University Classroom Committee
Report
To the Provost

2008 – 2009

Committee members

Martina Bode, *Department of Mathematics, WCAS*
Ronald R. Braeutigam, *Office of the Provost*
Susanna Calkins, *Searle Center for Teaching Excellence*
Stephen H. Carr, *Dean's Office, McCormick School of Engineering*
Marvin J. Lofquist, *Dean's Office, Weinberg College of Arts & Sciences*
Rick G. Morris, *Dean's Office, School of Communication*
Ronald Nayler, *Facilities Management* (co-chair)
Jacqualyn Rivera, *Office of the Registrar*
James E. Rosenbaum, *Institute for Policy Research; Education and Social Policy*
Muhammad Safdari, *Associated Student Government*
Jean E. Shedd, *Office of the Provost* (co-chair)
Randall Snurr, *Chemical and Biological Engineering, McCormick School of Engineering*
Robert L. Taylor, *Academic and Research Technologies, Information Technology*
Paul B. Weller, *Planning, Facilities Management*
Ken Woo, *School of Continuing Studies*

September 2009

UNIVERSITY CLASSROOM COMMITTEE
REPORT
2008 – 2009

Executive Summary

- The Classroom Committee allocated its $500,000 funding for FY 2009 for physical improvements in University classrooms in Annenberg, Fisk, Kresge, Library, Lunt, Parkes, Swift, Tech, and University Hall.

- During FY 2009, Academic and Research Technologies, working with the Classroom Committee and Facilities Management and Operations, completed a three-year program (FY07-FY09) to outfit classrooms scheduled by the Registrar with laptop-based technology. Six rooms were upgraded during FY 2009 -- five as laptop-model rooms and one as a standard-model classroom. This brings the current number of classrooms with laptop-based technology to sixty-nine (69) and the total number of technology-enhanced Registrar-scheduled classrooms on the Evanston Campus to one hundred one (101).

- An analysis of data compiled from 2005 to 2009 attempted to identify causes and possible ways to address chronically low seat utilization in relation to room utilization. Different approaches were used to in an effort determine the causes of low utilization. The data suggest some patterns that link low utilization and classroom distribution by size and location. Further analysis of issues and opportunities will be conducted in FY2010.

- The University added four classrooms to the inventory scheduled by the Office of the Registrar through purchase of the building at 2122 Sheridan Road, the former Seabury-Western seminary site, during summer 2009.

USE OF FY 2009 BUDGET ALLOCATION

The Classroom Committee allocated its FY 2009 funding ($500,000) for the physical improvements detailed below to University scheduled classrooms. In addition, unexpended balances from FY 2007 and FY2008 were re-allocated to the current project list so that a total of $637,000 of upgrades will be completed by fall 2009 (unless noted otherwise below).

- Annenberg G15, G21, G28, G29, G30, G31, and G32, 101: repair and reattach all baseboard radiator covers; replace where necessary.

- Fisk B17: provide tables and chairs for (40); install new lighting, flooring and additional chalkboards. This room was also upgraded to be a laptop classroom (per the Smart Upgrades 2009 account).

- Fisk B17 & 217: replace radiator valves, reroute radiator piping and provide new thermostat in each classroom.

- Kresge Hall: add remote locking/unlocking (millennium) to all 18 University controlled classrooms, plus (2) other rooms used for University scheduled classes, Kresge 1-375 & 2-380.

- Library 3322, 3370, 3622, 3670, 3722, 4622, 4670, 4722, 4770, 5322, 5722, and 5746: recalibrate and provide minor repairs to VAV boxes serving 11 Library University classroom-seminar rooms.

- Lunt 101, 102, 103, 104, 105, 107: replace radiator valves, reroute radiator piping and provide new thermostat in each classroom.

- Lunt 105: replace smart podium and add Wolf Visualizer for per Math department requests.
  (Complete before winter quarter, 2010)

- Parkes 212, 213, 214, 215, 222, 223, 224: separate and re-pipe radiant heating system and provide a new working thermostat to each classroom.

  Swift 107: replace carpet, partly with rubber floor tile in high traffic areas (complete before winter quarter, 2010)

- Tech M152 & M164: provided new carpeting and replaced fixed “swing out” classroom seating with new KI height adjustable task chairs. (total 120 seats)

- Tech L221: recarpet and replace fixed seating. (42 seat room)

- Tech L361: add power to rear row of fixed seating per School of Engineering request.

- Tech LG52, LG62, LG66, LG68, LG72, LG76, L150, L158, L168, L211, L221, L361, and M345: retrofit existing T12 light fixture to be use more energy efficient T8 light bulbs.

- Tech Ryan Auditorium: replace lighting in 6 rondelles from fixture using quantity (70), 60W incandescent light bulbs each to use instead (48) compact fluorescent bulbs, 26W each.
  Each 8' diameter fixture will use 1248 watts instead of 4200 watts.

- Tech LR4, LR5, L361, M345, University Hall 102, 121, 122: provide facilities portion of work (power, data, low voltage pathway and security cables) to assist Academic Technologies in providing major replacement of AV equipment in 7 larger classrooms.

- Tech L361: replace ceiling tile (complete before winter quarter, 2010)

- University Hall 101, 102, 112, 118, 121, 122, 212, 312, 318, 412, and 418: provided acoustic wall panels to control sound bounce.

- Moving expenses were paid to relocate all the newer Classroom Committee provided tablet armchairs purchased in 2002 with Committee funds from Harris Hall to: Parkes 214, Tech L168, M128, M177, University Hall 121, 312, 412, total: 222 tablet armchairs. Also recarpeted Tech L168, M128, M177, UH 121, 312, 412.

- Order limited quantity of replacement furniture to replace what is lost due to borrowing (complete before winter quarter, 2010).

- As funding is available: paint classrooms in Tech (complete before winter quarter, 2010)

In addition, the University added four classrooms to the inventory scheduled by the Office of the Registrar through purchase of the building at 2122 Sheridan Road, the former Seabury-Western seminary site, during summer 2009. These include three medium-size classrooms (231 – 21 seats; 232 – 27 seats; and 260 – 45 seats) and one large classroom (room 250 – 60 seats) on the second floor. All four classrooms will be scheduled by the Office of the Registrar, beginning in Fall 2009. Smart classroom technology will be installed in the rooms during Winter break.

Room 250 (the largest classroom) was used by Seabury Western for large meetings and as a student center/student lounge; central administration and Student Affairs have agreed that this type of shared usage should continue. This space will be furnished with as much soft furniture as possible (around the periphery of the room), with movable tables and stackable chairs for classroom use so that the center of the room can be easily cleared for student functions when it is not in classroom use. The other three classrooms (231, 232, 260) will be furnished with tablet armchairs. Funding for furnishing these four rooms comes from a separate University budget, not from the Classroom Committee budget.

STATUS OF TECHNOLOGY-ENHANCED CLASSROOMS AS OF AUGUST 2009

Smart Technology Upgrades

Academic and Research Technologies (ART), in partnership with Facilities Management Operations (FMO), completed the installation of laptop-based technology in the five following classrooms: Fisk B17, Francis Searle 1-441, Kresge 2-430 and 4-335, and Lunt 107. Tech L211 was equipped as a standard-model classroom. Specifics on how the rooms were equipped are detailed below.

- Two existing Smart Classrooms in Harris Hall were taken off-line and removed from support. Since the AV components from these rooms would have sat unused during the 2-year renovation, appropriate equipment was repurposed to Fisk B17, Tech L211, and Swift 107.

- Audio-visual components and a refinished podium were repurposed from Harris to create a contemporary laptop-model classroom in Fisk B17.

- Although Francis Searle 1-441 was designed as laptop-model classroom, additional improvements include a Blu-ray DVD player, a visualizer (digital document camera), and an audio conferencing system to support specific academic needs for the School of Communications.

- Kresge 2-430 and 4-335 were upgraded to laptop-model classrooms.

- Lunt 107 was upgraded to a laptop-model classroom with a visualizer (digital document camera.)

- Tech L211, a 170 seat auditorium style classroom was upgraded. To maximize existing resources, approximately $21,000 worth of AV electronics previously installed in Harris were repurposed and integrated with this system.

- Additional improvements to Tech L211 include a larger 12-foot motorized screen, an 8-foot side-screen, a WXGA projector, a dual-boot Mac, multiple microphones, stereo audio, and a visualizer. The Physics Department required the oversized lab counter at the front of the room be clear of equipment to allow experiment demonstrations. The AV hardware is effectively integrated and does not disrupt the Physics application of this space.

Because of small room size, low seating capacity, and lack of classroom technology use by the Math Department, the Classroom Committee decided not to install technology in 3 classrooms in Lunt Hall. (Rooms 101, 102, & 103). No decision has been made on implementation of technology in Lunt 104.

With the exception of Harris Hall, which is closed for renovation, and Lunt Hall as mentioned above, the Classroom Committee's three-year program (FY07-FY09) to outfit all classrooms that are scheduled by the University Registrar with laptop-based technology, is completed.

With the addition of the new FY09 classrooms, NUIT Academic and Research Technologies manages one hundred one Registrar-scheduled, technology-enhanced classrooms on the Evanston Campus.

- Sixty-nine are of the laptop-model
- Thirty-two include a resident computer

When the Harris Hall renovation is complete, six new classrooms will be available for use (four additional rooms than were originally supported.)

With the acquisition of the former Seabury Western space, four additional classrooms will be available. The plan is to integrate laptop-model technology in these rooms in time for the start of winter quarter, 2010.

Once the Harris Hall and Seabury Western classrooms are upgraded, there will be a total of one hundred eleven classrooms with enhanced technology, scheduled by the Registrar, and supported by ART.

Faculty Surveys of their Experience in NU Smart Classrooms

Every quarter, Academic and Research Technologies (ART) surveys faculty registered for use of a technology-enhanced classroom, requesting feedback about their classroom technology experience. The survey data provide metrics to assess the operational quality of Northwestern's Smart Classrooms. The survey feedback also helps the Classroom Committee track faculty usage patterns and the demand for new technology enhancements.

A continuing effort by ART to make the surveys easier to access and complete resulted in a strong increase (fourteen percent over the previous year) in the number of surveys completed. Improvements included one click access to the survey and a more user-friendly format.

Survey results from 2009 indicate that faculty are pleased with the performance and availability of additional laptop-classrooms and have responded in a favorable way to the laptop model.

Results also show that eighty-four percent of the faculty who are booked into a Smart Classroom make use of the technology enhancements in these classrooms.

Once again, faculty expressed high satisfaction with the design standards and quality of technology. With results similar to last year, over eighty-one percent who used the technology in a Smart Classroom, indicated they were "satisfied" or "very satisfied" with equipment. ART is presently reviewing the survey data to understand what can be learned from faculty who expressed less satisfaction with the Smart Classrooms.

During FY 2009, one-third of our faculty used Macintosh computers in Smart Classrooms and two-thirds of our faculty used Windows.

In FY 2009, the rate of technology use in a "standard" classroom with a resident computer was seventy percent. Additionally, the usage rate of a laptop computer in a standard room is also high, at nearly sixty percent. This information indicates that a significant number of faculty use a laptop, even when scheduled in a room with a resident computer.

The Teaching Methodology/Technology subcommittee plans to explore, during its 2009-2010 meetings, how best to gauge faculty use of technology-enhanced classrooms; the kinds of technologies faculty are using (why and how); and what impact classroom configuration has on their choice to use different technologies. This will help the University use the classrooms it has more effectively, and better understand instructor needs, with the goal of enhancing teaching and student learning.

Additional Technology Improvements

We are transitioning to accommodate wide-screen viewing (720p) for all contemporary laptops with a HD (16x9) format. Thirty classrooms, including the six new smart rooms, are outfitted with a model of projector that accommodates these higher resolutions.

Seven classrooms -- four in the Tech Institute and three in University Hall -- are being refreshed with new equipment, including WXGA projectors and an improved design to benefit teaching. Additionally, cable paths and conduit were incorporated as part of this upgrade for the possible implementation of lecture capture services.

With the addition of three visualizers (digital document cameras) placed in classrooms this year, thirty percent of NU's Smart Classrooms now enjoy the viewing features made possible by this technology.

A projector from Harris Hall was repurposed to replace a failing projector in Swift 107.

By the beginning of Fall quarter 2009, all Evanston Campus Smart Classrooms with resident computers will be updated to dual-OS capability. Classroom users will be able to select either Windows Vista or Mac OS X as the operating system in these rooms. A full range of software options is available regardless of the chosen operating system.

All technology-enhanced classrooms supported by NUIT are monitored by a network-based management system. This system provides remote monitoring of the technology resources in classrooms and allows immediate on-line support and troubleshooting by support staff, scheduled system shutdowns to conserve expensive resources, added security, and statistics on equipment usage.

Security in Smart Classrooms

Again, the results our effort to secure Smart Classroom equipment with alarms, steel cables, locks and network-monitoring software has proven beneficial. There were no thefts of Smart Classroom equipment for a second year in a row.

Wireless Access in Smart Classrooms

With a renewed interest by NU Schools and Departments to provide either wireless or wired access for students using laptops in Smart Classrooms, Academic and Research Technologies is assessing existing wireless availability and capability in Classrooms.

Study of School-Managed Classrooms in Evanston

At the request of the Provost Classroom Committee, Academic and Research Technologies is evaluating WCAS departmental seminar rooms for improvements and upgrades that would allow faculty access to the same interface and technology that is consistent with Registrar-scheduled, NUIT supported Smart Classrooms. ART will also recommend a budget and time-line for upgrading and integrating these rooms into the ART support infrastructure.

Videoconferencing Services

The high-definition videoconferencing facility that opened in Tech MG51 last year (FY 2008) continues to support much needed videoconferencing capability on the North Campus. This space was equipped for videoconferencing when Tech L363 was reprogrammed to Classroom Support Services.

Pancoe Auditorium is located in the Pancoe Life Sciences Pavilion and was designed to support both Smart Classroom and videoconferencing activities for the academic and administrative community, and in particular, the Life Sciences. Pancoe is an important facility and the number of videoconferences held there has slightly increased over the previous year.

Swift Hall 107 was designed to support both Smart Classroom and videoconferencing activities; however, during FY 2009, videoconferencing use decreased. WCAS Psychology, a primary user of videoconferencing in this space, moved their activities to a School of Communication videoconferencing facility that better accommodates collaboration and interactivity.

There was no progress or funding allocated this year for implementing videoconferencing infrastructure in Registrar-scheduled, NUIT supported Smart Classrooms.

Lecture Capture

At Northwestern, as well as at our peer universities, Lecture Capture activities continue to increase. ART is a partner in the "Opencast Matterhorn" project based at the University of California Berkley, funded with grants from the Andrew W. Mellon and William and Flora Hewlett foundations totaling $1.5 million. The project will bring together programmers and

educational technology experts from an international consortium of higher education institutions, including ETH Zürich in Switzerland, University of Osnabrück in Germany, Cambridge University in the United Kingdom and Canada's University of Saskatchewan. Matterhorn members from around the world will develop "open source" software designed to automate their recording and posting of academic content, making the process less costly and labor intensive.

Media Space is ART's enterprise level lecture capture, processing, and publishing solution. This program, begun as a pilot in the summer of 2008, currently includes Feinberg School of Medicine, the Buffet Center for International and Comparative Studies, the Law School, Kellogg, McCormick School of Engineering, the Block Museum, the Departments of Chemistry and Psychology, and many others as clients. Over 400 hours of lectures and other events have been captured and published on-line using Media Space this year. An expanded schedule of lecture recordings with these organizations is planned for the 2010 academic year.

There was no progress or funding allocated this year for implementing lecture capture infrastructure in Registrar-scheduled, NUIT supported Smart Classrooms.

Student Response Systems (SRS)

ART continues to actively promote and support the use of student response systems (SRS) at Northwestern. During FY 09 over nineteen hundred Clickers were purchased from the NU bookstore. Early in 2010 SRS software will be available that will also allow students to use their own wireless mobile devices and Apple iPhones or BlackBerries to submit responses.

Additionally, the Searle Center offered several workshops on the pedagogical applications of various technologies, particularly the Student Response Systems (SRS) (“clickers”). The Center held a workshop on clickers for faculty, and incorporated this technology into a two day conference for new TAs.

Teaching, Learning, and Technology (TLT) Program

Having completed its seventh year, the Teaching, Learning, & Technology (TLT) program represents a long-standing collaboration between the Searle Center, Academic and Research Technologies (ART), and the University Library. The program is designed to help faculty and graduate students explore how technology can be effectively integrated into their teaching. Twenty faculty and graduate students, working individually or in faculty-graduate student pairs, participated in the program. Spanning across five weeks, the program facilitated self-directed and collaborative team-based learning by using active learning strategies, interactive faculty demonstrations, and hands-on experience with such tools as the Course Management System, PowerPoint, personal response systems (“clickers”), and electronic conferencing. Participants developed projects designed to enhance their teaching with technology, considering issues of course design, teaching methods, and assessment, which they shared in the final session.

Northwestern's Online Writing Support Community for Faculty and Students (NU Write)

The Writing Program (WP), Academic and Research Technologies (ART), and the Searle Center for Teaching Excellence have been working together, with the help of the University Library, to develop an interactive web-based repository of writing resources for faculty and students in the sciences, engineering, and related disciplines. It's intended to offer a community of practice for faculty interested in improving student writing; be a site for community engagement around research, critical thinking & writing; and serve as a research site to understand how faculty understand and teach writing. In AY08-09, the Searle Center has been advising the evaluation of the project.

CLASSROOM UTILIZATION

Overview

Using comparisons across Quarters and Academic Years, the goal of the Utilization Subcommittee is to help the Classroom Committee understand the current use of the classroom inventory, and to the extent opportunities arise in the context of future renovations and space allocations, to make recommendations related to the appropriate number and size of classrooms the University needs. For classrooms scheduled by the Registrar, utilization has several determinants, some of which have received more attention than others:

- The number and location of Registrar classrooms in the inventory;
- The technology included in classrooms ("smart" classrooms);
- Size, meaning the number of seats in a classroom, and the mix of classroom sizes in the inventory;
- Availability and use of departmental classrooms as a supplement to Registrar classrooms;
- The number of courses to be offered during a Quarter, and the number of times within a week that a course meets.

The least amount of study has been devoted to the last item – projecting the number of courses to be offered (for example, for the next year, or even two or three years into the future), including the Quarter in which particular courses will be offered, and perhaps the number of times a course will meet within a week. Typically, the drop in the total number of class events between Fall Quarters (high) and Spring Quarters (low) has been in a range of 8-12%. During Academic Year 2008-09 this reached 15.2%. The number of class events from Fall Quarter 2003 to Fall Quarter 2008 increased 19%, with an overall increase of 16.6% over the last five Academic Years (average of all three Quarters within a year). The disparity between Fall and Spring Quarters, combined with any potential for future increases in course offerings, particularly during Fall Quarters, merits more study and discussion over the next year. Along with this, options to increase seat utilization (a matter that has been studied over the last year) will continue to be considered in the context of departmentally scheduled classrooms, which if used for smaller classes (less than 20 students), could free up larger classrooms to allow for a better fit of the number of students enrolled to the number of seats available. This will become increasing important if the Fall/Spring disparity increases, and/or if more courses are offered, and/or if current courses meet more times on a weekly basis.

Departures from Trends

While yearly average classroom utilization has displayed a consistent 3-year increase of roughly 2-3% per year since 2004, over the last year this increase amounted to only 0.2% (hence, essentially flat). This derives from the number of class events per year, which also had been increasing since 2004, until the past year when significantly fewer courses and/or fewer sessions/course were offered during Spring Quarter (a decrease of 6.6% compared to the previous year). However, greater variability in '08-09 classroom utilization across Quarters was reflected by an approximate 3% increase during Winter Quarter '09 compared to Winter Quarter '08 (Fall and Spring Quarters both saw roughly a 1% decrease in utilization compared to the previous year), which appears to have resulted from elimination of Harris classrooms since there had been only a slight decrease (0.2%) in the number of class events compared to the previous year. With Harris renovations continuing into Academic Year 2009-10, this has raised concerns about potential scheduling difficulties during the Fall Quarter particularly if the number of class events were to increase as had been the case in Fall Quarters from 2003 to 2008. Recent acquisition of Seabury Western with addition of 4 classrooms west of Sheridan can be expected to ameliorate potential impact of the Harris renovation.

Smart Classrooms

With upgrades and improvements that have been underway in recent years, over 94% of Registrar classrooms are now "smart." As a consequence, smart classroom usage more closely corresponds to overall utilization. While smart classroom usage is still much higher than non-smart classroom usage in all timeslots, the overall impact of this is less significant, although there still appears to be a strong preference for rooms with "smart" features, whether based on condition/location of these classrooms or the pedagogical need for the technology.

Effect of New Scheduling Guidelines

Data from Academic Year 2008-09 reflects adoption of new Classroom Scheduling Guidelines that constrained the number of each department's classes scheduled during "prime hours" (10 am to 12 noon, and 2 to 4 pm). The result appears to have been the following: 1) Distribution of classes was significantly more even between 9 am and 2 pm than in previous years, without the drop-off in utilization that typically occurs over the noon hour; 2) Utilization at 9-10 am (a non-prime hour) rose about 14% compared to the previous year and almost 17% above the 5-year average for this time slot; 3) Utilization at 2-3 pm (a prime hour) fell 10% from the previous year and 4% from the 5 year average; 4) The percentage of classes adhering to standard scheduling guidelines increased 3% compared to the previous year and 5% above the 5-year average. Overall, the data suggests the policy was effective in encouraging a more even distribution of classes as well as the use of standard scheduling patterns.

Preliminary Analysis of Low Seat Utilization

An analysis of data compiled from 2005 to 2009 attempted to identify causes and possible ways to address chronically low seat utilization in relation to room utilization. Not only do the smallest rooms (fewer than 20 seats) have the highest seat utilization, but also the majority of Northwestern's classes (around 68%) have fewer than 20 students. Since only about 14% of

Registrar-controlled classrooms fall into this size category, there has been a mismatch between the number of students in most classes and the number of seats in most classrooms, with most classes scheduled into rooms significantly larger (or with more chairs) than needed.

It was thought that perhaps seat utilization averages had been skewed by the largest rooms on campus (Ryan Aud., Coon Forum, etc.), which had extremely low utilization. Likewise, perhaps room utilization had been skewed by the small Library rooms, which historically had low room utilization though high seat utilization. Excluding the largest and smallest rooms from the calculations were not enough to account for low averages: while room utilization increased by 8%, seat utilization changed less than 2%.

As one approach to identifying patterns of seat utilization, historical requests/scheduling/enrollments of individual departments were examined in greater detail. Within WCAS and McCormick a few of the departments which used Registrar classrooms had very low (less than 25%) seat utilization. When these departments were excluded from calculations, average seat utilization improved by only one percent. The conclusion was that overall campus seat utilization could not be improved significantly just by addressing requests/scheduling/enrollments within a limited number of departments, nor did this data reflect the judgment employed by departmental administrators requesting use of specific classrooms. Specific rooms could have been requested because of very specific technologies, proximity to other resources, or other motives that may reasonably be related to the instruction of students.

Another consideration has been the location and distribution of classrooms – which merits further examination by the Utilization Subcommittee. If, as the data suggests, low seat and room utilizations have been more systemic as opposed to an outcome of specific departmental requests, adjustments not just to the current number of Registrar classrooms but also to location and number of seats per classroom needs to be looked at more closely across the campus (similar to what was done last year by closely studying the number and seating capacity of Harris classrooms to be included post-renovation).

The data do suggest some patterns that link low utilization and classroom distribution. The first, and easiest to observe, is that almost all of the Registrar's smallest classrooms are concentrated in one location (University Library) and within that location are difficult to reach. Although they have high seat utilization when used, the rooms are infrequently scheduled. Secondly, proximity to faculty offices and familiar office resources/supplies has been a factor in the request of classrooms, and scheduling data suggests that departments prone to low seat utilization occupy buildings with several convenient classrooms, though larger than needed.

One response to low seat utilization would be a more even distribution of smaller classrooms or seminar rooms across campus to supplement or replace the current concentration of these rooms in the Library. Even if the number of Registrar classrooms remained roughly the same, some portion of this inventory could be reduced in size with fewer chairs.

Departmentally-Scheduled Seminar Rooms

Another response to low seat utilization would be to leverage departmental seminar rooms scattered across campus for smaller classes, hence allowing Registrar classrooms to be more efficiently scheduled in relation to class size. Departmentally scheduled seminar/classrooms,

which are typically smaller and located in or near departmental space, would be more convenient to both faculty and students compared to the isolated Library classrooms. Issues to be addressed with this possibility are responsibility for support of room equipment, integrating department room schedules into R25 on a broader basis, and mixing irregularly scheduled colloquia with regular class times.

Recently an attempt was made to analyze usage of the seminar rooms assigned to MEAS. At this time R25 shows scheduled classes for only two of those rooms. The data revealed that the smaller of these two (20 seats) may have a room utilization of only 10%, while the larger (42 seats) may be utilized less than 28% of the time for regularly scheduled classes. Other departmental scheduling of the space could not be ascertained and would need to be studied in order to determine how the space is scheduled overall. Similar situations across the campus might present opportunities for improved use through better space sharing and scheduling policies. Pilot efforts continue to be underway to make departmentally scheduled classrooms accessible via a scheduling tool like R25, and hence potentially more visible and available to users across departments within Schools and across Schools. However, until a larger cross-section of departmental classrooms are on-line through this scheduling system, there will remain a lack of reliable information by which utilization of departmentally scheduled spaces can be meaningfully assessed, particularly in relation to utilization of classrooms scheduled by the Registrar.

Impact of new classrooms on utilization

As noted earlier in the report, four classrooms have been added to the inventory of rooms scheduled by the office of the Registrar, at 2122 Sheridan Road (former Seabury Western site). These classrooms will be scheduled with first priority for undergraduate/graduate courses, and thereafter with open availability on a "first come" basis for other scheduled uses. The impact of these additional classrooms on overall utilization patterns will be analyzed at the conclusion of the 2009-2010 academic year.

GOALS FOR FY10

- Develop priorities for FY 2010 funding and implement general improvements to University-scheduled classrooms.
- Improve scheduling of school and department teaching spaces
    - Work with Office of the Registrar to create an advisory committee to advise on the management and use of teaching space (including labs and seminar rooms) on our campuses.
    - Encourage adoption of Resource25 scheduling software for departmentally-scheduled classrooms and seminar rooms, in coordination with the Office of the Registrar.
    - Conduct further analysis on low seat utilization and opportunities to address the issue.
- Work with Academic and Research Technologies to identify needs, demand, benefits and costs of installing videoconferencing and lecture capture technology in classrooms. Identify options and assess optimal levels for these resources. Provide an analysis, including recommended sites, technology and costs for review by Central Administration.
- Enhance and expand survey of faculty using technology –enhanced classrooms and develop strategy, in concert with the Searle Center for Teaching Excellence, for evaluating faculty utilization and experience of teaching in technology-enhanced classrooms.
- Review classrooms for overcrowded conditions, recommend alternatives, and define impacts.
- As classrooms are renovated, review seating layout and technology to determine whether current configuration matches the needs of classes scheduled in each room.
- Review utilization patterns to identify classrooms that might be targets of opportunity for conversion to academic uses.
- Continue to review and refine the scheduling policies.
- Seek additional funding for priority projects.

APPENDICES

I. **FY2009 Approved and Completed Projects**
II. **Current listing of "smart" classrooms available for scheduling**
III. **Report of the Subcommittee on Classroom Utilization**

APPROVED/COMPLETED: FY2008 REGISTRAR CLASSROOM PROJECTS:

Status	Room	cap	SF	Description	Estimated Cost	Estimated running total
furniture & smart equipment for summer, 2009	Fisk B17	40	729	new tables & chairs, lighting - old est: 38.5k; new est. 40k.	$40,000	$20,000
completed	Tech L211	171	2,540	replace seating, carpet/flooring est: $80,000	$61,958	$101,958
completed	Parkes 223	35	666	construction, furniture (reduced cost by 5k) est: $30,000	$53,467	$155,425
completed	Parkes 224	32	671	construction, furniture (reduced cost by 5k) est: $30,000	50% of above cost	$155,425
completed	Tech M349	34	572	new chalkboards, carpet, furniture, paint est: $25,000	$18,590	$174,015
completed	Lunt 101	18	280	tablet armchairs & carpet $9603	$21,375	$195,390
completed	Lunt 102	12	224	tablet armchairs & carpet $7360	incld in cost above	$195,390
completed	Lunt 103	25	335	tablet armchairs & carpet; material was donated for this room by the manufacturer, Interface, to highlight "Tactiles", green installation method. $13,944	included in cost above	$195,390
completed	Lunt 107	40	594	fixed seating, new lights $33,000	$31,056	$226,446
completed	Leverone Auditorium (Owen Coon Forum)	600	6,575	AV vendor: 100k; prep work for av install: 30k; light lenses 15k, rear acoustic panels & replacement proj rm glass: 5k est: $165,000; program add: provide floor power/data connection for Kellogg: $4500	$161,000	$387,446
completed	Parkes 212, 213, 214, 215, 222, 223, 224			provide marlok remote locking/unlocking at scheduled time periods, actual cost per door: $6813.50 x 7=$47,694.	$47,694	$435,140

FY2009 PROJECTS:

reason for work	Room	cap	SF	Description	Estimated Cost	Estimated running total
	Fisk B17	40	729	new tables & chairs, lighting only; FY2008 project work but actual purchase/install was June 2009	$20,000	**$20,000**
provide electronic access	Kresge 2-410, 2-415, 2-430, 2-435, 3-420			provide remote locking/unlocking (Marlok) at scheduled time periods, approx. $4500 per door for 5 classrooms on floors 2 & 3 (5 doors)	**see below for cost**	**$20,000**
provide electronic access	Kresge 2-380	740	49	Humanities classroom partly used as Registrar classroom (very likely to have registrar AM classes) - 2 doors	**see below for cost**	**$20,000**
provide electronic access	Kresge 1-375	956	70?	MMLC classroom used for Registrar classes at times that MMLC is unable to unlock. (2 doors)	**see below for cost**	**$20,000**
provide electronic access	Kresge 4-310, 4-335, 4-345, 4-355, 4-365 (2 doors), 4-410, 4-416, 4-420, 4-425, 4-430, 4-435, 4-440, 4-435, 4-445			provide remote locking/unlocking (Marlok) at scheduled time periods, approx. $4500 per door for 14 classrooms (15 doors) on floor 4 (100k for all Kresge classrooms); July 2009: budget revised due to site as door age required addl work.	**$120,000**	**$140,000**
no further work needed	Parkes 214	35	700	has 35 tablet armchairs from Harris.	**$0**	**$140,000**
condition, FY08 laptop	Tech L168	25	320	has 25 tablet armchairs from Harris; provide new carpet	**see cost for #8**	**$140,000**
condition	Tech M128	40	513	has 40 tablet armchairs from Harris; provide new carpet	**see cost for #8**	**$140,000**
room condition	Tech M177	40	532	has 40 tablet armchairs from Harris; provide new carpet	**$9,567**	**$149,567**
condition	Tech M152	56	850	remove fixed seating/provide new task chairs & new carpet	**$25,000**	**$174,567**
condition	Tech M164	56	850	remove fixed seating/provide new task chairs & new carpet	**$25,000**	**$199,567**
condtion/FY2004 laptop	Tech M166	26	450	wall protection	**$2,000**	**$201,567**
room condition	Tech L221	42	571	replace seating, carpet/flooring	**$30,000**	**$231,567**
condition	University Hall 121	48	751	has 48 tablet armchairs from Harris; provide new carpet	**$5,000**	**$236,567**
FY2008 laptop	University Hall 312	20	382	has 20 tablet armchairs from Harris; provide new carpet	**$2,700**	**$239,267**

FY2008 laptop	University Hall 318	20	385	provide new carpet & seminar chairs (keep existing tables)	**$6,710**	**$245,977**
FY2008 laptop	University Hall 412	20	359	has 20 tablet armchairs from Harris; provide new carpet	**$2,700**	**$248,677**
FY2008 laptop	University Hall 418	20	374	carpet, seminar chairs (keep existing tables)	**$6,710**	**$255,387**
condition: too much echo	University Hall 101, 112, 212, 312, 318, 412, 418			provide acoustic wall panels (ceiling heights are 17'; may be more efficient to add wall panels only; cost is 6k for rooms under 400 sf; 9k for larger rooms	**$20,500**	**$275,887**
completed: relocate 227 existing Harris Hall KI tablet armchairs (purchased 2002)	from Harris 203, 205, 207, 307, 308, 310, 313, 315			tablet armchairs relocated to: Parkes 214, Tech L168, Tech M128, Tech M177, Univ.Hall 121, Univ.Hall 312, Univ.Hall 412. HH 313 seminar tables/chairs: 4 tables relocated to Kresge 4-445, 7 to 1800 Sherman for History use.	**$6,500**	**$282,387**
provide FM work to support AT initiative to provide new equipment (podiums,etc.) in 7 of the oldest smart classrooms.	Tech LR4, LR5, L361, M345, University Hall 102, 121, 122			costs to relocate rework podium connections (power, data, carpet) will be 6-9k per room based on actual cost estimates. Bids are in process.	**$70,000**	**$352,387**
PROJECTS APPROVED AT 5/8/09 COMMITTEE MTG:						
pilferage: provide addl spare furniture	Tech, Kresge UH			about 20 tablet armchairs, 6 teacher desks, 6 teacher chairs total not to exceed 8k	**$8,000**	**$360,387**
condition: carpet tile worn out in heavily used room	Swift 107			replace carpet in aisles/front/back with rubber floor tile (similar to Fisk B17&217)	**$14,000**	**$374,387**
1) remove too large podium to improve sightlines 2) provide visualizer which faculty would use	Lunt 105	51	696	provide smaller podium with Wolf Visualizer (would require rework of existing power/data feeds, floor fill and patch)	**$15,000**	**$389,387**
lecture capture equipment	Tech L211	171	2,540	lecture capture equipment	**$15,000**	**$404,387**
room condition/room use	Annenberg G15, G21,G28,G29, G30, G31,G32,101			repair/replace (if necessary) damaged radiator covers in all classrooms	**$5,000**	**$409,387**
repair aged heating system (fix many complaints about ill controlled/too hot radiators)	Lunt 101, 102, 103, 104, 105, 107			replace radiator valves and reroute existing radiator piping; provide effective new thermostat to each classroom	**$18,000**	**$427,387**

repair aged heating system (fix many complaints about ill controlled/too hot radiators)	Fisk B17	40	729	replace radiator valves & provide new thermostat; additional cost due to location of piping (ceiling) and the necessity for abatement/pipe recovering to existing piping.	**$20,000**	**$447,387**
repair to aged heating system to improve function & efficiency	Fisk 217	329	3,048	replace radiator valves and provide new thermostat	**$10,000**	**$457,387**
repair to aged heating system to improve function & efficiency	Parkes 212, 213, 214, 215, 222, 223, 224			radiator for all classrooms on 1 zone; separate and re-pipe radiant heating system so that new thermostat in each room controls heating more efficiently. Part of expense due to the amount of abatement/pipe rewrapping necessary.	**$45,000**	**$502,387**
check & provide minor repairs to existing radiators in classrooms	Library 3322, 3370, 3622, 3670, 3722, 4622, 4670, 4722, 4770, 5322, 5722, 5746			check/recalibrate/provide minor repairs to VAV boxes serving 11 Library seminar rooms. It is believed that non-working VAV boxes are likely the fault of a minor and repairable problem in the box vs. a condtion that would necessitate replacement of the entire VAV box.	**$5,000**	**$507,387**
upgrade lights for aesthetically better lighting and energy efficiency	Tech LG52, LG62, LG66, LG68, LG72, LG76, L150, L158, L168			Tech LG52-10 fixt, LG62-6 fixt, LG66-12 fixt, LG68-8 fixt, LG72-6 fixt, LG76-8 fixt, L150-11 fixt, L158-6 fixt, L168-6 fixt. Total: retrofit (73) T12 fixtures @ $100 parts & labor x 10% contingency = $8,030 (retrofit/keep newer lenses). Ceiling ht: 9-11' maximum.	**$8,030**	**$515,417**
upgrade lights for aesthetically better lighting and energy efficiency	Tech L211, L221, L361, M345			Tech L211-29 fixt, L221-8 fixt., L361-15 fixt, M345-15 fixt. Total: retrofit (67) T12 fixtures @ $125 parts & labor x 10% contingency = $9,215 (retrofit/keep existing lenses). Higher cost due to higher ceilings in auditoria.	**$9,213**	**$524,630**
1) improve light levels 2) use less wattage (save energy)	Tech L165 AUD	602	8,918	replace lighting in 6 rondelles from fixtures that use 4200 watts each to 208 watts each (qty 70, 60W bulbs to (8) 26W compact fluorescent bulbs each) ; paint rondelle interior white. Dimming remains, light outout at maximum capacity is doubled.	**$75,000**	**$599,630**
aesthetics	Tech L361	102	1,500	replace extremely dirty ceiling tile	**$10,000**	**$609,630**
Engineering faculty request	Tech L361	102	1,500	add power to rear row of seats (summer 2009 request approved by Jean/Ron)	**$10,000**	**$619,630**

painting - aesthetics; wall protection - protect wall from chair scrapes (partly aesthetics)	Tech:MG28,LG52, LG62,LG66,LG68, LG72,LG76,A110, L150, L158,L160, L168, L170,M120, M128,M152,M164,M166,M177			19 Classrooms: Paint and provide wall protection in 19 rooms; painting usually runs $800-$1500/room; wall protection is $1000-$2000/room. Previously much of classroom painting was a building charge. On list in case there is need to request funding for FY2010 or FY2011. approved: paint as much as remaining budget allows.	**$45,000**	**$664,630**
LIST FOR FY2010 CONSIDERATION UNDER DEVELOPMENT:						
1) improve light levels & better control 2) uses comparable wattage	Tech L165 AUD	602	8,918	replace lighting general room lighting; 250W metal halide to 400W dimming metal halide - repair dimming sytsem(spotlights not included)	**$100,000**	**$100,000**
1) reupholster badly thinning upholstery 2) greatly improve aesthetics	Leverone Auditorium - Owen Coon Forum G001	600	6,575	recarpet room and reupholster seats, Schedule in 3 phases to complete during summer, winter, spring breaks. Furniture: $72,000; carpet $75,000.	**$165,000**	**$265,000**
1) current exit lighting too dim	Leverone Aud. Owen Coon Forum G001	600	6,575	upgrade existing exit aisle and step lighting	**$50,000**	**$315,000**
1) improve light levels 2) use less wattage (save energy)	Tech L165 AUD	602	8,918	replace lighting in 6 rondelles & general room lighting (spotlights not included)	**$175,000**	**$490,000**
1) reupholster badly thinning upholstery 2) greatly improve aesthetics	Tech L165 AUD	602	8,918	replace main floor seating and carpet	**$275,000**	**$765,000**
1) reduce room echo 2) improve aesthetics & usefulness of 12 rooms	Library 3322 3370 3622 3670 3722 4622 4670 4722 4770 5322 5722 5746	15 ea.	270 ea.	acoustic ceiling panels, install projection screens, furniture type tbd; estimated $10,000 per room	**$120,000**	**$885,000**
1) prevent classroom lockouts with timed remote room unlocking/locking 2) prevent furniture from being taken to "Rock" early am. 3) prevent theft/damage to smart equipment	University Hall 11 classrooms: 101,102,112,118, 121,122,218,312, 318,412,418			provide millenium remote locking/unlocking at 11 classrooms at scheduled time periods, prelim estimate of about $6000/door for 13 doors	**$75,000**	**$960,000**
1) prevent classroom lockouts with timed remote room unlocking/locking 2) prevent theft/damage to smart equipment 3) reduce furniture migration.	Tech 1st floor classrooms: Ryan Aud,LR2,LR3 & 2nd floor balcony door to Ryan Auditorium			provide millenium remote locking/unlocking at scheduled time periods, prelim estimate of about $5000 per door for 3 auditoria = 17 doors	**$85,000**	**$1,045,000**

1) prevent classroom lockouts with timed remote room unlocking/locking 2) prevent theft/damage to smart equipment 3) reduce furniture migration	Tech 1st floor classrooms: LR2 &LR3 projection rooms, LR4,LR5, A110,L150, L158,L160, L168, L170,M120, M128, M152,M164,M166,M177			provide millenium remote locking/unlocking at scheduled time periods, prelim estimate of about $5000 per door for 16 rooms = 24 doors	**$120,000**	**$1,165,000**
1) prevent classroom lockouts with timed remote room unlocking/locking 2) prevent theft/damage to smart equipment 3) reduce furniture migration.	Tech classrooms: MG28,LG52,LG62, LG66,LG68,LG72, LG76,L211,L221, L251, L361, M345, M349			provide millenium remote locking/unlocking at scheduled time periods for , prelim estimate $5000 per door for 19 doors	**$95,000**	**$1,260,000**
1) prevent classroom lockouts with timed remote room unlocking/locking	Frances Searle 7 classrooms: 1421,1441,2107, 2370,2378,2407			provide millenium remote locking/unlocking at scheduled time periods, prelim estimate $6000 per door for 18 doors	**$108,000**	**$1,368,000**
Engineering faculty request	Tech M152	60		add power & data to each seat in classroom used for engineering design classes	**$40,000**	**$1,408,000**
Engineering faculty request	Tech M164	60		add power & data to each seat in classroom used for engineering design classes	**$40,000**	**$1,448,000**
Engineering faculty request	Tech L361	102	150	add data to each seat in classroom used for engineering design classes (has power)	**$38,000**	**$1,486,000**
Engineering faculty request	Tech M345	102	1,500	add power & data to each seat in classroom used for engineering design classes	**$54,000**	**$1,540,000**

Appendix II – Current listing of "smart" classrooms available for scheduling of Northwestern Classes

Annenberg 101	Kresge 4-440	Tech L171 (LR2)
Annenberg G15	Kresge 4-445	Tech L211 *New*
Annenberg G21	Leverone Auditorium	Tech L221
Annenberg G28	Library 3322	Tech L251
Annenberg G29	Library 3370	Tech L361
Annenberg G30	Library 3622	Tech LG52
Annenberg G31	Library 3670	Tech LG62
Annenberg G32	Library 3722	Tech LG66
Clark B01	Library 3746	Tech LG68
Clark B03	Library 4622	Tech LG72
Fisk 114	Library 4670	Tech LG76
Fisk 217	Library 4722	Tech M113 (LR4)
Fisk B17 *New*	Library 4770	Tech M120
Frances Searle 1-441 *New*	Library 5322	Tech M128
Frances Searle 2-107	Library 5722	Tech M152
Frances Searle 2-378	Library 5746	Tech M164
Frances Searle 2-407	Lunt 105	Tech M166
Frances Searle 3-220	Lunt 107 *New*	Tech M177
Kresge 2-410	Pancoe Auditorium	Tech M193 (LR5)
Kresge 2-415	Parkes 212	Tech M345
Kresge 2-430 *New*	Parkes 213	Tech M349
Kresge 2-435	Parkes 214	Tech MG28
Kresge 3-420	Parkes 215	Tech Ryan Family Auditorium
Kresge 4-310	Parkes 222	University Hall 101
Kresge 4-335 *New*	Parkes 223	University Hall 102
Kresge 4-345	Parkes 224	University Hall 112
Kresge 4-355	Swift 107	University Hall 118
Kresge 4-365	Tech A110	University Hall 121
Kresge 4-410	Tech L150	University Hall 122
Kresge 4-416	Tech L151 (LR3)	University Hall 218
Kresge 4-420	Tech L158	University Hall 312
Kresge 4-425	Tech L160	University Hall 318
Kresge 4-430	Tech L168	University Hall 412
Kresge 4-435	Tech L170	University Hall 418

Appendix III – Overview of Utilization Data for Registrar Classrooms

Below is the summary of information for the Fall, Winter and Spring Quarters, which is shown in greater detail in attached charts and spreadsheets, and compared with classroom utilization data from previous years:

Daily Utilization for all Classrooms scheduled by Registrar:

Comparison with Fall Quarter 2000, Winter Quarter 2000, and Spring Quarter 2000 (extrapolated from two Acad. Yrs.)
Comparison with Fall Quarter 2002, Winter Quarter 2003, and Spring Quarter 2003 (Acad. Yr. 2002-03)
Comparison with Fall Quarter 2003, Winter Quarter 2004, and Spring Quarter 2004 (Acad. Yr. 2003-04)
Comparison with Fall Quarter 2004, Winter Quarter 2005, and Spring Quarter 2005 (Acad. Yr. 2004-05)
Comparison with Fall Quarter 2005, Winter Quarter 2006, and Spring Quarter 2006 (Acad. Yr. 2005-06)
Comparison with Fall Quarter 2006, Winter Quarter 2007, and Spring Quarter 2007 (Acad. Yr. 2006-07)
Comparison with Fall Quarter 2007, Winter Quarter 2008, and Spring Quarter 2008 (Acad. Yr. 2007-08)
Comparison with Fall Quarter 2008, Winter Quarter 2009, and Spring Quarter 2009 (Acad. Yr. 2008-09)

Utilization based on rooms scheduled for Fall, Winter & Spring (2008-09): average of 63.3% 9 to 5 daily;

Comparison: utilization over the last few years dropped from 65% ('99-00) to 59% ('02-03) to 57% ('03-04) to 55.5% ('04-05), but overall, increased to 57.4% ('05-06), to 60.8% ('06-07), to 63.1% ('07-08) and once more to 63.3% last year.

Compared to previous years based on rooms scheduled 9 to 5 daily ('99-00 vs. '02-03 vs. '03-04 vs. '04-05 vs. '05-06 vs. '06-07 vs. '07-08 vs. '08-09):

Fall Utilization: dropped from 66% to 61% to 58.1% to 57.8%, increased to 59.3 to 63.2% to 64.1%, and dropped to 63.3% in Fall '08.

Winter Utilization: dropped from 65% to 60% to 52%, increased to 58%, decreased to 57.5%, increased to 61.9% to 63.9%, and in Winter '09 to 66.8%.

Spring Utilization: dropped from 65% to 56% to 54% to 51%, increased to 55.5% to 57.3% to 61.3%, and dropped to 59.8% in Spring '09.

For 2008-09 classroom utilization was highest during the Fall and Winter Quarters. Relative to trends and previous years, utilization for Fall and Spring quarters decreased, while Winter utilization increased. The Winter's increase (up 2.8%) was a greater change than the decreases of the Fall (down -0.8%) and the Spring (down -1.5%). Overall, classroom utilization continued to rise, though slightly less this year than in the previous three academic years.

Data from Academic Year 2008-09 appears to indicate that the new Classroom Scheduling Guidelines have improved the overall distribution of classes throughout the day. Utilization was higher earlier in the morning than in previous years and did not drop off significantly across the noon hour. The average afternoon utilization did show a somewhat earlier decline than in previous years, which may indicate that given the new policy, if a choice must be made, there is a preference for scheduling classes earlier in the day rather than later.

Daily Utilization for "Smart" Classrooms scheduled by Registrar:

By the Spring Quarter '09, there were only 6 registrar classrooms that remained "non-smart." Comparisons between smart and non-smart rooms, therefore, are becoming less useful for describing utilization patterns. Smart classroom utilization appeared to decrease significantly beginning in the Winter Quarter (-2%) with a sharp decrease in the Spring (-8%). We do not, however, take this to indicate that smart classrooms are receiving less preference in scheduling, but merely that as most of the registrar classes become smart, the average utilization begins to resemble utilization for all classrooms. The average smart classroom utilization for 2008-09 was 64.7%, which is similar to the overall classroom utilization of 63.3%.

Utilization of "smart" classrooms 9 to 5 daily: Fall '02 @ 66%; Winter '03 @ 72%; Spring '03 @ 67%;
Utilization of "smart" classrooms 9 to 5 daily: Fall '03 @ 65%; Winter '04 @ 64%; Spring '04 @ 61%;
Utilization of "smart" classrooms 9 to 5 daily: Fall '04 @ 76%; Winter '05 @ 73%; Spring '05 @ 66%;
Utilization of "smart" classrooms 9 to 5 daily: Fall '05 @ 71%; Winter '06 @ 70%; Spring '06 @ 68%;
Utilization of "smart" classrooms 9 to 5 daily: Fall '06 @ 70%; Winter '07 @ 68%; Spring '07 @ 66%;
Utilization of "smart" classrooms 9 to 5 daily: Fall '07 @ 69%; Winter '07 @ 68%; Spring '07 @ 67%;
Utilization of "smart" classrooms 9 to 5 daily: Fall '07 @ 69%; Winter '07 @ 66%; Spring '07 @ 59%;

Room Utilization by Building 9 to 5 daily:

In buildings with multiple classrooms scheduled by the Registrar, Kresge, University Hall and Tech are the three building locations with the highest utilization: Kresge at 79.4 (compared to 81.1% in '07-08); University Hall at 76.2% (compared to 75% in '07-08); and Tech at 70.5%(compared to 67.6% in '07-08). Parkes follows at 68.9% having been supplanted by Tech from third highest in utilization. In buildings with only one classroom scheduled by the Registrar, Pancoe Auditorium has decreased slightly in usage from last year (58% compared to 59.2% in '07-08, 59% in '06-07, 63.7% in '05-06 and 69.6% in '04-05). Swift Hall Lecture Room 107 rose from last year (67.1% compared to 64.9% in '07-08). Utilization in Coon Auditorium {Lev. Aud.} increased 7.7% to 35.4% in '08-09. This is up from previous years (27.7% in '07-08, 29.4% in '06-07, 23.1% in '05-06 and 35% in '04-05).

University Library, which has classrooms primarily with less than 20 seats, fell to 26.6% (compared to 31.3% in '07-08, 25% in '06-07, 23.3% in '05-06, 21% in '04-05).

Based on Size of Room Scheduled: Up to 20 seats; 21 to 80 seats; 80 to 120 seats:

	'99-00	'02-03	'03-04	'04-05	'05-06	'06-07	'07-08	'08-09
Up to 20:	52%	46%	43%	39%	45%	46%	48%	47%
21 to 80:	65%	62%	60%	61%	66%	67%	66%	67%
81 and larger:	62%	64%	61%	56%	64%	65%	63%	66%

While utilization of small classrooms (seminar rooms with up to 20 seats; all are located in the Library) had increased from 2005 to 2008 and may have roughly leveled off over the last year, utilization remained the lowest of the size-categories. In retrospect and given the trends, the notable decrease during Academic Year 2004-05 in the use of large classrooms (81 seats and larger) was an aberration.

Seat Utilization based on the Size of Scheduled Classrooms:

Seat utilization represents the percentage of seats occupied when a room is used. While average seat utilization for rooms scheduled from 9 to 5 daily peaked in '03-04, seat utilization has typically been low. Classrooms with up to 20 seats consistently have had the highest seat utilization.

	'99-00	'02-03	'03-04	'04-05	'05-06	'06-07	'07-08	'08-09
Up to 20:	61%	57%	65%	66%	64%	64%	66%	64%
21 to 80:	47%	45%	53%	49%	45%	47%	48%	49%
81 to 120:	48%	51%	56%	53%	44%	46%	45%	46%
120 and larger:	39%	39%	44%	43%	40%	41%	43%	44%
Average	45%	47%	54%	53%	48%	50%	51%	51%

For any classroom potentially targeted for a decrease in the number of seats, seat utilization specific to the classroom needs to be considered, along with options for shifting some scheduled courses into classrooms with a larger number of seats.

Enrollment Utilization for Fall, Winter and Spring Quarters:

Requested maximum enrollments compared to actual enrollments for courses scheduled 9 to 5 daily:

	'02-03	'03-04	'04-05	'05-06	'06-07	'07-08	'08-09
Fall:	74%	79%	77%	73%	79%	73%	74%
Winter:	70%	75%	71%	75%	79%	70%	73%
Spring:	51%	74%	72%	74%	76%	72%	75%
Average:	65%	76%	73%	74%	78%	72%	74%

Standard vs. Non-Standard Scheduling

During the last several years a University policy encouraged standard scheduling roughly between 9 to 2 daily for courses that used classrooms scheduled by the Registrar. Starting in '02-03, the impact was an increase in the percentage of courses conforming to standard scheduling. Standard vs. non-standard scheduling as defined by 4 types established in '02-03 began to decline after the second year of the policy, and was not enough to encourage a more even distribution of usage across the day. As a consequence new classroom scheduling guidelines were implemented during Academic Year 2008-09 that constrained the number of each department's classes scheduled during "prime hours" (10 am to 12 noon, and 2 to 4 pm). With this change, the percentage of classes adhering to standard scheduling guidelines increased 3% over last year and 5% over the 5-year average, and as of Winter Quarter 2009 the distribution of classes across the day was more even than had been the case since these utilization studies began in 2000.