CLASSROOM AND CLASS LABORATORY UTILIZATION ANALYSIS

DENVER CAMPUS

DECEMBER 9, 2014

HANBURY EVANS WRIGHT VLATTAS + COMPANY

introduction

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Michael Del Giudice, Director, Office of Institutional Planning

Peter Knudsen, Senior Planner, Office of Institutional Planning

Mackenzie Pett, Institutional Planner, Office of Institutional Planning

Margo Waite, Office of Institutional Planning

Paula Dickson, Associate Director, Office of Institutional Research, Planning and Analysis

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1.0 executive summary

Hanbury Evans Wright Vlattas + Company was contracted by the University of Colorado Denver to examine classroom and class laboratory utilization for the Denver Campus. The University requested the evaluation in order to understand in more detail how efficiently instructional spaces are used. The results of the analysis will be used to articulate expectations and make future decisions regarding classroom scheduling practices as well as capital planning for future classroom and class laboratories.

The University of Colorado Denver is unique since it is on the Auraria Higher Education Center (AHEC) Campus and shares some facilities with Metropolitan State University of Denver and the Community College of Denver. In addition the University of Colorado Denver has classrooms and class laboratories across Speer Boulevard from the AHEC campus in the Lawrence Street Center, Business School building, and CU Denver Building.

This analysis of instructional space utilization was performed only for the University of Colorado Denver and did not include the other two institutions on the Auraria Higher Education Center Campus, nor the Anschutz Medical Campus.

1.1 PROCESS

Prior to undertaking the utilization analysis, Hanbury Evans was provided data by the Office of Institutional Planning and the Office of Institutional Research & Effectiveness. The University provided the Fall 2013 CU Denver Classroom Utilization spreadsheet data file and report notes, Room Type Description, WebSpace and OSIS Space Inventories, and Space Codes for the Auraria Campus.

For the Utilization Analysis, the consultant met with the project leaders on the campus in September 2014, reviewed the data, performed the analysis, sent outstanding questions to the project leaders for review, and met with project leaders again to review the findings.

In the process of this analysis the consultant worked with the project leaders to research questions regarding odd findings to clarify room numbers, space codes, assignable square feet, or station counts. In all cases these questions were quickly resolved.

Using the data provided, classrooms and class laboratories were studied to show the level of use. The factors illustrated in the utilization study included the average hours per week of scheduled instructional use for each room, the average hours of scheduled use for each student seat, the percentage of student stations filled when the rooms are scheduled, and the average square feet allocated to the student stations in the rooms. Findings for classroom utilization have been summarized by building, by college, by room capacity, and by room scheduling control. For class laboratories findings have been summarized by building and by college.

1.2 KEY FINDINGS

The consultant used the data and information provided to document the utilization of classrooms and class laboratories. Data provided included 202 rooms. Of these rooms, 111 were classrooms, 65 class laboratories, and 26 other rooms in which courses were scheduled.

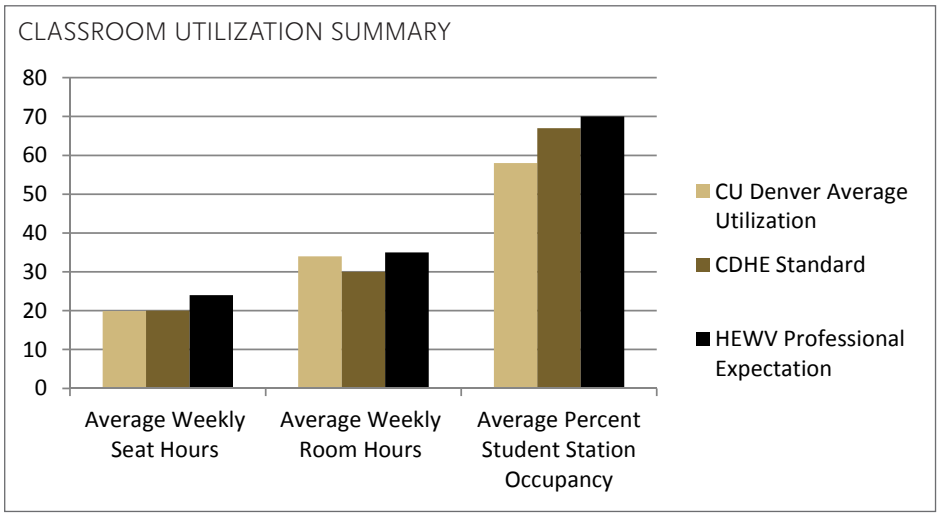
Classroom Utilization

In the Fall 2013, the 111 classrooms analyzed for the campus averaged 34 hours of scheduled use per week, with 58% of the student stations filled when classrooms were in use. The classrooms average 20 assignable square feet (ASF) per student station. The average for weekly seat hours of use was 19.9 hours.

CLASSROOM UTILIZATION SUMMARY

	CU Denver Average Utilization	CDHE Standard	HEWV Professional Expectation
Average Weekly Seat Hours	19.9	20	24
Average Weekly Room Hours	34	30	35
Average Student Station Occupancy	58%	67%	70%
Average Space per Student Station	20		
Number of Classrooms	111		

Note: Used upper limit of HEWV expectation



The Colorado Department of Higher Education (CDHE) "Department of Higher Education Space Utilization Planning Guidelines" dated April 5, 2007 states the expectation for classroom utilization to be 30 hours per week. The CDHE expectation for percentage of seats filled is 67%, and the expected assignable square feet per student station is 20 ASF.

The consultant would expect to see the average weekly room hours to be between 30 to 35 hours per week, slightly above the CDHE guideline. The average room hours per week of scheduled use for the Fall term 2013 at CU Denver is within the range that the consultant would expect to see. The CU Denver average of 34 hours per week shows a satisfactory level of scheduled utilization within the expected range and above the CDHE planning guidelines. The consultant has seen urban, public institutions with utilization rates as high as 44 hours per week. The current level of utilization, while appropriate for the University, allows the University opportunities to increase the scheduled hours per week of utilization in the future if the University experiences enrollment growth.

A common expected average for the percentage of seats filled is 65% to 70%. The CDHE guideline of 67% occupancy falls in the range the consultant normally sees. The classroom student station occupancy of 58% at CU Denver is below the DHE guideline of 67% and below the consultant's expected range of 65% to 70%. As with the hours per week of utilization, the percentage of seats occupied in the classrooms at CU Denver allows the University opportunities to increase section sizes within existing classrooms if the University experiences enrollment growth.

The weekly seat hours of utilization in classrooms is a way to look at the weekly room hours and the percentage of occupancy combined. The weekly room hours show how many hours per week a classroom is scheduled. The weekly seat hours shows the average hours per week a seat in the classroom is occupied. The consultant's expectation for weekly seat hours is in the range of 20 to 24 hours per week. While the CDHE does not state an expected weekly seat hours of use, multiplying the 67% occupancy guideline times the 30 weekly room hours guideline results in a calculation of 20 weekly seat hours. The CU Denver average weekly seat hours is calculated at 19.9 hours per week, very slightly below the expected range.

The consultant finds the average size of the student stations in classrooms on many campuses to be around 20 to 25 ASF. The CDHE guideline states 20 ASF per student station. The CU Denver average of 20 ASF per student station average matches the CDHE expectation and is within the consultant's expectation.

In addition to reviewing classroom utilization for the Denver Campus as a whole, utilization was summarized by building. The classrooms located in the Business School building showed the highest average hours per week of scheduled use. The 14 classrooms in the Business School building averaged 43 hours per week of use. At the low end of utilization findings is the one classroom in Boulder Creek Building, which averaged only three hours per week of utilization, only occasionally being used by CU Denver.

When the utilization findings are summarized by school or college, the classrooms assigned to the Business School showed the highest average hours per week of scheduled use. The 17 classrooms averaged 40 hours per week of use. At the lower end the eight classrooms assigned to the College of Architecture and Planning (CAP) averaged 17 hours per week of scheduled use.

Classroom utilization findings compiled by classroom capacity showed the five classrooms coded 114 – Classroom: Extra-Large with 101 or more seats averaged 39 weekly room hours of scheduled use. The classrooms coded 111 – Classroom: Small with capacities of 1 to 35 student stations averaged the lowest weekly room hours (WRH) of use at 29 hours per week.

Utilization findings summarized by room scheduling control showed classroom that are centrally scheduled with priority given to departments averaged 51 weekly room hours of use. The classrooms that are centrally scheduled with priority given to the Community College of Denver only averaged four weekly hours of CU Denver utilization per week.

Classroom Laboratory Utilization

The 65 class laboratories analyzed averaged 24 weekly room hours of use. When laboratories were in use, the student station occupancy averaged 65%. Weekly seat hours averaged 17.0 hours.

The CDHE "Department of Higher Education Space Utilization Planning Guidelines" dated April 5, 2007 states the expectation for class laboratory utilization to be 20 or 30 hours per week. The CDHE expectation for percentage of seats filled is 80%.

In the consultant's experience the average for weekly room hours for class laboratory utilization is usually 20 to 24 hours per week of scheduled use with 70% to 80% of the student stations filled. The expectation for average seat hours is 14 to 20 weekly seat hours.

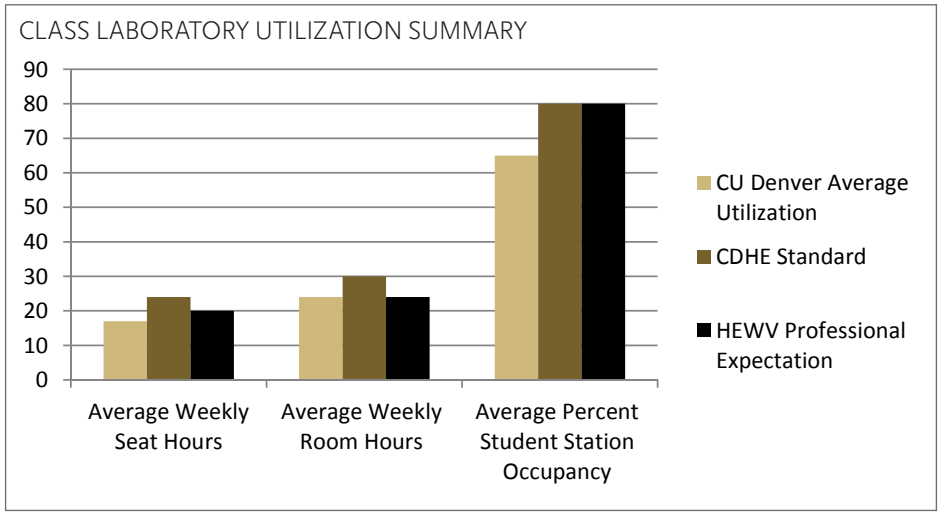
The average room hours per week of scheduled use of class laboratories at CU Denver is at the high end of the range the consultant would expect to see and is within the CDHE guideline. The average percentage of student station occupancy is below both the CDHE guideline and the consultant's expectation.

The CU Denver average weekly seat hours are within the range that the consultant would expect to see.

CLASS LABORATORY UTILIZATION SUMMARY

	CU Denver Average Utilization	CDHE Standard	HEWV Professional Expectation
Average Weekly Seat Hours	17.0	24	20
Average Weekly Room Hours	24	30	24
Average Student Station Occupancy	65%	80%	80%
Average Space per Student Station	43		
Number of Class Laboratories	65		

Note: Used upper limit of CDHE Standard and HEWV expectation



Other Scheduled Room Utilization

In addition to the classroom and class laboratory utilization there were 26 other rooms scheduled for CU Denver courses in the Fall 2013 term. These rooms are open laboratories, conference rooms, media production spaces, theater spaces, and auditoria. It is not at all unusual for an institution to schedule some courses in rooms that are not instructional spaces and it makes sense for campuses to schedule these spaces occasionally. No attempt was made to summarize the use of these spaces as their use is too varied.

The list of the 26 other rooms and the utilization for those rooms can be found in Appendix E.

2.0 classroom utilization

Classrooms are defined as any room generally used for scheduled instruction requiring no special equipment and referred to as a classroom, seminar room, or lecture hall. The classrooms at the University of Colorado Denver are given the space use codes 111, 112, 113, and 114. Rooms coded 111 are small classrooms that have from one to 35 student stations. Those coded 112 are medium classrooms that have 36 to 49 stations. Rooms coded 113 are large classrooms that have 50 to 100 student stations. Rooms with a code of 114 are extra-large classrooms that have 101 or more student stations.

An analysis of classroom and class laboratory utilization helps a campus to understand its space management. Space issues can be caused by the quantity of space, the quality of space, the location of space, the assignment of space, or the campus culture regarding the use of space. The data in the utilization analysis can provide information and insight for space management decisions.

The utilization analysis of classrooms and class laboratories was performed using information on classroom and class laboratory facilities from the Fall 2013 term.

The utilization analysis for both classrooms and class laboratories reviews the number of hours that rooms are scheduled and the percentage of student stations occupied in the rooms when they are in use. The utilization of a room is determined by calculating the average enrollment of the courses taught in a room along with total weekly student contact hours, weekly seat hours, weekly room hours (also referred to as weekly contact hours), and percentage of student stations occupied. These factors are calculated on a room-by-room basis and summarized by building, by school, by room capacity, or by scheduling control. The calculations used for these factors are described below.

Weekly room/contact hours are determined by calculating the number of hours a course meets, using start and end times, and multiplying the result by the number of days the course meets each week.

WEEKLY ROOM/CONTACT HOURS (WRH OR WCH) =
Number of Days X ((End Time - Start Time)/60)

Weekly student contact hours (WSCH) are calculated by multiplying the enrollment of a course by the weekly contact hours, or weekly room hours, during which the course is held.

WEEKLY STUDENT CONTACT HOURS (WSCH) =
Number of Students Enrolled X Weekly Room/Contact Hours

A room's *weekly student contact hour* capacity is determined by multiplying the number of student stations in the room by the weekly contact hours, or weekly room hours, during which the course is held.

WEEKLY STUDENT CONTACT HOUR CAPACITY =
Number of Student Stations X Weekly Room/Contact Hours

The *percentage of student stations occupied* in a room is determined by dividing the room's weekly student contact hours by the room's weekly student contact hour capacity.

% STUDENT STATION OCCUPANCY =
WSCH / WSCH Capacity

Weekly student seat hours or *weekly seat hours* looks at the average number of hours per week that any given seat is occupied. It is essentially a way to look at the average weekly room hours of scheduled use combined with the percentage of student station occupancy. The weekly seat hours are calculated by dividing the weekly student contact hours in a room by the number of student seats in the room.

WEEKLY SEAT HOURS = WSCH / Number of Seats

All of these metrics – weekly student contact hours, weekly room hours, weekly student contact hour capacity, percentage of student station occupancy, and weekly seat hours – provide a detailed look at instructional space utilization. This detailed look, in turn, provides information to understand whether space management issues are due to an inadequate amount of space, inefficient use of space, or inconvenient location of space.

There are 111 rooms that CU Denver uses on campus classified as classrooms. During the Fall 2013 term, the 111 classrooms analyzed on the University of Colorado Denver campus averaged 34 hours of scheduled use per week, at 58% student station occupancy. The average of the weekly seat hours was 19.9 hours. The average station size in classrooms on campus is 20 ASF per student station.

The guidelines of the CDHE as outlined in the publication "Department of Higher Education Space Utilization Planning Guidelines" dated April 5, 2007 are for classroom utilization to be 30 hours per week. The guideline for the percentage of seats filled is 67%, and the assignable square feet per student station guideline is 20 ASF.

The consultant would normally expect to see the weekly room hours of scheduled classroom utilization, the number of hours per week a room is scheduled, to be between 30 and 35 hours per week at a public university, with 65% to 70% of seats filled when a room is occupied for scheduled use. The weekly seat hours of use or the average number of hours per week each seat is occupied is expected to be between 20 and 24 hours per week. The consultant has found the average size of student stations in modern classrooms to be around 20 to 25 ASF. This average takes into consideration that some active learning classrooms will have 30 ASF or more per station while auditoria or lecture halls may have less that 20 ASF per station.

The 34 average weekly hours of use at the University of Colorado Denver is within the 30 to 35 hour range that the consultant would expect to see. The CU Denver student station occupancy of 58% is below the expected 65% to 70% average. The 19.9 weekly seat hour average at the University of Colorado Denver falls slightly below the expected 20 to 24 hour range. The student station size of 20 ASF per station is within the expected average range of 20 to 25 ASF per station.

The results of the classroom utilization analysis are similar to those the consultant would expect to find at a public university. Overall the findings indicate a reasonable utilization of classrooms on the campus. While the findings show satisfactory utilization, both the current hours per week of scheduled utilization and percentage of seats occupied on the Denver Campus will allow opportunities for additional utilization if the campus experiences enrollment growth.

Tables showing the room-by-room analysis of classroom utilization can be found in Appendices A and B.

2.1 CLASSROOM UTILIZATION ANALYSIS SUMMARIZED BY BUILDING

The 111 classrooms analyzed are located in 12 different buildings, with 75% of the campus classrooms located in four buildings – North Classroom, Business School, UC-Denver, and Plaza. The North Classroom Building houses 36% of the 111 classrooms.

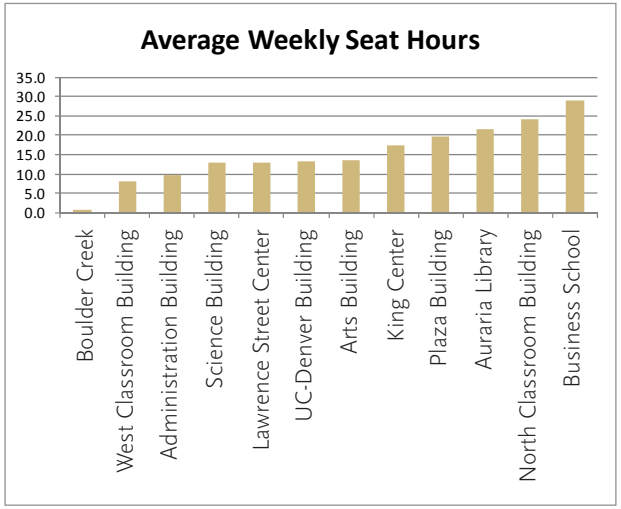
When the utilization findings were summarized by building, the classrooms located in the Business School building showed the highest average hours per week of scheduled use. The 14 classrooms in the Business School building averaged 43 hours per week of use. At the low end of utilization findings is the one classroom in Boulder Creek, which averaged only three hours per week of utilization.

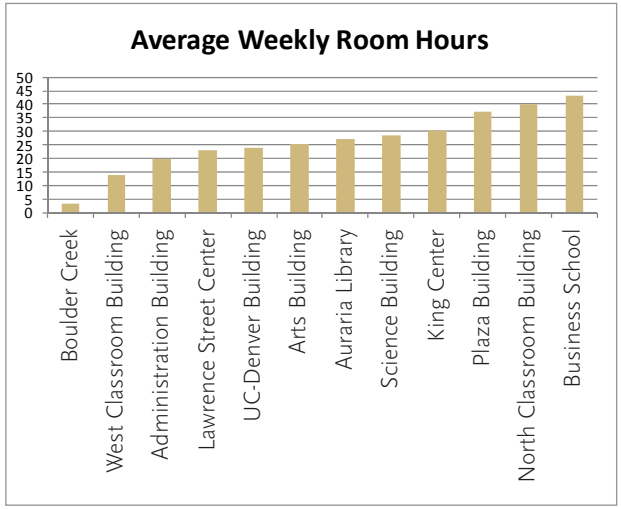
The classrooms in the Auraria Library have the highest average student station occupancy percentage at 78%. The classroom in Boulder Creek has the lowest student station occupancy at 25%.

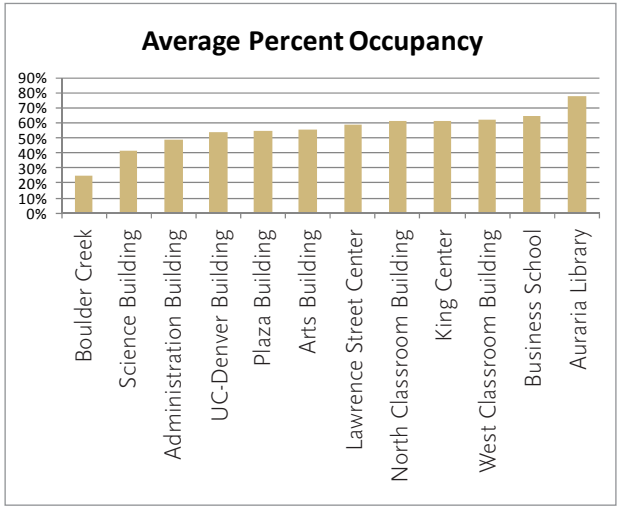
The weekly seat hour analysis showed the classrooms in the Business School building to have the highest weekly student seat hours at 29.0 hours. The classrooms in Boulder Creek averaged the lowest student seat hours at 0.9 hours.

Classroom Utilization by Building

BUILDING NAME	Number of Rooms	Average ASF	Average Room Capacity	Average ASF Per Station	Average Enrollment	Average Weekly Student Contact Hours	Average Weekly Seat Hours	Average Weekly Room Hours	Average Percent Occupancy
Administration Building	1	982	35	28	17	336	9.6	20	49%
Arts Building	2	721	43	16	24	500	13.4	25	56%
Auraria Library	1	587	26	23	20	560	21.6	27	78%
Boulder Creek	1	501	36	14	9	31	0.9	3	25%
Business School	14	1,276	39	32	26	1,222	29.0	43	65%
UC-Denver Building	15	866	37	23	19	528	13.2	24	54%
King Center	9	893	45	20	26	777	17.3	30	61%
Lawrence Street Center	6	767	35	22	21	469	13.0	23	59%
North Classroom Building	40	908	61	15	36	1,386	24.0	40	61%
Plaza Building	14	752	48	16	26	942	19.5	37	55%
Science Building	4	1,589	102	19	38	1,317	12.9	28	41%
West Classroom Building	4	800	55	15	35	376	8.1	14	62%
AVERAGE		932	51	20	29	1,010	19.9	34	58%
Number of Rooms	111								







2.2 CLASSROOM UTILIZATION ANALYSIS SUMMARIZED BY COLLEGE AND SCHOOL

Most of the classrooms on the Denver Campus are centrally scheduled and are not assigned to a particular school or college for its exclusive use. In order to perform the analysis by college or school the weekly student contact hours for each college or school in each room was reviewed. The college or school that had the highest weekly student contact hours in the room was designated as the school assigned to the room even when other colleges utilized the room at a high level. Because most of the rooms are shared among the schools and colleges, the actual number of rooms regularly used for scheduled instruction by a particular college may differ from the number indicated here.

For example, in the Fall of 2013 the School of Public Affairs scheduled courses in 21 classrooms on the campus, but only in two of those classrooms did the School of Public Affairs schedule the most weekly student contact hours. While this shared use of classrooms complicates the review of utilization by school and college, it speaks well for the level of cooperation among the schools on the campus.

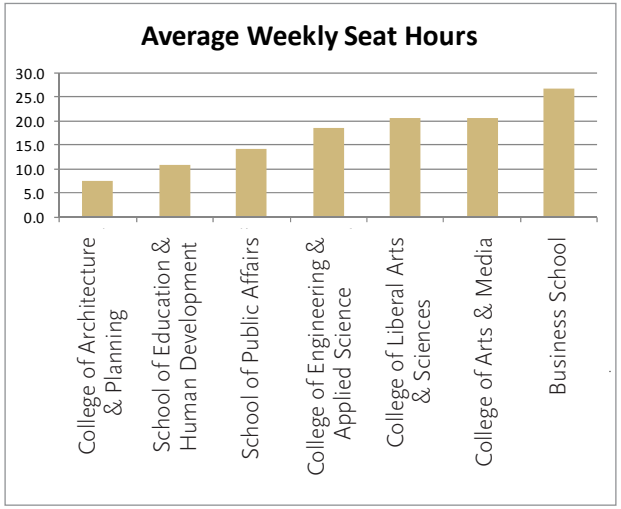
When the utilization findings are summarized by school, the Business School classrooms showed the highest average hours per week of scheduled utilization. The 18 classrooms averaged 40 hours per week of use. At the lower end, the eight CAP classrooms averaged 17 hours per week of use.

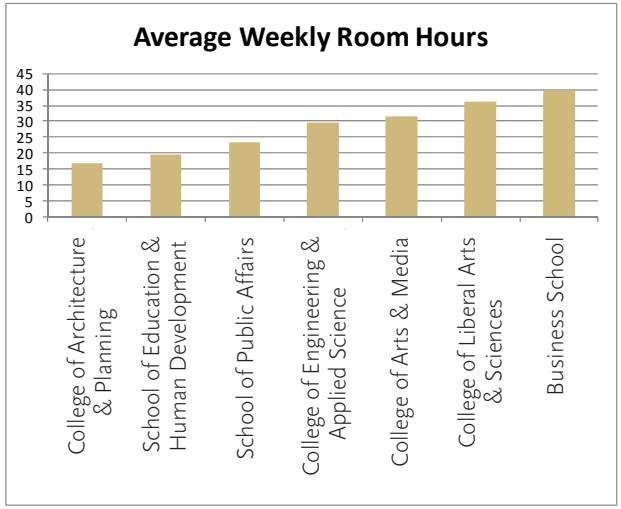
The percentage of student stations occupied in Business School classrooms showed the highest occupancy level with an average of 67% student station occupancy. The lowest occupancy average was in the CAP classrooms that averaged 47% student station occupancy.

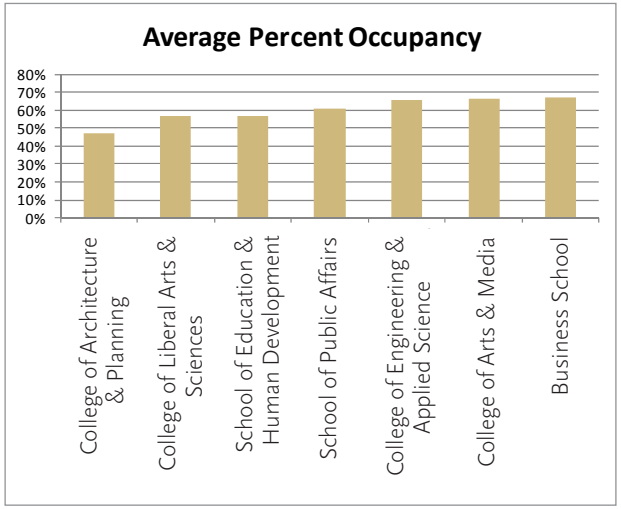
The weekly seat hour analysis showed the Business School classrooms to have the highest weekly student seat hours at 26.7 hours. The CAP classrooms averaged the lowest student seat hours at 7.6 hours.

Classroom Utilization by College and School

COLLEGE/SCHOOL	Number of Rooms	Average ASF	Average Room Capacity	Average ASF Per Station	Average Enrollment	Average Weekly Student Contact Hours	Average Weekly Seat Hours	Average Weekly Room Hours	Average Percent Occupancy
College of Architecture & Planning	8	871	38	22	18	347	7.6	17	47%
College of Arts & Media	7	723	35	21	23	676	20.7	32	66%
Business School	18	1,249	41	31	27	1,151	26.7	40	67%
School of Education & Human Development	6	699	32	22	19	371	10.9	20	57%
College of Engineering & Applied Science	3	763	41	19	27	810	18.6	29	66%
College of Liberal Arts & Sciences	67	913	59	16	32	1,168	20.6	36	57%
School of Public Affairs	2	321	36	18	22	499	14.1	24	61%
AVERAGE		932	51	20	29	1,010	19.9	34	58%
Number of Rooms	111								







2.3 CLASSROOM UTILIZATION ANALYSIS SUMMARIZED BY ROOM CAPACITY

Classroom utilization findings compiled by classroom capacity showed the five classrooms in the group 114 – Classroom: Extra-Large (101 & above Stations) averaged 39 weekly room hours of use. The classrooms with capacities of less than 35 student stations in group 111- Classroom: Small (1-35 Stations) averaged the lowest weekly room hours (WRH) of use at 29 hours per week.

The percentage of seats filled in classrooms, or the percentage of student station occupancy, is highest in classrooms in the group 112 – Classroom: Medium (36 – 49 Stations). These classrooms averaged 60% student station occupancy. The classrooms that are in group 114 – Classroom: Extra-Large (101 & above Stations) averaged 52% of seats filled.

Typically, trends show that smaller classrooms are not scheduled as many hours per week as larger classrooms, so as the capacity of the classrooms increase so do the weekly room hours. Campuses make significant investment in large lecture halls and auditoria and generally attempt to use them fully, while at the other end of the spectrum small classrooms are used less often as fewer courses can fit in the rooms. Conversely, it is common to find that as classroom capacity increases, the student station occupancy decreases. For example, a classroom that seats 12 can usually hold 12 students comfortably; however an auditorium that holds 150 feels very crowded when all 150 seats are full. Therefore, smaller classrooms tend to show a greater student station occupancy while the larger rooms tend to have a lower student station occupancy percentage.

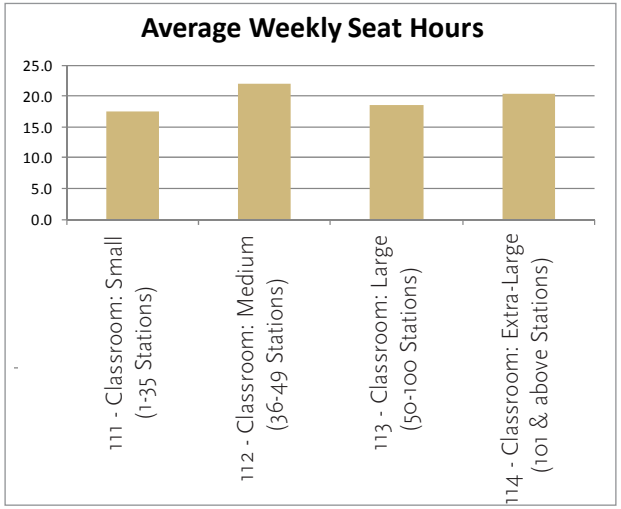
The classrooms at CU Denver do not follow these trends. This would indicate classrooms on campus are scheduled for their location, department assignment, or other features more often than for room capacity.

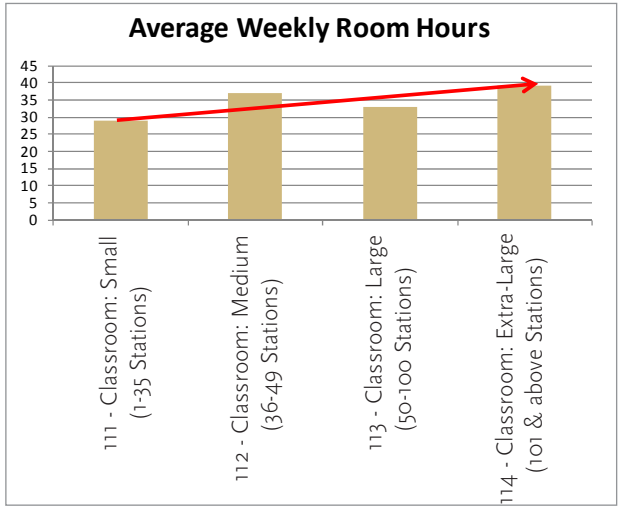
The lack of any clear trends in the classroom utilization findings summarized by classroom capacity indicates that the University of Colorado Denver is not making classroom size a priority when making room assignments for class scheduling.

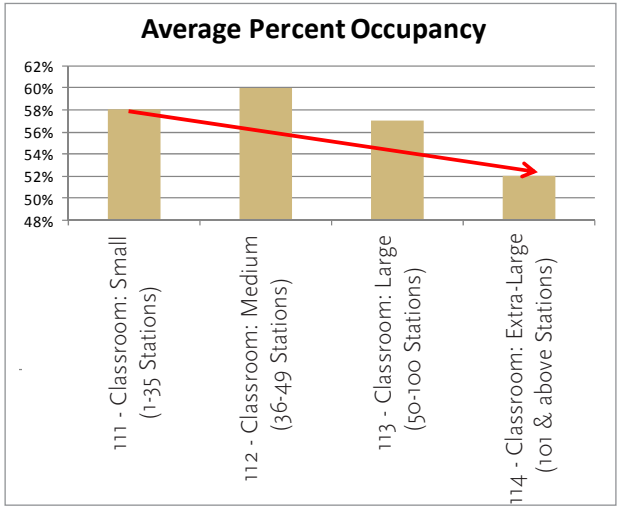
Classroom Utilization by Room Capacity - Space Use Code

SPACE USE CODE / ROOM CAPACITY GROUP	Number of Rooms	Average ASF	Average Room Capacity	Average ASF Per Station	Average Enrollment	Average Weekly Student Contact Hours	Average Weekly Seat Hours	Average Weekly Room Hours	Average Percent Occupancy
111 - Classroom: Small (1-35 Stations)	27	595	29	21	17	537	17.4	29	58%
112 - Classroom: Medium (36-49 Stations)	53	878	44	20	26	864	21.9	37	60%
113 - Classroom: Large (50-100 Stations)	26	1,089	62	18	35	1,113	18.5	33	57%
114 - Classroom: Extra-Large (101 & above Stations)	5	2,499	187	14	90	3,523	20.4	39	52%
AVERAGE		932	51	20	29	1,010	19.9	34	58%
Number of Rooms	111								

→ = Denotes a trend







2.4 CLASSROOM UTILIZATION ANALYSIS SUMMARIZED BY ROOM SCHEDULING CONTROL

Classrooms are scheduled either centrally by AHEC according to institutional priority, by AHEC centrally with departmental priority, or these rooms are departmentally controlled. Of those rooms scheduled centrally, each is under the priority of one of the three institutions located on the AHEC campus. Although either Metro State or CCD may have priority over certain rooms, CU Denver may also scheduled classes in these rooms that may have capacity remaining after meeting the needs of the other institutions.

Classroom utilization findings compiled by room scheduling control showed the 10 classrooms in the group that are Centrally Scheduled – Dept. Priority averaged 51 weekly room hours of use. The two classrooms that are Centrally Scheduled – CCD Priority are utilized by CU Denver the least, averaging only four hours per week.

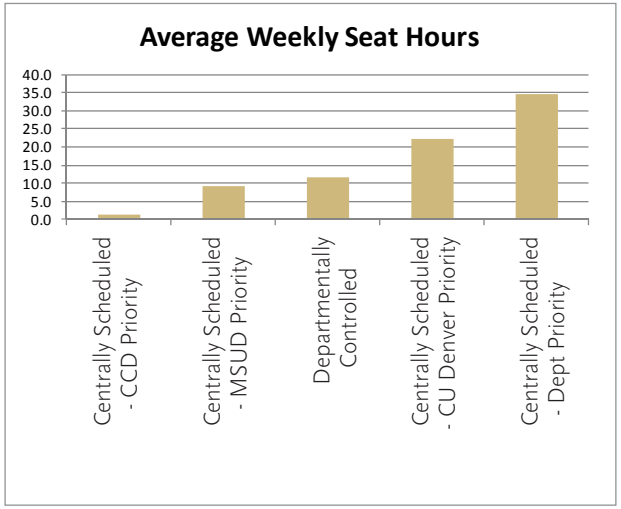
The percentage of seats filled in classrooms, or the percentage of student station occupancy, is highest in classrooms in the group that are Centrally Scheduled – Dept. Priority. These classrooms averaged 69% student station occupancy. The classrooms that are Centrally Scheduled – CCD Priority averaged 26% of seats filled.

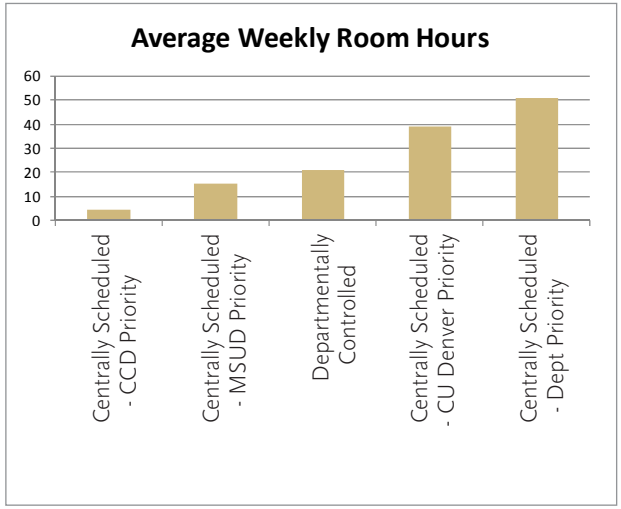
The weekly seat hour analysis showed the classrooms assigned to the group that are Centrally Scheduled – Dept. Priority to have the highest weekly student seat hours at 34.5 hours. The classrooms Centrally Scheduled – CCD Priority averaged the lowest student seat hours at 1.2 hours.

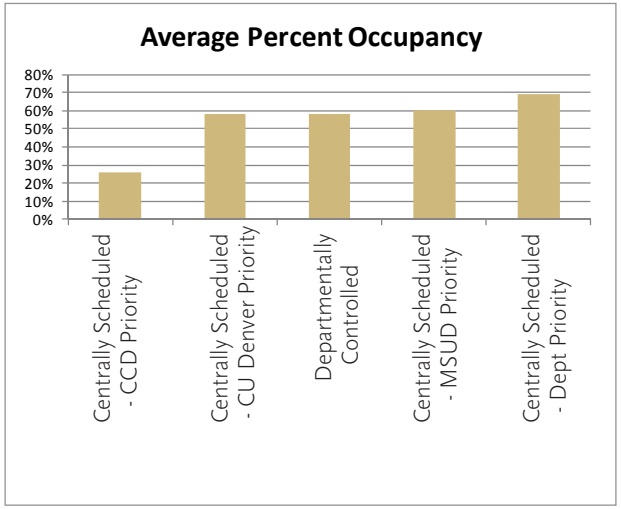
Because the Centrally Scheduled – CCD Priority and the Centrally Scheduled – MSUD Priority Rooms are used significantly less by the University of Colorado Denver than those which CU Denver has priority for scheduling, a second set of averages was compiled looking only at the classrooms that are Centrally Scheduled – CU Denver Priority, Centrally Scheduled – Department Priority, and Departmentally Controlled, leaving out the rooms that the other institutions have priority. The result of that average is not significantly different than the average including the other institutions since only eight out of 111 rooms were removed from the averages. The CU Denver average weekly room hours without the CCD and MSUD classrooms rose from 34 to 36 weekly room hours. The average CU Denver weekly seat hours increased from 19.9 to 20.9 hours. The percentage of stations occupied increased by one percent from 58% to 59%.

Classroom Utilization by Room Scheduling Control

ROOM SCHEDULING CONTROL	Number of Rooms	Average ASF	Average Room Capacity	Average ASF Per Station	Average Enrollment	Average Weekly Student Contact Hours	Average Weekly Seat Hours	Average Weekly Room Hours	Average Percent Occupancy
Centrally Scheduled - CU Denver Priority	68	898	57	17	32	1,227	22.3	39	58%
Centrally Scheduled - Dept Priority	10	1,368	42	32	29	1,462	34.5	51	69%
Centrally Scheduled - CCD Priority	2	811	45	18	12	53	1.2	4	26%
Centrally Scheduled - MSUD Priority	6	962	61	17	36	450	9.4	15	61%
Departmentally Controlled	25	851	36	23	21	452	11.6	21	58%
AVERAGE		932	51	20	29	1,010	19.9	34	58%
Number of Rooms	111								

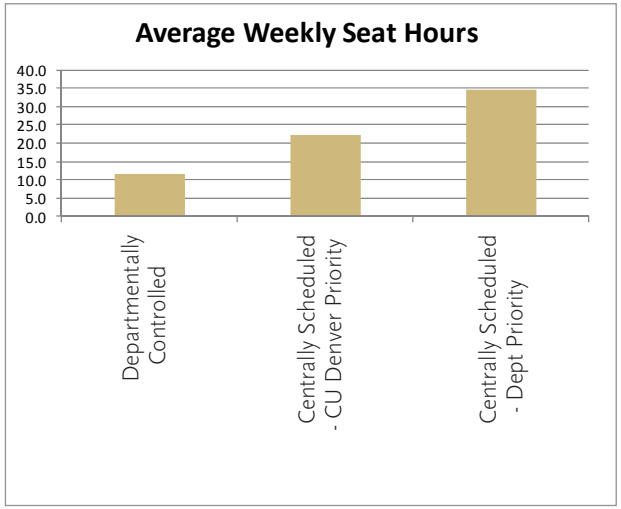


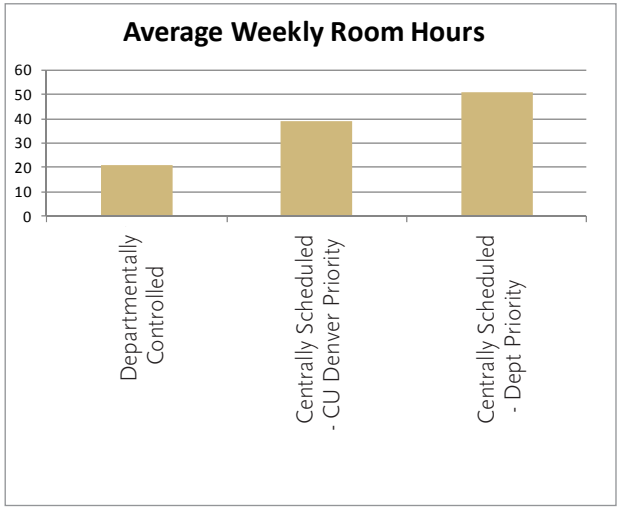


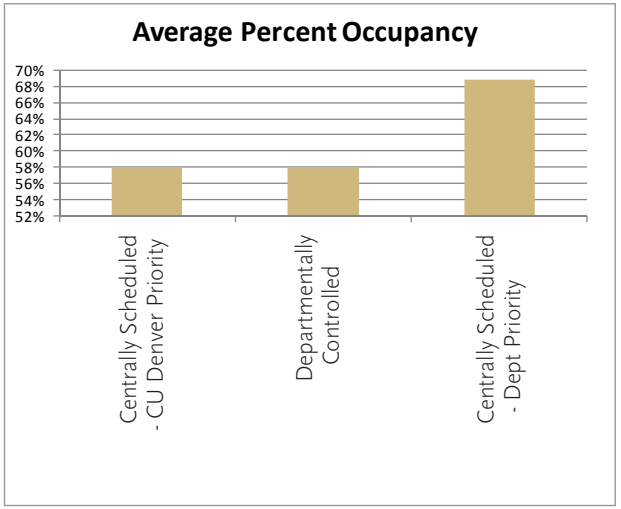


Classroom Utilization by Room Scheduling Control - CU Denver Classrooms

ROOM SCHEDULING CONTROL	Number of Rooms	Average ASF	Average Room Capacity	Average ASF Per Station	Average Enrollment	Average Weekly Student Contact Hours	Average Weekly Seat Hours	Average Weekly Room Hours	Average Percent Occupancy
Centrally Scheduled - CU Denver Priority	68	898	57	17	32	1,227	22.3	39	58%
Centrally Scheduled - Dept Priority	10	1,368	42	32	29	1,462	34.5	51	69%
Departmentally Controlled	25	851	36	23	21	452	11.6	21	58%
AVERAGE		932	50	20	29	1,061	20.9	36	59%
Number of Rooms	111								







3.0 class laboratory utilization

Class laboratories, sometimes referred to as teaching laboratories, are defined as spaces used primarily for regularly scheduled instruction that require special purpose equipment or special space configuration for student participation. Under this definition class laboratories are not limited to science laboratories but also include other discipline-specific instructional spaces such as art studios, band practice rooms, and accounting computer laboratories.

There are two types of laboratories that are not included in the class laboratory analysis: open laboratories and research laboratories. Open laboratories are rooms that are for student use but are informally scheduled, unscheduled, or open for individual or group use and study. Research laboratories are rooms used for laboratory experimentation, research, or training in research methods. The research conducted may be by either faculty or students for both funded and non-funded research. Open and research laboratory spaces do not have formal or scheduled utilization expectations, so their utilization has not been analyzed here.

As with classroom utilization analysis, the square feet per station, the weekly seat hours, the hours of use per week, and the percentage of student stations filled when laboratory sections are in session combine to form the overall class laboratory utilization factors. The class laboratory utilization analysis was summarized by building and by college or school.

There were 65 rooms classified as class laboratories scheduled for use in the Fall 2013 term. The University of Colorado Denver class laboratories averaged 17.0 weekly seat hours, 24 room hours per week of scheduled use, with 65% of the student stations occupied.

The CDHE publication "Department of Higher Education Space Utilization Planning Guidelines" dated April 5, 2007 outlines guidelines for class laboratory utilization. The guideline for class laboratory utilization is 20 to 30 hours per week. The guideline for the percentage of seats filled is 80%. The assignable square feet per station is not defined as it varies by laboratory discipline.

The average of 24 weekly room hours of class laboratory utilization at CU Denver is within the 20 to 24 weekly room hour range the consultant would expect to see for scheduled use in class laboratories at a public institution and is within the 20 to 30 weekly room hours in the CDHE guidelines. The University of Colorado Denver class laboratory student station occupancy of 67% is below the consultant's expected range of 70% to 80% and below the CDHE 80% guideline. The consultant would expect to find weekly seat hours to average between 14 and 20 hours. The 17.0 weekly seat hours of utilization at CU Denver is within the expected range.

The scheduled weekly room hour average for class laboratories is generally found to be less than scheduled use of classrooms due to the need for preparation time of specialized equipment prior to class and for the need for laboratory use for student projects and study during unscheduled hours. Conversely, the student station occupancy is normally higher in class laboratories than in classrooms, as the size of each student station is larger and there is usually a desire to make efficient use of specialized and often expensive equipment. The fact that the class laboratories have a lower percent of student station occupancy than the expectations would indicate that there are opportunities for CU Denver to increase section sizes within existing class laboratories if the University experiences enrollment growth.

The room-by-room class laboratory utilization analysis results for can be found in Appendices C and D. In reviewing the room-by-room utilization for class laboratories, it is notable that two of the class laboratories have student station occupancies of 100%. This is not a finding that is out of line as a rule, but may indicate a need for more research review of the number of stations in these rooms and in rooms with 99% or other very high percent occupancy. Unlike classrooms where the number of chairs indicates the number of student stations, that is not always clear in class laboratories as equipment may be moveable or benches may be designed for two or more students.

3.1 CLASS LABORATORY UTILIZATION ANALYSIS SUMMARIZED BY BUILDING

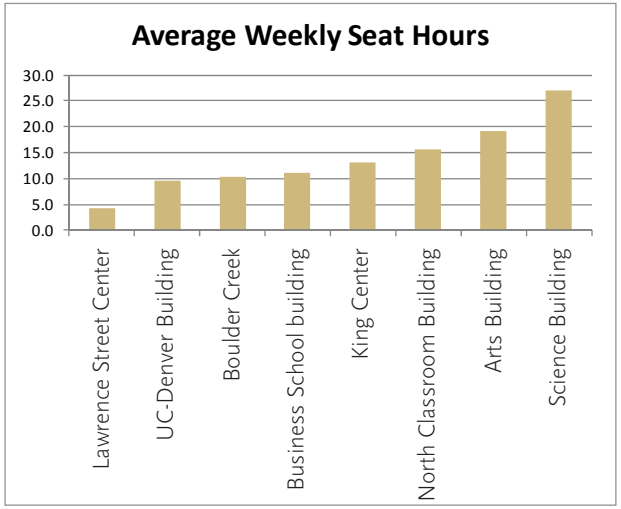
When class laboratory utilization was summarized by building, the class laboratories in the Science Building showed an average of 32 hours per week of scheduled use. At the other end of the spectrum, the class laboratories in the Lawrence Street Center averaged nine weekly room hours of scheduled use.

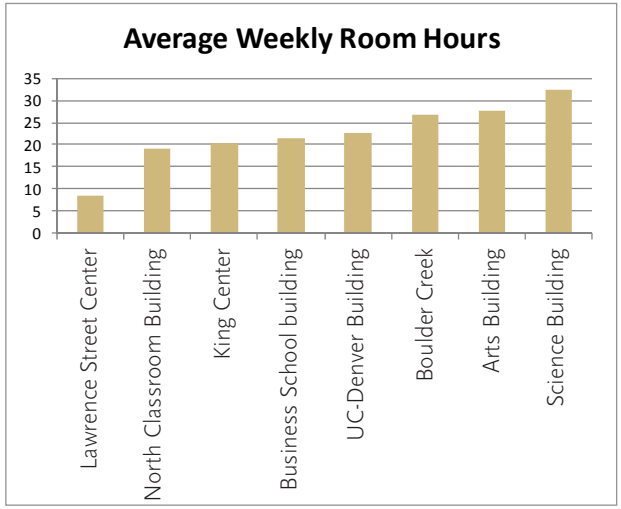
The percentage of student station occupancy is highest in the class laboratories in the Science Building, which averaged 82% of stations occupied when the rooms were scheduled. The lowest occupancy level was in the laboratories in Boulder Creek, which averaged 40% of stations filled when in use.

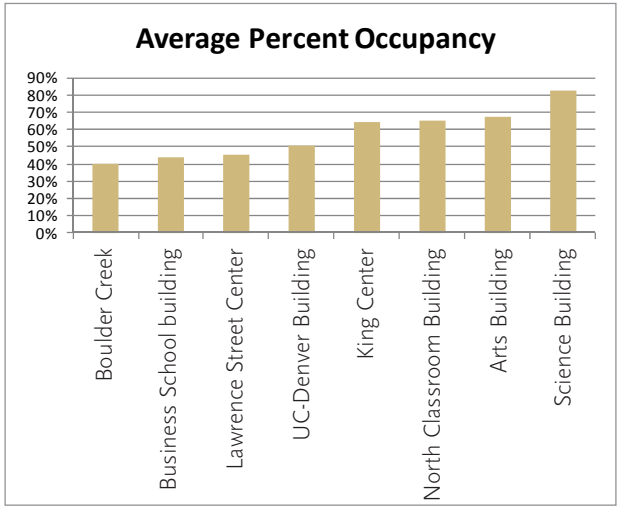
The weekly seat hours were highest in the class laboratories in the Science Building. They averaged 27.0 weekly seat hours. The low end of the weekly seat hours was in the Lawrence Street Center, where the average weekly seat hours averaged 4.2 hours.

Class Laboratory Utilization by Building

BUILDING NAME	Number of Rooms	Average ASF	Average Room Capacity	Average ASF Per Station	Average Enrollment	Average Weekly Student Contact Hours	Average Weekly Seat Hours	Average Weekly Room Hours	Average Percent Occupancy
Arts Building	12	1,016	24	42	14	387	19.1	28	67%
Boulder Creek	2	1,384	38	36	16	400	10.3	27	40%
Business School building	2	1,142	38	30	17	390	11.0	22	44%
UC-Denver Building	11	2,768	55	42	21	482	9.5	23	51%
King Center	2	1,108	46	24	30	597	13.2	20	65%
Lawrence Street Center	3	947	37	26	17	166	4.2	9	45%
North Classroom Building	18	976	28	37	18	390	15.7	19	65%
Science Building	15	1,282	22	59	19	629	27.0	32	82%
AVERAGE		1,378	32	43	18	456	17.0	24	65%
Number of Rooms	65								







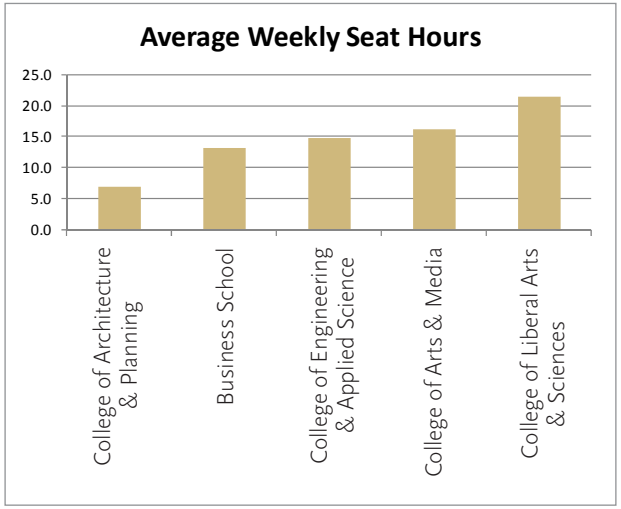
3.2 CLASS LABORATORY UTILIZATION ANALYSIS SUMMARIZED BY COLLEGE AND SCHOOL

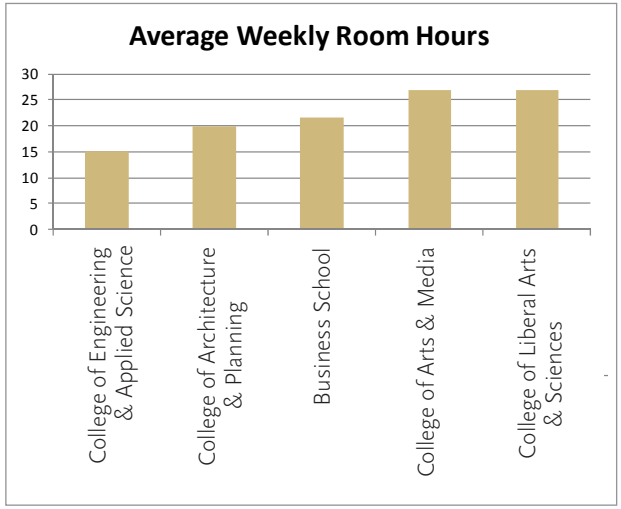
The utilization analysis for class laboratories summarized by School shows how the different disciplines use their instructional laboratories.

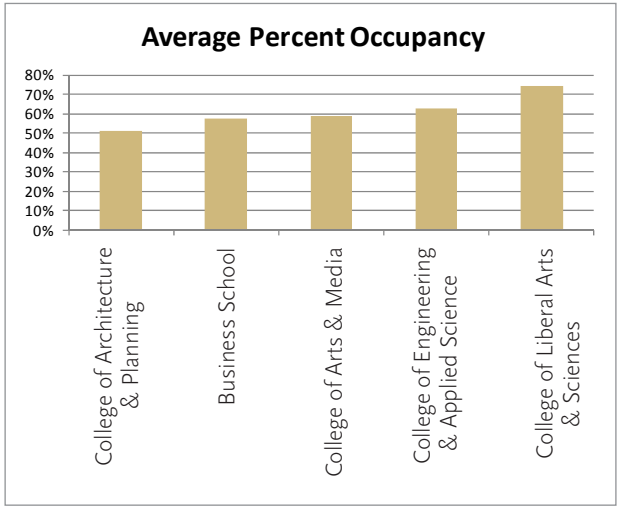
The class laboratories assigned to the College of Liberal Arts & Sciences and those assigned to the College of Arts & Media were used the highest average hours per week, averaging 27 hours of scheduled use. The percentage of student station occupancy is greatest at 74% for laboratories in the College of Liberal Arts & Sciences. The greatest weekly seat hours were in the College of Liberal Arts & Sciences, which averaged 21.4 weekly seat hours.

Class Laboratory Utilization by College and School

COLLEGE/SCHOOL	Number of Rooms	Average ASF	Average Room Capacity	Average ASF Per Station	Average Enrollment	Average Weekly Student Contact Hours	Average Weekly Seat Hours	Average Weekly Room Hours	Average Percent Occupancy
College of Architecture & Planning	6	4,499	75	57	27	565	7.0	20	51%
College of Arts & Media	20	963	27	36	14	383	16.1	27	59%
Business School	3	1,173	40	29	23	520	13.2	22	57%
College of Engineering & Applied Science	11	981	27	39	16	303	14.8	15	63%
College of Liberal Arts & Sciences	28	1,159	27	47	19	549	21.4	27	74%
AVERAGE		1,378	32	43	18	456	17.0	24	65%
Number of Rooms	65								







APPENDICES

Classroom Utilization by Room Summarized by Building

BUILDING NAME	NUMBER OF ROOMS	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
Administration Building	***1***									
		AD 200	982	35	28	17	336	9.6	20	49%
Building Average			*982*	*35*	*28*	*17*	*336*	*9.6*	*20*	*49%*
Arts Building	***2***									
		AR 186	1,067	56	19	31	459	8.2	15	55%
		AR 298	375	29	13	16	542	18.7	36	56%
Building Average			*721*	*43*	*16*	*24*	*500*	*13.4*	*25*	*56%*
Auraria Library	***1***									
		LM 127	587	26	23	20	560	21.6	27	78%
Building Average			*587*	*26*	*23*	*20*	*560*	*21.6*	*27*	*78%*
Boulder Creek	***1***									
		BLD 117	501	36	14	9	31	0.9	3	25%
Building Average			*501*	*36*	*14*	*9*	*31*	*0.9*	*3*	*25%*
Business School Building	***14***									
		BUS 1800	1,983	48	41	36	1,548	32.3	43	75%
		BUS 2007	1,813	48	38	31	1,061	22.1	35	64%
		BUS 2100	1,568	47	33	29	1,310	27.9	45	62%
		BUS 2200	952	40	24	28	1,291	32.3	45	71%
		BUS 2201	1,027	40	26	33	1,417	35.4	43	83%
		BUS 3000	1,041	35	30	23	1,313	37.5	55	66%
		BUS 3006	760	20	38	11	109	5.4	10	55%
		BUS 3007	1,109	36	31	20	625	17.4	32	55%
		BUS 3100	1,507	44	34	31	2,259	51.3	77	71%
		BUS 3200	1,670	44	38	33	2,196	49.9	73	75%
		BUS 3300	1,606	48	33	35	2,105	43.8	65	72%
		BUS 3404	1,043	35	30	22	1,083	31.0	48	62%
		BUS 3600	654	26	25	8	26	1.0	3	31%
		BUS 4500	1,128	41	28	28	769	18.7	28	67%
Building Average			*1,276*	*39*	*32*	*26*	*1,222*	*29.0*	*43*	*65%*

Classroom Utilization by Room Summarized by Building										
BUILDING NAME	NUMBER OF ROOMS	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
CU-Denver Building	***15***									
		CU 1000	1,189	38	31	21	708	18.6	34	56%
		CU 1100	1,259	45	28	32	956	21.2	30	70%
		CU 1110	1,004	40	25	28	1,055	26.4	37	71%
		CU 1120	365	16	23	8	122	7.6	16	48%
		CU 2005	756	37	20	25	177	4.8	8	68%
		CU 150K	1,225	60	20	27	1,487	24.8	56	44%
		CU 320A	410	18	23	14	85	4.7	6	75%
		CU 320C	413	30	14	12	263	8.8	23	39%
		CU 440	1,305	55	24	24	497	9.0	21	44%
		CU 470	2,082	75	28	33	830	11.1	26	43%
		CU 480	1,131	50	23	21	769	15.4	36	42%
		CU 495	452	22	21	12	152	6.9	13	52%
		CU 505	422	20	21	3	5	0.3	2	15%
		CU 656	504	24	21	15	264	11.0	18	61%
		CU 815D	474	20	24	17	548	27.4	33	83%
Building Average			*866*	*37*	*23*	*19*	*528*	*13.2*	*24*	*54%*
King Center	***9***									
		KC 101	1,046	48	22	35	1,033	21.5	29	73%
		KC 103	1,046	48	22	29	1,107	23.1	39	60%
		KC 201	745	45	17	22	757	16.8	34	50%
		KC 205	1,125	39	29	38	106	3.0	3	97%
		KC 210	785	48	16	16	502	10.5	31	34%
		KC 212	805	48	17	25	1,007	21.0	38	52%
		KC 218	613	32	19	24	684	21.4	29	76%
		KC 312	1,108	46	24	25	984	21.4	38	54%
		KC 318	765	48	16	23	817	17.0	34	49%
Building Average			*893*	*45*	*20*	*26*	*777*	*17.3*	*30*	*61%*

Classroom Utilization by Room Summarized by Building										
BUILDING NAME	NUMBER OF ROOMS	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
Lawrence Street Center	***6***									
		LW 1150	814	35	23	15	357	10.2	28	42%
		LW 500Y	778	35	22	20	710	20.3	35	58%
		LW 600	715	40	18	27	652	16.3	24	67%
		LW 648	806	35	23	22	605	17.3	27	64%
		LW 700	546	25	22	16	106	4.2	7	64%
		LW 745	946	40	24	23	383	9.6	18	56%
Building Average			*767*	*35*	*22*	*21*	*469*	*13.0*	*23*	*59%*
North Classroom Building	***40***									
		NC 1130A	3,811	285	13	127	4,777	17.0	37	45%
		NC 1202	1,060	72	15	32	1,209	16.8	36	45%
		NC 1204	991	72	14	46	1,950	27.1	42	63%
		NC 1207	1,132	95	12	72	2,574	27.1	36	76%
		NC 1311	504	35	14	21	1,221	34.9	59	60%
		NC 1312	450	35	13	21	1,047	29.9	49	61%
		NC 1313	535	40	13	28	1,351	33.8	53	69%
		NC 1314	494	40	12	25	948	23.7	38	64%
		NC 1315	680	48	14	25	1,060	22.1	41	51%
		NC 1316	488	35	14	22	919	26.3	42	63%
		NC 1321	533	40	13	28	1,272	31.8	51	70%
		NC 1322	445	35	13	21	751	21.5	36	59%
		NC 1323	535	40	13	24	1,023	25.6	42	61%
		NC 1324	494	36	14	24	928	25.8	39	66%
		NC 1325	673	47	14	31	1,166	24.8	38	65%
		NC 1326	488	42	12	22	692	16.5	32	53%
		NC 1402	900	48	19	24	1,732	36.1	65	50%
		NC 1408	834	55	15	32	1,429	26.0	48	58%
		NC 1511	728	55	13	33	1,284	23.3	39	61%
		NC 1515	689	55	13	35	1,156	21.0	34	64%
		NC 1533	421	35	12	25	886	25.3	36	70%
		NC 1535	1,743	120	15	79	3,091	25.8	39	66%
		NC 1539	2,265	168	13	96	4,023	23.9	42	57%
		NC 1602	900	48	19	32	1,274	26.5	40	67%
		NC 1603	881	48	18	21	1,021	21.3	48	44%
		NC 1605	886	48	18	24	1,007	21.0	43	49%
		NC 1607	914	72	13	47	1,435	19.9	30	66%
		NC 1608	1,157	95	12	51	450	4.7	9	53%
		NC 1805A	681	30	23	24	376	12.5	16	80%
		NC 1806	938	67	14	41	1,587	23.7	39	61%
		NC 2001	618	47	13	30	990	21.1	34	63%
		NC 2002	616	47	13	28	991	21.1	35	60%
		NC 3004	676	48	14	23	882	18.4	40	48%
		NC 3202	1,297	52	25	31	1,614	31.0	59	60%

Classroom Utilization by Room Summarized by Building

BUILDING NAME	NUMBER OF ROOMS	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
North Classroom Building	***40***									
		NC 3205	1,067	50	21	33	1,520	30.4	52	66%
		NC 3207	929	50	19	32	1,210	24.2	39	64%
		NC 3209	1,013	50	20	32	1,264	25.3	39	64%
		NC 3210	721	40	18	29	1,335	33.4	46	73%
		NC 3212	1,061	50	21	35	1,841	36.8	52	70%
		NC 3407	1,076	52	21	26	140	2.7	5	50%
Building Average			*908*	*61*	*15*	*36*	*1,386*	*24.0*	*40*	*61%*
Plaza Building	***14***									
		PL 112	690	46	15	25	607	13.2	24	55%
		PL 114	690	48	14	22	838	17.5	38	47%
		PL 116	634	43	15	23	1,089	25.3	47	54%
		PL 130	856	48	18	27	976	20.3	37	56%
		PL 131	576	30	19	16	934	31.1	59	53%
		PL 132	849	48	18	22	815	17.0	38	46%
		PL 211	411	36	11	14	486	13.5	32	39%
		PL 213	660	42	16	27	1,022	24.3	40	63%
		PL 250	534	43	12	34	102	2.4	3	79%
		PL M104	583	43	14	25	962	22.4	39	58%
		PL M202	467	20	23	12	486	24.3	42	58%
		PL M203	1,127	68	17	41	1,853	27.3	47	61%
		PL M204	1,695	110	15	62	2,424	22.0	39	57%
		PL M206	757	46	16	18	591	12.9	34	38%
Building Average			*752*	*48*	*16*	*26*	*942*	*19.5*	*37*	*55%*
Science Building	***4***									
		SI 1067	2,982	250	12	85	3,300	13.2	37	34%
		SI 1111	1,161	52	22	28	1,008	19.4	36	54%
		SI 1117	1,120	54	21	14	76	1.5	5	26%
		SI 2001	1,092	50	22	25	884	17.7	36	49%
Building Average			*1,589*	*102*	*19*	*38*	*1,317*	*12.9*	*28*	*41%*
West Classroom Building	***4***									
		WC 140	484	36	13	23	289	8.0	13	64%
		WC 145	1,065	58	18	36	253	4.4	7	63%
		WC 155	1,055	80	13	55	165	2.1	3	69%
		WC 267	595	44	14	24	792	18.0	33	53%
Building Average			*800*	*55*	*15*	*35*	*375*	*8.1*	*14*	*62%*
AVERAGE			**932**	**51**	**20**	**29**	**1,010**	**19.9**	**34**	**58%**
Number of Rooms	***111***									

appendix b : classroom utilization by room summarized by college and school

COLLEGE / SCHOOL	NUMBER OF ROOMS	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
College of Architecture & Planning	***8***									
		CU 2005	756	37	20	25	177	4.8	8	68%
		CU 320A	410	18	23	14	85	4.7	6	75%
		CU 320C	413	30	14	12	263	8.8	23	39%
		CU 440	1,305	55	24	24	497	9.0	21	44%
		CU 470	2,082	75	28	33	830	11.1	26	43%
		CU 480	1,131	50	23	21	769	15.4	36	42%
		CU 495	452	22	21	12	152	6.9	13	52%
		CU 505	422	20	21	3	5	0.3	2	15%
College/School Average			*871*	*38*	*22*	*18*	*347*	*7.6*	*17*	*47%*
College of Arts & Media	***7***									
		AR 186	1,067	56	19	31	459	8.2	15	55%
		AR 298	375	29	13	16	542	18.7	36	56%
		CU 815D	474	20	24	17	548	27.4	33	83%
		KC 101	1,046	48	22	35	1,033	21.5	29	73%
		KC 103	1,046	48	22	29	1,107	23.1	39	60%
		LM 127	587	26	23	20	560	21.6	27	78%
		PL M202	467	20	23	12	486	24.3	42	58%
College/School Average			*723*	*35*	*21*	*23*	*676*	*20.7*	*32*	*66%*
School of Business	***18***									
		BUS 1800	1,983	48	41	36	1,548	32.3	43	75%
		BUS 2007	1,813	48	38	31	1,061	22.1	35	64%
		BUS 2100	1,568	47	33	29	1,310	27.9	45	62%
		BUS 2200	952	40	24	28	1,291	32.3	45	71%
		BUS 2201	1,027	40	26	33	1,417	35.4	43	83%
		BUS 3000	1,041	35	30	23	1,313	37.5	55	66%
		BUS 3006	760	20	38	11	109	5.4	10	55%
		BUS 3007	1,109	36	31	20	625	17.4	32	55%
		BUS 3100	1,507	44	34	31	2,259	51.3	77	71%
		BUS 3200	1,670	44	38	33	2,196	49.9	73	75%
		BUS 3300	1,606	48	33	35	2,105	43.8	65	72%
		BUS 3404	1,043	35	30	22	1,083	31.0	48	62%
		BUS 3600	654	26	25	8	26	1.0	3	31%
		BUS 4500	1,128	41	28	28	769	18.7	28	67%
		CU 150K	1,225	60	20	27	1,487	24.8	56	44%
		CU 1100	1,259	45	28	32	956	21.2	30	70%
		CU 1110	1,004	40	25	28	1,055	26.4	37	71%
		KC 205	1,125	39	31	38	106	3.0	3	106%
College/School Average			*1,249*	*41*	*31*	*27*	*1,151*	*26.7*	*40*	*67%*

appendix b

COLLEGE / SCHOOL	NUMBER OF ROOMS	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
School of Education & Human Development	***6***									
		CU 1120	365	16	23	8	122	7.6	16	48%
		LW 1150	814	35	23	15	357	10.2	28	42%
		LW 600	715	40	18	27	652	16.3	24	67%
		LW 648	806	35	23	22	605	17.3	27	64%
		LW 700	546	25	22	16	106	4.2	7	64%
		LW 745	946	40	24	23	383	9.6	18	56%
College/School Average			*699*	*32*	*22*	*19*	*371*	*10.9*	*20*	*57%*
College of Engineering & Applied Science	***3***									
		NC 1805A	681	30	23	24	376	12.5	16	80%
		NC 3209	1,013	50	20	32	1,264	25.3	39	64%
		WC 267	595	44	14	24	792	18.0	33	53%
College/School Average			*763*	*41*	*19*	*27*	*810*	*18.6*	*29*	*66%*
College of Liberal Arts & Sciences	***67***									
		AD 200	982	35	28	17	336	9.6	20	49%
		BLD 117	501	36	14	9	31	0.9	3	25%
		CU 1000	1,189	38	31	21	708	18.6	34	56%
		CU 656	504	24	21	15	264	11.0	18	61%
		KC 201	745	45	17	22	757	16.8	34	50%
		KC 210	785	48	16	16	502	10.5	31	34%
		KC 212	805	48	17	25	1,007	21.0	38	52%
		KC 218	613	32	19	24	684	21.4	29	76%
		KC 312	1,108	46	24	25	984	21.4	38	54%
		KC 318	765	48	16	23	817	17.0	34	49%
		NC 1130A	3,811	285	13	127	4,777	17.0	37	45%
		NC 1202	1,060	72	15	32	1,209	16.8	36	45%
		NC 1204	991	72	14	46	1,950	27.1	42	63%
		NC 1207	1,132	95	12	72	2,574	27.1	36	76%
		NC 1311	504	35	14	21	1,221	34.9	59	60%
		NC 1312	450	35	13	21	1,047	29.9	49	61%
		NC 1313	535	40	13	28	1,351	33.8	53	69%
		NC 1314	494	40	12	25	948	23.7	38	64%
		NC 1315	680	48	14	25	1,060	22.1	41	51%
		NC 1316	488	35	14	22	919	26.3	42	63%
		NC 1321	533	40	13	28	1,272	31.8	51	70%
		NC 1322	445	35	13	21	751	21.5	36	59%
		NC 1323	535	40	13	24	1,023	25.6	42	61%
		NC 1324	494	36	14	24	928	25.8	39	66%
		NC 1325	673	47	14	31	1,166	24.8	38	65%
		NC 1326	488	42	12	22	692	16.5	32	53%

COLLEGE / SCHOOL	NUMBER OF ROOMS	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
		NC 1402	900	48	19	24	1,732	36.1	65	50%
		NC 1408	834	55	15	32	1,429	26.0	48	58%
		NC 1511	728	55	13	33	1,284	23.3	39	61%
		NC 1515	689	55	13	35	1,156	21.0	34	64%
		NC 1533	421	35	12	25	886	25.3	36	70%
		NC 1535	1,743	120	15	79	3,091	25.8	39	66%
		NC 1539	2,265	168	13	96	4,023	23.9	42	57%
		NC 1602	900	48	19	32	1,274	26.5	40	67%
		NC 1603	881	48	18	21	1,021	21.3	48	44%
		NC 1605	886	48	18	24	1,007	21.0	43	49%
		NC 1607	914	72	13	47	1,435	19.9	30	66%
		NC 1608	1,157	95	12	51	450	4.7	9	53%
		NC 1806	938	67	14	41	1,587	23.7	39	61%
		NC 2001	618	47	13	30	990	21.1	34	63%
		NC 2002	616	47	13	28	991	21.1	35	60%
		NC 3004	676	48	14	23	882	18.4	40	48%
		NC 3202	1,297	52	25	31	1,614	31.0	59	60%
		NC 3205	1,067	50	21	33	1,520	30.4	52	66%
		NC 3207	929	50	19	32	1,210	24.2	39	64%
		NC 3210	721	40	18	29	1,335	33.4	46	73%
		NC 3212	1,061	50	21	35	1,841	36.8	52	70%
		NC 3407	1,076	52	21	26	140	2.7	5	50%
		PL 112	690	46	15	25	607	13.2	24	55%
		PL 114	690	48	14	22	838	17.5	38	47%
		PL 116	634	43	15	23	1,089	25.3	47	54%
		PL 130	856	48	18	27	976	20.3	37	56%
		PL 131	576	30	19	16	934	31.1	59	53%
		PL 132	849	48	18	22	815	17.0	38	46%
		PL 211	411	36	11	14	486	13.5	32	39%
		PL 213	660	42	16	27	1,022	24.3	40	63%
		PL 250	534	43	12	34	102	2.4	3	79%
		PL M104	583	43	14	25	962	22.4	39	58%
		PL M203	1,127	68	17	41	1,853	27.3	47	61%
		PL M204	1,695	110	15	62	2,424	22.0	39	57%
		PL M206	757	46	16	18	591	12.9	34	38%
		SI 1067	2,982	250	12	85	3,300	13.2	37	34%
		SI 1111	1,161	52	22	28	1,008	19.4	36	54%
		SI 1117	1,120	54	22	14	76	1.5	5	26%
		SI 2001	1,092	50	22	25	884	17.7	36	49%
		WC 145	1,065	58	18	36	253	4.4	7	63%
		WC 155	1,055	80	13	55	165	2.1	3	69%
College/School Average			*913*	*59*	*16*	*32*	*1,168*	*20.6*	*36*	*57%*
School of Public Affairs	***2***									
		LW 500Y	778	35	22	20	710	20.3	35	58%
		WC 140	484	36	13	23	289	8.0	13	64%
College/School Average			*631*	*36*	*18*	*22*	*499*	*14.1*	*24*	*61%*
AVERAGE			**932**	**51**	**20**	**29**	**1,010**	**19.9**	**34**	**58%**
Number of Rooms	***111***									

appendix c

BUILDING NAME	NUMBER OF ROOMS	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
Arts Building	***12***									
		AR 175D	842	15	56	14	185	12.3	13	93%
		AR 175J	288	16	18	16	205	13.6	13	97%
		AR 179	355	12	30	11	529	44.1	50	88%
		AR 192	1,932	50	39	14	356	7.1	26	27%
		AR 194	873	22	40	16	646	29.4	43	72%
		AR 195	461	16	29	13	426	26.6	34	78%
		AR 198	2,182	50	44	8	171	3.4	21	16%
		AR 281	577	25	23	21	126	5.0	6	84%
		AR 285H	611	25	24	21	665	26.6	34	83%
		AR 289	472	12	39	4	12	1.0	3	33%
		AR 291	1,328	22	60	17	916	41.6	54	77%
		AR 292	2,273	22	103	12	404	18.4	34	55%
Building Average			*1,016*	*24*	*42*	*14*	*387*	*19.1*	*28*	*67%*
Boulder Creek	***2***									
		BLD 125	1,236	36	34	16	205	5.7	13	43%
		BLD 127	1,532	40	38	15	596	14.9	41	37%
Building Average			*1,384*	*38*	*36*	*16*	*400*	*10.3*	*27*	*40%*
Business School Buildin	***2***									
		BUS 1200	1,361	40	34	14	84	2.1	6	35%
		BUS 2501	924	35	26	19	695	19.9	37	53%
Building Average			*1,142*	*38*	*30*	*17*	*390*	*11.0*	*22*	*44%*
CU-Denver Building	***11***									
		CU 2001	10,386	135	77	20	795	5.9	39	15%
		CU 410	996	30	33	17	51	1.7	3	57%
		CU 460	1,479	15	99	15	91	6.1	6	97%
		CU 500	701	70	10	52	807	11.5	21	74%
		CU 525	2,240	40	56	14	336	8.4	24	35%
		CU 700	11,190	160	70	46	1,310	8.2	28	29%
		CU 805A	504	20	25	13	93	4.7	10	63%
		CU 805B	547	20	27	11	277	13.9	26	53%
		CU 815B	606	40	15	14	118	2.9	8	35%
		CU 815C	790	45	18	15	784	17.4	53	33%
		CU 840	1,008	27	37	18	637	23.6	35	67%
Building Average			*2,768*	*55*	*42*	*21*	*482*	*9.5*	*23*	*51%*
King Center	***2***									
		KC 113	1,234	44	28	37	782	17.8	21	84%
		KC 114	981	48	20	22	413	8.6	20	45%
Building Average			*1,108*	*46*	*24*	*30*	*597*	*13.2*	*20*	*65%*
Lawrence Street Center	***3***									
		LW 836	715	30	24	7	21	0.7	3	23%
		LW 840	1,049	40	26	24	290	7.2	14	61%
		LW 844	1,078	40	27	21	186	4.7	9	52%
Building Average			*947*	*37*	*26*	*17*	*166*	*4.2*	*9*	*45%*

appendix c : class laboratory utilization by room summarized by building

BUILDING NAME	NUMBER OF ROOMS	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
North Classroom Buildin	***18***									
		NC 1407	842	30	28	15	309	10.3	23	51%
		NC 2028A	779	30	26	23	380	12.7	16	78%
		NC 2206	378	16	24	6	55	3.4	9	39%
		NC 2207	1,912	15	127	14	366	24.4	27	90%
		NC 2408	1,285	28	46	23	867	61.9	38	81%
		NC 2409	747	30	25	10	126	4.2	12	33%
		NC 2413	1,306	31	42	29	873	28.2	30	94%
		NC 2609	1,617	30	54	25	456	22.8	19	81%
		NC 2613	538	25	22	9	58	2.3	7	34%
		NC 3010	812	30	27	24	792	26.4	33	79%
		NC 3404	1,402	36	39	16	215	6.0	14	43%
		NC 3408	1,258	36	35	22	237	6.6	10	60%
		NC 3523	1,196	36	33	25	860	23.9	34	69%
		NC 3606	894	28	32	11	73	2.6	7	39%
		NC 3617	943	36	26	23	642	17.8	29	63%
		NC 3815B	167	10	17	10	34	3.4	3	100%
		NC 4009	794	21	38	15	219	10.4	15	70%
		NC 5033	700	30	23	21	460	15.3	22	70%
Building Average			*976*	*28*	*37*	*18*	*390*	*15.7*	*19*	*65%*
Science Building	***15***									
		SI 2095	1,361	24	57	23	818	34.1	36	94%
		SI 2099	1,381	28	49	24	865	30.9	36	85%
		SI 2101	1,368	24	57	21	634	26.4	30	89%
		SI 2103	1,313	24	55	17	1,074	44.7	62	73%
		SI 2104	1,299	24	54	24	469	19.5	20	99%
		SI 2107	1,311	24	55	13	166	6.9	13	54%
		SI 2115	1,308	24	55	24	341	14.2	14	99%
		SI 2117	1,028	16	64	16	96	6.0	6	100%
		SI 2123	1,342	24	56	20	571	23.8	29	83%
		SI 3101	938	15	63	10	281	18.7	28	68%
		SI 3103	1,282	15	85	8	83	5.5	10	56%
		SI 3109	1,310	24	55	23	1,619	67.5	69	98%
		SI 3113	1,304	24	54	21	943	39.3	46	85%
		SI 3115	1,326	22	60	20	911	41.4	46	90%
		SI 3117	1,355	22	62	14	567	25.8	43	64%
Building Average			*1,282*	*22*	*59*	*19*	*629*	*27.0*	*32*	*82%*
AVERAGE			**1,378**	**32**	**43**	**18**	**456**	**17.0**	**24**	**65%**
Number of Rooms	***65***									

appendix d

COLLEGE / SCHOOL	NUMBER OF ROOMS	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
College of Architecture & Planning	***6***									
		CU 2001	10,386	135	77	20	795	5.9	39	15%
		CU 410	996	30	33	17	51	1.7	3	57%
		CU 460	1,479	15	99	15	91	6.1	6	97%
		CU 500	701	70	10	52	807	11.5	21	74%
		CU 525	2,240	40	56	14	336	8.4	24	35%
		CU 700	11,190	160	70	46	1,310	8.2	28	29%
College/School Average			*4,499*	*75*	*57*	*27*	*565*	*7.0*	*20*	*51%*
College of Arts & Media	***20***									
		AR 175D	842	15	56	14	185	12.3	13	93%
		AR 175J	288	16	18	16	205	13.6	13	97%
		AR 179	355	12	30	11	529	44.1	50	88%
		AR 192	1,932	50	39	14	356	7.1	26	27%
		AR 194	873	22	40	16	646	29.4	43	72%
		AR 195	461	16	29	13	426	26.6	34	78%
		AR 198	2,182	50	44	8	171	3.4	21	16%
		AR 281	577	25	23	21	126	5.0	6	84%
		AR 285H	611	25	24	21	665	26.6	34	83%
		AR 289	472	12	39	4	12	1.0	3	33%
		AR 291	1,328	22	60	17	916	41.6	54	77%
		AR 292	2,273	22	103	12	404	18.4	34	55%
		BLD 125	1,236	36	34	16	205	5.7	13	43%
		BLD 127	1,532	40	38	15	596	14.9	41	37%
		CU 805A	504	20	25	13	93	4.7	10	63%
		CU 805B	547	20	27	11	277	13.9	26	53%
		CU 815B	606	40	15	14	118	2.9	8	35%
		CU 815C	790	45	18	15	784	17.4	53	33%
		CU 840	1,008	27	37	18	637	23.6	35	67%
		NC 1407	842	30	28	15	309	10.3	23	51%
College/School Average			*963*	*27*	*36*	*14*	*383*	*16.1*	*27*	*59%*
School of Business	***3***									
		BUS 1200	1,361	40	34	14	84	2.1	6	35%
		BUS 2501	924	35	26	19	695	19.9	37	53%
		KC 113	1,234	44	28	37	782	17.8	21	84%
College/School Average			*1,173*	*40*	*29*	*23*	*520*	*13.2*	*22*	*57%*
College of Engineering & Applied Science	***11***									
		LW 836	715	30	24	7	21	0.7	3	23%
		LW 840	1,049	40	26	24	290	7.2	14	61%
		LW 844	1,078	40	27	21	186	4.7	9	52%
		NC 2206	378	16	24	6	55	3.4	9	39%
		NC 2207	1,912	15	127	14	366	24.4	27	90%
		NC 2408	1,285	28	46	23	867	61.9	38	81%
		NC 2409	747	30	25	10	126	4.2	12	33%
		NC 2413	1,306	31	42	29	873	28.2	30	94%
		NC 2609	1,617	30	54	25	456	22.8	19	81%
		NC 2613	538	25	22	9	58	2.3	7	34%
		NC 3815B	167	10	17	10	34	3.4	3	100%
College/School Average			*981*	*27*	*39*	*16*	*303*	*14.8*	*15*	*63%*

appendix d : class laboratory utilization by room summarized by college and school

COLLEGE / SCHOOL	NUMBER OF ROOMS	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
College of Liberal Arts & Sciences	***25***									
		KC 114	981	48	20	22	413	8.6	20	45%
		NC 2028A	779	30	26	23	380	12.7	16	78%
		NC 3010	812	30	27	24	792	26.4	33	79%
		NC 3404	1,402	36	39	16	215	6.0	14	43%
		NC 3408	1,258	36	35	22	237	6.6	10	60%
		NC 3523	1,196	36	33	25	860	23.9	34	69%
		NC 3606	894	28	32	11	73	2.6	7	39%
		NC 3617	943	36	26	23	642	17.8	29	63%
		NC 4009	794	21	38	15	219	10.4	15	70%
		NC 5033	700	30	23	21	460	15.3	22	70%
		SI 2095	1,361	24	57	23	818	34.1	36	94%
		SI 2099	1,381	28	49	24	865	30.9	36	85%
		SI 2101	1,368	24	57	21	634	26.4	30	89%
		SI 2103	1,313	24	55	17	1,074	44.7	62	73%
		SI 2104	1,299	24	54	24	469	19.5	20	99%
		SI 2107	1,311	24	55	13	166	6.9	13	54%
		SI 2115	1,308	24	55	24	341	14.2	14	99%
		SI 2117	1,028	16	64	16	96	6.0	6	100%
		SI 2123	1,342	24	56	20	571	23.8	29	83%
		SI 3101	938	15	63	10	281	18.7	28	68%
		SI 3103	1,282	15	85	8	83	5.5	10	56%
		SI 3109	1,310	24	55	23	1,619	67.5	69	98%
		SI 3113	1,304	24	54	21	943	39.3	46	85%
		SI 3115	1,326	22	60	20	911	41.4	46	90%
		SI 3117	1,355	22	62	14	567	25.8	43	64%
College/School Average			*1,159*	*27*	*47*	*19*	*549*	*21.4*	*27*	*74%*
AVERAGE			**1,378**	**32**	**43**	**18**	**456**	**17.0**	**24**	**65%**
Number of Rooms	***65***									

BUILDING NAME	SPACE USE CODE	COLLEGE/ SCHOOL	ROOM NUMBER	ASF	ROOM CAPACITY	ASF PER STATION	AVERAGE ENROLLMENT	WEEKLY STUDENT CONTACT HOURS	WEEKLY SEAT HOURS	WEEKLY ROOM HOURS	PERCENT OCCUPANCY
Arts Building	220	CAM	AR 184	843	50	17	14	92	1.8	7	28%
CU-Denver Building	220	CAM	CU 800R	781	37	21	5	33	0.9	7	14%
Lawrence Street Center	220	SPA	LW 500-V-1	475	20	24	21	340	17.0	16	105%
Lawrence Street Center	314	SPA	LW 525	161	12	13	9	56	4.7	7	71%
North Classroom Building	314	CLAS	NC 3002	169	10	17	14	48	4.8	3	140%
Administration Building	350	CLAS	AD 280B	199	15	13	10	34	2.3	3	67%
CU-Denver Building	350	CAP	CU 490	1,041	40	26	16	210	5.3	13	41%
CU-Denver Building	350	CLAS	CU 626	303	20	15	4	28	1.4	7	20%
Lawrence Street Center	350	SPA	LW 525A	264	15	18	8	26	1.8	3	53%
Lawrence Street Center	350	SEHD	LW 603	191	14	14	12	40	1.6	3	86%
North Classroom Building	350	CLAS	NC 3012	312	15	21	8	26	1.8	3	53%
North Classroom Building	350	CLAS	NC 5004	267	20	13	5	110	5.5	21	27%
Plaza Building	350	CLAS	PL 102L	339	24	14	8	74	3.1	10	32%
Plaza Building	350	CLAS	PL M108A	335	22	15	16	397	18.0	25	73%
King Center	530	CAM	KC 146	708	30	24	24	429	14.3	18	79%
Auraria Media Center	530	CAM	LM 24	1,820	50	36	12	310	6.2	26	24%
Arts Building	610	CAM	AR 278	2,151	25	86	16	442	17.7	29	64%
King Center	610	CAM	KC 130	2,464	197	13	79	368	1.9	7	40%
King Center	610	CAM	KC 145	6,494	520	12	18	54	0.1	3	4%
King Center	610	CAM	KC 175	3,029	10	303	5	52	5.2	10	50%
Tivoli Theatre	610	CAM	TV 139A	911	80	11	33	541	6.8	23	41%
Tivoli Theatre	610	CAM	TV 139B	911	80	11	43	645	8.1	15	54%
Tivoli Theatre	610	CAM	TV 139D	1,278	150	9	13	521	3.5	42	8%
Tivoli Theatre	610	CAM	TV 139E	1,235	103	12	7	258	2.5	36	7%
Tivoli Theatre	610	CAM	TV 139M	1,341	140	10	63	1,786	12.8	28	45%
King Center	615	CAM	KC 260	1,197	20	60	7	46	2.3	7	35%

TIVOLI-UNION COMPANY
1984
HOP STORAGE