

Introduction

During the fall and spring semesters utilization reports are generated reflecting the use of all general university classrooms and auditoriums – 215 rooms in total. Utilization is based on 8:00 AM to 5:00 PM, Monday through Friday. This data is also collected for departmentally managed spaces, such as teaching labs. The information is used to identify use patterns, course offering conflicts and lack of availability during certain times of the day. It is also a component used to identify potential renovation projects based on condition and age of furniture, technology, material updates. An impact of increased use is the need for more frequent improvements. Utilization data is reported to the Board of Regents annually, in the Facilities Governance Report.

Following the completion of the Tier study, the Board of Regents charged each of the three regent institutions to increase overall classroom and teaching laboratory utilization by 10%. The following analysis focuses on General University Classroom utilization at Iowa State University.

Classroom utilization goals for the institution are 30 hours per week and 67% seat utilization for general university classrooms. The utilization information for all of the general university classrooms and auditoriums was reviewed and showed high-to-moderate utilization for classrooms with capacities of 50-99 and auditoriums with capacities of 100-431. The small classrooms with capacities of 1-49 were underutilized. The number of hours classrooms were used for the fall of 2016 were:

35.9 hours	capacities 100-431
30.68 hours	capacities 50-99
27.35 hours	capacities 1-49

Based on the lower utilization rate for small classrooms and the number of classrooms of this size, the focus of this analysis is the pool of classrooms with a capacity of less than 49. There are 132 classrooms in this category, which is 61% of our general university classroom pool.

Following are the goals, methods, key findings and recommendations from this analysis.

Goals

- Improve utilization of small general university classrooms (capacity less than 49)
 - Meet Board of Regents expectations to improve 2016 utilization rates by 10%
 - Meet current Room Scheduling Goals of 30 hours use/week
- Determine optimal number of small classrooms to meet critical instructional needs
- Optimize existing classrooms to support curriculum and pedagogy with upgrades or renovations
- Identify classrooms that can be repurposed
- Develop strategies to repurpose existing small classrooms to meet other critical space needs

Methods

Three critical criteria were used to strategically review existing classrooms: utilization data, campus location and the overall condition. The fall semester data was used because the fall term is reported to the Board of Regents in the Facilities Governance Report. Fall semester typically has a heavier course load and higher enrollment, which represents the highest demand on classroom use.

Evaluation Criteria:

- Utilization data review:
 - By room capacities (1-35, 36-40, 41-49)
 - Current use by departments
 - By room
 - Enrollment Services historical data- course quantity and enrollment
- Physical condition of rooms
- Campus location to ensure adequate access
- Potential repurposing to meet institutional need

Utilization:

The group of classrooms was separated into three subgroups to facilitate the evaluation. The subgroups are based on room capacity: 1-35, 36-40, and 41-49. Utilization does vary by subgroup:

Room Capacity	FY 2016 Utilization Hours/week
1-35	27.07
36-40	29.16
41-49	25.79

Charting room availability over the course of the day by each subgroup indicates a typical use pattern on M-W-F; classrooms are used most heavily from 9:00- 3:00, with the exception of the lunch hour. Use on Tuesdays and Thursdays is extremely high; at some times of the day, there are less than 10 small classrooms available.

Some flexibility is required to accommodate non-standard day and times for immersive courses like those offered in Math and World Languages and Cultures. These course are offered 4-5 days per week, which does create utilization inefficiencies.

Tutoring and Supplemental Instruction use is not reflected in the classroom utilization data. During 8:00 AM -5:00 PM, classrooms are used approximately 30 hours/week to support student success. Classrooms are used an additional 40 hours after 5:00 PM.

General university classrooms are also used for special events; with exception of location preferences, special event requests in small classrooms can be accommodated in the evening.

The Office of the Registrar provided historical course offering data that compared the change in the number of courses based on size since 2010. In the last seven years, there was also a 44% increase in sections with 50 or more. Upper level courses have increased in size, shifting course enrollment from under 50 to more than 50 students. Large lecture courses have been added to respond to increasing enrollment. There was also a 28% increase in the number of sections of 35 or less; many large lectures have corresponding recitation sections, which is one reason for the increase.

Condition:

The Classroom Improvement Study completed in 2013 looked at a variety of criteria associated with all general university classrooms. The study identified that the average age of classroom buildings is 52 years. The study also showed that condition of the classroom did not significantly impact the room utilization. Condition was not as critical as location or the day and time.

An assessment of condition included the physical and aesthetic attributes of the room, but also how it supported the teaching and learning environment. For this analysis, a condition matrix was developed that evaluated furniture, physical characteristics, technology, and age. Based on a cursory review, there are several small classrooms that desperately need updating and may be good candidates for repurposing.

This preliminary evaluation reaffirmed that a long-term strategy for improvement is important. Over the last several years, improvements have been accomplished in some of the smaller classrooms in Pearson Hall, Physics Hall, and MacKay.

Location:

A campus map was developed to indicate the location of these classrooms. The campus was divided into three zones: Zone 1 is the northern portion of campus, north of Osborn, Zone 2 is west of Morrill Road, and Zone 3 is east of Morrill Road. The number of classrooms in each zone are fairly comparable, though Zone 1 has fewer classrooms in the capacity of 36-40.

This analysis confirms that utilization of classrooms on the perimeter of campus, specifically Town Engineering and Molecular Biology, is lower. These locations are not considered convenient.

Wayfinding and building aesthetics have an impact on the use of classrooms:

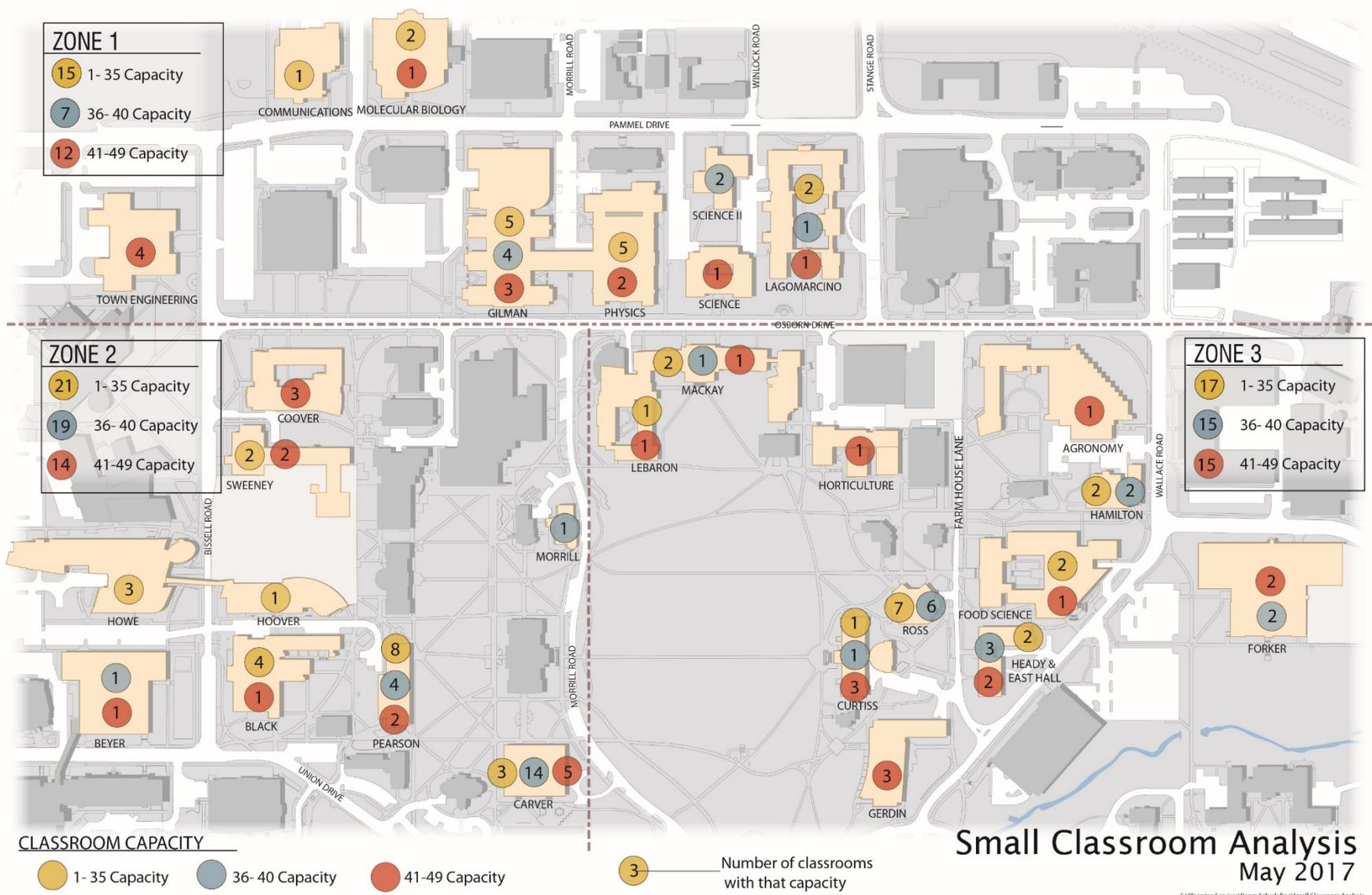
- Departments frequently request to be moved out of Gilman Hall due to both issues
- After the north addition and renovation in Lagomarcino, room numbering throughout the building is not consistent
- Access to Beyer due to the need for Rec Services to monitor entry into the facility complicates scheduling classes in that building

Adjacency to parking can impact utilization; when parking is needed for guest speakers, being closer to the Memorial Parking ramp or other metered parking is advantageous.

Most faculty prefer to teach in the building where their office is located. Key departments that primarily use small classrooms find it convenient to have their teaching assistants' offices in that building for efficiency of scheduling (back-to-back courses) and to allow them to pass materials to each other.

Some departments require access to specific technology (speech communications and world languages and cultures), or classroom demonstrations. Other courses need access to classroom materials and equipment such as laptops, exhaust hoods, manipulatives, soil samples, and the textile collection.

The location map identified the following user profile based on many of these attributes.



ZONE 1

15	1- 35 Capacity
7	36- 40 Capacity
12	41-49 Capacity

ZONE 2

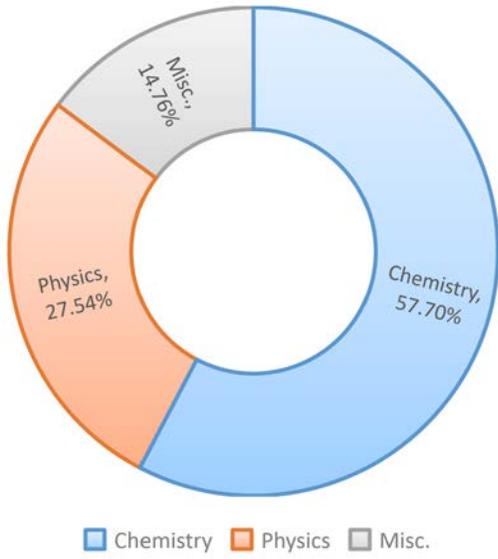
21	1- 35 Capacity
19	36- 40 Capacity
14	41-49 Capacity

ZONE 3

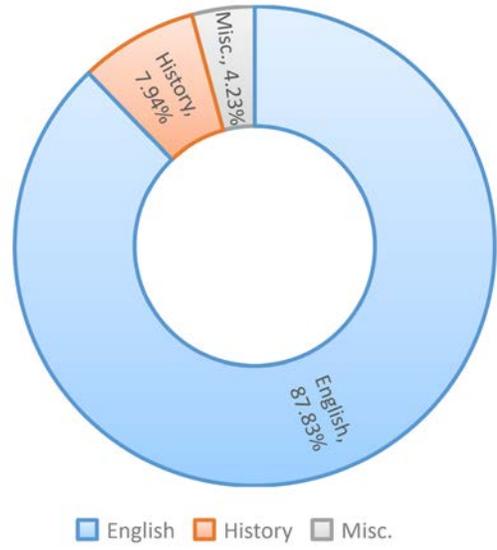
17	1- 35 Capacity
15	36- 40 Capacity
15	41-49 Capacity

User Profile by Zone

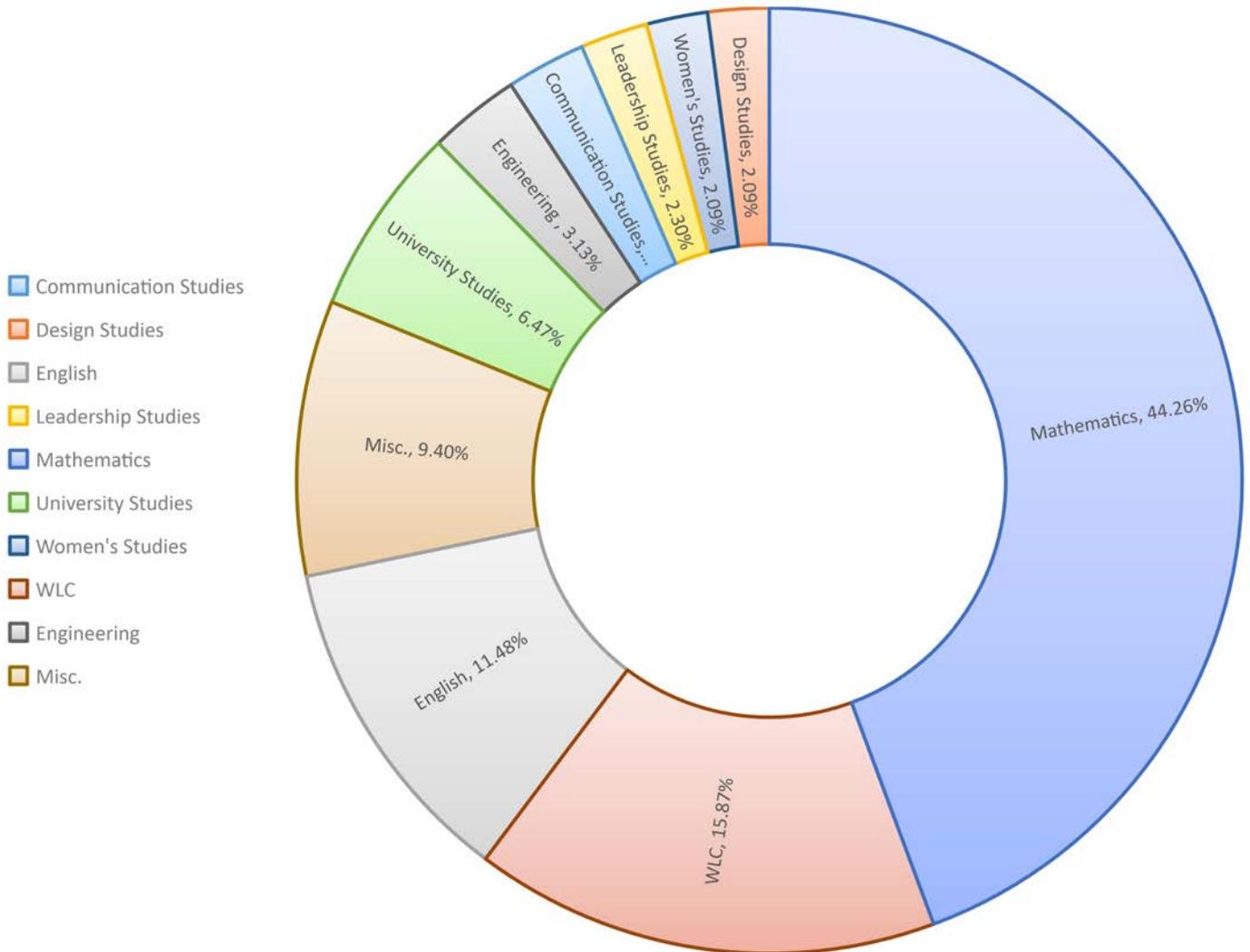
Zone 1 Percentage



Zone 3 Percentage



Zone 2 Percentage



Institutional need:

Several space utilization studies over the last several years have indicated critical space needs in several departments, colleges, and units across campus. Repurposing existing classrooms to meet additional programmatic space needs in the Colleges of Engineering and Human Sciences, as well as for Recreation Services was explored.

Key findings

Utilization in rooms of 41-49 was lowest; because smaller courses can be accommodated in larger classrooms, utilization of the smaller classrooms was analyzed in more detail. The conclusion is that rooms with capacities of 1-35 should be the first consideration for reallocation. The overall impact will be higher room utilization, lower seat utilization.

As a test, ten classrooms with less than 20 hours/week were removed from the 1-35 classroom category. The courses were rescheduled into another classroom if one was available. With the reduction of ten classrooms, utilization in this category theoretically improved from 27.07 hours/week to 30.28. There were some courses that could not be placed at the day and time requested. Reducing the number of classrooms in the pool may very well mean that classes currently scheduled during the critical times of the day will need to move to a different day and time combination.

Factors that impact scheduling and utilization:

- Flexibility is required for active or team-based learning
- Immersive courses require additional classroom resources
- Supplemental materials, equipment and technology dictate location and scheduling
- Smaller rooms are used for one day course offerings for recitation or discussion sections
- Rooms are needed for supplemental instruction and tutoring during the day
- More than a third of rooms reserved for Intensive English are canceled after the first two weeks
- Access to smaller classrooms needs to be maintained equitably across campus
- Classrooms located adjacent to departments with heavy demand is efficient for instructors
- Departments request to be moved out of classrooms that are in poor condition, do not compliment the instructor's teaching style, or do not have flexible furniture
- There may be impacts to availability at certain times of the day/week if overall number of classrooms are reduced

Action Items:

1. Classrooms that can be repurposed based on capacity, location, condition, and institutional need:
 - Beyer #2308: reallocated to Recreation Services for additional staff June 2017
 - LeBaron #0059 and #0067: reallocate to College of Human Sciences August 2017
 - Black #1071 and #1077: reallocate to College of Engineering August 2017
 - Sweeney #1157: reallocate to the College of Engineering Spring 2018
 - Morrill #2015: reallocate to Provost Spring 2018
 - Heady Hall #0160 and #0162: combine for one large classroom of 60 to 70; completion May 2018
2. Identify improvements needed to increase utilization in remaining classrooms:
 - Continue with long-term classroom improvement strategy
3. Identify further analysis needed to improve utilization:
 - Investigate one-day offerings and match needs to improve utilization
 - Work with IEOP to reduce the number of classrooms reserved initially
 - Improve classroom website to facilitate wayfinding in buildings
 - Communicate with Academic Divisions regarding availability of new, larger classrooms
 - Assess the five Physics Hall classrooms with a capacity of less than 30 in the Physics Hall/Zaffarano Hall Study to determine if classrooms could be enlarged or repurposed to improve utilization