



Annex B

ANALYSIS OF STATE TRENDS AND EMERGING ISSUES

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Executive Summary – Analysis of State Trends and Emerging Issues

I. The unique character of Hawai'i's population and its shifting demographic and geographic profile should shape the University's strategies and programming in the Third Decade to successfully accomplish its mission.

- 1. Hawai'i's population has declined for the last three years, with all of the decline occurring on O'ahu and modest growth on the Neighbor Islands. By 2030, O'ahu will account for about 67.4% of the state's population compared to about 69% in 2020. The relative increase in population on Neighbor Islands calls for the University to consider more distance learning, distributed education, and resources outside of the O'ahu campuses and programs. The overall population decline suggests that the University develop or expand its efforts to attract new student populations including out of state students, international students, adult learners, and active duty military and dependents.
- With better integration of programs across the UH system, students statewide could consider UH to be "one university" and engage in programs that would have one campus as a lead, but with delivery statewide.
- Hawai'i's population is aging, with a large and growing number of retirees and the population aged 85+ projected to double by 2045. Academic programs addressing the increased demand for age-related health services will become increasingly important (health sciences, culinary nutritional programs, geriatric medicine, and social work among others).
- 4. The aging population and the growing number of retirees will put a strain on the State's budget, especially considering the large, mandated, unfunded entitlements for State retirees. The University will face legislative sessions in which there is less discretionary State budget available for new or expanded university programs. This suggests that the University will probably need to review, prioritize, or redistribute resources for existing programs to undertake new initiatives.
- 5. There are wide variances in success rates among different ethnic categories of public high school students completing degrees or certificates. Native Hawaiians and Pacific Islanders,

in particular, are less successful than the norm; further research identifying the underlying causes for their academic success rate can help point to effective solutions.

- 6. Out-migration from Hawai'i is high among young adults 18-24, many of whom leave Hawai'i to attend colleges outside the state. Apart from leaving for out-of-state school, out-migration may be related to the high cost of living and the relatively weak increases in per capita income, causing young adults to look for brighter and more affordable opportunities outside the state. A coordinated strategy to address negative enrollment trends might include continued support for programs to provide "college for all" or the "Hawai'i Promise;" additional financial incentives; and facilitation of transfers from the Community Colleges to four-year institutions. The dispersion of Hawai'i residents to the mainland for higher education may also call for developing joint degrees with leading universities to provide students with "the best of both worlds."
- 7. The multi-ethnic nature of Hawai'i's population including the relatively high proportions of foreign born residents and people who speak a language other than English at home helps to account for the relatively high percentage of University of Hawai'i system students who require assistance in becoming "college ready" in English. Collaborative efforts through the Department of Education and the P-20 program have resulted in significant progress in college readiness and persistence; however, more progress is needed to achieve persistence and graduation goals.
- 8. Educational attainment at the associate degree or higher level among adults aged 25+ is somewhat higher in Hawai'i than the national average. Attainment levels on the Neighbor Islands are all below the state average. The variance in attainment by county may suggest the need for a greater emphasis on distributed education, adult learning programs, regionally specific workforce training, or expanded general education programs at Neighbor Island Community Colleges.
- 9. Active duty military and their dependents are a significant presence in Hawai'i and represent a large but generally untapped opportunity for the University of Hawai'i system, requiring special programming to develop successfully. Private institutions and online programs have had success offering military students tailored modules in subjects targeted to their interests but shorter than University of Hawai'i semesters.
- 10. The Hawai'i school age population (age 5-19) is projected to grow 10% by 2035 with rates of growth that are higher on the Neighbor Islands. About 43% of post-secondary Hawai'i college-bound graduates go out-of-state for college; only about 12% of students graduating from Hawai'i public schools enroll in a University of Hawai'i four-year program. Developing a stronger position for UH as an attractive alternative to mainland colleges represents an area of opportunity.

II. The Hawai'i economy currently relies on a few key industries despite longstanding diversification efforts. Economic growth has been modest and real per capita income growth has lagged. The University can play a key role in supporting the development of new industries and revitalizing existing ones through strategic academic programs that are aligned with the state's opportunities.

- The University can help foster the state's economic development by addressing economic opportunities holistically and recognizing the inter-relationships of academic programs within economic "clusters." For example, the ultimate success of the agriculture cluster in Hawai'i requires connections to biology, biotech, food science, agriculture, culinary arts, and business and marketing programs. UHM's Interdisciplinary Studies (IS) program is a structure that can expand to broadly support cross-disciplinary innovation.
- 2. A careful study of the State's industry clusters, and their talent gaps can offer rich, evidence-based opportunities for economic growth and diversification.
- 3. Hawai'i's well-established reputation as a tourist destination coupled with rapidly growing tourism demand in the Asia-Pacific region presents an opportunity to recruit mainland and international students for Travel Industry Management and HOST programs and to develop training programs for other destinations and educational institutions in Asia.
- 4. Resident frustrations about the impact of tourism coupled with the Hawai'i Tourism Authority's new emphasis on tourism management present an opportunity to develop new cross-disciplinary approaches in this area that can be the basis for a leadership role in hospitality education. "Smart Tourism" is emerging as a discipline integrating new technologies (big data, data analytics, augmented reality, artificial intelligence, and more) as tourism management tools. Similarly, cross-disciplinary research and curriculum development spanning travel industry management, urban planning, and the social sciences could put the university at the forefront of a global response to "overtourism."
- 5. The concentration and dependence of Hawai'i's economy on hospitality and tourism is concerning. Continued over-reliance on tourism and the sensitivity of this industry to global economic fluctuations threaten employment prospects for UH students. The University, in response, can work closely with the State to strategically develop new economic sectors suitable for Hawai'i and to provide education and training for the skills needed to make them a reality.

- 6. Hawai'i's well established reputation in Tropical Agriculture and Culinary Arts can contribute to the development of diversified agriculture in the state through innovative agricultural techniques and expertise in developing value-added food products (through Food Innovation Centers and food sciences curricula such as culinology). The availability of agricultural land, Hawai'i's temperate year-round climate and the strength of the Hawai'i brand suggest that diversified agriculture and Hawai'i branded food and other agricultural products are reasonable initiatives to diversify Hawai'i's economy.
- 7. There are existing structures and programs in place in Hawai'i to foster economic growth based on currently identified economic sectors (such as technology, tourism, film and others) but there seems to be no coordinated, interagency, multi-jurisdictional approach to identifying new economic opportunities for the state. The University can be a key partner with the state and the various economic development organizations and initiatives to identify such opportunities and coordinate strategic economic development.
- 8. The State's 2050 Sustainability plan calls for the creation of a Sustainability Council with broad representation to foster "open communication and cross-sector dialogue" regarding Hawai'i's sustainable development. The University's participation in this together with other initiatives like the United Nations Strategic Development Goals and the Aloha+ Challenge, could be the basis for developing coordinated programs around economic and environmental sustainability and managed growth.
- 9. Given its strategic location, Hawai'i has long enjoyed strong investment from the Federal Government. With new national priorities such as an increased focus on the Indo-Pacific region and the planned "space force," the University is poised to explore related opportunities for academic programs, research, and workforce training.
- 10. New and growing technologies (5G, big data, artificial intelligence, robotics, biotech, and others) underscore the need to prepare a technology-ready workforce. Innovative technologies need to be incorporated across academic programs to keep the University relevant. Equally important, though, is the application of these technologies across programs and disciplines to enhance the University's signature curricula like astronomy, ocean sciences, travel industry management, health sciences, and others.
- 11. The University's success in attracting extramural and research funding can be a focus for its participation in Hawai'i's strategic economic development initiatives. Expanding these successful efforts may involve reviewing incentives (including tenure and promotion) for faculty to actively engage in innovative endeavors. Adopting a focused approach on research and development projects that are linked to Hawai'i's economic opportunities can create synergies with the state's development efforts.

- 12. Related to Hawai'i's aging population, employment projections forecast dramatic increases in the need for healthcare workers, suggesting the expansion of healthcare programs and the "UHealthy" initiative offered by the University across the system and in the community.
- 13. With 42% of Hawai'i's employees working in businesses with fewer than fifty employees, the University's business programs at both the bachelor's and associate levels need to have a strong small business and entrepreneurship component. Partnerships with business organizations like the Chambers of Commerce, Small Business Development Centers and others can provide necessary feedback to ensure university business programs are relevant to small businesses.
- 14. The structure of the University's continuing education programs enables them to be nimbler and more responsive to industry workforce needs than academic programs offered for credit. The alliances developed with industry in these programs can be the basis of broader connections between the University and the business community.

III. Since the Second Decade initiative, social, economic, and political developments have emerged that have affected the University's programs and will continue to drive change into the next decade.

- Some Native Hawaiian and community groups have resisted projects such as the Thirty Meter Telescope (TMT), GMO development and other initiatives that UH has supported. The University, with its highly regarded Hawaiian Studies programs across multiple campuses, is uniquely suited to teach and support Hawaiian perspectives on land, development, and governance. These perspectives are relevant across a spectrum of University programs and highlighting them may help bridge cultural misunderstandings.
- 2. Increasing the number of Native Hawaiians in graduate and PhD programs will likely contribute to a sense of ownership for programs like the Thirty Meter Telescope and contribute to infusion of Native Hawaiian values into the fabric of the University.
- 3. As Hawai'i tourism becomes more focused on authenticity and tourism management, the School of Travel Industry Management in the Shidler College of Business can take a leadership role in research and curriculum built on cultural values and sensitivity.
- Resident frustrations with the negative impacts of high-volume tourism can be addressed with the development of multi-discipline "smart tourism" technology innovations incorporating content from across departments and campuses.

- 5. Negative trends in measures of respect for and confidence in government and other institutions may result in the University being "tarred with the same brush." Skepticism of established Hawai'i institutions suggests the need for a marketing program to proactively position the University system as part of a solution and not part of an establishment perceived to be dysfunctional.
- 6. The large number of Hawai'i residents who are asset-limited, income constrained but employed (ALICE) underscores the importance of developing educational programs that can prepare students for living wage jobs. Hawai'i's many residents who are economically stressed are also likely to suffer when it comes to educational attainment. Working with other organizations and initiatives to develop programs addressing social issues is consistent with the realization of the University's broad mission to improve the quality of life in Hawai'i.
- 7. Societal inequities in economic and social status extend into the University in terms of attainment and representation. In all of its programs and policies, the University should ensure that equity is considered and that inequities are addressed.

IV. University enrollment has declined significantly across the board, affecting both the revenues needed to undertake new initiatives and, in a broader sense, constraining the ability of the University to achieve its mission. Reversing this trend will require effective outreach and the strengthening of the University's brand and its academic programs to make them more relevant and attractive.

- 1. The success of other large state universities in growing enrollment may provide a model for the University of Hawai'i in developing new enrollment programs. The increasing number of Hawai'i high school graduates who leave the state for college and the relatively low "going rate" to enroll in the UH system are areas for evaluation and analysis to determine the underlying reasons for these trends. Another opportunity for improving enrollment growth is to increase the percentage of transfers from the Community College System into UH programs (and contain the leakage of Hawai'i transferees to non-UH programs).
- 2. The large number of asset-limited, income constrained people in the state suggests a continuing need to support financial aid initiatives and to evaluate the effectiveness of financial aid programs already in place.
- 3. Despite the intention of the "Hawai'i Promise" program to increase community college enrollment by fully addressing financial need, enrollment at the community colleges

continues to decline, suggesting that there are additional barriers to enrollment which must be addressed.

- 4. The University has relatively low enrollment from non-traditional groups of potential students including adult learners, active duty military, and international students. Attracting these new segments will require new outreach efforts and the development of programs that cater to their unique needs. As with any product development initiative, success in this area will depend on alignment of student needs with the University's program offerings. Non-traditional academic offerings (shorter modules, remote delivery, distance learning, "mini" certificates, and others) may attract new students who do not currently find the University's program fit their needs.
- 5. The large number of Hawai'i residents (210.5K) who have some college credits, but no degree represents a marketing opportunity for increased enrollment to help complete degrees.
- 6. The University participates in the Western Undergraduate Exchange, a tuition reciprocity agreement with educational institutions in sixteen Western states. Currently, the level of enrollment into University of Hawai'i programs is about equal to the number of students leaving the state to enroll in Mainland institutions. Expanding the promotion of this program to prospective students on the US Mainland is a potential source for increasing enrollment.

V. The success of the University and its programs relies both on adequate funding and on systems for quality assurance that ensure that programs are competitive and meet the needs of students.

- The University benefits from the revenues generated by extramural funding, grants, licensing, and royalties. Programs to target research in strategic economic sectors and to expand incentives for faculty to focus on innovation can potentially enhance these revenues. Benchmarking the University's performance to comparable institutions and systems can provide an analytical tool for assessing the effectiveness of its efforts.
- 2. An analysis of financial and staffing ratios compared with other comparable state university systems points to an opportunity to create a system for the University to develop targets and ongoing assessments of its progress in managing costs.
- 3. The University has an extensive system of program reviews through the Annual Reports of Program Data (ARPDs), academic program reviews, accreditation reports, and external

evaluations. To foster continuous improvement, a system-level analysis and "report card" on these assessments and the responses to them can highlight both opportunities and gaps in program performance.

- 4. Marketing is underfunded and the responsibility for marketing programs is distributed across many units in the system. Current marketing efforts are focused on communications rather than on developing and implementing a robust, comprehensive, integrated plan. Investing additional resources in market research and refining targeting can contribute to a more cohesive brand for the University and result in increased enrollment. A strong brand can create community support essential for maintaining public funding.
- 5. The University, through its non-credit continuing education system, has successfully shortened the lead times for developing programs that are responsive to the needs of emerging economic sectors and workforce requirements. The University can study the characteristics that foster this speed and responsiveness in program development for continuing education to determine if they can be applied to credit-bearing academic programs as well. The non-credit programs are not mentioned in the University's recently adopted mission and vision statements, even though they may be critical in aligning the University with workforce needs.
- 6. The State's Employment Training Fund (ETF) is a workforce training initiative managed by the State Department of Labor and Industrial Relations. There may be an opportunity for the University's continuing education program to more closely partner with DLIR (or even administer the program on their behalf) to increase the University's participation in training programs funded through ETF.
- 7. The University of Hawai'i system now provides faculty support for both distance- and conventional instruction (instructional design, professional development, and others) at the campus level. Separating these services by modality and consolidating distance learning professional development at the system level can provide more focused support for faculty teaching courses remotely.
- 8. The University of Hawai'i West O'ahu practice of having its Faculty Senate review and approve distance learning proposals provides a level of quality assurance that is missing at other campuses.

VI. Implications for academic planning

The University of Hawai'i is a large and diverse educational system with limited resources serving the needs of a diverse state in a rapidly changing environment. To operate in this challenging environment, the University's academic programs should be strategically focused in order to fulfill its mission to be "an integral contributor to the success of the state of Hawai'i."ⁱ The alignment of academic programs with coordinated strategy is a constant challenge as the state's needs and conditions evolve along with rapidly changing technology and pedagogy.

- 1. To fully support the workforce training needs of the state in a dynamic environment, the University should consider academic degree programs and continuing education to be complementary, integrated delivery systems. The academic programs offer foundational, vetted (and often accredited) degrees, but are slow to respond to changing needs and conditions. Continuing education programs are more nimble and can be targeted to specific needs, offer shortened modules, faster development schedules, and provide credentialing (which can provide students with a path to higher paying positions). Planning at the system level can ensure that these two delivery systems together meet the strategic workforce needs of the state.
- 2. Program development for the University often takes years (or even decades) in the face of contentious debate. The merger of the Shidler College of Business with the School of Travel Industry Management, the Thirty Meter Telescope, the Academy for Creative Media, and other programs have been characterized by conflicting stakeholder concerns, political involvement, budgetary restrictions, and other impediments. On the other hand, some programs (the Maui Food Innovation Center, MELE, advanced professional certificates in the Community College System and others) have developed smoothly. The University should study the conditions that characterized these (and similar) successful projects to adopt best development practices but also create a process for early management of the development cycle to deal with and resolve stakeholder concerns.
- 3. While many of the University's career and technical education and other professional programs engage advisory groups to provide input for their content, there is no similar structure at the system level to ensure that the University's broad workforce development programs are strategic and aligned with State and industry needs. To provide a long-term and strategic foundation for workforce development, the University should participate in and align with planning initiatives that the State has adopted (such as the 2050 Sustainable Plan or the Aloha+ Challenge).

Hawai'i Population and Demographic Trends

Annex-A of GUILD's study provides a high-level overview of emerging demographic, economic, employment, cultural, political, and social issues focused on national and regional trends but with links to similar trends in Hawai'i. This section, Annex-B, drills deeper into the Hawai'i trends to draw out assessments of how the University of Hawai'i is aligned with these trends and how they affect program development.

1. Population

The state of Hawai'i has experienced a modest decline in total population for the last three years, going from 1.427 million in 2016 to an estimated 1.415 million in 2019, a 0.8% decline for the period. All of the decline is from O'ahu. Since 2016, O'ahu population declined 1.2% while population for the other three counties has increased (Hawai'i +1.4%; Kaua'i +0.8%; and Maui +0.9%). Hawai'i ranks 40th among the states in population but 13th in population density.

The long-range forecast from the Hawai'i Department of Business Economic Development and Tourism projects the state population will reach 1.649 million in 2045. The forecast continues to project that population will increase at a faster rate on the Neighbor Islands than on O'ahu. As a result, Honolulu's share of the state's total population will decline from 70.1% in 2010 to 65.9% in 2040.ⁱⁱ



Source: Hawai'i DBEDT Population Forecast

About 54% of the state's residents were born in Hawai'i. The proportion of the population born abroad is 18%, and 7.6% of the resident population are non-citizens.

The size of Hawai'i's population is a key factor for enrollment in the University system. With sluggish population growth, enrollment will stagnate unless the University increases its "going rate" entering college, improves its programs to attract non-residents from the U.S. mainland and/or international markets, or taps into other non-traditional markets. Without enrollment growth, it will be difficult for the University to expand its programs and cover its overhead costs.

The declining proportion of the state's population on O'ahu will create increasing demand for direct educational services on the Neighbor Islands as well as increased distance education programs emanating from the University's O'ahu campuses. The increasing proportion of the population on the Neighbor Islands will also increase the demand for and importance of programs directly related to their economies and workforce requirements.

Demographics

Hawai'i's population over the age of sixty-five is projected to increase by 40%, from 279.7K in 2020 to 392.7K in 2045. The proportion of persons aged 65+ in the population will increase from 19.1% in 2020 to 23.8% in 2045. Similarly, Hawai'i's population over the age of eighty-five will more than double, from 42.0K in 2020 to 107.6K in 2045.

Age		2020	2030		204	40	2045		
	#	% of total pop.	#	% of	#	% of	#	% of	
				total		total		total	
				рор.		pop.		pop.	
18-44	522,766	45.3%	530,141	43.3%	530,752	41.2%	538,601	41.0%	
45-64	351,041	27.9%	342,210	27.9%	373,201	29.0%	382 <i>,</i> 935	29.1%	
65+	279,686	24.2%	352,240	28.8%	383,735	29.8%	392,683	29.9%	
85+	41,954	3.6%	56,704	4.6%	94,823	7.4%	107,648	8.2%	

Source: Hawai'i Department of Business Economic Development and Tourism 2045 Series Report Table A-2. Hawai'i State Population Projection, Selected Components, 2010-2045

With the growing number of government and union retirees in the state, the financial impact of retirement benefits will be significant. As of 2018, the unfunded liability of the Hawai'i Employee's Retirement System (the system for State and county workers) alone rose to \$13.4 billion. The liability is forecast to increase to \$14.2 billion, after which it will slowly improve with a projected surplus by 2043. In its paper "Charting a New Fiscal Course for Hawai'i," the Hawai'i Executive Conference notes that "By 2022, over half of the State's annual general fund will be allocated to funding retiree pensions and healthcare, debt service payments, and Medicaid. If tax revenues do not increase enough, a larger share of the budget will be required to satisfy

these expenses. Eventually, these constitutionally protected obligations will crowd out other government services such as public education, public safety, health and social services, and environmental protection."

The 150+% increase in the size of the elderly (age 85+) population by 2045 will drive a substantial increase in the need for eldercare, geriatric, and other medical services. The significant size of the population aged 65+ (392.7K) is also a potential source of adult learners who can benefit from lifelong learning and retraining programs both to extend their productivity in the workforce and to enhance their quality of life.

Ethnic Mix

Hawai'i's population is ethnically diverse and mixed. Those reporting ethnicity of "two or more races" make up 24% of the state's population.

Enrollment in the UH system has proportionately fewer Caucasians and more Native Hawaiians/Part Hawaiians than their incidence in the population.¹



UH System Student Diversity (Full Time Students Fall 2019)

Source: University of Hawai'i "Fast Facts" https://www.hawaii.edu/about-uh/

¹ Note that the University of Hawai'i uses a "trumping" rule when counting students of Hawaiian ethnicity. Unlike the US Census or other enumerations, UH will count a student as "Hawaiian" if Hawaiian is any part of their ancestry. This results in higher counts for Hawaiians than other data sources.

Hawai'i Population by Race/Ethnicity



Source: U.S. Census

Ethnicity and Language

Hawai'i's ethnic diversity is unique among the states. The multi-ethnic racial mix and the inmigration of foreigners provide Hawai'i with its vibrant culture, but also pose challenges for the state's educational systems. In 2017, 21.7% of Hawai'i's adult (age 18+) population was foreignborn. Based on a 2011-2015 Census Data Set, about 25.3% of Hawai'i's population aged 5+ (about 331.7K people) speak a language other than English at home.ⁱⁱⁱ Over the last four years, international in-migration to Hawai'i has ranged from 4.4K to 9.6K annually, adding more presumably limited-English speakers to the population. In order to improve the percentage of incoming UH students who are "college ready" in terms of English proficiency, the Department of Education and the P-20 program need to address the language issues generated by Hawai'i's diverse culture and foreign born populations.

Migration

Net migration (in-migration minus out-migration) has been negative for the last four years, contributing to the overall decline in Hawai'i's population. The incidence of out-migration from Hawai'i to other places decreases with age and increases with education. For residents 18-24 (prime college age), the out-migration rate has been about 9.2% annually; out-migration reaches 5.4% for those with a Master's degree or higher compared to only 1.8% for those with

less than a high school education.^{iv} The characteristics of the out-migration rates are one cause for a "brain drain" of higher educated professionals in the State.

Segment	2020 Estimate	2035 Forecast	% Growth 2020-35
State School Age (5-19)	247,906	272,778	10.0%
Honolulu School Age	166,546	179,429	7.7%
Hawai'i School Age	37,099	45,202	21.8%
Kaua'i School Age	13,494	14,760	9.3%
Maui County School Age	30,767	33,387	8.5%
Working Age Adults (25-64)	568,793	593,885	4.4%
Military			
Armed Forces	46,455	46,455	-
Military Dependents	60,392	60,392	-

Population Groups Relevant to University of Hawai'i

Source: DBEDT Long Range Forecast

School Age Population (Age 5 – 19)

The school-aged population in Hawai'i is forecast to increase from 248K in 2020 to 272.8K in 2035 (+10.0%) and stabilize thereafter. Growth rates, however, vary by county, with higher rates of growth on the Neighbor Islands (Honolulu +7.7%, Hawai'i County +21.8%, Maui County +8.5%, and Kaua'i +9.3%). The higher rates of growth on the Neighbor Islands indicate the need for expanding education programs outside of Honolulu or creating more opportunities for Neighbor Island residents to engage in Honolulu-based programs through distance learning.

Working Age Population (Age 25 – 64)

The working age population for the state is forecast to increase from 568.8K in 2020 to 593.9K in 2035 (+4.4%) although the incidence of this age group in the total population is declining as the population ages. Hawai'i's working age population was 40.7% of the total population in 2010 but is forecast to be 36.5% of the population in 2045. The declining proportion of working age residents means that proportionately fewer residents are supporting the social costs of an increasingly aging population. Without productivity increases, budget priorities will necessarily shift to health and social services potentially at the expense of education.

Educational Attainment

For adults aged 25-64 in Hawai'i, 45.8% have earned an associate degree or higher. This compares with 43.2% of the US population aged 25-64 with an associate degree or higher (Hawai'i Index = 106). Educational attainment at the associate degree + level is not distributed evenly by county, with only the county of Honolulu exceeding the state average.

	% Age 25-64 Associate Degree +	Index to State Average
State Average	45.8%	100
Hawai'i County	39.5%	86.2
Honolulu	48.2%	105.2
Kauai/Maui	41.1%	89.7

Source: ACS 1-Year Estimates - Public Use Microdata Sample 2018

Educational attainment has increased slowly but steadily over the last decade. Of the adult population (age 25+) in 2017, 32.9% have earned a bachelor's degree, compared with 29.2% in 2007. Only 7.7% of the Adult 25+ population has not completed high school.^v

Over 210K residents of Hawai'i have some college credits but have not completed a degree. This represents almost 15% of the total State population and is an opportunity for the University to promote degree completion programs.

Hawai'i Department of Education

For the 2017-18 school year, total enrollment for public schools in Hawai'i (not including Charter Schools) was 168,095, with 67.9% on O'ahu, 14.0% in Hawai'i County, 12.6% in Maui County, and 5.5% on Kaua'i. An additional 11,160 students are enrolled in Charter Schools.

K-12 private schools have 32,376 students enrolled, 15.2% of total K-12 enrollment for the State. Department, Charter, and Private School enrollment have remained relatively stable over the last three school years. Private school enrollment has declined from its peak (17.6% of total enrollment in 2009-10) to 15.8% of total enrollment in 2018-19. Probably related to the overall population decline for the City & County of Honolulu, enrollment on O'ahu has shown modest enrollment declines in each of the last five school years.

In 2018, there were 11,370 High School completers in the Department of Education system, 6,236 (55%) of whom went on to college.^{vi}

	#	%
Completers (diploma or cert. of completion)	11,370	
Nationwide College Enrollment		
College Enrollment	6,236	54.8%
2-year		22%
4-year		33%
University of Hawai'i System		
College Enrollment	3,805	33.5%
2-year		21%
4-year		12%

Source: College and Career Readiness Indicators, Hawai'i P20

Only about 12% of DOE graduates entered a University of Hawai'i four-year program. Increasing the relatively low "going rate" of Hawai'i DOE students to the University of Hawai'i system is an opportunity for enrollment growth.

Educational assessment for Hawai'i's public schools as measured by the National Assessment of Educational Progress (NAEP) lags national averages, and in some cases the lag is substantial.^{vii}

	2013 2015			15	2017					
		Percent Proficient & Advanced								
NEAP Assessment	Hawai'i	Nation	Hawai'i	Nation	Hawai'i	Nation				
Reading										
Grade 4	30%	34%	29%	35%	32%	36%				
Grade 8	28%	34%	26%	33%	30%	36%				
Mathematics										
Grade 4	46%	41%	38%	39%	38%	40%				
Grade 8	32%	34%	30%	32%	27%	34%				
Science										
Grade 4	-	-	30%	37%	-	-				
Grade 8	-	-	23%	33%	-	-				

Source: 2018 Hawai'i Department of Education Data Book

The Department of Education's summative English Language Arts/Literacy/Math assessment provides additional evidence of lagging public school performance. (Percentages for "Nearly Met" are not shown).

English Language Arts/Literacy %									
	2017-18								
Grade	Not Met	Met/Exceeded							
3	25%	52%							
4	30%	51%							
5	25%	57%							
6	23%	53%							
7	25%	52%							
8	21%	55%							
11	17%	60%							

Mathematics %									
2017-18									
Grade Not Met Met/Exceeded									
3	23%	54%							
4	22%	47%							
5	29%	43%							
6	29%	41%							
7	35%	37%							
8	40%	38%							
11	40%	32%							

Science %									
Grade	Well-Below	Meets/Exceeds							
4	9%	56%							
8	25%	44%							
HS	26%	35%							

Source: 2018 Hawai'i Department of Education Data Book

Of the 3,805 DOE students who enrolled at a University of Hawai'i campus, 19% were below college level in Math and 12% were below college level in English.^{viii} Improving these scores can improve college readiness and potentially improve college success.

	Ma	th	English			
	#	%	#	%		
College-level	1,426	37%	1,895	50%		
Credit Earned in HS	256	7%	545	14%		
Below College-level	736	19%	447	12%		
Not Enrolled	1,387	36%	918	24%		

Source: P20 Data Exchange Partnership

Another indication of the challenges facing public K-12 education in Hawai'i is the relatively high percentage of students in the system with special needs. In fact, only 46% of Hawai'i public school students have no special needs. Thirty-five percent qualify as economically disadvantaged; 4% require special education; 2% are English Language Learners; 1% qualify as Section 504 (students with disabilities); and 12% have multiple special needs. One indicator of economic need is the prevalence of SNAP (Supplemental Nutritional Assistance Program). participants in Hawai'i. SNAP serviced 179K monthly clients in 2016 providing \$490.3M in benefits.^{ix}

High needs K-12 DOE students significantly under-perform compared to non-high need students in the DOE's balanced assessment tests.^x



Source: Hawai'i State Department of Education, Smarter Balanced Assessment 2019. Note: Achievement Gap is the difference in meeting achievement standard between high-needs students and non-high-needs students.

The prevalence of DOE students with needs and the resulting negative impacts on achievement point to the importance of working with DOE to support social programs that will lead to higher levels of K-12 academic achievement and readiness for college.

Almost 8,000 Department students were enrolled in at least one Advanced Placement (AP) course. 4,560 AP tests scored 3 or higher (44% pass rate).

The four-year graduation rate for department schools was 84.4% in 2017-18, with a 12.6% dropout rate.

For Hawai'i public school graduates whose progress can be tracked, 44% earned a postsecondary degree or certificate within six years after high school; however, there is significant variance by race and ethnicity.^{xi}

	2011					Na	ative			Ра	cific		
	Cohort	Α	sian	Fi	lipino	Hav	vaiian	Ot	her	Isla	nder	Wh	nite
	%	%	Index	%	Index	%	Index	%	Index	%	Index	%	Index
Stop out	42	25	60	36	86	58	138	47	112	66	157	39	93
Enrolled	14	13	93	17	121	12	86	15	107	13	93	17	121
Earned degree or certificate	44	62	141	47	107	28	64	38	86	20	45	44	100

Source: Hawai'i P20 Data Portal .

Note: Percentages based on cohort participants who have a post-secondary record.

Asians are far more likely than average (index = 141) to earn a degree or certificate within six years of high school graduation. Native Hawaiians (index = 64) and Pacific Islanders (index = 45) are far less likely to earn a degree or certificate in that time. Consistent with the University's mission to support educational opportunities and quality of life for all of Hawai'i and with its emphasis on Native Hawaiians, research is needed to understand the reasons for the disparity in certificate and degree completion rates to address the issue.

About 18% of DOE completers in 2018 participated in a dual credit program. Dual credit participants are high school completers who took at least one credit course from the University of Hawai'i while they were still enrolled in high school. Nine percent of completers earned six or more college credits while in high school.

Fifty-seven percent of completers (6,501) completed a High School Career and Technical Education (CTE) program. The number of CTE completers has increased 86% since 2013.

The DOE has organized programs around six career pathways:

- Arts and Communication
- Business
- Health Services
- Industrial and Engineering Technology
- Natural Resources
- Public and Human Services

The DOE career pathways are described as "an organizing tool for all educational levels kindergarten through college—to provide a context for exploring career options and a framework for linking learning to the skills and knowledge needed for future success." More specifically, for Career and Technical Education, they provide a sequence of courses to prepare students for the workplace. The Dual Credit Articulated Programs of Study (DCAPS) has been structured as a bridge between the DOE and UH units to allow DOE students who have successfully completed a CTE program to enter college with credit.^{xii}

Of the 14,188 high school graduates (public and private) in 2017-18, 8,436 went on to college (59.5%). Of those who went to college, 3,608 went to an out-of-state institution (42.8%). The percentage of Hawai'i high school graduates going out-of-state declined after the 2008 financial crisis but has been increasing steadily since 2012.^{xiii}



Source: UH IRAPO and IPEDS

Military

With Hawai'i's strategic location, the growing importance of the Indo-Pacific region in defense planning, and the stationing of more than 46,000 personnel and 60,000 dependents in the state, the military represents a relevant target population for the University.

Other four-year institutions cater to this community, offering tailored programs to fit its special needs. Hawai'i Pacific University, for example, offers eight-week modules rather than fifteenweek semesters, a module length better suited to military schedules. It also offers bachelor and associate degrees on base at Camp Smith, Joint Base Hickam, Marine Corps Base Kāne'ohe, Pearl Harbor, Schofield Barracks, and Tripler Army Medical Center featuring courses such as business administration, computer science, criminal justice, homeland security and others of particular interest to military personnel. From its website, this is the description of HPU's military approach:

"Military Campus Programs/Off-Campus Programs specialize in helping military service members, their families, Veterans, U.S. Department of Defense civilians, and other nontraditional students achieve their educational and professional goals. We provide an American education built on a liberal arts foundation recognizing the need for flexibility without sacrificing academic integrity. We use various traditional and distance learning course delivery methods to educate our students to live, work, and learn in an everchanging global society. Our 8-week semesters are perfect for adult learners who cannot make the commitment of a 15-week term. "xiv

HPU also offers tuition reductions to active duty military, active reserves, and active national guard (\$250 per undergraduate credit) and to dependent spouses and children of service personnel as well as civilian contractors working on military bases (\$29/undergraduate credit hour).

Chaminade University also offers programs especially designed for military students. Its website describes the university as "a military-friendly experience" and describes itself as follows:

"At Chaminade, we've been helping service members map out their educational goals and then achieve them—for more than 50 years. We're proud to offer a rich catalog of courses specifically geared toward members of the military and their dependents. The best part? Take courses in the way that's convenient to you—on base or online.""

Both Hawai'i Pacific University and Chaminade offer bachelor's and associate degrees in subject areas of interest to military personnel including Criminology and Criminal Justice, Historical and Political Studies, Cybersecurity, Homeland Security, Supervisory Leadership and Public Administration. HPU also offers a master's degree in Diplomacy and Military Studies.

Study.com^{xvi} lists five schools in Hawai'i as "military friendly": Kapi'olani Community College, Leeward Community College, University of Hawai'i West O'ahu, Hawai'i Pacific University, and Chaminade. The "military friendly" designation is based on an evaluation using public data and responses from a proprietary survey. The UH "military friendly" campuses each have support services for veterans and military students which include assistance in navigating the application for benefits and evaluation of prior learning for transfer credits.

Providers of online programs, including Southern New Hampshire University, Arizona State and others, as well as for-profit providers, actively market to military personnel in Hawai'i.

2. Economic Conditions and Trends

Economic Overview

Hawai'i's Gross Domestic Product (GDP) totaled \$97.3B in 2019, up 2.05% from 2018. Real (inflation adjusted) GDP growth has been generally modest since the end of the 2008 financial

crisis and has lagged U.S. growth levels.



Source: University of Hawai'i Economic Research Office (UHERO) based on US Dept. of Commerce.^{xvii} U.S. Data from Federal Reserve Bank of St. Louis

The State had forecast real growth in Gross Domestic Product (GDP) at a modest 1.3% annually over the next three years; however, that forecast will be dramatically downgraded as a result of the impact of the COVID-19 pandemic. Projected recovery is not yet well understood but slow economic growth will inevitably put pressure on State budgets and limit the University's flexibility in initiating new or expanded programs.

Hawai'i's median household income in 2019 was \$80,212, 26.4% higher than the U.S. average (\$75,500). The higher median income is offset by Hawai'i's high cost of living. The cost of living in Honolulu is third highest in the U.S., trailing only New York City (Manhattan)^{xviii} and San Francisco according to Kiplinger.com. 8.8% of Hawai'i's population was below the poverty level in 2018, compared with 13.1% for the U.S. In 2017, only 3.8% of Hawai'i residents did not have health insurance, a rate second only to Massachusetts and well below the national average of 8.7%.

In 2019, the State had about half a million housing units, of which about 58% were owneroccupied (not rentals). The following table shows 2018 median sales prices for single family homes and condominiums by county:

	State Total	Oʻahu	Hawai'i	Kaua'i	Maui
Single Family homes	\$689 <i>,</i> 000	\$790 <i>,</i> 000	\$360,000	\$699,500	\$710,000
Condominium	\$430,000	\$421,000	\$350,000	\$461,000	\$500,000

Source: Locations Research^{xix}

Rent in Hawai'i accounts for about a third (33.2%) of household income; monthly owner costs for homeowners averaged about a quarter of household income (25.5%).^{xx}

Real Personal Income



Real (inflation adjusted for 2018 dollars) per capita personal income for the state of Hawai'i was \$55,920 in 2018, compared to the US average of \$48,980 (+14%)^{xxi} which is offset by the state's high cost of living (+88%^{xxii} above the national average by some measures). O'ahu has the highest per capita personal income at \$60,578, followed by Kaua'i at \$50,220, Maui \$49,864, and Hawai'i Island \$43,139.

Source: University of Hawai'i Economic Research Office data portal from US Dept. of Commerce Bureau of Economic Analysis

Between 2010 and 2013 Hawai'i's growth in real per capita personal income significantly lagged the U.S. growth rate. Following three years of relative parity, the U.S. again significantly outpaced Hawai'i in real per capita personal income growth in 2017 (2.23% vs, Hawai'i's 1.56%). Maui had the strongest rate of per capita personal income growth in 2018 at 3.42%, followed by Honolulu (3.03%), Hawai'i (2.58%) and Kaua'i (1.74%).

Median (Nominal) Family Income, Inflation and Unemployment

For 2018, the median family income for the state of Hawai'i was \$95,450, an increase of 4.36% over the previous year. Since 2010, the median family income has risen 25.4%.

The Honolulu Consumer Price Index (inflation rate) was 1.63% in 2019, a -0.2% change from 2018. The U.S. rate for the same period was 2.3%.

Historically, outside of recessions, the unemployment rate in Hawai'i has been very low and generally lower than the U.S. average. In 2019, the unemployment rate for the State was 2.71%, a slight (+0.21 percentage point) change versus 2018.

With Hawai'i's dependence on tourism, unemployment is extremely sensitive to external events. The current COVID-19 pandemic has had a significant impact with unemployment spiking to more than 20%. For perspective, following the 2008 financial crisis, visitor arrivals dropped -10.4% in 2008 and -4.4% in 2009 before finally beginning to recover in 2010. The 2003 SARS impact caused a 0.1% drop in visitors that year in a relatively short, "V shaped" pattern. Given the severity of the pandemic's impact on employment, the State's Department of Business Economic Development and Tourism is suggesting that full recovery will take years, not months, and unemployment will remain high. However, the unemployment impact of the pandemic will vary by economic sector. While tourism will recover slowly, other sectors such as healthcare, the military, and government contracting will be relatively unaffected and the strong demand for skilled workers that these sectors experienced before the outbreak of the pandemic will likely continue.

Local events also affect economic results and employment by county. The 2018 Kīlauea eruption on Hawai'i island and the Kaua'i floods of the same year affected those local economies.

Economic Concentration and Diversification

The economy of Hawai'i has long been concentrated in a few industries – from Sandalwood and whaling in the earliest days of the kingdom, through the plantation era of big sugar and pine, to today's concentration in tourism and the military. This concentration persists despite ongoing efforts for diversification.

In today's state economy, the lack of diversification is evident in the dominance of the visitor industry. A 2017 study by the University of Hawai'i Economic Research Organization (UHERO) found that while the typical U.S. state has ten strong "traded clusters" of industries, Hawai'i has only three. Of those, Hospitality and Tourism was dominant with 55,000 jobs while the other two (Water Transportation and Jewelry/Precious Metals) which together accounted for fewer than 4,000 workers.^{xxiii}

"Traded industries" are those that export goods and services outside of their region to other regions and countries. "Local industries" are those that primarily buy and sell to local buyers. Broadly stated, traded industries bring benefits into a region while local industries recirculate economic benefits within a region. In Hawai'i, apart from Hospitality and Tourism, many of the state's jobs are in sectors that are "local industries," that is, industries that do not draw significant revenue into the state. Two of the top three employment NAIC codes in Hawai'i are "local industries": Government and Health Care & Social Services. Together, they account for almost 259K jobs, or about 35% of the workforce.

Efforts to diversify Hawai'i's economy are hampered by longstanding challenges including remote location, high cost of land, high cost of shipping, and relatively small size.

In interviews, respondents noted that Hawai'i has well-established organizations and frameworks supporting currently identified economic sectors (Hawai'i Technology Development Center, DBEDT's Creative Industries, Incubators, and Hawai'i Tourism Authority), but has not successfully capitalized on new and emerging sectors or significantly expanded the impact of the existing organizations.

Employment Factors and Trends

In 2019, the civilian labor force in Hawai'i totaled 736,248, and (pre-pandemic) was forecast to grow to 768,720 in 2029 (+4.4%).^{xxiv}

Government (including education) accounts for the largest number of jobs in the state, followed by Accommodations/Food Services and Health Care and Social Assistance. These three categories account for about 50% of all jobs in the state in 2019.

Jobs in Hawai'i by Sector	2019	2029	2019 %
Health Care and Social Assistance	73,787	85 <i>,</i> 532	10.0%
Retail Trade	72,263	74,675	9.8%
Admin., Support, Waste Mgt & Remediation	49,062	48,296	6.7%
Construction	37,032	38,372	5.0%
Transportation and Warehousing	30,152	31,565	4.1%
Other Services (except Public)	28,733	30,774	3.9%
Prof., Scientific, and Tech. Services	24,970	25,579	3.4%
Educational Services	18,909	18,909	2.6%
Wholesale Trade	17,752	17,462	2.4%
Finance and Insurance	16,358	16,575	2.2%
Arts, Entertainment, & Recreation	13,267	14,271	1.8%
Manufacturing	14,211	13,645	1.9%
Real Estate and Rental and Leasing	13,010	13,212	1.8%

Source: Hawai'i Career Explorer based on Economic Modeling Specialists Intl (EMSI) data

In terms of growth, Health Care and Social Assistance sector is projected to increase employment by almost 16% over the next 10 years.

Projected Job Growth in Hawai'i	Job Growth 2019-29
Health Care and Social Assistance	15.9%
Arts, Entertainment, and Recreation	7.6%
Accommodation and Food Services	7.4%
Other Services (except Public)	7.1%
Transportation and Warehousing	4.7%
Management of Companies and Enterprises	4.5%
Information	3.9%
Construction	3.6%
Retail Trade	3.3%
Utilities	2.5%
Professional, Scientific, and Technical Services	2.4%
Government	2.3%
Real Estate and Rental and Leasing	1.6%
Finance and Insurance	1.3%
Educational Services	0.0%
Administrative, Support, Waste Mgt & Remediation	-1.6%
Wholesale Trade	-1.6%

Manufacturing	-4.0%
Crop and Animal Production	-4.2%
Mining, Quarrying, and Oil/Gas Extraction	-22.1%

Source: Hawai'i Career Explorer based on Economic Modeling Specialists Intl (EMSI) data

The Hawai'i Department of Labor and Industrial Relations publishes a list of currently-available "hot jobs" that are identified according to criteria of earnings capacity and educational requirements. In particular, "Hot jobs have highest total annual openings, positive jobs created annually, above average annual growth rate over 0.8%, and above average median annual wage over \$42,480. Total annual openings include openings created by transfers and exits, new jobs created annually, annual growth rate, and base year employment are based on short-term employment forecasts from first quarter 2018 to first quarter 2020." Excerpts from the latest report, from May 2019, depicting the "hot jobs" that require an Associate degree or higher, are shown in appendix 7.

In 2018, 6.9% of employed people in Hawai'i held more than one job, compared to 5.0% nationally. Hawai'i ranks tenth among the states for multiple job holders.^{xxv}

A table at appendix 5 shows job counts and job growth broken out by the amount of education typically required for the top twenty job descriptions. Healthcare, education, and business dominate the list. A full analysis of all job descriptions can be found on the US Department of Labor website. For Hawai'i, these are the most numerous projected jobs requiring a degree:

Doctoral or Professional Degree:

- Healthcare category 10 categories, 7,140 jobs
- Education 9 categories, 4,670 jobs
- Law 1 category, 2,820 jobs

Master's Degree

- Healthcare category 9 categories, 4,630 jobs
- Education 7 categories, 5,940, jobs
- Business/Government 4 categories, 1,030 jobs

Bachelor's Degree

- Business/Management 14 categories, 52,740 jobs
- Education 4 categories, 15,290 jobs
- Healthcare 2 categories, 14,860 jobs

Associate Degree

- Business/Government 11 categories, 5,400 jobs
- Healthcare 8 categories, 4,200 jobs
- Education 1 category, 1,770 jobs

High Demand Occupations

Prior to the pandemic, the job market in Hawai'i was very tight. One measure of the gap between occupational demand and the availability of qualified workers is to view the ratio of advertised openings to applicants for occupations. The table below shows the ratio for the top advertised occupations in the state in November 2019.^{xxvi}

			Candidates
	Job	Potential	Per Job
Occupation	Openings	Candidates	Opening
Registered Nurses	798	149	0.19
Retail Salespersons	575	371	0.65
Customer Service Representatives	418	721	1.72
Security Guards	293	238	0.81
Cashiers	240	441	1.84
Food Prep. & Serving Workers, Incl. Fast Food	237	99	0.42
Physicians and Surgeons, All Other	213	16	0.08
First-Line Super. of Food Prep. & Serving Workers	199	59	0.3
First-Line Supervisors of Retail Sales Workers	198	183	0.92
Counter Attendants, Cafeteria, Food Concession, &	182	60	0.33
Coffee Shop			

Source: Hawai'i Unified State Plan in Federal Review – Workforce Investment Opportunity Act

With rapid changes in technology affecting key growth sectors, an emerging imperative is to upgrade the educational attainment of Hawai'i's population to better prepare workers for the jobs of the future. One path toward this objective is the development of more online degree completion programs designed to attract working adults. UH Mānoa increased the number of online degree completion programs over the last five years with the addition of online bachelor's degrees in Economics, Sociology, Psychology, and Women's Studies. To better address the scheduling needs of working adults, the campus has joined the UH System pilot of 5-week terms for online degree programs. An early example is the professionally accredited Bachelor of Social Work degree, which is now being offered online through the innovative 5week terms, with its first cohort beginning in Fall 2019.

Industry Sectors

The characteristics of the Hawai'i economy differ substantially from most states. One key defining characteristic is the dominance of the visitor industry, which features a large number of service sector jobs. The lack of a significant manufacturing sector, the large federal and military presence, the dominance of small businesses and other unique characteristics provide a unique environment for economic planning.

The Federal Government Economic Sector

Federal Government spending is a significant contributor to Hawai'i's economy (second only to tourism) and, on a per capita basis, Federal spending in Hawai'i far exceeds the national average.^{xxvii} Defense spending accounted for approximately 7.3% of Hawai'i's GDP in 2017. Future Federal commitments to Hawai'i are potentially related to strategic and political decisions regarding projects such as the expansion of military bases, future development of the Pearl Harbor Naval Shipyard, deployment of the proposed "Space Force," and other initiatives.

Federal Per Capita \$	US Average	Hawai'i	Hawaiʻi Index to National
Contracts	\$834	\$1,261	151
Salaries/Wages	\$414	\$3,292	795
Retirement Benefits	\$174	\$367	210
Non-Ret. Benefits	\$44	\$83	188
Grants	\$18	\$89	494

Source: Hawai'i State Data Book 2018

Tourism

Tourism is Hawai'i's largest industry accounting for about 17% of the state's GDP and approximately 230,000 jobs in 2019. Tourism has grown from modest beginnings catering to the very rich in the "boat days" era, through the development of mass tourism attracting the

middle class with arrival of statehood and jet travel, and spread through the Neighbor Islands with the development of master planned resorts in the 1990s.

Global Tourism Trends

The United Nations World Tourism Organization (UNWTO) reported 1.4 billion international visitor arrivals in 2018, up 5% from the previous year. That, in turn, generated an estimated \$1.7 trillion in tourism exports and was the ninth consecutive year of tourism growth. The Asia and Pacific Region was the fastest growing geographic area, with 7.3% growth in arrivals driven by expanding economies, a growing middle class, urbanization and significant investment in aircraft and facilities. Prior to the coronavirus pandemic, the UNWTO global forecast estimated global growth in arrivals averaging 3.3% annually through 2030, with a projected 1.8 billion international arrivals by that year. According to the World Travel and Tourism Council (WTTC), the sector accounts for more than 10% of global GDP and jobs.

Tourism is, however, a fragile industry easily impacted by events as has been the case with the 9/11 terrorist attacks, the SARS virus in 2003, the 2008 financial crisis and, currently, the pandemic crisis, which is developing as the most dramatic disruption of the industry since World War II. In March 2020, UNWTO issued a statement suggesting that international tourism would fall by 20% to 30% in 2020 due to the impact of the pandemic and the associated travel restrictions. That would translate to a loss of between \$300 billion and \$450 billion in global receipts.^{xxviii}

Even with dramatic events, like the 9/11 attacks, global tourism ultimately recovered and regained its growth momentum, but the short-to-medium term shocks can be significant.

Hawai'i Tourism Trends

Tourism in Hawai'i is a mature industry and, despite the growing number of visitor arrivals in the years before COVID-19, its share of the state's GDP was about 17% in 2019 compared with 25% two decades ago. The underlying economic issue for Hawai'i tourism is stagnant or declining real visitor spending driven by decreases in per-person-per-day visitor spending. Measured in 2019 dollars, inflation adjusted visitor spending is about equal to spending levels in the late 1980s. In 2018, the industry generated 2.1 billion in tax revenues and supported 217K jobs.



Hawai'i ended 2019 with 10.4 million visitors, a record number of arrivals.

Source: University of Hawai'i Economic Research Office (UHERO) data portal

Resident Attitudes Toward Tourism

Resident frustration with the growth of tourism volume and its negative impacts has resulted in an erosion of resident attitudes and support for tourism. In a Hawai'i Tourism Authority survey of resident attitudes, the percentage of people who believe that there are "more benefits than problems" associated with tourism has declined from a high of 80% in 2010 to 58% in 2019. The recently published (2020) Hawai'i Tourism Strategic plan calls for rebalancing its priorities to place more emphasis on "tourism management" relative to tourism promotion.

Dramatic changes in tourism both globally and in Hawai'i offer the University an opportunity to reorient its travel and hospitality programs to take a leadership role in emerging trends.

Small Business

The Hawai'i economy is much more likely to be concentrated in small businesses than is the case nationally.^{xxix} The prevalence of small businesses in Hawai'i's economy is significant. Almost 42% of Hawai'i employment is in companies with fewer than fifty employees. Many of
the business programs in the UH Community College System as well as entrepreneurship programs in the Shidler College of Business (including its Pacific Asian Center for Entrepreneurship – PACE) respond to the strong small business profile of the state.

Company Size	Hawaiʻi Employment %	Hawaiʻi Payroll %	Emp. Index to National	Payroll Index to National
1 to 4 employees	5.6%	6.6%	100.4	120.7
5 to 9 employees	8.0%	7.1%	107.0	121.8
10 to 19 employees	11.0%	9.7%	105.1	116.0
20 to 49 employees	17.3%	15.7%	103.3	113.5
50 to 99 employees	14.8%	13.5%	115.0	117.3
100 to 249 employees	15.3%	15.5%	96.1	98.6
250 to 499 employees	9.3%	9.7%	99.1	90.7
500 to 999 employees	8.0%	8.6%	116.6	97.8
1,000 employees or more	10.7%	13.8%	72.9	69.0

Source: US Census (based on NAICS codes)

Diversified Agriculture

With the demise of Hawai'i's last sugar plantation in 2016, large scale agriculture is no longer a dominant part of Hawai'i's economy. With significant acreage across the state zoned for agricultural operations, diversified agriculture has been a focus for development.^{xxx} However, at present, these diversified agricultural crops are a tiny portion of the GDP.

Crop	2017 Value of crop sales (\$000)
Vegetables, ginger root, and melon	\$46,620
Coffee	\$43,774
Macadamia nuts (in shell)	\$53,900
Taro	\$2,580
Seed crops	\$120,800
Flowers and nursery products	\$77,550

Data for pineapple not disclosed. Source: Hawai'i State Data Book 2018

A decade ago, the largest growing activity in Hawai'i agriculture was seed corn research, which represented about one-third of the value of all crops grown in the state in 2008-09. From a peak of \$242 million generated by the seed industry in 2012, estimated value fell to \$120.8 million in 2017. The decline was due to strong community opposition to genetic modification of

food; the use of pesticides in cultivation; industry consolidations; new technologies; and competition from other warm weather growing areas.^{xxxi}

Other large-scale crops considered for development include industrial hemp and breadfruit.

Smaller volume and "boutique" crops capitalize on Hawai'i's global brand and include macadamia nuts, Kona coffee, anthuriums, protea, cacao, vanilla, noni, and lavender. Value added products include candies, cooking oils, bath products, jams and jellies, alcohol, cookies and confections, juices, and others. The Hawai'i Department of Agriculture supports these crops with a "Grown in Hawai'i" branding program. The University of Hawai'i supports local agriculture through its culinary arts programs and the Food Innovation Center at Maui College. The tropical agriculture and agroecology programs at UH Mānoa and Hilo, and the culinary and agricultural programs at the community colleges support agriculture in Hawai'i both through agricultural research and practices and food science.

With land, shipping, labor, and other costs that are higher than elsewhere for agricultural producers, Hawai'i has not been able to compete with commodity crops on the world markets. Hawai'i crops that can successfully compete on the world market are those that are high value per cubic meter, unique to Hawai'i or can be effectively branded as Hawaiian products. The University of Hawai'i can contribute to the successful market development of diversified agricultural products. As an example, CTAHR (the UH College of Tropical Agriculture and Human Relations) has hybridized and propagated varieties of anthuriums since the 1930s.^{xxxii} Anthuriums are high value, low-cubic-weight and volume products that are now associated with Hawai'i. With the development of unique (and patent-able) varieties, Hawai'i can effectively compete with other anthurium growing regions such as the Netherlands and the Caribbean. Other crops that fit the profile (high value, low cubic-weight, and brandable) include coffee (Kona and other specialty varieties), cacao, vanilla, lavender, and other floriculture products (ginger, protea, orchids, and heliconia).

Although agriculture is very local, there does not appear to be a strong statewide vision or plan for strengthening the sector, something UH (especially with a strong academic "cluster") may be positioned to undertake.

Assessment of Emerging Industries

In Hawai'i's economic planning, the state and each county have identified industries to target growth and development based on natural resources, geography, and other assets. The DBEDT *Hawai'i's Targeted and Emerging Industries 2018 Update Report* identified 4 groups of targeted industries, according to the following criteria:

Criteria for Placement on the Performance Map of Targeted Industries									
Transitioning	Base-Growth								
 Positive job growth Losing competitive national industry share 	 Positive job growth Highly concentrated in the economy Increasing competitive national industry share 								
Declining	Emerging								
 Losing jobs over period 	 Positive job growth Current low concentration in the economy Increasing competitive national industry share 								

DBEDT's key observations from the updated examination of the portfolio include:

- Ten activities were high performing, with positive job growth combined with a job growth rate that was higher than the nation for the same activity. Among those were cultural activities, film, TV, video Production/distribution, specialty health care services, marketing, photography & related, alternative power generation, specialty education, engineering and related services, hospitals & nursing facilities, agriculture support services, and agricultural inputs.
- The high-performing activities in the targeted industry portfolio (Base-growth and Emerging) accounted for about 70,170 jobs or 8.0% of total civilian jobs in 2018. However, between 2008 and 2018 those activities generated 27.2% of the total gain in jobs for the civilian economy, or about 18,490 new jobs.
- Among the best performing activities, alternative power generation, cultural activities, and specialty health care services grew jobs over 6% per year during the 2008 to 2018 period.
- Adjusting for overlaps, total targeted jobs reached 163,807 jobs in 2018, an increase of 19,269 jobs from 2008.^{xxxiii}

Comprehensive Economic Development Strategy 2016-20

The most recent state Comprehensive Economic Development Strategy (CEDS) was published in 2016 for the period 2016-20. The 2020 edition has not been published and publication is not expected soon.

In the 2016 CEDS report, eight sectors were identified as "targeted clusters":xxxiv

- 1. Hospitality and Tourism
- 2. National Security
- 3. Health Care
- 4. Research, Innovation, and Technology
- 5. Agriculture and Food Production
- 6. Energy
- 7. Manufacturing
- 8. Creative Industries

There was little agreement in cluster rankings, however, in the CEDS reports for the counties. Honolulu, for example, ranked Hospitality and Tourism #1, while Maui and Hawai'i ranked it last, and Kaua'i did not include it on their list. In interviews with workforce development organizations, CEDS was described as more of an aspirational set of goals than a forecast based on analytics.

The CEDS report includes an assessment of Hawai'i's strengths, weaknesses, opportunities and threats (a SWOT analysis) based on input from the four county economic development boards, the Hawai'i Business Roundtable, the Chamber of Commerce of Hawai'i, government agencies, civic leaders, elected officials, and education. The following provides a list of the top seven factors (verbatim) for each element of the SWOT:

STRENGTHS

- 1. Innovation that comes with location and resources
- 2. Iconic Hawai'i brand/Attraction to Hawai'i
- 3. Aloha/Our intangibles deep sense of community
- 4. Access to renewable energy resources
- 5. Multicultural/Diverse population/Heritage
- 6. Strong sense of community/sense of responsibility
- 7. The people of Hawai'i/Friendliness/Brilliant people

WEAKNESSES

- 1. High cost of living
- 2. Lack of trust between people and government
- 3. Aging infrastructure
- 4. Remote location/geographic isolation drive up cost
- 5. Extreme risk aversion
- 6. Inability to adapt quickly to change
- 7. High cost of doing business

OPPORTUNITIES

- 1. Renewable energy test bed
- 2. Astronomy/Aerospace
- 3. Broadband expansion
- 4. Use visitor brand to support other sectors
- 5. Capitalize on isolation
- 6. Strong leadership in public and private sectors
- 7. Natural resources

THREATS

- 1. Growing polarization within community
- 2. Climate change/Rising sea levels/Ocean acidification
- 3. Anti-intelligence, anti-science, distrustful
- 4. Catastrophic natural disasters/Prevent planes and ships from coming
- 5. Ainokea/Change in values/Hawai'i's new brand not authentic
- 6. Income inequality/Have and have not economy
- 7. World economy

Emerging Economic Issues and Opportunities

Military Presence

The strategic shift placing more emphasis on the "Indo-Pacific" region may drive additional military assignments to Hawai'i.

While the full impact of this shift is yet to be experienced, there are indications that it will benefit the state's economy. The Department of Defense has already begun plans to

rehabilitate, expand, and modernize the navy shipyard to accommodate larger submarines based at Pearl Harbor.

The announcement of a new branch of the military service, the "Space Command," may have implications for the state if the Barking Sands facility on Kaua'i is incorporated into the development plans.

Expanded defense programs, including intercept missile facilities may be based in Hawai'i, since the state is strategically located to respond to emerging threats from Asia.

New Economic Opportunities on the Horizon

Apart from the currently identified economic opportunities, new and emerging sectors present opportunities to diversify Hawai'i's economy. In the recent past, genetically modified seed crops represented a new opportunity that capitalized on Hawai'i's expertise in tropical agriculture coupled with an ideal climate. Other possibilities include:

<u>Undersea mining</u>. Eighteen contracts have been signed through the International Seabed Authority (ISA) to explore the development of deep sea mining operations for rare earth and polymetallic nodules in the 1.7 million square mile Clarion-Clipperton Zone, which lies on the seabed between Hawai'i and California.² The U.S. is not currently engaged in this development. If the environmental issues are resolved and the project proceeds, it will create a very substantial mining sector in the region which may offer opportunities for the University's involvement.

<u>Commercial Space Ventures.</u> With the commercialization of space, Hawai'i's geographic location presents an opportunity for developing a possible launch site for future commercial space initiatives. Hawai'i is generally in an ideal geospatial location for space-related development. Kaua'i already possesses a launch site and the University could provide training and support for commercial success.

² Companies from Singapore, Cook Islands, Kiribati, Germany, China, Japan, Belgium, Korea, France, Slovakia, Nauru, Tonga, Russia, 2 UK Companies.

New University Programs Aligned with Economic Opportunities

One of the five main goals listed in the University of Hawai'i Strategic Directions, 2015-2021, is the Hawai'i Innovation Initiative (HII): "Create more high-quality jobs and diversify Hawai'i's economy by leading the development of a \$1 billion innovation, research, education and training enterprise that addresses the challenges and opportunities faced by Hawai'i and the world. The economy of Hawai'i is currently highly dependent on tourism and military spending. The creation of a third economic sector based on research and innovation has been identified as a community priority."^{xxxv}

The University will also provide the training required for technological innovation and economic development to enable Hawai'i's citizens to lead and participate in this sector. With an emphasis on its responsibility to the community, the Hawai'i Innovation Initiative will focus on the following hubs: astronomy, ocean sciences, health sciences and wellness, data intensive sciences and engineering, agriculture and sustainability sciences including energy."

University of Hawai'i at Mānoa

Over the last five years, UH Mānoa has focused on increasing the number of STEM-related programs to attract competitive students and to respond to the needs of the State. Toward this end, the Board of Regents approved new undergraduate degrees in Astronomy, Astrophysics, Biochemistry, Construction Engineering, Dietetics, Engineering Science (Biomedical Engineering and Aerospace Engineering), Environmental Design, Molecular Cell Biology, Public Health and Second Language Studies.

Over the same period, UH Mānoa developed professional Master's degrees in Asian International Affairs, Environmental Management, Finance, Information Systems, Landscape Architecture, and Marketing Management.

UH Mānoa has the infrastructure to be innovative in the development and delivery of new degree programs through the Interdisciplinary Studies (IS) Program. UH Mānoa's IS Program has incubated a number of successful programs, including the BA in Creative Media, and the Bachelor of Environmental Design. In Spring 2020, the campus launched the Sustainability BA program, which is a collaboration between the new Institute for Sustainability and Resilience and the IS program. Programs under development in IS include major equivalents in Data Science, Health Sciences (a collaboration between JABSOM, Public Health, Nutrition, Social Sciences), and Design.

Technology Applications

New technologies, including artificial intelligence, augmented reality, big data, cybersecurity applications, data analytics, 5G, and others are fields of study in and of themselves but which also may be applied to enhance existing academic programs such as health sciences, travel industry management, architecture, engineering, and others.

New technologies will drive both new economic opportunities and new or expanded channels for the distribution of education. For many of these applications, high speed broadband will become increasingly essential. As reported by Broadbandnow^{xxxvi} Hawai'i is the 7th most connected state in the US, with an average statewide speed of 45.5 megabits per second (MBPS). The site estimates that 97% of Hawai'i's population has broadband coverage with 8% of the population described as "underserved." For future development, which will require increasing levels of internet speed, current availability of access to the fastest speed (1G) is limited outside of O'ahu.

% Coverage	100 MBS	1G
Kaua'i	92.6%	8.0%
Oʻahu	99.0%	68.9%
Maui County	95.1%	8.6%
Hawai'i County	88.6%	12.4%

Source: Broadbandnow.com

Innovation

The University of Hawai'i System Office of Innovation and Technology Transfer tracks the University's success in fostering innovation from disclosure through licensing and startup.^{xxxvii}

	2019	5-Year Average
Inventions disclosed	41	48.6
US Patents Issued	7	7.8
Licenses/Options Executed	7	9.4
Active Licenses/Options	135	N/A
Royalties Received	\$200.7K	\$264.2K
Startups and New Companies	7	5

Source: UH Research and Technology Transfer Dashboard

State Support for Economic Development

Hawai'i's Department of Business Economic Development and Tourism is the primary agency responsible for supporting economic growth in the state. The state supports economic development in two different ways: 1) supportive economic structures and frameworks and 2) incentives, policies, and support programs.

Supportive economic structures and frameworks

Attached Agencies. The State has created a series of "authorities" and organizations that are focused on industries, act independently, but are "administratively attached" to DBEDT. Among these are:

- Hawai'i Tourism Authority (HTA) whose mission is to "strategically manage Hawai'i tourism in a sustainable manner consistent with economic goals, cultural values, preservation of natural resources, community desires, and visitor industry needs." The HTA is funded by legislative appropriations from the Transient Accommodations Tax (TAT).
- Hawai'i Technology Development Corporation (HTDC) which "aims to accelerate the growth of Hawai'i's technology industry by providing capital, building infrastructure, and developing talent to foster innovation and diversify Hawai'i's economy."
- Natural Energy Laboratory of Hawai'i Authority (NELHA) and National Defense Center of Excellence for Research in Ocean Sciences (CEROS). NELHA's mission is "to develop and diversify the Hawai'i economy by providing resources and facilities for energy and oceanrelated research, education, and commercial activities in an environmentally sound and culturally sensitive manner."

DBEDT Managed Support Programs. While the "attached" agencies operate independently of DBEDT, DBEDT itself manages programs supporting economic diversification and growth.

- The Business Development Branch "promotes industry development and economic diversification in Hawai'i by supporting existing and emerging industries, attracting new investment and businesses that can create more skilled, quality jobs in the state, and work to increase exports of Hawai'i products and services."
- The Creative Industries Division and Film Industry Branch promote "the development and growth of Hawai'i's Creative Economy, whose primary and core sector consists of Copyright Based Industries, with a focus on businesses that create/design exportable products and

services and depend on the protection of their Intellectual Property in order to market to a global community."

- DBEDT also shows an Office of Aerospace Development on its organization chart without any details.
- Hawai'i's Department of Agriculture also provides support programs for agricultural sectors including branding programs ("Made in Hawai'i") and business development assistance.

Economic incentives, policies, and support programs

Incentives. Hawai'i's state legislature has implemented a range of targeted tax incentives to "encourage certain industries or economic activities." Most recent reported credits (tax year 2017) include:

- Motion Picture, Digital Media, and Film Production Income Tax Credit (up to 20% of qualified production costs)
- Renewable Energy Technologies Income Tax Credit
- Enterprise Zones Tax Credit (80% of its net income tax liability and of the unemployment insurance premiums it paid for employees located in the enterprise zone in year one)
- Tax Credit for Research Activities
- Capital Infrastructure Tax Credit
- Renewable Fuels Production Tax Credit

Previously enacted (but expired) credits include:

- High Technology Business Investment Tax Credit
- Hotel Construction and Remodeling Tax Credit
- Technology Infrastructure Renovation Tax Credit

Creating a favorable legal or regulatory environment. The state has adopted regulatory measures that favor the development of certain sectors. For example, HRS 431 established favorable regulations for the Captive Insurance Industry that were intended to make Hawai'i a leader in this sector.^{xxxviii} Captive Insurance companies are formed to insure and reinsure risks for their parent (in place of traditional insurance policies). Essentially, the captive provides the parent with self-insurance which can lower costs, improve cash flow, and can assure coverage. By establishing a favorable environment for captive insurance in Hawai'i the state has encouraged the development of jobs in legal service, underwriting, risk management, and other related fields.

Supporting the development of new economic sectors in the interest of diversifying the economy is inherently political, with special interests and interested parties lobbying the legislature for support. Without coordination supported by a statewide development plan, development can be ad hoc or sporadic. The debates over funding for the movie industry, technology tax credits, hemp production and other initiatives are examples of the challenges in developing a coordinated development plan.

Clusters

Economic cluster development is an approach to sector expansion by ensuring that all of the necessary components for sector success are present in a defined geographic area. Defined by Michael Porter of Harvard, "Clusters are geographic concentrations of interconnected companies and institutions in a particular field. Clusters encompass an array of linked industries and other entities important to competition."xxxix

The University of Hawai'i has several examples of initiatives based on cluster development, including Honolulu Community College's M.E.L.E. (Music and Education Learning Experience) program. M.E.L.E was developed to provide a program focused on music production and business, key components of the music and entertainment cluster in Hawai'i that were missing. Without MELE, musicians had to rely on resources on the Continent. The development of the program recognized the interconnected fields of production technology, music industry business, and artistic creativity.

Hawai'i's 2050 Sustainability Plan

In 2008, the Hawai'i State Legislature adopted its first long-range plan in thirty years: the Hawai'i 2050 Sustainability Plan. Previously, state planning was guided by the Hawai'i State Plan (Haw. Rev. Stat. Ch. 226) adopted in 1978 and last revised in 1986. Twelve state functional plans provided more specific direction and were last updated in 1991.

The Hawai'i 2050 Sustainability Plan has five broad goals for the year 2050, including one on the economy: "Our diversified and globally competitive economy enables us to meaningfully live, work and play in Hawai'i."^{xl}

The plan identified nine "priority" items along with suggested benchmarks. Some of these are directly related to the University and others could be the basis for University initiatives. The priority items are:

1. Increase affordable housing opportunities for households up to 140% of median income.

- 2. Strengthen public education.
- 3. Reduce reliance on fossil (carbon-based) fuels.
- 4. Increase recycling, reuse, and waste reduction strategies.
- 5. Develop a more diverse and resilient economy.
- 6. Create a sustainability ethic.
- 7. Increase production and consumption of local foods and products, particularly agriculture.
- 8. Provide access to long-term care and elderly housing.
- 9. Preserve and perpetuate our Kānaka Maoli and island cultural values.

While item 2, "Strengthen public education," directly relates to the University and its mission, many of the other priority items intersect with the University's academic and research programs. These are just some of the University's programs that seem aligned with the plan's priorities: Urban Planning (#1, #3 and #8), Science and Engineering (#3), Shidler College of Business (#5), CTAHR (#7), JABSOM (#8), Hawaiian Studies (#9) and Community Colleges (#5, #7, #8). The University is called out both as a data source and an agent for the plan's implementation.

Despite a recommendation to create a broadly constituted "Sustainability Council" to begin the plan's implementation and to coordinate activities and resources across agencies, the Council was never established, and the plan has not been implemented.

3. Social, Cultural, and Political Changes

Hawai'i is unique among the United States as a multi-ethnic, multi-cultural society with a decidedly different profile from other states when it comes to business characteristics and economic diversification. For many years, Hawai'i was shaped by a plantation mentality and the dominance of a "big five" oligarchy of companies. The Hawaiian culture, historically, was suppressed or marginalized until a Hawaiian renaissance beginning in the 1970s began a period in which the language, arts and practices of the host culture became more prominent.

With change has come friction. The development of the proposed Thirty Meter Telescope on Maunakea is the latest example of community resistance to new developments and initiatives. Other examples of community activism include protests of Genetically Modified Crop farming, the proposed renovation of Ala Moana Park, Sherwood Forest Park, Superferry, Kawailoa Wind Farm, and others. The Hawaiian Sovereignty movement is still active, though extreme calls for independence have subsided.

Recent negative news stories, especially the Federal indictments and convictions of high-profile government officials (including the Honolulu Chief of Police), have likely affected citizen trust and confidence in Hawai'i's institutions.

National Community Survey of Honolulu Residents (2019)

A recently completed survey conducted for the City and County of Honolulu by the National Community Survey (NCS) provides a comprehensive view of resident feelings and attitudes and highlights areas of concern.^{xli} Generally, the survey shows that resident attitudes about quality of life and confidence in governmental institutions have eroded sharply since 2014.

	% "Top Tv	vo Boxes" -	- Excellent/Good
	2019	2014	Difference
Overall quality of life	54%	68%	-14
Place to Live	65%	77%	-12
Place to raise children	53%	58%	-5
Place to retire	39%	52%	-13
Overall feeling of safety	46%	66%	-20
Ease of travel	40%	44%	-4
Travel by Public Transportation	28%	38%	-10
Cleanliness	24%	33%	-9
Governance	Measures		
Service provided by Honolulu	30%	46%	-16
Value of services for taxes paid	16%	35%	-19
Confidence in City & County Government	17%	30%	-13
Overall Direction	14%	35%	-21
Being Honest	19%	30%	-11

The following shows change in key ratings on city attributes:

Source: National Community Survey of Honolulu Residents (2019)

A.L.I.C.E. – Asset Limited, Income Constrained, Employed – Aloha United Way Study

The ALICE study conducted by the Aloha United Way (AUW) looks at Hawai'i residents who have income above the Federal Poverty Level but insufficient to afford basic necessities.

AUW estimates that a combined 48% of Hawai'i Households are in the poverty level (47,066 households or 11%) or the ALICE level (165,013 households or 37%). The ALICE/Poverty rate is lowest on Kaua'I and highest in Hawai'i County. ^{xlii}

	Total	
	Households	% ALICE & Poverty
Hawai'i County	64,201	55%
Honolulu	307,703	46%
Kaua'i	21,862	43%
Maui County	52,134	51%
State	445,900	48%

Source: Aloha United Way

Demographically, younger residents (under the age of 25) are the most likely to have household incomes in the poverty or ALICE ranges.



Poverty ALICE Above ALICE

Source: Aloha United Way

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In terms of race and ethnicity, a significant percentage of every ethnic group falls within the poverty or ALICE income levels, but the incidence is highest among Hispanics (62%) Hawaiians (57%) and Blacks (61%).



Source: Aloha United Way

For households with children, 86% of single female headed households and 66% of single male headed households are in the "poverty" or "ALICE" income categories.



Families With Children by Income, Hawai'i 2015

Source: Aloha United Way

In its summary, AUW concludes that there are three primary reasons for the number of ALICE households in the state:

- Low-wage jobs dominate the economy. As of 2015, 62% of jobs in Hawai'i paid less than \$20/hour and two-thirds of them paid less than \$15/hour.
- Increases in the basic cost of living in Hawai'i outpace increases in average wages. As noted previously, real personal per capita income growth in Hawai'i (1.56%) is relatively weak.
- Public and private assistance does not provide financial stability.

Responsive Community/Social/Economic Initiatives

The Hawai'i Roadmap (Talent Roadmap to Support Economic Recovery in Hawai'i) is an initiative of the Hawai'i Executive Collaborative involving the Hawai'i Community Foundation, the Chamber of Commerce of Hawai'i, the Harold K. L. Castle Foundation, Hawai'i P-20, the Strada Education Network, and JFF (Jobs for the Future). The purpose of the Roadmap is to show "how state leaders can fill Hawai'i jobs with local workers, ensure employment for displaced workers, and create lasting and effective partnerships across education and industry." Recognizing the earnings premium for workers with a college degree, the Roadmap set a goal to double the rate of growth in post-secondary academic achievement (to 8% growth) over five

years. Importantly, the Roadmap seeks to strengthen the alignment between education and industry and consolidates various programs and platforms across agencies and institutions (including the University of Hawai'i Career Explorer) in its Hawai'i Career Pathways platform hawaiicareerpathways.org. It also identifies the University of Hawai'i and P-20 as two of the organizations that can "serve as a neutral, credible convener of all partners and provide staff" to support the Roadmap's recommendations.^{xliii}

Hawai'i Community Foundation (HCF) is investing in a program to improve the quality of life in Hawai'i known as C.H.A.N.G.E., with elements related to Community/Economy, Health and Wellness, Arts and Culture, the Natural Environment, Government and Civics, and Education.^{xliv} The CHANGE framework "is a curated set of statewide data that begins to identify the gaps where help in our community is needed & opportunities where help will do the most good."

Hawai'i Green Growth has developed the Aloha+ Challenge, a statewide initiative built upon the United Nations Strategic Development Goals (SDGs). The program has been supported by the State Legislature and promotes: clean energy; local food; natural resource management; waste reduction; smart, sustainable communities; a green workforce; and education.^{xlv}

The Hawai'i Alliance for Community-Based Economic Development (HACBED) was formed to facilitate community-based planning, providing technical assistance to community organizations. ^{xlvi}

Jobs for the Future (JFF) is an initiative funded through the Hawai'i Community Foundation, the Castle Foundation, the Weinberg Foundation and the Strada Education Network designed as a roadmap that "outlines how Hawai'i can rebuild its economy and build a talent pipeline that provides all of the state's residents with access to education and training opportunities that lead to economic advancement." The initiative works with educational institutions such as P-20 to identify high paying jobs with growth opportunities and develop career pathways to prepare students for them.

The University's broad mission intersects with these initiatives, but its role is not specified in their structure.

Political Influence in Congress

The dominance of the Democratic Party in Hawai'i state politics has historically resulted in congressional seniority in the United States Senate that provides influence in obtaining Federal

contracts and programs. For many years Senator Daniel Inouye's seniority (he ultimately became the Senate's most senior member) was instrumental in obtaining significant Federal spending in the State. Senator Brian Schatz currently ranks 55th and Senator Mazie Hirono ranks 59th in Senate seniority. Longevity and seniority for Hawai'i's Senators ensure that the State's perspectives are represented in influential committees. Senator Schatz currently sits on the important Appropriations, Commerce, Science and Transportation, and Indian Affairs Committees. Senator Hirono serves on the Armed Services and Energy & Natural Resources Committees.

4. University of Hawai'i System Overview

The University of Hawai'i System operates ten campuses and eight satellites or learning centers dispersed over five islands with a total enrollment of more than 50,000 students. Its extensive operations are consistent with its broadly stated primary mission: to transmit knowledge, wisdom, and values to ensure present and future generations with improvements in quality of life. As a state university, it also has a special responsibility (*kuleana*) to support the indigenous Hawaiian language and culture and to steward (*mālama*) the islands' resources.

An assessment of the current and future role of the University of Hawai'i within the greater community requires an evaluation of the University, its environment, and those who have insights into developing opportunities and changing needs. The initial step is to review trends in key performance indicators for the university itself: enrollment, student success, program health, and innovation.

Campus Profiles

Board of Regents Policy (4.201) outlines the basic missions of the University's operating units.

- University of Hawai'i at Mānoa is a doctoral/research university with selective admissions. It
 offers baccalaureate, Master's and doctoral degrees in an array of liberal arts and
 professional fields, degrees in law and medicine and carries out organized research
 activities.
- University of Hawai'i at Hilo is a comprehensive, primarily baccalaureate institution with a regional mission, offering baccalaureate degrees in the liberal arts, agriculture, nursing, and business, as well as select masters and doctoral degrees.

- University of Hawai'i West O'ahu is a four-year baccalaureate institution founded in the liberal arts, serving professional, career-related, and applied fields, based on state and regional needs, and providing access through partnerships and distance delivery.
- The University of Hawai'i Community Colleges are open-door, low-tuition institutions. Community colleges offer two-year college transfer and general education programs, two and four-year career and technical education programs, semiprofessional, career and technical, and continuing education programs, and such other educational programs and services appropriate to community colleges.

Campus Programs

University of Hawai'i at Mānoa offers bachelor's degrees in 102 fields of study, master's degrees in 89, research doctorates in 52, professional practice doctoral degrees in architecture, law, nursing, education, and medicine, and a total of 68 undergraduate and graduate certificates. UH Mānoa also offers 3 post-baccalaureate certificates.

UHM is characterized as a Carnegie "Doctoral University: Highest Research Activity." Several mergers and reorganizations are in progress, including the merger of the Shidler College of Business with the School of Travel Industry Management, and the merger of the College of Arts & Humanities, the College of Languages, Literatures, & Linguistics and the School of Pacific & Asian Studies.

Within the College of Natural Sciences, the departments of Biology, Botany, and Microbiology are in the process of merging into one unit. "Through these multiple mergers, the campus will increase opportunities for faculty to collaborate and teach across disciplines in ways that strengthen programs and maximize resources."

UHM has increased its focus on STEM (Science, Technology, Engineering, and Math) programs in response to growing interest and the needs of the State. As a result, new undergraduate degrees have been approved in Astronomy, Astrophysics, Biochemistry, Construction Engineering, Dietetics, Engineering Science (Biomedical Engineering and Aerospace Engineering), Environmental Design, Molecular Cell Biology, Public Health and Second Language Studies.

University of Hawai'i at Hilo is categorized in the Carnegie Classification as a "Master's College and University: Small Programs" with balanced arts & sciences/professional programs and selected graduate programs. The campus has six colleges offering 38 bachelor's degree programs, seven master's degree programs, two research doctoral degree programs, two professional practice degree programs and 44 certificates.

UH-West O'ahu focuses on programs that provide students with applied degrees that serve important community and workforce needs. UHWO offers four different degree possibilities – BA, BEd, BAS, and the BS. A total of 47 concentrations are offered within the bachelor's degree portfolio. Four of the degree programs are offered online as well as in person. Several degree programs are designed to serve the needs of community college transfer students. The online degree offerings are attractive to non-traditional students including working adults and neighbor island residents.

Hawai'i Community College offers 19 certificate programs and 25 degree programs. Honolulu Community College offers 20 certificate programs and 26 degree programs. Kapi'olani Community College offers 13 certificate programs and 20 degree programs. Kaua'l Community College offers 13 certificate programs and 16 degree programs. Leeward Community College offers 12 certificate programs and 16 degree programs. UH Maui College offers 16 certificate programs and 21 degree programs. Windward Community College offers 2 certificate programs and 5 degree programs.

In addition to the Board-approved associate degree programs and Certificates of Achievement, UHCC campuses also award Certificates of Competence in Career and Technical Education areas. These Chancellor-approved Certificates "are awarded upon completion of courses that develop competencies needed for an employable set of skills recognized by business and industry; these certificates are between 4 and 24 credit hours or, through UHCCs' continuing education programs, based on equivalent hours of instruction (not for credit toward a college degree or credit awarded through articulation agreements)." UHCC academic programs are reviewed and reported annually.

UHCCs also partner with industry and employers to offer training. These training programs address industry needs and include apprenticeship programs including: Boilermakers, Bricklayer- Masons, Carpenters, Cement Finishers, Drywall, Acoustic and Leather Installers, Electricians/Wirepersons, Glaziers, Iron Workers, HVAC, Plumbers, and Painters. Additionally, apprenticeship opportunities with Pearl Harbor Naval Shipyard prepare apprentices for 27 trade occupations. Apprenticeship programs are also available in critical non-trade disciplines including Healthcare, Hospitality, Culinary, and Information Technology.

Planned Programs

The UH System's 2020-2026 Academic Master Plan summarizes proposed new programs which have an Authorization to Plan (ATP) or for which an ATP is under discussion.

Campus	New ATPs to Officers AY 19-20	Possible ATPs Under Discussion AY 20/21 AY 21/22
University of Hawai'i at Mānoa	BA Public Policy BEd Special Education Doctor of Phys. Therapy MA Women's Studies	BS/PM Data Science Bach. Of Architecture (BArch) BA/MA Criminology/Criminal Justice BFA in Acting BFA in Creative Media Med in School Counseling MFA in Indigenous Filmmaking MS/PhD in Biochemistry
University of Hawaiʻi at Hilo	BS Data Science BA Asian Studies/Languages (program consolidation)	BS Fisheries and Wildlife
University of Hawaiʻi at West Oʻahu	BS Cybersecurity	MS School Counseling & Guidance
UH Community Colleges	AS/CA Entrepreneurship (KapCC)	AS Substance Abuse Counseling (Hawai'i CC) CA in Residential Electrical Installation & Maintenance (Hawai'i CC) CA in Commercial & Industrial Electrical Installation & Maintenance (Hawai'i CC) Data Analytics (Honolulu CC) Sustainability (Honolulu CC) CA Restaurant Management (KapCC) Community Paramedicine (KapCC) CA Pastry Arts (Kaua'i CC) AS Public Health (Kaua'i CC) AA Administration of Justice (Kaua'i CC)

Overall Enrollment Trends

System.³

System enrollment for 2019 totaled 49,977, a 17.2% drop since 2011. The decline in enrollment was across the board but was most significant for community colleges, which declined 23.6% while four-year institution enrollment dropped 8.8% for the same period. Enrollment for the system is projected to grow only modestly to about 50,300 by 2025, a 0.2% annual rate of growth.

Key characteristics of system enrollment are detailed in the tables and figures in the appendices 1 - 4 and include these highlights:

- 78.7% of enrolled students pay resident tuition.
- 80.6% are undergraduates.
- Of the students with a permanent Hawai'i home address 72.6% are from O'ahu; 12.6% are from Hawai'i; 4.9% are from Kaua'i; and 9.9% are from Maui County.
- An index of enrollment by county residence to population distribution shows that O'ahu attracts more than its share of enrollment (index = 105). The other counties' enrollment all index lower than their incidence in the population: Hawai'i 89; Kaua'i 96; and Maui 85.
- The average age of all students enrolled in the system is 24.8 years, with more than one third (34.1%) age 25 or older.
- Full time students account for 52.6% of system enrollment.
- Asians account for 37.1% of system enrollment; 26.1% Hawaiian/Pacific Islander ethnicity; 17.1% Caucasian; 1.9% Hispanic; 1.5% African American; 14.5% two or more races; and 1.8% "other" or no data.⁴

³ Note: Data in this section is from the UH IRAPO website

⁴ Note that the University of Hawai'i uses a "trumping" rule when counting students of Hawaiian ethnicity. Unlike the US Census or other enumerations, UH will count a student as "Hawaiian" if Hawaiian is any part of their ancestry. This results in higher counts for Hawaiians than other data sources.

Enrollment in Four Year Universities

Enrollment in the system's four-year universities (Mānoa, Hilo, and West O'ahu) totaled 23,911 in 2019. Enrollment has declined nearly nine percent (-8.8%) since 2011. Key characteristics for the four-year colleges are aggregated in the figures and tables in the appendices 1 through 4), and include the following highlights:

- More than a third (33.9%) of four-year college students are over the age of 25.
- Asians account for 37.2% of total four-year enrollment; 21.6% of Hawaiian/Pacific Islander ethnicity; 22.0% Caucasian; 1.9% Hispanic; 1.6% African American; 15.2% two or more races; and 0.5% "other" or no data.
- For individual colleges:
- University of Hawai'i at Mānoa (UHM)
 - 2019 enrollment totaled 17,490, down -10.3% compared to 2014
 - 71.7% of enrollment is undergraduate; 28.3% graduate
 - 68.0% of UHM students are residents of Hawai'i
 - Of the Hawai'i residents enrolled at UHM, 87.3% are from O'ahu; 4.7%; Hawai'i; 2.6%
 Kaua'i; and 5.4% Maui.
 - 41.9% of students are male; 55.8% female (the balance is "missing data")
 - 40.4% of students are Asian; 23.7% Caucasian; 16.2% Hawaiian or Pacific Islander; 15.3% mixed race. Other ethnic groups (Hispanic, African American, Native American) are less than 2%. Within the Hawaiian/Pacific Islander group, Hawaiians/Part Hawaiians account for 14.5% of total enrollment.
 - Average age is 25.
- University of Hawai'i at Hilo
 - 2019 enrollment totaled 3,372, down -14.1% compared to 2014
 - UH Hilo has 554 graduate students enrolled; the remainder are undergraduate
 - 71.8% of students are Hawai'i residents; of those, more than half (71.9% are residents of Hawai'i County
- University of Hawai'i West O'ahu
 - 2019 enrollment totaled 3,049. up +14.6% compared to 2014
 - 55.2% of UHWO students are enrolled full time, lower than the other four-year universities in the system.

Community Colleges Enrollment

In 2019, enrollment in the University of Hawai'i Community Colleges (CCs) totaled 26,066, a 15.8% decline from 2014. The decline in CC enrollment has been consistent over the last five years.



Maui College had the steepest percentage decline in enrollment (-21.4%) while Kapi'olani Community College lost the greatest number of students (1,506).

Enrollment	2014	2015	2016	2017	2018	2019
Hawai'i CC	3,186	3,087	2,956	2,819	2,632	2,615
Honolulu CC	4,144	4,328	3,903	3,563	3,541	3,510
Kapi'olani CC	7,994	7,816	7,382	7,095	6,899	6,488
Kauaʻi CC	1,424	1,401	1,401	1,346	1,486	1,373
Leeward CC.	7,742	7,535	7,262	6,805	6,709	6,568
UH Maui College	3,809	3,593	3,342	3,302	3,092	2,992
Windward CC	2,661	2,610	2,511	2,511	2,460	2,520

Enrollment Growth	2015	2016	2017	2018	2019
Hawai'i CC	-3.1%	-4.2%	-4.6%	-6.6%	-0.6%
Honolulu CC	4.4%	-9.8%	-8.7%	-0.6%	-0.9%
Kapi'olani CC	-2.2%	-5.6%	-3.9%	-2.8%	-6.0%
Kauaʻi CC	-1.6%	0.0%	-3.9%	10.4%	-7.6%
Leeward CC.	-2.7%	-3.6%	-6.3%	-1.4%	-2.1%
UH Maui College	-5.7%	-7.0%	-1.2%	-6.4%	-3.2%
Windward CC	-1.9%	-3.8%	0.0%	-2.0%	2.4%

Non-Traditional Student Enrollment

Older students (age 35+) account for 12.9% of system enrollment and are potentially students completing credentials and degrees or retraining for a career change. As the Hawai'i population ages, older students will be an increasingly important target for enrollment growth. Part time students, who may also be working adults or lack the means to attend full time, represent 48.2% of system enrollment. The Community Colleges, with roughly two thirds of enrollments part time, attract these non-traditional students. The Community Colleges and UH West O'ahu are particularly strong in attracting first generation college students, accounting for about a quarter of their enrollment.

	UH Mānoa		UH Hilo		UH West Oʻahu		UHCCs		System	
	Enrolled	%	Enrolled	%	Enrolled	%	Enrolled	%	Enrolled	%
Age 35+	1,954	11.7%	369	10.9%	468	15.3%	3,538	13.6%	6,329	12.9%
Part Time	4,330	26.0%	774	23.0%	1,366	44.8%	17,239	66.1%	23,709	48.2%
1st Gener- ation	2,887	17.3%	630	18.7%	776	25.5%	6,371	24.4%	10,664	21.7%
Total Enroll.	17,490		3,372		3,049		26,066		49,977	

First-Year Student Intake for University of Hawai'i System

More than two-thirds of first-time students for the University of Hawai'i System in Fall 2019 are from Hawai'i; only about 3.5% are international.^{xlvii}

	To	otal	4 Y	ear	UH N	lānoa	UF	l Hilo	UI	HWO	UF	ICC
	#	%	#	%	#	%	#	%	#	%	#	%
Total	7,515		2,686		2,020		449		217		4,829	
Hawai'i	5,161	68.7%	1,643	61.2%	1,145	56.7%	294	65.5%	204	94.0%	3,518	72.9%
Mainland	1,522	20.3%	952	35.4%	809	40.0%	133	29.6%	10	4.6%	570	11.8%
Foreign	263	3.5%	36	1.3%	25	1.2%	11	2.4%	0	0.0%	227	4.7%
Other	569	7.6%	55	2.0%	41	2.0%	11	2.4%	3	1.4%	514	10.6%

For first time students entering the University System from Hawai'i, a large majority are from public schools.

	Total	4 Year	UH Mānoa	UH Hilo	UHWO	UHCC
Public %	84.8%	73.2%	71.1%	72.1%	86.8%	90.3%
Private %	15.2%	26.8%	28.9%	27.9%	13.2%	9.7%

International Enrollment

International enrollment for the system and for UHM has declined modestly since 2014.



International Enrollment - UH System and UH Manoa

In Fall 2019, there were 2,391 international students enrolled in the University of Hawai'i system, 4.8% of total enrollment. Most were enrolled at the University of Hawai'i at Mānoa

(1,195), making up 6.8% of UHM enrollment. Most (59.0%) of the international students at UHM were enrolled in graduate programs. International students comprised 7.7% of University of Hawai'i at Hilo enrollment. The only Community College with significant international enrollment is Kapi'olani Community College at 9.3%.

East Asia is the largest source of foreign students for the UH system, with 53.8% of the international enrollment. Japan with 27.8% of international enrollment, South Korea (11.5%), and China (10.7%) are the three largest contributing countries.

A study conducted by the Hawai'i Department of Business Economic Development and Tourism estimated the annual economic contribution of international students (including the University of Hawai'i and other institutions) in 2019 to be in excess of \$200 million.^{xlviii} From the standpoint of economic development for the State, international education is an "export" and is a sector that may contribute to economic diversification more easily than other options.

Hawai'i Spending by International Students

International Students	Students	Tuition/Fees	Living Expenses	Total
Degree-seeking undergraduate	2,933	\$37,163,869	\$51,385,752	\$88,549,621
Degree-seeking graduate	669	\$15,810,211	\$12,007,263	\$27,817,272
Short-term students	10,155	\$32,964,989	\$54,528,727	\$87,493,716
Non-degree seeking undergrad	2,010	\$12,431,248	\$17,583,831	\$30,015,079
Non-degree seeking graduate	85	\$1,769,012	\$887,400	\$2,656,412
Short-term training programs	6,279	\$16,956,399	\$28,763,303	\$45,719,702
Student camps	1,252	\$1,808,330	\$1,675,510	\$3,483,840
Visiting Scholars/Teachers	529	\$0	\$5,618,683	\$5,618,683
Total	13,757	\$85,939,069	\$ 117,921,742	\$ 203,860,811

Source: Hawai'i Department of Business, Economic Development and Tourism

Western Undergraduate Exchange

The University of Hawai'i has a tuition reciprocity agreement with institutions in sixteen Western states in which students can qualify for tuition rates no more than 150% of resident rates. For Hawai'i, the number of incoming students in the WUE program (2,683) is roughly equal to the number of Hawai'i students who study on the US mainland (2,467).^{xlix}



Tuition

Undergraduate. In 2019-20, undergraduate resident tuition and fees at the University of Hawai'i at Mānoa totals \$12,186, 56.4% higher than UH Hilo (\$7,792) and 60.7% higher than University of Hawai'i West O'ahu (\$7,584). Resident tuition for the Community College system is \$3,228. For the four-year colleges, undergraduate tuition for non-residents ranged from 2.3 to 2.8 times resident tuition.

Graduate. Graduate tuition at University of Hawai'i at Mānoa is \$16,814, 38.0% higher than UH Hilo (\$12,184). The following table summarizes general levels of tuition for the 2019-20 Academic Year (though individual schools and programs have tuition levels that vary from this).

	2019-20				
UH MĀNOA		\$	% Change	% Change	Non-Res./
			vs, 2018-	vs. 2015-16	Res. Index
			19		
Undergraduate					
Resident	\$	12,186	3.7%	9.2%	
Non-resident	\$	34,218	1.3%	8.6%	281
Graduate					
Resident	\$	16,814	3.9%	11.6%	
Non-resident	\$	38,294	1.7%	8.9%	228
UH HILO					
Undergraduate					
Resident	\$	7,792	1.9%	6.3%	
Non-resident	\$	20,752	0.7%	4.9%	266
Graduate					
Resident	\$	12,184	2.0%	9.3%	
Non-resident	\$	27,016	0.9%	8.1%	222
UH WEST OʻAHU					
Resident	\$	7,584	1.9%	6.0%	
Non-resident	\$	20,544	0.7%	4.8%	271
UH COMMUNITY					
COLLEGES					
UHCC Average					
Resident	\$	3,228	4.3%	9.5%	
Non-resident	\$	8,364	1.6%	5.3%	259

A review of tuition conducted for the Board of Regents in 2019 noted that tuition had increased steadily over ten years with levels that exceeded WICHE (Western Interstate Commission for Higher Education) peer institutions. Tuition rates for graduate students at the University of Hawai'i at Mānoa in particular were found to be significantly higher than peer institutions. In response to these findings, the Board of Regents approved tuition levels through Academic Year 2022-23:

- Undergraduate tuition for all campuses no change/no increase
- University of Hawai'i Hilo graduate programs and professional schools no change/no increase

Graduate students at University of Hawai'i at Mānoa – 2% decrease for residents and 10% decrease for non-residents in Academic Year 2021 (and no change thereafter)

Graduation, Transfers, and Persistence

The University of Hawai'i at Mānoa has shown consistent increases in the rate of students who graduate in four or five years. The fall 2014 cohort of first-time full-time freshmen has graduated 35.2% of its students in four years and 57.4% in five. For the University of Hawai'i Hilo, the four-year rate is significantly lower and more sporadic, with 15.0% of the 2014 cohort graduating in four years and 33.0% in five. For UH West O'ahu, the percentages are 15.9% and 34.9%, respectively.

Graduation and transfer rate trends for each of the 10 campuses are included in appendix 8.

Community College Graduation and Transfers

Since 2015, the number of degrees and Certificates of Achievement awarded has averaged between 4,800 and 5,200 but has not met the CC System's current performance goals set in 2016.



UNIVERSITY OF HAWAI'I SYSTEM - THE THIRD DECADE

A key performance indicator for the Community Colleges is the rate of transfer from the CCs to four-year institutions. The number of transfers from the Community Colleges has declined significantly along with the decline in overall enrollment.¹

Academic Year	AY	AY	AY	AY	AY
	2016	2017	2018	2019	2020
Total	4,316	4,159	3,990	3 <i>,</i> 796	3,797
UH 4-Year	194	159	176	164	132
UHCC	2,150	2,135	2,076	1,981	1,828
HI Private	92	91	87	67	86
US Mainland	1,287	1,403	1,341	1,341	1,324
US Related	99	57	58	69	85
Foreign	273	190	88	59	77
Other	221	124	164	115	265

Transfers into the UH Four-Year Campuses By Previous College Type

DAPR

Overall, transfers (from any source) account for more than half of new entrants to UH four-year programs. Transfers from the Community College System accounted for 25% of new entrants for UH Mānoa; 22% for UH Hilo' and 80% for UH West O'ahu. UHWO has actively developed articulation agreements encouraging transfers from the community colleges. As noted in the table above, the number of transfers from the community colleges has declined from 2,150 in Academic Year 2016 to 1,828 in Academic Year 2020 (-15.0%).

Those UHCC students who transferred to a non-UH institution selected these schools in the 2017-18 to 2019-20 period:^{li}

Institution	State	Total
Hawai'i Pacific University	Hawaiʻi	450
Chaminade University Hawai'i	Hawaiʻi	350
University of Nevada Las Vegas	Nevada	283
Pacific University	Oregon	129
Washington State University	Washington	108
Oregon State University	Oregon	104
Institutions primarily online (total)	Online/Various ⁵	950

⁵ Arizona State University, Grand Canyon University, University of Phoenix, American University Public University System, Western Governors University, College of Southern Nevada, Northern Arizona University

Analysis suggests that reasons for picking a non-UH option for transfer are the lack of a desired major or course of study and/or a desire to pursue further studies online.

Assessments and Program Reviews

Assessments provided through its accreditation with WASC (the Western Association of Schools and Colleges), as well as through accrediting bodies for various schools and programs, along with the University's own program reviews, and myriad reports of external evaluators provide the system with a wealth of recommendations and evaluations.

UH Mānoa regularly reviews its offerings "to ensure that programs remain innovative, consistent with changes in the discipline, and responsive to workforce needs." Toward this end, the campus stopped-out admission to the following programs in preparation for program termination: PhD in Biomedical Sciences, BS in Ethnobotany, Master of Geosciences for Professionals, BS in Plant and Environmental Protection Sciences, Doctor of Public Health (DrPH), the MS in Biological Engineering, and the BA/BS in Zoology.

In an effort to address programs with low enrollment, the campus recently consolidated the six graduate degrees in East Asian Languages and Literature into a single Master's degree and PhD program, and merged the undergraduate programs in Tropical Plant & Soil Sciences and Plant & Environmental Protection Sciences into a single BS in Tropical Agriculture and the Environment.

In light of concerns about university budgets that are already tight and that are not likely to experience significant growth, it does not appear that the process for sunsetting low-enrolled programs will yield results that are sufficient to free up adequate revenues for new or expanded programs. In 2017-18 UHM had 45 programs in which one or more of its degree offerings were deemed to have "small numbers of graduates;" all but one were approved for continuation, most with a promise of a forthcoming review.

While program reviews are written to provide specific program guidance, examining them reveals recurring themes for the University system, some of which are well known and some which can be generally surmised from looking across program evaluations. Just a few of these general findings include:

• Facilities and maintenance backlog. This is a common theme and an ongoing issue, but in addition to general maintenance issues, concerns are raised about laboratory and other equipment being insufficiently aligned with contemporary standards.

- Small and under-resourced units are especially challenged in delivering quality programs.
- While the University is progressing in meeting its objectives, evaluators suggest that the bar may have been set too low.
- Some external evaluators note that recommendations from previous reviews have not been fully implemented.
- Regular reviews should ensure that the curriculum is meeting current standards and incorporates current academic best practices.
- Evaluators urge the University and its programs to maintain a global outlook.
- Native Hawaiians and Pacific Islanders should be well-represented in technical and professional programs and STEM.
- There are concerns that the faculty is not fully prepared for the pedagogy and curriculum design skills needed to effectively teach in a changing environment.

An extensive summary of program review findings is included as a separate addendum to this report.

Financial Aid and Hawai'i Promise

In Academic Year 2017-18, 15,785 undergraduate students in the UH System received state and institutional grants and scholarships totaling \$58.4M. broken out in the following categories:



Grants and Scholarships by Type

Source: UH IRO



Source: UH IRAPO

Considering the two largest sources of financial aid (Pell Grants and State & Institutional Grants and Scholarships):

- The number of Pell Grant recipients in 2018 was 14,531, a -21.5% decrease from 2014
- The total amount for Pell Grants in 2018 was \$55.51 million, a -16.8% decrease from 2014
- The number of State and Institutional Grants in 2018 was 15,799, up only slightly (+1.2%) from 2014
- The total amount of State and Institutional Grants in 2018 was \$0.38 million, up +22.7% from 2014

For Academic Year 2017-18, the University of Hawai'i System had 16,101 students with unmet financial needs. The average unmet financial need for the system was \$9,788: \$10,285 for UH Mānoa; \$11,721 for UH Hilo; \$10,587 for UH West O'ahu; and \$8,733 for the Community Colleges.

Instructional Faculty Characteristics

The demographic profile of the University's instructional faculty has become more diverse since 2012-13, but the diversity varies across campuses. In terms of the representation of women in the UH faculty, UH Mānoa has proportionately less (index = 96) and the community colleges proportionately more (index = 105) than the system average (48%).

UH System			
Instructional Faculty	Number 2019-20	Percentage	% pt. Change vs. 2012-13
Hispanic/Latino	52	2.4%	+0.4
AmInd/Alaska Native	8	0.4%	-0.1
Asian	667	31.3%	+1.4
Black/African Am.	28	1.3%	+0.2
Native Hawn./Pac Is.	162	7.6%	-0.2
White	1,027	48.2%	-5.3
Two or More Races	107	5.0%	+3.6
Female	1022	48.0%	+2.4

Source: IPEDS



UH System 🖪 UH Mānoa 🛞 UH Hilo 💷 UHWO 🖪 UHCC

Source: IPEDS

UNIVERSITY OF HAWAI'I SYSTEM - THE THIRD DECADE

5. University Programs and Initiatives Linked to State Needs

Hawai'i Promise

In 2017-18 the Hawai'i State Legislature created a "last dollar" scholarship program for the UH Community College System. The "last dollar" concept means that Hawai'i Promise covers any remaining financial needs for qualified students that are not covered by other financial aid. The aid covers all direct education costs including tuition, fees, books, supplies and transportation for eligible students. To be eligible for Hawai'i Promise, a student must qualify for in-state tuition, be enrolled in a degree seeking program at one of the community colleges and carry at least six credits per semester. The program was established with \$2.5 million in state funding. In academic year 2017-18 1,443 Community College Students received Hawai'i Promise grants totaling \$1.7 million.^{III}

University of Hawai'i Research and Innovation

Universities in general and research institutions in particular play a role in economic development through general and applied research, extramural funding, and collaboration with industry sectors. The University of Hawai'i Office of Innovation and Commercialization tracks the University's performance in research and commercialization activities.

The Office of Innovation and Commercialization is guided by the Hawai'i Innovation Initiative (HII) articulated in the University's strategic plan whose goal is to "*Create more high-quality jobs and diversify Hawai'i's economy by leading the development of a \$1 billion innovation, research, education and training enterprise that addresses the challenges and opportunities faced by Hawai'i and the world.*"^{IIII}

The Innovation Initiative has three strategies:

- Sustain and advance the UH research enterprise.
- Advance innovation and entrepreneurship within UH and the community.
- Invest internal resources and seek external resources for strategic infrastructure requirements and hires that leverage our location and strengths as well as address critical gaps.^{liv}
The areas of focus related to the third strategy are:

- Ocean and climate sciences
- Astronomy
- Health and wellness
- Digital/creative media
- Cybersecurity
- Sustainable agriculture
- Energy
- Data intensive science and engineering initiative to support all research sectors

Metrics for Innovation Initiatives

Extramural Awards

In 2019, the University received \$421.9 million in extramural awards, 66.5% of which was from the Federal government 15.7% from the state of Hawai'i, and 17.8% from other sources. UH Mānoa (74.6%) and the UH System (11.5%) accounted for 86% of the awards, with UH Hilo (4.1%), UH West O'ahu (1.9%) and the Community Colleges (8.0%) accounting for the remainder.

In Fiscal 2018, the University had \$276.4 million in research and development expenditures about 60% of which were from Federal programs, down -11.6% compared with the average for the prior five years. The following chart shows total research and development expenditures for the University of Hawai'i at Mānoa compared to its defined set of peer institutions.



Total R&D Expenditures (000)

Source: University Office of Innovation and Commercialization

Inventions, Patents and Licenses, and Startups

The University Office of Innovation and Commercialization tracks "inventions disclosed," US patents issued, licenses and options executed, royalties and the number of new start-up companies from university activities. The following chart summarizes these activities since 2015 and the goals for 2019-2020.

Actual						Goal	
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Inventions Disclosed	59	50	52	41	41	52	55
US Patents Issued	8	11	8	7	5	19	20
License/Options Executed	2	12	12	14	7	12	13
Active Licenses/Options	97	102	107	117	135	137	144
Royalties Received (000s)	\$265,974	\$408,513	\$288,752	\$150,172	\$206,687		
Start-Ups/New Companies	2	8	6	2	7	8	8

University of Hawai'i Office of Innovation Performance Measures

University policy (EP 12.205) specifies the conditions determining patent rights. Essentially, the University has exclusive patent rights when a patent is developed through any research, development or program funded by the University or with the use of its equipment, facilities, or personnel. The inventor has exclusive patent rights only if the invention or discovery has been made independent of any University support. A waiver of the University's claim for patent rights may be given with the approval of the President for inventions that were made with the aid of University facilities or funds.

The University of Hawai'i Office of Innovation and Commercialization sponsors a program titled "UH Innovation Impact Challenges." The goal of the program is to "create University + Industry/Community/Government partnerships that leverage UH expertise and creativity to inspire cross-disciplinary collaboration, foster the development of novel and innovative solutions to address Hawai'i's challenges, and create opportunities that impact Hawai'i's economy."

The UH Office of Innovation and Commercialization has also developed an "Innovation and Entrepreneurship Pathway" with programs to foster development from idea generation to market readiness.

Extramural funding through grants, contracts, and awards is a major source of revenue for the University; rules, regulations, and incentives for faculty to engage in the pursuit of extramurally funded projects are likely to be key factors for success in growing these awards.

Research, Contract and Grant Awards

The University of Hawai'i at Mānoa is the largest research enterprise in the state, with an essential role in achieving economic diversification. The University, in partnership with the business community, plans to create innovation clusters that link fundamental scientific discovery with applied research and economic development.

Research at the Mānoa campus has been recognized for pioneering work in oceanography, astronomy, Pacific Islands and Asian area studies, linguistics, education, tropical agriculture, cancer, and genetics.

In FY 2019 UH Mānoa colleges and departments were awarded \$314.5M in research contracts and grants. The three programs with the highest awards were the School of Ocean and Earth Science and Technology (\$91.1M), the John A. Burns School of Medicine (\$53.1M), and the College of Natural Sciences (\$36.6M). These three programs accounted for 57.5% of the total awards for the Mānoa campus.^{Iv}



Source: UH Office of Research Services Annual Report 2019 Extramural Awards and Expenditures Figure 9a

Some of UH Mānoa's individual departments have been particularly successful in obtaining research contracts and grants. The following list includes individual departments that have received more than \$5M in awards in FY2019. (Where the Department and College are the same, the award was given to the College as part of its overall award).

Department	College	Award Amount
Center for Disability Studies	College of Education	\$11,787,886
College of Education	College of Education	\$7,301,949
Department of Botany	College of Natural Sciences	\$26,135,975
Social Science Res. Inst.	College of Social Sciences	\$5,045,332
Urban and Regional Planning	College of Social Sciences	\$7,246,975
Institute for Astronomy	Institute for Astronomy	\$18,772,579
Dept. of Pediatrics	JABSOM	\$5,231,460
Dept. of Psychiatry	JABSOM	\$5,031,083
JABSOM	JABSOM	\$9,640,161
Haw. Inst. Of Geophysics & Planetology	SOEST	\$10,431,509
Haw. Inst. of Marine Biology	SOEST	\$6,139,984
Haw. Natural Energy Inst.	SOEST	\$9,174,636
Joint Inst. for Marine and Atmos. Res.	SOEST	\$19,255,606
SOEST	SOEST	\$13,558,093
Sea Grant College Prog.	SOEST	\$6,288,450
Cancer Epidemiology	UH Cancer Center	\$11,903,090
UH Cancer Center	UH Cancer Center	\$5,478,281

Source: UH Office of Research Services Annual Report 2019 Extramural Awards and Expenditures Figure 9a

University of Hawai'i Hilo

Research at the University of Hawai'i Hilo is focused on place-based, applied research of shortand long-term opportunities to benefit the people of Hawai'i Island and the State. Areas of focus include:

- Research on indigenous languages
- Tropical conservation biology and environmental sciences
- Astronomy
- Alternative energy
- Agribusiness

Research laboratories include:

- Agricultural Farm Laboratory: 110-acre farm for teaching & research
- Analytical Laboratory: Supporting ecological research & water quality studies
- Geoarchaeology Laboratory: Non-destructive analyses of basalt & volcanic glass artifacts

- Hawaiian Medium Laboratory Schools: Hawaiian language immersion education
- Hilo Core Genetics Facility: Service laboratory with technical training sessions in genetics, DNA sequencing, DNA fragment separation, and detection services
- Laboratory for Exercise Science: Research on human physiological, anthropometric, biometric systems
- Scanning Electron Microscopy & Analysis Lab: Multidisciplinary lab (Contact Jason Adolf)
- Pacific Aquaculture & Coastal Resource Center: Long-term sustainable use and conservation of coastal areas worldwide through aquaculture and resource management.
- Spatial Data Analysis & Visualization Labs: Specializing in advancing Hawai'i-based scientific research through utilizing the latest technology for spatial and temporal analysis and visualization.lvi

Research grants and awards for the University of Hawai'i at Hilo totaled \$17.2M in FY 2019, with the College of Arts and Sciences receiving the largest share of the awards (\$5.5M or 27.9% of the total).



UH Hilo Contracts & Grant Awards

Source: UH Office of Research Services Annual Report 2019 Extramural Awards and Expenditures Figure 9b

XLR8UH Hawai'i Innovation Ecosystem Development Project

The Economic Development Administration within the U.S. Department of Commerce has funded a public-private partnership between the University and Sultan Ventures to expand XLR8UH, a targeted fund that provides seed funding for seed-stage startups in Hawai'i. The program has a five year goal of investing in 27 startups that, in turn, are expected to raise more than \$76 million in additional funding.^{Ivii}

Career and Technical Education (CTE) Programs

CTE Assessments – Annual Reports of Program Data

Within the University of Hawai'i Community College system, Career and Technical Education (CTE) programs and General Pre-Professional programs annually assess their performance based on three criteria:^{Iviii}

- Demand indicators refer to the number of new and replacement jobs that are projected within the county and the number of graduates that will likely compete for those positions.
- Efficiency indicators refer to average class size, fill rate, and number of majors allocated to faculty.
- Effectiveness indicators monitor successful completions, withdrawals, persistence, and transfers to a UH 4-Year campus.

The programs are rated "healthy," "cautionary," or "unhealthy," based on those definitions and the program's performance. When assessing demand, a program could be unhealthy based on producing too many or too few graduates for the demand in that county.

Each of the ARPDs includes a narrative analysis of the program, an action plan, and resource implications. The action plans do not uniformly contain assignments of responsibility or timelines for completion.

The following table summarizes the most recent ARPDs for CTE programs:

	F	Program Dem	and	Program Efficiency		Program Effectiveness			
	Healthy	Cautionary	Unhealthy	Healthy	Cautionary	Unhealthy	Healthy	Cautionary	Unhealthy
Hawai'i	71%	14%	14%	52%	44%	4%	29%	64%	7%
Honolulu	88%	0%	12%	24%	72%	4%	48%	48%	4%
Kapi'olani	71%	14%	14%	67%	33%	0%	62%	24%	14%
Kaua'i	67%	11%	22%	33%	56%	11%	50%	44%	6%
Leeward	80%	0%	20%	63%	38%	0%	53%	47%	0%
Maui	67%	13%	21%	43%	48%	9%	42%	38%	21%
Windward	33%	0%	67%	50%	33%	17%	0%	83%	17%

	Health Overall						
	He	ealthy	Cau	tionary	Unhealthy		
	#	%	#	%	#	%	
Hawai'i	16	57.1%	11	39.3%	1	3.6%	
Honolulu	13	65.0%	5	25.0%	2	10.0%	
Kapi'olani	12	57.1%	9	42.9%	-	-	
Kaua'i	6	33.3%	12	66.7%	-	-	
Leeward	11	68.8%	4	25.0%	1	6.2%	
Maui	10	41.7%	14	58.3%	-	-	
Windward	1	16.7%	3	50.0%	2	33.3%	

In its Draft Academic Master Plan submitted to the Board of Regents in February 2020, the UH System identified the following as *"future critical state needs:"*

- <u>Teachers (e.g., counselors, high school STEM teachers, special educators, language</u> immersion specialists, specialists in teaching in rural areas)
- <u>Health Care Professionals</u> (UH will work with the Health Care Association of Hawai'i to identify the professions where programs are needed)
- <u>Sustainability-related Expertise</u>: (management, conflict resolution, environmental policy, GIS mapping, hydrology, watershed science, wildlife ecology—Interdisciplinary Studies at UH-M is an incubator for such programs)
- Computer science and data science expertise
- Cyber-security
- Engineering
- Materials sciences
- Strategic planning and future-oriented thinkers

University Success in Addressing Current Needs

One measure of the University's effectiveness in meeting current needs in Hawai'i is to align the output of its academic programs (degrees and certificates) with projected occupational demands. Such an analysis does not diminish the value of a liberal arts education. Liberal arts graduates, whatever their field of study, join the workforce and learn necessary job-related skills through experience and training. An English Literature graduate, for example, might be employed as a teacher, writer, editor or, indeed, find a profession in business or other fields. Analyzing the alignment of output (degrees and certificates) with occupational demands, however, provides a rough measure of how well the University is attracting students interested in occupations currently in demand as well as a gauge of graduates who are academically prepared for initial entry into them.

Baccalaureate, Master's Programs

The University of Hawai'i Community College Career Explorer application (using Hawai'i State Department of Labor and Industrial Relations Research and Statistics based on SOC codes) estimates annual openings for positions requiring degrees and certificates at the college level. The following table correlates the number of annual openings for groups of related occupations to the number of degrees and certificates granted by the University related to them. The "ratio" number is the percentage of the openings that relate to UH programs. Low ratios indicate areas of opportunity – where the University is not strongly correlated with demand. High ratios indicate programs that could be characterized as providing too many graduates for the annual number of openings. A detailed analysis for specific occupations and degrees is in appendix 8.

	Annual	Total	+/-	
Occupations - Bachelor's Degree	Openings	4 Year deg.	Openings	Ratio
Pilots, Copilots, and Flt. Eng.	238	0	(238)	0.0%
Education	2,304	182	(2,122)	7.9%
General Business Related	3,439	499	(2,940)	14.5%
Sales/Marketing/PR	861	162	(699)	18.8%
Architects	126	27	(99)	21.4%
Information Technology	631	148	(483)	23.5%
Health	1,057	251	(806)	23.7%
Social Services	273	94	(179)	34.4%
Engineers	587	260	(327)	44.3%
Accountants and Auditors	722	379	(343)	52.5%
Creative Industries	352	354	2	100.6%
Travel Industry	96	110	14	114.6%
Interpreters and Translators	47	115	68	244.7%
Environment	166	442	276	266.3%

	Annual			
Occupations - Master's Degree	Openings	Total UH	+/- Openings	Ratio
Anthropologists/Curators	26	7	-19	26.9%
Urban Planning	45	22	-23	48.9%
Social Services	185	105	-80	56.8%
Education Administration	245	186	-59	75.9%
Nursing/Health Practitioners	209	200	-9	95.7%
Educational Guidance	163	186	23	114.1%
Business Related	52	124	72	238.5%

Associate Degree Programs

The University of Hawai'i Community College Annual Reports on Program Data (ARPDs) catalog the number of graduates for each career and technical education (CTE) program by campus correlated to the number of job openings for associated job codes (SOCs). The following table consolidates the number of degrees and certificates for all the community colleges and correlates them to related statewide job openings. Similar to the analysis done for baccalaureate and master's degrees, the "ratio" indicates how well aligned the program is to job openings requiring an associate degree or certificate, with a low ratio indicating areas of opportunity and expansion and a high ratio potentially indicating an oversupply of graduates relative to openings. A more detailed analysis showing graduates by campus is in appendix 8.

	New & Replacement	Total Degrees/	_	
	Positions	Certificates	+/-	Ratio
Agricultural Technology	200	0	-200	0.0%
Integrated Industrial Technology	7	0	-7	0.0%
Business	2,941	7	-2,934	0.2%
Business Administration	2,532	18	-2,514	0.7%
Sustainable Science Management	481	7	-474	1.5%
Applied Business and Information Tech	417	8	-409	1.9%
Electrical Installation & Maintenance Tech	1,035	30	-1,005	2.9%
Medical Assisting	553	18	-535	3.3%
Communication Arts	115	5	-110	4.3%
Dental Assisting	214	10	-204	4.7%
Carpentry Technology	1,026	52	-974	5.1%
Plant Biology & Tropical Agriculture	212	12	-200	5.7%
Agriculture and Natural Resources	223	14	-209	6.3%
Human Services	1,230	78	-1,152	6.3%
Music and Entertainment Learning Exp.	149	10	-139	6.7%
Cosmetology	439	30	-409	6.8%
Aeronautics Maintenance Technology	277	19	-258	6.9%
Construction Technology	382	27	-355	7.1%
Refrigeration & Air Conditioning Tech	155	11	-144	7.1%
Engineering Technology	53	4	-49	7.5%
Trop Forest Ecosystem & Agroforestry Mg	52	5	-47	9.6%
Computing, Electronics & Network. Tech	446	43	-403	9.6%
Mobile Intensive Care Tech	93	9	-84	9.7%
Marketing	495	48	-447	9.7%

Assoc. Degrees and Certificates Awarded

	Assoc. Degr	ees and Certif	icates Aw	arded
	New &	Total		
	Replacement	Degrees/		
	Positions	Certificates	+/-	Ratio
Sheet Metal & Plastics Technology	121	12	-109	9.9%
Digital Media Arts	19	2	-17	10.5%
Substance Abuse Counseling	160	19	-141	11.9%
Paralegal	179	22	-157	12.3%
Admin. Of Justice	369	47	-322	12.7%
Facilities Engineering	46	6	-40	13.0%
Small Vessel Fabrication & Repair	15	2	-13	13.3%
Management	793	114	-679	14.4%
Diesel Mechanics Technology	128	19	-109	14.8%
Nursing: Associate Degree	910	147	-763	16.2%
Teaching	649	105	-544	16.2%
Information Technology	416	69	-347	16.6%
Auto Body Repair & Painting	121	21	-100	17.4%
Agriculture	23	4	-19	17.4%
Automotive Mechanics Technology	639	119	-520	18.6%
Dental Hygiene	75	15	-60	20.0%
Accounting	901	182	-719	20.2%
Information and Computer Science	594	128	-466	21.5%
Machine, Welding & Industrial Mech Tech	81	18	-63	22.2%
Fashion Technology	117	27	-90	23.1%
Radiologic Technologist	67	16	-51	23.9%
Physical Therapist Assistant	66	16	-50	24.2%
Fire Science	143	36	-107	25.2%
Culinary Arts	1,474	372	-1,102	25.2%
Television Production	71	21	-50	29.6%
Digital Media Production	220	70	-150	31.8%
New Media Arts	57	19	-38	33.3%
Fire & Environmental Emergency Resp	143	48	-95	33.6%
Emergency Medical Technician	93	35	-58	37.6%
Business Technology	324	129	-195	39.8%
Welding Technology	81	34	-47	42.0%
Early Childhood Education	205	88	-117	42.9%
Occupational & Environmental Safety	35	18	-17	51.4%
Nursing: Practical Nursing	169	87	-82	51.5%
Electronics Technology	65	34	-31	52.3%
Creative Media	19	10	-9	52.6%
Respiratory Care Practitioner	30	16	-14	53.3%
Veterinary Technology	101	56	-45	55.4%

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	Assoc. Degrees and Certificates Awarded				
	New &	Total			
	Replacement	Degrees/			
	Positions	Certificates	+/-	Ratio	
Health Information Technology	58	33	-25	56.9%	
Architectural Engineering & CAD	52	45	-7	86.5%	
Hospitality and Tourism	302	303	1	100.3%	
Agripharmatech	59	74	15	125.4%	
Occupational Therapy Assistant	20	29	9	145.0%	
Medical Laboratory Technician	0	13	13		

Healthcare

As noted in other parts of this analysis, healthcare is a large and growing segment of the economy and job force, accounting for about 74K jobs. Growth in this sector will be driven by an aging population and the expanding application of technologies and applications. In 2019, the Hawai'i Healthcare Workforce Initiative reported 2,200 open positions with 16% average turnover.^{lix}

Continuing Education and Workforce Training

The April 2020 issue of *Hawai'i Business* magazine contained a feature article titled "Path to the Future" and introduced it, noting "Schools and businesses are partnering in unprecedented ways to develop the state's future workforce."^{Ix} The article highlights programs in the UH Community College System, including:

- Kapi'olani Community College collaborated with Hawai'i Pacific Health (HPH) to develop curriculum and provide instructors for HPH's Medical Assistant Training Program in Hawai'i high schools.
- A partnership between the UHCC system and the banking industry resulted in a program to prepare job candidates for the emerging technology skills needed in banking.
- Maui College, through its unique Extended Learning Workforce Development Division, developed an accelerated technician certificate in heating ventilation and air-conditioning in response to industry demand.

Program managers identified key factors in the success of these programs:

- Leadership. Creating innovative programs that are responsive to the private sector (with its expectation of nimbleness) requires strong support from campus leaders who can break down barriers.
- Funding. Since continuing education programs are expected to be self-funded, startup
 programs have been funded through grants, government, and industry support. Maui's
 University Centers received \$200k/year for three years from the Maui Economic
 Development Board.
- **Relationships.** Developing what was described as "trustful" relationships was key in establishing industry partnerships and creating programs that are responsive to industry needs.
- **Profit motive.** Unlike academic programs, continuing education programs must pay for themselves; therefore, they are motivated to ensure new programs are responsive to industry needs.

The University's continuing education programs are well-suited to provide workforce training responding to the specific needs of industry. Government- and union-funded programs, in particular, support workforce training programs that can be delivered through a partnership with the University. Total enrollment in continuing education programs, however, has declined significantly. Enrollment in academic year 2018-19 was 22,941, down 64.8% from a high of more than 65K in 2010-11. Data in appendix 11 show continuing education enrollment trends for the four-year and community colleges.

Unions and Workforce Training Partnerships

Unions. Local 5 (hospitality workers), Ironworkers, Laborers and other unions offer training and apprenticeships to their members. Local 5 training programs are funded through contractual contributions from the hotels to HARIETT (the Hotel and Restaurant Industry Employment and Training Fund). The fund provides no-cost training for union members in a broad range of occupational areas including language skills, computers, culinary programs (ServSafe, bartending, menu planning, food cost, supervision, and others), refrigeration, landscaping, welding and other skills. HARIETT contracts training through private providers and the University of Hawai'i Community College System continuing education programs. When working with the Community Colleges, HARIETT pays the college for a certain number of seats in the class; if the seats are not filled with union members, the college may re-sell the seats through its continuing education program.^{Ixi}

Carl D. Perkins Career and Technical Education Program (Perkins V). The Perkins program is a federal fund investing in secondary, post-secondary and adult education career and technical education. In Hawai'i, available funds are split between DOE programs and the University of Hawai'i career and technical education programs. The recent reauthorization of the Perkins Program now requires a needs assessment to align local CTE programs with identified indemand, high-growth, and high-wage career fields. UHCC funds are distributed to the colleges as grants awarded through a competitive process.^{Ixii}

State of Hawai'i Employment and Training Fund (ETF). ETF is a flexible workforce training program administered through the State of Hawai'i Department of Labor and Industrial Relations (DLIR). The UH Community Colleges participate as training providers along with private sector training programs. Funds are generated through a percentage of the employment tax. Employees are referred by employers for training in their field of employment. The fund supports two types of programs:

- The ETF Macro program provides grants for industry specific training where there are critical skill shortages in high growth occupational or industry areas. These funds are used as "seed" money to develop cutting edge education and training curricula and program design and activities where none exist in the state.
- The ETF Micro program is focused on individual businesses that need to upgrade the job skills of their employees. Training courses that are available include: computer, business, management, health, medical training, and soft skills training. Employers are eligible to receive up to 50% (maximum \$400 tuition subsidy) of total tuition costs provided by approved vendors.^{1xiii}

Career Explorer and Career Counseling

The University of Hawai'i has developed an online tool, Career Explorer, which integrates data from the US Department of Labor (O*Net), Economic Modeling Specialists International (EMSI) and other sources to provide administrators, students, and counselors with timely assessments of career opportunities linked to opportunities, skill sets, and lifestyles.^{lxiv} Development of applications such as Career Explorer provide an opportunity to better align programs with economic sector needs and with student interests and abilities. To be optimally effective, counselors and students both need to be aware of Career Explorer and similar apps, which requires an ongoing training and awareness initiative.

Distance Learning and Distributed Education.

Nationally, 36.7% of undergraduate students were enrolled in a distance education course or courses in 2018; the proportion for Hawai'i is roughly comparable (35.2%). There is a wide disparity in the incidence of online education with rural and Western states tending to have the highest incidence of online enrollment while more urban and Eastern states have the lowest.^{lxv}

Top Five States for Online Courses		Bottom Five States for Online Courses			
New Hampshire	68.3%	Rhode Island	14.4%		
Arizona	60.0%	New York	17.2%		
West Virginia	58.0%	Massachusetts	20.8%		
Utah	55.8%	Connecticut	21.3%		
Alaska	52.8%	Vermont	23.3%		

% of Students Taking at	Least One	Online	Course
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Regarding credits taken by distance within the University of Hawai'i system, the University of Hawai'i West O'ahu has, by far, the highest percentage of credits taken through distance learning (52.8%), with UH Hilo (14.3%) and UH Mānoa (8.3%) well below this level in Fall 2019. Students enrolled in the Community College system took 22.8% of their credits by distance. There has been steady growth in the percentage of online credits across the system since 2010.





The University's policies on distance and online learning are designed for the purpose of advancing "the University of Hawai'i's mission of extending access to higher education throughout the State of Hawai'i, enhance educational services to UH students, and reach new constituencies throughout the world."^{Ixvi}

Distance learning is especially well suited to serve non-traditional students who are unable to come to a physical classroom during usual classroom hours. These include working adults, military personnel, and people residing on another island without access to an on-island course. As a matter of convenience, online courses offer students the option to take a course without dealing with long commutes, parking shortages or other impediments associated with a face-to-face course.

Distance learning courses can be categorized as:

- Online, where the course material is taught exclusively by distance. Online can be synchronous (with the class meeting at the same time virtually online) or asynchronous (with the material posted online and students can access it at a time of their choosing).
- Hybrid, where some of the course material is taught online, but the class meets occasionally in a face-to-face setting.

• Video delivery to remote students involves technology to interactively broadcast a classroom session complete with audiovisual materials to students who are in a remote location.

The University's policy on distance learning lays out ten principles for providing guidelines to ensure that distance education Is fully integrated into UH academics. The principles are included in appendix 12.

Recognizing that the development of distance learning is relatively new, the policy establishes a Distance Learning Program Planning Group and Campus Distance Coordinators to address system and campus issues as they arise.

Faculty Support for Distance Delivery

With the expansion of distance courses (especially in the wake of the COVID-19 shutdown) campuses have been developing support structures, online videos and training courses (such as the Teaching Online Prep Program – TOPP) for assisting instructors creating an online course. Instructional designers at the campus level provide faculty support in modifying courses for distance delivery.

Online support for faculty across the system is available through a dedicated website: www.uhonline.hawaii.edu. The site provides tutorials for the Laulima learning management system, producing videos, web conferencing, collaborative discussion tools and others.

The UH Online Innovation Center (formerly the Digital Media Center) provides personal instructional design services, though with a very limited staff. Accessing the service is similar to faculty accessing Information Technology (IT) support through the IT help desk. To request the Center's support, faculty can submit a form identifying the type of support they are seeking.

The University has also contracted with Quality Matters, a non-profit organization, to support faculty in delivering quality distance learning courses. The University underwrites the fee for the intensive, online Quality Matters program.

Individual campuses have the discretion in supporting faculty development in distance learning through release time or overloads.

Student Support for Distance Learning

Just as faculty need support in learning the pedagogy of distance education, students need support in self-evaluation to determine their readiness to learn by distance and to access resources needed to successfully transition to distance learning.

The www.uhonline.hawaii.edu/students website provides guides for the various distance delivery systems. An online self-assessment helps students understand their learning habits and how they align with distance delivered courses.

Distance Learning and the Coronavirus Pandemic

The pandemic crisis caused a massive change in course delivery throughout the University of Hawai'i system, shifting from a large majority of courses taught face-to-face to nearly all courses taught by distance in spring semester 2020. The shift was made quickly, without time to fully prepare faculty and students for the change. The result of this dramatic and unexpected change provides the system with an unintended test of widespread adoption of distance delivery. Two initial observations based on interviews:

- The UH executive policies that were in place prior to the onset of the pandemic-induced shift to online were written broadly enough that they were applicable in the ramp-up of distance learning caused by the crisis.
- In addition to the robust support for faculty training in distance learning, links to abbreviated support services were added to the www.hawaii.edu home page ("Teaching During an" Emergency" and "Learning During an Emergency").

Distance Learning Best Practices

UH experience along with the experience of Institutions with extensive distance learning programs have developed practices that contribute to success.

- For working adults and part time learners, success improves when the student takes a single, compressed (six-week module) course. The University of Southern New Hampshire distance learning programs are built around this model.
- Support for faculty is more effective if there are dedicated instructional designers for distance learning courses. Arizona State University has separate support services for distance learning and face-to-face instruction. At ASU, faculty teaching both face-to-face

and by distance access the appropriate support services related to the modality of the course. Similarly, every ASU student has two advisors.

• The University of Hawai'i West O'ahu Faculty Senate established a system for faculty to apply to teach online. The process reviews methods and course objectives in order to certify that the pedagogy is appropriate for online learning.

Certificates, Mini-Certificates and Career Pathways

Community Colleges. With the increasing need for technical skills to operate in today's business environment, Community College academic programs and continuing education departments have explored short term "mini" certificates. While these certificates are often outside of degree tracks, they introduce the participants to UH programs, potentially "sampling" the University for these prospective degree seekers. Additionally, offering these certificates within the UH system provides a competitive advantage for the University by limiting exposure to competing institutions which may offer them. Certificates may fill the following student needs:

- Immediate technical skills required for employment, especially coding and software skills for tech workers, given the constant introduction of new or updated computer languages and platforms.
- "Stackable" credentials offering credit and badges that are steppingstones to certificates and degrees.
- Non-credit transitional training for workers switching careers or upgrading skills for upward mobility.
- Non-credit programs for evolving needs like cybersecurity, home IT security, and digital communications technology.

University of Hawai'i at Mānoa Pathways. UH Mānoa approved several combined degree pathways to encourage competitive undergraduate students to begin graduate-level coursework in the senior year (and apply up to nine credits of those courses toward the undergraduate degree). The pathways are designed so that students can complete both the bachelor's and master's degree within five years. Pathway programs are now approved in Civil Engineering, Computer Engineering, Computer Science, Economics, Electrical Engineering, Ethnic Studies/Educational Foundations, Ethnic Studies/Educational Administration, Global Environmental Science/Urban & Regional Planning, Global Environmental Science/Public Health, Mechanical Engineering, Psychology/Educational Psychology, Second Language Studies and Travel Industry Management. Most of these programs are vital to the state's future manpower requirements.

University Marketing and Enrollment Promotion

The University of Hawai'i Office of Communications is housed in the UH System offices and is charged with overall communications management. It also has the UH Mānoa Communications Office (the advancement team) as part of its organization. Responsibility for marketing is dispersed through different campuses and programs. The UH Mānoa budget for enrollment promotion has been \$150K annually for the last two years. The UHM promotional program was targeted to high school seniors and, secondarily, to influencers (parents, grandparents, neighbors, alumni, lawmakers).

There is no integrated marketing plan pulling together the units within the system.

With a very limited budget, communications is the primary focus of the University's efforts, with little emphasis on other elements of marketing (market research, market segmentation, product development, targeting, etc.).

With its emphasis on communications, the System office has an extensive media relations and communications program, primarily using free media. In 2018, the System office budgeted \$200K for a systemwide campaign focusing on the value of a 10-campus system. Currently, there is a \$150K budget for a separate systemwide marketing campaign managed by the Office of Academic Planning and Policy. To address some of the issues that the University is facing – especially enhancing its reputation as a high-quality educational institution and attracting new student populations to increase enrollment – will require a well-funded, well-researched, and ongoing marketing program.

UH Brand Preference

Parchment.com is a "digital credentials service" that offers an online tool analyzing prospective student choice for pairs of colleges to which the student has been admitted. The methodology is included in the footnote.⁶ The following table shows percentages of admitted students choosing UH Mānoa or a comparable school for each pair:^{lxvii}

% Admitted Students choosing		UH Mānoa
University of Nevada Las Vegas	72%	28%
Boise State	62%	38%
Oregon State	63%	37%
Washington State	53%	47%
UCLA	75%	25%
Arizona State	64%	36%
Hawai'i Pacific U.	50%	50%
Chaminade	28%	72%
BYU Hawaiʻi	60%	40%

Note that the choice percentages for these comparisons are all students who were admitted to the two institutions, so Hawai'i would not expect to disproportionately "win" admittance decisions for many out-of-state institutions; however, tracking Hawai'i's percentage over time may provide a useful measure of the strength of the UH brand.

University and Program Rankings

As with any large, public university, the University of Hawai'i system has programs that range widely in published rankings. While the standards for rankings also vary widely, they provide a public measure that affects enrollment and marketing. The University publishes rankings through press releases. Tracking the rankings of UH programs over time provides an indication of changes in public perception.

⁶ The parchment.com site uses a "revealed preference" tool. For each school's percentage, the denominator includes all members who were admitted to both of these schools. The numerator includes those students who chose a given school. In other words, students who were admitted to both schools reveal their preference for one over the other by attending that school. To test for statistical significance at the 95% level, <u>Wilson's method</u> is employed.

Program	Rank	Ranking authority
Agriculture & Forestry Arts and Humanities	201-251 242	QS WUR By Subject Ranking QS WUR By Subject Ranking
Biological Sciences	301-350	QS WUR By Subject Ranking
Business & Management Studies	451-501	QS WUR By Subject Ranking
College of Education	69	USNWR
College of Social Science	101	USNWR
Communication and Media Studies	151-200	QS WUR By Subject Ranking
Communications	51-75	Shanghai Jiao Tong University
Earth and Marine Sciences	101-150	QS WUR By Subject Ranking
Earth Sciences	51-75	Shanghai Jiao Tong University
Economics and Econometrics	451-500	QS WUR By Subject Ranking
Education and Training	201-250	QS WUR By Subject Ranking
English Language and Literature	201-251	QS WUR By Subject Ranking
Environmental Studies	251-300	QS WUR By Subject Ranking
Geography	37	2020 Times Higher Education World University Rankings
Geography	101-151	QS WUR By Subject Ranking
Geography	37	2020 Times Higher Ed.
JABSOM	351-400	QS WUR By Subject Ranking
JABSOM	56	USNWR
JABSOM	62	USNWR
KCC Culinary Arts	43	bestchoiceschools.com
KCC Culinary Arts	7	Grad Reports 25 Best AS Culinary Arts Programs
Law	#2—Greatest Resources for Minority Students	Princeton review
Law	#3—Most Chosen by Older Students	Princeton review
Law	#3—Most Diverse Faculty	Princeton review
Law	#5—Best for State and Local Clerkships	Princeton review
Life Science and Medicine	401-450	QS WUR By Subject Ranking
Linguistics	50	QS WUR By Subject Ranking
Maui Culinary Arts	1	GradReports 25 Best AS in Culinary Arts Programs
Modern Languages	101-152	QS WUR By Subject Ranking
Natural Sciences	277	QS WUR By Subject Ranking
Natural Sciences	277	QS WUR By Subject Ranking
Oceanography	9	Shanghai Jiao Tong University
Physics & Astronomy	301-351	QS WUR By Subject Ranking
School of Nursing/Dental Hygiene	74	USNWR
School of Nursing/Dental Hygiene	99	USNWR

Shidler School of Business	106	USNWR				
Travel Industry Management	18	Thebestschools.org				
UH Hilo	181-190	Quacquarelli Symonds				
UH Mānoa	200 (world ranking)	Round University Ranking (RUR)				
UH Mānoa	65 (US Ranking)	Round University Ranking (RUR)				
UH Mānoa	66	Quacquarelli Symonds				
UH Mānoa Teaching	156 (worldwide ranking)	Round University Ranking (RUR)				
UH Mānoa Teaching	59 (US Ranking	Round University Ranking (RUR)				
UH Mānoa International Diversity	178 (worldwide ranking	Round University Ranking (RUR)				
UH Mānoa International Diversity	59 (US Ranking)	Round University Ranking (RUR)				
William Richardson School of Law	96	American Bar Assn.				

QSWUR = Quacquarelli Symonds World University Rankings

USNWR = US News & World Report

UH Mānoa communications describe its "widely recognized strengths in tropical agriculture, tropical medicine, oceanography, astronomy, marine biology, engineering, volcanology, microbiology, comparative philosophy, comparative religion, Hawaiian studies, linguistics and endangered languages, Asian studies, Pacific Island studies, and public health." Moreover, UH Mānoa "offers instruction in more languages than any U.S. institution outside the Department of State."

Several UHM programs received high marks from <u>U.S. News and World Report</u> in its recentlyreleased <u>2021 Best Graduate Schools</u> rankings. The 2021 edition evaluates graduate schools on a variety of factors, including research activity, expert assessment scores, acceptance rates, standardized test scores and grade-point averages of incoming students.

Given the demonstrated need to prepare more workers in the health care fields, the relative strength of the Medical and Nursing Schools is of special note.

The John A. Burns School of Medicine (JABSOM) ranked No. 56 in primary care out of approximately 180 best medical schools in the U.S. JABSOM is rated higher than Icahn School of Medicine at Mount Sinai, University of California-Irvine and University of California-Riverside. In the research category, JABSOM ranked No. 62, tied with the University of Arizona-Tucson, University of Kansas Medical Center, and the University of Nebraska Medical Center.

In addition, JABSOM led the nation for the past five years in producing Native Hawaiian and Pacific Islander physicians, and has a larger proportion of female faculty than 91 percent of

other medical schools, according to data recently released by the Association of American Medical Colleges.

The <u>School of Nursing and Dental Hygiene</u> ranked No. 74 among 170 schools considered in the doctor of nursing practice rankings. *U.S. News* also ranked UH Mānoa nursing No. 99 out of 173 schools, for best online graduate nursing programs in 2020.

The <u>William S. Richardson School of Law</u>, ranked No. 96 among 205 American Bar Associationaccredited law schools, tied with University of South Carolina, and ahead of Syracuse University, Seattle University and California Western School of Law. Of special note given the importance to the state's future of programs related to Sustainability, the school's environmental law program ranked No. 30 out of 190.

The part-time Master of Business Administration program (global MBA, 36-month plan) at the <u>Shidler College of Business</u> is ranked No. 106 among 272 part-time MBA programs that qualified for the ranking. The part-time MBA program is the only AACSB accredited program in Hawai'i and one of the few MBA programs in the U.S. with a true Asia-Pacific focus. This program should be prominent in the effort to recruit more international students to UH.

Given the importance of teacher training for the state's future, it is important to note that the <u>College of Education</u> continues to be ranked among the best graduate schools in the nation. The college ranked No. 69 of 255 schools considered, tied with University of California-San Diego, and ahead of University of California-Santa Cruz and Colorado State University. For the past 15 years, the college has been among the top 100 education programs and remains at the top for funded research, securing more than \$19 million in contracts and grants in 2019.

Government service (where strategic planning skills are especially pertinent) is a field which is projected to need more and better trained workers in the coming decade. The <u>public</u> <u>administration program</u> at the <u>College of Social Sciences</u> ranked No. 101 out of 275 public administration programs considered. The Master's of Public Administration program is the state of Hawai'i's only NSPPAA-accredited program, offering an 18-month accelerated, two-year full-time and three-year part-time plan.

UH Mānoa has two new programs with particular strengths: addressing the pressing need for more workers in computing-related professions, its BS in Computer Engineering, approved by the Board of Regents for established status, has exceeded program outcomes with 120 majors (as of Fall 2018). The program earned ABET accreditation in 2016.

Addressing the need for highly trained leaders in education in Hawai'i, the EdD in Professional Educational Practice was also approved for established status. The program has exceeded program outcomes with regular cohorts of 25 students (as of summer 2018), and 53 graduates. In 2018, the program received the Program of the Year Award from the Carnegie Project on the Education Doctorate.

UH Hilo highlights on its web site strengths in the following programs—many of which relate to fields that our research identifies as important to the state's future:

- Natural Environment of Hawai'i Island: Marine Science, Geology, Geography and Environmental Science, Biology and Tropical Conservation Biology and Environmental Science.
- Culture and Language of Hawai'i: Programs such as Hawaiian Studies, with Ka Haka 'Ula o Ke'elikōlani
- Leader in Hawaiian and Indigenous Language Revitalization, Anthropology and Heritage Management, and Filipino and Japanese Studies: All focus on the unique cultures and languages that make up Hawai'i.
- Island-wide Workforce Needs: AACSB accredited program producing well trained business administration graduates.
- Social and Educational Needs: Strong programs to train local teachers and Clinical Mental Health Counselors for State of Hawai'i Licensure. Undergraduate programs in Sociology, Psychology and Administration of Justice also contribute to the social and educational needs of Hawai'i Island.

Rural Health Focused Programs: UH Hilo offers programs that focus on the rural health needs of the state including our Bachelor and Doctoral Nursing programs, Kinesiology and Exercise Sciences' Health Promotion track and the College of Pharmacy.

UHWO highlights a new program with special applicability to workforce needs: the Bachelor of Science in Cybersecurity, which builds upon the success of the campus Information Security & Assurance concentration under the Bachelor of Applied Science degree. Unlike UHWO's B.A.S. degree, the B.S. would constitute a federally recognized STEM degree. The proposed Cybersecurity program would meet the needs of local employers at Department of Defense sites, the National Security Agency facility in Kunia, and the FBI regional headquarters in Kalaeloa.

6. Funding and Financial Analysis

Sources and Contribution of UH Funding

For UH total revenues per student, major funding sources in 2019 were State⁷ (55.5%), Federal (19.6%) and tuition (14.1%), together accounting for 90% of all funds. All of the sources of funds and their relative contributions are shown below:

⁷ State sources of funding include a) State operating grants and contracts, b) State appropriations, c) State non-operating grants and d) Capital appropriations.



Changes in the funding mix over time

Over the period 2012-2018, total system funding per UH student FTE has increased from \$37,700 to \$52,000 (+37.9%). Of the significant sources of UH funding, the most prominent

change has been the increase in the share of funding through "State sources," rising from \$17,500 per student (46%) to \$28,800 per student (55%), a 64.6% increase.

Over the same period, funding through Federal sources has increased from \$9,900 to \$10,200, a decrease on a percentage basis from 26% to 20% of total funding. Average tuition increased from \$5,700 to \$7,300, representing a decrease in percentage contribution from 15% to 14% of total funding. Other changes in funding sources are shown in the charts below.



A table showing all the sources of funding is included in the appendix (#9)



A table showing all the sources of funding is included in the appendix (#9)

UH System Funding Mix Compared with "Similar" Public University Systems

There are a reported seventy-seven university systems in the U.S. To develop a meaningful way of evaluating UH's financial profile, three systems were selected for comparison based on:

- Relatively small state population
- A single public university system for the state
- A mix of institution types within the university system

Based on those criteria, the following statewide systems (with their 2018 Fall FTE student enrollment) have been selected for comparison:

- University of Alaska System (UA) 16,073 enrolled
- North Dakota University System (NDUS) 76,609 enrolled

• Nevada System of Higher Education (NSHE) – 36,535 enrolled

For comparison, there were 35,526 students enrolled in the UH system in 2018.

In 2018, the University of Alaska (UA) and University of Hawai'i systems each had about \$52,000 of total funding per FTE student. North Dakota (NDUS) funding was \$31,600 and Nevada (NSHE) was \$25,000. The growth in total funding per FTE student over the 2012-18 period, along with the contributing factor of FTE enrollment was as follows:

- UH +38%, with an enrollment decline of -15%
- NDUS +14%, with an enrollment decline of -6%
- NSHE +28%, with enrollment growth of +29%
- UA +8%, with an enrollment <u>decline</u> of -20%

	UH				ND	NDUS N			NS	I SHE			U		
(\$000)/FTE Enrollment	2018		2012		2018		2012		2018		2012		2018		2012
Tuition	\$ 7.30	\$	5.67	\$	9.01	\$	6.99	\$	5.63	\$	4.82	\$	8.38	\$	6.16
State sources	\$ 28.84	\$	17.53	\$	10.65	\$	9.53	\$	10.06	\$	7.75	\$	26.80	\$	26.30
Federal sources	\$ 10.21	\$	9.87	\$	4.63	\$	5.02	\$	3.84	\$	3.81	\$	8.87	\$	4.32
Investments	\$ 0.26	\$	0.05	\$	0.28	\$	0.09	\$	0.71	\$	0.23	\$	1.19	\$	0.09
Gifts and endowments	\$ 0.24	\$	0.85	\$	1.17	\$	1.20	\$	1.29	\$	0.70	\$	0.79	\$	3.43
Auxiliary sources	\$ 3.89	\$	3.22	\$	5.75	\$	4.83	\$	3.32	\$	2.21	\$	3.68	\$	2.93
Other sources	\$ 1.23	\$	0.55	\$	0.06	\$	0.03	\$	0.13	\$	0.07	\$	2.28	\$	4.82
Grand Total	\$ 51.98	\$	37.74	\$	31.56	\$	27.69	\$	24.98	\$	19.59	\$	51.99	\$	48.06

The changes in funding sources for the institutions over the 2012-2018 period are summarized below:

	UH		ND	US	NS	HE	UAS		
% of Total Funding	2018	2012	2018	2012	2018	2012	2018	2012	
Tuition	14.1%	15.0%	28.5%	25.2%	22.5%	24.6%	16.1%	12.8%	
State sources	55.5%	46.4%	33.8%	34.4%	40.3%	39.6%	51.6%	54.7%	
Federal sources	19.6%	26.1%	14.7%	18.1%	15.4%	19.4%	17.1%	9.0%	
Investments	0.5%	0.1%	0.9%	0.3%	2.8%	1.2%	2.3%	0.2%	
Gifts and	0.5%	2.3%	3.7%	4.4%	5.2%	3.6%	1.5%	7.1%	
endowments									
Auxiliary sources	7.5%	8.5%	18.2%	17.4%	13.3%	11.3%	7.1%	6.1%	
Other sources	2.4%	1.5%	0.2%	0.1%	0.5%	0.4%	4.4%	10.0%	

The contribution of tuition as a percent of total funding has increased at NDUS (+4%) and UA (+3%) while it has fallen at UH (-1%) and NSHE (-2%). Only in the case of NSHE was this drop accompanied with a dramatic increase in FTE student enrollment (+29% since 2012). Of the systems reviewed, UH (at 14.1%) had the lowest percentage of tuition contributing to total funding.



Since 2012, state contribution to total funding has either been relatively flat (NDUS at 34% and NSHE at 40%) or decreased somewhat (for UAS from 55% to 52%) while the State contribution for UH increased from 46% to 55%.



UH has a higher percentage of Federal contribution than the comparison systems although there has been a steep decline in Federal funding and the gap between UH and the comparison systems has been reduced over the 2012-18 period.



UH and UAS lag the other systems in Auxiliary Sources of Funding


UH has a negligible contribution from gifts and endowments. Although this funding has higher year-over-year variance compared to other sources of funding, NDUS and NSHE have experienced significantly higher percentages of funding through gifts and endowments than UH in every year in the 2012-2018 period.



Except for 2016 UH has lagged behind the comparison systems in revenues from investments as a percent of total funding.



Appendices: Tables and Figures

1. Fall 2019 Enrollment Characteristics

	UH System	University of Hawaiʻi at Manoa	University of Hawaiʻi at Hilo	University of Hawaiʻi West Oʻahu	University of Hawaiʻi, Community Colleges
TOTAL	49,977	17,490	3,372	3,049	26,066
EDUCATIONAL LEVEL	10 269	12 542	2 910	2 0 7 2	21.042
Craduate	40,200	12,545	2,010	2,975	21,942
Gruduale	5,413	4,859	554		
GENDER					
Men	19,759	7,242	1,230	1,014	10,273
Women	28,574	9,859	2,109	1,970	14,636
No Data	1.644	389	33	65	1.157
					,
PERMANENT HOME ADDRESS					
Hawai`i	41,819	11,887	2,422	2,975	24,535
O`ahu	30,346	10,373	477	2,687	16,809
Hawai`i	5,275	558	1,742	57	2,918
Kaua`i	2,037	315	65	69	1,588
Maui County	4,160	640	138	162	3,220
Other than Hawai`i	7,855	5,497	940	68	1,350
U.S. Mainland	5,322	4,003	661	52	606
U.S. Military Overseas	36	27	1	1	7
U.S. Related Areas	481	283	147	7	44
Foreign	2,016	1,184	131	8	693
AGE					
Average Age	24.8	24.7	24.4	25.7	24.8
Under 25	32,895	11,631	2,310	1,855	17,099
25-59	16,544	5,747	1,023	1,162	8,612
60 and over	482	109	27	28	318

2. Fall 2019 Enrollment Characteristics (Percentages)

Percentages	UH System	University of Hawaiʻi at Manoa	University of Hawaiʻi at Hilo	University of Hawaiʻi West Oʻahu	University of Hawaiʻi, Community Colleges
EDUCATIONAL LEVEL					
Undergraduate	80.6%	71.7%	83.3%	97.5%	84.2%
Graduate	10.8%	27.8%	16.4%	0.0%	0.0%
GENDER					
Men	39.5%	41.4%	36.5%	33.3%	39.4%
Women	57.2%	56.4%	62.5%	64.6%	56.1%
No Data	3.3%	2.2%	1.0%	2.1%	4.4%
PERMANENT HOME ADDRESS					
Hawai`i	83.7%	68.0%	71.8%	97.6%	94.1%
Other than Hawai`i	15.7%	31.4%	27.9%	2.2%	5.2%
U.S. Mainland	10.6%	22.9%	19.6%	1.7%	2.3%
U.S. Military Overseas	0.1%	0.2%	0.0%	0.0%	0.0%
U.S. Related Areas	1.0%	1.6%	4.4%	0.2%	0.2%
Foreign	4.0%	6.8%	3.9%	0.3%	2.7%
HAWAI'I ADDRESSES BY CTY.					
O`ahu	72.6%	87.3%	19.7%	90.3%	68.5%
Hawai`i	12.6%	4.7%	71.9%	1.9%	11.9%
Kaua`i	4.9%	2.6%	2.7%	2.3%	6.5%
Maui County	9.9%	5.4%	5.7%	5.4%	13.1%

3. Fall 2019 Enrollment – Ethnicity and Status

	UH System	University of Hawaiʻi at Manoa	University of Hawaiʻi at Hilo	University of Hawaiʻi West Oʻahu	University of Hawaiʻi, Community Colleges
TOTAL	49,977	17,490	3,372	3,049	26,066
ATTENDANCE STATUS					
Full-Time Status	26,305	13,197	2,598	1,683	8,827
Part-Time Status	23,672	4,293	774	1,366	17,239

	UH System	University of Hawaiʻi at Manoa	University of Hawaiʻi at Hilo	University of Hawaiʻi West Oʻahu	University of Hawaiʻi, Community Colleges
ETHNICITY	-				
Asian / Pacific Islander	31,565	9,906	1,991	2,151	17,517
Asian	18,545	6,962	720	1,204	9,659
Chinese	2,061	1,211	46	34	770
Filipino	7,149	1,634	242	695	4,578
Asian Indian	138	87	12	5	34
Japanese	3,267	1,427	187	131	1,522
Korean	1,039	555	32	21	431
Laotian	54	9		6	39
Mixed Asian	3,880	1,531	142	285	1,922
Other Asian	275	158	17	8	92
Thai	89	32	6		51
Vietnamese	593	318	36	19	220
Hawaiian or Pacific Islander	13,020	2,944	1,271	947	7,858
Guamanian or Chamorro	106	51	7	8	40
Native Hawaiian or Part-Hawn	11,826	2,547	1,081	891	7,307
Micronesian (not GC)	366	57	115	4	190
Mixed Pacific Islander	160	36	24	3	97
Pacific Islander	102	33	19	4	46
Samoan	385	188	24	36	137
Tongan	75	32	1	1	41
Hispanic	971	317	64	35	555
Caucasian	8,541	4,175	755	319	3,292
African American or Black	762	276	51	61	374
Amer Indian or Alaskan Native	205	67	37	14	87
Mixed Race (2 or more)	7,224	2,659	458	466	3,641
No Data	709	90	16	3	600
HAWAIIAN ANCESTRY					
Total	12,524	2,696	1,111	935	7,782
Undergraduate	10,551	1,963	962	890	6,736
Graduate	858	711	147		
Home-Based at Other UH Campus	1,115	22	2	45	1,046
FIRST GENERATION STUDENTS					
Yes	10,808	3,031	630	776	6,371
No	30,462	10,576	1,668	1,917	16,301
No Response	8,707	3,883	1,074	356	3,394

4. Fall 2019 Enrollment – Ethnicity and Status (Percentages)

Percentages	UH System	University of Hawaiʻi at Manoa	University of Hawaiʻi at Hilo	University of Hawaiʻi West Oʻahu	University of Hawaiʻi, Community Colleges
ATTENDANCE STATUS					
Full-Time Status	52.6%	75.5%	77.0%	55.2%	33.9%
Part-Time Status	47.4%	24.5%	23.0%	44.8%	66.1%
ETHNICITY					
Asian / Pacific Islander	63.2%	56.6%	59.0%	70.5%	67.2%
Asian	37.1%	39.8%	21.4%	39.5%	37.1%
Chinese	4.1%	6.9%	1.4%	1.1%	3.0%
Filipino	14.3%	9.3%	7.2%	22.8%	17.6%
Asian Indian	0.3%	0.5%	0.4%	0.2%	0.1%
Japanese	6.5%	8.2%	5.5%	4.3%	5.8%
Korean	2.1%	3.2%	0.9%	0.7%	1.7%
Laotian	0.1%	0.1%	0.0%	0.2%	0.1%
Mixed Asian	7.8%	8.8%	4.2%	9.3%	7.4%
Other Asian	0.6%	0.9%	0.5%	0.3%	0.4%
Thai	0.2%	0.2%	0.2%	0.0%	0.2%
Vietnamese	1.2%	1.8%	1.1%	0.6%	0.8%
Hawaiian or Pacific Islander	26.1%	16.8%	37.7%	31.1%	30.1%
Guamanian or Chamorro	0.2%	0.3%	0.2%	0.3%	0.2%
Native Hawaiian or Part-Hawn	23.7%	14.6%	32.1%	29.2%	28.0%
Micronesian (not GC)	0.7%	0.3%	3.4%	0.1%	0.7%
Mixed Pacific Islander	0.3%	0.2%	0.7%	0.1%	0.4%
Pacific Islander	0.2%	0.2%	0.6%	0.1%	0.2%
Samoan	0.8%	1.1%	0.7%	1.2%	0.5%
Tongan	0.2%	0.2%	0.0%	0.0%	0.2%
Hispanic	1.9%	1.8%	1.9%	1.1%	2.1%
Caucasian	17.1%	23.9%	22.4%	10.5%	12.6%
African American or Black	1.5%	1.6%	1.5%	2.0%	1.4%
Amer Indian or Alaskan Native	0.4%	0.4%	1.1%	0.5%	0.3%
Mixed Race (2 or more)	14.5%	15.2%	13.6%	15.3%	14.0%
No Data	1.4%	0.5%	0.5%	0.1%	2.3%
HAWAIIAN ANCESTRY					
Total	25.1%	15.4%	32.9%	30.7%	29.9%
Undergraduate	21.1%	11.2%	28.5%	29.2%	25.8%
Graduate	1.7%	4.1%	4.4%	0.0%	0.0%

Percentages	UH System	University of Hawaiʻi at Manoa	University of Hawaiʻi at Hilo	University of Hawaiʻi West Oʻahu	University of Hawaiʻi, Community Colleges
Home-Based at Other UH Campus	2.2%	0.1%	0.1%	1.5%	4.0%
FIRST GENERATION STUDENTS					
Yes	21.6%	17.3%	18.7%	25.5%	24.4%
No	61.0%	60.5%	49.5%	62.9%	62.5%
No Response	17.4%	22.2%	31.9%	11.7%	13.0%

5. Hawai'i Occupation Forecasts Ranked by Size Showing Typical Education Required

The table details Hawai'i job forecasts from the US Department of Labor. The data shows employment for 2016 and projected employment for 2026. Occupations are listed in order by the number employed. The "Rank" column is based on the rate of growth. The complete list is available on DOL's O*Net website.

		2016	2026	
		Employ-	Employ-	%
Rank	Occupation	ment	ment	Change
Doctoral or				
Professional				
Degree				
364	Lawyers	2,690	2,820	5%
371	Pharmacists	1,590	1,680	5%
183	Physicians and surgeons, all other	1,280	1,400	9%
70	Clinical, counseling, and school psychologists	1,100	1,240	13%
23	Physical therapists	960	1,150	20%
38	Dentists, general	680	790	17%
69	Biological science teachers, postsecondary	630	710	13%
158	Education teachers, postsecondary	640	700	9%
72	Family and general practitioners	480	540	13%
211	English language and literature teachers, postsecondary	410	440	8%
228	Postsecondary teachers, all other	400	430	8%
131	Medical scientists, except epidemiologists	340	370	10%
107	Foreign language and literature teachers,	330	370	11%
	postsecondary			
16	Nursing instructors and teachers, postsecondary	290	360	22%
66	Veterinarians	290	340	14%
12	Health specialties teachers, postsecondary	240	290	24%

		2016	2026	
		Employ-	Employ-	%
Rank	Occupation	ment	ment	Change
53	Internists, general	230	260	15%
45	Business teachers, postsecondary	230	260	16%
63	Optometrists	220	250	14%
257	Mathematical science teachers, postsecondary	220	230	7%
Master's Degree				
123	Educational, guidance, school, and vocational counselors	1,680	1,850	10%
171	Instructional coordinators	1,410	1,530	9%
18	Healthcare social workers	1,040	1,260	21%
292	Education administrators, elementary and secondary school	970	1,030	6%
28	Mental health and substance abuse social workers	600	710	19%
113	Speech-language pathologists	630	700	11%
306	Librarians	610	650	6%
114	Urban and regional planners	440	490	11%
3	Nurse practitioners	330	450	37%
48	Health diagnosing and treating practitioners, all other	380	450	16%
102	Art, drama, and music teachers, postsecondary	370	410	11%
5	Physician assistants	270	360	35%
49	Occupational therapists	310	360	16%
209	Education administrators, postsecondary	330	360	8%
65	Rehabilitation counselors	200	230	14%
422	Anthropologists and archeologists	210	210	2%
88	Economists	150	170	12%
36	Computer and information research scientists	130	160	17%
397	Nurse anesthetists	110	110	4%
87	Counselors, all other	100	110	12%
Bachelor's Degree				
78	Registered nurses	11,550	13,090	13%
166	General and operations managers	11,330	12,290	9%
293	Elementary school teachers, except special education	6,680	7,070	6%
195	Accountants and auditors	5,340	5,790	8%
284	Business operations specialists, all other	5,350	5,660	6%
256	Managers, all other	5,240	5,590	7%
321	Secondary school teachers, except special and CTE	3,920	4,150	6%
202	Construction managers	3,030	3,270	8%
177	Management analysts	2,890	3,160	9%
272	Sales managers	2.570	2.750	7%
30	Financial managers	2.250	2.640	18%
241	Civil engineers	2.340	2,490	7%
311	Middle school teachers, except special and CTE	2.090	2.210	6%
149	Child, family, and school social workers	2.000	2.190	9%
382	Computer occupations. all other	1.850	1.920	4%
301	Graduate teaching assistants	1.750	1.860	6%
391	Human resources specialists	1.730	1.810	4%
32	Medical and health services managers	1,500	1,770	18%
	-			

		2016	2026	
		Employ-	Employ-	%
Rank	Occupation	ment	ment	Change
115	Administrative services managers	1,510	1,660	10%
369	Network and computer systems administrators	1,450	1,520	5%
Associate Degree				
317	Preschool teachers, except special education	1,680	1,770	6%
134	Paralegals and legal assistants	1,190	1,320	10%
37	Dental hygienists	920	1,070	17%
366	Life, physical, and social science technicians, all other	750	790	5%
186	Radiologic technologists	680	740	9%
355	Engineering technicians, except drafters, all other	660	690	5%
408	Electrical and electronics engineering technicians	590	610	3%
338	Architectural and civil drafters	580	610	5%
153	Computer network support specialists	470	520	9%
56	Veterinary technologists and technicians	350	400	15%
100	Web developers	340	380	12%
42	Respiratory therapists	320	380	17%
7	Physical therapist assistants	290	380	33%
365	Legal support workers, all other	300	310	5%
421	Air traffic controllers	300	310	2%
294	Environmental science & protection technicians, incl.	270	280	6%
	health			
285	Cardiovascular technologists and technicians	230	240	6%
159	Electrical and electronics drafters	190	210	9%
29	Diagnostic medical sonographers	170	200	18%
33	Radio, cellular, and tower equipment installers and	140	160	18%
	repairers			
Some College - No				
Degree				
328	Teacher assistants	7,370	7,810	6%
121	Computer user support specialists	1,230	1,350	10%
438	Computer, automated teller, and office machine	420	420	1%
Deat Case dama	repairers			
Post-Secondary				
Non-Degree				
Award	.			400/
74	Nursing assistants	5,650	6,360	13%
302	Heavy and tractor-trailer truck drivers	3,930	4,170	6%
8	Medical assistants	3,160	4,030	28%
282	Automotive service technicians and mechanics	3,130	3,310	6%
22	Massage therapists	2,310	2,770	20%
92	Hairdressers, hairstylists, and cosmetologists	1,810	2,020	12%
46	Dental assistants	1,610	1,870	16%
94	Licensed practical and licensed vocational nurses	1,330	1,490	12%
238	Captains, mates, and pilots of water vessels	1,360	1,460	7%
378	Aircraft mechanics and service technicians	1,380	1,440	4%
93	Heating, air conditioning, & refrigeration mechanics & installers	920	1,030	12%

		2016	2026	
		Employ-	Employ-	%
Rank	Occupation	ment	ment	Change
60	Emergency medical technicians and paramedics	850	960	14%
6	Phlebotomists	680	900	33%
109	Medical records and health information technicians	660	730	11%
57	Audio and video equipment technicians	620	710	14%
27	Health technologists and technicians, all other	510	610	19%
95	Manicurists and pedicurists	500	560	12%
298	First-line supervisors of firefighting and prevention workers	470	500	6%
112	Skincare specialists	380	420	11%
383	Electrical & electronics repairers, comm.l & industrial equip.	400	410	4%
HS or Equiv.				
418	Security guards	9,830	10,160	3%
373	Stock clerks and order fillers	8,620	9,080	5%
411	First-line supervisors of retail sales workers	8,140	8,420	3%
176	Maintenance and repair workers, general	7,450	8,110	9%
341	Carpenters	7,730	8,090	5%
345	Customer service representatives	7,700	8,060	5%
388	First-line sups of office and admin. support workers	7,110	7,360	4%
2	Home health aides	4,330	6,230	44%
4	Personal care aides	4,250	5,760	36%
162	First-line supervisors of food preparation and serving workers	5,240	5,730	9%
254	Light truck or delivery services drivers	5,180	5,520	7%
229	Property, real estate, and community assn. mgrs	4,450	4,810	8%
243	Electricians	4,370	4,650	7%
286	Childcare workers	4,020	4,250	6%
320	Sales representatives, wholesale, and manufacturing, except technical and scientific products	3,570	3,790	6%
273	Sales representatives, services, all other	3,480	3,730	7%
318	Receptionists and information clerks	3,520	3,720	6%
189	Reservation and transportation ticket agents and travel clerks	2,810	3,060	9%
213	First-line supervisors of construction trades and extraction workers	2,810	3,050	8%
264	Police and sheriff's patrol officers	2,820	3,010	7%
136	Plumbers, pipefitters, and steamfitters	2,710	2,980	10%
165	Food service managers	2,660	2,890	9%

Source: University of Hawai'i Community College Career Explorer App

1. DBEDT Targeted Industry Analysis

			Avg. Ann. Job	
	Jobs in	Hawaiʻi	201	8
		Change		
Industry Groups	2018(p)	2008-2018	Hawai'i	U.S.
Total Civilian Jobs	876,415	68,093	0.8%	1.0%
Total Targeted Jobs w/o Overlap	163,807	19,269	1.3%	1.4%
Base-Growth Activities				
Cultural Activities	3,514	1,807	7.5%	2.7%
Film, TV Video Prdn./Dist.	2,281	861	4.9%	0.5%
Specialty Health Care Svcs.	13,992	6,687	6.7%	4.6%
Emerging Activities				
Marketing, Photog., & Related	13,294	2,736	2.3%	2.1%
Alt. Power Generation	312	149	6.7%	-3.6%
Specialty Education	6,708	2,507	4.8%	4.5%
Engineering and Rel. Svcs.	6,385	156	0.2%	0.1%
Hospitals & Nursing Facilities	21,537	3,179	1.6%	0.7%
Agric. Support Svcs.	1,621	301	2.1%	1.3%
Agric. Inputs	526	107	2.3%	0.6%
Transitioning Activities				
Design Svcs.	2,225	203	0.1%	0.1%
Agric. Processing	7,244	782	1.1%	1.3%
Music	1,478	322	2.5%	2.7%
Tech. Consulting Svcs.	4,994	1,024	2.3%	2.8%
Business Consulting	5,452	986	2.0%	2.5%
Health Practitioners	22,107	1,484	0.7%	1.9%
Higher Education	5,763	220	0.4%	1.7%
Art Education	896	262	3.5%	0.5%
Medical and Diagnostic Testing	1,763	44	0.3%	2.1%
Performing and Creative Arts	10,019	483	0.5%	2.8%
Computer Svcs. and Software Pub.	5,257	424	0.8%	3.3%
Computer Sys. Design & Related	6,671	122	0.2%	2.8%

Overall Performance of the Targeted Industry Portfolio

Declining Activities				
Pharmacies	3,804	(83)	-0.2%	-0.2%
Farm Production	13,123	(400)	-0.3%	0.3%
Chem. & Pharmaceutical Mfg.	84	(4)	-0.4%	0.0%
Information & Telecom Tech.	5,396	(257)	-0.5%	1.0%
Engineering and R&D	5,298	(320)	-0.6%	0.2%
Fishing/Forestry/Hunting	1,532	(156)	-1.0%	-1.4%
Apparel	988	(115)	-1.1%	-3.0%
Tech. Equipment Distr.	768	(94)	-1.2%	-0.2%
Architecture	2,032	(286)	-1.3%	-0.6%
Radio & TV Broadcasting	1,106	(287)	-2.3%	-0.6%
Other Tech. Mfg.	442	(120)	-2.4%	-0.3%
Call Centers	281	(123)	-3.6%	2.2%
Agric. Packaging and Warehsg.	217	(106)	-3.9%	0.7%
Publishing & Information	1,949	(1,006)	-4.1%	-1.4%
R&D Svcs. (ex. Biotech)	1,205	(706)	-4.5%	0.3%
Biotechnology	398	(309)	-5.6%	2.7%

Source: <u>https://files.hawaii.gov/dbedt/economic/data_reports/emerging-</u> industries/Hawaii_Targeted_Emerging_Industries_2018_Update_Report.pdf

Hawai'i Department of Labor and Industrial Relations "Hot Jobs" 2019

Fast Growth + Job Openings + High Wage

	Total Annual	Growth		Median
Educational Level	Openings	Rate	Employment	Annual Wage
Associate Degree				
Paralegals/Legal Assts.	130	1.1%	1,200	\$50,170
Dental Hygienists	70	1.3%	960	\$76,670
Medical and Clinical Lab Techs.	60	1.2%	750	\$46,790
Physical Therapist Assts.	40	2.7%	300	\$58,140
Radiologic Techs.	40	1.1%	680	\$76,390
Computer Network Support Spec.	40	1.2%	470	\$60,510
Respiratory Therapists	20	2.1%	320	\$71,640

Bachelor's Degree				
Gen. & Operations Mgt.	1,050	1.1%	11,390	\$99,510
Substitute Teachers	770	1.2%	6,390	\$47,150
Registered Nurses	760	1.4%	11,540	\$105,300
Elem. School (ex. Sp. Ed.)	550	0.9%	6,910	\$61,180
Accountants/Auditors	530	1.0%	5,390	\$61,290
Secondary School Teachers (Ex. Sp. Ed. & CTE)	320	1.0%	4,050	\$60,160
Management Analysts	280	1.1%	2,910	\$78,980
Sales Managers	250	1.0%	2,600	\$83,200
Child, Family, and School Soc. Workers	220	1.1%	2,010	\$55,820
Construction Managers	220	0.8%	2,860	\$100,010
Financial Managers	210	2.0%	2,250	\$107,980
Middle School Teachers (ex. Sp. & CTE)	180	1.0%	2,160	\$60,620
Master's degree				
Ed., Guidance, School, & Vocational Couns.	200	1.2%	1,730	\$58,970
Instructional Coord.	150	1.1%	1,450	\$64,230
Healthcare Soc. Workers	120	1.8%	1,060	\$64,710
Ed. Administrators, Elem. & Second.	80	1.0%	1,000	\$95,360
Mental Health & Subs. Abuse Social Workers	70	1.7%	610	\$54,110
Librarians	60	1.0%	620	\$70,060
Doctoral or Professional Degrees				
Clinical, Counseling & School Psychol.	90	1.3%	1,140	\$78,440
Biological Sci. Teachers, Postsec.	60	1.7%	650	\$82,640
Physical Therapists	60	2.0%	970	\$89,500
Ed. Teachers, Postsecondary	60	1.2%	660	\$78,030
Eng. Lang. & Lit. Teachers, Postsec.	40	1.2%	420	\$62,510
Nursing Instr. & Teachers, Postsec.	30	2.6%	300	\$77,580
Dentists, General	30	1.4%	710	\$166,530

Source: Hawai'i Department of Labor & Industrial Relations, Research and Statistics Office

8. Detail of Program/Major Alignment with Occupation Openings

Occupation Title	Annual Openings	UH Mānoa	UH Hilo	UH- WO	Total 4 Year	+/- Open- ings	Ratio
Bachelor's Degrees							
Business							
General and Operations Managers	882						
Business Ops. Specialists, All Other	488						
Managers (all others)	373						
Management Analysts	309						
Human Resource Specialists	282						
Logisticians	236						
Buyers and Purchasing Agents	165						
Compliance Officers	150						
Administrative Services Managers	126						
Human Resources Managers	104						
Loan Officers	93						
Personal Financial Advisors	70						
Financial Specialists, All Other	69						
Labor Relations Specialists	58						
Purchasing Managers	34						
Mgt & Industrial Rel		170					
Entrepreneurship		23					
Business & Economics			71				
Business Administration				235			
Total						(
	3,439	193	71	235	499	(2,940)	14.5%
Sales/Marketing/PR							
Market Research Analysts and Marketing Specialists	208						
Sales Managers	171						
Public Relations Specialists	1/1						
Sales Representatives,	144						
Wholesale/Mfg, Technical & Scientific Products	113						
Securities, Commodities, and Financial Services Sales Agents	77						
Marketing Managers	63						

Public Relations and Fundraising	42						
Fundraisers	43						
Marketing	42	445		46			
Total		116		46			
Total	861	116	0	46	162	(699)	18.8%
				10		(000)	2010/0
Health							
Registered Nurses							
	799						
Medical and Health Services Managers							
	184						
Health Educators	43						
Occup. Health and Safety Specialists							
	31						
Professional Nursing		122					
Nursing			65				
Health Care Administration				64			
Total							
	1,057	122	65	64	251	(806)	23.7%
Education							
Teachers and Instructors, All Other	765						
Elementary School Teachers, Except							
Special Education	424						
Secondary School Teachers, Except							
Special and Career/Technical	204						
Special Education Teachers	284						
Kindergarten and Elementary School	110						
Career/Technical Education Teachers,							
Secondary School	86						
Substitute Teachers	305						
Middle School Teachers, Except							
Special and Career/Technical	100						
Education	139						
Fundergarten Teachers, Except Special	56						
Education, Training, and Library	50						
Workers, All Other	46						
Training and Development Managers	45						
Adult Basic and Secondary Education							
and Literacy Teachers and Instructors	44						
Elementary Education		84					
Secondary Education		68					
Special Education		30					
•	1	50					

Total	2,304	182	0	0	182	(2,122)	7.9%
Accountants and Auditors							
Accountants and Auditors	500						
Cost Estimators	102						
Financial Analysts	59						
Insurance Underwriters	34						
Budget Analysts	27						
Accounting		98		71			
Finance		136		17			
Management Information Systems		57					
Total			_			()	
	722	291	0	88	379	(343)	52.5%
Engineers							
Civil Engineers	190						
Construction Managers	103						
Engineers, All Other	60						
Electrical Engineers	59						
Mechanical Engineers	54						
Electronics Engineers, Except							
Computer	37						
Civil Engineering		84					
Electrical Engineering		61					
Mechanical Engineering		115					
Total	587	260			260	(327)	44.3%
Information Technology							
Computer Occupations, All Other	150						
Computer Systems Analysts	117						
Network and Computer Systems							
Administrators	88						
Software Developers, Applications	83						
Software	70						
Computer Programmers	40						
Computer Network Architects	28						
Information Security Analysts	28						
Database Administrators	27						
Computer Science		61	11				

Information & Computer							
Science Comp Electronics & Network		21					
Tech				10			
Information Security Assurance				34			
Information Technology				11			
Total							
	631	82	11	55	148	(483)	23.5%
Creative Industries							
Graphic Designers	76						
Producers and Directors	75						
Writers and Authors	56						
Editors	51						
Art Directors	37						
Music Directors and Composers	30						
Fine Artists, Including Painters,	27						
Sculptors, and illustrators	27	50	10				
Communication		110	12				
Communication		119	60	0			
Creative Media		39		9			
Theater & Dance		30					
Music		15					
Total		0					
	352	273	72	9	354	2	100.6%
Airline Pilots, Copilots, and Flight			_				
Airling Bilots Conjusts and Elight		0	0	0			
Engineers	238	0	0	0	-	(238)	0.0%
5		-	-	-		()	
Architects							
Architects. Except Landscape and							
Naval	65						
Architectural and Engineering							
Managers School of Architecture	61						
School of Architecture		27					
Total	126	27	0	0	27	(99)	21.4%
			5	3	_,	()	
Interpreters and Translators							
Interpreters and Translators	<u>л</u> т						
Chinese	47	16					
Japanese		42					
		72					

UNIVERSITY OF HAWAI'I SYSTEM - THE THIRD DECADE

Korean		23					
French		12					
German		5					
Russian		3					
Spanish		6					
Japanese Studies			8				
Total			_	_			
	47	107	8	0	115	68	244.7%
Travel Industry							
Meeting, Convention, and Event							
Planners	96						
Travel Industry Management		95		15			
Total	00	05	0	45	110	1.4	114 CO/
	96	95	0	15	110	14	114.6%
Social Services							
Child Family and School social							
Workers	169						
Community and social Service							
Specialists, All Other	95						
Managers	67						
Subs. Abuse, Behav. Disorder, &							
Mental Health Couns.	39						
All Other	39						
Social Workers, All Other	33						
School of Social Work		79					
General Public Administration				15			
Total							
	273	79	0	15	94	(179)	34.4%
Environment							
Environmental Scientists and	72						
Specialists. Including Health	12						
Biological Technicians	63						
Biological Scientists, All Other	31						
Natural Res & Environmental Mot		31					
Molecular Biosci & Bioeng		13					
Nat Res & Env Mgt		31					
Biology Program		175	38				
Botany Program		9					

Chemistry		42					
Microbiology		40					
Ocean & Earth Sci & Tech		17					
Geology			10				
Marine Science			34				
Natural Science			2				
Total							
	166	358	84	0	442	276	266.3%
	Annual Openings	UH Mānoa	UH Hilo	Total UH	+/- Open- ings	Ratio	
Master's Degrees							
Educational, Guidance, School, and Vocational Counselors	163						
College of Education							
		186					
Iotai	163	186	0	186	23	114.1%	
Social Services							
Healthcare social Workers	97						
Mental Health and Substance Abuse							
social Workers	39						
Counselors, All Other	25						
Rehabilitation Counselors	24						
Total School of Social Work	185	105	0	105	(80)	56.8%	
Education							
Education							
Education Administrators, Elementary and Secondary School	84						
Instructional Coordinators	81						
Librarians	47						
Education Administrators, Postsecondary	33						
Education		196	0				
Total	245	100	0	100	(EO)	75.0%	
lotal	243	100	U	100	(59)	13.970	
Health							
Speech-Language Pathologists	45						
Nurse Practitioners	44						
Physician Assistants	32						

Occupational Therapists	31						
Psychologists, All Other	25						
Health Diagnosing and Treating Practitioners, All Other	12						
Nurse Anesthetists	8						
Orthotists and Prosthetists	6						
Epidemiologists	5						
Nurse Midwives	1						
Nursing		178					
School of Medicine		22					
Total	209	200	0	200	(9)	95.7%	
Urban Planning							
Of Dall Flamming							
Urban and Regional Planners	45						
Urban & Reg Planning		22	0				
Total	45	22	0	22	(23)	48.9%	
Anthropologists and Archaeologists							
Anthropologists and Archaeologists	16						
Curators	10						
Anthropology	10	7	0				
Total		,	0				
	26	7	0	7	(19)	26.9%	
Business							
Statisticians	15						
Survey Researchers	13						
Economists	12						
Computer and Information Research Scientists	12						
Economics		10					
Business Administration		124					
Total	52	134	0	124	72	238.5%	

9. Graduation and Transfer Rate Trends by Campus

First time, full time student cohorts

	UH M	lānoa	UH	Hilo	UH	WO	
Academic	Grad	Grad	Grad	Grad	Grad	Grad	
Year	in 4 yrs	in 6 yrs	in 4 yrs	in 6 yrs	in 4 yrs	in 6 yrs	
Cohort	(%)	(%)	(%)	(%)	(%)	(%)	
Fall 2005	18.40%	54.90%	12.20%	36.80%			
Fall 2006	17.40%	55.60%	10.70%	39.00%			
Fall 2007	18.60%	56.50%	8.20%	36.40%	6.30%	25.00%	
Fall 2008	19.80%	56.20%	11.40%	38.40%	8.00%	40.00%	
Fall 2009	21.20%	57.10%	11.70%	38.80%	9.80%	29.30%	
Fall 2010	24.70%	58.10%	10.90%	34.90%		13.80%	
Fall 2011	27.90%	59.90%	13.60%	41.00%	16.70%	38.90%	
Fall 2012	32.20%	58.70%	18.70%	41.20%	9.90%	31.70%	
Fall 2013	34.10%	60.50%	20.90%	44.10%	8.90%	27.60%	
Fall 2014	35.20%		15.00%		15.80%		
Fall 2015	36.60%		27.20%		13.40%		

	Нам	vai'i CC	Hond	olulu CC	Kapiʻ	olani CC	Και	ıa'i CC	Leev	vard CC	Maui	Maui College		Windward CC	
Fall		Transfer		Transfer											
	Grad	to ANY 4	Grad	to ANY 4											
	Rate	yr. Rate	Rate	yr. Rate											
2005	28.1%	7.5%	19.4%	6.5%	22.2%	16.1%	22.0%	6.3%	18.1%	11.0%	17.6%	8.2%	13.6%	13.2%	
2006	30.3%	6.0%	19.8%	5.1%	22.9%	16.6%	17.7%	9.1%	16.7%	10.2%	20.8%	11.1%	12.6%	13.0%	
2007	26.1%	4.8%	15.1%	5.7%	25.4%	14.2%	29.2%	8.8%	19.1%	10.8%	18.9%	11.1%	13.0%	13.0%	
2008	27.9%	4.5%	19.8%	4.8%	25.4%	13.8%	23.7%	9.6%	21.7%	9.8%	18.0%	9.5%	15.2%	11.1%	
2009	24.4%	6.3%	19.5%	7.2%	19.8%	16.8%	22.9%	7.2%	18.0%	11.3%	16.2%	7.0%	12.8%	12.8%	
2010	28.5%	6.3%	19.3%	7.0%	26.2%	10.4%	19.8%	6.4%	22.4%	9.4%	23.3%	6.4%	21.2%	7.1%	
2011	28.7%	6.2%	23.3%	5.5%	32.5%	9.3%	24.2%	7.6%	23.6%	8.9%	24.6%	6.6%	19.8%	9.1%	
2012	28.4%	3.9%	28.3%	5.1%	28.6%	6.8%	29.4%	4.9%	24.6%	5.3%	23.0%	6.5%	23.2%	6.5%	
2013	26.3%	2.9%	24.6%	5.3%	29.1%	6.2%	22.3%	6.0%	23.6%	6.0%	25.3%	4.9%	21.9%	6.4%	
2014	29.4%	3.9%	23.6%	3.6%	31.2%	4.9%	22.2%	8.9%	27.7%	7.0%	34.3%	5.2%	20.3%	4.4%	
2015	34.0%	4.2%	22.8%	5.1%	31.9%	6.7%	34.5%	6.4%	27.4%	6.6%	37.9%	5.2%	31.1%	5.5%	

10. Community College Graduation and Transfer Rates

11. Continuing Education Enrollment Trends



Source: University of Hawai'i IRO, Continuing Education Enrollment Table 2

Counts for Mānoa were not reported in Spring 2015, Fall 2015, Summer 2015, and AY 2016-17. Counts are registration counts and may include multiple counting of individuals. In Summer 2018, College of Continuing Education and Community Service (CCECS) was CCE) reorganized into The Center for Community Engagement (CCE) with significantly reduced staff, which greatly reduced course offerings.

12. University of Hawai'i Guiding Principles for Distance and Online Learning (EP5-204)

The fundamental policy principles for University of Hawai'i distance and online learning are:

A. Everyone's Responsibility: Distance and online learning and support are an integral part of the University's mission and a responsibility of every campus and support unit throughout the UH System. In addition, every unit on every campus needs to embrace their responsibilities to fully support and embrace distance and online learning and distance learners alongside

classroom-based instruction and campus-based learners. This includes not only instructional delivery but also academic support, student support, and administrative and other support services.

B. Quality: Distance and online learning is first and foremost an academic endeavor. The quality and standards of distance and online instruction, whether involving synchronous or asynchronous interaction, must be comparable to those for traditional instructional programs activities with at least comparable assessment practices. Regardless of any collaborative arrangements, the responsibility for quality assurance resides firmly with the campus conferring the credit and/or credential.

C. All UH Students are "Our" Students: UH campuses and education centers support all UH distance learning students as their own, including those matriculating at other campuses. If a distance learning program is a joint effort among campuses, it is the responsibility of the supporting sites to provide for the legitimate needs of the students physically on their campus, notwithstanding the fact that the degree or certificate the student is pursuing will be conferred by a sister campus.

D. Collaboration: Distance learning within the UH System is a collaborative enterprise across all aspects of the academic environment including program planning, curriculum development and delivery, student services and other support services (such as testing centers). If needed, memoranda of agreement detail the responsibilities of originating and supporting sites including addressing specific cases in which financial support may be required from originating campuses. Collaboration with external providers may be considered when internal resources are not available to respond to demonstrated in-state needs.

E. Accreditation: For distance learning programs within Hawai'i campuses and support units must work together to ensure that accreditation standards are met. The responsibility for meeting accreditation standards for distance and online learning programs rests firmly with the campus bestowing the degree or certificate. Responsibility for supporting in-state distance learning students may be shared among an originating campus and other supporting sites, i.e., campuses and education centers where student may participate in synchronous interactive sessions and/or receive assistance and support.

F. Tuition and Fees: In accord with BOR Policy [5-10(d)], distance learning credit instruction is offered in Hawai'i at a cost to residents similar to that of regular on-campus instruction. Special provisions of BOR Policy [6-2(g)] enable special tuition rates for distance learning programs delivered entirely by telecommunications outside the State or to specific populations, generally on an entrepreneurial or externally supported basis.

Students in distance and online programs need to be recognized as members of the student body of the offering campus including having access to co-curricular and fee-based services. However, distance learning students who have no opportunity to benefit from certain on-campus fees may have those fees waived or may be charged substitute fees that support unique requirements of distant learners (BOR Policy 6-3.b.2.ii). The new Executive Policy <u>EP 6.208</u>, recognizes the fee considerations for distance and online students.

G. Broad Technology Applicability: When deploying technologies to support distance learning, the University strives to select and invest in technologies that have broad applicability to support campus-based learners and to general collaboration within academic communities as well.

H. Accessibility: In accord with applicable statutes and regulations, reasonable accommodations will be made to facilitate access to UH distance learning programs and services by all qualified students with disabilities. Although distance learning often breaks down traditional barriers of time and space, technological advances may also place new and unforeseen demands on educational services and support. Originating and supporting sites, along with their respective disability service programs, will cooperate to provide appropriate auxiliary aids and services to those with documented disabilities.

I. Copyright: The University is committed to full compliance with copyright laws in its adoption and utilization of software and content for distance and online learning.

Sources of funding trends for UH System

	2012	2013	2014	2015	2016	2017	2018
Auxiliary sources	\$ 3.22	\$ 3.33	\$ 3.20	\$ 3.45	\$ 3.81	\$ 3.85	\$ 3.89
Federal sources	\$ 9.87	\$ 10.08	\$ 10.50	\$ 9.99	\$ 10.28	\$ 9.69	\$ 10.21
Gifts and endowments	\$ 0.85	\$ 0.56	\$ 0.62	\$ 0.34	\$ 0.26	\$ 0.51	\$ 0.24
Investments	\$ 0.05	\$ 0.18	\$ 0.24	\$ 0.06	\$ 0.08	\$ 0.26	\$ 0.26
Other sources	\$ 0.55	\$ 0.52	\$ 0.79	\$ 0.48	\$ 3.60	\$ 1.46	\$ 1.23
State sources	\$ 17.53	\$ 17.59	\$ 19.05	\$ 21.11	\$ 20.53	\$ 25.76	\$ 28.84
Tuition	\$ 5.67	\$ 5.88	\$ 6.20	\$ 6.72	\$ 7.32	\$ 7.47	\$ 7.30
Grand Total	\$ 37.74	\$ 38.15	\$ 40.60	\$ 42.16	\$ 45.88	\$ 49.01	\$ 51.98

(\$000/Student FTE)

ⁱ Board of Regents Policy, RP 4-201

ⁱⁱ <u>https://dbedt.hawaii.gov/economic/economic-forecast/2045-long-range-forecast/</u>

iii Hawai'i State Data Book 2018 Table 1.44

^{iv} Hawai'i Migration Flows 2013-2017, Hawai'i DBEDT

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