Quarterly Report
Winter 2006

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Winter 2006 Overview

CLM's computer rooms continue to be heavily impacted and utilized during Winter 2006. All rooms are effectively filled to capacity from 9:00 am to 6:00 pm. Even with opening a 41-seat room over a year ago, the wait lines have not decreased. Such high utilization poses challenges for us to serve clients needing timely access to our services.

During Winter Quarter IET was approached by the Design Department regarding the possibility of adding another multimedia computer classroom and submitted a proposal to the campus. We have also pursued other potential space opportunities stemming from campus building projects, including the upcoming Walker Student Services building. Additionally, there is an ongoing possibility of adding the 2060 SLB computer classroom; however, CLM does not have sufficient funding to pursue this option at this time.

The high cost of providing printing services is another of CLM's current challenges. While printing volume has stabilized within the last two years, due in part to revised charging policies enacted Summer 2005 and flat enrollment, current printing expenditures are too high to sustain in the long term. Therefore, CLM has proposed a new printing rate currently under review by OMRP.

Once the printing cost issue is resolved, CLM will be in better position to address the before mentioned space constraints. However, the Walker renovation is likely years out and the Design proposal lacks an identified space. At this point, 2060 SLB is the most likely space possibility in the near term. Unless there are any changes, it is unlikely that CLM will be able to add substantial capacity in the near term. So we expect continued high utilization for the foreseeable future.

Goals and Accomplishments

Expand and refine IET's Digital Lecture pilot

Status: In progress

CLM has spearheaded IET's Digital Lecture pilot to develop a digital lecture recording and distribution system for the campus. During Winter 2006, CLM continued to work with other units to expand and refine this pilot.

Improvements during this quarter include the installation of a permanent digital recorder (Marantz PMD570) in the 123 Science Lecture Hall's media cabinet. Integrating a digital recorder into a room's media cabinet ensures high quality recordings with small file size and also reduces the equipment an instructor needs to carry to class. This makes digitally recording lectures more seamless and transparent. Additionally MediaWork's podcasting system was selected as the sole distribution method for digital recordings. This distribution system gives flexible nonproprietary access to recordings via in-browser playback, file downloads, or RSS feed subscription.

Winter 2006 saw dramatic growth in the number of users of this system. Currently 13 classes use the campus podcast system with nearly 1,200 current users accessing digital lectures. For more information see http://clm.ucdavis.edu/podcast/2005-2006report.html and http://podcast.ucdavis.edu.

Implement new printing rate

Status: In Progress

Printing costs have increased substantially in recent years, despite changes to the printing rate intended to manage costs. Therefore, CLM has proposed new printing rate to reduce printing expenditures to a sustainable level. OMRP is currently reviewing the proposed rate and CLM expects to start using the revised rates effective Summer 2006. The new printing rate seeks to negotiate a balance between maintaining access to free printing while controlling costs.

Pilot screen management software for PC classrooms

Status: Completed

To improve its computer-based teaching tools in PC classrooms, CLM piloted a screen management program, AB Tutor Control, in 2020 SLB.

This software provides screen locking, remote viewing and control capabilities, among others features. This software helps instructors and students collaborate in the computer classroom as well as helps instructors more effectively manage the teaching environment. One reason for selecting AB Tutor Control is that it provides similar functionality and interface to that of Apple Remote Desktop screen management software installed in Mac computer classrooms. Instructors had requested similar features for PC classrooms.

CLM will install this software in all PC computer classrooms during Spring and Summer Quarters.

Create wait line area in 1101 Hart

Status: Completed

The high demand for quick access stations in 1101 Hart has caused the wait line to encroach upon the media distribution checkout counter. This caused customer service issues, because clients wanting to checkout materials were often blocked from the counter by the line. In response, CLM created a new wait line area around the corner from the checkout counter, thereby physically separating these two clients groups. This system will prevent the long wait lines for quick access stations from affecting customer access to the checkout counter.

Install region-free DVD player in the Hart Media Distribution Lab

Status: Completed

CLM installed a region-free DVD player in the Hart Media Distribution Lab to allow access to foreign films. The unit (JVC XV-S500) can play DVDs from any part of the world and supports both PAL and NTSC media. It also plays SVCD and Video CDs, thus increasing the types of media that can be viewed in the lab. The station has four sets of headphones for group viewing.

Conduct Student Survey

Status: Completed

To help identify areas to improve our quality of service and meet user needs, CLM conducted a student survey. CLM emailed a survey to 1,000 students who used our labs during Winter 2006. Of these, 97 students responded. These surveys focused on students' general experience in and impression of our computer rooms. The results for these surveys are available at http://clm.ucdavis.edu/pubs/survey/student-w06.html.

Utilization

Overall computer room utilization

Computer Lab Management operates 16 computer rooms at UC Davis, consisting of computer classrooms, open access computer labs, and media rooms. All computer classrooms and open access labs experience high utilization during peak hours (9:00 am to 6:00 pm). The open access labs also experience long wait lines. The graph below combines utilization Monday through Thursday of CLM's 10 computer classrooms and 4 open access computer labs.

Average Utilization versus Average Wait Line Length
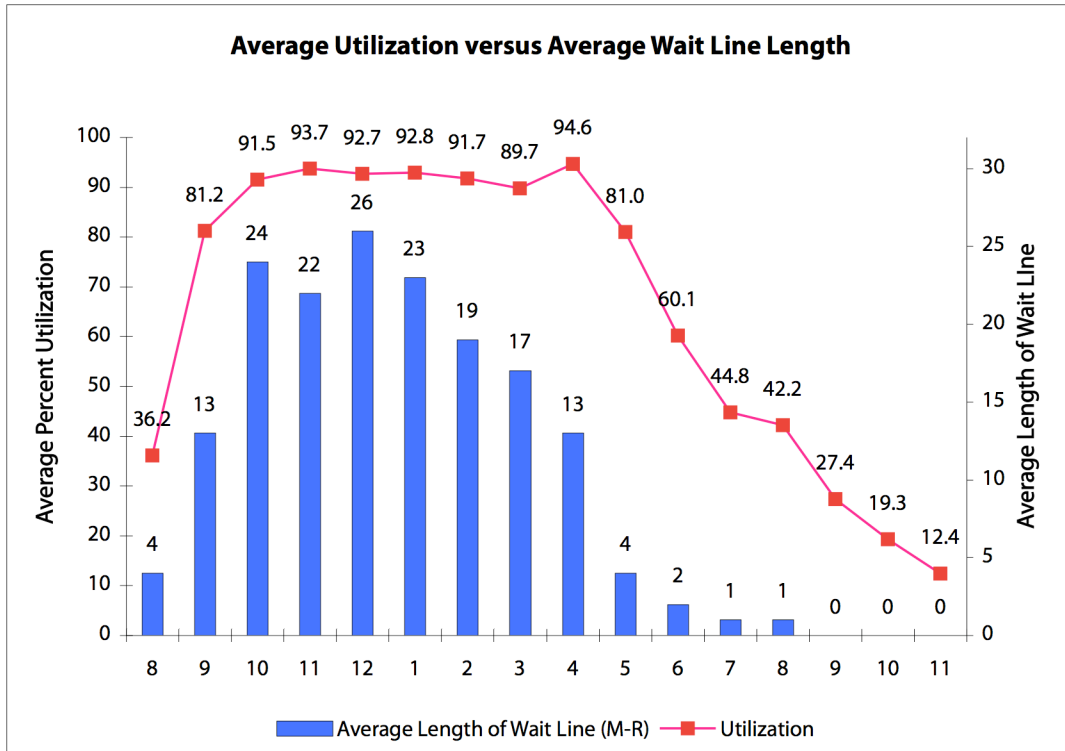
Utilization tabulates only actively logged in users and therefore does not record the time it takes between logoff and login. Because of this data collecting constraint, seldom does utilization reach 100 percent. It would only do so when an entire room is reserved for class or all the users remain logged 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 actual demand for its services to be higher.

As in past quarters, utilization remains very high through much of the day, only dropping below 80 percent after 6:00 pm. The peak at 4:00 pm reflects a concurrent high percent of classroom reservations across all computer classrooms paired with heavy utilization in all open access rooms. Evening utilization follows historic patterns with demand gradually decreasing. It is important to note that utilization patterns are the same as previous years, despite adding 41 seats during 2005. Thus while CLM has opened more

facilities and is now serving more clients, CLM has not seen a decrease in the demand for its services.

One indicator of this demand is wait line length. Wait lines continue to be long, but have not increased as they had in the past; instead they have stabilized at a high level. The relative stability of the wait line results from a number of factors. Adding faster printers at the beginning of the 2005-2006 academic year and more proactive management of the time limit on the standup stations has helped maintain wait line length at current levels. However, CLM has seen that once lines reach a certain length clients become increasingly less inclined to wait in line. In a recent student survey, CLM found that only one third of the students would wait in a line 10 or more people. The rest would rather come back at another time, try to find another room without a line, or go home to use a computer; see http://clm.ucdavis.edu/pubs/survey/student-w06.html.

Thus the overall utilization and average wait line substantially underestimates demand. While CLM continues to address wait lines employing better hardware and internal management procedures, additional computer room space, especially in the core campus area, would help meet the campus' need for CLM's services.

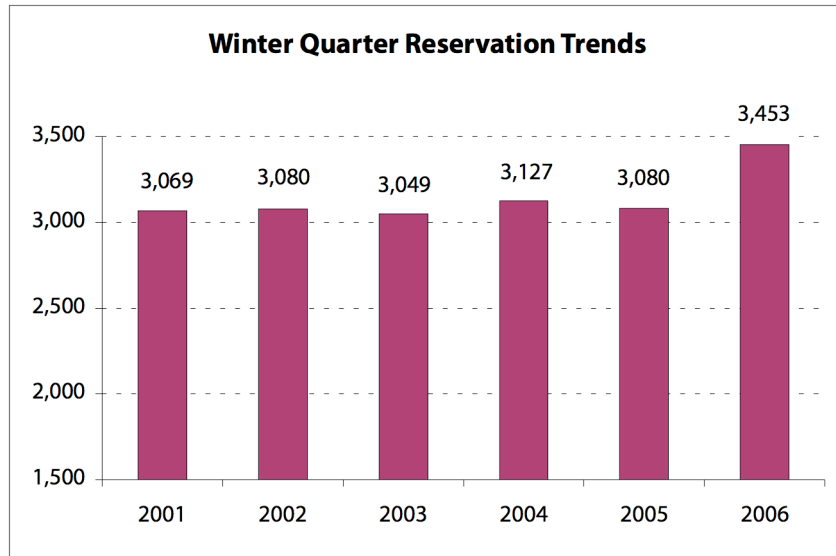## Classroom utilization and reservations

CLM provides 10 computer classrooms for teaching and instruction. Instructors can reserve computer classrooms for classes or lab sections for the entire quarter or for one- or multi-day sessions. Most computer classrooms reach full utilization between 9:00 am to 6:00 pm. During Winter 2006, there were a higher number of evening classes held.
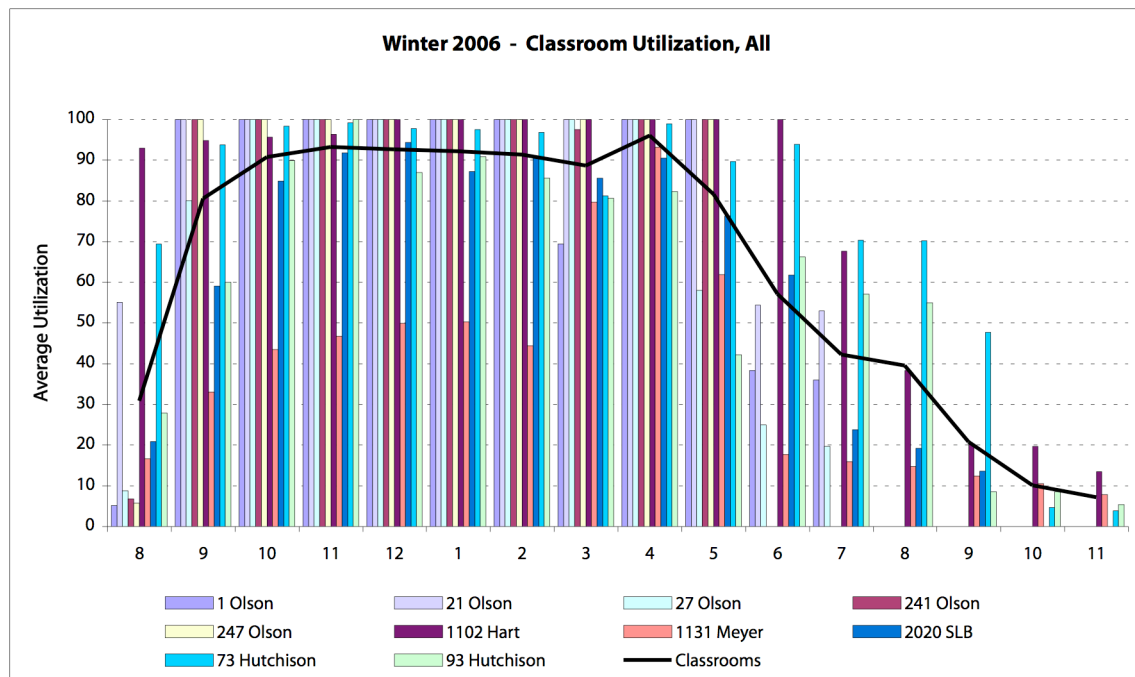
During Winter 2006, 111 classes were taught in CLM computer classrooms for a total of 3,453 reserved hours, an increase of 373 hours from the previous year. Part of this

increase comes from opening a new PC classroom in 2020 SLB Winter 2005 and converting 27 Olson into a Mac classroom during Summer 2005. This allows CLM to schedule more classes and better utilize existing classroom space by meeting instructor platform preference. Because computer classrooms are so heavily scheduled, accommodating additional reservation requests has become more difficult. Additional computer classroom space would help CLM meet the high this demand.

Winter Quarter Reservation Trends

| Year	Reservations
2001	3,069
2002	3,080
2003	3,049
2004	3,127
2005	3,080
2006	3,453

Open access utilization

To address the need for on campus computer access, CLM provides three open access room that are never scheduled with classes. Students come to these rooms to complete academic work and access instructor-prepared materials. Also, open access rooms do the bulk of the printing across all rooms. Of these open access rooms, the 177 MU (The Station) and 163 Shields consistently see high utilization well into the evening hours, with Shields dropping only dropping below 50 percent at 11:00 pm.

Winter 2006 - Utilization, Open Access

Legend: 163 Shields, 75 Hutchison, MU, Open Access - Average
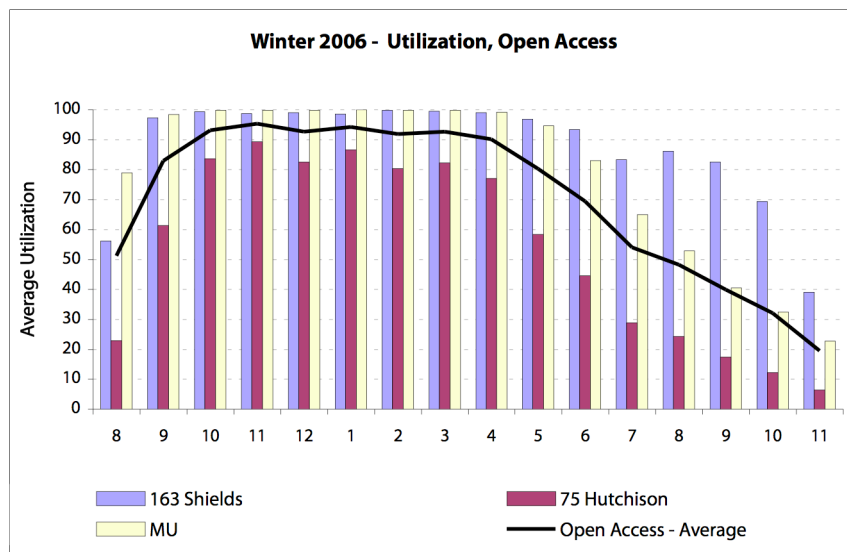
Logins and Unique Users

As is usual for Winter quarters, the number of unique users declined slightly to 19,040. This decline happens after the initial new student increase in Fall and as a number of students graduate during Winter. The number of unique users appears to have stabilized over the last two years. This may be due in part to enrollment restrictions during the past years.
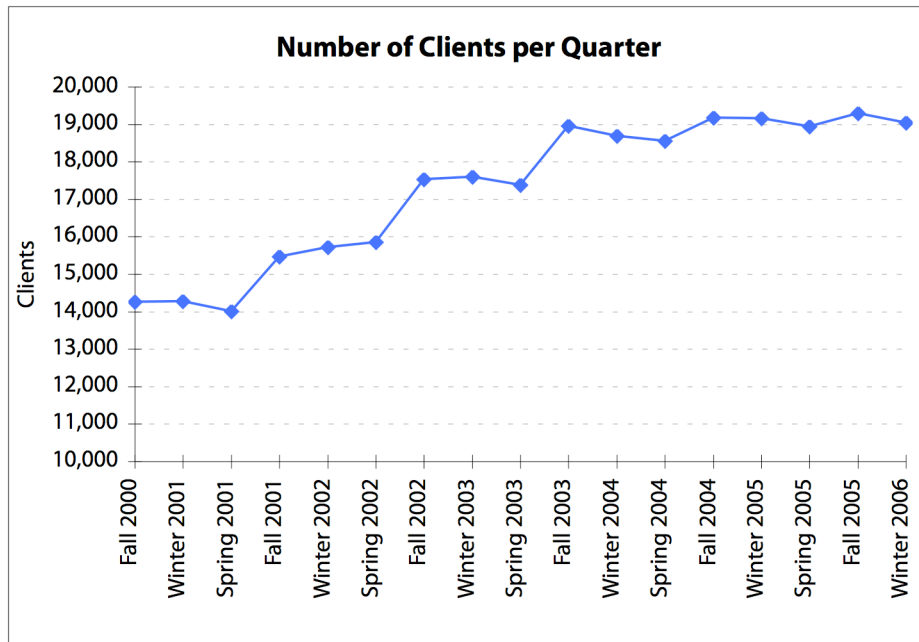
The total number of logins increased slightly. Clients averaged 17.2 logins per quarter. This means CLM clients visit computer rooms twice a week on average.
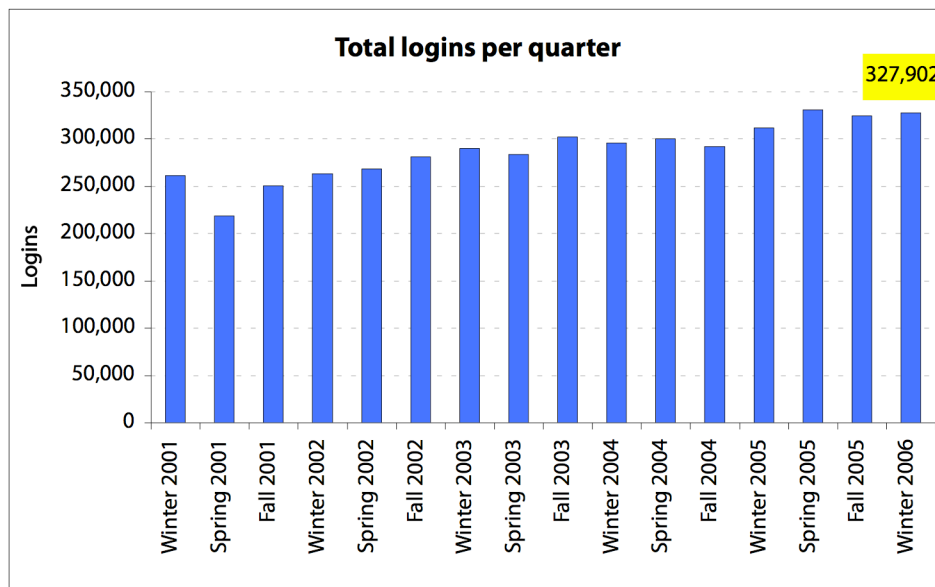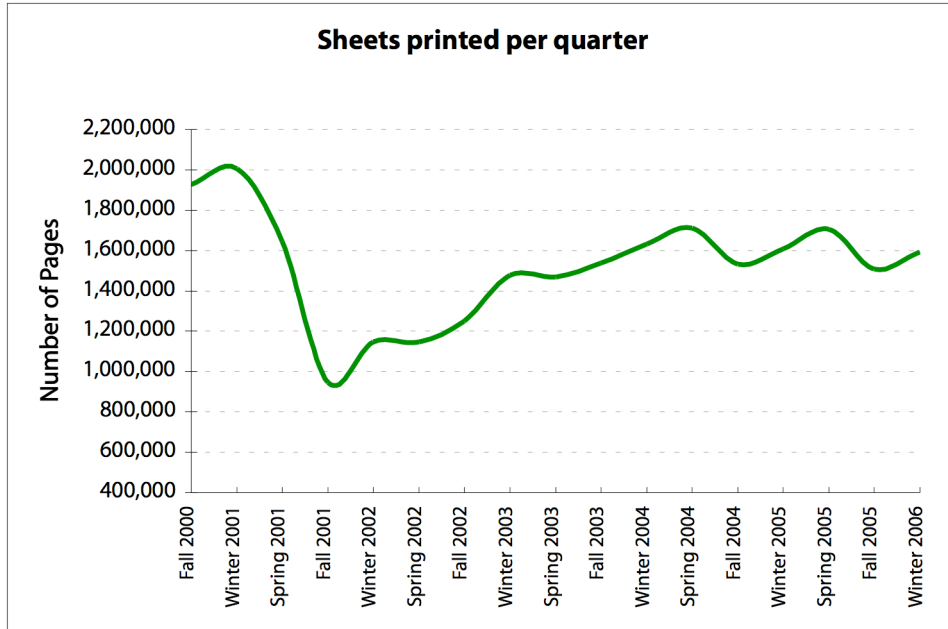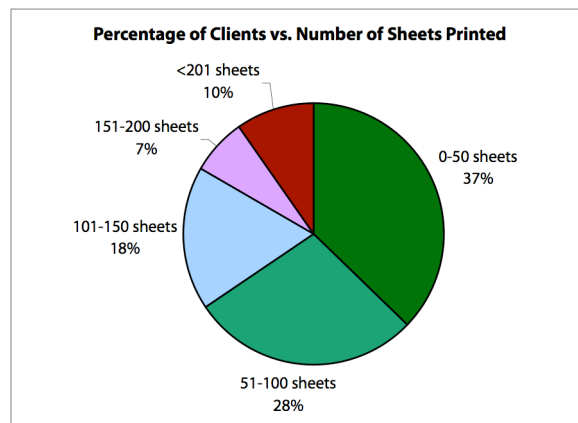
Printing

Total sheets printed

Another one of CLM's popular services is printing. All computer rooms have at least one printer, though some rooms may have as many as two or three to cope with a high print volume. During Winter 2006 clients printed just under 1.6 million sheets.

Sheets printed per quarter

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.

Print allowance statistics

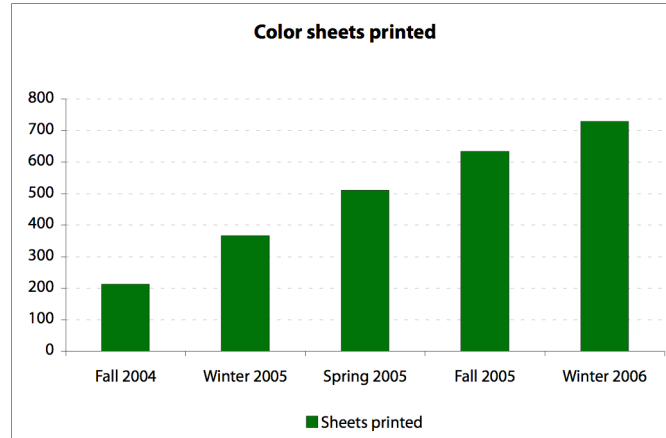All clients with a valid UCD computing accounts receive a 100 sheet printing allowance. In excess of that allowance it charges five cents per sheet. CLM believes that this allowance gives clients adequate access to free printing while discouraging waste and controlling costs. Of clients who printed during Winter, 65 percent printed 100 sheets or fewer.

Percentage of Clients vs. Number of Sheets Printed

Color printing

CLM offers a color printing service in 1154 Meyer. Unlike CLM's standard printing service, it bills for all color printing jobs to recuperate costs. Given the newness of this service, it is too early to make assertions about its performance. However, since its inception in Fall 2004, color printing has steadily increased every quarter.
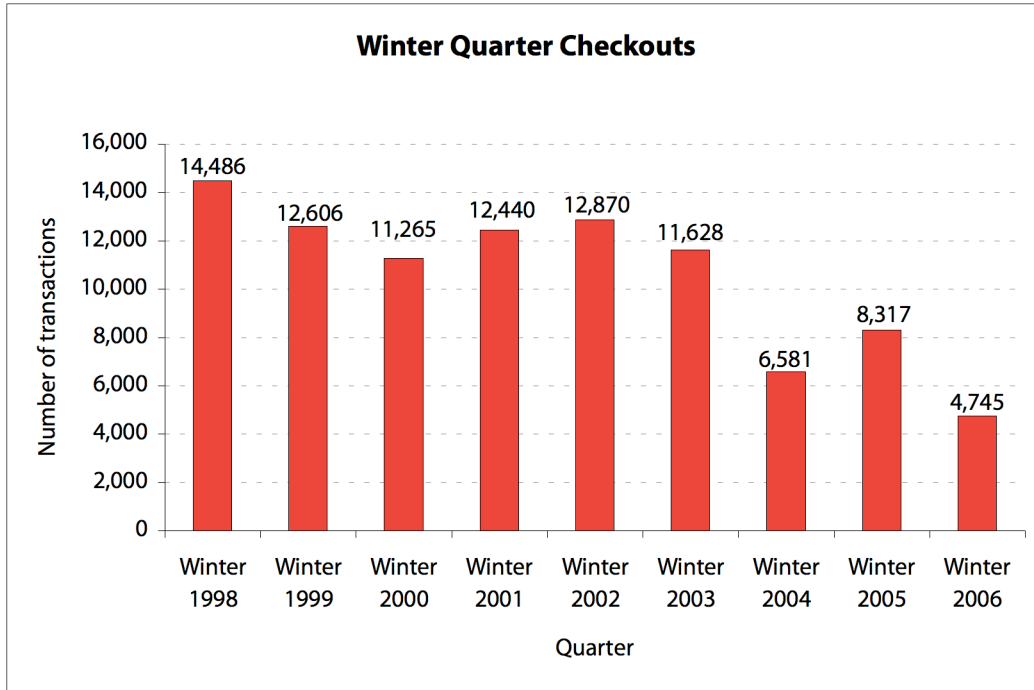
Color sheets printed

	Fall 2004	Winter 2005	Spring 2005	Fall 2005	Winter 2006
Sheets printed	210	365	510	635	725

■ Sheets printed

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 MDL has VCRs, DVD players, audio players, and slide carrels permitting clients to both 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 Winter Quarters. Overall checkouts have nearly halved from the preceding year. Compared with last year, tapes checkouts have decreased 45 percent; checkouts of the accompanying paper notes have practically disappeared, decreasing from 3,125 checkouts to merely 3 checkouts the entire Winter quarter. This means 87 percent of the total checkout decrease comes from "audio and board notes" checkouts only. This marked decrease results from courses transitioning their materials to digital format. CLM has been working with departments to help them transition their materials to a more accessible digital format. In particular, it has helped many of these courses transition from recording lectures on tape to digital recordings.

Winter Quarter Checkouts

| Quarter	Number of transactions
Winter 1998	14,486
Winter 1999	12,606
Winter 2000	11,265
Winter 2001	12,440
Winter 2002	12,870
Winter 2003	11,628
Winter 2004	6,581
Winter 2005	8,317
Winter 2006	4,745

Meyer Media Production Lab

The Meyer Media Production Lab (1154 Meyer) is the main multimedia production computer lab at UC Davis. This self-service lab provides access to high-end multimedia production equipment and software for students, staff, and faculty to create their own multimedia projects. It has 17 PowerMac G5s and 5 PCs with flatbed and slide scanners, video capture equipment, and audio mixing tools. It also has dedicated to both group video editing and audio recording.

Utilization and session length

Since the media production lab purpose differs from other general-purpose labs, standard computer room metrics fail to capture the demand for services. Because Meyer is a self-service facility, demand fluctuates according to individual need and academic pressures, such as mid-quarter or final projects. For example, during the last few weeks of the quarter 1154 Meyer typically sees a significant increase in the number of clients doing video work.

Due to the complex and time-extensive nature of media development, clients tend to spend more time logged on than in general purpose rooms. During the weekdays, roughly three quarters of the 1154 Meyer's sessions are shorter than an hour. However, during the weekends, nearly half the sessions exceeding 1 hour, with nearly a quarter over two hours.
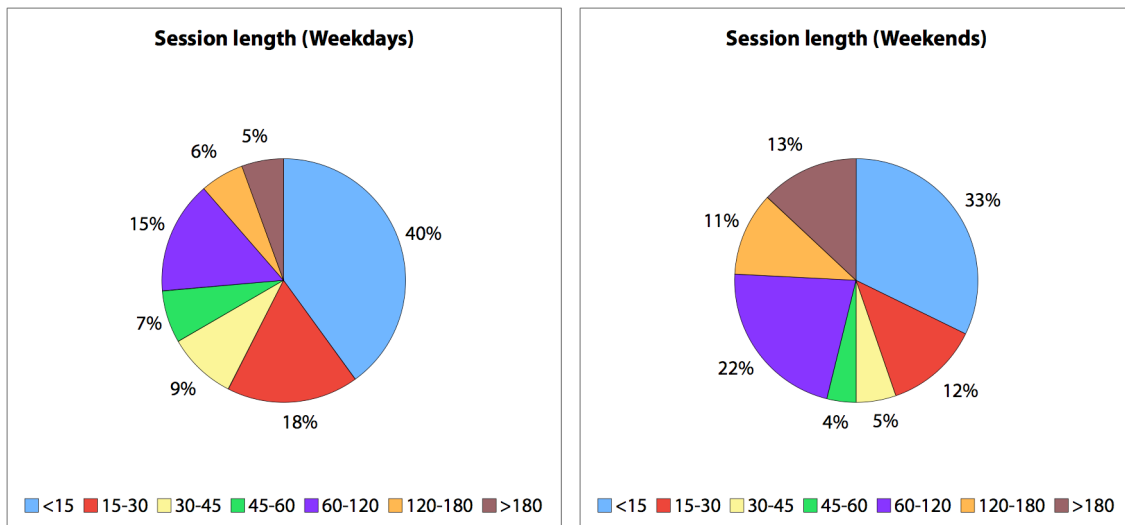
Multimedia software utilization

Software utilization best illustrates demand for 1154 Meyer's media production services. The graph below shows the percentage of the total hours used for broad multimedia software categories. Video production and graphic software account for the bulk of hours accounting for 37 and 34 percent respectively. Audio production accounts for 14 percent, especially high since there is only one station specially designated for audio work.

Meyer - Multimedia software utilization
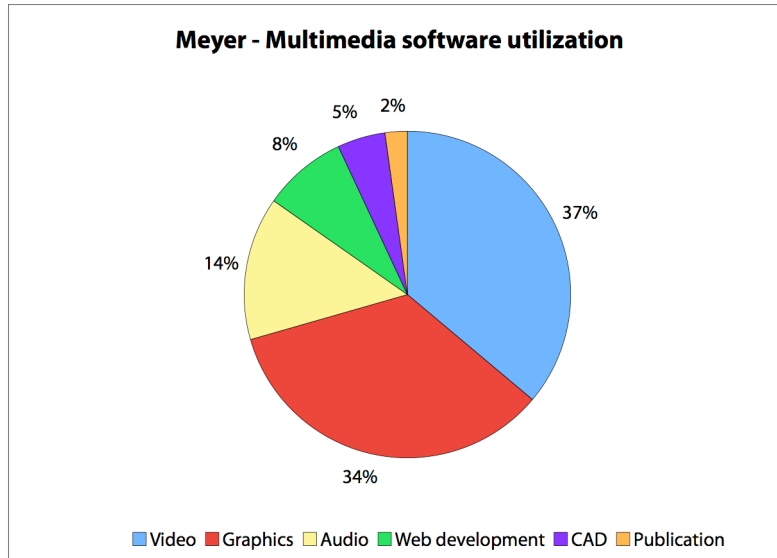
Some multimedia programs include:

- *Video:* Final Cut Pro, iMovie, DVD Studio, Motion
- *Graphics:* Photoshop, Illustrator, ArtRage
- *Audio:* ProTools, SoundTrack
- *CAD:* VectorWorks, SketchUp
- *Publication:* InDesign, Microsoft Publisher

Need for an Additional Multimedia Computer Classroom

Overview of the 1102 Hart Computer Classroom
Currently Computer Lab Management (CLM) provides a 25 seat high-end multimedia computer classroom in 1102 Hart reserved primarily for faculty to teach students multimedia hardware and software. It offers high-end Apple Mac G5 computers with access to flatbed scanners, support for audio and video production and editing, and specialized software for multimedia design, layout, and illustration. The classroom is very popular and heavily scheduled. The classroom is primarily used by Design, Landscape Architecture, and Technocultural Studies. In addition, the set, lighting, and costume design areas in Theater and Dance have also begun to utilize Hart Hall by routing their majors into Design courses that meet their curricular requirements. These majors require access to specialized multimedia programs in their teaching.

Class Reservations and Usage
1102 Hart is heavily reserved for classes, averaging around 10 hours of class time per day. The table below shows the hours reserved for classes since the 2004-2005 academic year.

Quarter	Reserved hours	Classes per week	Class Hours Per Week
Fall 2004	348	6	34.8
Winter 2005	466	8	46.6
Spring 2005	486	8	48.6
Summer 2005	511	4 / 5	42.6
Fall 2005	519	8	51.9
Winter 2006 *	518	8	51.8
Spring 2006 *	444	8	44.4
Summer 2006 *	566	5 / 4	47.2
Fall 2006 *	459	8	45.9

* Projected reservations; will likely change slightly according to class demand.

The classroom has such a high level of reservations that it is nearly impossible to accommodate any more classes. In fact, 1102 Hart has become so impacted that the Technocultural Studies Department has started teaching classes on weekends.

Future Needs
This usage demonstrates sufficient demand for teaching in a multimedia rich computer classroom that justifies opening an additional computer classroom similar to 1102 Hart. The growth in Design class offerings alone could fill a new classroom. Technocultural Studies is also expanding its offering and requires more computer classroom space. With these increasing demands, CLM cannot meet requests with the existing multimedia classroom space. CLM projects that an additional new multimedia computer classroom would be filled with classes almost immediately upon opening.

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.
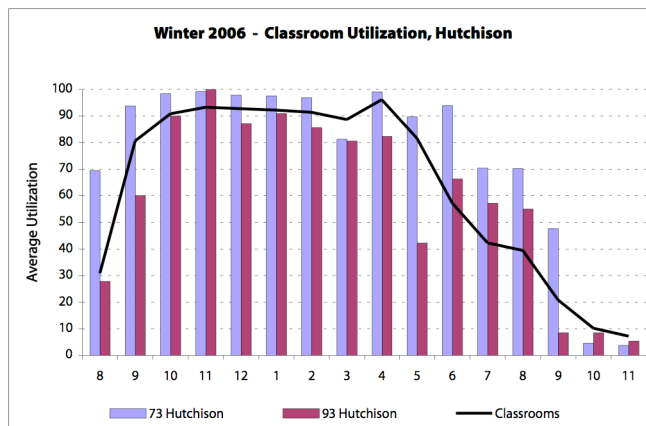

1102 Hart

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.
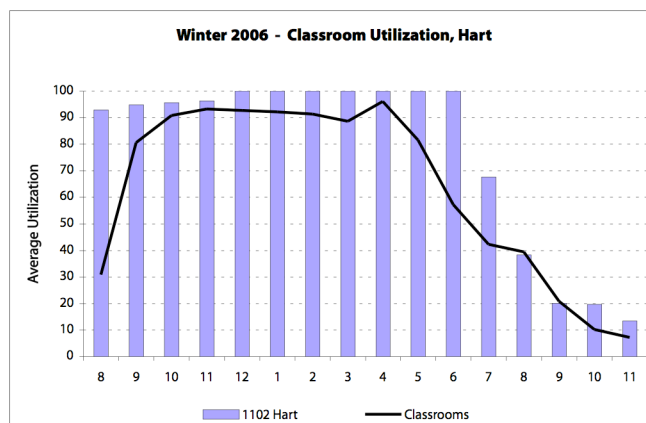
1131 Meyer

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.

Winter 2006 - Classroom Utilization, Meyer
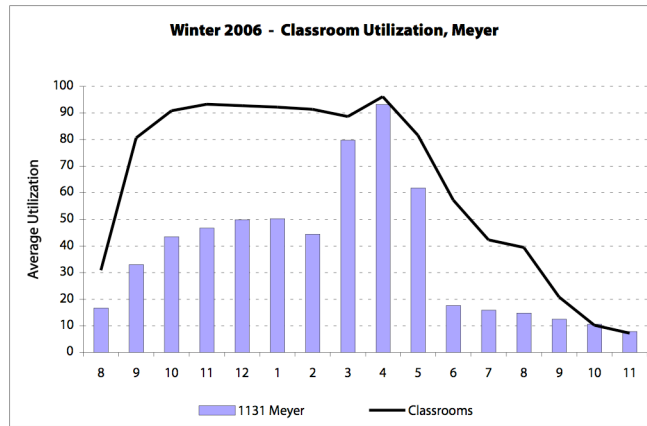
1, 21, 27, 241, and 247 Olson

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, which increased the number of classes held in this computer classroom.


Winter 2006 - Classroom Utilization, Olson
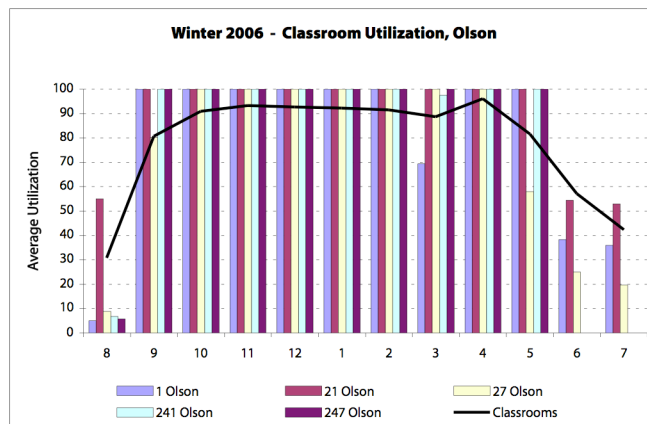
2020 SLB

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.


Winter 2006 - Classroom Utilization, SLB
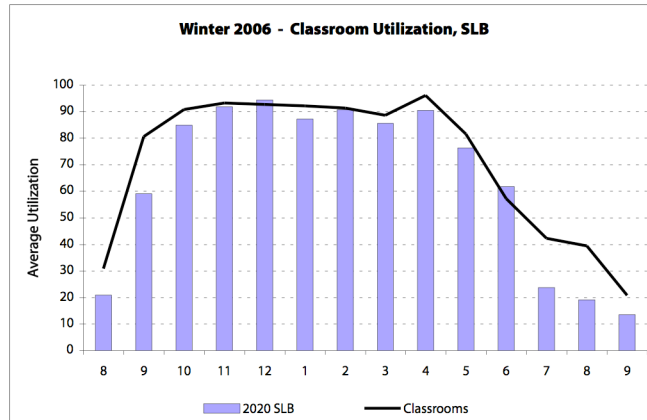
Detailed Open Access Utilization

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 it 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.


Winter 2006 - Utilization, 177 MU (The Station)
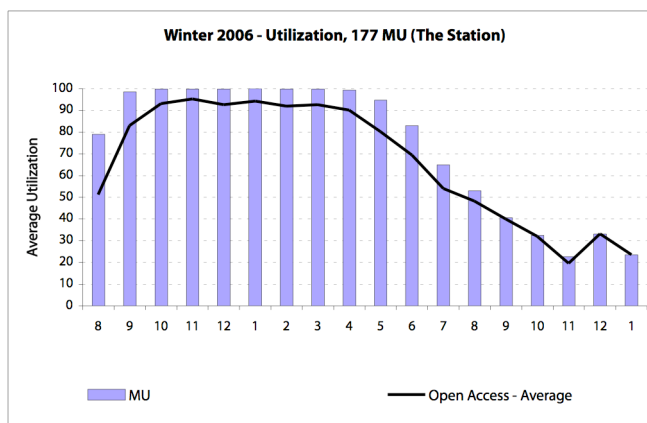
163 Shields

One of the busiest facilities is the 163 Shields open access room. 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 match the Library's open hours.

Winter 2006 - Utilization, 163 Shields
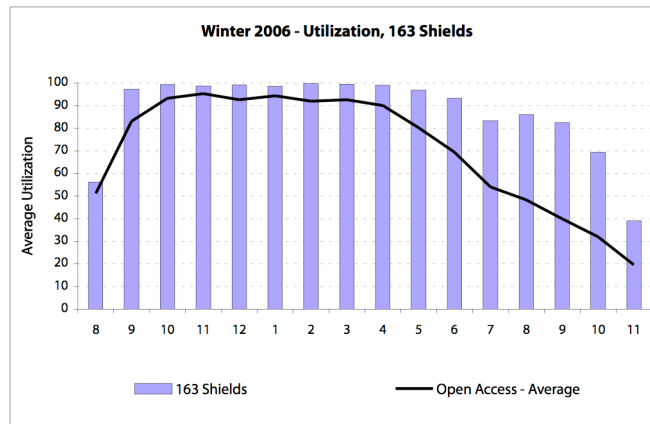
75 Hutchison

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.

Winter 2006 - Utilization, 75 Hutchison
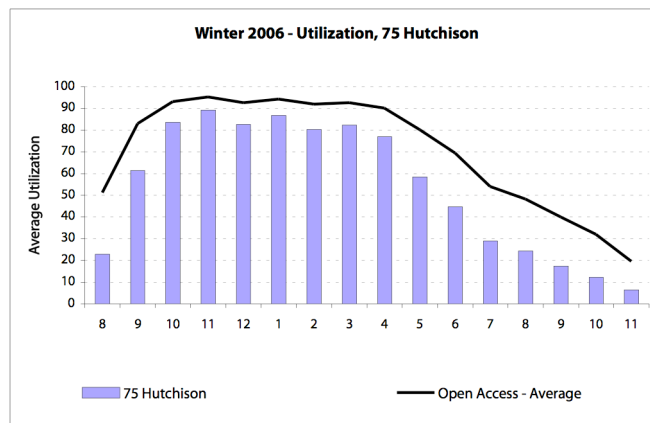
Software

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.

Software Usage - Winter 2006

Web browsing: 165,457
Word processing: 60,047
Multimedia: 28,506
Data analysis: 10,949
Other internet: 7,581
Specialized software: 364

(Hours used)
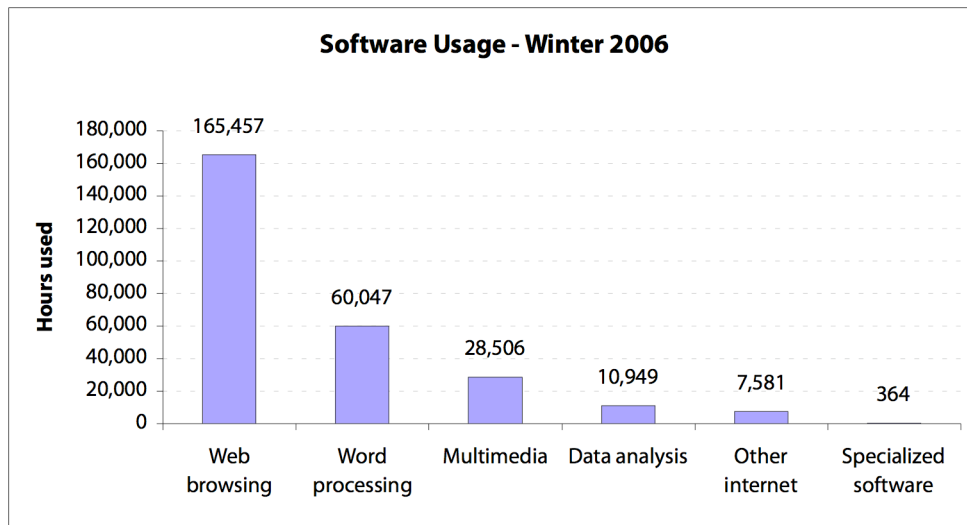
Word processors are exclusively Microsoft Word.

Web browsers
- Internet Explorer
- Safari
- Firefox
- Mozilla

Multimedia applications
- Adobe Photoshop
- InDesign
- Illustrator
- Final Cut Pro Studio
- Vectorworks
- Flash
- FrontPage
- Dreamweaver
- Microsoft PowerPoint

Data Analysis tools
- Microsoft Excel
- SAS for Windows
- Microsoft Access

Other Internet
- SSH/TELNET
- FTP

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.

Students by College/School

College/School	Unique Student Clients	Percent of College/School Enrollment
Letters and Sciences	10,368	58%
Agricultural and Environmental Sciences	5,049	63%
Engineering	2,015	57%
Graduate Studies	1,167	21%
Professional Schools	153	6%

Legend: Students Using CLM Facilities — Percent of College/School Enrollment