	50%	68	48%	65	46%	31	22%	58	41%
11:00 AM	58	41%	70	50%	69	49%	64	45%	31	22%	58	41%
12:00 PM	42	30%	41	29%	51	36%	38	27%	28	20%	40	28%
1:00 PM	54	38%	44	31%	60	43%	44	31%	37	26%	48	34%
2:00 PM	77	55%	62	44%	81	57%	59	42%	31	22%	62	44%
3:00 PM	73	52%	64	45%	78	55%	62	44%	27	19%	61	43%
4:00 PM	56	40%	53	38%	65	46%	53	38%	25	18%	50	36%
5:00 PM	33	23%	38	27%	40	28%	39	28%	6	4%	31	22%
6:00 PM	37	26%	39	28%	38	27%	39	28%	1	1%	31	22%
7:00 PM	30	21%	35	25%	28	20%	28	20%	0	0%	24	17%

Total laboratories = 141

CAMPUS SPACE NEEDS

Existing space on campus is organized into three categories as follows:

- Academic Space—classrooms, teaching labs, open labs
- Academic Support Space—offices, library and collaborative learning, assembly and exhibit, physical plant, other department space
- Inactive/Conversion Space—space currently in renovation or not usable for some other reason

In the Fall 2018 term, Portland State University had a deficit of 214,400 ASF of usable space and 22,630 ASF of inactive/conversion space, as indicated in the chart below. The deficit in classroom space is primarily due to a low ASF per student station of 19.9 compared to the guideline of 25 ASF for modern pedagogy. It should be noted that this analysis addresses the quantity of space on campus, not the quality. For example, the visual arts studio space should be replaced.

SPACE NEEDS ANALYSIS - BASE YEAR, FALL 2018

	2018 *Student FTE = 17,599*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	175,846	187,301	(11,455)	(7%)
Teaching Laboratories & Service	163,798	112,193	51,605	32%
Open Laboratories & Service	52,860	164,080	(111,220)	(210%)
Academic Space Subtotal	*392,504*	*463,574*	*(71,070)*	*(18%)*
Academic Support Space				
Offices & Service	636,731	588,060	48,671	8%
Library & Collaborative Learning Space	132,893	263,985	(131,092)	(99%)
Assembly & Exhibit	91,744	103,044	(11,300)	(12%)
Physical Plant	69,592	102,631	(33,039)	(47%)
Other Department Space	170,950	187,520	(16,570)	(10%)
Academic Support Space Subtotal	*1,101,910*	*1,245,240*	*(143,330)*	*(13%)*
CAMPUS TOTAL	**1,494,414**	**1,708,814**	**(214,400)**	**(14%)**
Inactive/Conversion Space	*22,630*			
Outside Organizations	*281,633*			

The campus enrollment projection of 19,173 student FTE in 2029 yields a total space need of 1,877,527 ASF, a deficit of 360,483 ASF if all inactive/conversion space can be repurposed. There are deficits in most space categories, with the greatest need in open laboratories and collaborative learning space.

SPACE NEEDS ANALYSIS, CAMPUS ENROLLMENT PROJECTIONS - TARGET YEAR, FALL 2029

	Campus Projections *Student FTE = 19,173*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	175,846	200,649	(24,803)	(14%)
Teaching Laboratories & Service	163,798	118,803	44,995	27%
Open Laboratories & Service	52,860	209,706	(156,846)	(297%)
Academic Space Subtotal	*392,504*	*529,158*	*(136,654)*	*(35%)*
Academic Support Space				
Offices & Service	636,731	588,060	48,671	8%
Library & Collaborative Learning Space	132,893	287,595	(154,702)	(116%)
Assembly & Exhibit	91,744	112,488	(20,744)	(23%)
Physical Plant	69,592	120,562	(50,970)	(73%)
Other Department Space	170,950	239,664	(68,714)	(40%)
Academic Support Space Subtotal	*1,101,910*	*1,348,369*	*(246,459)*	*(22%)*
CAMPUS TOTAL	**1,494,414**	**1,877,527**	**(383,113)**	**(26%)**
Inactive/Conversion Space	*22,630*			
Outside Organizations	*281,633*			

The NCHEMS student flow model enrollment projection of 18,013 student FTE in 2029 yields a total space need of 1,798,097 ASF. A deficit of 281,053 ASF is spread among most space types with open lab and collaborative learning space needs significant.

SPACE NEEDS ANALYSIS , NCHEMS STUDENT FLOW MODEL - TARGET YEAR, FALL 2029

	NCHEMS Flow *Student FTE = 18,013*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	175,846	188,691	(12,845)	(7%)
Teaching Laboratories & Service	163,798	112,219	51,579	31%
Open Laboratories & Service	52,860	195,391	(142,531)	(270%)
Academic Space Subtotal	*392,504*	*496,301*	*(103,796)*	*(26%)*
Academic Support Space				
Offices & Service	636,731	588,060	48,671	8%
Library & Collaborative Learning Space	132,893	270,195	(137,302)	(103%)
Assembly & Exhibit	91,744	105,528	(13,784)	(15%)
Physical Plant	69,592	114,709	(45,117)	(65%)
Other Department Space	170,950	223,304	(52,354)	(31%)
Academic Support Space Subtotal	*1,101,910*	*1,301,796*	*(199,886)*	*(18%)*
CAMPUS TOTAL	**1,494,414**	**1,798,097**	**(303,683)**	**(20%)**
Inactive/Conversion Space	*22,630*			
Outside Organizations	*281,633*			

Academic program completions were analyzed to determine if there would be a significant difference in the type of academic space Portland State University will need in the future as compared to the current space mix. The change in the number of completions between 2010 and 2017, as indicated in the IPEDS summary chart below, was compared to the change in projected enrollment to 2029. During the study period, PSU completions increased by 17%. The enrollment projection from the University is a 9 percent increase and the NCHEMS student flow model projects an increase of 2 percent.

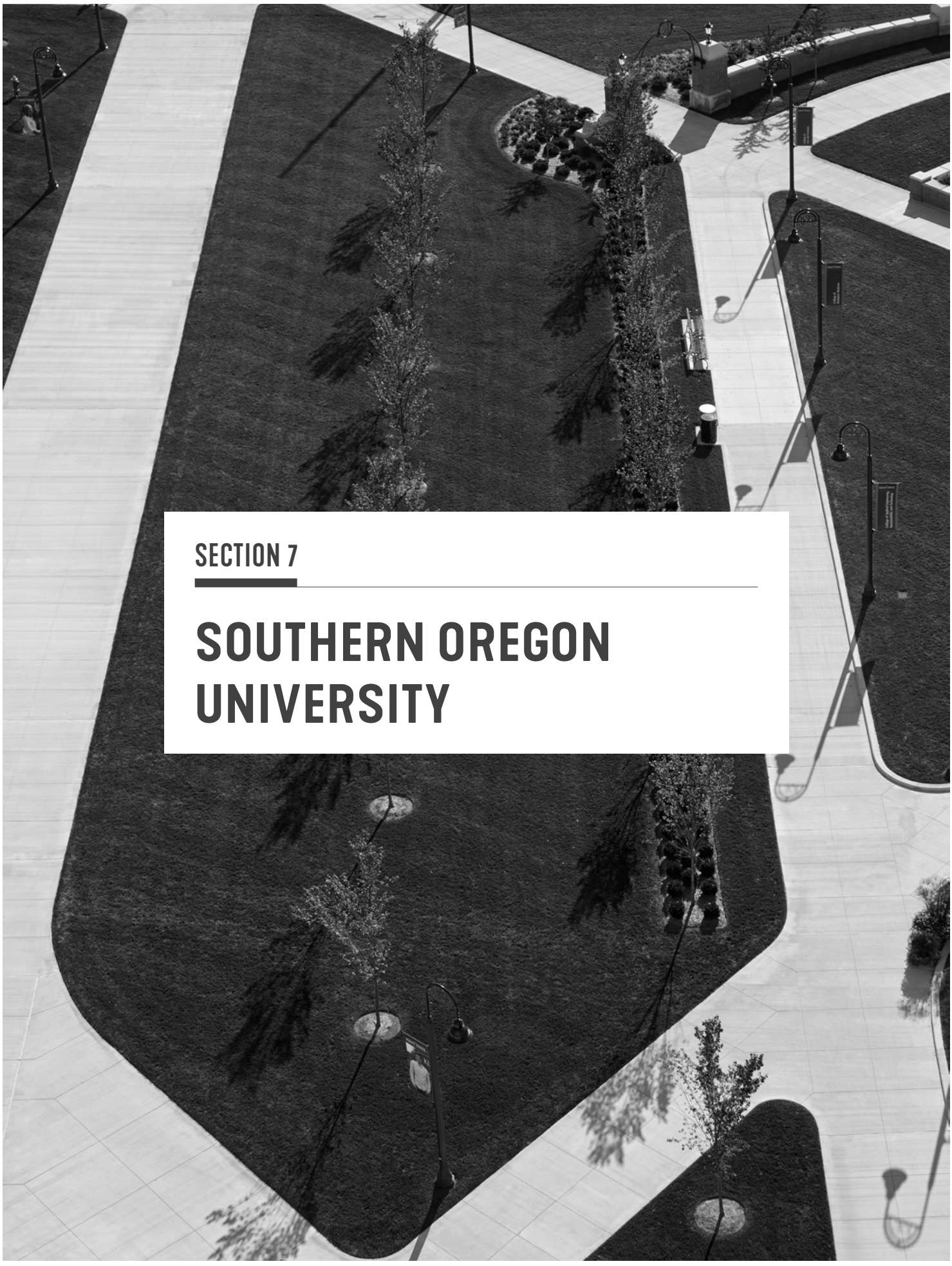
Programs that have seen significant increases in completions during the study period include IPEDS categories: Natural Resources and Conservation (85%), Computer and Information Sciences (106%), Engineering (88%), and Physical Sciences (79%). The 2018 space needs analysis indicates a surplus of teaching lab space and a significant deficit in open lab space, highlighting that teaching labs are likely under-scheduled in order to be used as open labs. The teaching lab surplus is also not evenly distributed. While engineering lab space is balanced with the need, there is a 50% deficit in art department teaching lab space.

Overall academic lab space is in deficit. In addition to construction of new space, reconfiguration or replacement of existing teaching lab space will be needed to align with individual discipline teaching and open lab needs.

PROGRAM COMPLETION RATES

Institution Name: Portland State University (UnitID: 209807)

	2010	2011	2012	2013	2014	2015	2016	2017	Line
Natural Resources and Conservation	47	64	83	88	83	72	75	87	
Architecture and Related Services	81	70	85	97	88	120	104	101	
Area Ethnic Cultural Gender and Group Studies	19	25	29	34	22	26	19	19	
Communication Journalism and Related Programs	150	133	145	123	116	162	163	173	
Computer and Information Sciences and Support Services	84	95	99	104	105	129	140	173	
Education	487	558	467	524	506	522	449	507	
Engineering	246	366	339	336	365	403	392	462	
Engineering Technologies and Engineering-related Fields	62	46	41	43	32	42	38	24	
Foreign Languages Literatures and Linguistics	151	116	184	157	155	136	139	131	
Family and Consumer Sciences/Human Sciences	48	57	63	61	71	75	62	56	
English Language and Literature/Letters	188	225	239	254	206	190	163	151	
Liberal Arts and Sciences General Studies and Humanities	313	343	352	321	288	256	243	227	
Biological and Biomedical Sciences	161	161	158	185	213	178	184	197	
Mathematics and Statistics	57	74	70	58	71	69	66	90	
Multi/Interdisciplinary Studies	174	193	227	181	182	161	180	184	
Philosophy and Religious Studies	30	35	35	36	27	31	28	28	
Physical Sciences	61	71	87	92	87	78	98	109	
Psychology	229	291	323	311	339	343	288	356	
Homeland Security Law Enforcement Firefighting and Related Protective Service	149	171	211	219	202	201	184	194	
Public Administration and Social Service Professions	358	376	384	398	371	388	378	375	
Social Sciences	625	711	730	793	800	651	597	584	
Visual and Performing Arts	242	242	261	263	305	277	280	290	
Health Professions and Related Programs	276	310	359	398	433	428	471	449	
Business Management Marketing and Related Support Services	865	951	957	900	893	865	917	1051	
History	104	100	111		80	68	78	61	
Total	5,207	5,784	6,039	5,976	6,040	5,871	5,736	6,079	



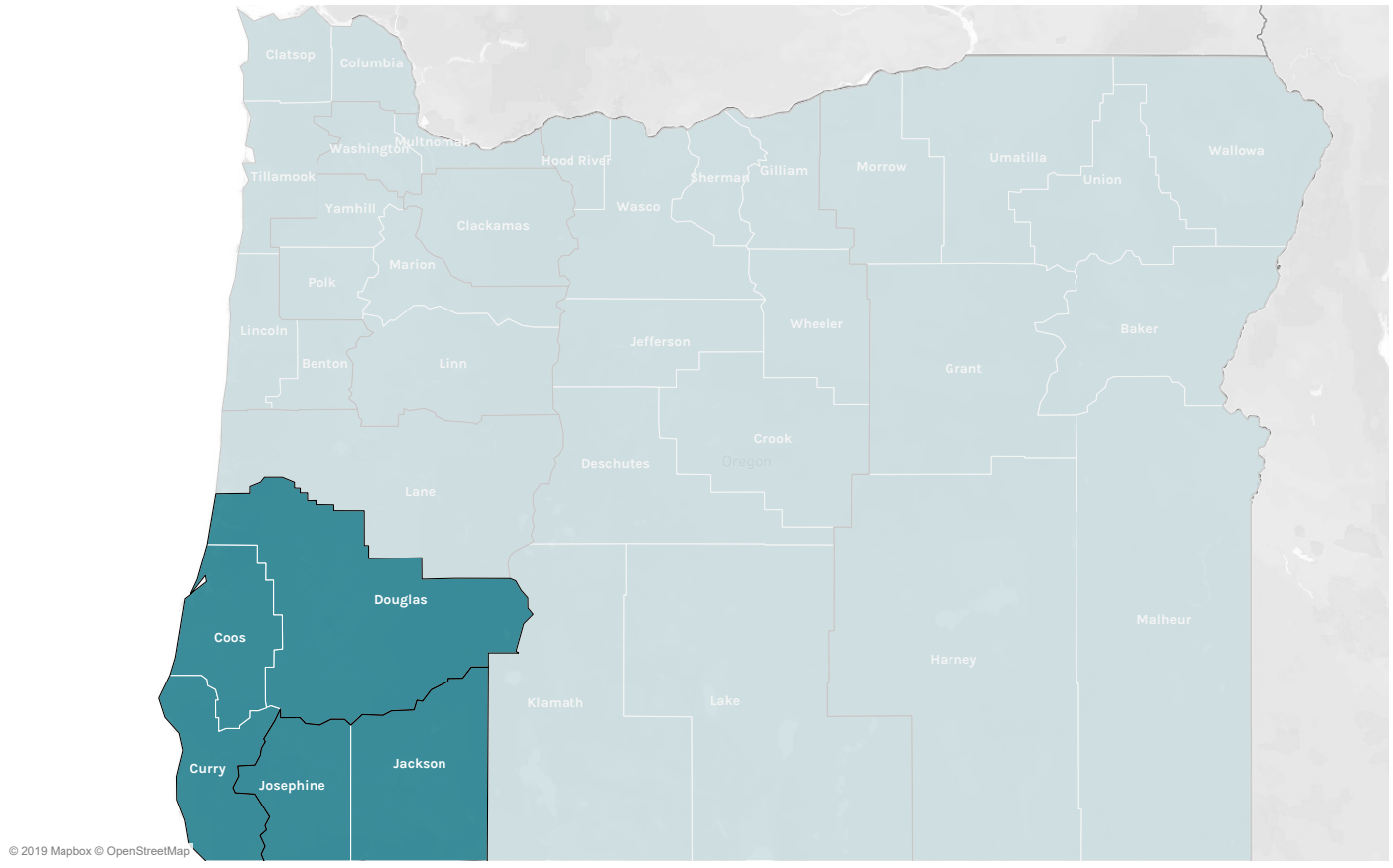
SECTION 7

SOUTHERN OREGON UNIVERSITY

SOUTHERN OREGON UNIVERSITY
ENROLLMENT & WORKFORCE DEMAND ANALYSIS

SOU's primary service region (Figure 1) is comprised of the Rogue Workforce Partnership and the Southwestern Oregon Workforce Investment Board areas. These areas are comprised of the following counties: Coos, Curry, Douglas, Jackson, and Josephine.

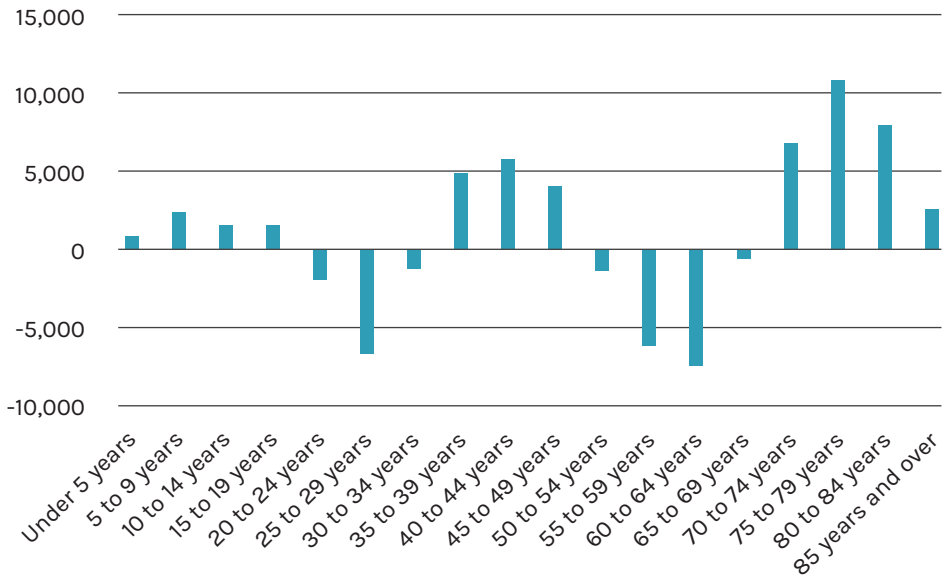
FIGURE 1. SOUTHERN OREGON UNIVERSITY PRIMARY SERVICE REGION



POPULATION

Between 2010 and 2018, the population in the counties that comprise the primary service area grew for SOU grew by just 24,527, just about 0.64 percent per year, the second lowest growth rate among institutional service areas across the state[1]. As is true elsewhere in Oregon, the population in SOU's primary service area grew most among the elderly, with increases among middle-age Oregonians between 35 and 45 offsetting declines between 50 and 70 years of age. These counties have seen increases in population among individuals in the first two decades, but have lost population among the traditionally college-aged and young working-age adults (Figure 2).

FIGURE 2. CHANGE BETWEEN 2010–2018 IN SOU PRIMARY SERVICE AREA COUNTIES BY AGE

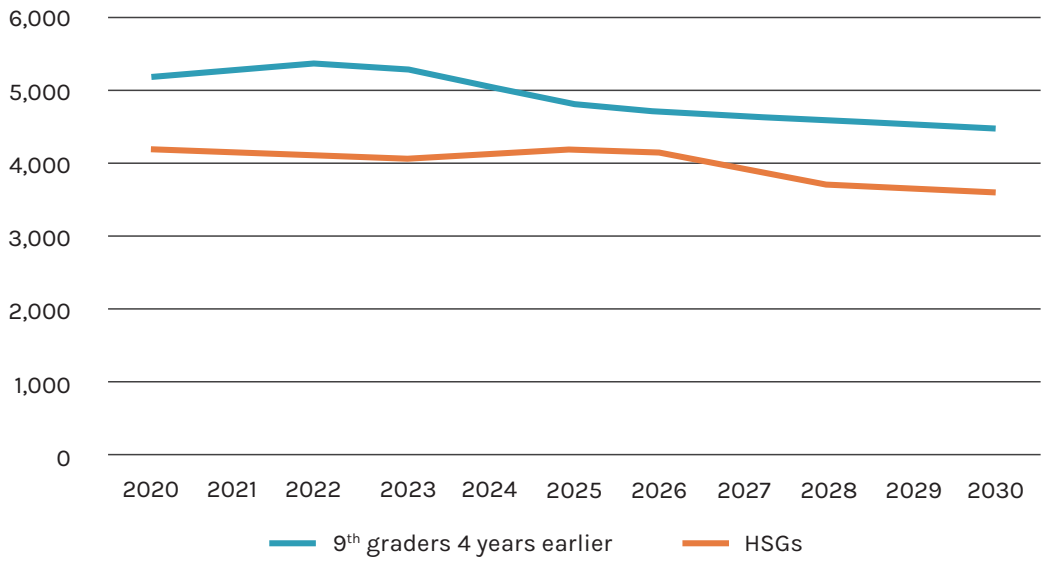


Source: EMSI, 2019.

1 Portland State University, Population Research Center.

Population growth between 2020 and 2030 is expected to continue for among middle-age individuals between 25–49 with mostly stagnant levels of high-school and college-aged individuals in SOU's service area. Projections indicate a decline in the number of high school graduates between 2020 and 2030 (Figure 3).

FIGURE 3. PROJECTED NINTH GRADERS AND HIGH SCHOOL GRADUATES



Sources: WICHE, NCES CCD, oregonlive.com.

ENROLLMENT PROJECTIONS AND PATTERNS

Unusually for a regional public institution, SOU attracts a majority of its entering undergraduates from out-of-state, with two-thirds of non-residents hailing from California alone in 2016–17.[2] Among Oregon residents, SOU is heavily dependent on attracting students from Jackson County where its campus is. In fact, SOU gets 55 percent of its students from Jackson County, with Josephine County supplying another 9 percent. Multnomah, Deschutes, and Washington counties each account for about four percent of SOU's undergraduates. SOU does not commonly attract students from most other parts of Oregon, and numerous counties did not supply SOU with any students at all in the recent past, especially those on the eastern side of the state (Figure 5). Given these population trends and the relative importance of Deschutes County to SOU's well-being, SOU is particularly vulnerable to the expansion of OSU's Cascades campus in Bend if it draws students away.

SOU has two dominant sources of transfer students: Rogue Community College located nearby and out-of-state institutions, likely California, which in 2018 actually supplied more transfer students than Rogue and the next six highest volume suppliers of students transferring from Oregon community colleges (Table 1).

TABLE 1. FALL 2018 TRANSFER STUDENT INSTITUTION OF ORIGIN

Community Colleges	
Rogue Community College	468
Southwestern Oregon Community College	56
Klamath Community College	48
Umpqua Community College	41
Portland Community College	38
Lane Community College	37
Linn-Benton Community College	24
Clackamas Community College	23
Chemeketa Community College	20
Central Oregon Community College	18
Mount Hood Community College	10

Other Oregon 4-Year Institutions	
Oregon State University	30
University of Oregon	28
Portland State University	28
Western Oregon University	14
Oregon Institute of Technology	13
Eastern Oregon University	10

Other or Unknown	
Other U.S. college or university	713
Unknown	52
Oregon independent college or university	23
Foreign College or university	33

2 NCES IPEDS.

FIGURE 4. SHARE OF RESIDENT UNDERGRADUATE ENROLLMENT BY COUNTY

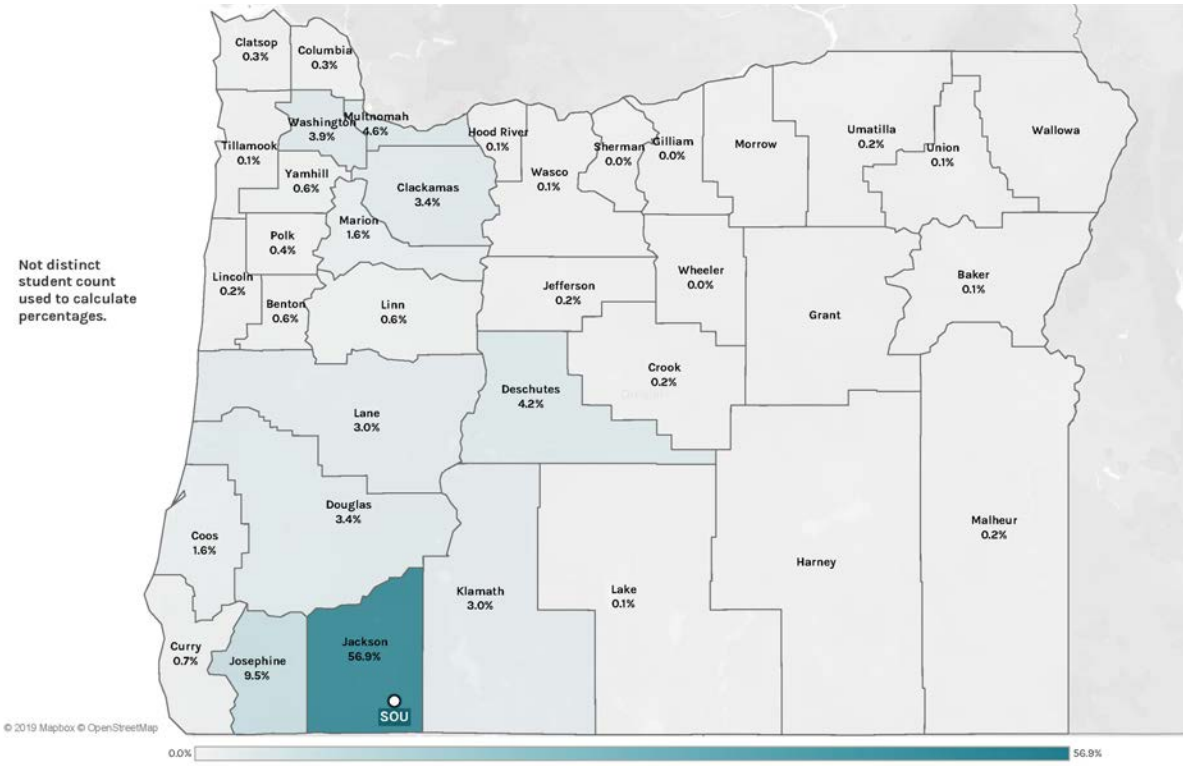
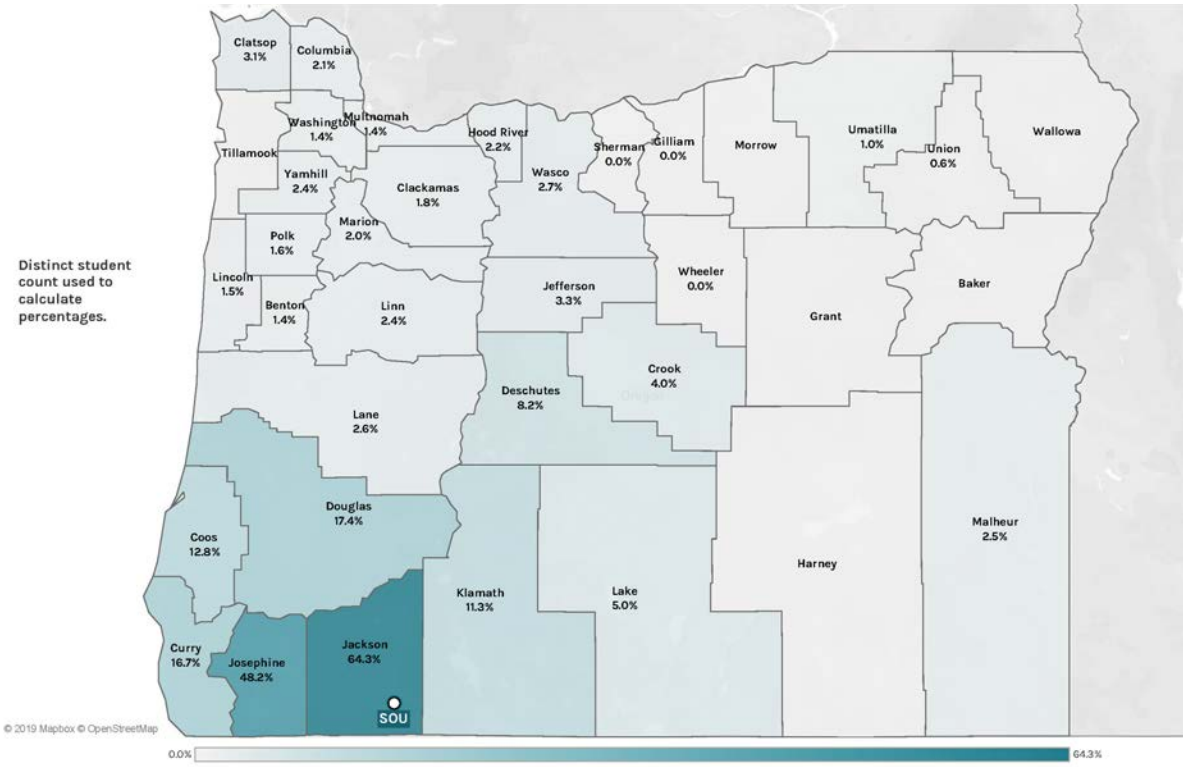


FIGURE 5. SHARE OF COLLEGE-GOING STUDENTS FROM EACH COUNTY ATTENDING SOU



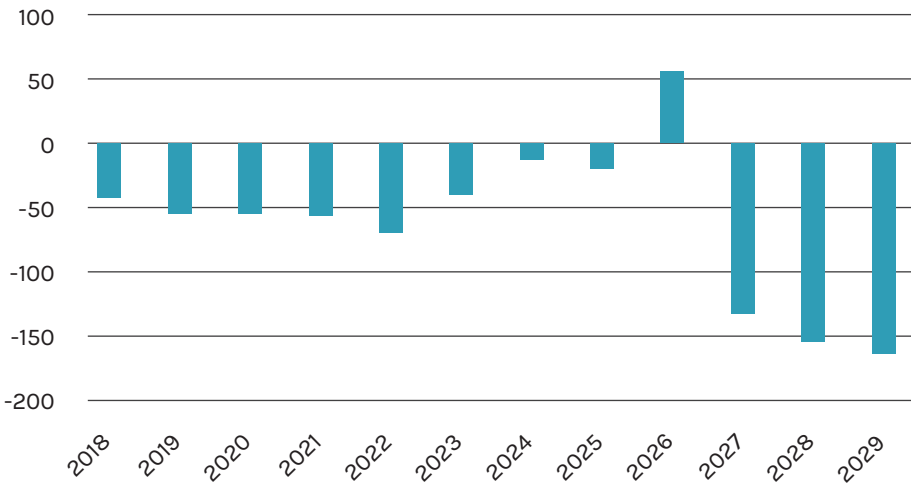
PROJECTING CAPACITY NEEDS DUE TO ENROLLMENT

To assess the likely need for space caused by undergraduate enrollment demand, NCHEMS modeled enrollment projections for each of Oregon's public four-year institutions based on the following assumptions:

- Ratio of high school graduates to 9th graders[3]
- College-going rate of recent high school graduates to enrollment at an Oregon public four-year institution[4]
- Participation rate per 100,000 population of 20–49 year olds enrolling for the first-time at an Oregon public four-year institution[5]
- Enrollment of first-time students from out-of-state[6]
- Ratio of transfer students from public two-year to public four-year institutions to the total enrollment of public two-year institutions[7]
- Retention and completion rates[8] remain steady
- Projected population changes for each institution's designated service areas[9]
- County-of-origin of undergraduate enrollment[10]
- The current proportional mix on on-campus and online students remains constant

This modeling suggests that, barring significant changes in recruitment or retention, SOU will experience constant challenges maintaining enrollment levels over the coming years, with only a single year predicted to be one in which undergraduate FTEs higher than the 2017–18 base year in our model (Figure 6).

FIGURE 6. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017

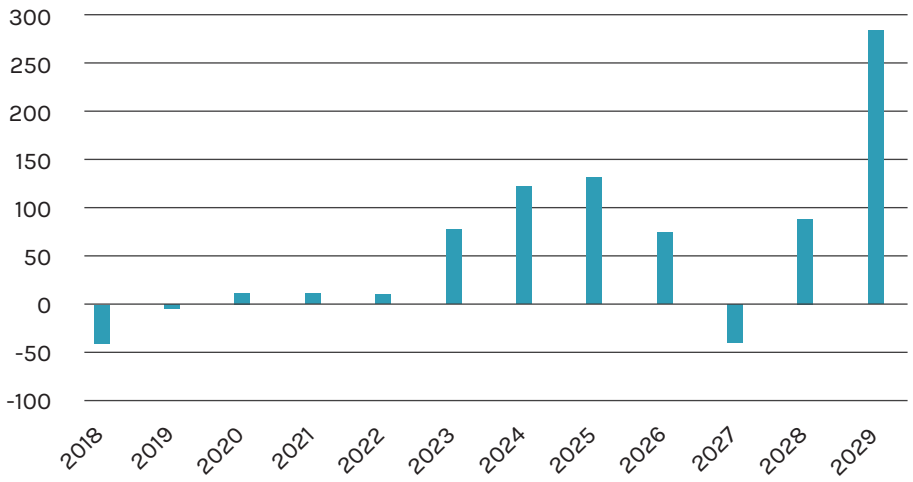


Note: Data shows the difference between the expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect no assumed changes in the most recent data for recruitment and retention.

3 NCES CCD, Western Interstate Commission for Higher Education, *Knocking at the College Door*, knocking.wiche.edu.
4 Enrollment by county (Oregon HECC), high school graduates (oregonlive.com), Residence and Migration (NCES IPEDS).
5 Enrollment by county (HECC), Residence and Migration (NCES IPEDS).
6 Enrollment of non-resident students (HECC), Residence and Migration (NCES IPEDS).
7 Oregon HECC.
8 NCES IPEDS.
9 Office of Economic Analysis, Oregon Department of Administrative Services.
10 Oregon HECC.

Under optimistic assumptions about SOU successfully improving its recruitment and retention of students, NCHEMS' modeling yields a less bleak picture. For example, boosting each of the key parameters (enrollment of in-state students, out-of-state students, and transfer students, as well as retention rates) by five percent yields a future in which enrollments at SOU are stable, and even rise in 2029–30 academic year (Figure 7).

FIGURE 7. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017, ASSUMING A 5% INCREASE IN RECRUITMENT AND RETENTION MEASURES



Note: Data shows the difference between expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect a 5% increase in each of the recruitment measures for different student categories—in-state students, out-of-state students, and transfer students—as well as retention rates from the first- to the second year. No change in the high school graduation rate is assumed.

In order for SOU to achieve its on-campus enrollment target for 2029, under which it would enroll 1,646 additional on-campus FTEs, NCHEMS estimates that it would have to improve its recruitment and retention by about 10 percent across the board.

With enrollment rising at SOU only under very optimistic scenarios, it is clear that SOU has little need for additional physical space. Nevertheless, enrollment patterns make it clear that SOU remains a vital resource for postsecondary access to individuals in some parts of southern Oregon.

ECONOMY AND WORKFORCE NEEDS

The largest industries likely to employ college graduates in the SOU service region are:

- Private educational and health services
- Government
- Professional and business services

Of these, the only one projected to show substantial growth is educational and health services (Figure 1). Leisure and hospitality is a major component of the regional economy. While this industry does not employ large numbers of college graduates, its importance to the region means that it cannot be ignored.

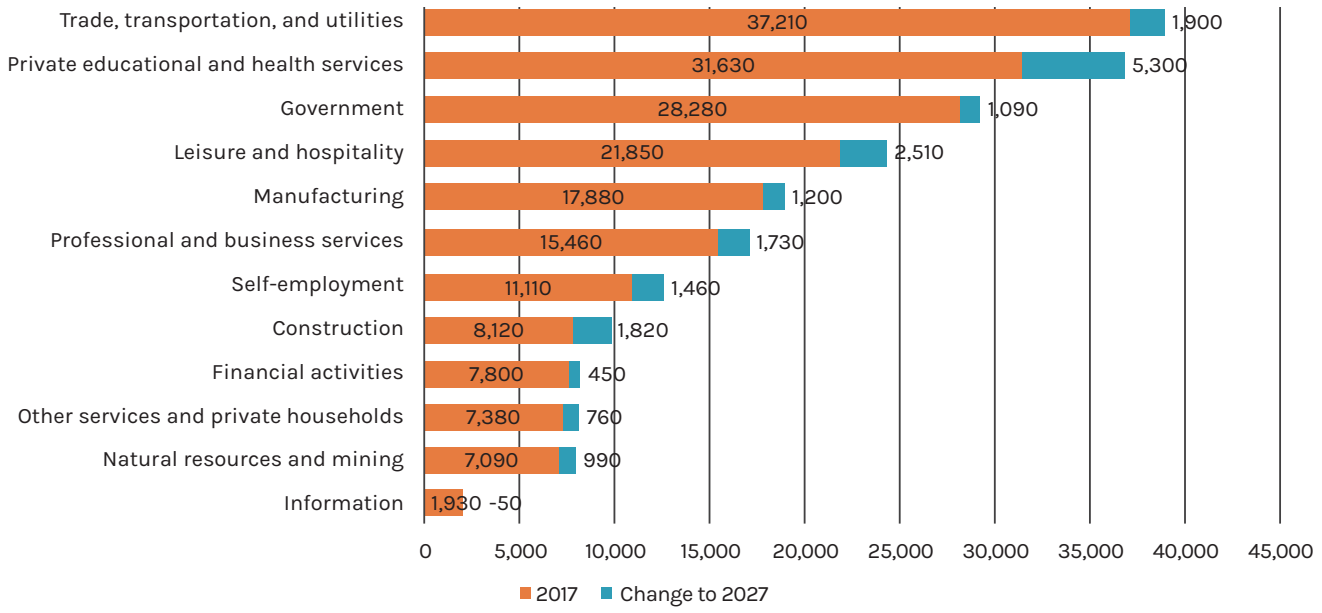
None of the occupations with the largest numbers of annual openings in the SOU service area require large numbers of college graduates. Those occupations that do are well down the list (Figure 2):

- Education
- Management (plus business and financial operations)
- Healthcare practitioners and allied health

Of these, the occupations with the largest projected growth potential are in the health professions. Management occupations are next in order (Figure 3).

Emsi data reinforce these findings, indicating that the largest gaps are in business management and related subfields (Figure 4). In the health professions the greatest needs are for Registered Nurses. Other needs are small in numbers in comparison (Table 1).

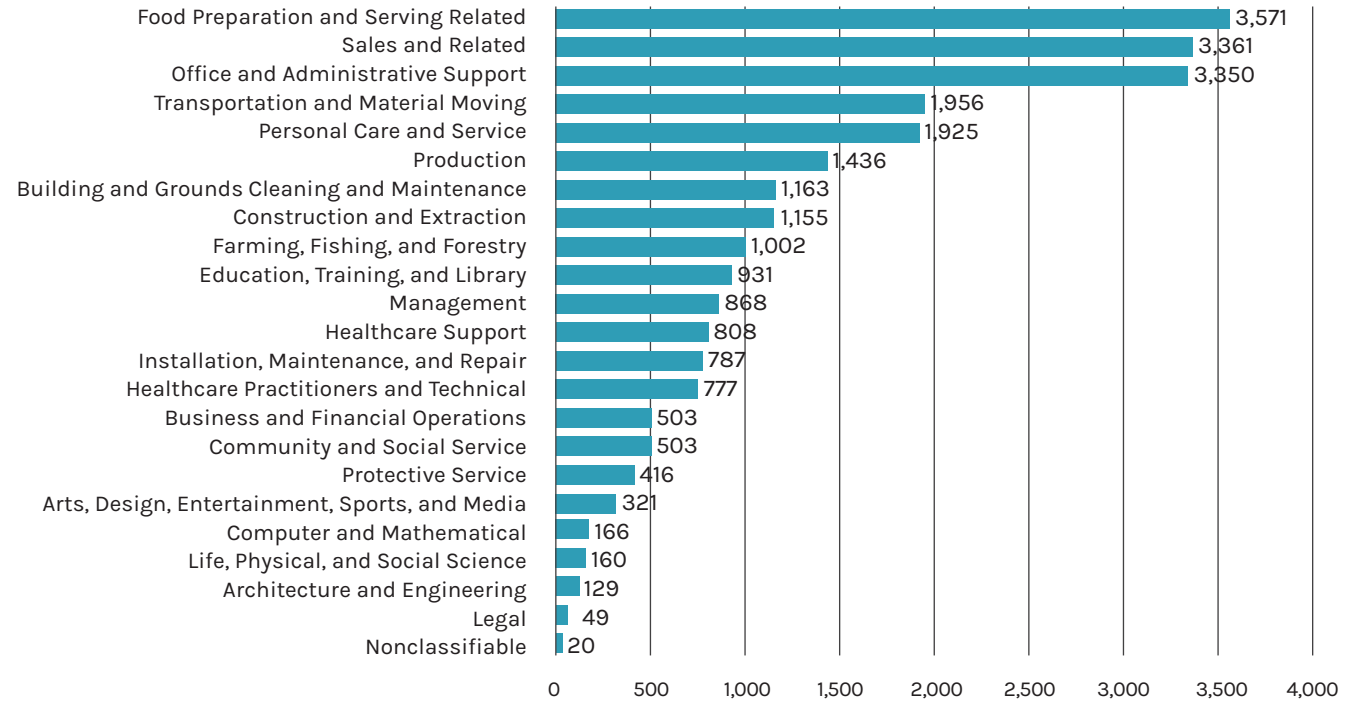
FIGURE 8. EMPLOYMENT GROWTH BY INDUSTRY, 2017–2027
SOUTHERN OREGON UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 9.

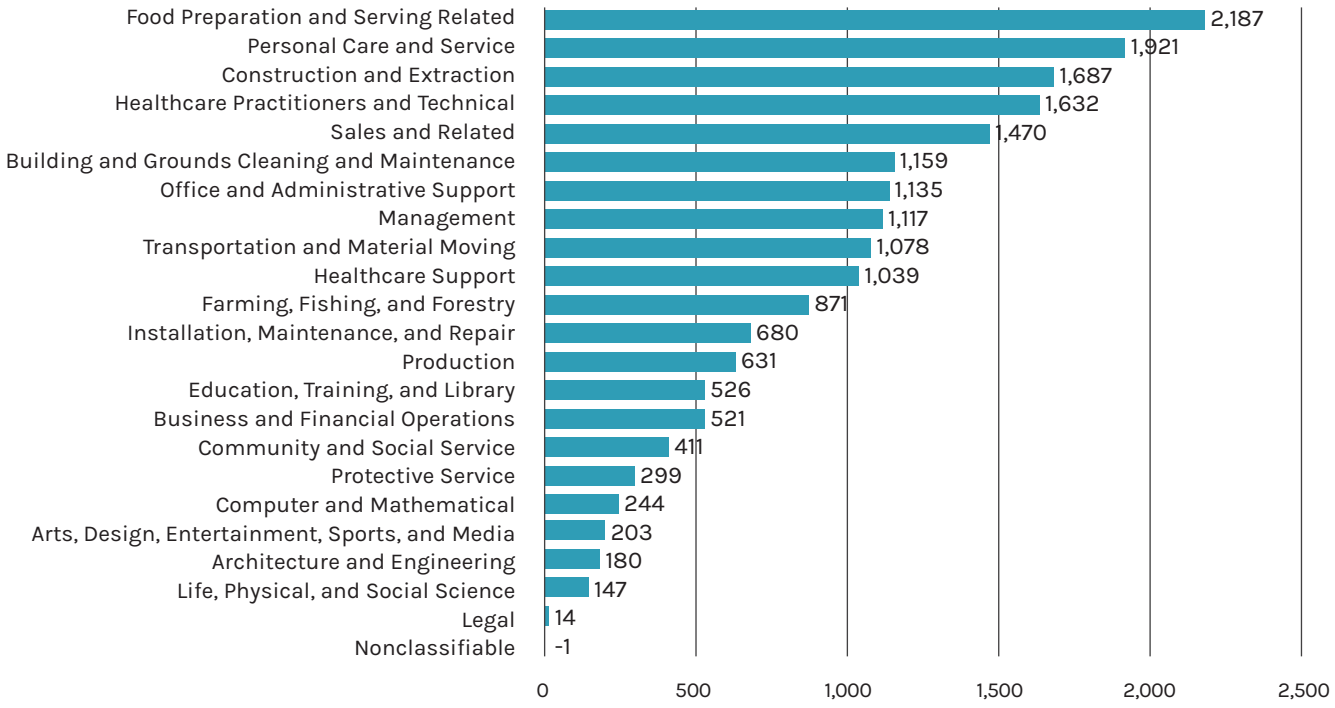
TOTAL ANNUAL OPENINGS BY OCCUPATION, 2017–2027, SOUTHERN OREGON UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

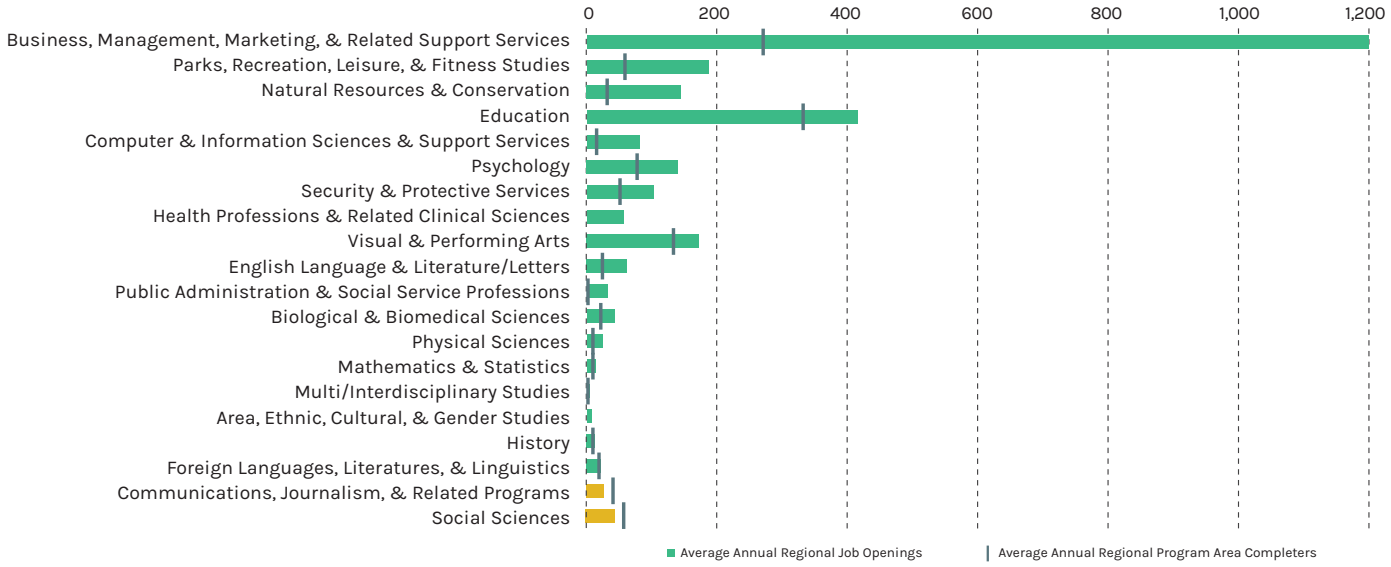
FIGURE 10.

GROWTH IN EMPLOYMENT BY OCCUPATION, 2017–2027, SOUTHERN OREGON UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 11. GAPS AT THE BACHELOR'S AND ABOVE DEGREE LEVEL (2-DIGIT CIP)



Source: EMSI, 2019.

FIGURE 12. PROGRAM ADDITIONS

Bachelor's degree level program additions

SOC Code	SOC Title	BACH Job Openings in the SOU Service Region	BACH Program Completers in the SOU Service Region	BACH Gap	Median Hourly Wage
29-1141	Registered Nurses	169	0	169	$39.53
41-3021	Insurance Sales Agents	36	0	36	$21.20
41-9022	Real Estate Sales Agents	27	0	27	$21.54
11-9111	Medical and Health Services Managers	25	0	25	$45.56
13-1028	Buyers and Purchasing Agents	21	0	21	$23.74
25-9099	Education, Training, and Library Workers, All Other	20	0	20	$14.04
43-5061	Production, Planning, and Expediting Clerks	19	0	19	$15.20
41-3011	Advertising Sales Agents	19	0	19	$19.87
21-1029	Social Workers, All Other	16	0	16	$27.28
17-2051	Civil Engineers	16	0	16	$33.49
29-2018	Clinical Laboratory Technologists and Technicians	14	0	14	$29.62
41-9021	Real Estate Brokers	11	0	11	$27.10
23-2011	Paralegals and Legal Assistants	11	0	11	$21.84
11-9141	Property, Real Estate, and Community Association Managers	10	0	10	$23.80

Master's degree level program additions

SOC Code	SOC Title	MAST Job Openings in the SOU Service Region	MAST Program Completers in the SOU Service Region	MAST Gap	Median Hourly Wage
29-1171	Nurse Practitioners	27	0	27	$53.12
29-1071	Physician Assistants	12	0	12	$53.54
29-1127	Speech-Language Pathologists	10	0	10	$23.64
29-1122	Occupational Therapists	10	0	10	$38.93
29-1129	Therapists, All Other	4	0	4	$19.73
21-1019	Counselors, All Other	3	0	3	$18.71

Source: EMSI, 2019.

None of the workforce needs in the Southern Oregon University service area (with the exception of health professions) require creation of new programs at the University. Space requirements will be driven by enrollment numbers and pedagogy, not additional programs.

During the site visit the university indicated interest in adding programs that are best described as specialties within existing major programs:

- Business—Healthcare management, agri-business, accounting
- Computing/graphic arts—esports, video gaming

There were also expressions of interest in a variety of health professions—rural health, gerontology, respiratory therapy, occupational therapy, physical therapy. Approval of programs in these areas would require a change in institutional mission.

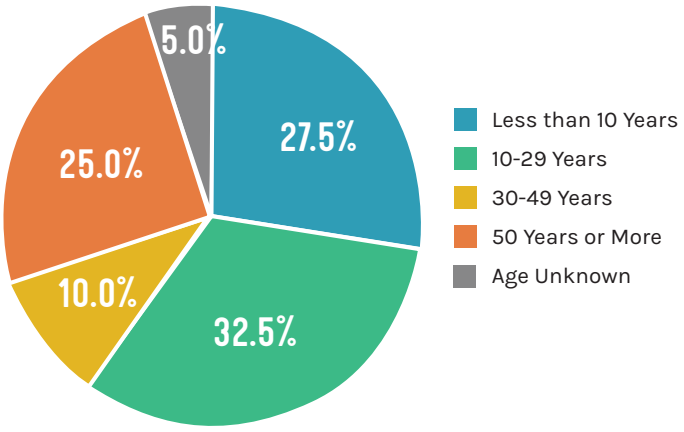
SOUTHERN OREGON UNIVERSITY FACILITIES INFORMATION

Fall 2018 facilities data for Oregon State University is summarized below. Included is general information about the 40 buildings on campus: average age of the buildings, total floor area on campus, and replacement value. Two pie charts highlight the percentage of buildings in each age category. The first includes a category for buildings of unknown age. The second illustrates the percentage of buildings in each age category of buildings with known age only. A block diagram makes visible the proportion of space on campus in each space category.

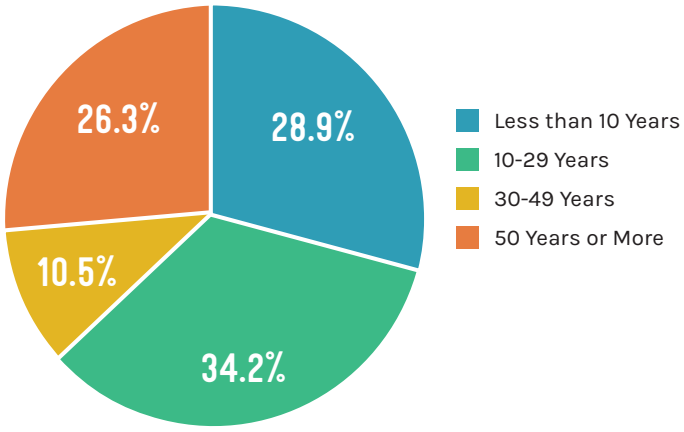
SOUTHERN OREGON UNIVERSITY	
Number of Buildings:	40
Number of Buildings with Age/Renovation Year:	38
Average Age of Building/Renovation:	28 years
Total Gross Square Feet:	1,354,206
Total Gross Square Feet for Buildings with Year:	1,353,906
Total Renovated Gross Square Feet:	825,885
Percentage Gross Square Feet Renovated:	61.0%
Number of Buildings Renovated:	23
Percentage of Buildings Renovated:	57.5%
Total Current Replacement Value of All SOU Buildings:	$673,279,315

Age Grouping of Buildings		
	Count	Percentage
Less than 10 Years Old	11	27.5%
10 to 29 Years Old	13	32.5%
30 to 49 Years Old	4	10.0%
50 Years Old or More	10	25.0%
Age Unknown	2	5.0%

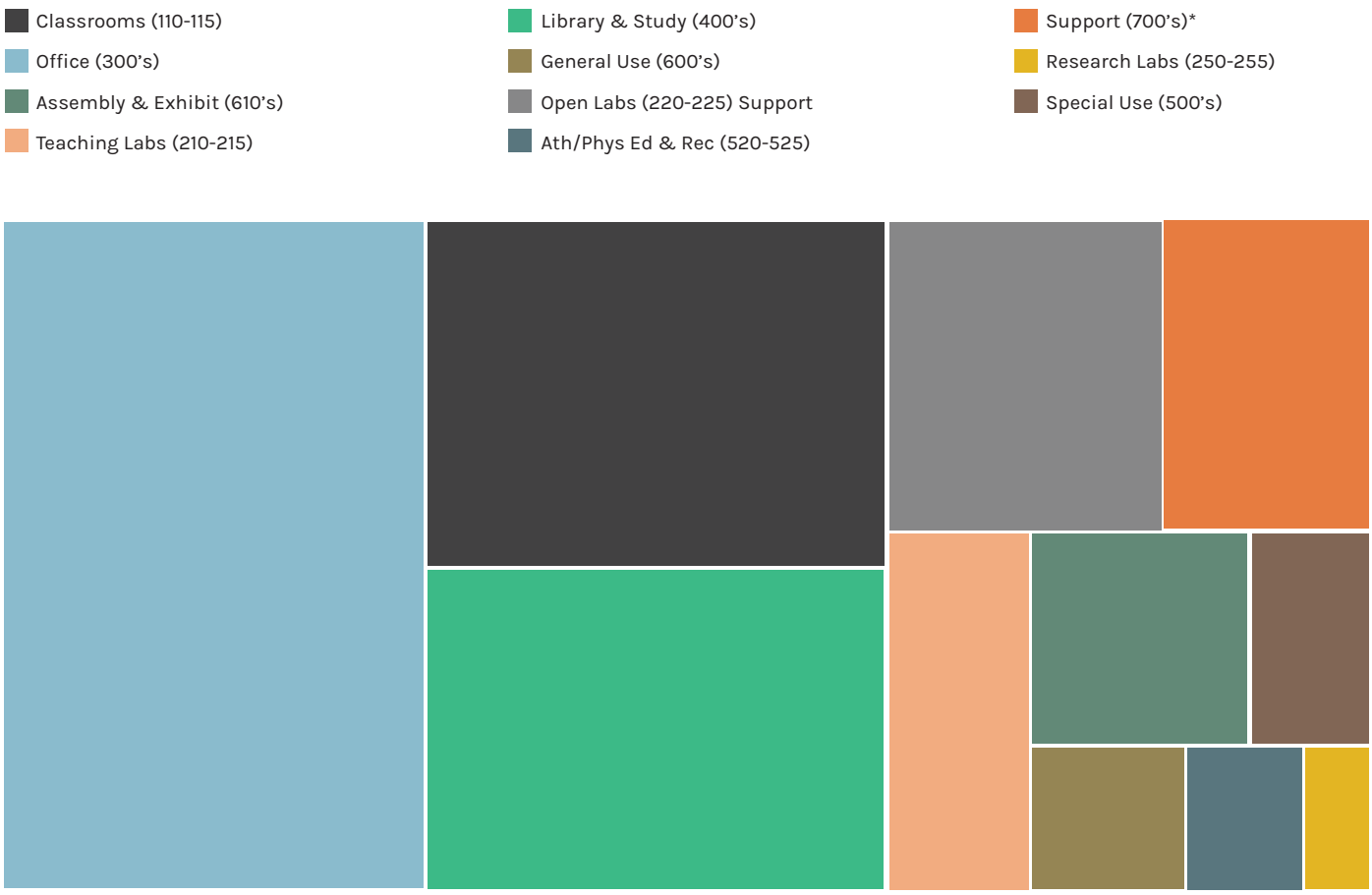
SOUTHERN OREGON UNIVERSITY AGE OF BUILDING/RENOVATION (N=40)



SOUTHERN OREGON UNIVERSITY AGE OF BUILDING/RENOVATION (N=38)



SOUTHERN OREGON UNIVERSITY ASF BY SPACE CATEGORY



SOUTHERN OREGON UNIVERSITY SPACE ANALYSIS

The Fall 2018 term use of scheduled teaching space on the Southern Oregon University campus was analyzed to determine if additional capacity is available in existing space. Campus space needs for academic and academic support space were analyzed for the Fall 2018 term to compare existing space use with the space guidelines established for this study. The guidelines were then applied to two future enrollment projection scenarios to determine the quantity of space needed and how the need compares to the quantity and type of space available on campus

FALL 2018 SCHEDULED TEACHING SPACE UTILIZATION

CLASSROOM UTILIZATION

There are 73 scheduled classrooms on the SOU campus, with a total of 2,313 student stations (seats in the classroom). During the Fall 2018 term, the classrooms were scheduled, on average, 14 hours per week with 66% of the seats in the classroom filled. The classrooms are located in 14 buildings. The following chart indicates the scheduled use of the classrooms in each building.

CLASSROOM UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Art Building	*4748*	3	1,103	57	10	7.8	7	63%
Art East (DeBoer Sculpture Studio)	*6862*	2	1,250	82	1	0.3	2	8%
Central Hall	*6858*	8	535	14	21	15.0	22	71%
Churchill Hall	*2281*	2	1,429	56	10	2.3	4	43%
Computer Services Center	*006*	1	625	16	0	0.0	0	0%
Education Psychology	*6828*	5	915	32	12	18.2	19	60%
Hannon Library	*6822*	3	1,336	0	14	---	24	0%
Lithia (McNeal Recreation Center)	*6861*	3	693	20	0	0.0	0	0%
Marion Ady Building	*4754*	4	821	32	9	4.3	7	61%
Music Hall	*6683*	4	372	13	9	3.4	7	47%
RVTV (Digital Media Center)	*B0056*	2	524	21	0	0.0	0	0%
Science Building	*6847*	10	930	51	33	18.3	17	136%
Taylor Hall	*6824*	23	594	14	18	10.0	18	52%
Theater Arts Building	*1882*	3	604	21	5	1.4	3	23%
Total No. of Rooms = 73 *Total No. of Stations = 2313*		**AVERAGE** **Total ASF**	**751** **54,831**	**23.7** *	**16**	**10.8**	**14**	**66%**

At 10.8 weekly hours of use for each classroom seat, the utilization does not meet the guideline of 20 weekly seat hours, 30 weekly room hours. Student station occupancy when the classroom is scheduled of 66% meets the expectation.

The greatest number of classrooms in use at any one time was 44 on Wednesday at 10:00, as indicated in the following chart. Classroom use is greatest from late morning through mid-afternoon Monday through Thursday. Friday use is very low.

SCHEDULED CLASSROOM USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	18	25%	18	25%	18	25%	21	29%	8	11%	17	23%
9:00 AM	27	37%	21	29%	29	40%	29	40%	14	19%	24	33%
10:00 AM	42	58%	36	49%	44	60%	41	56%	12	16%	35	48%
11:00 AM	40	55%	32	44%	41	56%	34	47%	8	11%	31	42%
12:00 PM	38	52%	33	45%	39	53%	37	51%	11	15%	32	43%
1:00 PM	39	53%	35	48%	40	55%	36	49%	14	19%	33	45%
2:00 PM	36	49%	34	47%	35	48%	31	42%	11	15%	29	40%
3:00 PM	30	41%	34	47%	31	42%	32	44%	5	7%	26	36%
4:00 PM	15	21%	16	22%	15	21%	16	22%	3	4%	13	18%
5:00 PM	14	19%	16	22%	15	21%	14	19%	1	1%	12	16%
6:00 PM	5	7%	9	12%	5	7%	5	7%	0	0%	5	7%
7:00 PM	5	7%	8	11%	5	7%	3	4%	0	0%	4	6%

Total classrooms = 73

TEACHING LAB UTILIZATION

There are 16 scheduled teaching laboratories on the SOU campus, with a total of 455 student stations. During the Fall 2018 term, the labs were scheduled, on average, 15 hours per week with 83% of the stations occupied. The labs are located in six buildings. The following chart indicates the scheduled use of the teaching labs in each building.

TEACHING LABORATORY UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Education Psychology	6828	2	1,031	31	22	20.5	29	72%
Marion Ady Building	4754	3	1,135	46	14	12.7	15	86%
Music Hall	6683	2	2,227	156	26	42.4	14	89%
Science Building	6847	4	717	87	9	8.0	6	88%
Taylor Hall	6824	1	965	11	22	4.1	16	26%
Theater Arts Building	1882	4	1,167	68	15	5.8	16	102%
Total No. of Rooms = 16		**AVERAGE**	**1,151**	**40.5** *	**16**	**10.2**	**15**	**83%**
Total No. of Stations = 455		**Total ASF**	**18,421**					

At 10.2 hours per week of student station occupancy, the utilization does not meet the guideline of 15 weekly seat hours, 20 weekly room hours. The student station occupancy of 83% when the room is scheduled exceeds the 70% expectation.

Labs are scheduled throughout the day Monday through Thursday with lower utilization on Friday, as indicated in the chart below. The maximum number of labs scheduled concurrently is eleven.

SCHEDULED TEACHING LABORATORY USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	2	13%	3	19%	2	13%	3	19%	0	0%	2	13%
9:00 AM	3	19%	5	31%	3	19%	5	31%	1	6%	3	21%
10:00 AM	6	38%	9	56%	9	56%	9	56%	3	19%	7	45%
11:00 AM	5	31%	8	50%	7	44%	8	50%	3	19%	6	39%
12:00 PM	6	38%	8	50%	7	44%	8	50%	3	19%	6	40%
1:00 PM	8	50%	9	56%	8	50%	8	50%	3	19%	7	45%
2:00 PM	8	50%	9	56%	8	50%	8	50%	3	19%	7	45%
3:00 PM	8	50%	11	69%	10	63%	10	63%	4	25%	9	54%
4:00 PM	4	25%	8	50%	5	31%	6	38%	1	6%	5	30%
5:00 PM	5	31%	7	44%	6	38%	5	31%	1	6%	5	30%
6:00 PM	1	6%	0	0%	3	19%	1	6%	0	0%	1	6%
7:00 PM	0	0%	0	0%	2	13%	0	0%	0	0%	0	3%

Total laboratories = 16

CAMPUS SPACE NEEDS

Existing space on campus is organized into three categories as follows:

- Academic Space—classrooms, teaching labs, open labs
- Academic Support Space—offices, library and collaborative learning, assembly and exhibit, physical plant, other department space
- Inactive/Conversion Space—space currently in renovation or not usable for some other reason

In the Fall 2018 term, Southern Oregon University had a surplus of 68,401 ASF of usable space plus 3,702 ASF of inactive/conversion space, as indicated in the chart below. A deficit in other department and assembly and exhibit space is offset by a surplus in academic space

SPACE NEEDS ANALYSIS - BASE YEAR, FALL 2018

	2018 *Student FTE = 3,180*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	76,054	48,243	27,811	37%
Teaching Laboratories & Service	24,742	21,563	3,179	13%
Open Laboratories & Service	41,036	33,852	7,184	18%
Academic Space Subtotal	*141,832*	*103,658*	*38,174*	*27%*
Academic Support Space				
Offices & Service	134,903	110,365	24,538	18%
Library & Collaborative Learning Space	70,917	47,700	23,217	33%
Assembly & Exhibit	22,261	27,450	(5,189)	(23%)
Physical Plant	30,460	20,489	9,971	33%
Other Department Space	16,377	38,688	(22,311)	(136%)
Academic Support Space Subtotal	*274,919*	*244,692*	*30,227*	*11%*
CAMPUS TOTAL	**416,751**	**348,350**	**68,401**	**16%**
Inactive/Conversion Space	*3,702*			

The campus enrollment projection of 3,520 student FTE in 2029 yields a total space need of 365,525 ASF. Current total space on campus of 420,453 ASF meets this need. Proposed programs in physical therapy, occupational therapy, respiratory therapy, gerontology, health care management, and accounting can be accommodated within the overall campus space. However, reconfiguration and repurposing of space may be necessary.

SPACE NEEDS ANALYSIS, CAMPUS ENROLLMENT PROJECTIONS - TARGET YEAR, FALL 2029

	Campus Projections *Student FTE = 3,520*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	76,054	52,267	23,787	31%
Teaching Laboratories & Service	24,742	23,282	1,460	6%
Open Laboratories & Service	41,036	35,798	5,238	13%
Academic Space Subtotal	*141,832*	*111,347*	*30,485*	*21%*
Academic Support Space				
Offices & Service	134,903	110,365	24,538	18%
Library & Collaborative Learning Space	70,917	52,800	18,117	26%
Assembly & Exhibit	22,261	27,450	(5,189)	(23%)
Physical Plant	30,460	22,651	7,809	26%
Other Department Space	16,377	40,912	(24,535)	(150%)
Academic Support Space Subtotal	*274,919*	*254,178*	*20,741*	*8%*
CAMPUS TOTAL	**416,751**	**365,525**	**51,226**	**12%**
Inactive/Conversion Space	*3,702*			

The NCHEMS student flow model enrollment projection of 3,167 student FTE in 2029 yields a total space need of 345,213 ASF which can be accommodated with current space on campus. Deficits in academic support space are offset by surpluses in academic space, indicating that reconfiguration of existing space could solve any space type shortages.

SPACE NEEDS ANALYSIS , NCHEMS STUDENT FLOW MODEL - TARGET YEAR, FALL 2029

	NCHEMS Flow *Student FTE = 3,167*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	76,054	45,939	30,115	40%
Teaching Laboratories & Service	24,742	20,330	4,412	18%
Open Laboratories & Service	41,036	33,712	7,324	18%
Academic Space Subtotal	*141,832*	*99,981*	*41,851*	*30%*
Academic Support Space				
Offices & Service	134,903	110,365	24,538	18%
Library & Collaborative Learning Space	70,917	47,505	23,412	33%
Assembly & Exhibit	22,261	27,450	(5,189)	(23%)
Physical Plant	30,460	21,384	9,076	30%
Other Department Space	16,377	38,528	(22,151)	(135%)
Academic Support Space Subtotal	*274,919*	*245,232*	*29,687*	*11%*
CAMPUS TOTAL	**416,751**	**345,213**	**71,538**	**17%**
Inactive/Conversion Space	*3,702*			

Academic program completions were analyzed to determine if there would be a significant difference in the type of academic space Southern Oregon University will need in the future as compared to the current space mix. The change in the number of completions between 2010 and 2017, as indicated in the IPEDS summary chart below, was compared to the change in projected enrollment to 2029. During the study period, SOU completions increased by 6%. The enrollment projection from the University is an 11 percent increase and the NCHEMS student flow model projects flat enrollment.

Programs that have seen significant increases in completions during the study period include IPEDS categories: Multi/Interdisciplinary Studies (154%) and Parks, Recreation, Leisure, and Fitness Studies (70%). There have been declines in: Health Professions and Related Programs (-36%) and Physical Sciences (-55%). The 2018 space needs analysis indicates a surplus of academic space. Both the SOU enrollment projection and NCHEMS student flow model yield a surplus of academic space in future years. Since the high completion programs are classroom intensive, the existing academic space mix should accommodate the need.

PROGRAM COMPLETION RATES

Institution Name: Southern Oregon University (UnitID: 210146)

	2010	2011	2012	2013	2014	2015	2016	2017	Line
Natural Resources and Conservation	26	18	45	27	36	44	27	28	
Communication Journalism and Related Programs	64	46	46	46	54	47	43	38	
Computer and Information Sciences and Support Services	23	32	30	30	23	22	16	21	
Education	172	194	166	192	177	164	202	200	
Foreign Languages Literatures and Linguistics	16	34	22	24	10	24	25	23	
English Language and Literature/Letters	48	26	47	39	34	38	26	21	
Liberal Arts and Sciences General Studies and Humanities	1								
Biological and Biomedical Sciences	29	16	21	19	37	19	32	27	
Mathematics and Statistics	13	4	12	13	17	12	14	14	
Multi/Interdisciplinary Studies	13	26	26	22	20	16	13	33	
Parks Recreation Leisure and Fitness Studies	37	36	62	50	46	64	57	63	
Physical Sciences	31	15	18	13	19	12	21	14	
Psychology	101	78	91	89	83	79	67	90	
Homeland Security Law Enforcement Firefighting and Related Protection	54	45	60	65	64	56	55	59	
Public Administration and Social Service Professions						13	1	0	
Social Sciences	64	52	75	66	72	49	63	69	
Visual and Performing Arts	123	80	60	76	101	130	137	136	
Health Professions and Related Programs			25	17	17	19	21	16	
Business Management Marketing and Related Support Services	161	186	176	177	186	188	203	187	
History	24	30	20	23	15	14	13	23	
Total	1,000	918	1,002	988	1,011	1,010	1,036	1,062	

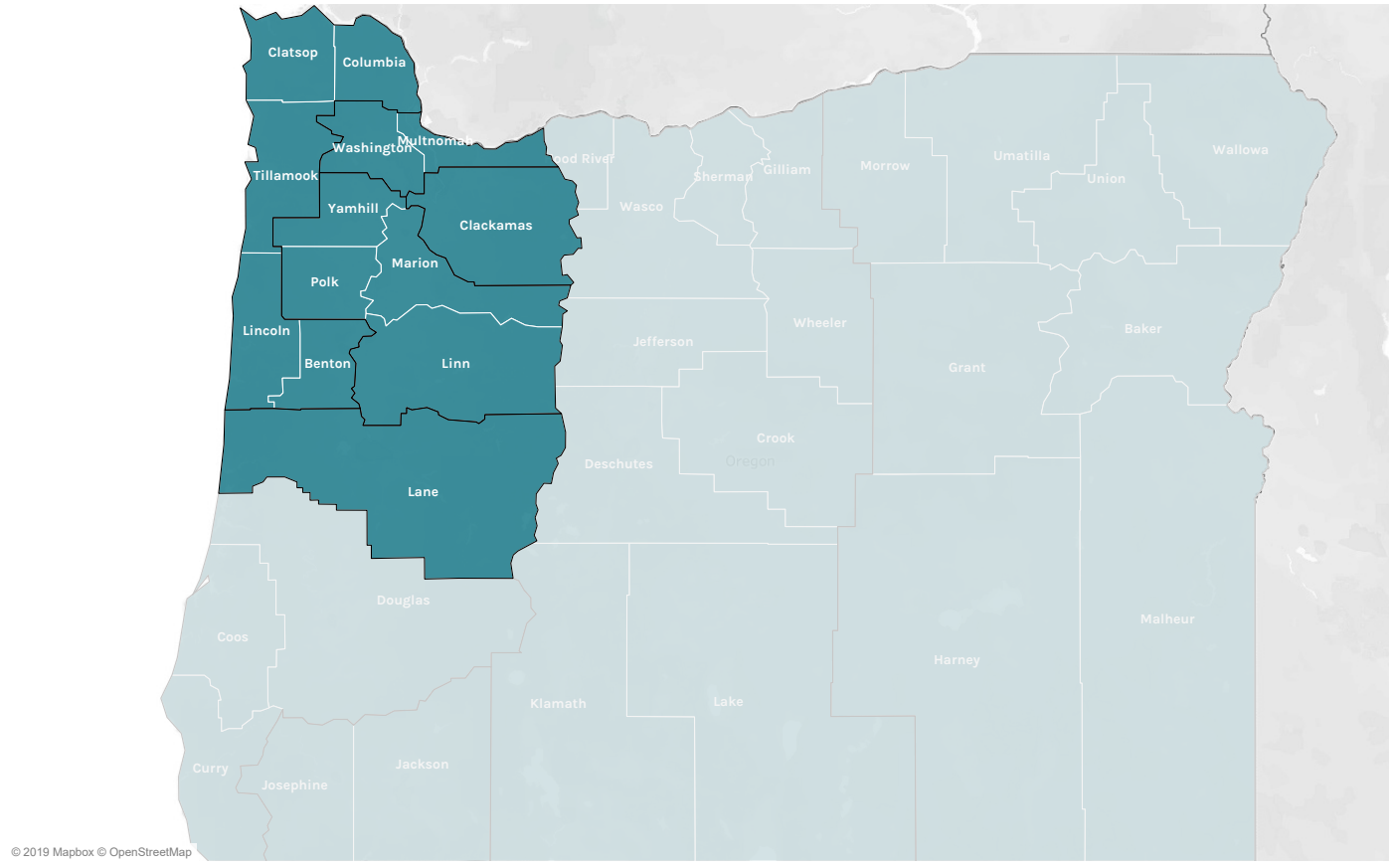
SECTION 8

UNIVERSITY OF OREGON

UNIVERSITY OF OREGON
ENROLLMENT & WORKFORCE DEMAND ANALYSIS

UO's primary service region (Figure 1) is comprised of five workforce investment areas covering the most populated areas of the state, including the Portland-Metro Workforce Development Board, Northwest Oregon Works, Clackamas Workforce Partnership, Willamette Workforce Partnership, and the Lane Workforce Partnership. These areas are comprised of the following counties: Benton, Clackamas, Clatsop, Columbia, Lane, Lincoln, Linn, Marion, Multnomah, Polk, Tillamook, Washington, and Yamhill.

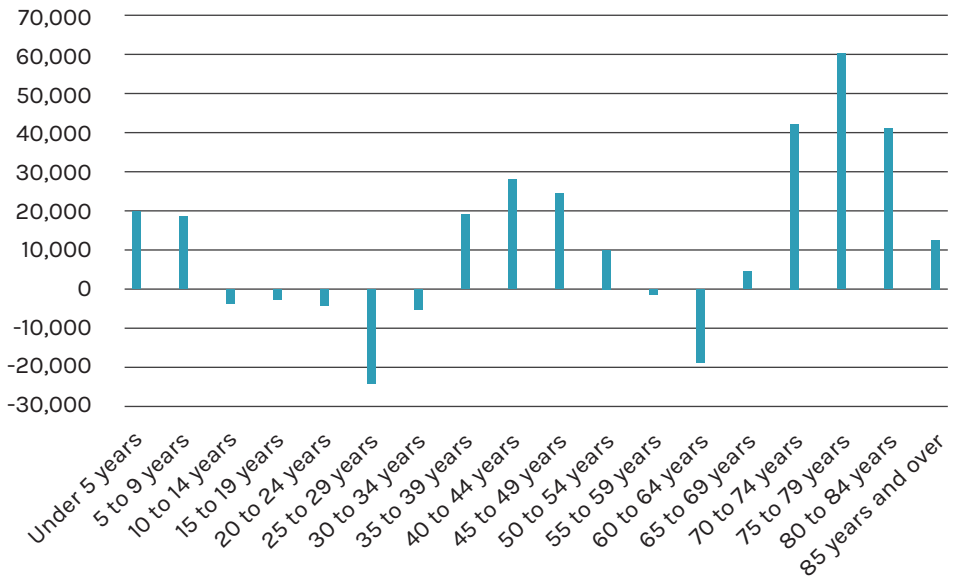
FIGURE 1. UNIVERSITY OF OREGON PRIMARY SERVICE REGION



POPULATION

Between 2010 and 2018, the population in the counties that comprise the primary service area grew for UO grew by nearly 290,000, or just over 1.25 percent per year. Broadly consistent with other parts of the state, the population in UO's primary service area grew especially among the elderly, with increases also among middle-age Oregonians between 35–55 and children under 10, while the traditional college-age population has been down (Figure 2).

FIGURE 2. CHANGE BETWEEN 2010-2018 IN UO PRIMARY SERVICE AREA COUNTIES BY AGE

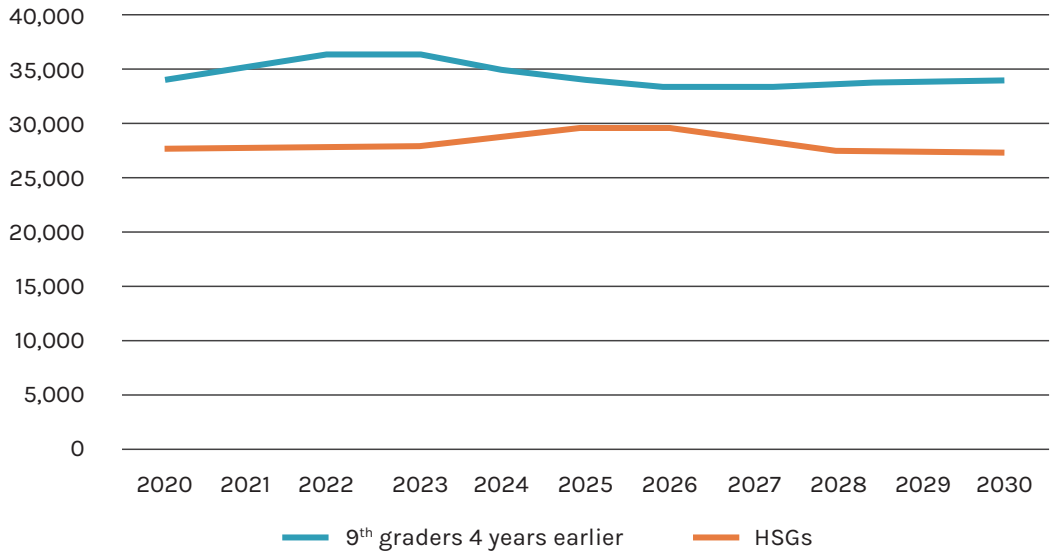


Source: EMSI, 2019.

1 Portland State University, Population Research Center.

Population growth between 2020 and 2030 is expected to be much faster among middle-age individuals between 25–49 than among the traditional college-age populations in UO's service area. Modest growth is also expected among ninth graders and the number of high school graduates projected will spike between 2025 and 2026, rising by over seven percent, before falling rapidly below anticipated 2020 levels (Figure 3).

FIGURE 3. PROJECTED NINTH GRADERS AND HIGH SCHOOL GRADUATES



Sources: WICHE, NCES CCD, oregonlive.com.

ENROLLMENT PROJECTIONS AND PATTERNS

UO attracts a majority of its entering undergraduates from out-of-state (52.2 percent). Of the non-residents, about 57 percent hailed from California in 2016–17.[2] Among Oregon residents, UO typically can claim that in any given year it enrolls residents from all of the state's counties. Even so, its reach across the state is rather narrow geographically, drawing 75 percent of its resident students from Lane, Washington, Multnomah, and Clackamas counties, plus about six percent of Oregonians for whom the HECC data did not include a place of origin. UO's penetration of Lane County is substantial, far exceeding the extent to which it has drawn students from any other county in the state (Figure 5).

UO clearly has a pipeline of students who transfer in from Lane Community College, located in the same county. It also attracts considerable number of transfers from institutions outside of Oregon (Table 1). To a lesser degree, it also recruits students from the Portland area and along the I-5 corridor.

TABLE 1. FALL 2018 TRANSFER STUDENT INSTITUTION OF ORIGIN

Community Colleges	
Lane Community College	843
Portland Community College	326
Chemeketa Community College	105
Clackamas Community College	70
Central Oregon Community College	65
Umpqua Community College	54
Linn-Benton Community College	52
Mount Hood Community College	47
Rogue Community College	36
Southwestern Oregon Community College	25
Blue Mountain Community College	14
Klamath Community College	14
Other Oregon 4-Year Institutions	
Oregon State University	92
Portland State University	83
Southern Oregon University	49
Western Oregon University	36
Other or Unknown	
Other U.S. college or university	1258
Unknown	156
Oregon independent college or university	80
Foreign College or university	265

2 NCES IPEDS.

FIGURE 4. SHARE OF RESIDENT UNDERGRADUATE ENROLLMENT BY COUNTY

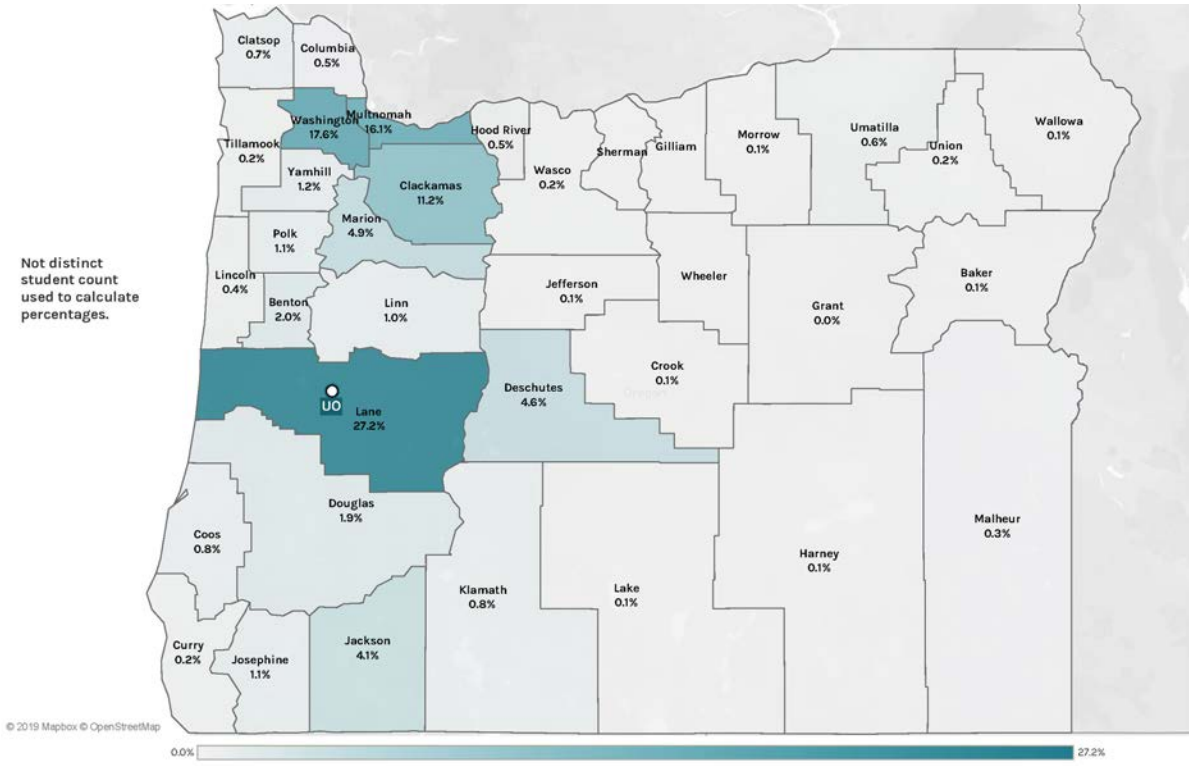
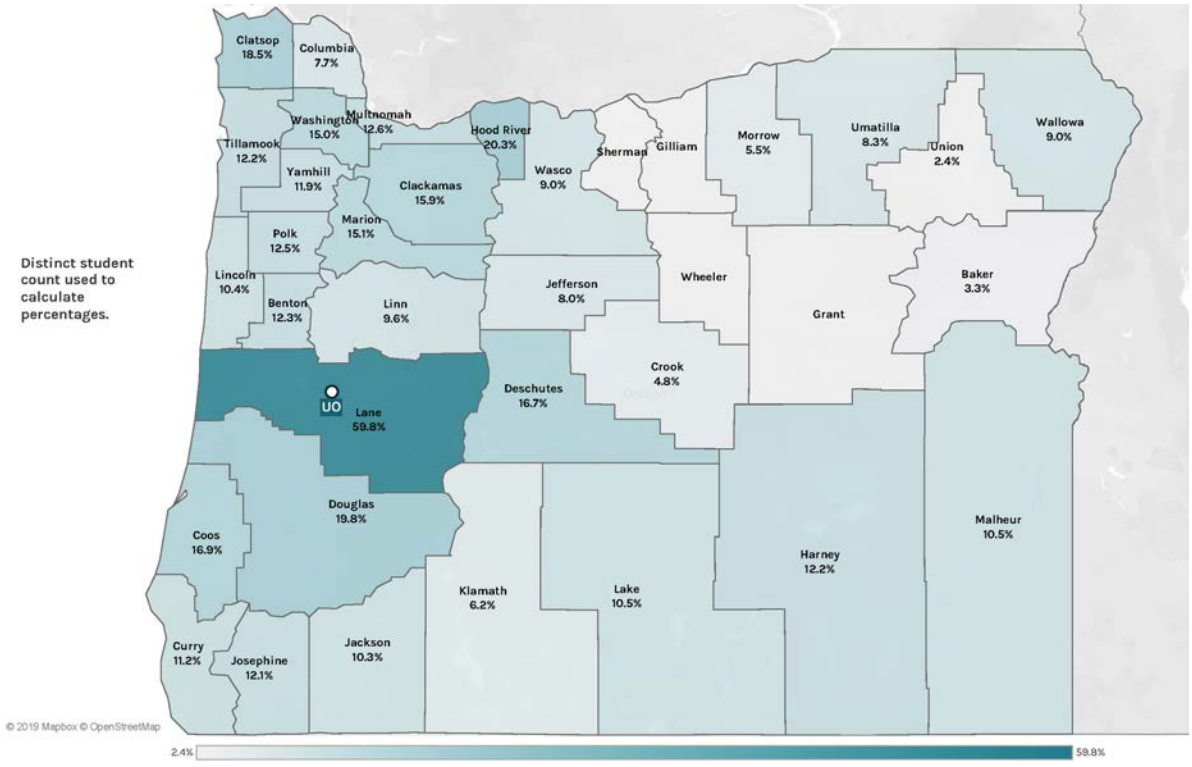


FIGURE 5. SHARE OF COLLEGE-GOING STUDENTS FROM EACH COUNTY ATTENDING UO



PROJECTING CAPACITY NEEDS DUE TO ENROLLMENT

To assess the likely need for space caused by undergraduate enrollment demand, NCHEMS modeled enrollment projections for each of Oregon's public four-year institutions based on the following assumptions:

- Ratio of high school graduates to 9th graders[3]
- College-going rate of recent high school graduates to enrollment at an Oregon public four-year institution[4]
- Participation rate per 100,000 population of 20–49 year olds enrolling for the first-time at an Oregon public four-year institution[5]
- Enrollment of first-time students from out-of-state[6]
- Ratio of transfer students from public two-year to public four-year institutions to the total enrollment of public two-year institutions[7]
- Retention and completion rates[8] remain steady
- Projected population changes for each institution's designated service areas[9]
- County-of-origin of undergraduate enrollment[10]
- The current proportional mix on on-campus and online students remains constant

This modeling suggests that, barring significant changes in recruitment or retention, UO will actually struggle to keep its enrollment at 2017–18 levels for several years, before they temporarily rise by just 285 FTE by 2024–25. From that point forward, enrollments are likely to fall substantially over just a few years, leading to a decline of over 500 undergraduate FTEs from the 2017–18 level by 2028–29 (Figure 6).

FIGURE 6. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017

Note: Data shows the difference between the expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect no assumed changes in the most recent data for recruitment and retention.

3 NCES CCD, Western Interstate Commission for Higher Education, *Knocking at the College Door*, knocking.wiche.edu.

4 Enrollment by county (Oregon HECC), high school graduates (oregonlive.com), Residence and Migration (NCES IPEDS).

5 Enrollment by county (HECC), Residence and Migration (NCES IPEDS).

6 Enrollment of non-resident students (HECC), Residence and Migration (NCES IPEDS).

7 Oregon HECC.

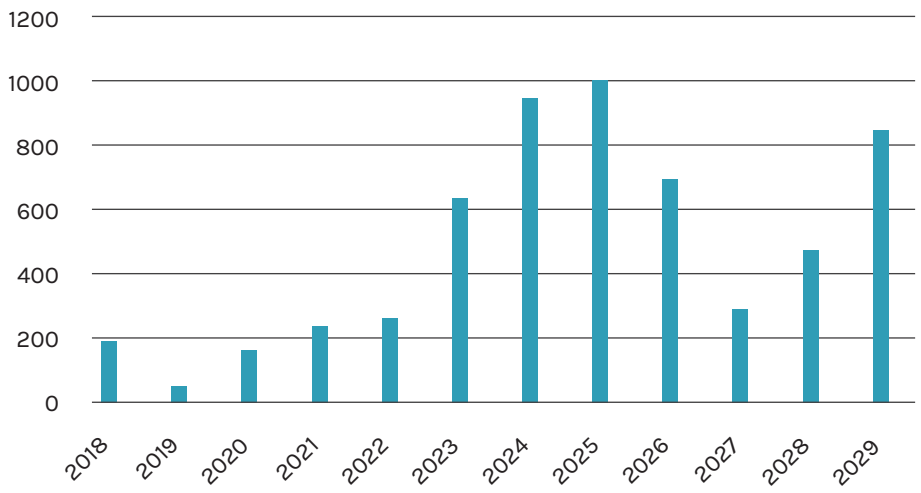
8 NCES IPEDS.

9 Office of Economic Analysis, Oregon Department of Administrative Services.

10 Oregon HECC.

Using optimistic assumptions about UO's capacity to improve recruitment and retention of students, NCHEMS' modeling yields a less bleak picture. While the anticipated enrollment spikes before falling as under the steady state assumptions above, the spike reaches an additional 1,713 FTE, and the subsequent decline still leaves UO with enrollment about 500 FTE above the 2017–18 level. These results relate to adjusting key parameters (enrollment of in-state students, out-of-state students, and transfer students, as well as retention rates) by five percent (Figure 7). As a selective institution, UO recruits students who are better prepared for academic success than some of the other public four-year institutions in the state, while it also has relatively greater resources to devote to retention efforts, both of which suggest that the hypothetical improvement in retention rates assumed here will have unusually large effects on enrollment compared to less selective, well-resourced institutions.

FIGURE 7. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017, ASSUMING A 5% INCREASE IN RECRUITMENT AND RETENTION MEASURES



Note: Data shows the difference between expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect a 5% increase in each of the recruitment measures for different student categories—in-state students, out-of-state students, and transfer students—as well as retention rates from the first- to the second year. No change in the high school graduation rate is assumed.

Neither the default forecast nor the optimistic one should require the investment of resources needed to meet the anticipated enrollment demand, given UO's overall size makes even the optimistically derived spike only adds roughly five percent at the peak to the 2017–18 enrollment total.

In order for UO to achieve its on-campus enrollment target for 2029, under which it would enroll 1,646 additional on-campus FTEs, NCHEMS estimates that it would have to improve its recruitment and retention by about 10 percent across the board.

ECONOMY AND WORKFORCE NEEDS

The largest industries employing high proportions of college graduates in the University of Oregon service area are:

- Private educational and health services
- Government
- Professional and business services

Of these, health and business services are the two projected to exhibit the strongest growth. Indeed, these two industries show more growth than any others in the region (Figure 8).

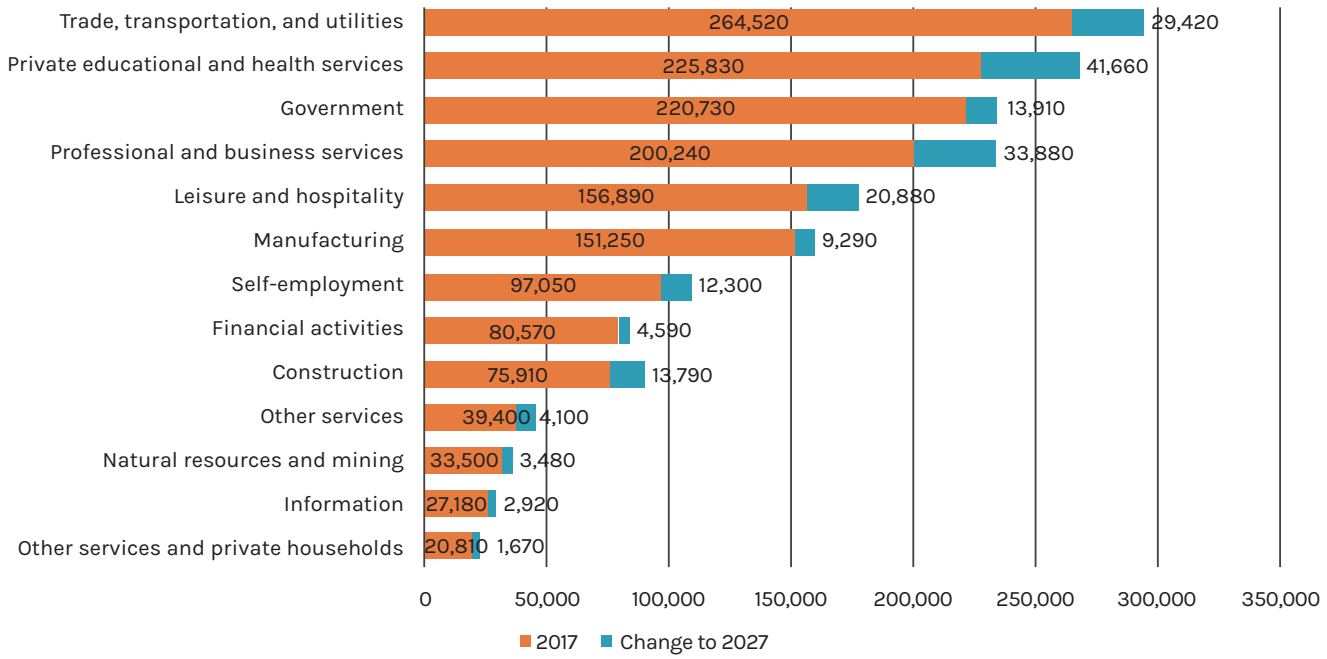
The occupations with the largest numbers of projected annual openings (and that employ a substantial number of college graduates) are:

- Management (along with business and financial operations)
- Education
- Healthcare practitioners and allied health

Further down the list but sill significant are jobs in computer and mathematical occupations (Figure 9).

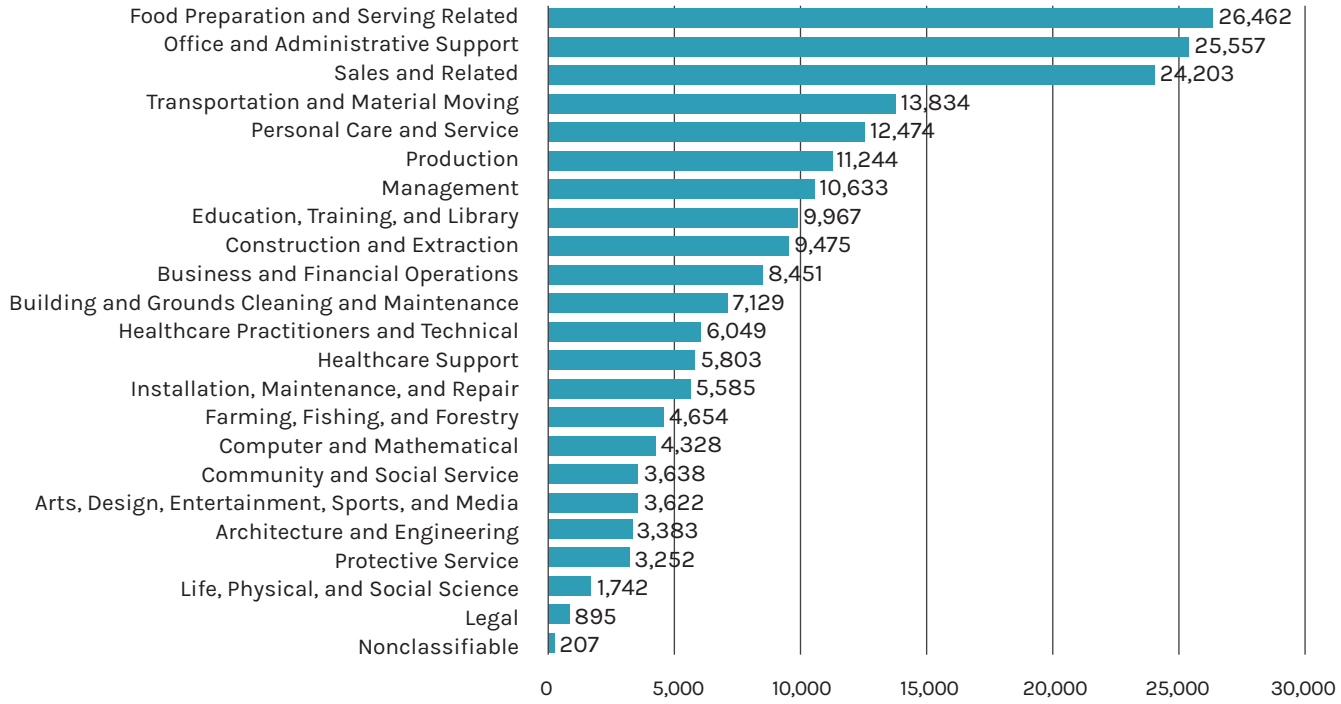
All the above-listed occupations are projected to show substantial growth over the next decade with jobs in management and health profession occupations projected to have the greatest growth. It is noteworthy that jobs in computer occupations are projected to grow more in this region than in any other region of the state (Figure 10).

FIGURE 8. EMPLOYMENT GROWTH BY INDUSTRY, 2017–2027
UNIVERSITY OF OREGON SERVICE AREA



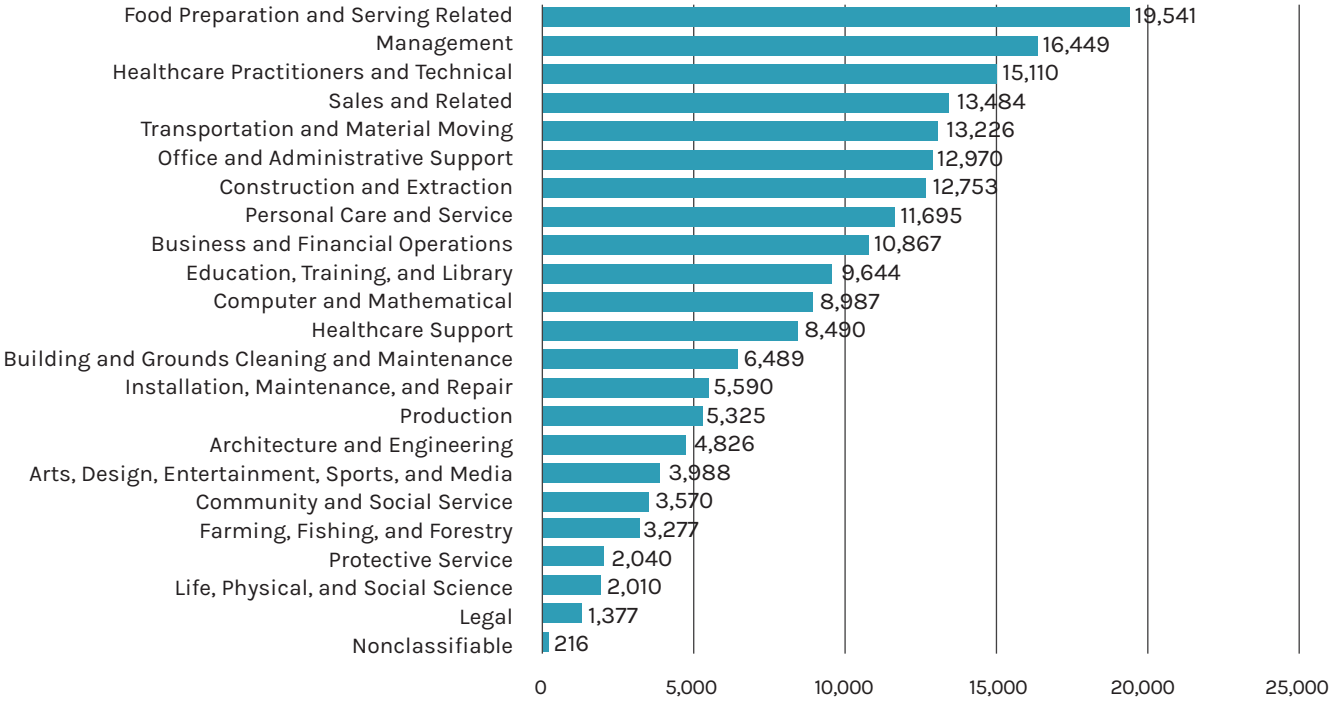
Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 9. TOTAL ANNUAL OPENINGS BY OCCUPATION, 2017–2027, UNIVERSITY OF OREGON SERVICE AREA



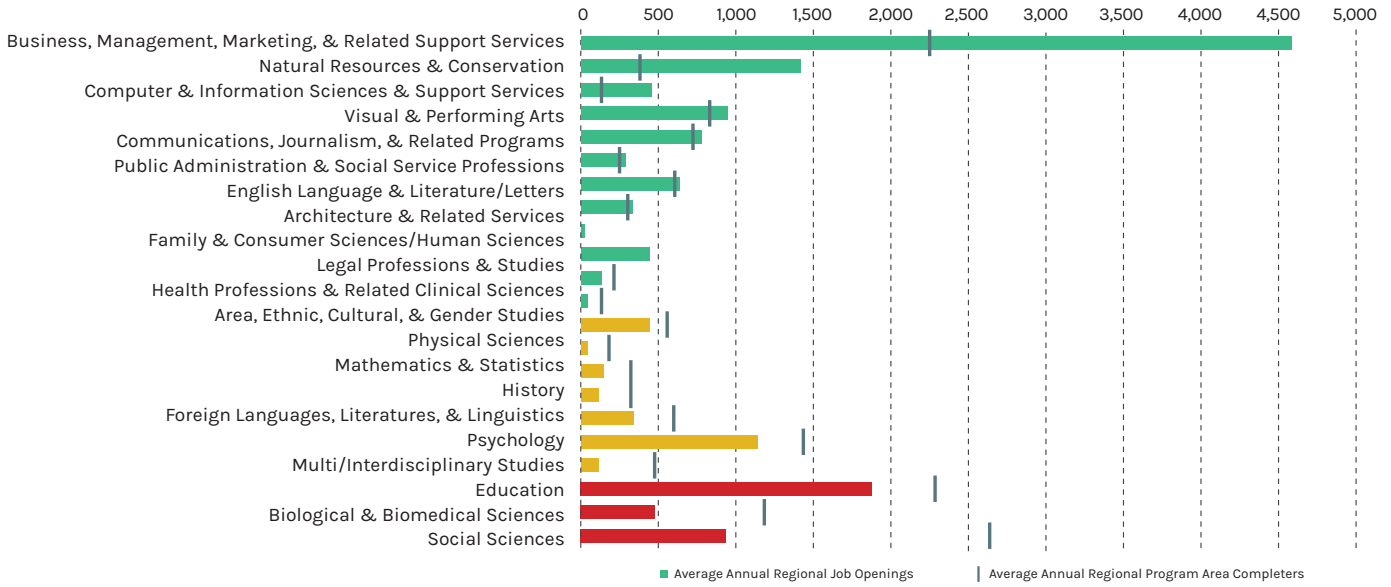
Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 10. GROWTH IN EMPLOYMENT BY OCCUPATION, 2017–2027, UNIVERSITY OF OREGON SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 11. GAPS AT THE BACHELOR'S AND ABOVE DEGREE LEVEL (2-DIGIT CIP)



Source: EMSI, 2019.

FIGURE 12. PROGRAM ADDITIONS

Bachelor's degree level program additions

SOC Code	SOC Title	BACH Job Openings in the UO Service Region	BACH Program Completers in the UO Service Region	BACH Gap	Median Hourly Wage
29-1141	Registered Nurses	1,204	437	766	$43.55
41-4012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	772	47	725	$28.34
41-3099	Sales Representatives, Services, All Other	539	19	520	$22.50
41-3021	Insurance Sales Agents	314	0	314	$23.81
13-1028	Buyers and Purchasing Agents	253	21	233	$28.05
23-2011	Paralegals and Legal Assistants	213	1	212	$24.38
17-2112	Industrial Engineers	206	10	196	$49.01
41-9022	Real Estate Sales Agents	203	19	185	$21.41
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	184	2	182	$37.58
17-2051	Civil Engineers	210	29	181	$41.66
17-2141	Mechanical Engineers	195	26	170	$42.59
13-1151	Training and Development Specialists	136	8	128	$29.95
11-9141	Property, Real Estate, and Community Association Managers	120	2	117	$24.49
33-3051	Police and Sheriff's Patrol Officers	124	10	114	$35.22
13-1031	Claims Adjusters, Examiners, and Investigators	120	7	114	$33.91
17-2071	Electrical Engineers	108	13	95	$45.26
29-2018	Clinical Laboratory Technologists and Technicians	93	1	92	$29.44
17-2061	Computer Hardware Engineers	106	14	92	$61.86
41-9021	Real Estate Brokers	92	2	90	$27.45
17-2072	Electronics Engineers, Except Computer	99	14	85	$44.29
21-1029	Social Workers, All Other	86	4	82	$26.37
41-9031	Sales Engineers	68	0	68	$53.58
53-2011	Airline Pilots, Copilots, and Flight Engineers	66	0	66	$116.31
13-1081	Logisticians	65	6	59	$31.84
53-2012	Commercial Pilots	57	0	57	$27.07
11-3061	Purchasing Managers	56	4	51	$49.69

Master's degree level program additions

SOC Code	SOC Title	MAST Job Openings in the UO Service Region	MAST Program Completers in the UO Service Region	MAST Gap	Median Hourly Wage
29-1171	Nurse Practitioners	101	1	100	$56.76
29-1122	Occupational Therapists	67	0	67	$44.46
29-1129	Therapists, All Other	23	0	23	$19.29
21-1019	Counselors, All Other	17	2	15	$22.30
29-1151	Nurse Anesthetists	15	0	14	$69.15
29-1161	Nurse Midwives	6	0	6	$52.50
29-1128	Exercise Physiologists	4	0	4	$19.85

Doctoral degree level program additions					
SOC Code	SOC Title	PHD Job Openings in the UO Service Region	PHD Program Completers in the Service Region	PHD Gap	Median Hourly Wage
29-1051	Pharmacists	115	12	103	$63.30
29-1069	Physicians and Surgeons, All Other	198	101	97	$91.72
29-1123	Physical Therapists	95	6	90	$41.25
29-1021	Dentists, General	72	3	69	$77.73
29-1131	Veterinarians	67	3	64	$40.42
29-1011	Chiropractors	29	2	27	$31.81
29-1062	Family and General Practitioners	49	29	19	$94.98
29-1061	Anesthesiologists	17	0	17	$219.37
29-1065	Pediatricians, General	16	0	16	$96.70
29-1063	Internists, General	14	0	14	$90.87
29-1067	Surgeons	12	0	12	$108.70
29-1081	Podiatrists	7	0	7	$28.06
29-1064	Obstetricians and Gynecologists	6	0	6	$111.25

Source: EMSI, 2019.

Emsi data reinforce the fact that there are large gaps between demand and supply in the areas of education, business and accounting, and computer and information sciences, Emsi also calls attention to unmet demands in environmental sciences and environmental studies, categories not specifically identified in Department of Employment projections (Figure 11).

These are all occupations for which the University has preparatory programs in place. As a result, there are no workforce demands that require new, specialized kinds of facilities at the University.

As with other parts of the state there are large demand for workers in the health professions. The greatest need, by far, is for registered nurses, but there are needs for almost all kinds of health professionals in this region (Table 2).

During the site visit the expressions of need revolved much more around creating adequate space for programs already in place than for space needed to accommodate new, different kinds of programs. An example is the plan for adequate space to meet the research and clinical practice needs in speech pathology and counseling.

UNIVERSITY OF OREGON FACILITIES INFORMATION

Fall 2018 facilities data for the University of Oregon is summarized below. Included is general information about the 167 buildings on campus: average age of the buildings, total floor area on campus, and replacement value. Two pie charts highlight the percentage of buildings in each age category. The first includes a category for buildings of unknown age. The second illustrates the percentage of buildings in each age category of buildings with known age only. A block diagram makes visible the proportion of space on campus in each space category.

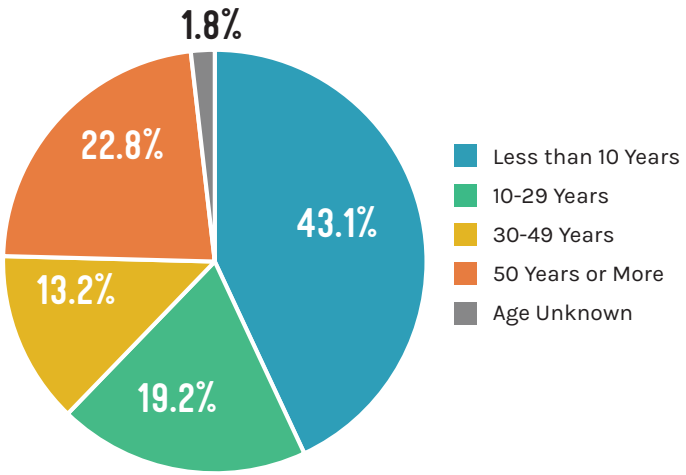
UNIVERSITY OF OREGON

Number of Buildings:	167
Number of Buildings with Age/Renovation Year:	164
Average Age of Building/Renovation:	27
Total Gross Square Feet:	4,416,497
Total Gross Square Fee for Buildings with Year:	4,412,177
Total Renovated Gross Square Feet:	3,606,074
Percentage Gross Square Feet Renovated:	81.7%
Number of Buildings Renovated:	83
Percentage of Buildings Renovated:	49.7%
Total Current Replacement Value of All UO Buildings:	$3,045,951,511

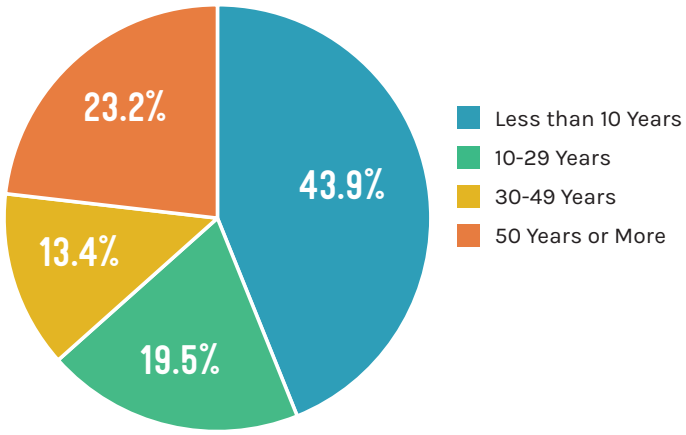
Age Grouping of Buildings		
	Count	Percentage
Less than 10 Years Old	72	43.1%
10 to 29 Years Old	32	19.2%
30 to 49 Years Old	22	13.2%
50 Years Old or More	38	22.8%
Age Unkown	3	1.8%

Note: Only have CRV for 157 buildings

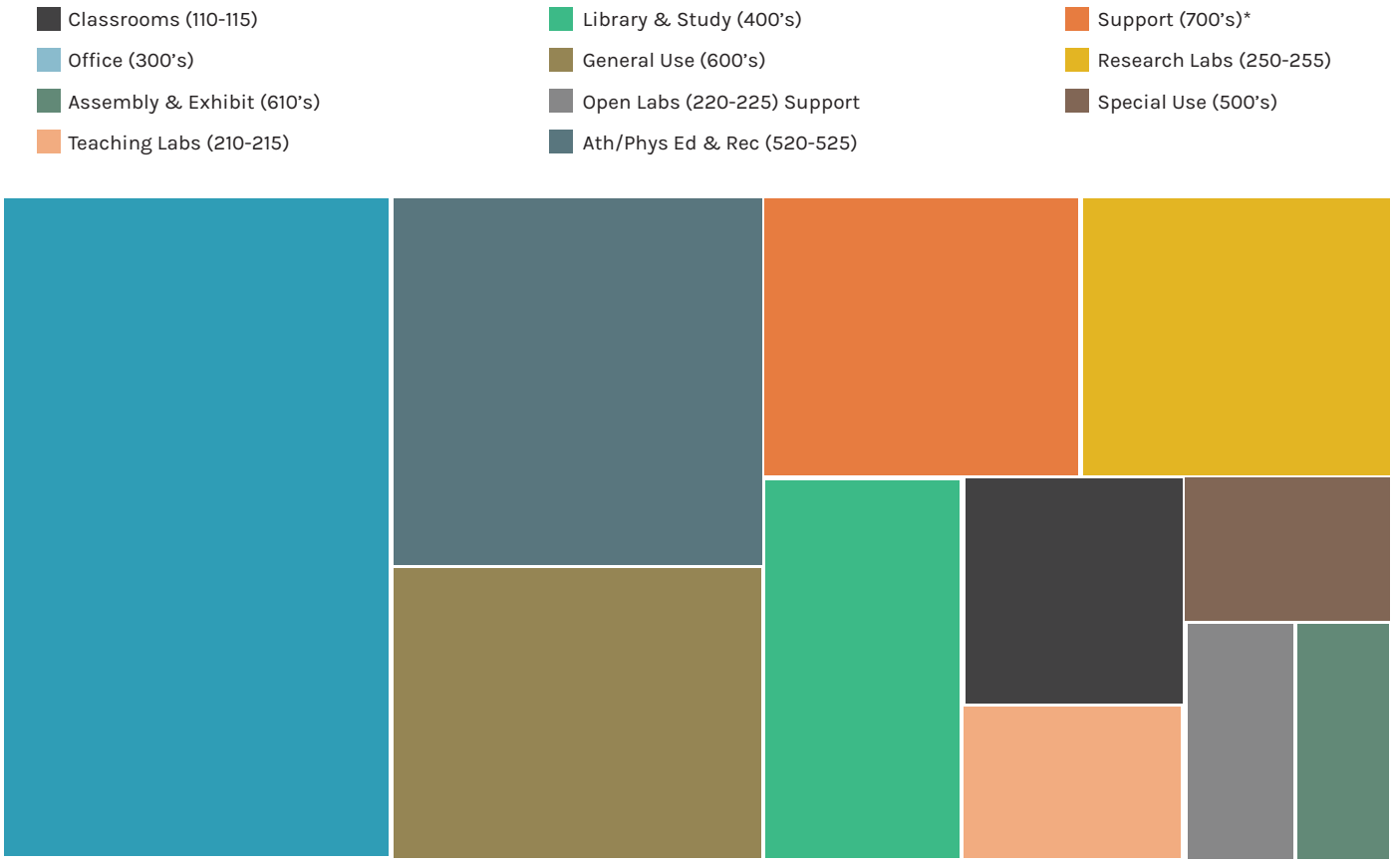
UNIVERSITY OF OREGON AGE OF BUILDING/RENOVATION



UNIVERSITY OF OREGON AGE OF BUILDING/RENOVATION



UNIVERSITY OF OREGON ASF BY SPACE CATEGORY



UNIVERSITY OF OREGON SPACE ANALYSIS

The Fall 2018 term use of scheduled teaching space on the University of Oregon campus was analyzed to determine if additional capacity is available in existing space. Campus space needs for academic and academic support space were analyzed for the Fall 2018 term to compare existing space use with the space guidelines established for this study. The guidelines were then applied to two future enrollment projection scenarios to determine the quantity of space needed and how the need compares to the quantity and type of space available on campus.

FALL 2018 SCHEDULED TEACHING SPACE UTILIZATION

CLASSROOM UTILIZATION

There are 216 scheduled classrooms on the UO campus, with a total of 11,709 student stations (seats in the classroom). During the Fall 2018 term, the classrooms were scheduled, on average, 27 hours per week with 63% of the seats in the classroom filled. The classrooms are located in 43 buildings. The following chart indicates the scheduled use of the classrooms in each building.

CLASSROOM UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
942 Olive	*B0730*	1	830	0	0	---	0	0%
Agate Hall	*B0147*	1	469	21	9	0.4	1	41%
Allen (Eric W.) Hall	*B0017*	7	930	22	35	25.6	30	67%
Anstett Hall	*B0003*	4	794	23	23	23.8	35	69%
Cascade Hall	*B0047*	1	717	20	16	12.1	29	42%
Chapman Hall	*B0006*	5	740	19	30	20.5	28	67%
Chiles (Earle A.) Business Center	*B0002*	2	1,334	19	53	25.4	37	76%
Clinical Services Bldg	*B0029*	3	1,074	15	54	26.3	16	75%
Collier House	*B0081*	2	492	23	13	5.5	8	54%
Columbia Hall	*B0036*	4	1,550	15	75	21.0	26	61%
Condon Hall	*B0004*	10	635	19	19	17.2	28	60%
Deady Hall	*B0005*	12	604	16	24	19.9	30	62%
Deschutes Hall	*B0044*	2	272	17	7	1.5	4	36%
Earl (Virgil D.) Hall Complex	*B0073*	6	832	24	23	21.2	32	66%
Esslinger (Arthur A.) Hall	*B0023*	6	661	16	26	17.4	28	64%
Fenton Hall	*B0019*	4	816	14	42	25.1	39	71%
Friendly Hall	*B0009*	6	440	18	16	17.5	28	62%
Gerlinger Hall	*B0011*	6	982	16	33	15.5	29	56%
Global Scholars Hall	*B0158*	6	1,325	20	41	17.2	26	64%
HEDCO Education Building	*B0010*	5	1,160	21	32	21.7	32	57%
Jaqua (John E.) Academic Ctr for Student Athletes	*B0067*	1	2,374	21	55	9.4	19	49%
Klamath Hall	*B0038*	2	687	16	23	8.4	16	50%
Knight (William W.) Law Center	*B0050*	10	1,569	27	28	10.2	22	46%
Knight Library	*B0018*	6	962	25	21	9.2	15	63%
Lawrence Hall	*B0001*	7	1,109	19	44	21.8	28	63%
Lillis Hall	*B0034*	17	1,504	22	58	26.7	36	74%
Living-Learning Center North	*B0065*	2	775	20	23	17.2	30	57%
Living-Learning Center South	*B0064*	1	2,666	17	103	19.4	28	69%
Lorry I. Lokey Education Building (A&B)	*B0007*	3	891	20	21	15.1	29	50%
Lorry I. Lokey Education Building (C)	*B0041*	2	1,548	25	29	19.8	39	50%
McKenzie Hall	*B0030*	24	984	21	32	20.2	29	66%
Onyx Bridge/Environmental Health	*B0037*	2	309	0	12	---	14	0%
Pacific Hall	*B0035*	3	1,365	14	57	18.2	29	57%
Peterson Hall	*B0022*	5	699	22	22	26.2	40	67%

CLASSROOM UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018 (CONT.)

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Price (Allan) Science Commons & Research Library	*B0038A*	2	1,170	26	21	11.4	23	48%
Prince Lucien Campbell Hall	*B0008*	13	674	16	28	19.4	25	68%
Schnitzer (Jordan) Museum of Art	*B0024*	1	1,739	22	31	1.2	3	39%
Straub (John) Memorial Hall	*B0072*	6	1,641	14	87	21.0	22	58%
Student Recreation Center	*B0051*	2	496	21	15	7.4	14	54%
Univ Health, Counseling, and Testing Ctr	*B0014*	1	369	18	0	0.0	0	0%
Villard Hall	*B0031*	6	752	13	18	16.4	22	49%
Volcanology	*B0015*	1	489	20	20	19.1	25	76%
Willamette Hall	*B0046*	6	900	15	41	18.6	23	57%
Total No. of Rooms = 216		**AVERAGE**	**981**	**18.1** *	**34**	**19.6**	**27**	**63%**
Total No. of Stations = 11709		**Total ASF**	**211,906**					

At 19.6 weekly hours of use for each classroom seat, the utilization does not meet the guideline of 24 weekly seat hours, 36 weekly room hours, and 67% student station occupancy.

The greatest number of classrooms in use at any one time was 180 on Thursday at 2:00, as indicated in the following chart. Classroom use is generally higher mid-day Monday through Thursday with a greater utilization than typical on Friday

SCHEDULED CLASSROOM USE BY DAY & TIME, FALL 2018

Time of Day	*Monday*		*Tuesday*		*Wednesday*		*Thursday*		*Friday*		*Average*	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	69	32%	92	43%	74	34%	88	41%	38	18%	72	33%
9:00 AM	122	56%	129	60%	132	61%	126	58%	108	50%	123	57%
10:00 AM	159	74%	165	76%	171	79%	165	76%	131	61%	158	73%
11:00 AM	155	72%	156	72%	166	77%	161	75%	122	56%	152	70%
12:00 PM	144	67%	139	64%	151	70%	143	66%	109	50%	137	64%
1:00 PM	148	69%	148	69%	159	74%	151	70%	107	50%	143	66%
2:00 PM	150	69%	167	77%	156	72%	167	77%	94	44%	147	68%
3:00 PM	135	63%	160	74%	145	67%	170	79%	57	26%	133	62%
4:00 PM	108	50%	116	54%	133	62%	131	61%	33	15%	104	48%
5:00 PM	81	38%	93	43%	106	49%	110	51%	8	4%	80	37%
6:00 PM	37	17%	38	18%	34	16%	35	16%	4	2%	30	14%
7:00 PM	23	11%	25	12%	21	10%	23	11%	2	1%	19	9%

Total classrooms = 216

TEACHING LAB UTILIZATION

There are 106 scheduled teaching laboratories on the UO campus, with a total of 2,728 student stations. During the Fall 2018 term, the labs were scheduled, on average, 16 hours per week with 72% of the stations occupied. The labs are located in 27 buildings. The following chart indicates the scheduled use of the teaching labs in each building.

TEACHING LABORATORY UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
1715 Franklin	*B0726L*	1	540	34	14	2.6	3	88%
942 Olive	*B0730*	1	1,229	53	0	0.0	0	0%
Allen (Eric W.) Hall	*B0017*	7	626	59	10	20.6	20	86%
Collier House	*B0081*	1	622	11	10	0.7	4	18%
Columbia Hall	*B0036*	4	768	31	16	11.0	17	58%
Condon Hall	*B0004*	2	599	32	19	20.7	22	94%
Fine Arts Studios Ceramics	*B0125B*	1	2,472	124	14	19.7	29	69%
Fine Arts Studios Metalsmith/Jewelry	*B0125C*	1	1,752	117	14	10.3	11	90%
Fine Arts Studios Sculpture	*B0125A*	1	1,102	55	11	6.3	11	55%
Frohnmayer (MarAbel B.) Music Bldg	*B0025*	15	1,084	27	17	9.3	23	43%
Gerlinger Annex	*B0062*	4	3,966	105	20	10.4	19	58%
Gerlinger Hall	*B0011*	2	3,987	101	19	5.6	9	51%
Huestis (Ralph) Hall	*B0040*	4	982	41	23	15.2	16	96%
Klamath Hall	*B0038*	12	1,156	47	17	13.6	20	77%
Knight Library	*B0018*	1	1,116	53	18	6.6	7	101%
Lawrence Hall	*B0001*	28	1,012	49	13	8.7	10	83%
McKenzie Hall	*B0030*	3	741	27	19	15.3	22	70%
Miller (James F.) Theatre Complex	*B0031A*	2	377	0	0	0.0	0	0%
Millrace 1	*B0095*	3	712	36	15	18.9	25	73%
Millrace 3	*B0097*	1	583	23	16	7.1	11	62%
Onyx Bridge/Environmental Health	*B0037*	2	1,414	108	20	17.0	16	111%
Pacific Hall	*B0035*	2	730	58	10	11.5	17	58%
Price (Allan) Science Commons & Research Library	*B0038A*	2	866	23	6	12.8	9	71%
Straub (John) Memorial Hall	*B0072*	2	597	28	16	11.6	15	79%
Student Recreation Center	*B0051*	1	1,072	36	22	17.9	24	75%
Villard Hall	*B0031*	1	312	26	11	9.5	11	86%
Willamette Hall	*B0046*	2	841	53	20	20.5	15	135%
Total No. of Rooms = 106	**AVERAGE**	**1,129**	**43.9** *	**15**	**11.1**	**16**	**72%**	
Total No. of Stations = 2728	**Total ASF**	**119,676**						

At 16 hours per week of student station occupancy, the utilization is slightly below the guideline of 19 weekly seat hours, 24 weekly room hours. The average student station occupancy of 72% when the room is scheduled is slightly below the 80% expectation.

Labs are scheduled primarily on Tuesday, Wednesday, Thursday, with higher than typical use on Friday as indicated in the chart below.

SCHEDULED TEACHING LABORATORY USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	8	8%	18	17%	17	16%	23	22%	15	14%	16	15%
9:00 AM	19	18%	34	32%	26	25%	37	35%	24	23%	28	26%
10:00 AM	33	31%	53	50%	42	40%	54	51%	36	34%	44	41%
11:00 AM	31	29%	45	42%	38	36%	45	42%	32	30%	38	36%
12:00 PM	29	27%	44	42%	40	38%	49	46%	29	27%	38	36%
1:00 PM	31	29%	49	46%	43	41%	49	46%	33	31%	41	39%
2:00 PM	33	31%	50	47%	46	43%	54	51%	26	25%	42	39%
3:00 PM	29	27%	33	31%	35	33%	40	38%	18	17%	31	29%
4:00 PM	24	23%	36	34%	37	35%	38	36%	12	11%	29	28%
5:00 PM	21	20%	30	28%	32	30%	33	31%	7	7%	25	23%
6:00 PM	5	5%	19	18%	16	15%	20	19%	5	5%	13	12%
7:00 PM	5	5%	13	12%	10	9%	10	9%	0	0%	8	7%

Total laboratories = 106

CAMPUS SPACE NEEDS

Existing space on campus is organized into three categories as follows:

- Academic Space—classrooms, teaching labs, open labs
- Academic Support Space—offices, library and collaborative learning, assembly and exhibit, physical plant, other department space
- Inactive/Conversion Space—space currently in renovation or not usable for some other reason

In the Fall 2018 term, the University of Oregon had a surplus of 150,777 ASF of usable space plus 5,506 ASF of inactive/conversion space, as indicated in the chart below. The deficit in classroom space is due primarily to an existing average 18.1 ASF per student station whereas the guideline establishes an average of 25 ASF to support modern pedagogy.

SPACE NEEDS ANALYSIS - BASE YEAR, FALL 2018

	2018 *Student FTE = 22,143*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	217,866	232,395	(14,529)	(7%)
Teaching Laboratories & Service	147,926	49,257	98,669	67%
Open Laboratories & Service	113,821	160,860	(47,039)	(41%)
Academic Space Subtotal	*479,613*	*442,512*	*37,101*	*8%*
Academic Support Space				
Offices & Service	1,112,589	917,780	194,809	18%
Library & Collaborative Learning Space	340,359	398,574	(58,215)	(17%)
Assembly & Exhibit	97,363	130,308	(32,945)	(34%)
Physical Plant	178,212	179,190	(978)	(1%)
Other Department Space	194,845	183,840	11,005	6%
Academic Support Space Subtotal	*1,923,368*	*1,809,692*	*113,676*	*6%*
CAMPUS TOTAL	**2,402,981**	**2,252,204**	**150,777**	**6%**
Inactive/Conversion Space	*5,506*			
Outside Organizations	*25,227*			

The campus enrollment projection of 24,216 student FTE in 2029 yields a total space need of 2,424,141 ASF. Current total space on campus of 2,408,487 ASF does not meet this need by a small amount. Total academic space is balanced with a surplus in teaching labs offsetting the deficit in classrooms and open labs. Space for growing programs such as computer and information sciences, social sciences, and business management is compatible with the space types in declining programs such as education and history.

SPACE NEEDS ANALYSIS, CAMPUS ENROLLMENT PROJECTIONS - TARGET YEAR, FALL 2029

	Campus Projections *Student FTE = 24,216*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	217,866	250,844	(32,978)	(15%)
Teaching Laboratories & Service	147,926	52,354	95,572	65%
Open Laboratories & Service	113,821	175,210	(61,389)	(54%)
Academic Space Subtotal	*479,613*	*478,408*	*1,205*	*0%*
Academic Support Space				
Offices & Service	1,112,589	986,480	126,109	11%
Library & Collaborative Learning Space	340,359	435,888	(95,529)	(28%)
Assembly & Exhibit	97,363	142,746	(45,383)	(47%)
Physical Plant	178,212	180,379	(2,167)	(1%)
Other Department Space	194,845	200,240	(5,395)	(3%)
Academic Support Space Subtotal	*1,923,368*	*1,945,733*	*(22,365)*	*(1%)*
CAMPUS TOTAL	**2,402,981**	**2,424,141**	**(21,160)**	**(1%)**
Inactive/Conversion Space	*5,506*			
Outside Organizations	*25,227*			

The NCHEMS student flow model enrollment projection of 22,359 student FTE in 2029 yields a total space need of 2,207,377 ASF. There is a surplus in both academic and academic support space.

SPACE NEEDS ANALYSIS , NCHEMS STUDENT FLOW MODEL - TARGET YEAR, FALL 2029

Space Category	NCHEMS Flow *Student FTE = 22,359* Existing ASF	Guideline ASF	Surplus/ (Deficit)	Percent Surplus/ (Deficit)
Academic Space				
Classroom & Service	217,866	233,002	(15,136)	(7%)
Teaching Laboratories & Service	147,926	49,257	98,669	67%
Open Laboratories & Service	113,821	158,998	(45,177)	(40%)
Academic Space Subtotal	*479,613*	*441,257*	*38,356*	*8%*
Academic Support Space				
Offices & Service	1,112,589	917,780	194,809	18%
Library & Collaborative Learning Space	340,359	402,462	(62,103)	(18%)
Assembly & Exhibit	97,363	131,604	(34,241)	(35%)
Physical Plant	178,212	132,562	45,650	26%
Other Department Space	194,845	181,712	13,133	7%
Academic Support Space Subtotal	*1,923,368*	*1,766,120*	*157,248*	*8%*
CAMPUS TOTAL	**2,402,981**	**2,207,377**	**195,604**	**8%**
Inactive/Conversion Space	*5,506*			
Outside Organizations	*25,227*			

Academic program completions were analyzed to determine if there would be a significant difference in the type of academic space the University of Oregon will need in the future as compared to the current space mix. The change in the number of completions between 2010 and 2017, as indicated in the IPEDS summary chart below, was compared to the change in projected enrollment to 2029. During the study period, UO completions increased by 19%. The enrollment projection from the University is a 9 percent increase and the NCHEMS student flow model projects an increase of 1 percent.

Computer and Information Sciences has seen a completions increase of 142% during the study period. The 2018 space needs analysis indicates a surplus of teaching lab space and a deficit in open lab space, highlighting that teaching labs are likely under-scheduled in order to be used as open labs.

Overall academic space is in a slight surplus. It may be difficult to perfectly align space type with the programs and in the locations needed without construction of additional space.

PROGRAM COMPLETION RATES

Institution Name: University of Oregon (UnitID: 209551)

	2010	2011	2012	2013	2014	2015	2016	2017	Line
Natural Resources and Conservation	81	108	134	114	166	150	138	132	
Architecture and Related Services	215	199	266	231	207	195	195	206	
Area Ethnic Cultural Gender and Group Studies	56	62	51	60	63	55	62	53	
Communication Journalism and Related Programs	349	371	464	490	556	612	568	548	
Computer and Information Sciences and Support Services	45	45	62	67	70	79	107	109	
Education	298	313	274	295	237	278	287	230	
Foreign Languages Literatures and Linguistics	248	255	268	249	254	222	202	165	
Family and Consumer Sciences/Human Sciences								5	
Legal Professions and Studies	196	184	166	161	190	128	143	115	
English Language and Literature/Letters	196	175	188	178	132	153	113	125	
Liberal Arts and Sciences General Studies and Humanities	13	14	16	28	25	15	12	7	
Biological and Biomedical Sciences	291	274	303	398	404	447	471	454	
Mathematics and Statistics	73	70	53	55	54	79	54	64	
Multi/Interdisciplinary Studies	210	220	226	230	206	187	174	244	
Philosophy and Religious Studies	62	68	74	60	64	68	33	46	
Physical Sciences	133	137	146	167	202	198	188	178	
Psychology	314	315	407	438	424	384	345	410	
Public Administration and Social Service Professions	143	143	146	141	174	162	172	177	
Social Sciences	840	887	955	1032	1072	1091	1180	1184	
Visual and Performing Arts	356	372	383	469	412	436	394	409	
Health Professions and Related Programs	84	74	93	92	115	103	115	123	
Business Management Marketing and Related Support Services	672	700	771	792	764	802	838	953	
History	161	144	143	142	93	88	69	75	
Total	5,036	5,130	5,589	5,889	5,884	5,932	5,860	6,012	

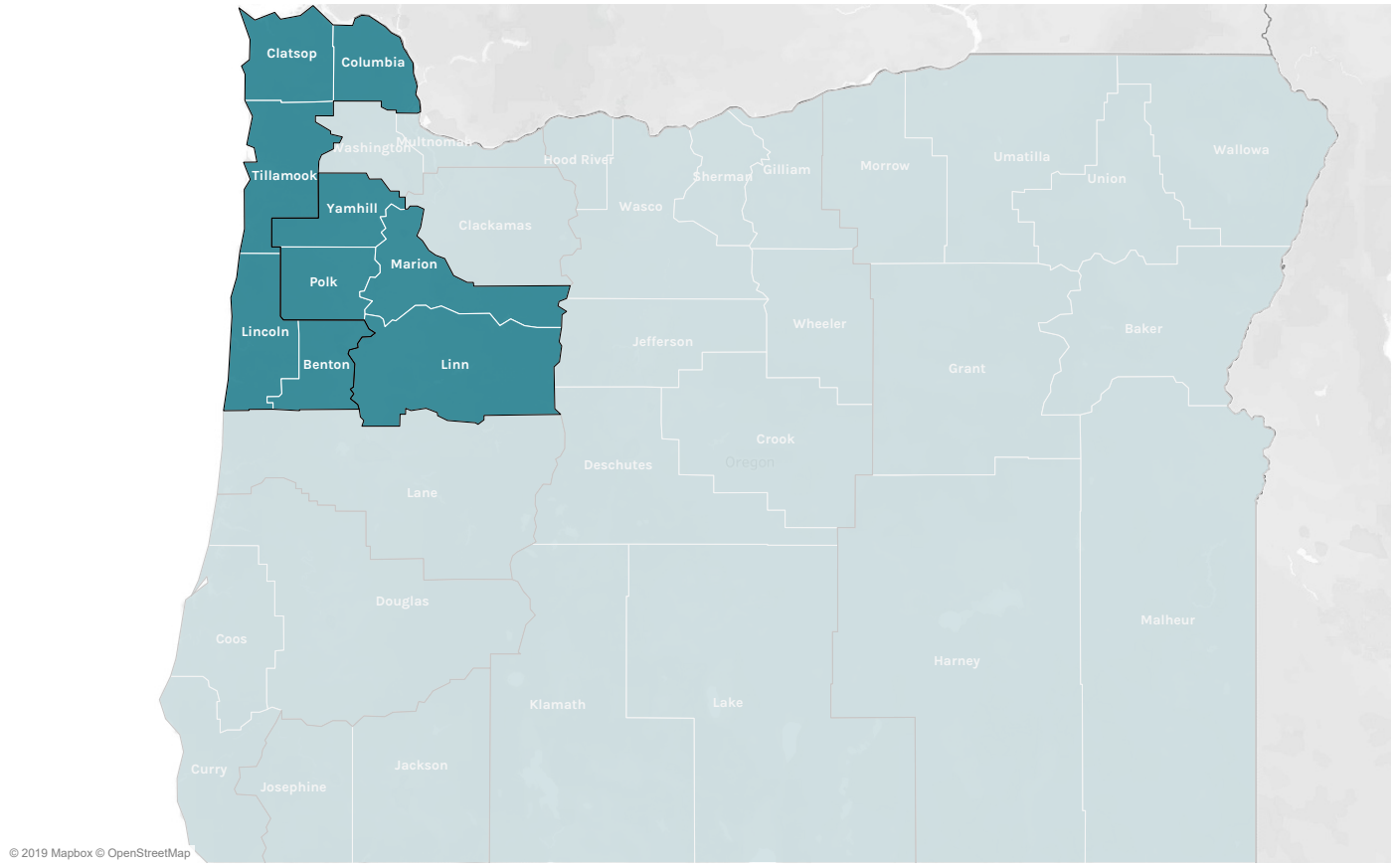
SECTION 9

WESTERN OREGON UNIVERSITY

WESTERN OREGON UNIVERSITY
ENROLLMENT & WORKFORCE DEMAND ANALYSIS

WOU's primary service region (Figure 1) is comprised of the Willamette Workforce Partnership and the Northwest Oregon Works. These two Workforce Investment Areas include the following counties: Benton, Clatsop, Columbia, Lincoln, Linn, Marion, Polk, Tillamook, and Yamhill.

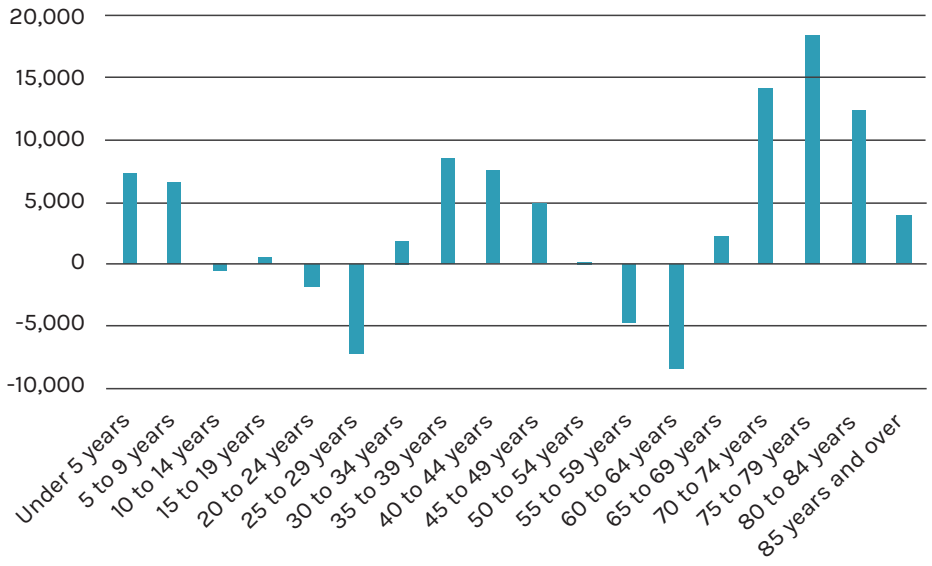
FIGURE 1. WESTERN OREGON UNIVERSITY PRIMARY SERVICE REGION



POPULATION

Between 2010 and 2018, the population in the counties that comprise WOU's primary service area grew by 68,564, or just over one percent per year.[1] Much of that growth occurred in the older populations, especially those above 70 years of age. The population of individuals approaching, in, and just after the traditional college age range of 18–24 was largely stagnant (Figure 2).

FIGURE 2. CHANGE BETWEEN 2010-2018 IN EOU PRIMARY SERVICE AREA COUNTIES BY AGE

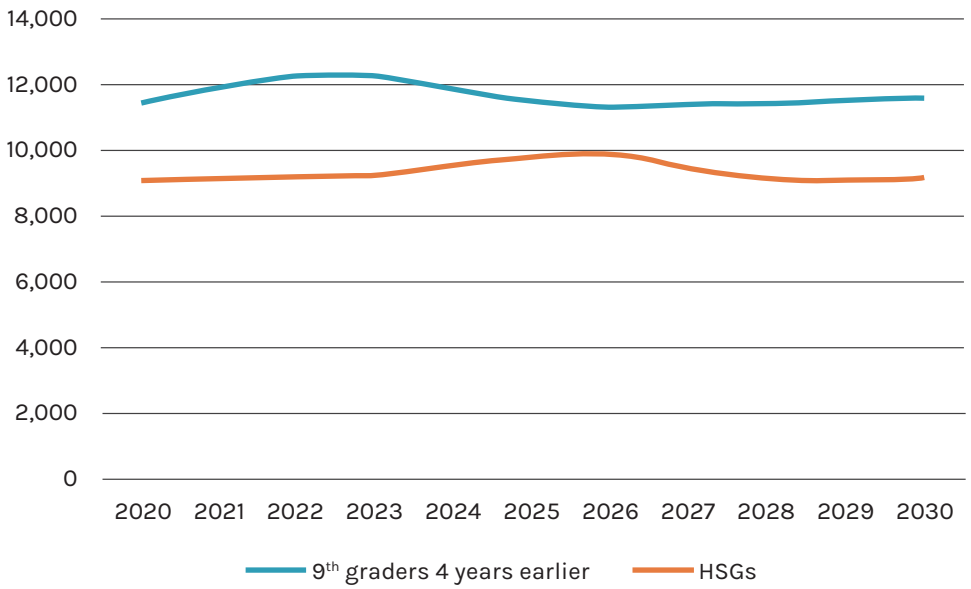


Source: EMSI, 2019.

1 Portland State University, Population Research Center.

Population growth between 2020 and 2030 is expected to continue, although growth among those aged 25 and older will be faster, and the projected number of ninth graders and high school graduates is expected to hold steady (Figure 3).

FIGURE 3. PROJECTED NINTH GRADERS AND HIGH SCHOOL GRADUATES



Sources: WICHE, NCES CCD, oregonlive.com.

ENROLLMENT PROJECTIONS AND PATTERNS

WOU attracts 25 percent of its first-time students from out-of-state. Among Oregon residents, however, WOU draws the vast bulk of its students from nearby counties: nearly 75 percent of its resident undergraduates hail from Marion, Washington, Polk, Clackamas, Multnomah, Yamhill, and Lane counties. Over 52 percent of them come from Polk County, where WOU is located, or adjacent counties (Benton, Lincoln, Linn, Marion, Yamhill).

In addition to its first-time students, WOU also draws most of its transfer students from institutions nearby, especially Chemeketa Community College (Table 1).

TABLE 1. FALL 2018 TRANSFER STUDENT INSTITUTION OF ORIGIN

Community Colleges	
Chemeketa Community College	679
Linn-Benton Community College	154
Portland Community College	109
Lane Community College	51
Clackamas Community College	47
Umpqua Community College	32
Southwestern Oregon Community College	29
Mount Hood Community College	26
Central Oregon Community College	21
Rogue Community College	18
Blue Mountain Community College	16
Tillamook Bay Community College	11
Clatsop Community College	10

Other Oregon 4-Year Institutions	
Oregon State University	27
University of Oregon	15
Portland State University	10
Southern Oregon University	10

Other or Unknown	
Other US college or university	384
Unknown	118
Oregon independent college or university	41

2 NCES IPEDS.

FIGURE 4. SHARE OF RESIDENT UNDERGRADUATE ENROLLMENT BY COUNTY

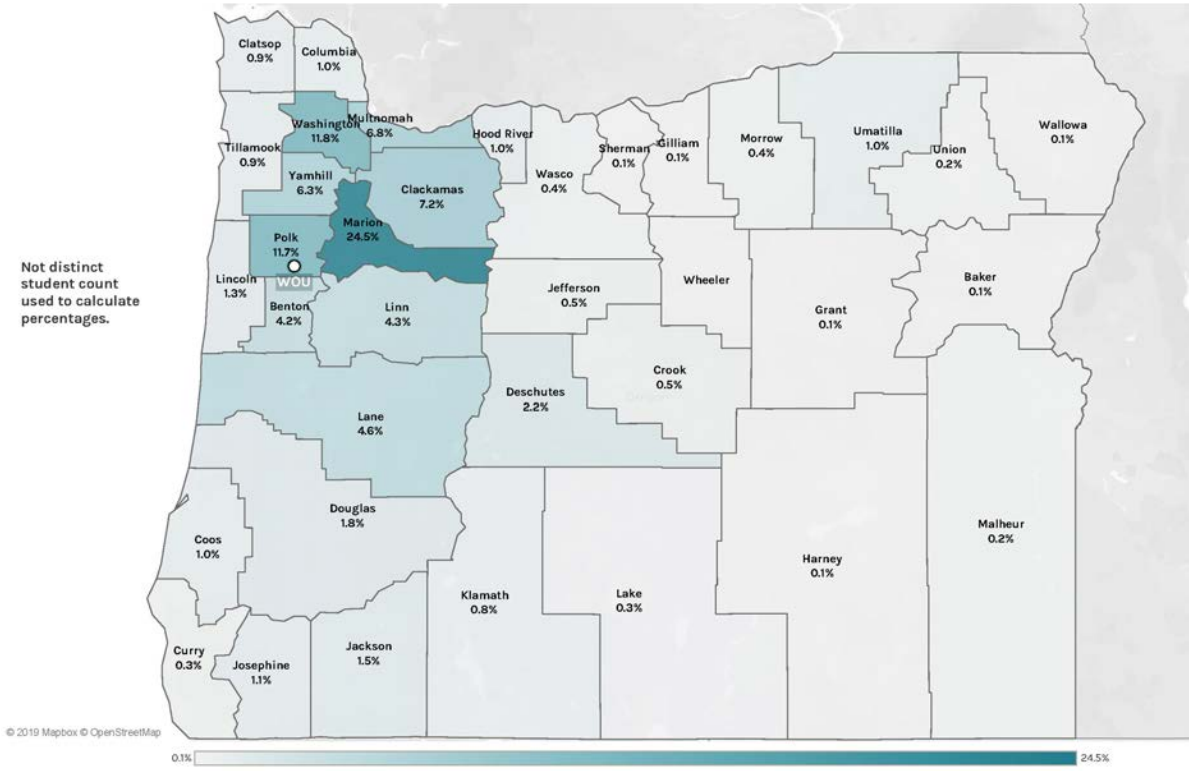
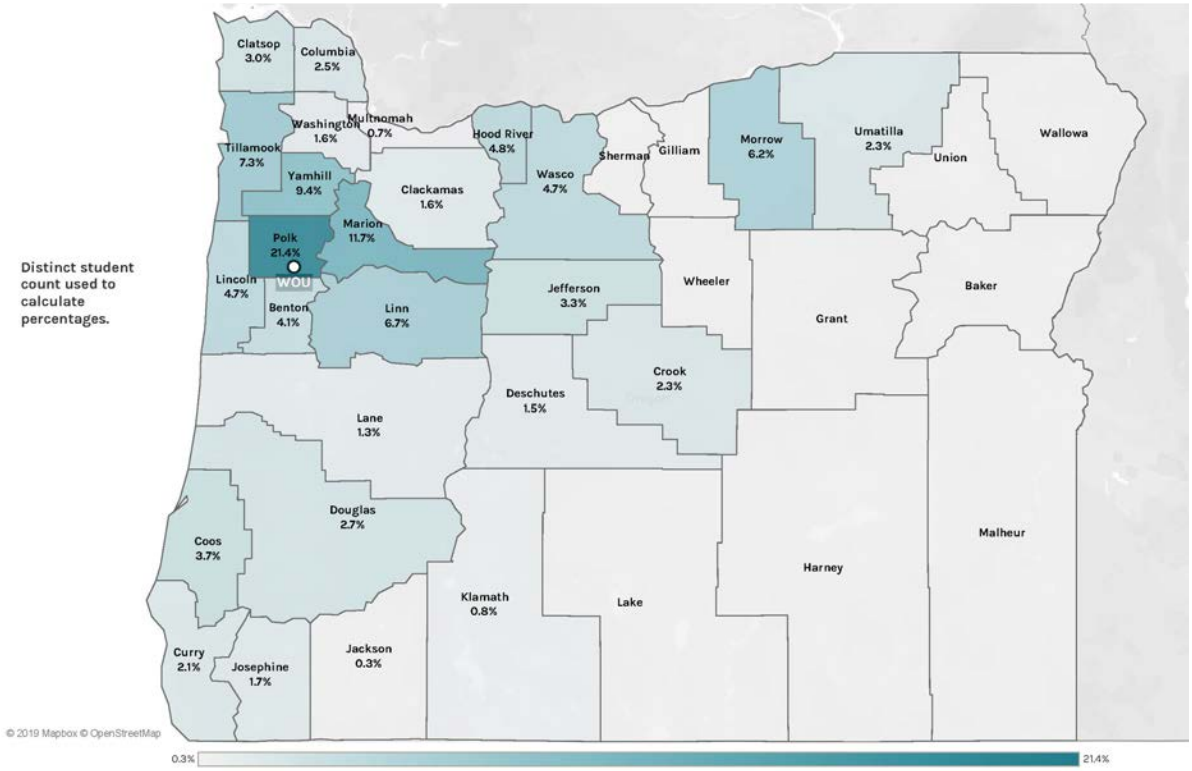


FIGURE 5. SHARE OF COLLEGE-GOING STUDENTS FROM EACH COUNTY ATTENDING WOU



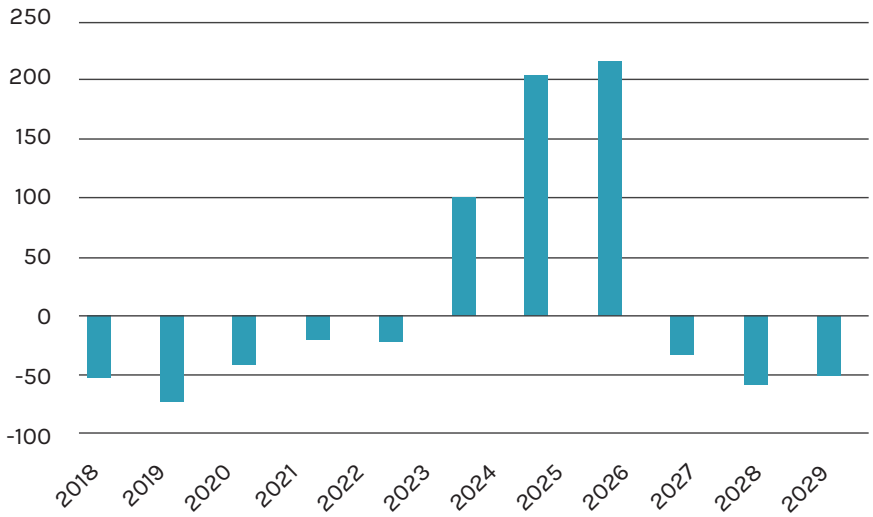
PROJECTING CAPACITY NEEDS DUE TO ENROLLMENT

To assess the likely need for space caused by undergraduate enrollment demand, NCHEMS modeled enrollment projections for each of Oregon's public four-year institutions based on the following assumptions:

- Ratio of high school graduates to 9th graders[2]
- College-going rate of recent high school graduates to enrollment at an Oregon public four-year institution[3]
- Participation rate per 100,000 population of 20–49 year olds enrolling for the first-time at an Oregon public four-year institution[4]
- Enrollment of first-time students from out-of-state[5]
- Ratio of transfer students from public two-year to public four-year institutions to the total enrollment of public two-year institutions[6]
- Retention and completion rates[7] remain steady
- Projected population changes for each institution's designated service areas[8]
- County-of-origin of undergraduate enrollment[9]
- The current proportional mix on on-campus and online students remains constant

This modeling suggests that, barring significant changes in recruitment or retention, WOU will not see substantial changes in its enrollment over the period 2018–19 and 2029–30, fluctuating between a decline of about 60 FTE in a given year to a high of over 217 additional FTE, as reflected in Figure 6.

FIGURE 6. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017

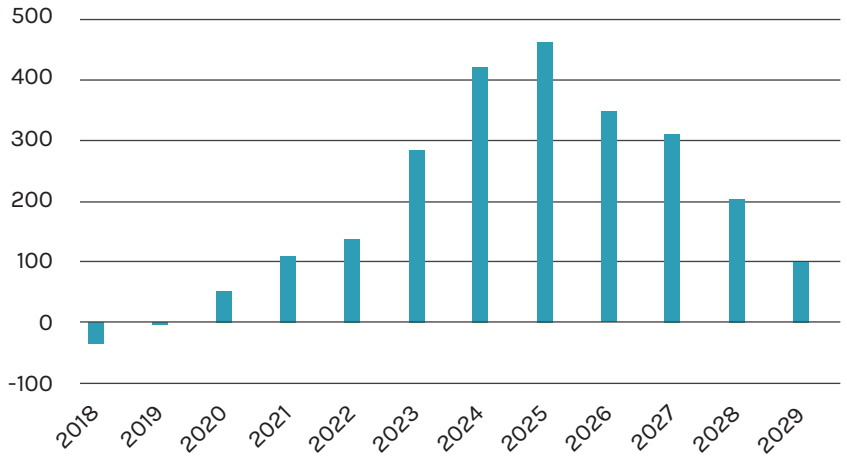


Note: Data shows the difference between the expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect no assumed changes in the most recent data for recruitment and retention.

2 NCES CCD, Western Interstate Commission for Higher Education, *Knocking at the College Door*, knocking.wiche.edu.
3 Enrollment by county (Oregon HECC), high school graduates (oregonlive.com), Residence and Migration (NCES IPEDS).
4 Enrollment by county (HECC), Residence and Migration (NCES IPEDS).
5 Enrollment of non-resident students (HECC), Residence and Migration (NCES IPEDS).
6 Oregon HECC.
7 NCES IPEDS.
8 Office of Economic Analysis, Oregon Department of Administrative Services.
9 Oregon HECC.

Even under optimistic assumptions about WOU's capacity to improve recruitment and retention of students, NCHEMS' model does not yield substantially large enrollment increases. For example, adjusting each of the following parameters—enrollment of in-state students, out-of-state students, and transfer students, as well as retention rates—by five percent yields an enrollment increase of 462 FTE in the peak year before enrollments fall back off (Figure 7).

FIGURE 7. EXPECTED CHANGE IN FTE BY YEAR, RELATIVE TO 2017, ASSUMING A 5% INCREASE IN RECRUITMENT AND RETENTION MEASURES



Note: Data shows the difference between expected FTE in each year (indicated by the fall of each academic year, e.g., "2018" corresponds to the 2018–19 academic year) and the actual FTE level in 2017–18. The results reflect a 5% increase in each of the recruitment measures for different student categories—in-state students, out-of-state students, and transfer students—as well as retention rates from the first- to the second year. No change in the high school graduation rate is assumed.

Neither the default forecast nor the optimistic one should require additional physical space to accommodate the anticipated change in enrollment demand.

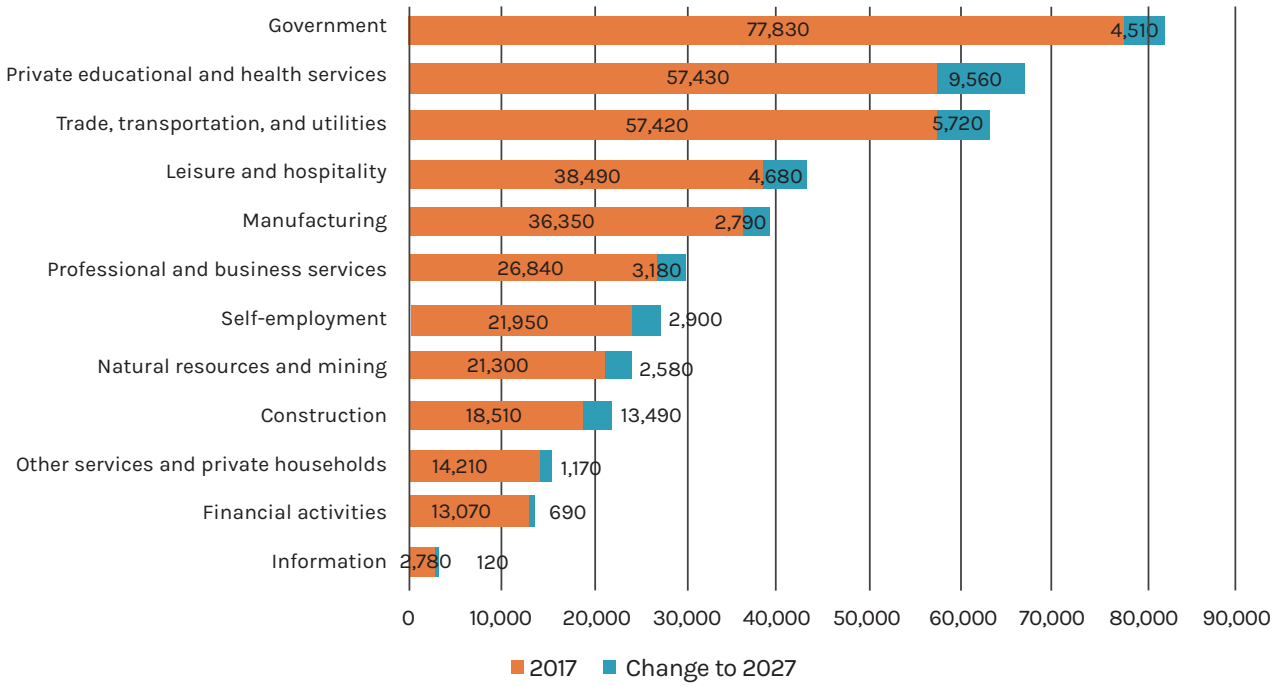
In order for WOU to reach its on-campus enrollment forecast for 2029, which would require it to enroll about 1,600 additional FTEs in 2029, NCHEMS' model estimates that it would have to improve its recruitment and retention by over 20 percent across the board.

ECONOMY AND WORKFORCE NEEDS

The largest industry sector in the WOU service area is government, not surprising since the institution is located in the state's capitol region. The next largest sector is private education and health services. Other industry sectors that employ large proportions of individuals with baccalaureate degrees—professional and business services, finance, and information—are substantially smaller. (Figure 8)

Occupations projected to have large numbers of annual openings and require college degrees are in the fields of education, management and financial operations, and healthcare practitioners. Openings in fields such as computing and engineering are much fewer in number (Figure 9). When projected growth in occupational areas requiring college degrees is the focus of analysis, healthcare practitioners, management and education occupations lead the way (Figure 10). Emsi data reinforce the projections regarding the need for more educators (including specialists in child development and early childhood education) and more graduates in business (with emphasis on accounting and sales). Emsi data also call attention to the unmet demands for sign-language interpreters, a field identified during interviews at WOU in the context of a broader interest in preparing individuals to work with differently-abled people (Figure 11). In the arena of healthcare, the major unmet need is for nurses and for individuals with graduate degrees in specialized areas (speech pathologists, nurse practitioners, occupational therapists, etc.).

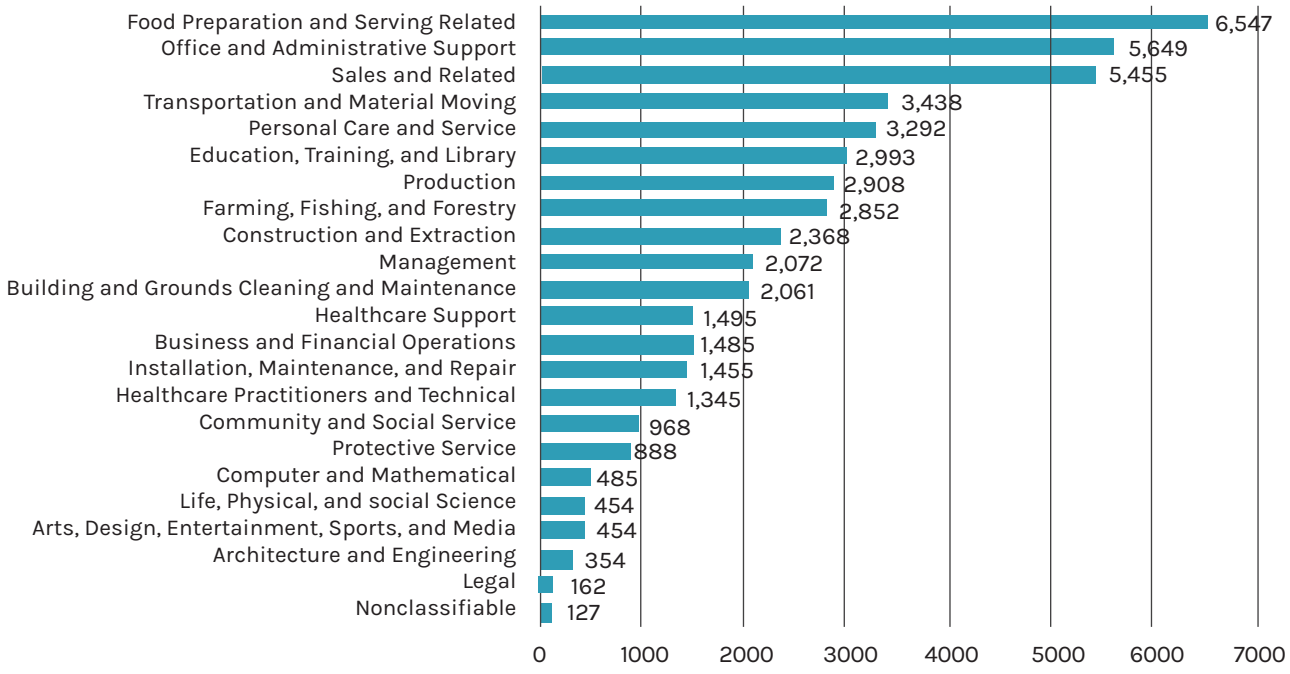
FIGURE 8. EMPLOYMENT GROWTH BY INDUSTRY, 2017–2027
WESTERN OREGON UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 9.

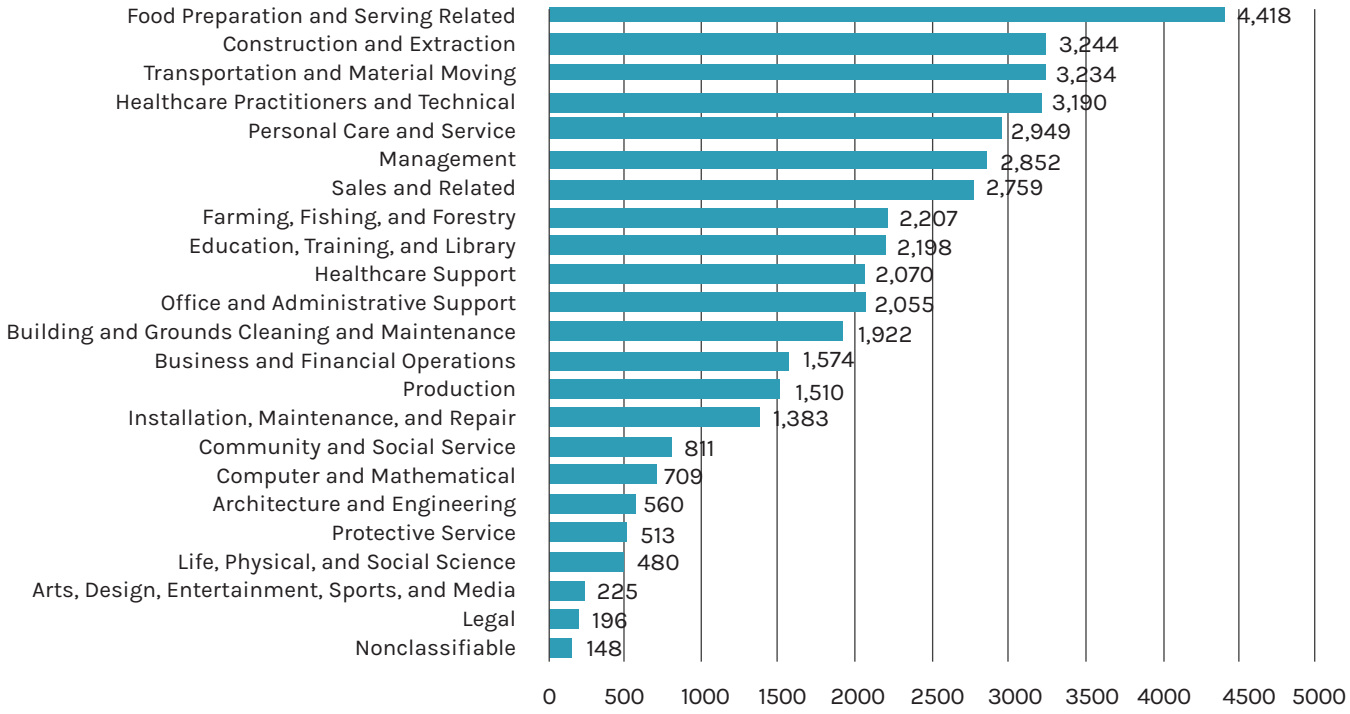
TOTAL ANNUAL OPENINGS BY OCCUPATION, 2017–2027, WESTERN OREGON UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

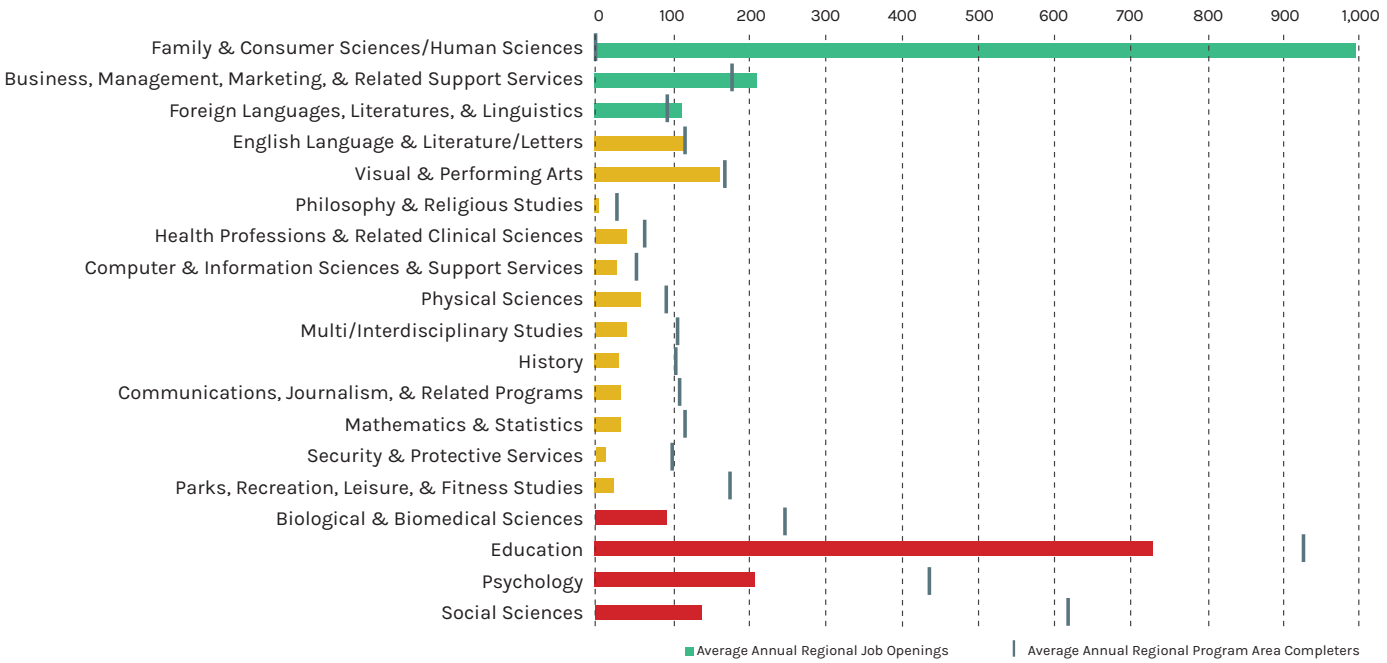
FIGURE 10.

GROWTH IN EMPLOYMENT BY OCCUPATION, 2017–2027, WESTERN OREGON UNIVERSITY SERVICE AREA



Source: State of Oregon Employment Department, qualityinfo.org.

FIGURE 11. GAPS AT THE BACHELOR'S AND ABOVE DEGREE LEVEL (2-DIGIT CIP)



Source: EMSI, 2019.

TABLE 2. PROGRAM GAPS AT THE BACHELOR'S DEGREE LEVEL (4-DIGIT CIP)

CIP Code	CIP Title	Average Annual Regional Job Openings	Average Annual Regional Program Completers	Average Annual WOU Program Completers	Gap or Surplus	Median Hourly Wage
50.0401	Design & Visual Communications, General	28	41	15	(13)	$18.75
11.0401	Information Science/Studies	4	18	15	(15)	$39.23
11.0101	Computer & Information Sciences, General	19	35	28	(16)	$36.64
38.0101	Philosophy	6	30	1	(23)	$36.07
38.1801	Natural Sciences	3	36	0	(33)	$29.43
51.2207	Public Health Education & Promotion	18	56	56	(38)	$32.65
30.2001	International/Global Studies	9	48	3	(39)	$25.94
40.0501	Chemistry, General	41	85	10	(43)	$31.90
45.0101	Social Sciences, General	19	64	38	(45)	$31.69
27.0101	Mathematics, General	26	101	8	(75)	$33.90
54.0101	History, General	29	104	11	(75)	$31.81
09.0101	Speech Communication & Rhetoric	34	111	33	(77)	$25.23
45.0201	Anthropology	10	92	6	(83)	$28.17
43.0113	Corrections Administration	4	89	89	(84)	$35.10
45.1001	Political Science & government, General	38	130	10	(92)	$31.15
45.1101	Sociology	30	136	7	(106)	$32.08
31.0505	Kinesiology & Exercise Science	26	176	60	(151)	$19.16
26.0101	Biology/Biological Sciences, General	93	249	25	(156)	$28.83
45.0601	Economics, General	32	192	18	(160)	$28.32
42.0101	Psychology, General	207	439	112	(231)	$25.03

In the main, the regional demands are for graduates of programs already in place at WOU, especially education. The same is true of business, although some additional specialties within business—accounting and health care administration, for example—might be considered. Responding to these needs will not require program-specific kinds of spaces.

The only program-specific kinds of spaces that might be required are those associated with programs in the health arena—increasing the size of the nursing program currently being offered collaboratively with OHSU or programs in speech pathology, OT, PT, etc. In this area two things should be noted:

- It may well make sense to encourage WOU to develop a program as an extension of its work with differently-abled populations.
- Expansion into the health profession areas would require a change of mission for the institution. Efforts should be made to arrange for collaborative delivery of such programs, as is currently underway for nursing education being supplied by OHSU on WOU's campus. If additional programs in the health professions are to be offered at WOU, regardless of under which institution's aegis, program-specific space will be required.

WESTERN OREGON UNIVERSITY FACILITIES INFORMATION

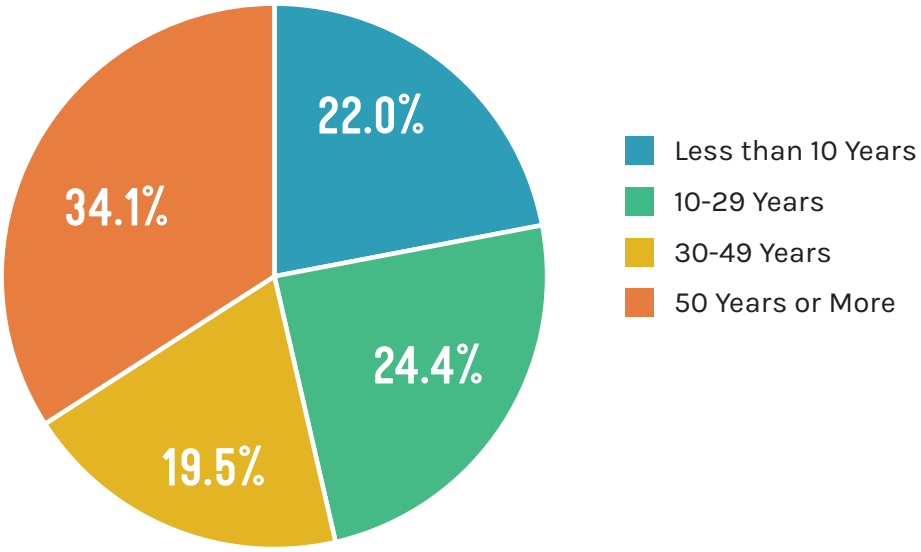
Fall 2018 facilities data for Western Oregon University is summarized below. Included is general information about the 41 buildings on campus: average age of the buildings, total floor area on campus, and replacement value. A pie chart highlights the percentage of buildings in each age category. A block diagram makes visible the proportion of space on campus in each space category.

WESTERN OREGON UNIVERSITY

Number of Buildings:	41
Number of Buildings with Age/Renovation Year:	41
Average Age of Building/Renovation:	42
Total Gross Square Feet:	866,473
Total Gross Square Feet for Buildings with Year:	866,473
Total Renovated Gross Square Feet:	449,825
Percentage Gross Square Feet Renovated:	51.9%
Number of Buildings Renovated:	13
Percentage of Buildings Renovated:	31.7%
Total Current Replacement Value of All WOU Buildings:	$380,202,775

Age Grouping of Buildings		
	Count	Percentage
Less than 10 Years Old	9	22.0%
10 to 29 Years Old	10	24.4%
30 to 49 Years Old	8	19.5%
50 Years Old or More	14	34.1%
Age Unknown	0	0.0%

WESTERN OREGON UNIVERSITY AGE OF BUILDING/RENOVATION



WESTERN OREGON UNIVERSITY ASF BY SPACE CATEGORY

WESTERN OREGON UNIVERSITY SPACE ANALYSIS

The Fall 2018 term use of scheduled teaching space on the Western Oregon University campus was analyzed to determine if additional capacity is available in existing space. Campus space needs for academic and academic support space were analyzed for the Fall 2018 term to compare existing space use with the space guidelines established for this study. The guidelines were then applied to two future enrollment projection scenarios to determine the quantity of space needed and how the need compares to the quantity and type of space available on campus.

FALL 2018 SCHEDULED TEACHING SPACE UTILIZATION

CLASSROOM UTILIZATION

There are 69 scheduled classrooms on the WOU campus, with a total of 2,672 student stations (seats in the classroom). During the Fall 2018 term, the classrooms were scheduled, on average, 26 hours per week with 60% of the seats in the classroom filled. The classrooms are located in 15 buildings. The following chart indicates the scheduled use of the classrooms in each building.

CLASSROOM UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Academic Programs Service Center	*0020*	2	1,070	30	22	17.1	26	65%
Ackerman Hall	*0064*	2	911	23	20	12.7	24	52%
Campbell Hall	*0002*	1	963	20	22	11.7	27	43%
Health and Wellness Center	*0078*	7	1,113	20	30	12.7	26	54%
Humanities Social Science	*0005*	18	649	18	22	16.8	25	63%
ITC	*0006*	2	1,294	22	38	9.3	25	51%
Mathematics and Nursing Building	*0037*	3	651	21	21	24.0	35	71%
Modular Classrooms	*0091*	5	875	24	19	14.9	29	54%
Natural Sciences	*0013*	5	888	18	28	15.8	23	62%
New Physical Education	*0033*	2	518	18	16	9.3	16	57%
OPE	*0008*	2	588	19	19	17.8	28	63%
Oregon Military Academy	*0085*	2	1,809	45	31	14.1	19	76%
Rice Auditorium	*0034*	1	774	39	14	8.1	12	68%
Richard Woodcock Education Center	*0082*	14	797	26	15	18.7	30	59%
Todd Hall	*0004*	3	395	21	11	9.0	17	50%
Total No. of Rooms = 69	**AVERAGE**		**822**	**21.2** *	**21**	**15.4**	**26**	**60%**
Total No. of Stations = 2672	**Total ASF**		**56,700**					

At 15.4 weekly hours of use for each classroom seat, the utilization does not meet the guideline of 20 weekly seat hours, 30 weekly room hours, and 67% student station occupancy.

The greatest number of classrooms in use at any one time was 57 on Thursday morning at 11:00, as indicated in the following chart. Classroom use is greatest from 10:00 to 3:00 Monday through Thursday.

SCHEDULED CLASSROOM USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	31	45%	29	42%	29	42%	23	33%	13	19%	25	36%
9:00 AM	41	59%	44	64%	38	55%	42	61%	15	22%	36	52%
10:00 AM	55	80%	54	78%	51	74%	56	81%	18	26%	47	68%
11:00 AM	54	78%	54	78%	53	77%	57	83%	19	28%	47	69%
12:00 PM	46	67%	50	72%	47	68%	53	77%	11	16%	41	60%
1:00 PM	50	72%	49	71%	53	77%	48	70%	15	22%	43	62%
2:00 PM	52	75%	49	71%	51	74%	49	71%	10	14%	42	61%
3:00 PM	53	77%	45	65%	51	74%	45	65%	9	13%	41	59%
4:00 PM	19	28%	6	9%	19	28%	7	10%	0	0%	10	15%
5:00 PM	20	29%	15	22%	18	26%	8	12%	0	0%	12	18%
6:00 PM	10	14%	13	19%	9	13%	7	10%	0	0%	8	11%
7:00 PM	6	9%	11	16%	4	6%	4	6%	0	0%	5	7%

Total classrooms = 69

TEACHING LAB UTILIZATION

There are 55 scheduled teaching laboratories on the WOU campus, with a total of 1,458 student stations. During the Fall 2018 term, the labs were scheduled, on average, 13 hours per week with 73% of the stations occupied. The labs are located in 12 buildings. The following chart indicates the scheduled use of the teaching labs in each building.

TEACHING LABORATORY UTILIZATION ANALYSIS BY BUILDING SUMMARY, FALL 2018

Building Name and ID		No. of Rooms	Average Room Size	Average ASF per Station	Average Section Size	Weekly Seat Hours	Average Weekly Room Hours	Hours in Use Student Station Occupancy %
Academic Programs Service Center	*0020*	2	927	69	8	3.0	7	52%
Campbell Hall	*0002*	9	992	58	15	9.6	9	105%
DeVolder Family Science Center	*0080*	6	1,118	47	12	5.8	11	54%
Health and Wellness Center	*0078*	3	1,030	33	25	7.9	10	90%
ITC	*0006*	8	974	46	17	16.8	19	87%
Maple Hall	*0003*	1	3,490	70	13	7.1	27	26%
Mathematics and Nursing Building	*0037*	2	2,002	23	19	4.4	25	43%
Modular Classrooms	*0091*	1	428	18	13	11.5	18	64%
Natural Sciences	*0013*	15	564	23	10	7.5	9	80%
OPE	*0008*	1	1,257	97	19	8.8	6	146%
Richard Woodcock Education Center	*0082*	3	915	38	14	11.3	15	75%
Smith Music Hall	*0010*	4	760	24	12	8.0	19	38%
Total No. of Rooms = 55		**AVERAGE**	**942**	**35.5** *	**14**	**8.4**	**13**	**73%**
Total No. of Stations = 1458		**Total ASF**	**51,784**					

At 8.4 hours per week of student station occupancy, the utilization does not meet the guideline of 15 weekly seat hours, 20 weekly room hours. The student station occupancy of 73% when the room is occupied exceeds the 70% expectation.

Labs are scheduled consistently throughout the day Monday through Thursday, as indicated in the chart below.

SCHEDULED TEACHING LABORATORY USE BY DAY & TIME, FALL 2018

Time of Day	Monday		Tuesday		Wednesday		Thursday		Friday		Average	
	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use	Rooms in Use	% In Use
8:00 AM	5	9%	11	20%	8	15%	13	24%	5	9%	8	15%
9:00 AM	12	22%	22	40%	15	27%	23	42%	9	16%	16	29%
10:00 AM	19	35%	22	40%	22	40%	23	42%	13	24%	20	36%
11:00 AM	18	33%	21	38%	19	35%	21	38%	10	18%	18	32%
12:00 PM	10	18%	21	38%	12	22%	20	36%	8	15%	14	26%
1:00 PM	15	27%	25	45%	18	33%	23	42%	14	25%	19	35%
2:00 PM	16	29%	26	47%	21	38%	25	45%	7	13%	19	35%
3:00 PM	13	24%	20	36%	17	31%	20	36%	6	11%	15	28%
4:00 PM	8	15%	9	16%	8	15%	6	11%	1	2%	6	12%
5:00 PM	7	13%	10	18%	6	11%	7	13%	1	2%	6	11%
6:00 PM	2	4%	4	7%	3	5%	5	9%	1	2%	3	5%
7:00 PM	0	0%	2	4%	1	2%	3	5%	1	2%	1	3%

Total laboratories = 55

CAMPUS SPACE NEEDS

Existing space on campus is organized into three categories as follows:

- Academic Space—classrooms, teaching labs, open labs
- Academic Support Space—offices, library and collaborative learning, assembly and exhibit, physical plant, other department space
- Inactive/Conversion Space—space currently in renovation or not usable for some other reason

In the Fall 2018 term, Western Oregon University had a surplus of 10,562 ASF of usable space plus 34,504 ASF of inactive/conversion space, as indicated in the chart below. The inactive space was primarily due to a renovation project in the Natural Science building and an empty building previously occupied by the College of Education. A deficit in office space is primarily due to a need for student affairs space in support of student success.

SPACE NEEDS ANALYSIS - BASE YEAR, FALL 2018

	2018 *Student FTE = 4,368*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	57,597	61,391	(3,794)	(7%)
Teaching Laboratories & Service	57,446	20,618	36,828	64%
Open Laboratories & Service	18,411	36,295	(17,884)	(97%)
Academic Space Subtotal	*133,454*	*118,304*	*15,150*	*11%*
Academic Support Space				
Offices & Service	123,967	136,020	(12,053)	(10%)
Library & Collaborative Learning Space	48,623	65,520	(16,897)	(35%)
Assembly & Exhibit	19,540	27,450	(7,910)	(40%)
Physical Plant	65,643	26,676	38,967	59%
Other Department Space	34,785	41,480	(6,695)	(19%)
Academic Support Space Subtotal	*292,558*	*297,146*	*(4,588)*	*(2%)*
CAMPUS TOTAL	**426,012**	**415,450**	**10,562**	**2%**
Inactive/Conversion Space	*34,504*			
Outside Organizations	*6,529*			

The campus enrollment projection of 5,828 student FTE in 2029 yields a total space need of 518,965 ASF. Current total space on campus of 431,490 ASF includes space curently being renovated and does not meet this need. The empty former College of Education building is unsuitable for renovation.

SPACE NEEDS ANALYSIS, CAMPUS ENROLLMENT PROJECTIONS - TARGET YEAR, FALL 2029

	Campus Projections *Student FTE = 5,828*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	57,597	80,921	(23,324)	(40%)
Teaching Laboratories & Service	62,924	27,038	35,886	57%
Open Laboratories & Service	18,411	45,325	(26,914)	(146%)
Academic Space Subtotal	*138,932*	*153,284*	*(14,352)*	*(10%)*
Academic Support Space				
Offices & Service	123,967	162,725	(38,758)	(31%)
Library & Collaborative Learning Space	48,623	87,420	(38,797)	(80%)
Assembly & Exhibit	19,540	32,418	(12,878)	(66%)
Physical Plant	65,643	31,318	34,325	52%
Other Department Space	34,785	51,800	(17,015)	(49%)
Academic Support Space Subtotal	*292,558*	*365,681*	*(73,123)*	*(25%)*
CAMPUS TOTAL	**431,490**	**518,965**	**(87,475)**	**(20%)**
Inactive/Conversion Space	*29,026*			
Outside Organizations	*6,529*			

The NCHEMS student flow model enrollment projection of 4,571 student FTE in 2029 yields a total space need of 422,816 ASF which appears to be able to be accommodated with current space on campus. However, deficits in most space categories can probably not be offset by surpluses in teaching labs and physical plant space which are difficult to repurpose.

SPACE NEEDS ANALYSIS , NCHEMS STUDENT FLOW MODEL - TARGET YEAR, FALL 2029

	NCHEMS Flow *Student FTE = 4,571*			
Space Category	**Existing ASF**	**Guideline ASF**	**Surplus/ (Deficit)**	**Percent Surplus/ (Deficit)**
Academic Space				
Classroom & Service	57,597	62,771	(5,174)	(9%)
Teaching Laboratories & Service	62,924	20,947	41,977	67%
Open Laboratories & Service	18,411	37,982	(19,571)	(106%)
Academic Space Subtotal	*138,932*	*121,700*	*17,232*	*12%*
Academic Support Space				
Offices & Service	123,967	136,020	(12,053)	(10%)
Library & Collaborative Learning Space	48,623	68,565	(19,942)	(41%)
Assembly & Exhibit	19,540	27,450	(7,910)	(40%)
Physical Plant	65,643	25,673	39,970	61%
Other Department Space	34,785	43,408	(8,623)	(25%)
Academic Support Space Subtotal	*292,558*	*301,116*	*(8,558)*	*(3%)*
CAMPUS TOTAL	**431,490**	**422,816**	**8,674**	**2%**
Inactive/Conversion Space	*29,026*			
Outside Organizations	*6,529*			

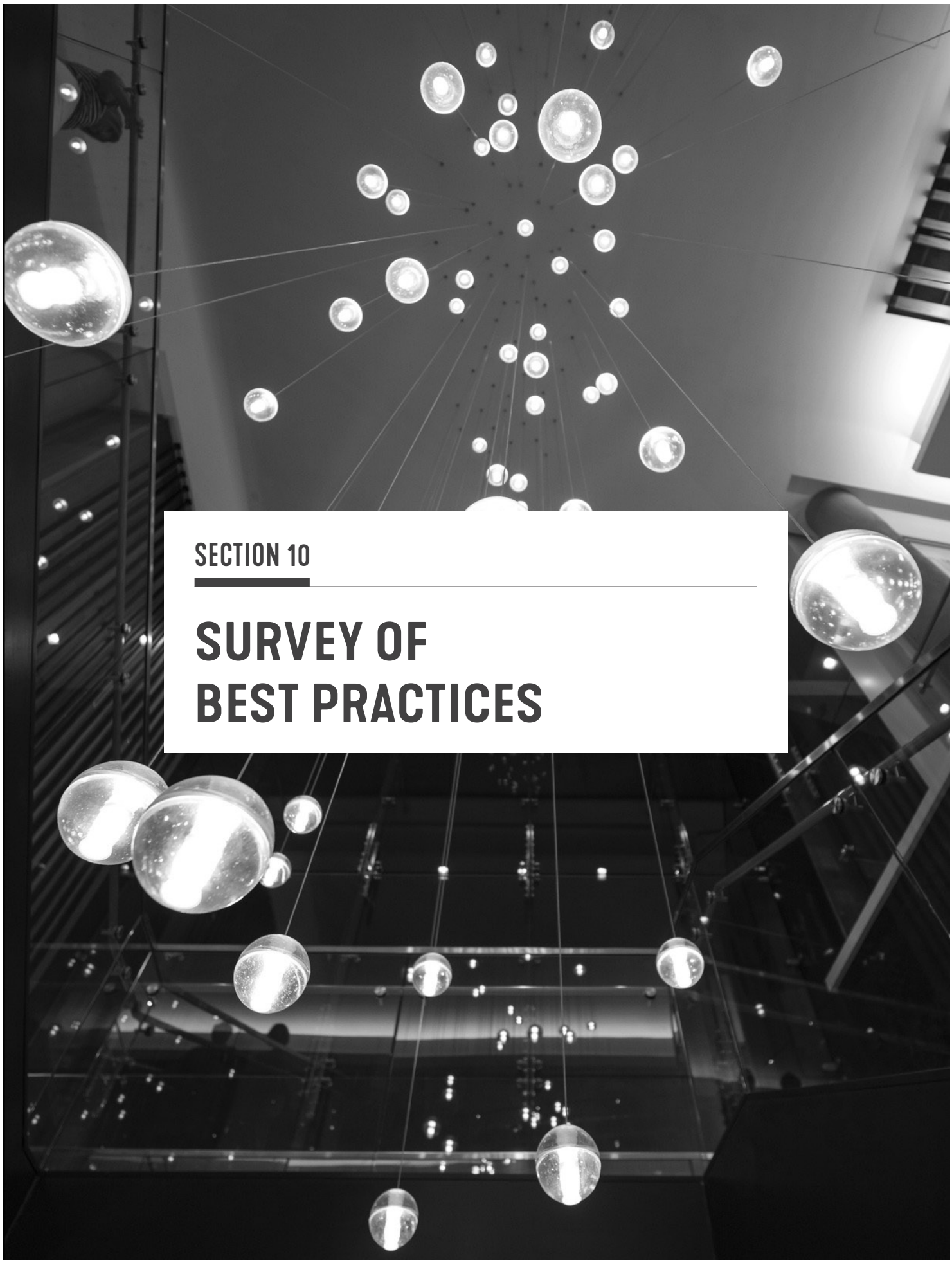
Academic program completions were analyzed to determine if there would be a significant difference in the type of academic space Western Oregon University will need in the future as compared to the current space mix. The change in the number of completions between 2010 and 2017, as indicated in the IPEDS summary chart below, was compared to the change in projected enrollment to 2029. During the study period, WOU completions increased by 25%. The enrollment projection from the University is a 33 percent increase and the NCHEMS student flow model projects an increase of 5 percent.

Programs that have seen significant increases in completions during the study period include IPEDS categories: Communication, Journalism, and Related Programs (192%), Biological and Biomedical Sciences (100%), and Physical Sciences (133%). The 2018 space needs analysis indicates a surplus of academic space. A deficit in classroom and open lab space is offset by a surplus of teaching lab space. This pattern continues with both the WOU and NCEMS student flow chart enrollment projections. Since the high completion programs at WOU are a blend of classroom intensive and lab intensive, reconfiguring of existing space would meet the space need.

PROGRAM COMPLETION RATES

Institution Name: Western Oregon University (UnitID: 210429)

	2010	2011	2012	2013	2014	2015	2016	2017	Line
Communication Journalism and Related Programs	12	24	31	56	31	35	29	35	
Computer and Information Sciences and Support Services	22	33	52	27	28	48	51	29	
Education	290	263	239	260	209	190	219	272	
Foreign Languages Literatures and Linguistics	32	44	39	61	50	39	42	42	
Family and Consumer Sciences/Human Sciences							1	5	
English Language and Literature/Letters	45	36	34	41	26	19	18	14	
Liberal Arts and Sciences General Studies and Humanities	6	8	8	10	3	4	6	7	
Biological and Biomedical Sciences	10	32	35	21	21	30	26	20	
Mathematics and Statistics	10	7	7	22	11	11	9	7	
Multi/Interdisciplinary Studies	82	89	93	114	114	126	131	117	
Parks Recreation Leisure and Fitness Studies	36	52	53	53	46	69	64	47	
Philosophy and Religious Studies	2	4	8	1	4	2	2	0	
Physical Sciences	9	11	11	15	8	15	9	21	
Psychology	57	82	110	84	81	107	83	89	
Homeland Security Law Enforcement Firefighting and Related Protection	44	57	88	105	98	134	85	79	
Social Sciences	82	76	97	94	72	85	68	71	
Visual and Performing Arts	56	47	66	59	61	47	60	64	
Health Professions and Related Programs	43	38	82	52	67	68	56	61	
Business Management Marketing and Related Support Services	148	144	160	169	161	173	163	167	
History	19	24	16	12	16	15	7	14	
Total	1,005	1,071	1,229	1,256	1,107	1,217	1,129	1,161	

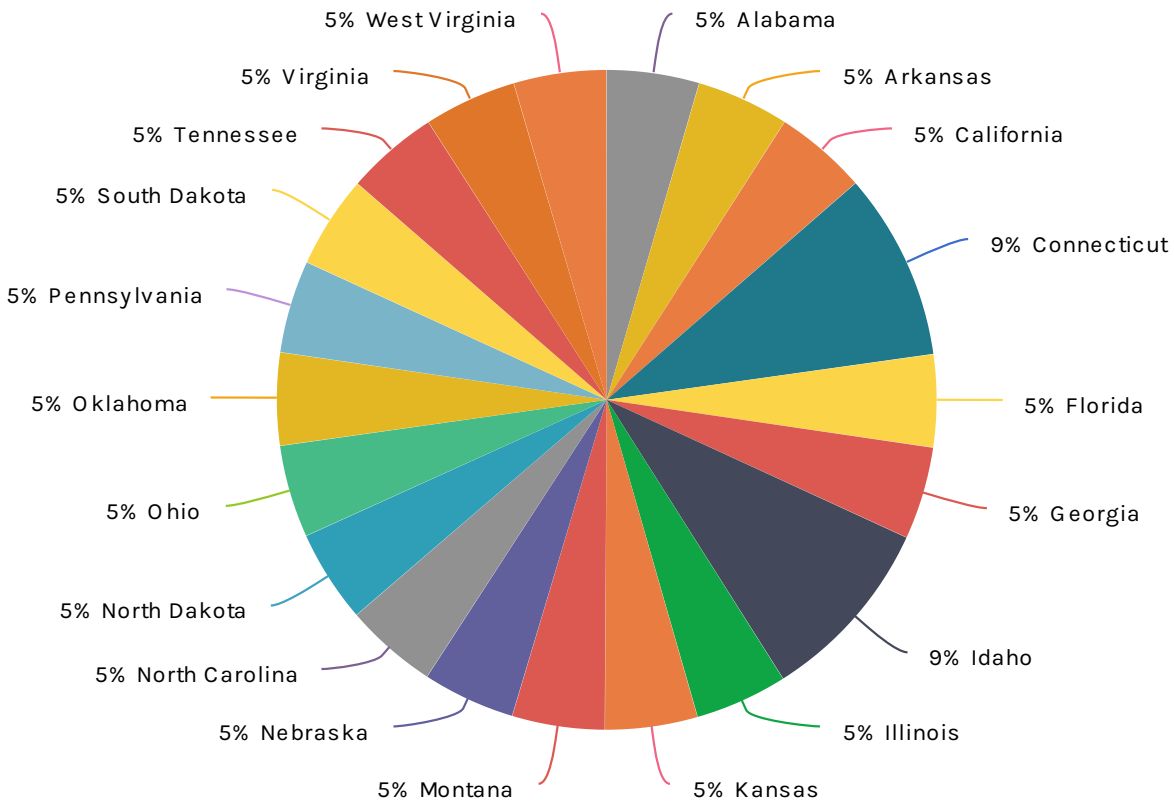


SECTION 10

SURVEY OF BEST PRACTICES

SURVEY OF BEST PRACTICES

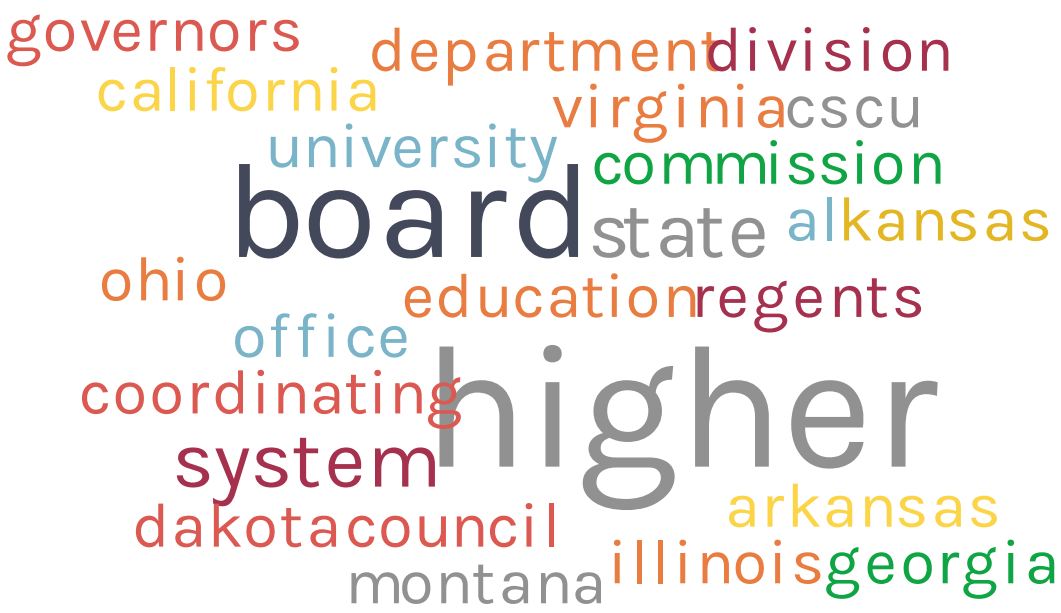
SURVEY QUESTION 1. YOUR STATE:



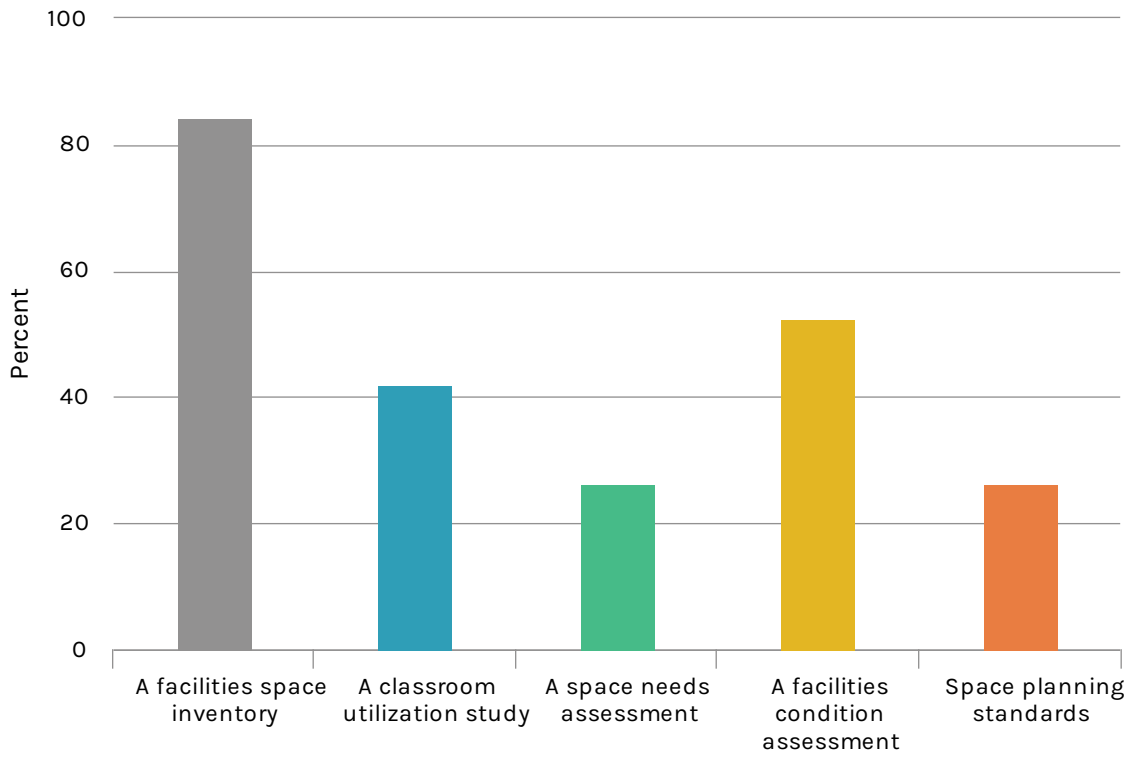
SURVEY QUESTION 1. YOUR STATE (CONT.):

Value	Percent	Responses
Alabama	4.5%	1
Arkansas	4.5%	1
California	4.5%	1
Connecticut	9.1%	2
Florida	4.5%	1
Georgia	4.5%	1
Idaho	9.1%	2
Illinois	4.5%	1
Kansas	4.5%	1
Montana	4.5%	1
Nebraska	4.5%	1
North Carolina	4.5%	1
North Dakota	4.5%	1
Ohio	4.5%	1
Oklahoma	4.5%	1
Pennsylvania	4.5%	1
South Dakota	4.5%	1
Tennessee	4.5%	1
Virginia	4.5%	1
West Virginia	4.5%	1

Totals: 22

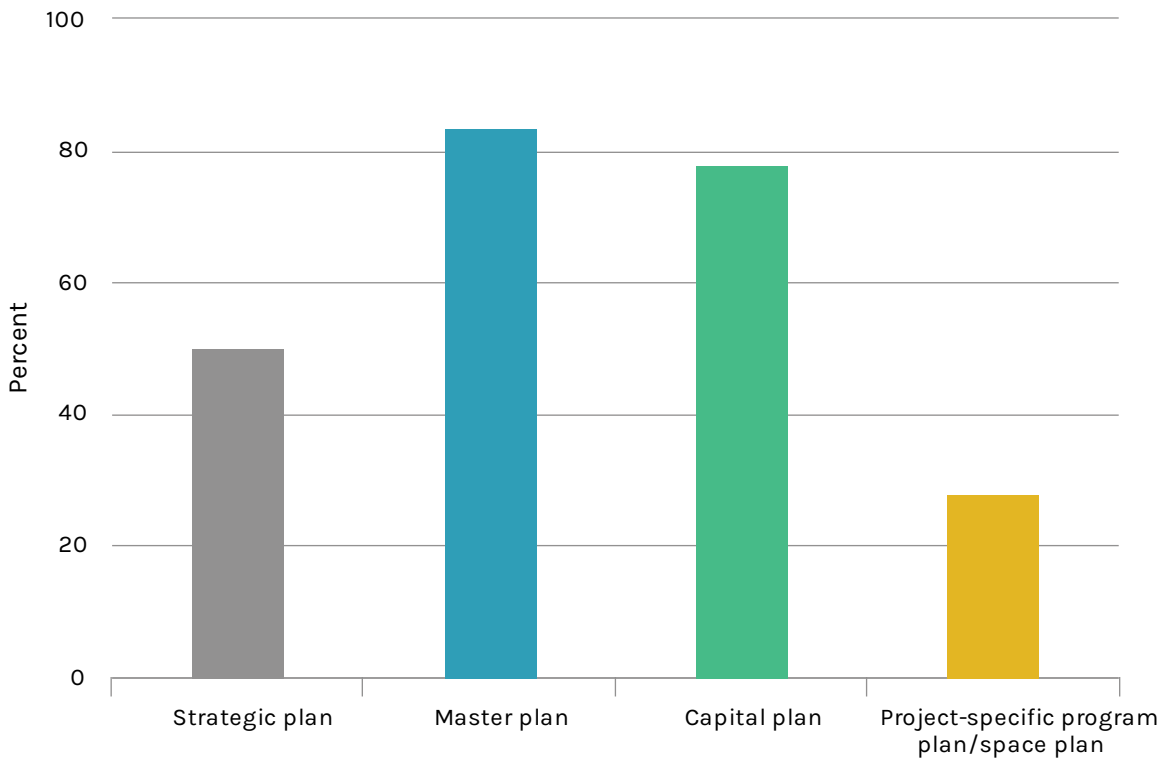

governors
department
division
california
virginia
cscu
university
commission
board
state
alkansas
ohio
education
regents
office
higher
coordinating
system
arkansas
dakotacouncil
illinois
georgia
montana

SURVEY QUESTION 3. IS THERE A STATEWIDE OF SYSTEM-WIDE REQUIREMENT TO HAVE OR REPORT (CHECK ALL THAT APPLY):



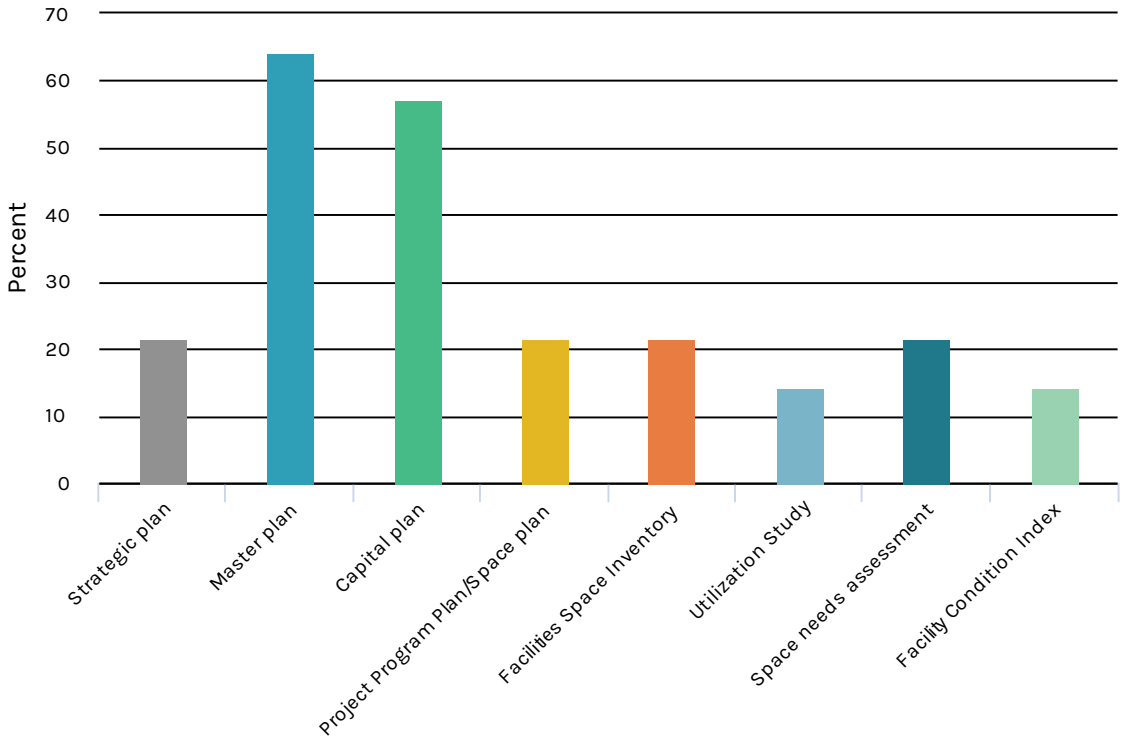
Value	Percent	Responses
A facilities space inventory	84.2%	16
A classroom utilization study	42.1%	8
A space needs assessment	26.3%	5
A facilities condition assessment	52.6%	10
Space planning standards	26.3%	5

SURVEY QUESTION 4. IS THERE A STATEWIDE OR SYSTEM-WIDE REQUIREMENT TO HAVE A (CHECK ALL THAT APPLY):



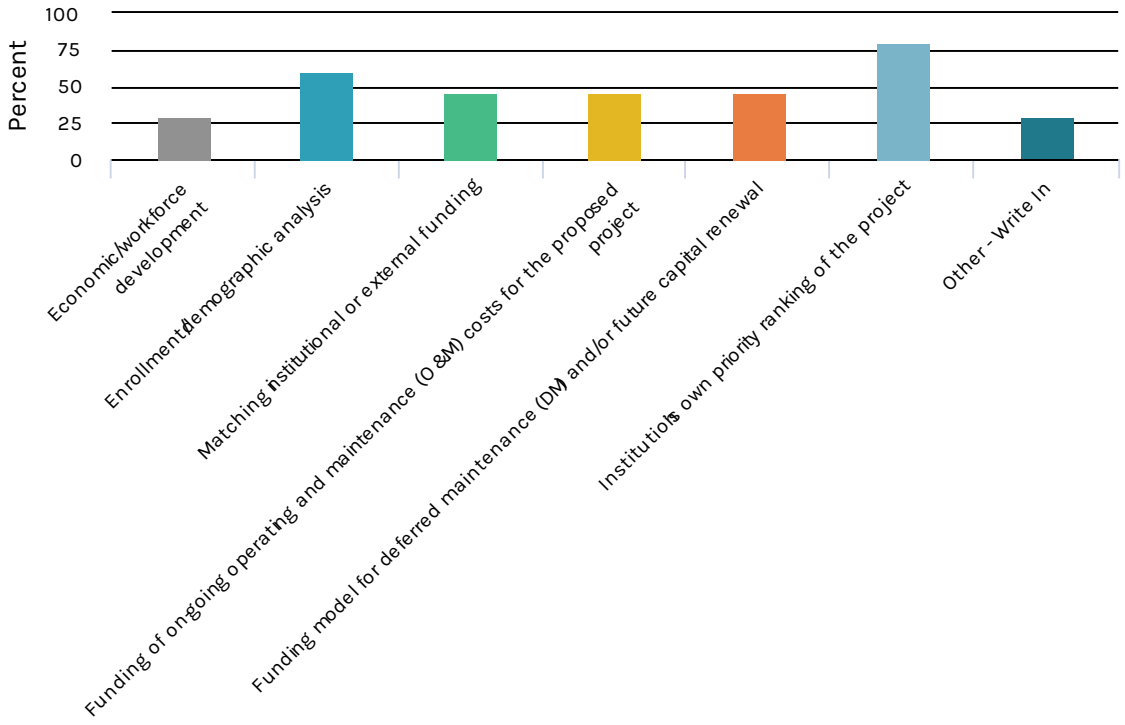
Value	Percent	Responses
Strategic plan	50.0%	9
Master plan	83.3%	15
Capital plan	77.8%	14
Project-specific program plan/space plan	27.8%	5

SURVEY QUESTION 5. ARE ANY OF THE ITEMS IN THE FIRST TWO QUESTION A PREREQUISITE FOR CAPITAL FUNDING APPROPRIATIONS OR APPROVAL? (CHECK ALL THAT APPLY):



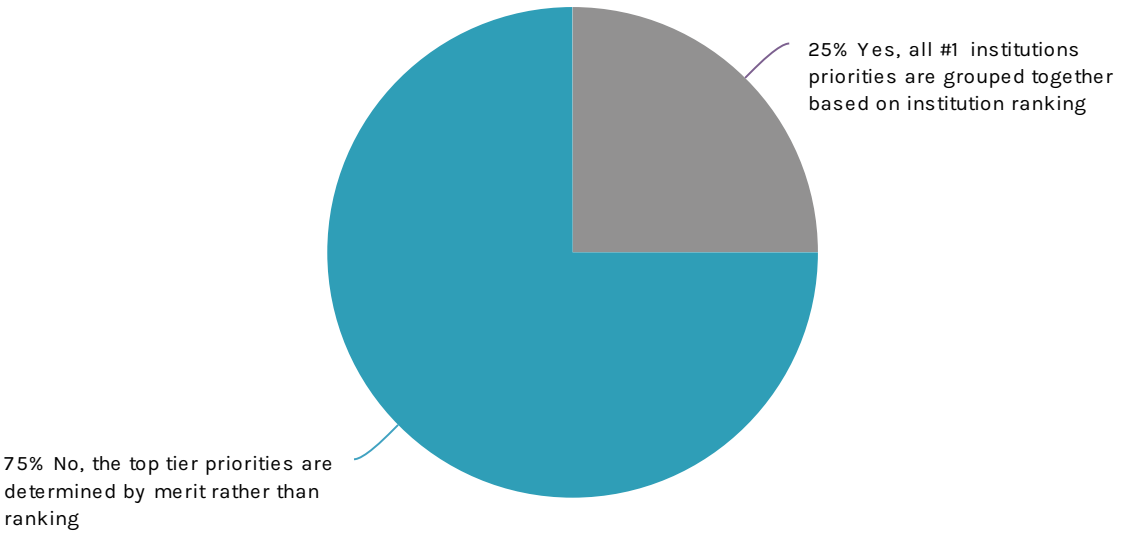
Value	Percent	Responses
Strategic plan	21.4%	3
Master plan	64.3%	9
Capital plan	57.1%	8
Project Program Plan/Space plan	21.4%	3
Facilities Space Inventory	21.4%	3
Utilization Study	14.3%	2
Space needs assessment	21.4%	3
Facility Condition Index	14.3%	2

SURVEY QUESTION 6. DOES THE STATE LEVEL CAPITAL FUNDING PRIORITIZATION PROCESS CONSIDER ANY OF THE FOLLOWING FACTORS? (CHECK ALL THAT APPLY):



Value	Percent	Responses
Economic/workforce development	30.0%	6
Enrollment/demographic analysis	60.0%	12
Matching institutional or external funding	45.0%	9
Funding of on-going operating and maintenance (O&M) costs for the proposed project	45.0%	9
Funding model for deferred maintenance (DM) and/or future capital renewal	45.0%	9
Institution's own priority ranking of the project	80.0%	16
Other - Write In	30.0%	6

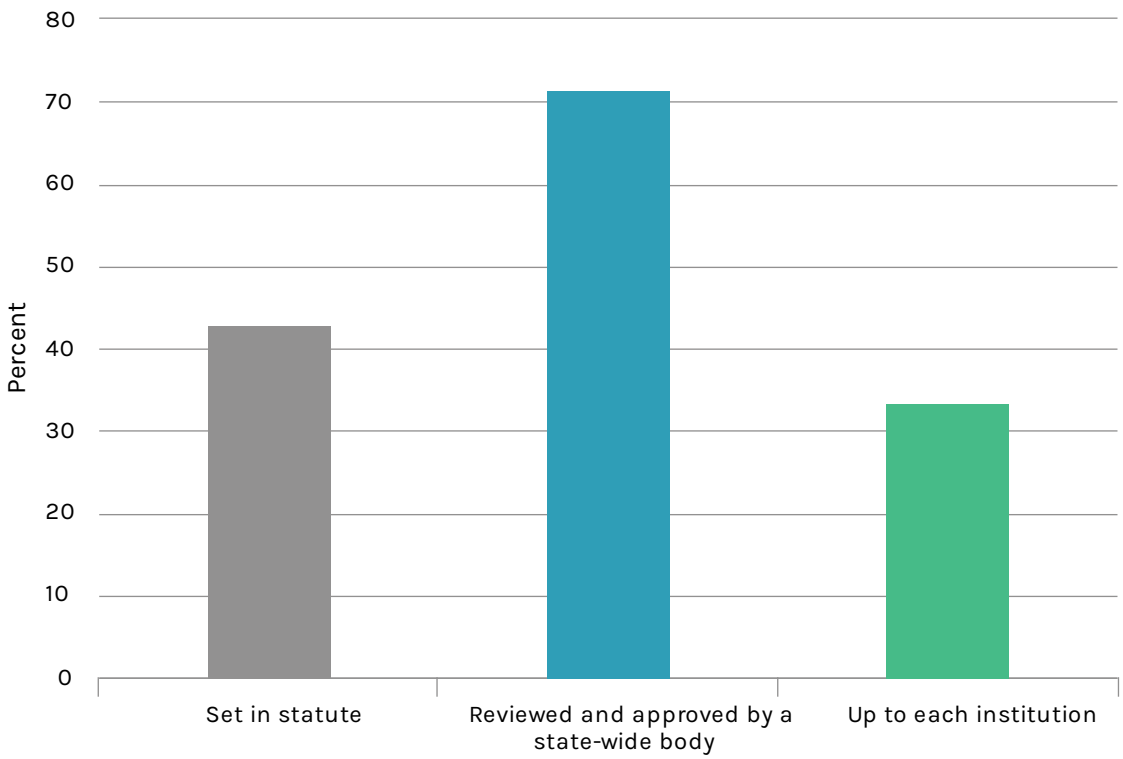
SURVEY QUESTION 7.YOU RESPONDED YES THAT YOUR "INSTITUTION'S OWN PRIORITY RANKING OF THE PROJECT", ARE ALL INSTITUTION #1 PRIORITIES GROUPED IN A TOP TIER FOR FUNDING?:



Value	Percent	Responses
Yes, all #1 institutions priorities are grouped together based on institution ranking	25.0%	4
No, the top tier priorities are determined by merit rather than ranking	75.0%	12

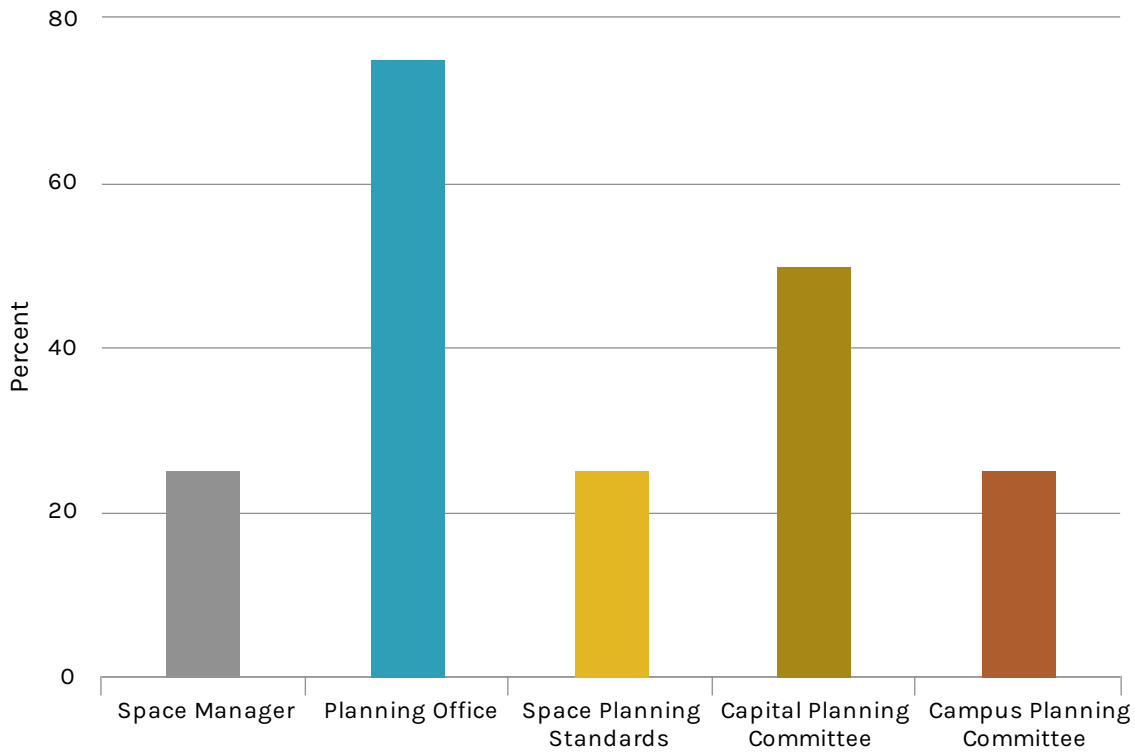
Totals: 16

SURVEY QUESTION 8. IS THE INSTITUTION'S ROLE AND MISSION (CHECK ALL THAT APPLY):



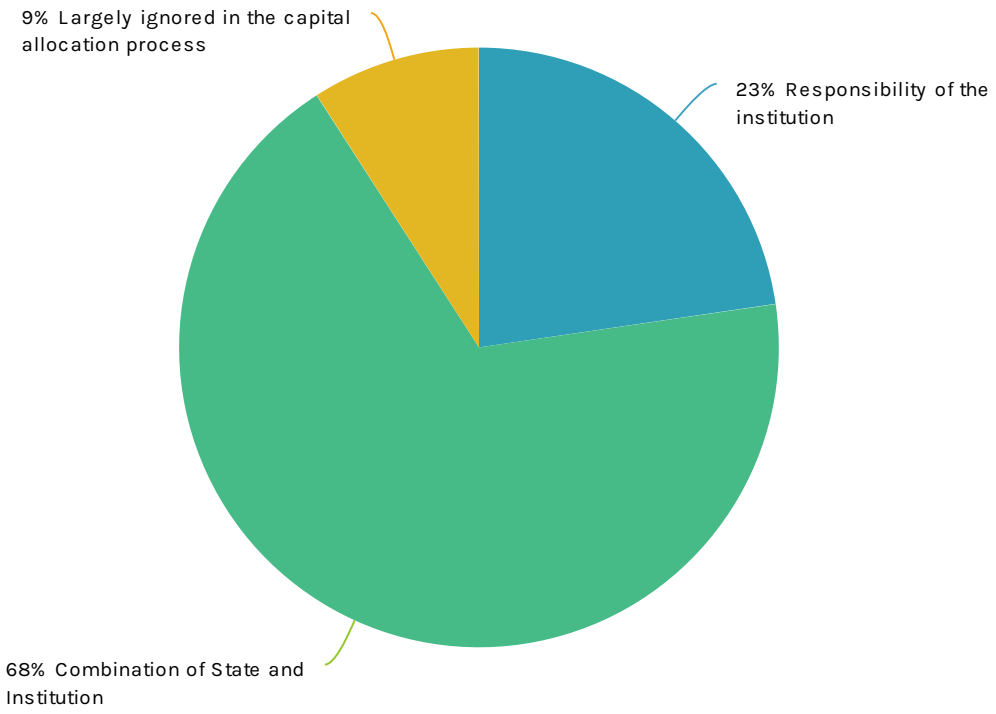
Value	Percent	Responses
Set in statute	42.9%	9
Reviewed and approved by a state-wide body	71.4%	15
Up to each institution	33.3%	7

SURVEY QUESTION 9. IF YOUR ORGANIZATION IS AN INSTITUTION, DOES YOUR INSTITUTION USE ANY OF THE FOLLOWING COMPONENTS IN A SPACE AND/OR CAPITAL PLANNING PROCESS? (CHECK ALL THAT APPLY):



Value	Percent	Responses
Space Manager	25.0%	1
Planning Office	75.0%	3
Space Planning Standards	25.0%	1
Capital Planning Committee	50.0%	2
Campus Planning Committee	25.0%	1

SURVEY QUESTION 10. IS "DEFERRED MAINTENANCE" THE:



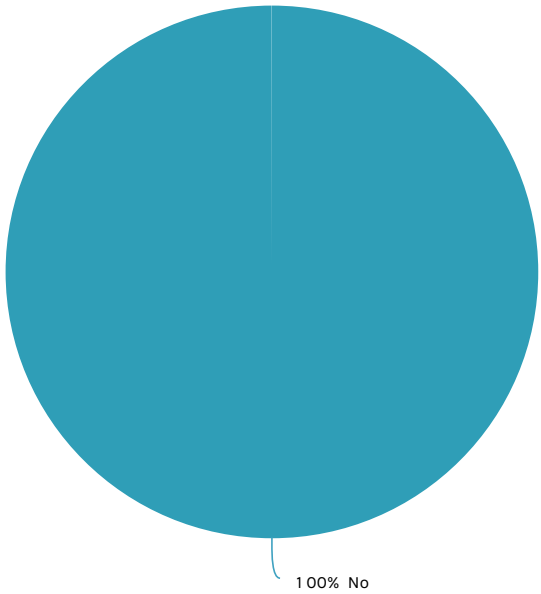
Value	Percent	Responses
Responsibility of the institution	22.7%	5
Combination of State and Institution	68.2%	15
Largely ignored in the capital allocation process	9.1%	2

Totals: 22

SURVEY QUESTION 11. IF DEFERRED MAINTENANCE IS THE RESPONSIBILITY OF THE STATE IS THERE A SEPARATE APPROPRIATION OR IS IT PART OF THE REGULAR CAPITAL BUDGET?:

No Data to Display

SURVEY QUESTION 12. IF DEFERRED MAINTENANCE IS THE RESPONSIBILITY OF THE INSTITUTION, ARE THERE GUIDELINES AS TO ANNUAL EXPENDITURE LEVELS?



Value	Percent	Responses
No	100.0%	5

Totals: 5


maintenance
general
information
state
budget
2
funding
institutions
base
board
1
11.5
0
account
annual
capital
prioritization
priorities
academic
anf
other
project
deferred
allocating
allocate

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