

## **USHE Space Utilization** *Classrooms and Laboratories*

The Commissioner's Office has partnered with the USHE institutions to complete an initial space utilization study focused on the use of classrooms and teaching laboratories in an effort to address and inform the Board regarding effective use of facility resources and policy development for capital facilities. This issue brief highlights the findings of that study and is intended to be a starting point for continued dialogue and information gathering related to institutional space utilization.

Space utilization reported in this brief refers to credit-bearing courses taught in classrooms and laboratories—the quantifiable portion of the total actual utilization occurring on USHE institutional campuses. It should be noted that we recognize instruction also occurs in locations outside of classrooms and labs and that many other activities besides instruction occurs in classrooms and laboratories. As the Board of Regents and institutions focus on facility use, there is optimism that the quantifiable utilization will improve as well as the ability to capture the usage that is currently difficult to quantify.

This brief is divided into five sections. The first details the types of space found in USHE institutions as reported in the annual space inventory portion of the data book. The second describes the standard utilization metrics for classrooms and teaching laboratories used by higher education institutions. The third examines space utilization standards and guidelines used by USHE, other state systems of higher education, and other institutions. The fourth presents current utilization information submitted by USHE institutions and the final section provides recommendations for action and policy for the Board's consideration. Four appendices are also included for more information on USHE space inventory and space utilization.

### **USHE Space Inventory**

Utah statute grants the Board of Regents title and control over institutional facilities and property (U.C.A. 53B-21). Each year the Board of Regents reviews existing facility inventories and prioritizes additional institutional capital requests based, in part, on a space inventory submitted by each institution. The space inventory contains a detailed listing of room assignments within institutional facilities and documents the square footage of owned and leased property.

The most recent USHE Space Inventory for 2017-18 records the assignment of over 33.8 million square feet of institutional space (see Appendix A). Of that space, 9.5 million square feet is considered non-assignable—and consists of hallways, restrooms, elevators, mechanical, and structural areas of a facility. An additional 6.7 million square feet is occupied by auxiliary enterprises (bookstores, housing, food services, etc.) as well as a proration of space that directly support athletics and student recreation. Also included in the space inventory is 1.5 million square feet of hospitals and clinics (primarily at the University of Utah) and 4.3 million square feet of institutional unique space like medical school, farms,

and airport hangers. The remainder of the space is approximately 11.7 million square feet of instructional, study, research, and office space referred to in the inventory as “Needs Analysis” space.

While classrooms and teaching laboratories only account for a limited portion of all institutional space (five percent and seven percent respectively), classrooms and labs account for close to one-third of Needs Analysis space used for capital facilities request purposes. Removing auxiliary, hospital, and institutional-unique space from the inventory results in classrooms accounting for 13 percent and labs accounting for 19 percent of the remaining space. Table 1 shows the percentages of Needs Analysis space by USHE institution for the 2017-18 space inventory. The proportion of classrooms and teaching laboratory space varies by institution mission and can be demonstrated with community colleges and regional universities typically having more proportionate classrooms and laboratory space than research universities.

2017-18 Space Inventory Institution	Classroom 100	Lab 200	Research 250	Office 300	Study 400	Special Use 500	General Use 600	Support 700	Net Assignable Subtotal
University of Utah	9%	11%	18%	34%	9%	4%	5%	7%	100%
Utah State University	13%	17%	14%	26%	8%	5%	4%	11%	100%
Weber State University	16%	24%	2%	26%	11%	6%	9%	6%	100%
Southern Utah University	14%	28%	0%	26%	12%	5%	5%	9%	100%
Snow College	13%	30%	0%	16%	6%	20%	12%	4%	100%
Dixie State University	18%	16%	0%	25%	11%	9%	15%	5%	100%
Utah Valley State College	14%	26%	0%	26%	7%	7%	2%	16%	100%
Salt Lake Community College	17%	31%	0%	21%	4%	10%	6%	10%	100%
<b>All USE Institutions</b>	<b>13%</b>	<b>19%</b>	<b>9%</b>	<b>28%</b>	<b>8%</b>	<b>6%</b>	<b>6%</b>	<b>9%</b>	<b>100%</b>

Table 1

## Utilization Metrics

Even though many diverse non-instructional activities occur on campus and instruction happens in other space, including virtual space, higher education institutions typically measure space utilization in terms of credit-bearing courses held in classrooms and laboratories. Classrooms and teaching laboratories represent the primary space where institutions serve students as they work towards completing their educational goals. For the study presented in this issue brief, space utilization is defined as the use of classroom and laboratory space associated with credit-bearing courses.

Despite the focus on credit-bearing courses for this study, institutions utilize classrooms and laboratories for non-credit bearing courses and community engagement each semester. More specifically, classrooms often accommodate a broad number of higher education activities including institution and community events and spontaneous student study. These types of activities are not tracked in the same way as credit-bearing courses and are therefore difficult to measure from a system perspective at this time. To the extent that USHE institutions are able to capture non-credit activities occurring in classrooms and laboratories, utilization metrics will improve over time.

Though most on campus credit-bearing courses are taught in space designated as classrooms and teaching laboratories, a significant amount of instruction occurs in other space such as libraries, special use space, and conference rooms. USHE institutions differ in course offerings and space assignment, but some have as much as 30 percent of credit-bearing instruction taught outside of classroom and laboratory space. This is in addition to any instruction that happens online or in virtual classrooms.

Higher education space utilization typically measures two separate factors of classroom and laboratory space usage: the number of hours a room is used and how many people occupy the rooms when in use. The standard metrics for these factors are:

- Room Utilization Rate (RUR) – how many hours a room is scheduled for use
- Station Occupancy Rate (SOR) – the percent of stations/seats that are occupied when compared to the total capacity

For this study, room utilization rates and station occupancy rates were measured by term and major campus location. The information in this brief highlights Fall 2016 and Spring 2017 utilization measures. While Summer 2016 information was also provided, several institutions interpreted the data request differently and reported information inconsistently; therefore Summer 2016 utilization rates are omitted from the charts below (but, have been included in Appendix C for reference). It is recommended that summer term data (in addition to spring and fall terms) be included in future reports on space utilization.

Institutions reported utilization information by campus including the main campus and branch campuses. The Infrastructure and General Government Appropriations Subcommittee of the State Legislature recently requested the Division of Facilities, Construction, and Management in coordination with the State Building Board to study facility utilization in state facilities. The Office of the Commissioner will work with those entities to share utilization data and recommends that future reporting include building-level detail in order to accommodate the legislative request. To provide that information, institutions would report RUR and SOR measures on at a building-specific level.

## Space Utilization Standards

The current Capital Development Prioritization (CDP) process of the Board of Regents assesses need for classroom and teaching laboratory space based on a space utilization guideline that was adopted several years ago (2010) by the Board of Regents and the State Building Board. The CDP assumes that classrooms and labs will be operated according to these criteria:

- Classroom RUR: 75% scheduling of all classrooms during a 45-hour week—33.75 hours per week
- Classroom SOR: 66.7% seat occupancy
- Laboratory RUR: 50% scheduling of all laboratories during a 45-hour week—22.5 hours per week
- Laboratory SOR: 80% station occupancy

While the Board of Regents have not adopted specific space utilization standards, the guidelines included in the CDP are provided as a starting point for discussion. As a comparison, Table 2 below shows the utilization standards used by other State Systems and institutions. The California state system has the highest standard for classroom utilization at 52.5 hours, whereas the average of the remaining entities is closer to 33 hours. Most state systems and institutions shown in Table 2 have a similar

classroom and laboratory occupancy rate as the USHE guideline, while the average laboratory utilization rate is slightly higher than the USHE guideline.

Institution/Entity	Year	Institutional Standards			
		Classroom Utilization	Classroom Occupancy	Laboratory Utilization	Laboratory Occupancy
<i>Utah System Higher Education</i>	<i>2010</i>	<i>33.75</i>	<i>66.7%</i>	<i>22.5</i>	<i>80%</i>
Arizona System of Higher Education	1997	30	60%	N/A	N/A
Cal State System (California Legislature)	2015	52.5	66%	27.5	85%
Colorado Higher Education	2015	30	67%	30	80%
Florida Department Education	2014	40	60%	30	80%
Kentucky Council Post-Secondary Ed.	2016	36	67%	23	80%
North Carolina Higher Education	2000	35	65%	20	75%
South Carolina Commission Higher Ed.	2011	30	60%	N/A	N/A
Washington System of Higher Education	1994	30	60%	20	80%
HEWV Architects Professional Expectation	2015	35	70%	24	80%
HEWV Architects Professional Expectation	2016	33	67%	22	75%
University of Washington	2014	27	67%	N/A	N/A
Rice University	2015-16	31.5	60%	N/A	N/A
UNC - Chapel Hill	2004	35	65%	N/A	N/A
<b>Average</b>		<b>34.2</b>	<b>64%</b>	<b>24.3</b>	<b>79%</b>

Table 2

With the exception California, the space utilization standards from the entities and institutions shown in Table 2 are based on an operational expectation of approximately 45 hours a week. Like Utah, the hours of operation of these systems and institutions are much broader than a normal 8 a.m. to 5 p.m. business model. While institutions operate beyond a nine-hour, five-day work week, they are also limited by finite operating capacity due to student demand and faculty supply. Hours of operation in the context of utilization standards may be worthy of future discussion.

### USHE Initial Utilization Data

The following charts depict the Room Utilization Rates for USHE institutions for Fall 2016 and Spring 2017 and include the guidelines adopted from the USHE CDP process.

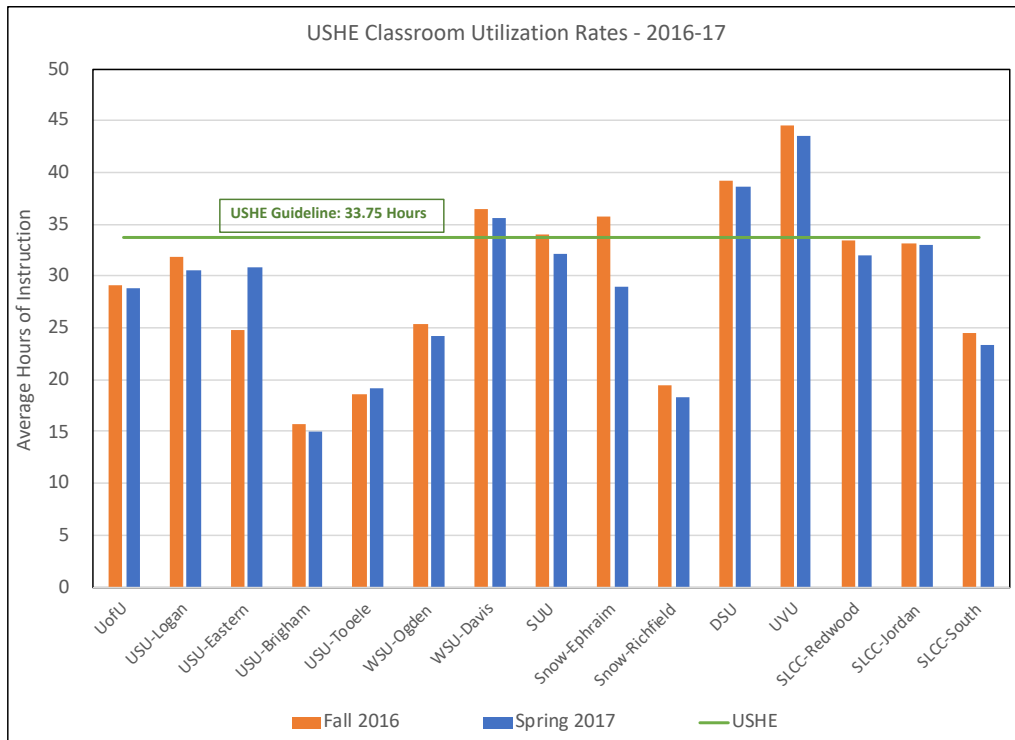


Chart 1

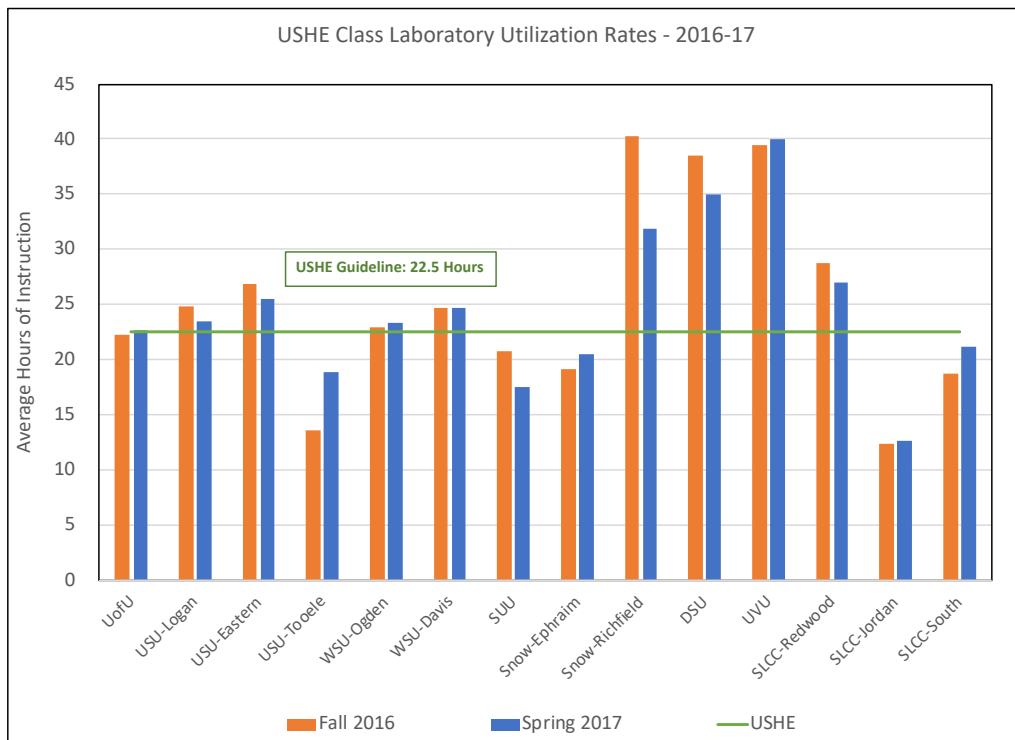


Chart 2

The following charts depict the Station Occupancy Rates for USHE institutions for Fall 2016 and Spring 2017 and include the guidelines adopted from the USHE CDP process.

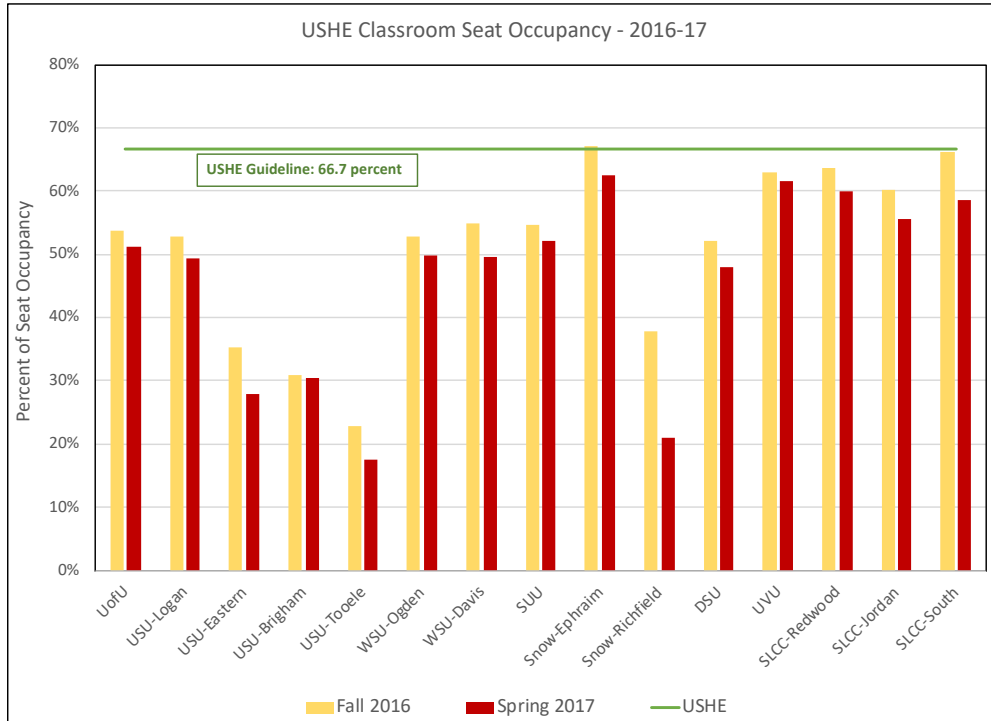


Chart 3

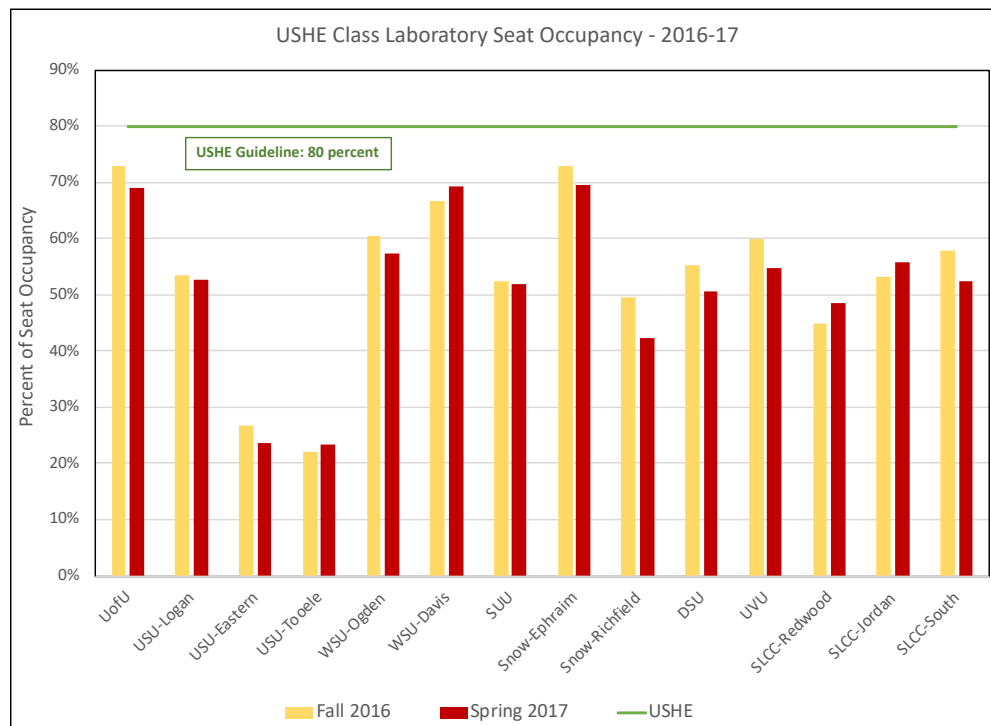


Chart 4

## Recommendations

After completing this study, the Commissioner's Office has identified the following recommendations for the Board's consideration, each of which is described in more detail below.

- Establish a formal policy and annual reporting requirement regarding space utilization
- Adopt the utilization metrics and benchmarks for institutions to report
- Direct all institutions to centrally control and schedule classroom and teaching laboratory spaces.

### *Space Utilization Policy and Reporting*

While the Board of Regents encourages the efficient and effective use of institutional facilities, the Board does not currently have a policy on space utilization that governs USHE institutions. As a result, several institutions had difficulty collecting, compiling, and presenting utilization information. The Commissioner's Office recommends the Board of Regents adopt a space utilization policy that includes a requirement for an annual space utilization report and data submissions by the institutions. Establishing a formal policy and an annual reporting requirement will incent better data collection and reporting by the USHE institutions.

### *Adoption of Metrics and Benchmarks*

As classrooms and teaching labs are the most common space measured for utilization, the Commissioner's Office recommends that institutions continue to report on these two types of space. Finding that room utilization rates and seat occupancy rates are the most commonly reported measures of utilization among institutions of higher education, the Commissioner's Office also recommends continuing to report utilization by SOR and RUR. The Commissioner's Office further recommends that the annual utilization report and data submission include information on all three terms including summer term, information on branch campuses as well as main campuses, and information by building.

As part of the space utilization policy adopted by the Board of Regents, the Commissioner's Office recommends adopting the following as standards for USHE classroom and laboratory utilization:

- Classroom RUR: 75% scheduling of all classrooms during a 45-hour week—33.75 hours per week (or 48% scheduling of all classrooms during a 70-hour week -33.75 hours per week – based on hours of operation)
- Classroom SOR: 66.7% seat occupancy
- Laboratory RUR: 55% scheduling of all laboratories during a 45-hour week—24.75 hours per week (or 35% scheduling of all laboratories during a 70-hour week – 24.75 hours per week – based on hours of operation)
- Laboratory SOR: 80% station occupancy

### *Central Scheduling Policy*

Part of the challenge institutions face in reporting utilization information is the varying degree of control institutional central scheduling offices have over classroom and lab scheduling. The Commissioner's Office recommends establishing a USHE policy that all general classroom and teaching laboratory space be centrally scheduled. Departments and colleges could still be given priority in scheduling space in buildings where they reside but should not have proprietary use of the facilities.

### Appendix A: USHE 2017-18 Space Inventory

2017-18 Space Inventory Space Categories	Net Assignable Square Feet											Net Assignable Subtotal	Non Assignable Structural Square Feet	Gross Square Feet Total
	Classroom 100	Lab 200	Research 250	Office 300	Study 400	Special Use 500	General Use 600	Support 700	Health Care 800	Residential 900	Unclassified 000			
Needs Analysis	1,510,804	2,271,154	1,056,770	3,236,079	972,578	742,718	684,902	1,092,120	32,014	13,015	85,236	11,697,391		
Auxiliary	27,155	30,743	9,535	437,276	29,301	1,162,829	1,340,453	457,170	3,572	3,206,329	21,946	6,726,308		
Hospital/Clinic	6,985	3,340	4,574	426,444	1,575	17,143	41,732	85,571	916,965	21,497	14,645	1,540,471		
Institutional Unique														
School of Medicine	50,676	25,952	462,455	611,364	8,142	20,972	21,612	50,025	209,815	232	10,806	1,472,051		
Public Broadcast Facilities		5,556		41,414		31,918	3,268	7,545				89,701		
Museums/Galleries/Arboretums	2,314	4,553	521	32,835		8,884	260,769	14,537	106	9,540	1,346	335,405		
Extension/Ag. Experiment Stations			1,491	49,593	355	4,709	6,966	14,052		1,876		79,042		
Farm	4,078	631	19,161	5,532	993	329,642	20,202	4,198	3,690	12,341		400,468		
Greenhouses				1,161		92,270						93,431		
Shared w/ other USHE Institutions	9,687	2,972		4,598		161	939	808	513			19,677		
Hosting/Conference Centers	900	3,443		24,352		3,166	133,377	1,118		27,849	19,118	213,323		
Public Service Theaters		159		23,370			184,607	29,794		4,790	2,490	245,210		
Special Research/Instruction Centers	12,468	23,144	195,232	174,508	8,732	152,341	67,094	32,442	3,041	16,723		685,725		
Public Service Day Care Facilities				565			8,733					9,298		
Student Health Clinics				6,392			503		7,943			14,838		
Airport Hangers		6,840		15,746		28,825	1,016	61,248				113,675		
Other														
Leased Out Space	103,842	82,708	15,111	198,039	2,106	35,584	37,438	3,278	1,152	20,560	20,426	520,244		
Subtotal - Institutional Unique	183,965	155,958	693,971	1,189,469	20,328	708,472	746,523	219,045	226,260	93,911	54,186	4,292,089		
<b>Total Square Feet</b>	<b>1,728,909</b>	<b>2,461,194</b>	<b>1,764,850</b>	<b>5,289,268</b>	<b>1,023,782</b>	<b>2,631,162</b>	<b>2,813,610</b>	<b>1,853,906</b>	<b>1,178,811</b>	<b>3,334,752</b>	<b>176,014</b>	<b>24,256,259</b>	<b>9,544,245</b>	<b>33,800,503</b>
	5%	7%	5%	16%	3%	8%	8%	5%	3%	10%	1%	72%	28%	100%



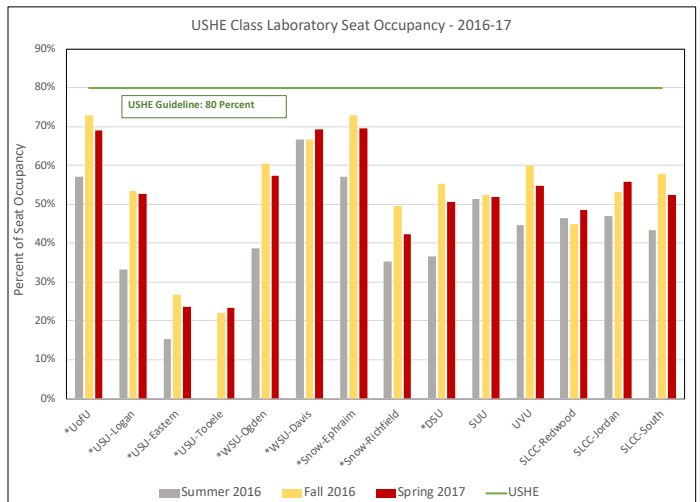
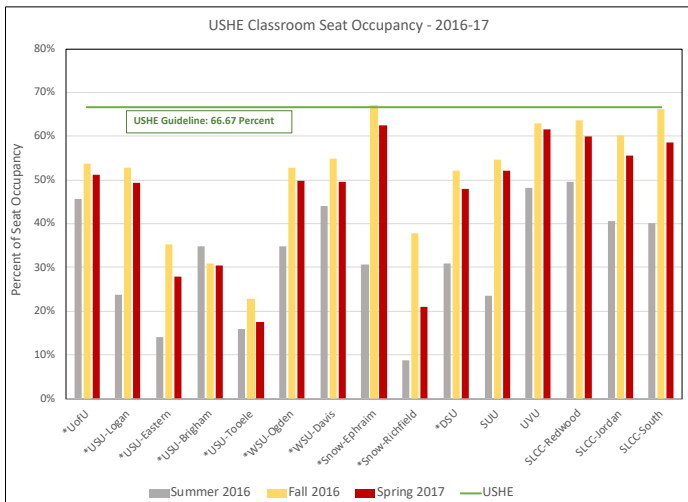
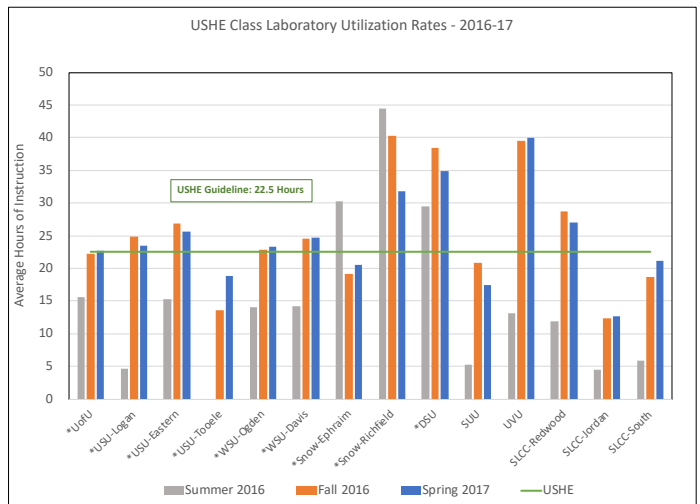
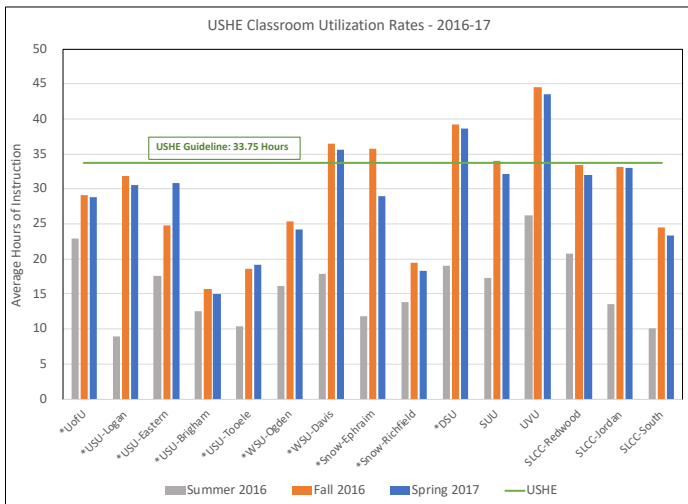
## Appendix B: USHE 2017-18 Space Utilization Data

Institution	Fall 2016 Utilization			Spring 2017 Utilization		
	Classrooms			Classrooms		
	Hours Per Week the Rooms Are Used (RUR)	# Rooms	% of Stations Filled When Rooms Are In Use (SOR)	Hours Per Week the Rooms Are Used (RUR)	# Rooms	% of Stations Filled When Rooms Are In Use (SOR)
UofU	29.2	223	53.7%	28.8	224	51.3%
USU-Logan	31.9	159	52.7%	30.6	157	49.3%
USU-Eastern	24.7	48	35.3%	30.8	49	27.8%
USU-Brigham	15.8	47	31.0%	14.9	46	30.5%
USU-Tooele	18.7	21	22.9%	19.1	20	17.5%
WSU-Ogden	25.3	161	52.7%	24.2	161	49.7%
WSU-Davis	36.5	38	54.8%	35.6	38	49.6%
SUU	34.1	81	54.6%	32.1	81	52.1%
Snow-Ephraim	35.7	44	67.1%	28.9	47	62.5%
Snow-Richfield	19.5	14	37.8%	18.3	14	20.9%
DSU	39.3	90	52.1%	38.6	90	48.0%
UVU	44.5	225	63.0%	43.5	225	61.6%
SLCC-Jordan	33.1	28	60.2%	33.0	28	55.6%
SLCC-South	24.5	36	66.2%	23.4	36	58.7%
SLCC-Redwood	33.4	118	63.7%	32.0	118	59.9%

Institution	Fall 2016 Utilization			Spring 2017 Utilization		
	Teaching Laboratories			Teaching Laboratories		
	Hours Per Week the Labs Are Used (RUR)	# Rooms	% of Stations Filled When Rooms Are In Use (SOR)	Hours Per Week the Labs Are Used (RUR)	# Rooms	% of Stations Filled When Rooms Are In Use (SOR)
UofU	22.3	92	72.9%	22.6	93	69.0%
USU-Logan	24.9	70	53.5%	23.5	72	52.7%
USU-Eastern	26.8	33	26.8%	25.6	32	23.5%
USU-Tooele	13.5	5	22.0%	18.9	5	23.3%
WSU-Ogden	22.9	94	60.5%	23.3	90	57.3%
WSU-Davis	24.6	20	66.7%	24.7	23	69.2%
SUU	20.8	44	52.5%	17.5	44	51.8%
Snow-Ephraim	19.1	59	72.8%	20.5	61	69.6%
Snow-Richfield	40.3	15	49.6%	31.9	17	42.2%
DSU	38.5	38	55.1%	34.9	41	50.6%
UVU	39.5	114	59.9%	40.0	114	54.9%
SLCC-Jordan	12.3	25	53.1%	12.7	25	55.9%
SLCC-South	18.7	36	57.9%	21.1	36	52.4%
SLCC-Redwood	28.7	47	44.8%	27.0	47	48.4%

### Appendix C: USHE Space Utilization Data for Summer Term 2015

As noted in the brief, USHE institutions reported Summer 2016 utilization numbers inconsistently. UVU, SLCC, and SUU reported summer utilization based on the total number of classrooms and labs in the inventory. As represented with an asterisk in the following charts, the U, USU, WSU, DSU, and Snow reported summer utilization based on the classrooms and labs scheduled for use during summer term (only a fraction of the total inventory). The Summer term 2016 information provided by the institutions is shown as the grey bars in the charts below.



### Appendix D: Future USHE Space Utilization Recommendation

One of the recommendations included in this Brief is to require an annual space utilization report for USHE institutions. The report would be similar to the information provided in this Brief but would include more consistent summer term data and would provide utilization by building. Future reports will use the information in this Brief as a baseline and will track institutional utilization over time. An example of the data recommended to be required in future utilization reports is provided below.

<b>Institution</b>	<b>Classroom</b>	<b>Laboratory</b>
Number of Rooms	60	80
Room Utilization Rate (RUR)	33.1	25.6
Number of Stations	3,600	1,600
Station Occupancy Rate (SOR)	65.3%	73.2%
<b>Campus A (30 Buildings)</b>		
Number of Rooms	40	60
Room Utilization Rate (RUR)	33	24
Number of Stations	3,000	1,200
Station Occupancy Rate (SOR)	64.4%	48.3%
<b>Campus A, Building A</b>		
Number of Rooms	7	10
Room Utilization Rate (RUR)	30.1	20.9
Number of Stations	450	200
Station Occupancy Rate (SOR)	68.3%	71.7%
<b>Campus A, Building B</b>		
Number of Rooms	10	14
Room Utilization Rate (RUR)	40.6	30.5
Number of Stations	670	285
Station Occupancy Rate (SOR)	60.2%	73.4%