

# QUARTERLY REPORT

## FALL 2005



**COMPUTER LAB MANAGEMENT**  
CLASSROOM TECHNOLOGY SERVICES - INFORMATION AND EDUCATIONAL TECHNOLOGY  
UNIVERSITY OF CALIFORNIA, DAVIS

## Executive Summary

---

Building upon the extensive equipment upgrades and facilities improvements made during Summer 2005, Computer Lab Management (CLM) achieved a high level of customer satisfaction while serving an ever larger number of clients. During the quarter, CLM focused on improving existing services while piloting new ones.

During Fall 2005, over 100 classes were taught in our computer classrooms. We also saw a phenomenal increase of 450 total reserved hours in our 10 classrooms, in all totaling 3,444 hours. The number of unique users reached an all-time high of 19,300 people, averaging about 17 logins per quarter. Also, printing decreased 12 percent from Spring 2005 to 1.5 million sheets. This statistics show a continued high demand for our services while still maintaining cost effectiveness.

In addition, CLM continues to refine its facilities and services through small yet meaningful improvements. For example, to make our classrooms a more effective instructional space for faculty, CLM began to extend whiteboards in its classrooms and move screen controls to more accessible places. To improve the printing service in our busy open access rooms, we created a new print kiosk to help clients locate their print jobs more quickly. These seemingly minor upgrades, among others, significantly enhance the overall quality and value of CLM facilities and services.

CLM continues to excel in providing its traditional computing and multimedia services while drawing on its breadth of knowledge to support larger campus projects. Of particular note, CLM played a central role in Information and Educational Technology's Digital Lecture initiative. Pairing its long history of providing media distribution services with its wealth of technical and customer service expertise yielded an easy-to-use digital distribution system.

In all, CLM continues to provide high quality instructional and media environments and services that support and enhance the educational and scholarly excellence of UC Davis.

## Contents

---

Goals and Accomplishments .....	2
Core Report	
Utilization .....	5
Classrooms .....	6
Open access .....	9
Logins .....	10
Printing .....	12
Special Reports	
Digital Lecture Pilot .....	15
163 Shields Utilization .....	17
Appendices	
Detailed Classroom Utilization .....	19
Detailed Open Access Utilization .....	21
Hart Media Distribution Lab .....	23
Software .....	24
User Demographics .....	25

## Goals and Accomplishments

---

### Pilot digital lectures

*Status:* In progress

In past years, some UC Davis classes have recorded their lectures on cassette for distribution via the Hart Media Distribution Lab (MDL). In an effort to improve the quality of and access to recorded lectures, Computer Lab Management piloted a digital lecture recording and distribution system during the Fall 2005 academic quarter.

CLM, in conjunction with other IET units, created a solution that utilizes new, electronic recording hardware and MyUCDavis' existing course management system. Specifically, we looked for a recording solution able to record directly to an mp3 file, bypassing the complex format conversion steps required by other digital recorders on the market.

CLM also tested the Mediaworks-developed podcasting site as an additional distribution method. This podcasting site, created at the request of Dr. Peter Yellowlees, uses a combination of web technologies that allows students to receive new lectures when posted. Last Fall quarter, CLM and CTS lent digital mp3 recorders to four classes and provided support and training for faculty and students. Based on survey results and data analysis, both faculty and students praised the value of this service. For a detailed explanation of the pilot, see the Special Reports section. The pilot will continue during Winter 2006 with more participating classes, better recording hardware, and enhancements to the interface and functionality of the podcasting site.

### Adjust computer room schedules

*Status:* Completed

Computer Lab Management regularly reviews the computer room schedules and makes adjustments to focus open hours around more heavily utilized times. During Summer 2005 CLM reviewed utilization for all computer rooms to determine schedule adjustments for the 2005-2006 academic year.

Due to low evening utilization on the weekends, CLM decided to reduce weekend hours slightly to close at 4:00 pm on Saturday and at 10:00 pm on Sunday. Along similar reasoning, CLM decided to close the Olson basement rooms at 8:00 pm Monday through Thursday. These earlier closing times resulted in savings of 20 hours per week.

On the other hand, 163 Shields sees high utilization throughout its open hours. Even during its closing hour from 9:00 to 10:00 pm the room reports 75 percent utilization while other open access rooms report considerably lower utilization for the same period; see [Quarterly Report - Spring 2005](#). Also the room was closed on the weekends precluding its use by library patrons needing access to CLM services. Taking the room's high utilization into account, CLM decided to expand the room's open hours to better match those of Shields Library. Weekday hours were extended to close at midnight Monday through Thursday and at 6:00 pm on Friday. CLM also decided to open 163 Shields on the weekends to gauge demand. Utilization statistics from Fall 2005 show the same high number level for the additional hours. For a more detailed analysis, see page 17 of this report.

## Goals and Accomplishments

### **Install group digital video editing stations in 1154 Meyer**

*Status:* Completed

CLM has identified two trends in its media production facility in 1154 Meyer: an increase in demand for digital video editing and also in project collaboration. Over the past few years CLM employees have noticed an increase in the number of groups that come into to work on video-based projects.

In response to these trends, CLM has created a designated media space for group collaboration. To do this, CLM expanded 1154 Meyer into an adjacent support area and installed two group digital video editing stations. These stations have the same technical specifications as those in 1154; however, they have a larger working area to accommodate more than one patron around the editing station. Additionally, there is a stand-alone table in the center of the room for collaboration and so groups can shut the door to the room allowing them to discuss their projects without disturbing other clients in the core 1154 space.

By offering these group editing stations, CLM expects to better serve the campus' multimedia production needs.

### **Pilot electric stapler in 177 MU (The Station)**

*Status:* Completed

One of the most frequent client requests is to have a stapler available in the computer rooms for their recently printed documents. Historically CLM has not offered staplers because of maintenance and customer service issues. At the time there was no stapler that could withstand the rigors of our high volume, low down-time computing environment.

However, recently we found a stapler that would meet heavy client demand and withstand heavy usage. During the latter half of Fall Quarter we installed a Rapid 5080 electronic stapler in the MU Station for testing and evaluation. The stapler preformed quite well and met our high expectations.

In light of this successful pilot, we will install the same model in other computer rooms for the start of Winter Quarter 2006. We expect the added convenience of having a stapler to enhance our already popular printing service.

### **Install third printer at 177 MU**

*Status:* Completed

Printing is one of CLM's most popular value-added services. Therefore it is not surprising that of all our sixteen computer rooms, the heavily impacted 177 MU accounts for 28 percent of all printing. It sees on average 7,040 printed sheets per day, though the volume increases substantially during midterm examinations and the week preceding finals.

Last year we successfully piloted new high-speed printers and this year we deployed them in all rooms; see [Quarterly Report - Winter 2005](#) and [Quarterly Report - Summer 2005](#). While this helped substantially to reduce print queues across all computer rooms, the sheer printing volume in the MU regularly resulted in long queues, especially when clients were printing long computationally demanding documents.

At the start of Fall 2005, CLM installed a third printer in 177 MU to help expedite printing. As expected, the third printer has reduced peak print queues to manageable levels, no more

## Goals and Accomplishments

than 5 to 7 minutes. CLM continues to evaluate ways to improve clients' overall printing experience.

### **Pilot print queue kiosk in 177 MU**

*Status:* In progress

In an effort to improve the quality of our printing service, CLM started a pilot of a print queue kiosk in 177 MU to inform clients where their jobs had printed.

Before clients only received popup messages that their jobs had printed on a specific printer. However, often clients quickly dismissed these messages without checking the print location. When they arrived to collect their jobs, they would stand around the printer and shuffle through the printed sheets. This increased the support burden on the CRC to help clients locate print jobs as well as generating considerable congestion and traffic around the printer area.

Towards the beginning of Fall Quarter CLM installed an iMac G4 kiosk in 177 MU. The new print queue kiosk prominently shows the currently printing jobs, as well as the last eight jobs printed on each printer and the jobs still waiting in the queue. It is located directly behind the printers so clients can easily monitor the status and location of their print jobs.

CLM continues to evaluate ways to improve the display and would like to deploy additional displays in other open access locations after completing the pilot.

### **Install stereo sound in 1102 Hart and 1131 Meyer**

*Status:* Completed

CLM upgraded the media cabinets in its multimedia classrooms in 1102 Hart and 1131 Meyer to support stereo audio. Some instructors had requested this upgrade because they teach stereo sound as part of their class, however the media cabinets were only outfitted for mono sound.

To do this, the audio follow video switcher and amplifier was replaced. This installation enhances the quality of these classrooms for teaching multimedia applications. As CLM upgrade other computer classrooms, we will upgrade the media cabinets.

### **Update software and maintain secure computing environment**

*Status:* Completed

In order to maintain an up-to-date and secure computing environment, CLM updated the following software during Fall 2005:

- Firefox 1.5 (Mac and PC)
- DreamWeaver and Flash 8 (Mac and PC, media rooms)
- Office 2003 SP2
- Latest Windows XP Service Packs
- QuickTime 7 for Windows
- Mac OS 10.4.3
- Office 2004 for Mac 11.2.

### **Conduct a faculty survey**

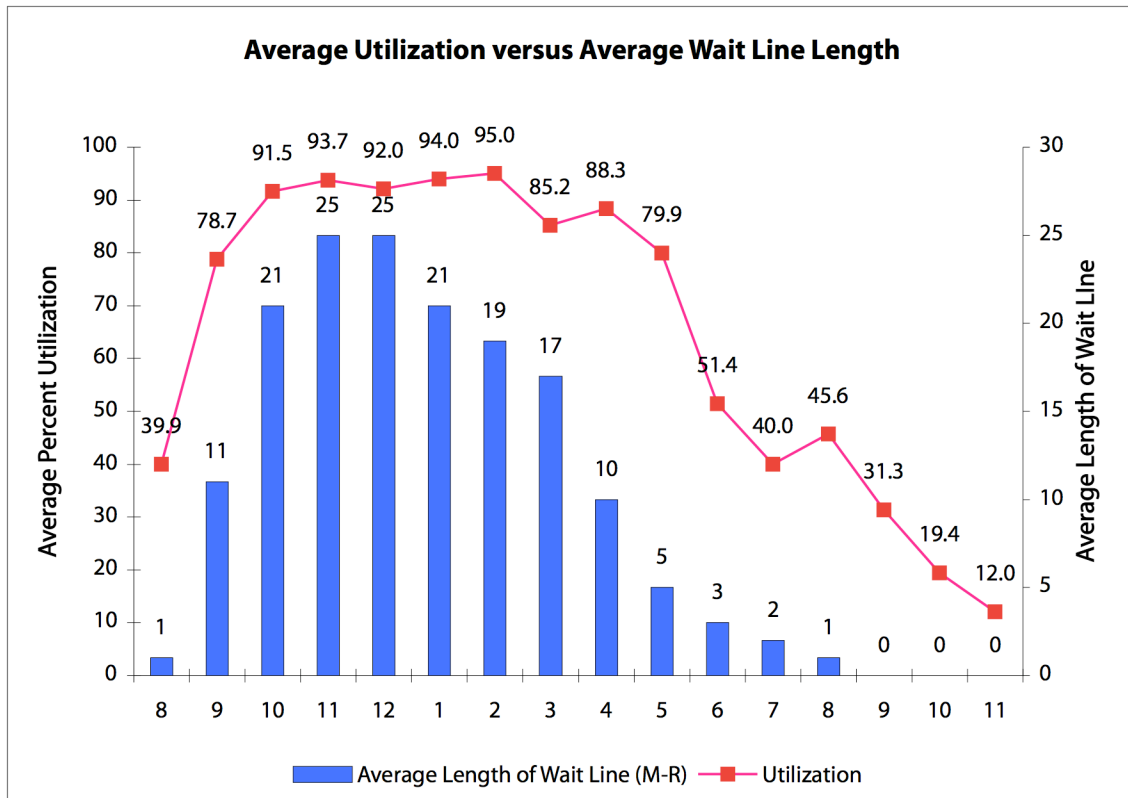
*Status:* Completed

As part of an annual process to identify our clients' needs, Computer Lab Management surveyed faculty who used computer classrooms during the Fall 2005 Quarter. This was the first quarter this survey was conducted via the web rather than by email. Of the 100 surveys sent, 34 faculty members responded. CLM evaluates the responses to determine areas where we meet client needs and where we can improve our services. The survey results can be found at [http://clm.ucdavis.edu/pubs/survey/faculty\\_f05.html](http://clm.ucdavis.edu/pubs/survey/faculty_f05.html).

## Utilization

### Overall computer room utilization

Computer Lab Management operates 16 computer rooms at UC Davis. All labs experience high utilization during peak hours (9:00 am to 6:00 pm) as well as long wait lines. The graph below tabulates utilization Monday through Thursday across all CLM computer rooms.



Utilization tabulates only actively logged in users and therefore does not record the time it takes between logoff and login. Because of this data collecting constraint, seldom does utilization reach 100 percent. It would only do so when an entire room is reserved for class or all the users remain logged in at their stations during the entire hour of tracking.

Student employees report wait line statistics on the hour and half-hour. Depending on external factors, such as class schedules or bus arrival times, lines may be considerably longer just a few minutes preceding or following the reporting time. Also, these statistics cannot capture the clients that would like to use a computer but choose not to wait in line. Thus, wait line statistics only roughly approximate demand. CLM believes the actual demand for its services to be higher

During Spring 2005 overall computer room utilization dropped between 5 to 8 percent across all open hours; see [Quarterly Report - Spring 2005](#). CLM reasoned that such a drop had to do in part to the opening of the 41-seat classroom in 2020 SLB that was not well known around the campus at that time. It projected utilization to return to normal levels as this computer room became better known. This assumption has proved correct since utilization levels have returned to those of previous quarters. One departure from past trends is the jump in utilization at 8:00 pm; however, this reflects when the new closing

## Core Report

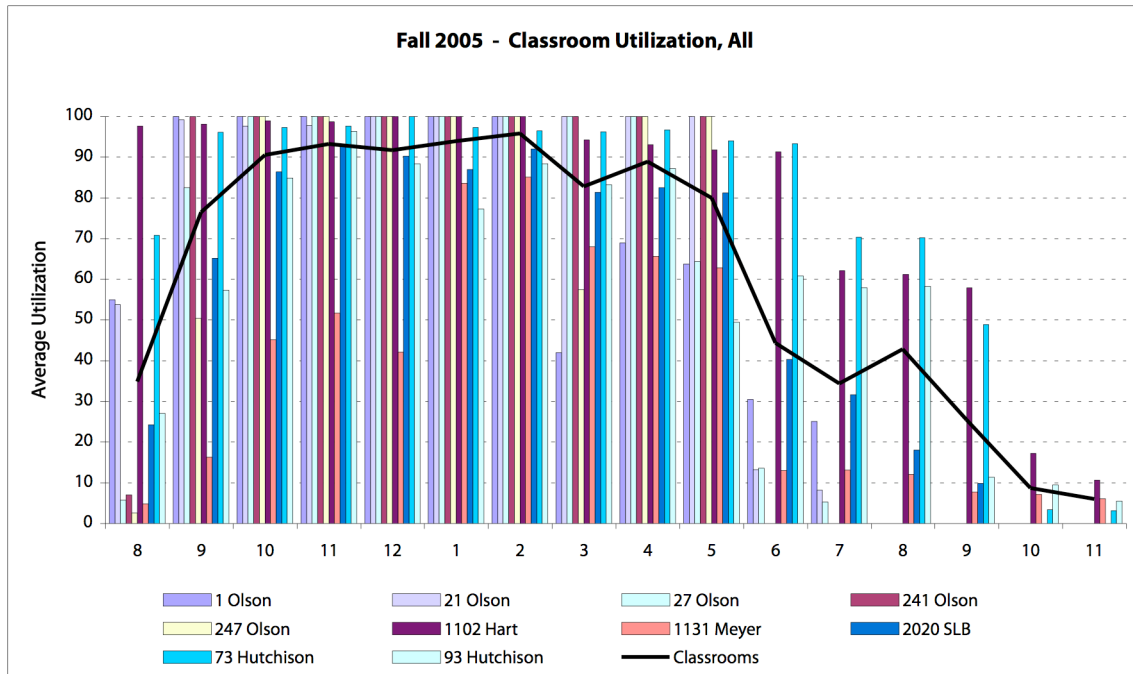
time for the basement Olson computer classrooms and four rooms with roughly 100 computers are no longer included in the statistics.

Wait lines have decreased overall from Fall 2004. Part of this reduction comes from the added capacity of 2020 SLB, which still has many open access hours since it has few regularly scheduled classes yet. Another contributing factor is CLM has worked to increase the efficiency of its 10 minute Quick Access stations to maximize the number of clients served. Also faster printers have reduced the time clients need to spend waiting for print jobs. These factors contributed to a reduction in line length. However, one of the contributing factors to shorter lines—the availability 2020 SLB for open access, will change as more classes are scheduled in this classroom. This will increase wait lines again.

With that said, the averages fail to capture the variable nature of lines at points during the quarter. For example, the maximum wait line across all computer rooms for Fall 2005 (12/7/2005) was 59 people; in Fall 2004 (12/8/2004), this maximum was 60. Both these maximums fall on about the same date of the year. In fact, this date corresponds with the week before final examinations when all computer rooms see a spike in logins, wait lines, and printing. There are similar high utilization periods around midterm examinations.

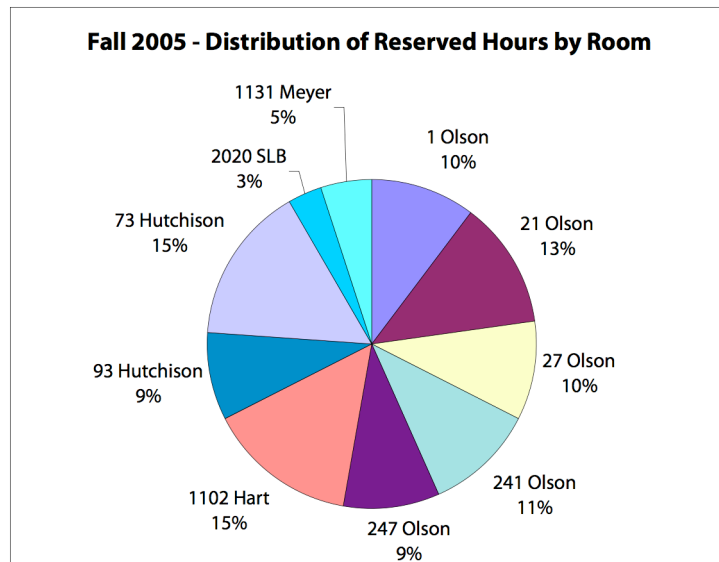
### Classroom utilization

One of CLM's central missions is to provide computer classrooms for teaching. Instructors can reserve computer classrooms for classes or lab sections for the entire quarter or for one- or multi-day sessions. Many computer classrooms reach full utilization between 9:00 am to 6:00 pm.

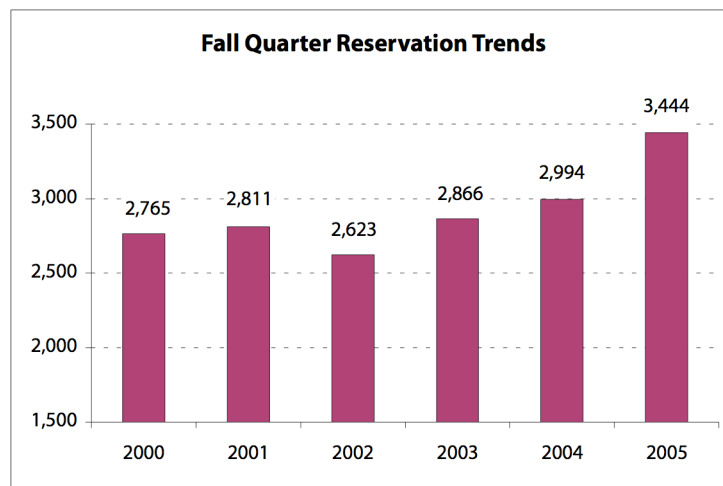


## Core Report

Mac classrooms account for 68 percent of classroom reservations and PC classrooms account for 32 percent. 73 Hutchinson and 1102 Hart have the highest number of reserved hours, with 537 and 519 hours respectively.



During Fall 2005, 106 classes were taught in CLM computer classrooms resulting in a record-breaking 3,444 reserved hours. This is a 450 hour increase from Fall 2004. Reserved hours increased significantly in 1102 Hart and both 73 and 93 Hutchinson, with moderate gains across nearly all rooms.



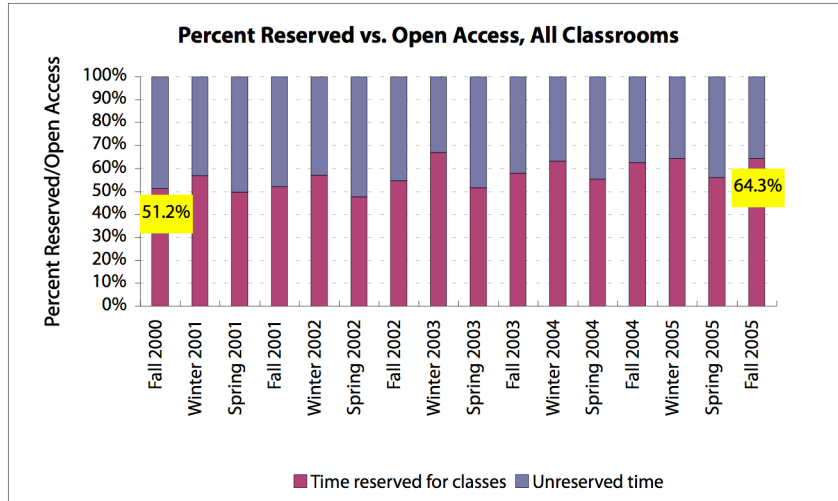
### Classroom availability

In addition to examining total hours reserved, CLM analyzes the percentage of classroom reservations against open access time. One reason it does this is to gauge how well it can accommodate class reservation requests. As the percent of reservations increases, accommodating additional reservations becomes more difficult since there are fewer open scheduling blocks available; see [Computer Classroom Needs Assessment, p. 5](#). This means that CLM cannot accommodate some classes. Another reason is to examine the

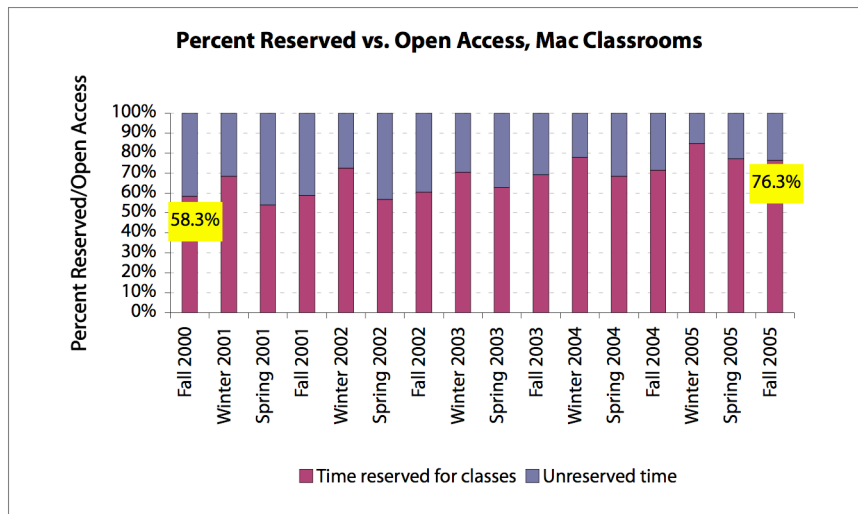


## Core Report

percentage that these rooms are available for open access use. As the percentage of room reservations increases, there are fewer open access locations available for drop in use. This increases the number of users in the three designated open access rooms, increasing wait lines. Overall computer classroom reservations are high.



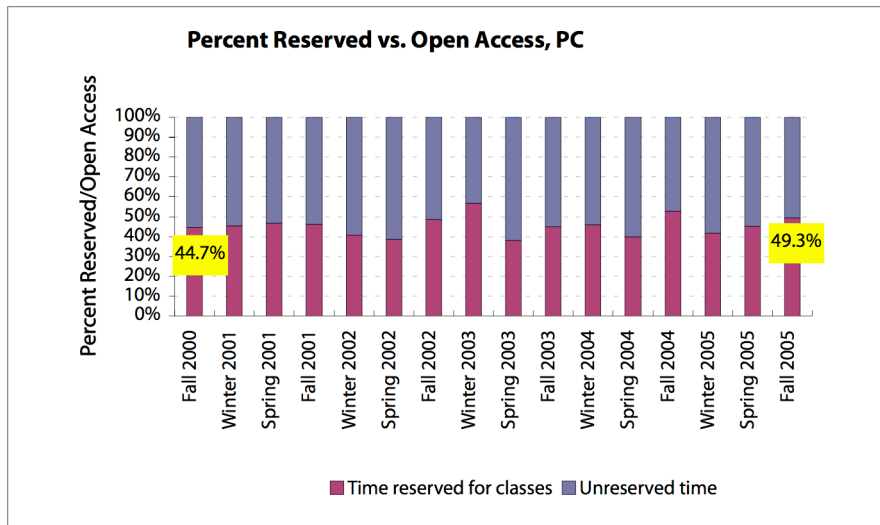
Mac classroom utilization remains extremely high. The Olson computer rooms and 1102 Hart usually have classes scheduled back-to-back from 9:00 am to 6:00 pm (and sometimes even later) every quarter, which limits CLM’s ability to accommodate additional reservations in those rooms. Sometimes CLM can accommodate them in a PC classroom, but not always. To increase the availability of Mac classrooms, CLM converted 27 Olson from a PC classroom into a Mac classroom during Summer 2005; see [Quarterly Report - Summer 2005](#). Classroom reservations increased moderately for this classroom. Even with the added capacity, Mac classrooms remain highly impacted. Given the increase in demand for media and composition classes and in light of the successful conversion of 27 Olson, CLM believes an additional Mac classroom would be highly utilized and of value to the campus.



## Core Report

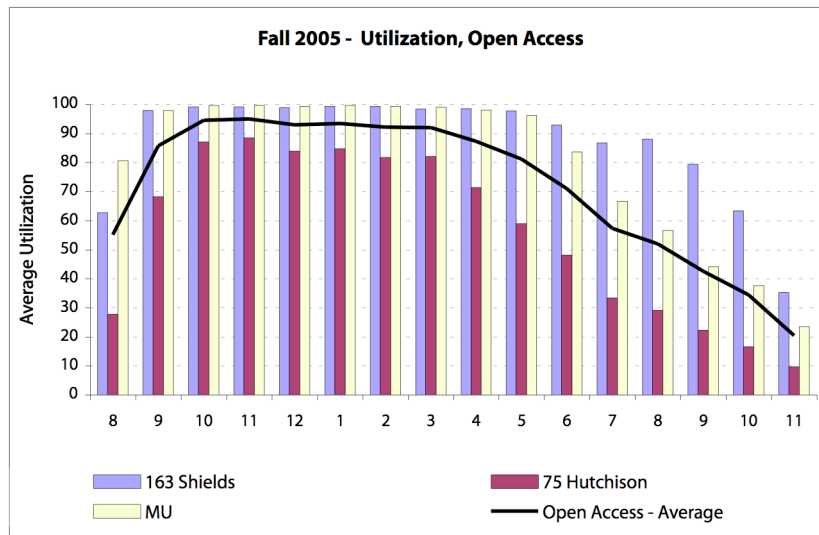
Reservations of PC classrooms have remained constant over the past few years. Of note, 73 Hutchison continues to be the most heavily scheduled computer classroom, with 537 reserved hours for the quarter. Many days it is booked for 14 hours straight or 87.5 percent of its open hours.

After its initial opening, 2020 SLB saw an increase in class reservations for a total of 117 hours up from 34.5 hours during its first quarter. Some of these classes moved there when 27 Olson became a Mac classroom. However, projected class reservations for Winter 2006 are lower. We expect utilization to stabilize and rise as instructors find time to integrate computers into their curriculum. CLM continues to work with departments through this process.



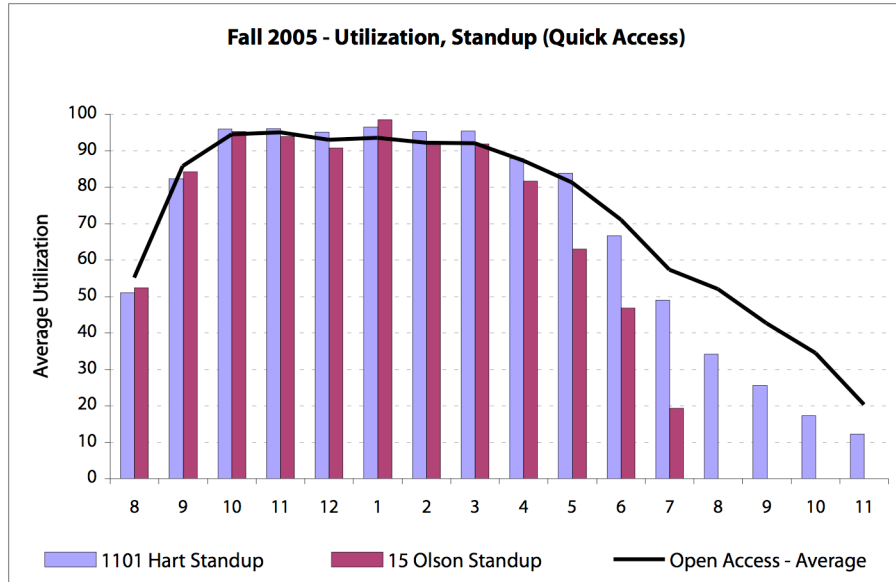
### Open access and standup utilization

For many clients, open access is CLM's more visible services. Students frequent open access rooms to complete academic work and access instructor-prepared materials. Also, open access rooms do the bulk of the printing across all rooms.



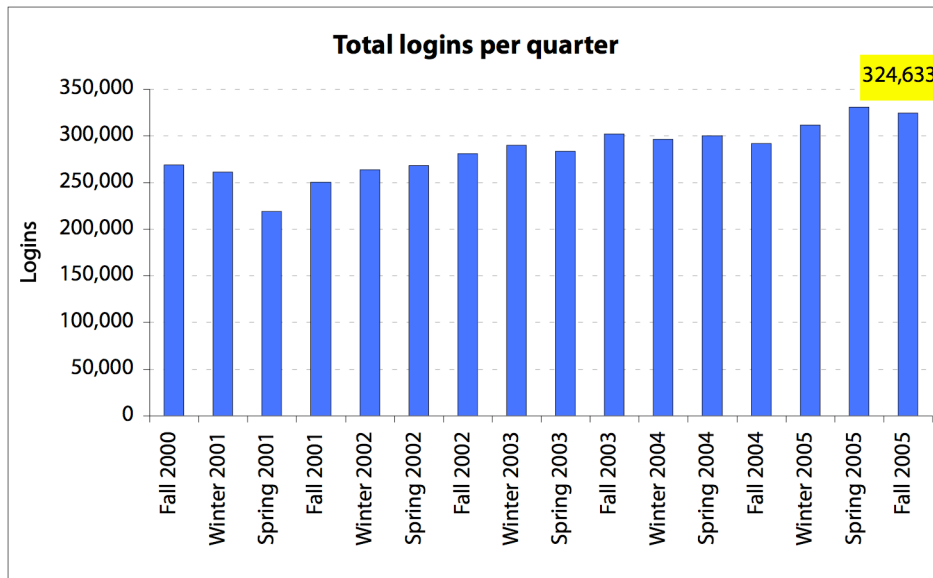
## Core Report

To help provide timely computer access, CLM has created a number of standup (Quick Access) stations. All open access rooms have a mixture of standup and sit down stations to address the need. Additionally, CLM operates two dedicated Quick Access locations in 1101 Hart and 15 Olson to complement the nearby classrooms and media facilities.



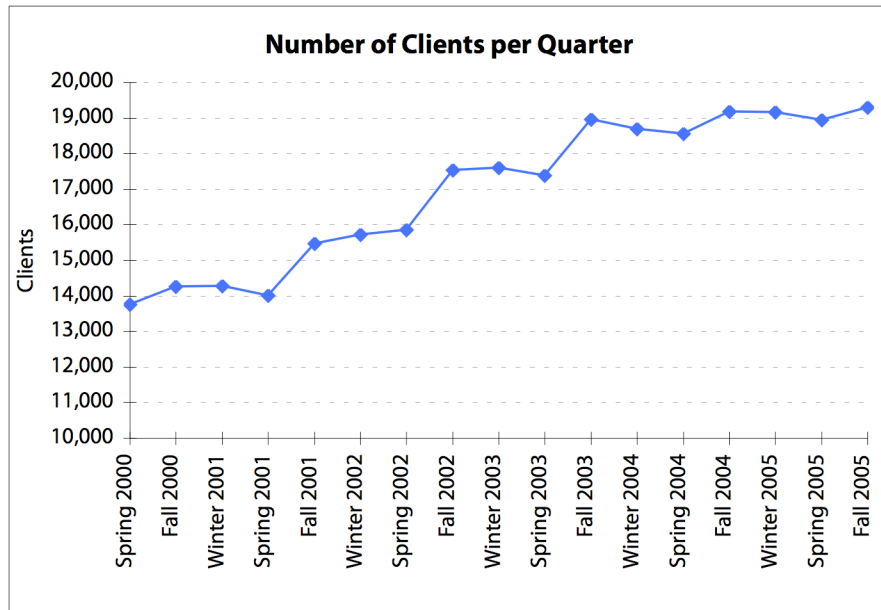
## Logins and Unique Users

CLM tracks total logins and unique users to determine usage and as an indicator of demand for its services. Total logins decreased negligibly Fall 2005 from the all-time high in Spring 2005 by approximately 6,500—roughly the average number of logins across all computer rooms for a normal academic day. When compared with Fall 2004, there were 32,500 additional logins during Fall 2005.



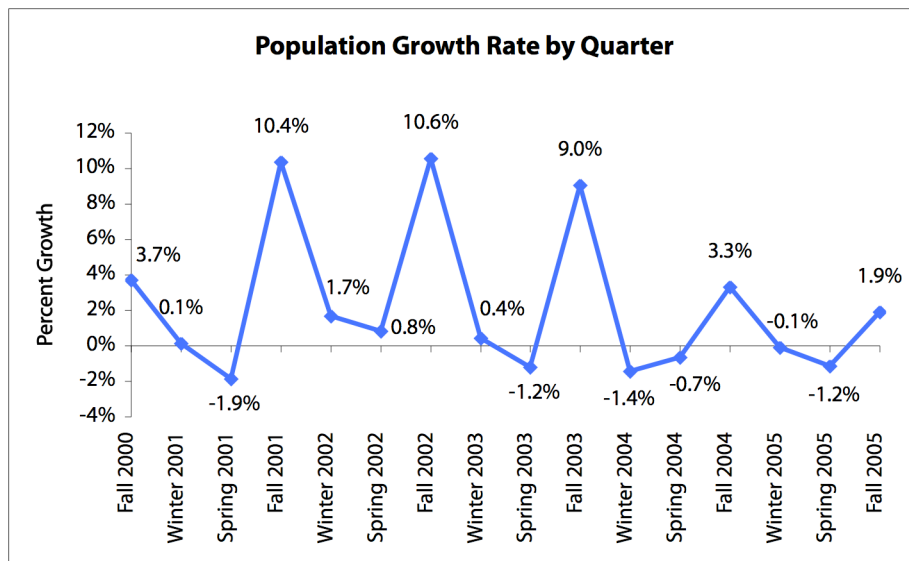
## Core Report

However, the number of unique user continues to increase, with Fall 2005 reporting an all time high of 19,300 unique clients.



### Population growth

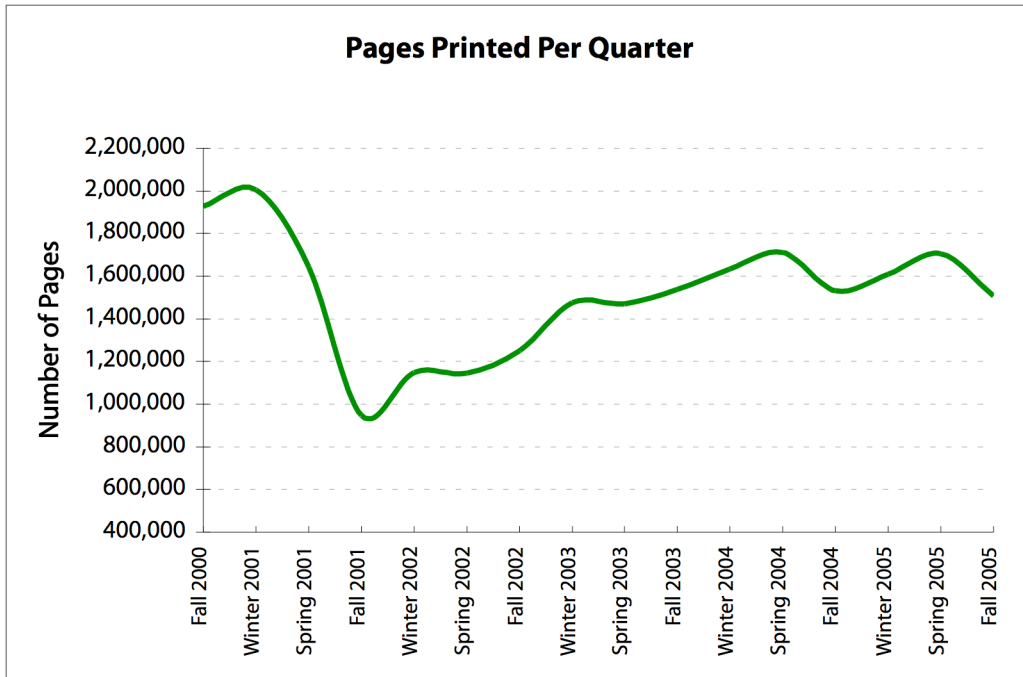
On the other hand, the rate of growth in the number of unique clients at the start of Fall Quarters has decreased. This is likely in response to enrollment restrictions enacted by the UC system in recent years.



## Printing

### Total sheets printed

Another one of CLM's popular services is printing. Of the 19,300 clients that used CLM computer rooms, 17,183 clients printed during Fall 2005, accounting for 89 percent of unique users. All computer rooms have at least one printer, though some rooms may have as many as two or three to cope with high print volume. During Fall 2005 clients printed 1.5 million sheets. This is a decrease of 198,285 sheets from Spring 2005 and a decrease of 24,928 sheets from Fall 2004. This may reflect a client response to billing changes at the start of Summer 2005.

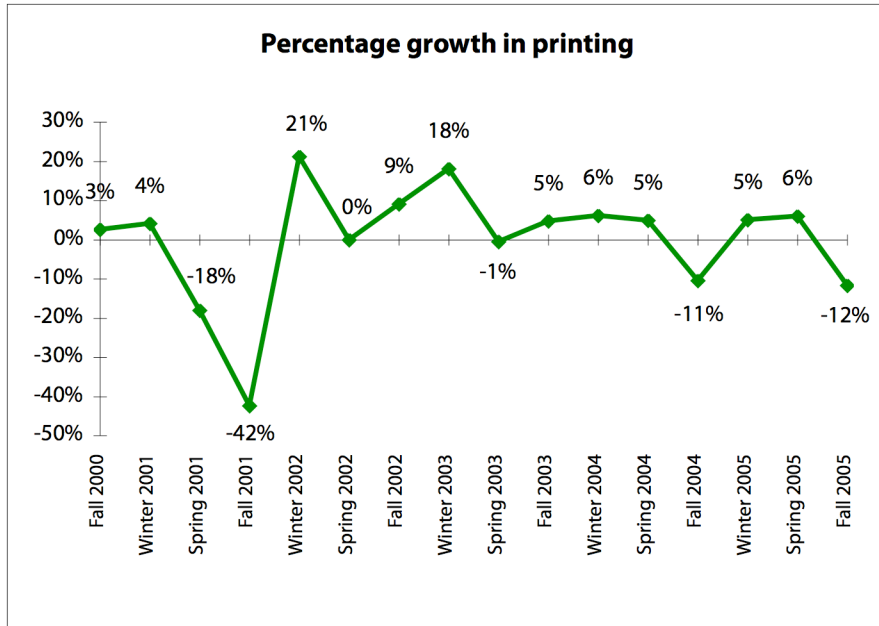


The decline in Spring 2001 and Fall 2001 reflects duplex (double-sided) printing by default in across all computer rooms. At that time CLM also established a 200 free sheet allowance and began to charge 5 cents per sheet in excess of that allowance. The next significant decline occurred in Fall 2004 when CLM revised its print allowance to 100 sheets.

### Rate of printing growth

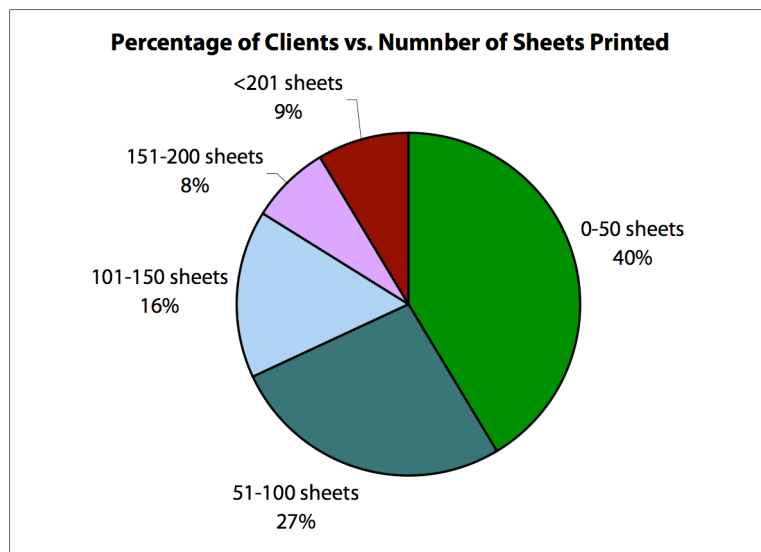
Coupled with this overall decrease, printing per client statistics also decreased. The average number of sheets printed Fall 2005 was 87.6 sheets, down 12.6 sheets from Spring 2005 and down 2.5 sheets from Fall 2004. Also the median sheets decreased to 69 sheets, down from 11 sheets Spring 2005 and 2 sheets from Fall 2004.

## Core Report



### Print allowance statistics

All clients with a valid UCD computing accounts receive a 100 page printing allowance. In excess of that allowance it charges five cents per page. CLM believes that this allowance gives clients adequate access to free printing while discouraging waste. Of clients who printed during Fall, 67 percent printed 100 sheets or fewer staying within their print allowance.

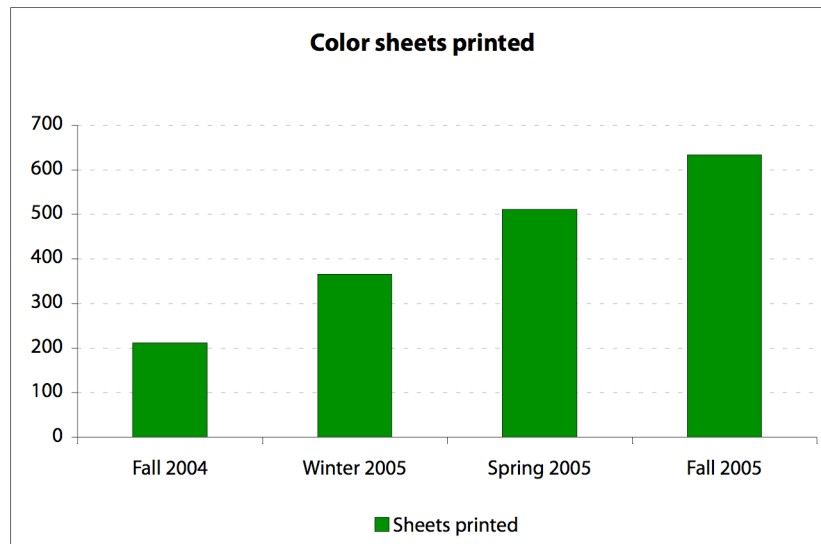


### Color printing

In response to client requests, CLM began offering a color printing service in 1154 Meyer; see [Quarterly Report - Summer 2004](#). In particular, clients wanted the ability to check the print quality of their 2-D multimedia design work. Unlike CLM's standard printing service, it bills for all color printing jobs to recuperate all costs. Given the

## Core Report

newness of this service, it is too early to make assertions about its performance. However, since its inception in Fall 2004, color printing has increased by about 140 sheets per quarter. Future data will help indicate any trends with this new service.



## Digital Lecture Pilot

---

Computer Lab Management's (CLM) Media Distribution Lab (MDL) in Hart Hall is the campus' central repository for nearly 10,000 non-print media materials used in supplementing academic instruction. Its collection includes lecture recordings available on cassette for in-lab listening or for duplication by students. During the 2004-2005 academic year, the MDL circulated 17,307 cassette tapes accounting for 62 percent of the total circulation.

In an effort to improve recording and distributing lectures, CLM, along with other IET units, piloted a digital lecture recording and distribution system during Fall 2005. CLM's primary goal for the pilot was to find a digital recording and distribution solution that was as easy for faculty to use as the existing cassette system. CLM's other purpose was to improve the accessibility of material traditionally housed in the MDL. CLM and Classroom Technology Services (CTS) recognized that recent advances in digital recording and the existing course management module of the MyUCDavis portal could be fused into an easy-to-use, recording and distribution solution. Also, the current high level of market penetration for MP3 players now makes such a distribution method feasible. CLM was excited to pilot digital lectures to better facilitate the campus community's access to instructional tools and academic resources.

Specifically, the latest developments in recording hardware allow for *direct* mp3 recording without the need of additional processing. Before the creation of direct mp3 recorders, digital recording systems required specialized computer hardware and software as well as additional training and technical support. This process required instructors to follow a multiple-step conversion process to generate an mp3 file. These new digital recorders, on the other hand, work exactly like traditional audio equipment: the user inserts the media and presses record and stop buttons to make a recording. Because this new process parallels the existing cassette recording workflow, it minimizes the obstacles associated with previous digital workflows. Thus faculty can transition from cassette to digital more easily. With this in mind, CLM and CTS selected two models of portable, digital recording devices that met criteria for recording format, quality, and audio input support.

During Fall 2005, Computer Lab Management began its digital recordings pilot with four classes. Two recorded digitally for the entire quarter and the others recorded one or two class review sessions. One class's lectures were also simultaneously recorded to cassette as a comparison to help gauge student preference for digital files versus cassette tapes.

Digitally recorded lectures were distributed via MyUCDavis. Because the MyUCDavis distribution system was not designed to handle more than 50 megabytes of data per class, CLM consulted with the MyUCDavis team to increase the disk space for the participating courses.

Additionally, one course's lectures were also distributed via a podcast site, which supported both subscription and downloadable files. Mediaworks created this podcasting site at the request of IET's Interim Vice Provost, Dr. Peter Yellowlees, to disseminate University-



related audio recordings. Since this system also supported file downloads, it was included as an alternate distribution mechanism in the pilot study.

At the end of the pilot, the MDL Lab Manager interviewed participating faculty to find out their experience and opinions regarding the digital recording and distribution workflow, and how it impacted class attendance and affected the course's overall value. CLM also surveyed the enrolled students to determine their access to cassette and mp3 players, their stated usage, and their preference for accessing and listening to the recordings. In addition, CLM analyzed data gathered from MyUCDavis course statistics to evaluate the demand for digital lectures.

The following are some of the highlights from this research:

- Excluding review session recordings, the statistics show that 25 percent of the enrolled students downloaded the digital lectures. In one particular case (a review session), 61 percent students downloaded the file.
- For the class that recorded lectures on cassette and as mp3 files, enrolled students checked out only 27 lectures on cassette (0.5 percent of enrollment) versus 1570 mp3 downloads (29.5 percent).
- Results of the student survey show that more than twice as many students have portable mp3 players than have cassette players, and virtually all respondents would prefer to have an mp3 recording over one on cassette.
- Most of the users surveyed downloaded and listened to the recordings at home rather than on campus and about one fifth listened while in transit, e.g. walking, riding bus, driving, etc.
- Most students said that having mp3 lecture recordings would not change their attendance behavior. This reaffirms participating faculty perceptions that class attendance remained about the same as previous quarters.
- Eighty percent of the students surveyed indicated that having the mp3 lectures enhanced the value of the course. Nearly all of the students who submitted comments indicated how much they appreciated having the mp3 files to help them review their notes and study. The participating faculty also said they were approached by many students who appreciated having the lecture digitally accessible and that it was a benefit to the class.

The digital recording and distribution pilot will continue during Winter 2006 with addition of two large classes that have heavily utilized the cassette-based recording system in previous quarters. Classroom Technology Services, Computer Lab Management, and Mediaworks continue to collaborate to improve the digital recording and distribution workflow, and promote this new service to the campus community.

## 163 Shields Utilization

### Computer room classification and layout

163 Shields is one of Computer Lab Management's (CLM) three open access rooms. It is located in the southeast corner of Shields Library. The room is narrow, with two pillars in center. One row of computer runs against the north wall and there are two facing rows in the center of the room.

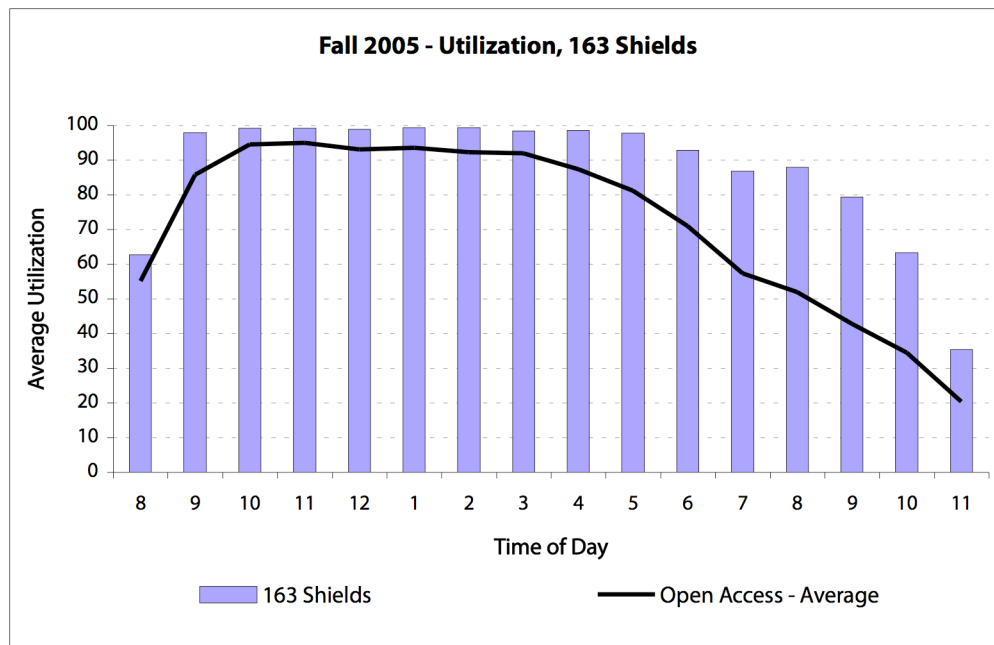
It has 20 Dell Optiplex 270s with 18 inch LCD monitors, last upgraded Summer 2003. One of the stations is reserved for the Computer Room Consultant (CRC) and two are designated as Quick Access stations with a 10 minute time limit. Along the back of the room there are two high-speed HP 4350s with duplexers.

### History

163 Shields opened in 1990 as a computer classroom. However, due to the room's small size and awkward geometry instructors found it difficult to teach in the room. Given the low number of reservations and its high utilization when classes were not scheduled, CLM reclassified as an open access room in Winter 2005.

### Utilization

Of all CLM's computer rooms, 163 Shields experiences high utilization during all its open hours, out performing all other locations. Unlike most other rooms whose utilization drops significantly after 6:00 pm, 163 Shields maintains a high level of usage until closing. Starting Fall 2005, CLM extended the room's hours until midnight Monday through Thursday, until 6:00 pm on Friday, and began to open the room on the weekends to better match the Library's schedule and serve clients needing access to computers and printing; see [CLM - Fall 2005 Schedule Changes](#). Since extending the room's schedule, CLM has seen this same level high utilization during those hours as well.



### **Factors contributing to 163 Shields' high utilization**

CLM believes the room's high utilization stems from a variety of factors. Central among these is its prime location in the Library, a vital hub of academic life. Computer access is a fundamental part of any contemporary academic environment. While the Library does offer computers for accessing the online catalogs, such as Harvest and Melvyl, and online databases, understandably it restricts other activities such as email or word processing; see [Shields Library - Computer Use Policies](#). However, many Library patrons need access to additional software to what the Library's computers provide to complete their work on site. Also, they would rather have access to a computer with a complete suite of software in the Library than go off site to another open access room. The computers in 163 Shields have up-to-date productivity software installed, such as Microsoft Office. This allows patrons to do research, complete academic work, or study in a library setting while having a full set of computer tools on hand. The availability of these tools supplements Library services in meeting their needs.

Access to free printing provides an additional attraction to use this open access room. Of all CLM computer rooms, 163 Shields accounts for 14 percent of all printing, reporting over 200,000 sheets printed during Fall 2005. This places it in second place in print volume per station. Moreover, while people can print from a Library computer, it requires purchasing a debit card, which must be recharged when expended. On the other hand, CLM provides all clients with a UC Davis Computing Account a 100 sheet printing allowance. In excess of that allowance it charges 5 cents a sheet and all charges are either applied to the student's account or billed separately at the end of the quarter; see [CLM - Printing Policies](#). Additionally, both printers have duplexers that help reduce per sheet cost by maximizing the amount of information that can be printed on one sheet. The free printing option is a very attractive service and brings people into the room. In fact, the Library recognizes CLM's printing service as a valuable on site resource; see [Shields Library - Copying and Printing](#).

Another benefit of 163 Shields is the added support and customer service. The room is staffed by CRCs available to answer computer and printing related questions. The CRC's presence also ensures that technical problems are resolved quickly. Also the computers have the same consistent and familiar interface found in the other 15 general campus computer rooms.

### **Conclusion**

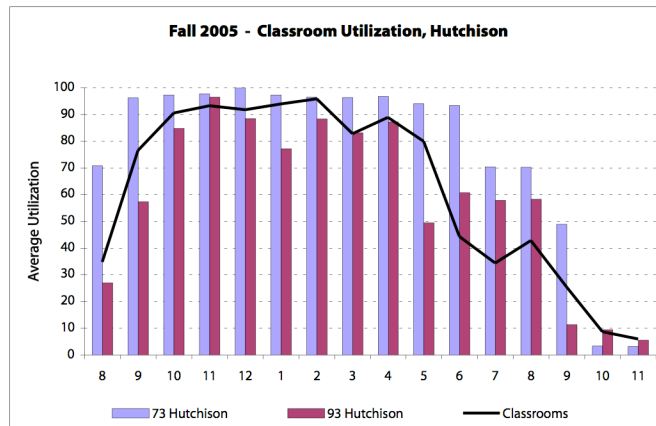
Given its ideal location and high demand for its services, CLM would like to further improve accessibility to this open access room. In particular, CLM will evaluate additional schedule adjustments to increase its availability. Also, CLM will also meet to address other current issues such as wait lines and space restrictions, as well as renovations for this aging facility. CLM expects that such changes and renovations will enhance this room's value not only as a computer room, but also as an integral service in the Library.

## Detailed Classroom Utilization

This section examines the utilization for each computer classroom. The graphs below provide details on each the computer classroom utilization. The superimposed line represents the weighted average utilization for all the computer classrooms for comparison.

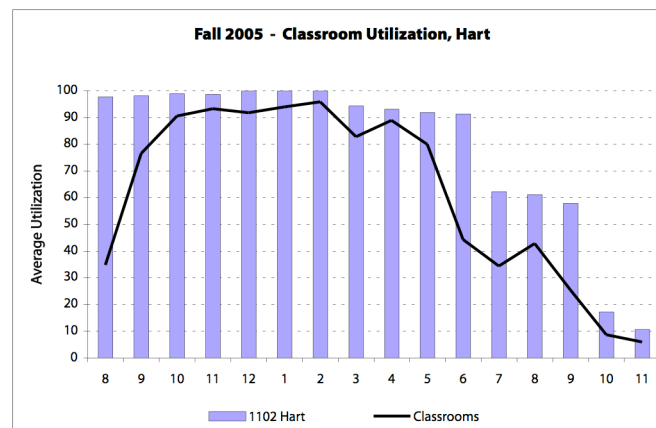
### 73 and 93 Hutchison

The College of Agricultural and Environmental Sciences heavily reserves 73 Hutchison for the college's AMR 21 course. The quarterly course utilizes the room for lab discussions and to complete assigned projects. Often AMR students return to use it for academic work when not reserved. Also, teaching assistants regularly hold office hours in the facility thus providing additional support for students.



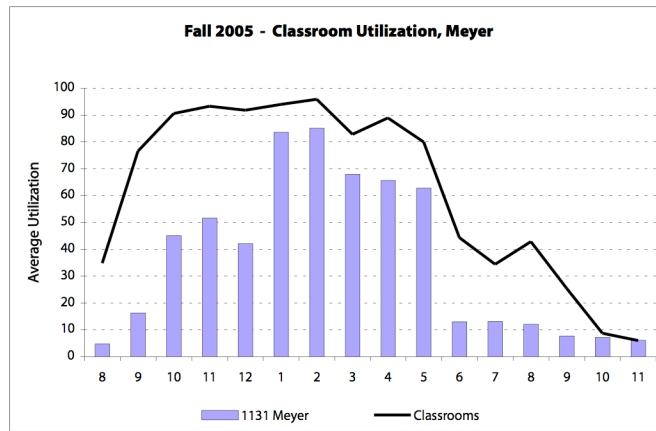
### 1102 Hart

The graph above shows a high utilization level for the 1102 Hart computer classroom. The 1102 Hart facility is unique as a high-end multimedia classroom. It is reserved primarily for teaching students how to use multimedia hardware and software, offering high-end Apple Mac G5 computers with access to flatbed scanners, support for audio functions, and specialized software for multimedia design, layout, and illustration. Courses scheduled in the early morning hours contribute to the significant, above average utilization starting at 8:00 am. During evening hours, the facility well exceeds average classroom utilization.



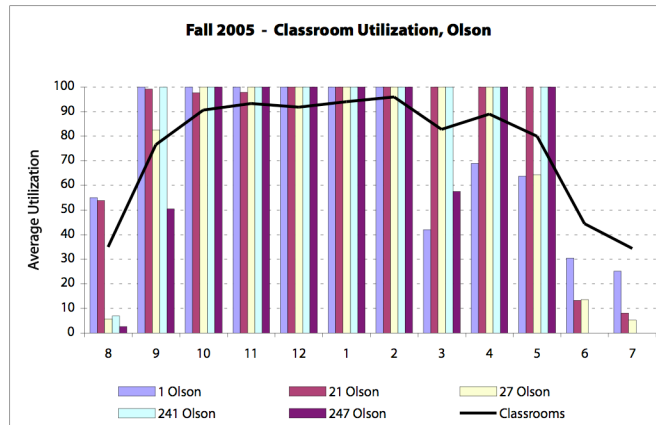
**1131 Meyer**

The 1131 Meyer facility continues to present an anomaly to the typical utilization trends. While other computer facilities show a flattened peak during the 9:00 am to 6:00 pm times, this facility shows peaks and valleys in usage throughout the day. There could be numerous explanations to this behavior. The strongest explanation is the distance of Meyer from the central campus and that few classes are scheduled in that area of campus. As a classroom, its distance from central campus may also discourage some instructors from using the facility. For open access, students prefer to wait in long lines for central core campus facilities instead of traveling to rooms located at the periphery of campus. In the evening, Meyer’s proximity to available parking may make it more attractive for evening use.



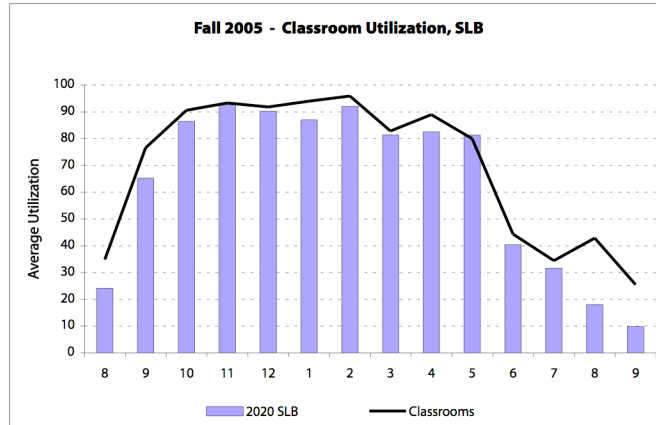
**1, 21, 27, 241, and 247 Olson**

Olson Hall facilities are heavily scheduled for classes between 9:00 am and 6:00 pm. The graph above reflects the heavy utilization of the five Mac classrooms in Olson. The University Writing Program primarily reserves these Mac computer classrooms for their Computer Aided Instruction (CAI) writing courses. Effective Fall 2005, 27 Olson was converted from a PC to a Mac classroom. CLM expects this change to increase utilization, especially during core instruction time. At that time CLM began to close the basement classrooms at 8:00 pm due to lower evening utilization.



**2020 SLB**

During Winter 2005, CLM opened a new computer classroom in 2020 Science Lab Building (SLB). At 41 seats, 2020 SLB is the largest computer classroom managed by CLM. As part of an agreement with the College of Biological Sciences (CBS), the room will provide up to 40 percent of its hours for CBS classroom use. When not in use by CBS or other scheduled classes, the room is available for open access. After starting off with below average utilization, it now sees utilization comparable to other CLM computer rooms.

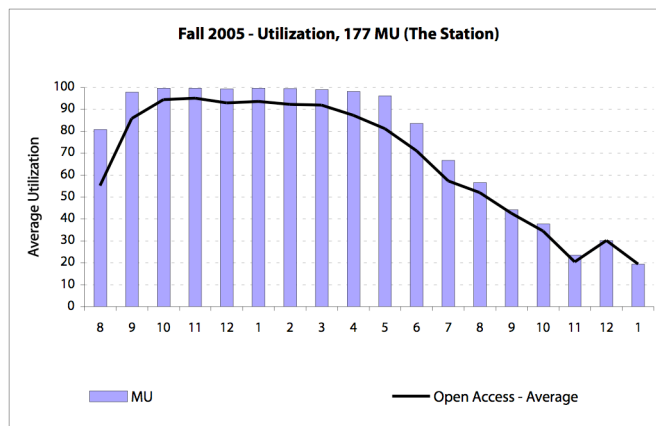


**Detailed Open Access Utilization**

The graphs below represent details the utilization of each of the open access labs. The average line represents the weighted average utilization for all open access labs.

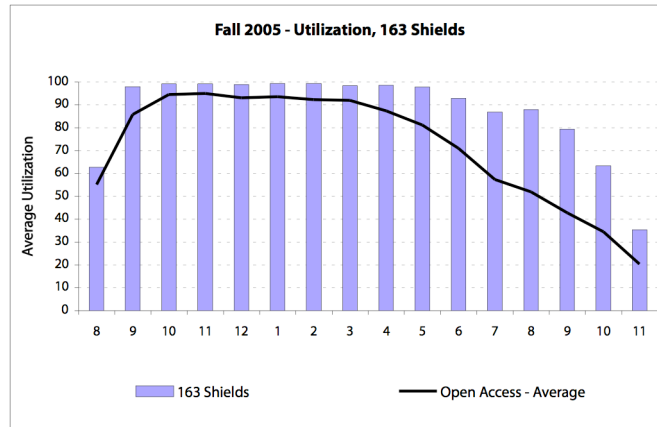
**177 MU**

177 MU (The Station) is by far the most popular lab with students. Being located in the core of the campus contributes to the lab’s high utilization. The lab exceeds the average computer lab utilization during all of its operational hours. The lab quickly fills to capacity shortly after opening at 8:00 am and still is highly utilized at 10:00 pm. Because of its popularity, it has lines throughout the day and well into the evening. The two weeks leading up to finals the Station stays open until 2:00 am. This accounts for the peak 12:00 am on the graph below.



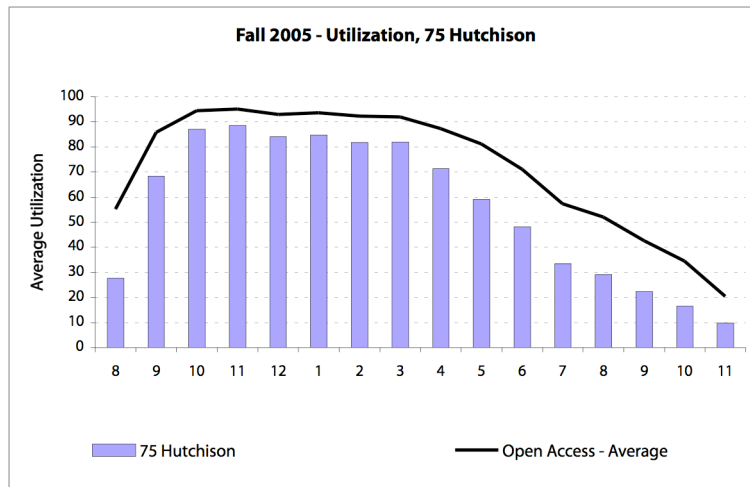
### 163 Shields

One of the busiest facilities is the 163 Shields Windows based computer room. During Winter 2005 Shields was reclassified as a designated open access lab because the room’s size and geometry made it less popular for classes. Its prime location within the library has often resulted in a high drop-in demand with long lines waiting to use one of its 19 computers. Waiting lines should always be expected at the 163 Shields computer room. Like the Station, 163 Shield shows above average performance from its opening to closing. It exceeds all other computer rooms in utilization over its open hours. Starting Fall 2005, CLM extended this room’s hours to better meet client demand.



### 75 Hutchison

75 Hutchison offers 26 Windows based stations and 11 Mac OS based stations. Its utilization is still slightly below the average open access lab utilization. This lower than average utilization is most likely explained by its co-location with the 73 and 93 Hutchison computer classrooms. When these two computer classrooms are not scheduled for classes, they can be used for drop-in use. As a result, users tend to distribute themselves between the available rooms. In addition, the basement location of the facility makes it less accessible to walk-by traffic.



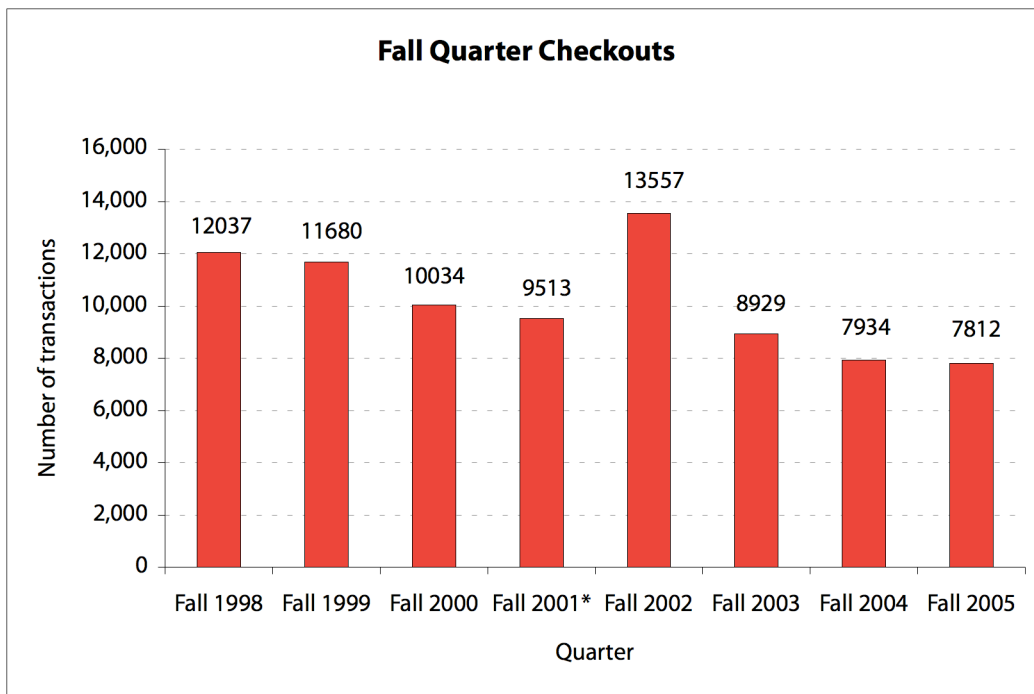
## Hart Media Distribution Lab

---

The Media Distribution Lab (MDL) holds class materials such as DVDs, videotapes, audiotapes, slide sets, and notes for students and faculty to checkout and view in the facility. Faculty typically put these class materials on reserve at the MDL instead of the Library since the facility has VCRs, DVD players, audio players, and slide carrels permitting clients to check out and view the material in the same location. Additionally, there are also 18 iMac computers dedicated for viewing computer-based instructional software modules. The MDL also offers video-based training tutorials for various software applications.

### Primary transactions

The graph below measures the MDL's checkouts during previous Fall Quarters. Checkouts continue to gradually decline. CLM expects trend to continue as the campus transitions from traditional to digital distribution of class materials. For example, audio lectures for several classes are now also available in digital format as part of our Digital Lecture pilot. Furthermore, there is a general trend of distributing class materials digitally.

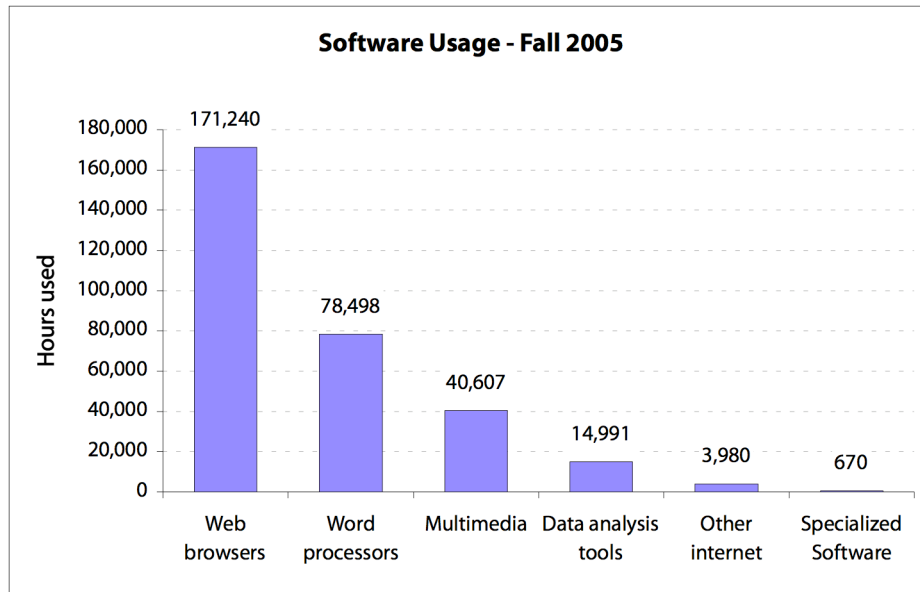




## Software

---

This section examines the software that clients use in the computer labs. Internet access and word processing are by far the most popular applications in the computer labs. The graph below shows the most commonly used applications.



Word processors are exclusively Microsoft Word.

Web browsers

- Internet Explorer
- Safari
- Firefox
- Mozilla

Other Internet

- SSH/TELNET
- FTP

Data Analysis tools

- Microsoft Excel
- SAS for Windows
- Microsoft Access

Multimedia applications

- Adobe Photoshop
- InDesign
- Illustrator
- Vectorworks
- Flash
- FrontPage
- Dreamweaver
- Microsoft PowerPoint

## User Demographics

### User affiliation

Over 97 percent of the users are students logging on to one of the 16 Computer Lab Management facilities. This number represents 61 percent of all undergraduate and graduate students (including professional schools) at UC Davis. CLM served approximately 58 percent of the undergraduate population and 21 percent of the graduate and professional student population. In addition to students, faculty comprise 1 percent and staff 2 percent of total logins.

### Student users' college or school

The graph below illustrates the users by their college or school. While the largest group of students comes from the College of Letters and Science, the largest percentage of any college belongs to the College of Agriculture and Environmental Sciences. Professional schools, having a greater level of internal computer support for their students, had the smallest proportion of their population utilizing the various central computing facilities. The level of support as well as laptop ownership and school support may indicate why few students from professional schools utilize our facilities. Another factor might be geographic location of professional schools in relation to that of our computing facilities.

