1.0 Executive Summary

1.1 Introduction

The University of Washington Learning Space Assessment is a study of the current (Fall 2013) general purpose classrooms on the Seattle campus. The study is the result of a University of Washington faculty and staff task force charged by the University Provost to guide a concise and comprehensive review of the University of Washington’s classrooms needs in light of changing instructional methodologies.

The study evaluates utilization rates, scheduling practices, technology deployment and policies, and the physical condition of classroom spaces. The intention is to better understand opportunities for improved delivery of learning space options that are focused on supporting faculty, diverse pedagogical initiatives and a student experience enhanced by integrated and appropriate technologies.

This report documents the study findings and is structured to provide a summary of the material developed with and presented to the task force over the course of four workshop sessions during the fall of 2013 and through the spring of 2014. The report also provides a detailed documentation of the evaluation materials, database sources, and surveys results to offer a reference and guide as the University further develops strategies to support learning spaces on campus. Organized into 9 Sections, the report provides a discussion of the topics identified, summarized and evaluated during the course of the study. The report includes a list of specific recommendations included at the end of this section and through a detailed listing provided in Section 7 of the report.

Fundamental to the overall study is the understanding that the Seattle Campus operates today with two components - Upper Campus and Health Sciences. The two components have separate databases, organizational structures and support services. Seeking to understand the whole campus, the study evaluated the two pieces simultaneously, although identifying the components separately.

It is also important to point out what was not addressed. Specifically, the spaces on campus not addressed in this study include all campus learning spaces that are directly controlled by individual Colleges, Departments and/or are managed under special use agreements. Only classroom spaces administered as general use classrooms, including the Health Sciences spaces, are included.

1.2 Process

The approach undertaken by the team was based on an analysis of both quantitative and qualitative information. This approach provides the University with tools to make informed and data-driven decisions relative to classroom
capital improvements, policies, and procedures. This was accomplished through an analysis of performance characteristics, an assessment of current technology and needs, and a determination of infrastructure requirements. The evaluations were all informed by input from campus leaders, faculty, and staff. The approach stresses the interrelated nature of technology, learning space configuration and size, utilization rates, geographic distribution, management and overall space ownership policies.

The process of the study was structured around four, multi-day, on-campus workshops held with task force members and supplemented with tours, facility and student surveys, follow-up conference calls and data exchanges. All workshops were led by the consultant team that included ZGF Architects, Rickes Associates and Vantage Technology.

1.3 Core Principles

During the workshop sessions, the task force identified and refined the following core principles as essential to the process of the study:

- Understand current utilization of classrooms
- Define key characteristics to include in renovated and new classrooms
- Assess adequacy of instructional technology
- Identify opportunities and constraints of a centralized facilities management database
- Develop decision-making tools to help prioritize resource allocation for renovations, upgrades, and new learning spaces.
- Inform a five year plan to support funding requests and questions from administration

The list of core principles were summarized and best expressed as related to the convergence of the following three themes: Scheduling, Teaching, and Allocating

1.4 Drivers

During the study and as recommendations began to emerge, a set of drivers emerged that created an overall organization to the diverse range of topics explored by the task force. The drivers include Scheduling, Physical Space and Technology.

Scheduling

Several components of scheduling were explored during the study and included scheduling blocks, scheduling distribution, and overall calendar systems - semesters v. quarters.

The study revealed that the overall number of general purpose classrooms needed on campus is being driven by current University of Washington scheduling norms and the analysis of the data suggests that a revised approach to scheduling practices could reduce the number of rooms needed on the Seattle campus (both Health Sciences and Upper Campus) to support current curricular demand. If implemented, scheduling adjustments could also deliver higher classroom utilization rates. One advantage of utilizing a revised
scheduling approach is that it is not a capital dollar intensive adjustment and can lead to operational savings over time due to the need for fewer rooms required to accommodate the same number of courses.

There are two fundamental issues that need to be addressed in order to realize the suggested classroom inventory refinements: scheduling blocks and scheduling distribution.

**Scheduling Blocks**

The UW does not currently adhere to a formalized block scheduling standard. Although a number of courses comply with a block-time organizational model, many do not and these outliers create significant inefficiencies for the system as a whole. The inefficiencies, in turn, drive the required number of classrooms on campus. This is explored in greater detail within the document. Creating and enforcing a campus wide class block standard is recommended.

**Figure 1-01: Distribution of Classrooms by Day and Time, Upper Campus**

Many 50-minute courses are scheduled in standard blocks beginning on the half-hour, represented by dark blue bars. Non-standard blocks are shown as light blue. The number of courses in each time block is shown. Ideally, courses scheduled for longer than 50 minutes should begin and end in sync with standard blocks (scheduled as “double blocks”). (Data Source: Registrar data and RA utilization analysis)
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An overall organizing component of scheduling blocks is the time between classes or the pass-time. The study reviewed the idea of moving to a 15 minute pass-time from the current 10 minutes as a way to address travel distance and campus topography issues for faculty and students. The added time was also seen as an important way to address set-up anxiety often felt by faculty utilizing more and more complex technology configurations. Depending on the scheduling window configuration model selected, the added pass-time could be accommodated and the University could still realize a total reduction in rooms needed.

Scheduling Distribution

The second item that drives the number of required classrooms relates to scheduling distribution. The UW currently utilizes less than an 8 hour a day window of time for the majority of courses. This 40 hour/week (or less) scheduling distribution window is below many of UW’s peer institutions (50 hour/week is not uncommon) and increases the number of classrooms needed to support the current curriculum. Moving to an expanded scheduling window is recommended.
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Although the study reviewed issues related to the University’s quarter system and evaluated the potential benefits of a semester based schedule, the conclusion of the study is to recommend additional study to fully and better understand all the drivers and constraints related to such a shift.

Physical Space

The potential to change the way the campus schedules classroom space addresses one aspect of classroom utilization and efficiency but does not address issues directly related to the physical space. There are many physical aspects of a classroom space that support successful learning environments. Utilizing square feet per seat metrics specific to the type and configuration of classroom environments, the study evaluated the alignment of the current classrooms with commonly utilized space (square feet) per seat standards.

The analysis for the square feet per seat data creates a chart that tracks how well the rooms meet the criteria – either over or under. The next step of the study was to ‘right size’ the classrooms or shift the projected room capacity to align with the proposed metrics. This so called ‘right sizing’ allowed a refined understanding of the optimized capacities of the current classroom stock on campus. When this data is graphed with room size demand information, the graphs offer an insight into the type and size of classrooms with commonly utilized space (square feet) per seat standards.

Figure 1-03: Number of Classrooms Needed with Scheduling Window and Pass Time Scenarios

<table>
<thead>
<tr>
<th>Pass Time</th>
<th>40-Hour Scheduling Window</th>
<th>50-Hour Scheduling Window</th>
</tr>
</thead>
<tbody>
<tr>
<td>15 Minutes</td>
<td>297</td>
<td>260</td>
</tr>
<tr>
<td>10 Minutes</td>
<td>260</td>
<td>210</td>
</tr>
</tbody>
</table>

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Benefits of Right-Sized Classroom Model

- Aligns learning space environments with pedagogy
- Identifies surplus spaces
- Allows development of additional informal learning spaces
- Allows development of sandbox learning spaces
- Identifies future classroom size needs
The chart for the upper campus illustrates that the campus potentially has a large surplus of 25 seat classrooms and an unmet demand for 60-90 seat classrooms. This trend is not uncommon on campuses today as class sizes are typically trending upwards. The Health Sciences spaces show similar surpluses and unmet demand but also indicates a deficit of classrooms in the 61- to 90-seat range.

In both cases, Health Sciences and Upper Campus, the room for room accounting indicates overall surpluses once scheduling efficiencies are implemented. Just how much those surpluses can be realized likely varies due to ‘soft’ uses of the spaces that do not show up formally as the result of regular curricular assignments. The soft use of learning spaces indicates a demand for informal learning spaces that can be either reserved on an hour by hour basis by students or spaces that simply allow an open impromptu gathering outside formal class time. The ‘surplus’ rooms offer the opportunity to provide spaces for a number of unmet space needs across campus including informal learning spaces.
Figure 1-05: Existing, Right-Sized, and Proposed Classrooms, Health Sciences

For each size category, current classrooms on the Health Sciences Campus are shown relative to existing classrooms if they were right-sized. The calculated classroom need for each range is shown to compare against the current and right-sized inventory. Classrooms are currently used for events and testing sessions somewhat unique to Health Sciences. Classroom need is based on course demand only, and does not account for other uses.
(Data Source: Registrar data and RA utilization analysis)
In Section 3 of the report, a data driven, consumer report style evaluation of all of the classrooms is highlighted that offers an additional tool to the University when creating priorities related to classroom modifications, renovations and refurbishments. A representative group of classrooms from the evaluation were visited to document the current condition and better understand the range of technology and condition issues and is also include in Section 3.

In addition to the physical spaces of the campus, the overall geographic distribution was evaluated to understand potential constraints due to topography, facility adjacencies and/or distance. The analysis included diagramming current residence halls, current and future major public transportation modes, and the range of classroom types and locations. Section 3 of the report includes analysis of these topics.

**Technology**

During the course of the study, all of the surveys, interviews and discussions resulted in a consistent set of issues related to technology on campus. Typically, technology is seen as inconsistently deployed, unreliable and cumbersome to operate predictably. Together these issues cause a high degree of anxiety among faculty and result in the continued use of older technologies – overhead projectors for example – that are expensive to maintain and limit broader technological integration. Despite a capable staff to support technology, the variable funding history has created a significant backlog of projects related to deployment, replacement and maintenance. The study recommends several areas of focus including the development of standards for learning space technology – what the basic set-up for every room ideally should be, establishment of a technology replacement policy - so that on a regular basis the technology in a classroom will be updated, and a regular, focused funding source created - to support the two previous recommendations.

**Standards**

The campus maintains a wide variety and degree of technologies in classrooms that span from a mobile cart-based approach to full distance learning, interactive systems. In addition, the campus maintains numerous overhead projectors with acetate rollers and many desktop computers at lecterns. While the options likely meet the specific needs of some faculty, the cost of maintaining legacy technologies is significant and the equity of doing so is unclear. This is illustrated through login data for the desktops at lecterns that indicate only a handful of faculty are using the desktop infrastructure. The cost to continue to provide the desktops at the lectern comes at a significant premium and adds complexity. The development of clear technology standards that are universally deployed would provide predictability for faculty, ease of maintenance for support staff and provide guidance for a regular funding model. It is recommended that the standards apply to the entire campus, including Health Sciences, to support predictability and a system of support that is the same across the entire campus.

**Faculty Support**

In order to maximize the benefit of current and improved technologies and support pedagogical innovation and exploration, it is recommended that the University create an enhanced support system to aid faculty in the transition towards and development of curriculum that can anticipate and leverage integrated technologies.
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1.5 Funding

Technology

The study evaluated the funding of technology by the University of Washington and compared the spending level to peer institutions. The average spending by the University, on a dollars per room basis, was below that of peer institutions. This fact is evident by the typically older equipment deployed, the lack of any technology in some rooms and the high degree of technology variability found across campus.

Developing and funding a technology update schedule (refresh rate) of about 7 years is recommended and would address issues of reliability, allow better alignment with curriculum demands and support pedagogical innovation.

The study evaluated funding models that would allow the University to support technology at levels that sought to ensure broad deployment of current technology. The models considered scenarios that reflect both the current total classroom counts and alternatives that reflect reduced classroom counts as suggested earlier and achieved as a result of scheduling efficiencies. The values indicate that a recommended 7 year refresh rate for the current classroom inventory should be funded at a level of $1,785,000/year. If the number of classrooms is reduced through scheduling efficiencies, the cost could be reduced to $1,405,000/year, a savings of $380,000/year.

An additional variable reviewed as part of the cost study portion of technology included implementation options. The options examined varied from a surge approach to rapidly advance the level of technology on campus to an approach that more slowly ramped up implementation.

Figure 1-06: Revised Projection Model of Classroom Technology Conditions Annually (With Policy Improvements) Until Fiscal Year 2036:
A graphic representation of the start, annual iteration, and end-state classroom technology conditions on campus based on a computer projection of UW performance on the Upper Campus after implementing policy and funding recommendations. Conditions meet or exceed peers within 7 years, the model is run for 22 years for comparison with Figure 6-07. (Data Source: Assessment Team Computer Model, using 2013 UW Classroom Assessment Data and a 7-year system lifecycle. See Appendix)
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**Figure 1-07: Scheduling Policy Impact on Classroom Technology Funding and IT Department Capacity**

The following table outlines the impact scheduling policy has on the funding and workload of UW-IT, as described below:

**Campus Parameters**: The first two table rows summarize current conditions on each campus. “UW Seattle, Combined” row is the total of both campuses (relevant if UW pursues a more centralized management). The next two table rows represent each campus with a recommended 50-hour week and 15 minute pass time between classes, with both totaled in the last row.

The impact of each Campus Parameter is shown on the estimated number of classrooms, required quantity of annual renovations, annual technology renovation costs, and growth required in the UW IT group (compared to 2013 operations) in order to sustain those rooms.

As an example, UW Classroom Technology costs on the Upper Campus may be reduced by $240,000 (or more) annually by implementing optimal course scheduling policies and sizing rooms. (Source: 2013 Classroom Assessment Data. See Sections 1.0, 3.0, 5.0 for more information on policies.)

**Figure 1-08: Illustration of 3 Methods for Increasing Classroom Technology Capability**

An approximate illustration of the three strategies described:

- **Option 1** shows the timeline of renovation activity as UW-IT in-house staff (in gold) expand to meet demand.
- **Option 2** shows the timeline for outsourcing (in Purple) some or all renovation activity
- **Option 3** shows the timeline for a “Surge” approach
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New Construction, Renovation, and Refurbishment

The study evaluated three alternative cost planning approaches that could be used to address learning space upgrade needs: new construction, renovation and refurbishment. All of the cost profiles described exclude the technology equipment cost associated with each of the options as it is anticipated that those costs would be addressed by a specific and separate technology refresh budget.

Analysis of the projected annual costs associated with a refurbishment approach follows the same set of options utilized by the technology cost analysis. Whereas the technology cost analysis is based on an average cost per room, the refurbishment cost model utilized an average size room of 1,500 SF which is a calculated average for the campus. This figure was then multiplied by the number of rooms to be refurbished to set an annual quantity of square feet to be refurbished.

The analysis indicates that the refurbishment cost associated with the current classroom inventory, and aligned with the technology refresh rate, gives a projected annual cost between $5,737,500 - $8,032,500. If scheduling efficiencies employed, the cost could be reduced to $4,500,000 and $6,300,000 annually, a savings of between $1,237,000 and $1,737,500 per year.

Figure 1-09: Estimated Building Renovation and New Construction Costs

Comparison of relative construction costs for a fully renovated facility v. new construction. Furniture costs are excluded from the table, but could be assumed to be between $25-35/GSF.
(Data Source: JMB Consulting Group LLC)

Figure 1-10: Estimated Refurbishment Room Costs

Suggested possible refurbishment cost ranges based on a series of scenarios - these alternatives are the same options explored later in the report as part of the cost review for technology upgrades. Note the cost to refurbish existing spaces into active learning spaces is significantly more as illustrated in the column to the far right. Furniture costs are excluded from the table, but could be assumed to be between $25-35/GSF.
(Data Source: JMB Consulting Group LLC)
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It is important to note that the cost assumptions utilized do not account for a cost premium often associated with the development of active learning style spaces due to enhanced technology infrastructure requirements. If an active learning space is anticipated, the cost for that portion of the refurbishment could be anticipated to be a rate $225/SF.

The variable figures provided for both funding technology and refurbishment illustrate the potential impact that improved scheduling efficiency could have on the overall ability of the University to maintain the best possible leaning spaces.

1.6 Recommendations

The recommendations developed with the task force capture the range of topics that would place the UW among its peer institutions in terms of facility utilization, hours of operation and support for technology and innovation in teaching methodologies. The organization of the list represents a recommended order of priority but it is not intended to suggest that any of the items should or could be excluded. The recommendations are to be seen as an interrelated group with each offering advantages but which combined, offer the greatest advantage.

1 - CLASSROOM GOVERNANCE COMMITTEE
Establish a Classroom Governance Committee “super group” to enhance coordination between learning environment stakeholders and to develop and oversee strategic policies

2 - BLOCK SCHEDULE
Develop clearly defined time blocks with an associated number of days each week, and increase pass time to 15 minutes

3 - SCHEDULE DISTRIBUTION
Create departmental requirements and incentives to schedule a particular percentage of courses during off-peak times

4 - WEEKLY SCHEDULING WINDOW
Expand daily schedule to 8:00 a.m. to 6:00 p.m.

5 - RIGHT-SIZE CLASSROOMS
Identify rooms to “right-size” by adding or removing seats to achieve an appropriate average square footage per seat

6 - PREDICTABLE FUNDING
Allocate regular funds for strategic technology and room renovations, sufficient to meet UW needs

7 - SYSTEM LIFECYCLE POLICY
A replacement cycle (7-year recommended) for technology systems in general-assignment classrooms

8 - FACULTY SUPPORT FOR TEACHING AND LEARNING
Expand the existing Center for Teaching and Learning to a full-time resource for instructors for technology support and curriculum design

9 - TECHNOLOGY STANDARDIZATION
Establish/Formalize technology standards, in coordination with classroom stakeholders, to govern future projects
10 - INFORMAL LEARNING SPACES
Renovate and/or increase the number of informal learning spaces with desirable amenities and in preferred locations

11 - PROPRIETARY CLASSROOMS
Review the existing inventory of proprietary classrooms for opportunities to fill gaps in general-assignment classroom schedule

12 - SEMESTER SYSTEM
Explore moving to a semester-based academic calendar