

UC Davis Computer Classroom Needs Assessment Report

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Executive Summary

This report provides an analysis regarding the demand of the Information and Educational Technology's centrally managed computer classrooms. A detail of the history of the computer classroom major changes as well as details of classroom usage is included in this report. The analysis includes only historical data specific to IET's computer classrooms and excludes any information regarding other UC Davis computer classrooms and computer labs. It also does not contain any information regarding IET's scientific computing groups computer classroom that serves primarily research and high-end scientific application users.

Several discoveries were made in the analysis. One discovery indicates that while the number of computer classrooms available has declined, total time reserved in all computer classrooms has increased. Since 1992, the number of computer classrooms available for reservation has declined by 35 percent; the number of class hours has increased by 186 percent. In addition, the average hours reserved for a class or course has increased. Since spring 1997, utilization of these rooms for reserved class time has exceeded the campus standard of 28 hours/week by five to ten hours over that same time period.

The ability to increase utilization of these rooms is limited due to the current way departments request reservations and the general academic schedules. Classes held in a computer classroom once a week classes often prevent classes who meet two or three times a week over the same time of day. This is the same difficulty faced in scheduling general assignment classrooms.

The most successful and highly utilized computer classrooms are those located in high student traffic areas and next to regular classrooms. A definite advantage exists in clustering classrooms, both traditional and computer, in high traffic areas. The rooms will be used by students for class and for drop-in use.

General Trends

Trends indicate demand for classroom hours has increased. Figure 1 provides a three quarter moving average of reserved hours for Computer Lab Management computer classrooms. This has led to increasing scheduling conflicts and turning away clients or scheduling them in less than desirable classrooms.

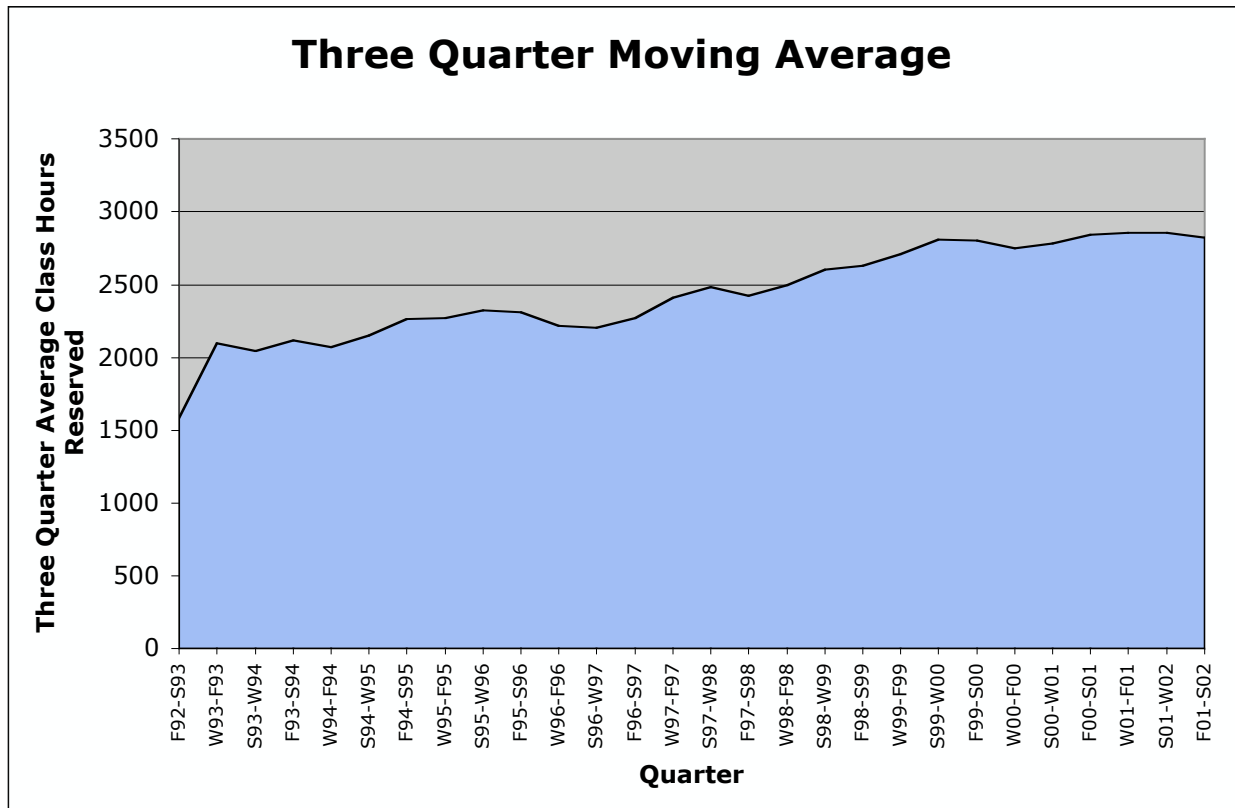


Figure 1

In addition, class sizes are increasing and more classes prefer to use the rooms over a long period of time rather than for just one or two class meetings during a quarter. Table 1 on page 9 implies this in listing the average hours reserved per class.

Figure 2 below reflects the annual trends. The added complexity in assessing utilization is the need for drop-in hours for students to do assigned work outside of class time. Assigned homework may need to be completed in the same computer classroom because of specialized software or utilize the campus computers and network.

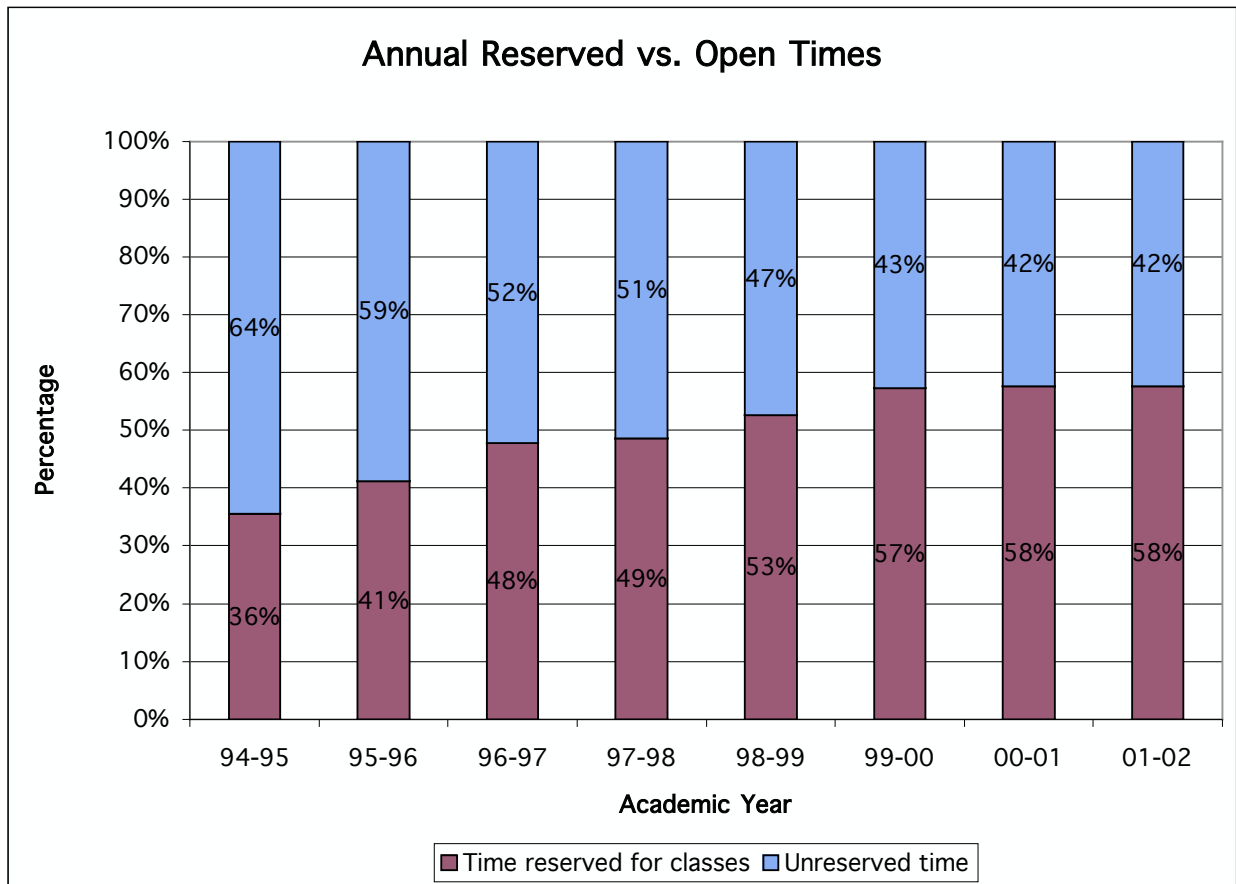


Figure 2

In evaluating the quarterly trends, a statistical model was developed predicting that each quarter will see an additional 40 hours of reserved time. We may be unable to accommodate this growth due to scheduling conflicts and limited number of reservable computer classrooms. This may already have occurred in observing no growth in percent of room hours reserved between 2000-2001 and 2001-2002.

Since computer classrooms are already above the state target utilization of 28 hours reserved for classes per week by as much as 10 hours/week (100 hours per quarter), additional available computer classrooms would be well used. The addition of more computer classrooms may not only meet the current projected growth but also stimulate the use of computers in instruction and further drive demand for computer classrooms.

Comparisons on Performance of Specific Computer Classrooms

In general, the computer classrooms have exceeded campus standards for use in instruction. The standard of 28 hours per week reserved (20 hours per week @ 71% utilization) was used as a measure to ascertain the performance of the classrooms in general. This number equates to 47 percent of the classroom reserved identified in Figure 3 below. This percentage assumes 60 hours/week of availability. In winter 2002, for example, computer classrooms were used 10 hours more per week than the standard for all classrooms serving the University of California.

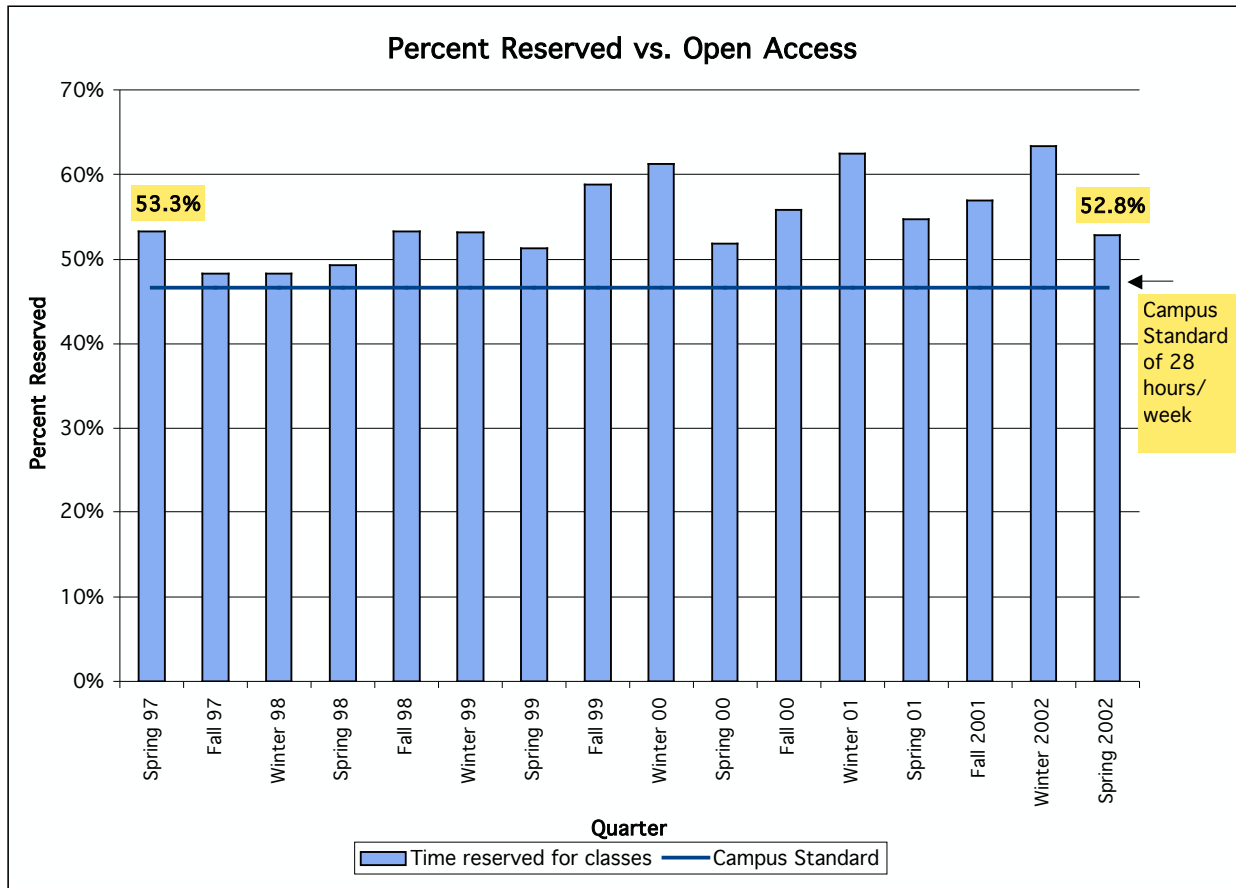


Figure 3

Since the data above includes Fridays, a day where few classes are scheduled by the University Registrar, utilization for Monday thru Thursday is significantly higher. Some computer classrooms can be reserved continuously from 9 AM to 10 PM, as was the case in the 1102 Hart computer classroom during winter 2002.

Nature of Classes Scheduled Affecting Maximum Utilization

Because computer classrooms serve classes, labs, and discussions, there is a clear limit in how much these rooms can be utilized. Labs and/or discussions are usually scheduled to meet once a week. Class sessions often meet two to three times a week. A class that meets in the computer classroom and utilizes the facility as a lab may create a gap in scheduling. An example is clear in Figure 4 where WFC 122 has a session from 9 AM to Noon on Wednesdays every week during the spring quarter. A class that meets Monday/Wednesday or Monday/Wednesday/Friday could not be scheduled in the room. As a result, the room is left unutilized on Monday mornings.

21 Olson -- [Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

Mar 31	Apr 1	Apr 2	Apr 3	Apr 4	Apr 5
	ESP/ANT 133- A01 (43451) 01:00p-02:00p	ENL 104A-4 (38241) 09:00a-10:30a	WFC 122 (41851) 09:00a-12:00p	ENL 104A-4 (38241) 09:00a-10:30a	SPA 23-1 (39351) 09:00a-10:00a
	ENL 3-12 (38081) 04:00p-06:00p	ENL 101-15 (38251) 10:30a-12:00p	WFC 122 (41851) 01:00p-04:00p	ENL 101-15 (38251) 10:30a-12:00p	SPA 23-2 (39341) 10:00a-11:00a
		WFC 122 (41851) 12:00p-03:00p	ENL 3-12 (38081) 04:00p-06:00p	ENL 104A-8 (38261) 03:00p-04:30p	SPA 23-3 (39361) 01:00p-02:00p
		ENL 104A-8 (38261) 03:00p-04:30p		ENL 104C-4 (38271) 04:30p-06:00p	ESP/ANT 133- A05 (43501) 02:00p-03:00p
		ENL 104C-4 (38271) 04:30p-06:00p			

Figure 4

Compared to Figure 4, Figure 5 appears to indicate better utilization. Classes are Monday/Wednesday or Tuesday/Thursday with the group meeting once a week utilizing the room on Fridays.

1 Olson -- [Jan](#) [Feb](#) [Mar](#) [Apr](#) [May](#) [Jun](#) [Jul](#) [Aug](#) [Sep](#) [Oct](#) [Nov](#) [Dec](#)

Mar 31	Apr 1	Apr 2	Apr 3	Apr 4	Apr 5
	ENL 101-2 (38091) 09:00a-10:30a	ENL 3-15 (38291) 10:00a-12:00p	ENL 101-2 (38091) 09:00a-10:30a	ENL 3-15 (38291) 10:00a-12:00p	SPA 24-3 (39411) 09:00a-10:00a
	ENL 104E-1 (38101) 10:30a-12:00p	ENL 104A-5 (38301) 12:00p-01:30p	ENL 104E-1 (38101) 10:30a-12:00p	ENL 104A-5 (38301) 12:00p-01:30p	SPA 24-1 (39381) 11:00a-12:00p
	ENL 102E-2 (38111) 12:00p-01:30p	ENL 101-21 (39801) 01:30p-03:00p	ENL 102E-2 (38111) 12:00p-01:30p	ENL 101-21 (39801) 01:30p-03:00p	SPA 24-2 (39391) 12:00p-01:00p
	ENL 18-1 (38121) 02:00p-04:00p	ENL 104C-3 (38321) 03:00p-04:30p	ENL 18-1 (38121) 02:00p-04:00p	ENL 104C-3 (38321) 03:00p-04:30p	
		ENL 102B-1 (38331) 04:30p-06:00p		ENL 102B-1 (38331) 04:30p-06:00p	

Figure 5

The issues faced by Computer Lab Management in scheduling computer classrooms appear unique. The Registrar schedules only classes and relies on departments to schedule labs and discussions. Conversely, departments can focus primarily on labs and discussions. The IET managed computer classrooms must accommodate for classes, labs, and discussion in its scheduling.

In reviewing the performances of each computer classrooms, we determined two distinct factors of success: proximity to high student traffic areas and configuration or size of the room.

Proximity to High Student Traffic Areas

Computer Lab Management's computer classrooms are dispersed throughout the campus. While many are close to the core of campus, others are at the periphery. Specifically, we reviewed the performance of Olson computer classrooms as compared one computer classroom located in Meyer Hall. While Olson Hall functions primarily as space for classrooms, Meyer Hall serves mostly a collection of scientific lab and office spaces. In Figure 6 we see the utilization of a 31-seat Windows computer classroom located in 27 Olson for Spring 2002. The average line is for all computer classrooms. In Figure 7 a similar utilization graph is shown for 1131 Meyer, a similar 31-seat Windows computer classroom.

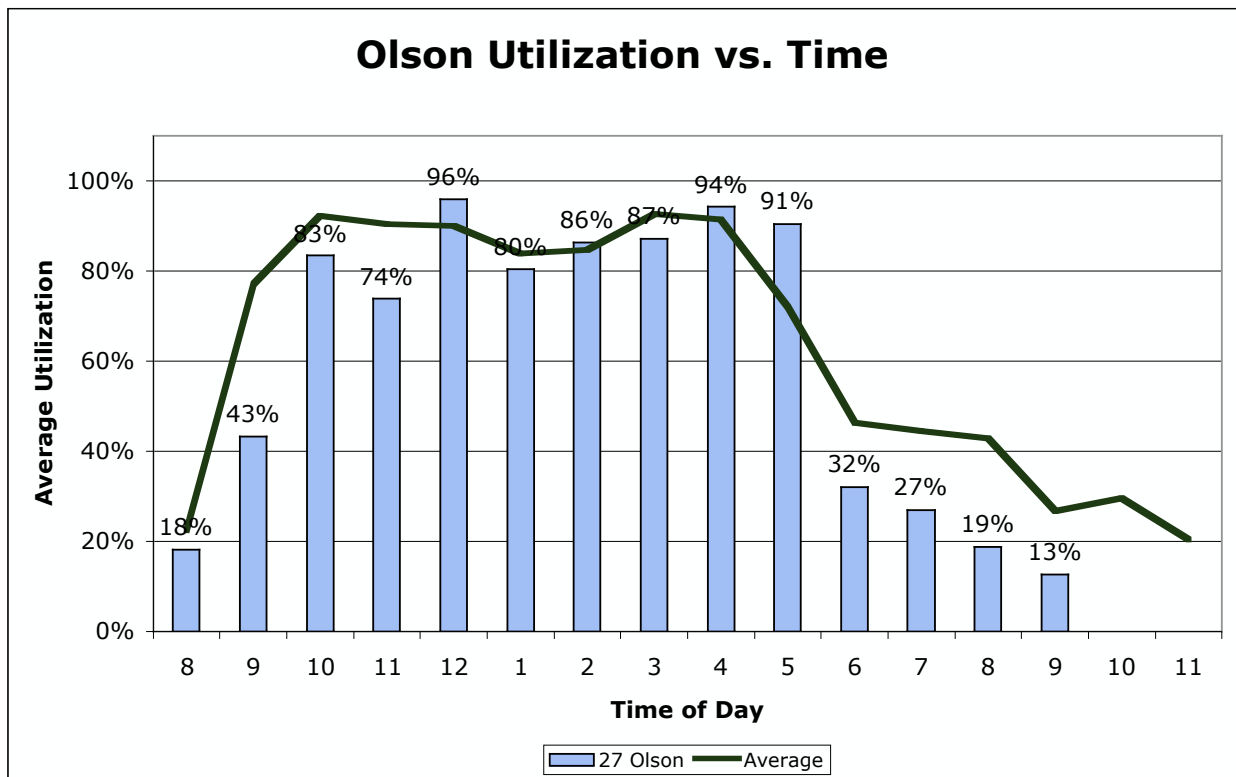


Figure 6

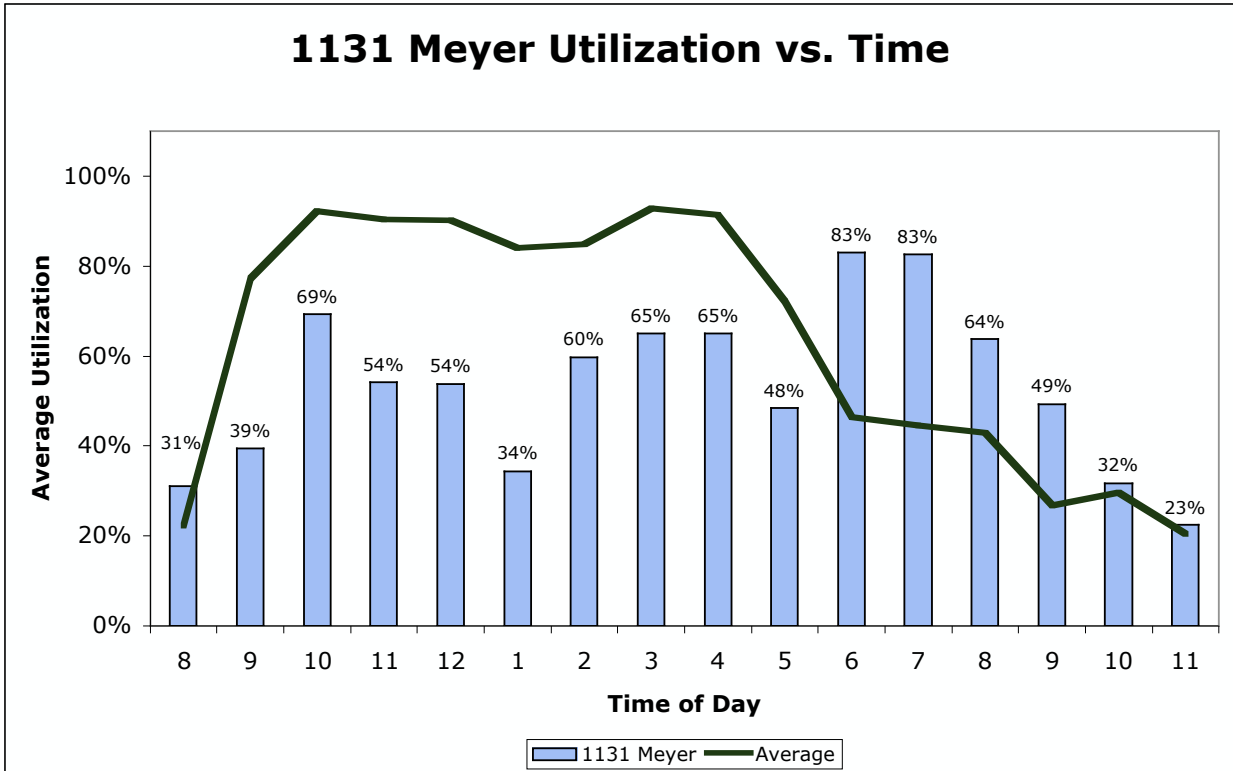


Figure 7

The difference is apparent with as much as a 46 percentage point swing between the two rooms. We believe that a main reason for this is that Olson is located in the core campus area. Student traffic in these areas is significantly higher than the periphery. Part of 27 Olson’s success is that it is located next to two other computer classrooms and is in the same building as several classrooms and is down the hall from the 120-seat classroom in 6 Olson.

Configuration

The configuration of computer classrooms can greatly affect its ability to serve instructors as a learning environment. For example, a 24-seat laptop facility in 307 Surge IV was very small and uncomfortable resulting in faculty requesting not to be scheduled in the room. On the other hand, 23-seat laptop computer classroom in 247 Olson was in high demand. The two differed in the room layout and spacing of seats. The 247 Olson classroom was more open and allowed for instructors to easily walk down the aisles and students to interact. The 307 Surge IV classroom did not have this feature. In addition, the number of seats available in the classroom provides the flexibility of reserving larger classes. Our 31 seat classrooms in Olson, Meyer, and Surge IV have served a greater diversity of classes than the smaller classrooms.

History of Computer Classrooms

IET currently operates nine computer classrooms, five Mac and four Windows, throughout campus. These classrooms are managed and operated by the Computer Lab Management group within IET. During the Spring 2002 quarter of operation, 115 unique courses reserved all or part of their class time in one of these computer classrooms. A total of 2573 hours were reserved. For the 2001-2002 academic year, 391 courses reserved the classrooms 8464 hours. This implies an average of 2821 hours reserved each quarter. This data is provided in the table 1 below.

Table 1

Quarter	Reserved Hours	Courses/ Classes	Average Hours Reserved Per Class
Fall 92	901	N/A	N/A
Winter 93	1954	N/A	N/A
Spring 93	1899	N/A	N/A
Fall 93	2435	N/A	N/A
Winter 94	1790	N/A	N/A
Spring 94	2123	N/A	N/A
Fall 94	2303	N/A	N/A
Winter 95	2021	N/A	N/A
Spring 95	2471	177	13.96
Fall 95	2325	169	13.76
Winter 96	2179	140	15.57
Spring 96	2429	135	17.99
Fall 96	2049	114	17.97
Winter 97	2134	133	16.05
Spring 97	2632	161	16.35
Fall 97	2468	153	16.13
Winter 98	2352	127	18.52
Spring 98	2452	117	20.95
Fall 98	2688	205	13.11
Winter 99	2674	153	17.48
Spring 99	2535	144	17.61
Fall 99	2918	172	16.97
Winter 00	2974	155	19.18
Spring 00	2515	141	17.84
Fall 00	2765	129	21.44
Winter 01	3069	148	20.74
Spring 01	2687	115	23.37
Fall 2001	2811	149	18.86
Winter 2002	3080	127	24.25
Spring 2002	2573	115	22.37

Since Fall 1992, Computer Lab Management has managed up to 20 different computer classrooms and has had as many as 14 computer classrooms in operation during an academic quarter. (See Figure 8).

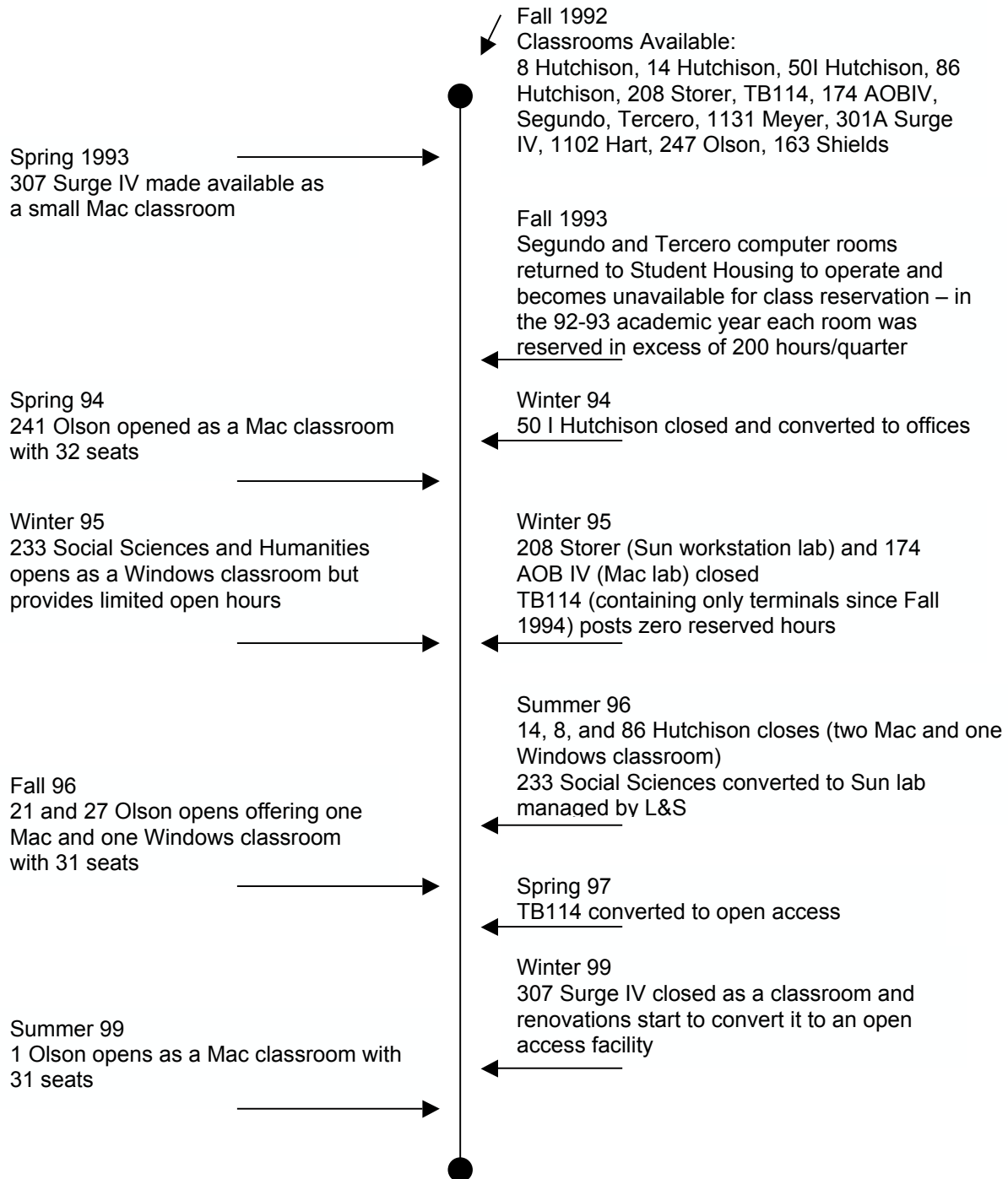


Figure 8

The relationship between number of classroom available and the hours reserved is illustrated in Figure 9 below.

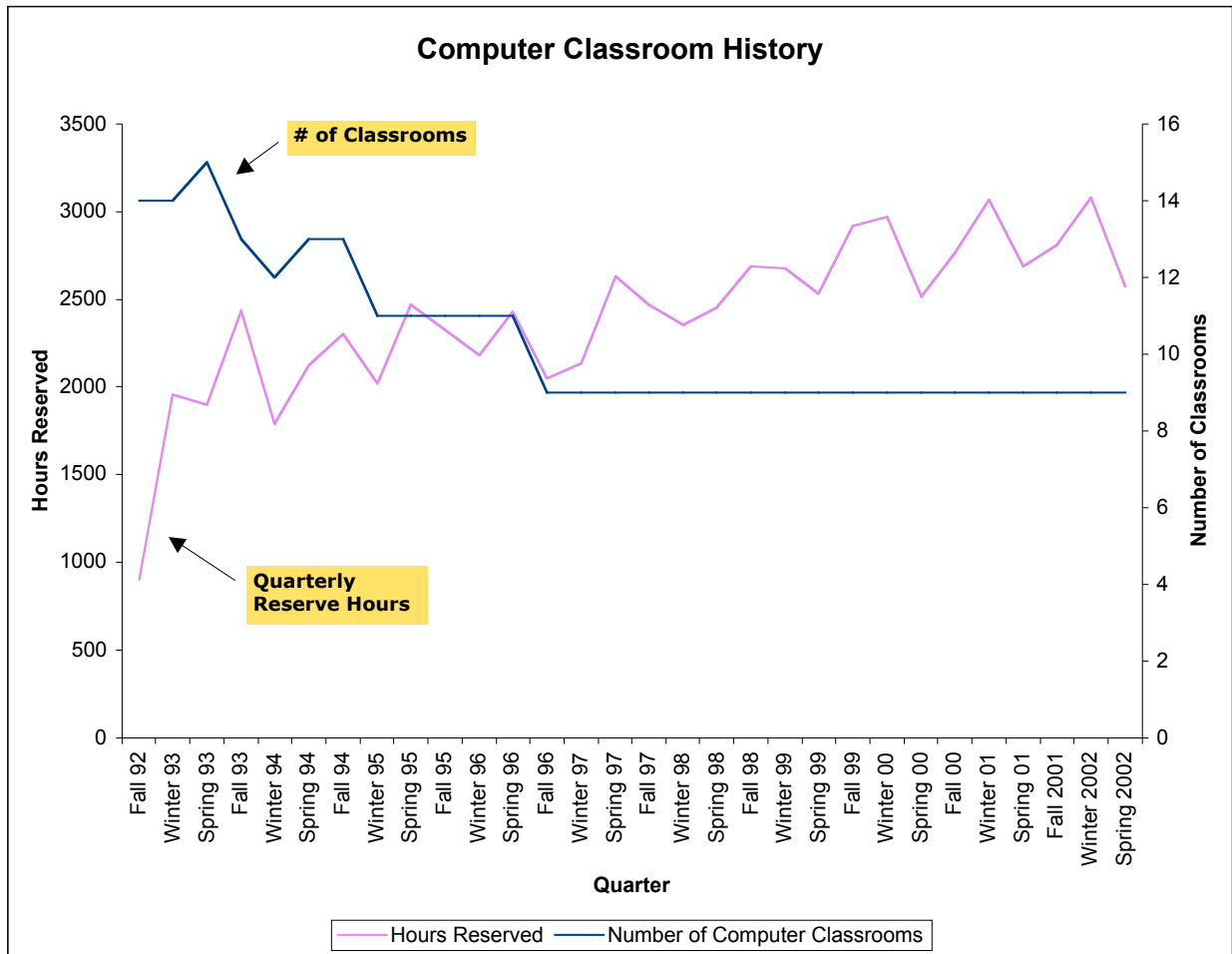


Figure 9

The quarterly reservation hours fluctuates up and down from quarter to quarter but generally has an upward trend indicating increasing use. The actual hours listed in Table 1 implies a greater proportion of the reserved hours are for quarter-long rather than one-time class use. The average of 22 hours per class in Spring 2002 could be interpreted that over a 10-week instructional quarter a class could be held about two hours a week (i.e. Mon and Wednesday from 1 PM to 2 PM). This indicates scheduling difficulties, as that time slot is then booked for the entire quarter, blocking it from use by another similarly scheduled class (see p. 9 and 10 re: scheduling difficulties). Conversely, a class that reserves a 1 PM to 2PM Monday and Wednesday computer classroom for just one week would then block a class who could use the facility the entire quarter.