University Classroom Committee
Report
To the Provost

2003 – 2004

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September 2004
COMMITTEE CHARGE AND STRUCTURE

The Classroom Committee was established by the Provost in January 2000 and charged with evaluating classroom use and quality, and recommending to the Provost and the Deans policies on classroom utilization, scheduling, physical improvements and priorities for assignment. The Committee includes representatives from the faculty, deans’ staff, the Searle Center for Teaching Excellence, Office of the Registrar, Information Technology, Associated Student Government, Facilities Management and the Office of the Provost.

Much of the work of the Classroom Committee is accomplished through the three subcommittees that focus on teaching methodology and technology: classroom quality; and classroom utilization. Additionally, the co-chairs work with faculty and staff from the Chicago campus to explore improvements in the quality and utilization of classrooms in Chicago. A recurring allocation of $500,000 has been established for the Classroom Committee to address priority needs.

Further information on the Classroom Committee, including reports from past years, is available on-line at: http://www.northwestern.edu/provost/committees/classroom/.

USE OF FY 2004 BUDGET ALLOCATION

The combination of the funding available for FY04 ($500,000) with unspent funds carried forward from the past two fiscal years provided a pool of $666,337 available for classroom improvements. The projects approved by the Committee in FY03 came in substantially under budget and accounted for the vast majority of the carry-forward: classrooms upgrades were $109,000 under budget; Harris and Kresge HVAC studies were $23,000 under budget; and $28,500 had been held in contingency.

- Complete physical renovation of Fisk 217 auditorium funded

The committee had previously identified three auditoria (Ryan, in Tech; Owen Coon, in Leverone; and Fisk 217) as candidates for both physical and technological upgrades (none of the three auditoria is equipped to serve as a smart classroom). Based on the level of need expressed by users, renovation of Fisk 217 was deemed to be the highest priority, and the committee allocated the bulk of FY04 funding to its physical improvement. This project, which cost $350,000, included installation of new seating and carpeting; ADA access to the stage; new acoustical panels; emergency and exit lighting; repainting; upgrade of electrical service; and preparation for future smart improvements. The Classroom Committee will request funding from central administration for smart upgrades to Fisk 217 during the planning/budgeting process for FY06 that will occur later in this academic year.

- Classrooms in Harris, Tech, Searle, Lunt and Kresge received partial upgrades
Other classroom renovations funded and accomplished during FY04 include: significant physical upgrades to Harris 205 and Tech A110, including new seating; installation of code compliant exit lighting in five Frances Searle classrooms; upgrade of light fixtures in six Lunt Hall classrooms; provision of clocks with 4-year battery packs in all classrooms; replacement of teacher desks in 40 classrooms (ordered for installation in November 2004); and improvements to eight classrooms in Kresge and Tech as part of conversion to laptop technology-enhanced classrooms (see section on smart classrooms, following). See Appendix II and IIa for a detailed list of improvements made in each classroom.

- Analysis funded in FY03 completed

Grumman/Butkus Associates, energy consultants and design engineers, completed an analysis of the existing HVAC systems in Kresge and Harris Halls, and provided preliminary estimates for installing central air conditioning in these two buildings. Their report was received during summer 2004, so the Classroom Committee will consider their findings when it meets in the fall.

**UPGRADE OF SMART CLASSROOMS**

- Second year of laptop-based smart classroom model funded

In July 2003, the University approved the Classroom Committee’s proposal to convert the 83 non-technology-enhanced classrooms in the Registrar-assigned pool to smart classrooms, using a new laptop-based model, over the next ten years (see Appendix Ia. for technical specifications). Both central administration and IT funds are committed to this project. The initial funding is for a three-year period (FY04, FY05 and FY06), at the end of which central administration will seek an evaluation from the Classroom Committee, Academic Technologies and the Searle Center of the success of this initiative. Assuming that central administration is satisfied with the project's success, funding for the next three years' investment will become available, and so on, until the project has been completed.

- Installation of first two sets of laptop-based smart classrooms completed

Academic Technologies (IT) installed the first set of eight laptop-based classrooms during March 2004, over spring break: four in Kresge (rooms 4-335, 4-420, 4-435, and 4-440) and four in Tech (rooms L160, L170, M120 and M166). A training room for faculty was established in March 2004 in Academic Technologies’ offices in the University Library; this room has become the primary site at which faculty get first experience in using the new classroom systems.

Eight additional laptop-based smart classrooms were completed during August and September 2004, using FY05 funding. These smart classrooms are in Kresge (rooms 4-445 and 4-425); University Hall (rooms 101 and 112); Harris Hall 205; Tech (rooms L158 and L150); and Searle 2-407. This work brings the total number of smart classrooms to 46 (17 laptop-based; 29 resident computer-based).
DEVELOPMENT OF TEACHING, LEARNING and TECHNOLOGY SKILLS FOR SMART CLASSROOMS

- Supporting faculty who use smart classrooms

The Searle Center for Teaching Excellence and Academic Technologies collaborate in supporting faculty (and graduate student teachers) in the effective use of technologically enhanced classrooms. Separate programs for faculty and graduate students have now been successfully presented in the past two years and will be presented again in FY05. These include:

- Teaching, Learning and Technology: (institute for faculty, 5 full day intensive workshop)
- Web-based Instruction for Northwestern Graduate Students (WINGS): (6 half-day workshops)

In addition, as mentioned in the previous section of this report, Academic Technologies maintains a training room the University Library, in which faculty can learn about and test new ways of teaching.

- Improving communication with faculty about smart classrooms

The Registrar’s Office provides information in advance of each quarter about smart classroom support to all faculty who are scheduled to teach in these rooms. However, the Teaching Methodology/Technology sub-committee felt that there was a need for a broader marketing plan to faculty to inform them of (i) the range, location and specifications of the smart classrooms available for teaching; (ii) the programs available to help them develop their teaching and technology skills for teaching in these classrooms; and (ii) the general services available from Academic Technologies and the Searle Center pertaining to teaching in these rooms. The sub-committee will pursue this issue further during FY05. (See Appendix I for full text of subcommittee report).

- Monitoring smart classroom use

Every quarter, Academic Technologies surveys all faculty teaching in smart classrooms about their classroom experience, via an on-line survey. The results from these surveys confirm a high rate of utilization of the basic technologies (projector and network services) in smart classrooms. Looking at the data over the last several years, the surveys also confirm that our faculty are now experiencing fewer technical problems in smart classrooms—apparently due to the technology overhauls that have been accomplished in classrooms during the last three years, and also due to a more thorough and persistent program of faculty training by AT in these use of these classrooms.

CHANGES IN CLASSROOM UTILIZATION

Despite the recent conversion of some classrooms to other programmatic uses, utilization studies for Academic Year 2003-2004 demonstrate a decline in classroom utilization for classrooms in Evanston scheduled through the Registrar’s office. Over the last few years, more school
controlled classroom/seminar spaces came on line than were eliminated in the Registrar’s inventory. In Fall 2003, Pancoe auditorium (125 seats) came on line. In 2003-4, Swift 104 (48 seats) was removed from the Registrar’s inventory and converted to programmatic use for WCAS. Also in 2003-4, three classrooms scheduled by the Registrar (Fisk 201 at 85 seats, Fisk 211 at 80 seats and Fisk 401 at 60 seats were reassigned to Medill.

The new scheduling guidelines adopted in 2002/2003 regularized class meeting times and spread them out over the day; the new guidelines for Tuesday and Thursday also created an additional timeslot that did not previously exist. The committee will continue to monitor both the desired and undesired impact of the new scheduling guidelines on students and faculty, recommending revisions whenever circumstances demand.

The decline in utilization rates continues to provide the University with the opportunity to: (1) convert additional classrooms to laboratory and office space to meet compelling program needs; (2) lower the seat count in overcrowded classrooms and (3) convert traditional classrooms to flexible classrooms. See Appendix III for full text of Classroom Utilization subcommittee’s report.

**UPGRADE OF RYAN AUDITORIUM TECHNOLOGY IN FY05**

In May 2004, the University allocated $148,000 to IT (Academic Technologies) for upgrading the technology services in Ryan Family Auditorium in Tech during FY05. The auditorium upgrade will be scheduled during an upcoming quarter break, either December 2004 or March 2005. A complete survey of current technology options for the auditorium upgrade will be performed during October 2004, and A/V contractor bids will be sought during November 2004.

Two issues concern the Classroom Committee as we approach the work of improving the Ryan Family Auditorium in FY05.

1. In June 2004, we received reports from the McCormick Dean’s Office that the sound system in the Auditorium had suffered significant damage, possibly as a result of careless operation during the ‘Dillo Day late-night movie event. The survey that we will perform in October 2004 will assess whether the existing sound system now needs to be completely replaced, or not. If we have to completely overhaul the sound system, this will most likely raise the costs of the upgrade project beyond the $148,000 budget.

2. No new funding has been provided for technical support staff for events in the Ryan Family Auditorium. The additional capabilities that will be built into the Ryan Family Auditorium in FY05 will inevitably result in additional large-scale events being booked into the Auditorium. We are concerned that the classroom support team at Academic Technologies is not staffed adequately to successfully support major events in the Auditorium and have initiated discussions with Student Affairs about increased utilization of Norris Sight and Sound (as well as improvement of their performance).

**GOALS for FY 2005**
Classrooms as a University Resource
A major focus of the Classroom Committee during 2004/2005 will be on identifying the classroom/seminar spaces throughout the University that are not presently controlled and/or scheduled by the Office the Registrar; evaluating their physical condition; understanding how the schools, departments and units use these classroom/seminar spaces; and recommending to the University a plan that aligns their usage and condition more closely with that of the University classrooms.

Over the past two years, the University has evaluated its progress made toward the goals laid out in the Highest Order of Excellence, the strategic plan developed in 1997/98, and laid out future goals. While much progress has been made in addressing the academic priorities and related infrastructure needs laid out in the original plan, it’s clear that more needs to be done before Northwestern achieves its desired environment for teaching and learning.

The Administrative Infrastructure Planning Committee, part of the Highest Order of Excellence II planning effort that took place recently, has addressed, among other things, the issue of classrooms and classroom use within the University. The committee has observed, within the University community, the desire for centralized, professional management of classroom resources, as well as the need for more technologically advanced classrooms (including teleconferencing capabilities).

In its report from September 2004, the Administrative Infrastructure Planning Committee praised the work of the Classroom Committee, convened initially in 2000 to address specific objectives in the original Highest Order of Excellence framework, but notes that not all classroom-related issues have been addressed. The report continues: “Pockets of acute problems in classroom renovation, upkeep, and scheduling policy remain, and there is growing sentiment that management of classroom resources should be centralized. Currently, classrooms that are supervised by departments and schools are not renovated by the University at large, creating a two tier system in some areas. We believe the University needs to define a high standard for what the classroom experience at Northwestern should be and to align administrative practices with that vision…”

The University does have a centralized means of scheduling space (Schedule 25 software) that is used presently to schedule all Registrar-administered classrooms. A few departments provide information to the Schedule 25 system about scheduling practices in several broadly-used department classrooms, but this practice is presently the exception, rather than the rule. The Classroom Committee will work with the schools during FY05 to better understand the impact that decentralized scheduling of department classrooms has on overall space utilization, and to explore ways of increasing utilization through improved scheduling.

Other continuing goals for FY 2005 include:

- Develop priorities for FY 2005 funding for general improvements:
  - Complete analysis of classroom conditions and refine process for selecting future projects
➢ Review classrooms for overcrowded conditions, recommend alternatives, and define impacts
➢ Develop priority list for conversion to flexible classrooms and define impacts
➢ Institute inspections of University classrooms to ensure that equipment in classrooms is in working order before start of school year.
➢ Continue to work with SCS and the Law School to develop a plan for renovation of Wieboldt Hall classrooms

• Work with the Searle Center to develop and implement mechanisms that encourage and aid faculty in using innovative pedagogies to improve student learning
  Develop strategy for evaluating faculty utilization and experience of teaching in technologically enhanced classrooms
• Identify two classrooms (one each on north and south campus) to develop as high-tech, flexible, experimental classrooms, where faculty can try out new methods of teaching
• Continue to review and refine the new scheduling policies, taking into account faculty and student responses to them
• Seek external funding for priority projects
• Develop a long-term plan for the Committee that would place Northwestern in the forefront of classroom education.
APPENDICES

I. Report of the Subcommittee on Teaching Methodology and Technology
   a) Technology-Enhanced Classroom Specifications

II. Report of the Subcommittee on Classroom Quality
   a) List of FY04 Classroom Improvement Projects

III. Report from the Subcommittee on Classroom Utilization
    a) Overview of Utilization Data
    b) Tables (NEED TO ADD – PRESENTLY IN PDF FORMAT)

IV. Report on Smart Classroom Upgrades and Issues
Appendix I: Report of the Subcommittee on Teaching Methodology and Technology

Subcommittee members:
Greg Light (chair), Paul Loach, Franziska Lys, Rick Morris,
Ron Nayler, Jean Shedd, Erik Sontheimer, Bob Taylor

Summary
The Teaching Methodology/Technology subcommittee met three times during the academic year (Dec 2, 2003, Jan 6, 2004, May 25, 2004). The sub-committee primarily focused on the implementation of the long term strategy for developing pedagogically and technologically enriched classrooms on campus in accordance with the proposal and plans elaborated during the previous two academic years. During the year it began to articulate a much broader and more comprehensive strategy which integrates the development of smart classrooms on campus with an evaluation of their pedagogical/technological use and with the creation of programs for training teachers in their effective use. As such, the sub-committee’s work focused on three main areas:

1. Smart Classroom Development: The sub-committee furthered the long term program for making all Northwestern classrooms smart classrooms in three main ways:
   i. identified and supported the implementation of 8 laptop based classrooms.
   ii. identified and moved forward the technology work on a large university auditorium
   iii. progressed the development of two smart flexible classrooms on campus
2. Evaluation of Smart Classroom Use: The sub-committee further considered the implementation of evaluating the pedagogical experience and effectiveness of using smart technology in the classroom.
3. Development of Teaching, Learning & Technology Skills for Smart Classrooms: The sub-committee considered a preliminary verbal report on the implementation of programs supporting the development of pedagogically informed skills for teaching in such enhanced classrooms.

1. Smart Classroom Development
In 2001-02 the Pedagogy/Technology Subcommittee recommended that Northwestern’s classroom strategy achieve a broad range of pedagogically and technologically based goals. Goals were set out in five categories for the short term (1 year) and the medium term (3 years). In the following academic year the sub-committee extended the strategy with respect to the long term, recommending that the university convert the 84 non-technology-enhanced classrooms in the Registrar-assigned pool to Laptop-based Smart Classrooms over the next ten years. This was a comprehensive proposal sent to the Budget Planning Group, informed by pedagogical rationale, survey data from peer institutions, survey data from faculty, faculty development initiatives and an analysis of the costs. This recommendation was accepted in the spring of 2003. In accordance with this plan, the sub-committee focused much of their FY04 work on beginning the implementation of this plan.

Smart Classroom Development
During the 2003-04 academic year, the sub-committee focused on the particulars of the lap-top specification (see appendix 1 for specification details) and on identifying the first eight rooms to be provided with lap-top based ‘smart’ technology. During the March break 2004, eight rooms were transformed with lap-top based technology. These were:

- Technological Institute
  - Tech L160, Tech L170, Tech M120, Tech M166

- Kresge Hall
  - Kresge 4-335, Kresge 4-420, Kresge 4-435, Kresge 4-440

In addition, 8 further classrooms were identified for the development of lap-top technology – possibly to be completed in the summer of 2004 (with the goal of doing 9 if the budget will allow). These are:
- Harris 203 and 205 (2 rooms)
- Searle 2-407 (1 room)
- Tech 150, 158, 168 (2 of the 3 rooms)
- Kresge 4-425 and 4-445 (2 rooms)
- UH 101 and 112 (2 rooms)

If funding does not allow 9 to be completed, then Harris 203 will not be upgraded.

Finally, funding has also been guaranteed for upgrading the technology services in Ryan Family Auditorium in Tech. This upgrade is targeted for December 2004. There is also interest from the committee in improving the technology services in Fisk 217 in FY05, but funding is not available for that work. Fisk 217 received committee support for possible upgrade priority in FY06.

2. Evaluation of Smart Classroom Use
In accordance with the development of a broader, more comprehensive strategy, the sub-committee also explored briefly an strategy for evaluating faculty utilization and experience of teaching in technologically enhanced classrooms. This strategy has yet to be specified in detail and it is recommended that it become a higher priority in FY05.

3. Development of Teaching, Learning & Technology Skills for Smart Classrooms
In conjunction with the development of technologically enhanced classrooms, the committee also received a report on programs partnered by the Searle Center for teaching Excellence and Academic Technologies to support faculty (and graduate student teachers) in the effective use of these enhanced classrooms. Separate programs for faculty and graduate students have now been successfully presented in the past two years and will be presented again in FY05.
- Teaching, Learning and Technology: (institute for faculty, 5 full day intensive workshop)
- Web-based Instruction for Northwestern Graduate Students (WINGS): (6 half-day workshops)

The sub-committee also agreed that there was a need for a broader marketing plan to faculty to inform them of (i) the range, location and specifications of the smart classrooms available for teaching; (ii) the programs available to help them develop their teaching and technology skills
for teaching in these classrooms; and (ii) the general services available from Academic Technologies and the Searle Center pertaining to teaching in these rooms. The sub-committee felt this marketing initiative should be communicated from the Registrar’s office and include possibly email as well as possibly brochures.

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Appendix Ia. Technology-Enhanced Classroom Specifications

Given the increasingly crucial role that computers and information technology play in the classroom and the world at large, the committee recommends that the University convert all 84 non-technology enhanced classrooms in the Registrar-assigned pool to Laptop-based Smart Classrooms. However, Northwestern’s teaching goals may require that some of these Laptop-based Classrooms be equipped in the future with additional technology resources that would command additional investments. The equipment specified in the Laptop-based model provides a foundation of technology enhancement upon which more-sophisticated models can be built. Below are descriptions of all four levels of technology enhancement.

1. Laptop-based Smart Classroom
The Laptop-based Smart Classroom model requires that faculty provide their own a laptop, as there will not be a resident computer in these rooms. These classrooms are designed and equipped so a presenter can display computer and traditional A/V output on a large screen visible to the entire class.

Equipment features
Standard
Smart panel/podium with laptop computer input jacks/docking station
Ceiling-mounted LCD projector (3000-5000 ANSI lumens brightness)
Switched-100Mb network connection
VCR/DVD player and stereo amplifier
Audio speaker system
Enhanced lighting/window treatments
Overhead projector

Optional
Slide projector
PA System

2. Resident-computer-based Smart Classroom
All twenty-seven of Northwestern’s existing Smart Classrooms fit this model. These classrooms contain a resident PC or Mac for the instructor’s use. Like the laptop-based smart classroom, these rooms are designed and equipped so a presenter can display computer and traditional A/V output on a large screen visible to the entire class.

Equipment features
Standard
Resident PC or Mac
Smart panel/podium with laptop computer input jacks/docking station
Ceiling-mounted LCD projector (3000-5000 ANSI lumens brightness)
Switched-100Mb network connection
VCR/DVD player and stereo amplifier
Audio speaker system
Enhanced lighting/window treatments
Overhead projector

*Optional*
Slide projector
PA System

### 3. Interactive Computer Classroom (or Studio-Based Computer Classroom)
These classrooms contain computer stations or laptop plug-in stations for each student as well as for the instructor. Faculty and students should be able to share documents, graphics, spreadsheets or applications. Bob Taylor, Northwestern’s Director of Academic Technologies, recommends that the University keep apprized of emerging software technologies (such as Conference XP) that enable instructors to control students’ displays.

*Note:* these classrooms can be used as computer labs when not being used for teaching, but requirements for teaching should take precedence over those for a lab.

**Equipment features**

*Standard*
- Student computer stations (either individual or collaborative) or laptop docking stations
- Resident PC or Mac
- Smart panel/podium with laptop computer input jacks/docking station
- Ceiling-mounted LCD projector (3000-5000 ANSI lumens brightness)
- Switched-100Mb network connection
- VCR/DVD player and stereo amplifier
- Audio speaker system
- Enhanced lighting/window treatments
- Overhead projector

*Optional*
- Slide projector
- PA System

### 4. Interactive Video Classroom
These classrooms are designed to accommodate larger numbers of students in a real-time, virtual classroom environment. These rooms tend to be designed to meet more specialized programmatic needs and, because they are quite expensive, may be candidates for external funding.

Although these classrooms are more expensive than either Laptop-based Smart Classrooms or Resident-computer Smart Classrooms, they are being built with Northwestern funding now. The Feinberg School of Medicine built one of these classrooms last Fall on the Chicago campus, and the Weinberg College of Arts and Sciences is opening one of these classrooms this Spring in the Pancoe building. Northwestern Trustee David Searle is preparing to fund more of these in the Life Science areas.

**Equipment features**
Standard
Resident PC or Mac
Smart panel/podium with laptop computer input jacks/docking station
Ceiling-mounted LCD projector (3000-5000 ANSI lumens brightness)
Switched-100Mb network connection
VCR/DVD player and stereo amplifier
Audio speaker system
Enhanced lighting/window treatments
PA System
Appendix II: Report of the Subcommittee on Classroom Quality

Subcommittee members:
Jessica Abrams, Steve Fisher (chair), Marv Lofquist, Ron Nayler, Joe Schofer, Jean Shedd

FY 04 activities of this committee include:

Fisk 217: major renovations planned that will be completed in summer, 2004. There will be new seats and a new seat configuration (slightly reducing capacity); sound-absorbing panels on the walls; handicap access to the stage, improved general lighting, conduits for future smart improvements, correct exit and emergency lighting, and new electrical panel.

Frances Searle Building: provided exit and emergency lighting for classrooms serving 49 or more capacity (five of the six general purpose rooms at Searle).

Tech A110: removed/disposed of fixed seating; re-carpet (asbestos abatement not needed); provided new ergonomic tablet armchairs.

Tech L160, L170, M120, M166: provided new carpet and new ergonomic tablet armchairs for these laptop rooms. [Lighting in L160 and L170 will be upgraded in November 2004; rooms M120 and M166 already contain current standard fixtures.]

Harris 205: removed/disposed fixed seating; re-carpeted (required asbestos abatement of floor tile); provided new ergonomic tablet armchairs; removed small abandoned AV closet (two small doors; little bit of drywall); removed old motorized screen; install new light switches, correct defective switching; replaced old light lenses. Direction of the room layout was changed to take better advantage of door locations and data pipe shared by rooms 203 and 205. Sightlines remain the same. We relocated 16' chalkboard (installed a few months ago) and patched wall; removed old thermostat, removed passive grill between 203 & 205; relocated newly installed clock to new back of classroom; and repainted room. We also added laptop improvements (2 screens, projector; podium with DVD, controller to hook up professor's laptop, and VHS)

Kresge rooms 4-335, 4-420, 4-435, 4-440: provided new ergonomic tablet armchairs for use with laptops (these rooms are designated for laptop use) and reswitched lights in 4-435.

Lunt Hall (all six classrooms): upgraded existing lighting to use T8 lamps

In addition, each general purpose classroom on the Evanston Campus was equipped with a clock with a four year battery and will be synchronized regularly through satellite technology. We also funded 40 sets of replacement teacher desks, which will be installed during winter break 2004.
FY04 Classroom Committee Projects

Funding Summary
Unexpended funding from FY02 ($3,830) FY03 ($138,641) was moved to FY04.

Final FY04 total funds available: $642,471

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<th>FY 04 UPGRADES</th>
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<td>CD Searle 1-421,1-441, 2-107, 2-370, 2-407</td>
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<td>Fisk 217</td>
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<td>Harris Hall 205</td>
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<td>Tech A110</td>
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<td>Kresge 4-335, 4-420, 4-435, 4-440</td>
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<td>Tech L160, L170, M120, M166</td>
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<td>Service rounds - campuswide for all general purpose rooms</td>
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<td>Lunt 101, 102, 103, 104, 105, 107</td>
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<td>40 teacher desks</td>
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<td>University Hall</td>
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<td>Provide clock in each classroom</td>
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<td>Kresge 4-425</td>
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Costs include contingency & FMO fee:

| TOTALS: | $627,015 |

Note: Due to recent project completion, not all costs have been received.
Utilization studies for Academic Year 2003-04 along with those from recent years demonstrate declines in Evanston classroom utilization for rooms scheduled through the Registrar’s Office. During the next year the following need to be further investigated, discussed, and better understood by faculty and staff:

1) New classrooms that came on line during the last few years:
   Addition of new classrooms contributed to overall decreases in classroom utilization.
   During Fall 2003 the following classroom was added: Pancoc/ENH “Lecture” Cisrmn. 1-101 (125 movable seats; tiered). Over the couple years previous to this, the following new classrooms came on line: Block Auditorium (Cisrmn. 106 with 157 seats), Anderson Classrooms 1-1246 (98 seats), 2-2245 (84 seats), and 3-3245 (59 seats), the McCormick Tribune Center Forum (Cisrmn. 1-101 with 154 seats), McCormick Tribune Center Classrooms 3-119 (46 seats), and 3-127 (46 seats). Conference rooms departmentally assigned also were added as part of new facilities opened over the last few years.

2) Classrooms eliminated:
   Classrooms removed from Registrar’s inventory did not increase overall classroom utilization.
   One classroom was removed from the Registrar’s inventory of classrooms during Academic Year 2003-04: Swift 104 (48 seats). In Winter 2003, three classrooms scheduled by the Registrar were reassigned and converted to other uses by Medill and MMC: Fisk Classrooms 201 (86 seats), 211 (90 seats), and 401 (60 seats).

3) Schedule modifications:
   Schedule modifications created additional timeslots, which contributed to decreases in classroom utilization.
   The standard schedule for Tuesdays and Thursdays was modified to allow for an additional timeslot that did not previously exist.

4) Upgrades of existing classrooms:
   “Smart” classrooms have strikingly higher levels of utilization than “non-smart” classrooms.
   By the start of Spring Quarter 2004 the number of “smart” classrooms increased from 31 to 41 by upgrading classrooms regularly scheduled by the Registrar’s Office. This, along with previous upgrades, has more than doubled the number of smart classrooms that existed three years ago.

5) Policy changes:
   Policy changes were effective at the point implemented.
   Policy adopted in 2002 was to regularize class meeting times and spread them out over the day.

6) Utilization of Departmentally scheduled Classrooms, Conference, and Seminar Rooms:
   School and departmentally scheduled classroom, conference and seminar spaces are inadequately provided with intra-departmental and University-wide scheduling accessibility, and are inadequately understood relative to classroom utilization.
   While classroom utilization has been deceasing, Northwestern has no centralized software to schedule or understand departmentally assigned classroom, conference and seminar spaces.

For rooms scheduled by the Registrar 9 to 5 daily, the highest level of classroom utilization occurs during Fall Quarter, even though this too has dropped from 61% in Fall 2002 to 58% in Fall 2003. Over the last few years more School and Departmentally reserved classroom/seminar spaces came on line than were eliminated in the Registrar’s inventory. This along with schedule modifications that added a timeslot on Tuesdays and Thursdays resulted in, as had been expected, a lower level of utilization. During Academic Year 2003-04
average utilization 9 to 5 daily dropped to 57% from 59% during 2002-03 and from 65% three years ago, despite elimination of one classroom in Swift and three classrooms in Fisk. Continued decline in classroom utilization over the last three years suggests that further consideration should be given, not just to modification and upgrade of existing classrooms, but potential alternative uses of some existing classroom spaces, particularly targeting “non-smart” classrooms. In terms of matching an appropriately sized classroom to an anticipated enrollment, actual enrollments compared to requested maximum enrollments has increased, which may also be contributing to higher levels of seat utilization. Seat utilization over the past three year period has continued to increase with average seat utilization for rooms scheduled 9 to 5 daily at 54% during Academic Year 2003-04 compared to 45% three years ago. However, this still means that rooms in the range of 21 to 80 seats still average a seat utilization of just 53% (on average, almost half the seats in a classroom are not occupied), which suggests that if funding is available to make better use of existing classroom spaces, for example, by decreasing the number of seats in a classroom to accommodate furnishings that allow for greater flexibility of use and better pedagogical methods, particular classrooms in this mid-range could be targeted for modifications. This would need to be accompanied by further investigation making use of a hypothetical impact on scheduling.

Standard scheduling for courses slotted from 9 to 2 daily was intended to be encouraged by a new University policy implemented Fall Quarter 2002. The percentage of courses conforming to standard scheduling, on average, has increased from 62% three years ago to 70% in Academic Year 2003-04, although no gains have been experienced over the last year. Scheduling across times has been more fairly distributed, with utilization rates dropping for time-periods between 9 to 2, and (for example) in the high 60% range for the 2 to 3 timeslot. While the new policy appears to have resulted in an increased use of standard scheduling and a decrease of pressure on prime time-periods between 10 to noon and between 1 to 2, the greatest impact of the policy also appears to have been at the point it was initially implemented.

Although the number of “smart” classrooms has more than doubled during the last three years, average utilization for “smart” classrooms has only dropped from 68% to 64%, and remains close to 9% higher than the average utilization for all classrooms (“smart” and “non-smart” combined). “Smart” classrooms continue to be associated with strikingly higher levels of utilization than “non-smart” classrooms: 18% higher for Fall 2003, 17% for Winter 2004, and 21% during Spring 2004. This last statistic is particularly curious given that the number of “smart” classrooms jumped from 31 to 41 rooms at the start of the 2004 Spring Quarter (which also means the number of “non-smart” classrooms declined). During the next year, this greater usage of “smart” classrooms” compared to “non-smart” classrooms needs to be investigated and better understood, not just because the difference is considerable, but because the pressure on scheduling of “smart” classrooms remains relatively high, particularly during the 10 to noon timeslots, with a significant jump in the use of “smart” classrooms during the 4 to 5 timeslot.

The declining level of classroom utilization continues to suggest there may be options for providing Schools and Departments with additional space as their programmatic goals justify a trade-off between space used as classrooms versus space used to meet other programmatic needs. For example, despite efforts to improve Library seminar rooms scheduled by the Registrar, utilization of these small classrooms dropped from 45% two years ago to 34% during Academic Year 2002-03, and remained at this level during Year 2003-04. With anticipated addition of classroom facilities in Ford, the question reasonably needs to be asked: can some portion of classrooms in Tech (if not a comparable amount of space) be converted to alternative uses? Not only should potential alternative uses for some classrooms continue to be explored, but this three-year trend of declining classroom utilization needs to be better understood in the context of classrooms and seminar rooms assigned to Schools and Departments, particularly whether the existing number of seminar rooms and conference rooms across the University can be justified given current rates of utilization. This merits more investigation, though lack of centralized scheduling tools for most of these School and Departmentally assigned spaces makes further study and assessment very difficult and time-consuming. As a first step towards this effort, better scheduling tools and software should be generally implemented across the University.

***
APPENDIX IIIa: OVERVIEW OF UTILIZATION DATA

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)

Utilization based on rooms scheduled for Fall, Winter & Spring (2003-04): average of 56.8% (57%) 9 to 5 daily;
Comparison: utilization over the last few years has dropped from 65% (99-00) to 59% (02-03) to 57% (03-04):
Compared to previous years based on rooms scheduled 9 to 5 daily (99-00 vs. 02-03 vs. 03-04):

- Fall Utilization: dropped from 66% to 61% to 56%;
- Winter Utilization: dropped from 65% to 63% to 52%;
- Spring Utilization: dropped from 65% to 56% to 54%.

For 2003-04 and previous years, classroom utilization is highest during Fall Quarters.

Generally, classroom utilization has decreased somewhat over the last academic year. Distribution across times has improved with implementation of policy changes and schedule modifications, with utilization rates compared to '99-00 dropping for time periods between 9 to 2 (a notable drop during the 9 to 10 timeslot), and remaining in the high 60% and low 70% range for the 2 to 3 timeslot. Comparisons between 02-03 and 03-04 are reasonably similar with some notable exceptions: decrease in utilization for the 1 to 2 timeslot during Spring Quarter; decrease in the 2 to 3 timeslot during Fall Quarter; decrease in the 3 to 4 timeslot for all three Quarters; an increase in utilization during the 4 to 5 timeslot in the range of +10% across all three Quarters (only in this last instance is there a notable increase across Quarters).

Daily Utilization for “Smart” Classrooms Scheduled by Registrar:

During the last year the number of “smart” classrooms increased from 31 to 41 during Spring Quarter ’04. However, average utilization for “smart” classrooms across all three Quarters only dropped from 68% to 64%, and remains roughly 20% higher than utilization for “non-smart” classrooms (utilization for “non-smart” classrooms 9 to 5 daily over the last year averaged 44%).

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 ’04 @ 65%; Winter ’04 @ 64%; Spring ’04 @ 61%;
Utilization is higher compared to utilization of all classrooms: 7% for Fall; 12% for Winter; 7% for Spring;
Utilization is higher compared to utilization of “non-smart” classrooms: 18% for Fall; 17% for Winter; 21% for Spring.

Patterns are still skewed towards peak timeslots between 10 to noon, though during the last few years scheduling of “smart” classrooms, especially in the 9 to 10 timeslot and the 1 to 2 timeslot, has lessened. Compared to last year, utilization of “smart” classrooms in the 4 to 5 timeslot increased from 20.7% to 41.8%, which was roughly the same as the 99-00 utilization rate (39.7%) with fewer than half the number of “smart” classrooms.

Room Utilization by Building 9 to 5 Daily:

Classrooms in Kraege (67%), University Hall (65%), and Tech (63%) can be considered to have highest rates of utilization. While Swift Hall now has the highest rate of utilization (72%), as of Spring 2004 this reflected use of only Classroom 107 (Spring Quarter @ 81.3%), which has been recently renovated; Classroom 104 has been eliminated.

Compared to a few years ago when Tech had the highest rate of utilization, Tech has dropped from 75% to 63%, though compared to the last academic year Tech’s utilization has increased somewhat from 59%.

University Library, which has classrooms primarily with less than 20 seats, is still the lowest, which dropped from 45% a few years ago to 34% last year and this year.

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

<table>
<thead>
<tr>
<th>Room Size</th>
<th>3 Yrs Ago</th>
<th>Previous Year</th>
<th>Academic Yr. 2003-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 20</td>
<td>52%</td>
<td>46%</td>
<td>43% (smallest classrooms have lowest utilization)</td>
</tr>
<tr>
<td>21 to 80</td>
<td>65%</td>
<td>62%</td>
<td>60%</td>
</tr>
<tr>
<td>81 to 120</td>
<td>62%</td>
<td>64%</td>
<td>61%</td>
</tr>
</tbody>
</table>

Over the last few years, the largest decline was in utilization of the smallest classrooms, which is the category in which departmentally controlled seminar/conference rooms have been added in new facilities such as Nano-Fab, Pancro, etc.
**Seat Utilization based on the Size of Scheduled Classrooms:**

Seat utilization represents the percentage of seats occupied when a room is used. Seat utilization for rooms scheduled from 9 to 5 daily has generally increased over the last few years. Classrooms up to 20 seats consistently have the highest seat utilization, though this increased during the last year for classrooms with 80 seats or less.

<table>
<thead>
<tr>
<th>Size</th>
<th>3 Yrs Ago</th>
<th>Previous Year</th>
<th>Academic Yr. 2003-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 20:</td>
<td>61%</td>
<td>57%</td>
<td>65% (smallest classrooms have highest utilization)</td>
</tr>
<tr>
<td>21 to 80:</td>
<td>47%</td>
<td>45%</td>
<td>53%</td>
</tr>
<tr>
<td>81 to 120:</td>
<td>48%</td>
<td>51%</td>
<td>56%</td>
</tr>
<tr>
<td>120 and larger:</td>
<td>39%</td>
<td>39%</td>
<td>44%</td>
</tr>
<tr>
<td>Average</td>
<td>45%</td>
<td>47%</td>
<td>54%</td>
</tr>
</tbody>
</table>

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 during 2002-03:**

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

<table>
<thead>
<tr>
<th>Term</th>
<th>Previous Year</th>
<th>Academic Yr. 2003-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall:</td>
<td>74%</td>
<td>79%</td>
</tr>
<tr>
<td>Winter:</td>
<td>70%</td>
<td>75%</td>
</tr>
<tr>
<td>Spring:</td>
<td>51%</td>
<td>74%</td>
</tr>
<tr>
<td>Average:</td>
<td>65%</td>
<td>76%</td>
</tr>
</tbody>
</table>

**Standard vs. Non-Standard Scheduling by Term**

During the last few years a University policy encourages standard scheduling roughly between 9 to 2 daily for courses that use classrooms scheduled by the Registrar. The impact has been an increase in the percentage of courses conforming to standard scheduling, though it appears this change largely occurred at the point guidelines were implemented:

<table>
<thead>
<tr>
<th>Term</th>
<th>3 Yrs Ago</th>
<th>Previous Year</th>
<th>Academic Yr. 2003-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall:</td>
<td>64%</td>
<td>73%</td>
<td>73%</td>
</tr>
<tr>
<td>Winter:</td>
<td>65%</td>
<td>72%</td>
<td>71%</td>
</tr>
<tr>
<td>Spring:</td>
<td>58%</td>
<td>71%</td>
<td>66%</td>
</tr>
</tbody>
</table>

***

**Note 1: Classrooms added during the last three years or still to be added:**

**On Evanston campus, classrooms which have been or will be added:**

- Block “Aud.” Clssrm. 106
- Scott “Seminar” Clssrm. 212
- Anderson Clssrm. 1-1246
- Anderson Clssrm. 2-2245
- McCormick Trib. Bldg. Clssrm. 3-119
- McCormick Trib. Bldg. Clssrm. 3-127
- Ford Design Center Clssrm.

- 157 fixed seats (sloped; approx. 1,800 nasf)
- 30 seats (approx. 1,045 nasf)
- 98 seats (tiered; approx. 1,450 nasf)
- 84 movable chairs (approx. 1,450 nasf)
- 50 fixed seats (tiered; approx. 930 nasf)
- 154 fixed seats (tiered; approx. 3,300 nasf)
- 46 fixed seats (tiered; approx. 1,050 nasf)
- 46 fixed seats (tiered; approx. 1,050 nasf)
- 125 movable (tiered; approx. 1,850 nasf)
- 65 seats (approx. 1,200 nasf)

- Block
- Pol. Sc.
- KGSM
- KGSM
- Econ.
- Medill
- IMC
- IMC
- WCAS
- Eng.

**b. Additional classrooms are also being added on the Chicago campus.**
### Classroom Utilization Comparison

**All Terms by Time**

<table>
<thead>
<tr>
<th>Time of Day</th>
<th>Fall 00-01</th>
<th>Winter 99-00</th>
<th>Spring 99-00</th>
<th>Fall 02-03</th>
<th>Winter 02-03</th>
<th>Spring 02-03</th>
<th>Fall 03-04</th>
<th>Winter 03-04</th>
<th>Spring 03-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-9 AM</td>
<td>10.8%</td>
<td>6.0%</td>
<td>6.5%</td>
<td>12.7%</td>
<td>9.6%</td>
<td>6.1%</td>
<td>8.7%</td>
<td>8.6%</td>
<td>4.6%</td>
</tr>
<tr>
<td>9-10 AM</td>
<td>71.7%</td>
<td>58.4%</td>
<td>60.5%</td>
<td>54.3%</td>
<td>47.0%</td>
<td>40.5%</td>
<td>48.3%</td>
<td>46.5%</td>
<td>38.8%</td>
</tr>
<tr>
<td>10-11 AM</td>
<td>87.6%</td>
<td>78.2%</td>
<td>79.6%</td>
<td>76.3%</td>
<td>82.9%</td>
<td>77.1%</td>
<td>72.0%</td>
<td>80.2%</td>
<td>74.6%</td>
</tr>
<tr>
<td>11-Noon</td>
<td>90.4%</td>
<td>94.6%</td>
<td>87.1%</td>
<td>82.8%</td>
<td>81.8%</td>
<td>76.8%</td>
<td>81.3%</td>
<td>77.8%</td>
<td>75.9%</td>
</tr>
<tr>
<td>Noon-1</td>
<td>58.2%</td>
<td>54.4%</td>
<td>52.9%</td>
<td>56.8%</td>
<td>59.5%</td>
<td>51.1%</td>
<td>59.7%</td>
<td>56.0%</td>
<td>50.3%</td>
</tr>
<tr>
<td>1-2 PM</td>
<td>71.7%</td>
<td>80.2%</td>
<td>63.7%</td>
<td>64.4%</td>
<td>64.1%</td>
<td>59.9%</td>
<td>61.9%</td>
<td>58.3%</td>
<td>49.3%</td>
</tr>
<tr>
<td>2-3 PM</td>
<td>70.4%</td>
<td>70.2%</td>
<td>70.1%</td>
<td>81.9%</td>
<td>72.7%</td>
<td>71.4%</td>
<td>69.3%</td>
<td>69.3%</td>
<td>65.1%</td>
</tr>
<tr>
<td>3-4 PM</td>
<td>49.4%</td>
<td>56.8%</td>
<td>62.3%</td>
<td>50.4%</td>
<td>52.9%</td>
<td>54.6%</td>
<td>43.5%</td>
<td>42.9%</td>
<td>48.1%</td>
</tr>
<tr>
<td>4-5 PM</td>
<td>29.6%</td>
<td>31.0%</td>
<td>28.7%</td>
<td>17.9%</td>
<td>20.5%</td>
<td>18.2%</td>
<td>28.8%</td>
<td>29.2%</td>
<td>35.0%</td>
</tr>
</tbody>
</table>
Average Weekly Classroom Utilization:
Non-Smart vs. Smart Classrooms
School Years 00-01, 02-03, & 03-04

<table>
<thead>
<tr>
<th>Time</th>
<th>00-01 Non-Smart Rooms</th>
<th>02-03 Non-Smart Rooms</th>
<th>03-04 Non-Smart Rooms</th>
<th>00-01 Smart Rooms</th>
<th>02-03 Smart Rooms</th>
<th>03-04 Smart Rooms</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-9 AM</td>
<td>5.6%</td>
<td>6.1%</td>
<td>3.3%</td>
<td>21.7%</td>
<td>18.2%</td>
<td>14.8%</td>
</tr>
<tr>
<td>9-10 AM</td>
<td>60.2%</td>
<td>41.6%</td>
<td>30.5%</td>
<td>84.1%</td>
<td>62.4%</td>
<td>60.6%</td>
</tr>
<tr>
<td>10-11 AM</td>
<td>80.6%</td>
<td>74.2%</td>
<td>59.0%</td>
<td>89.2%</td>
<td>90.7%</td>
<td>79.5%</td>
</tr>
<tr>
<td>11-Noon</td>
<td>90.4%</td>
<td>77.9%</td>
<td>67.8%</td>
<td>92.7%</td>
<td>87.0%</td>
<td>82.0%</td>
</tr>
<tr>
<td>Noon-1</td>
<td>54.6%</td>
<td>53.2%</td>
<td>41.3%</td>
<td>58.5%</td>
<td>63.2%</td>
<td>61.9%</td>
</tr>
<tr>
<td>1-2 PM</td>
<td>70.4%</td>
<td>60.2%</td>
<td>43.2%</td>
<td>81.0%</td>
<td>68.7%</td>
<td>60.6%</td>
</tr>
<tr>
<td>2-3 PM</td>
<td>70.1%</td>
<td>73.5%</td>
<td>56.8%</td>
<td>70.9%</td>
<td>80.2%</td>
<td>69.7%</td>
</tr>
<tr>
<td>3-4 PM</td>
<td>55.1%</td>
<td>49.0%</td>
<td>35.4%</td>
<td>63.0%</td>
<td>62.7%</td>
<td>51.8%</td>
</tr>
<tr>
<td>4-5 PM</td>
<td>28.1%</td>
<td>16.8%</td>
<td>20.7%</td>
<td>39.7%</td>
<td>24.3%</td>
<td>41.8%</td>
</tr>
</tbody>
</table>
AVERAGE WEEKLY CLASSROOM UTILIZATION
BY BUILDING

Average Weekly Classroom Utilization By Building:
Fall 90-01 - Winter 99-00 - Spring 99-00

Average Weekly Classroom Utilization By Building:
Fall 02-03 - Winter 02-03 - Spring 02-03

Average Weekly Classroom Utilization By Building:
Fall 03-04 - Winter 03-04 - Spring 03-04
<table>
<thead>
<tr>
<th>Term</th>
<th>Cap 1-20</th>
<th>Cap 21-80</th>
<th>Cap &gt; 80</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 00-01</td>
<td>52.4%</td>
<td>70.2%</td>
<td>64.7%</td>
</tr>
<tr>
<td>Winter 99-00</td>
<td>51.0%</td>
<td>62.0%</td>
<td>59.0%</td>
</tr>
<tr>
<td>Spring 99-00</td>
<td>52.7%</td>
<td>62.5%</td>
<td>62.8%</td>
</tr>
<tr>
<td>Fall 02-03</td>
<td>42.1%</td>
<td>65.1%</td>
<td>63.8%</td>
</tr>
<tr>
<td>Winter 02-03</td>
<td>47.7%</td>
<td>62.3%</td>
<td>67.4%</td>
</tr>
<tr>
<td>Spring 02-03</td>
<td>49.3%</td>
<td>57.5%</td>
<td>61.9%</td>
</tr>
<tr>
<td>Fall 03-04</td>
<td>42.6%</td>
<td>60.4%</td>
<td>62.8%</td>
</tr>
<tr>
<td>Winter 03-04</td>
<td>42.1%</td>
<td>62.0%</td>
<td>61.9%</td>
</tr>
<tr>
<td>Spring 03-04</td>
<td>43.0%</td>
<td>57.6%</td>
<td>57.1%</td>
</tr>
</tbody>
</table>
Average Weekly Seat Utilization By Room Size:
Fall 03-04 - Winter 03-04 - Spring 03-04

<table>
<thead>
<tr>
<th>Room Size</th>
<th>Fall 03-04</th>
<th>Winter 03-04</th>
<th>Spring 03-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cap 1-20</td>
<td>73.1%</td>
<td>62.7%</td>
<td>60.5%</td>
</tr>
<tr>
<td>Cap 21-80</td>
<td>54.3%</td>
<td>53.1%</td>
<td>51.1%</td>
</tr>
<tr>
<td>Cap &gt; 80</td>
<td>59.8%</td>
<td>51.7%</td>
<td>55.9%</td>
</tr>
<tr>
<td>Cap &gt; 120</td>
<td>43.7%</td>
<td>44.6%</td>
<td>42.3%</td>
</tr>
</tbody>
</table>
Average Weekly Enrollment Utilization By Time:
Fall 03-04 - Winter 03-04 - Spring 03-04

<table>
<thead>
<tr>
<th>Time</th>
<th>Fall 03-04</th>
<th>Winter 03-04</th>
<th>Spring 03-04</th>
</tr>
</thead>
<tbody>
<tr>
<td>8-9 AM</td>
<td>8.7%</td>
<td>8.6%</td>
<td>4.6%</td>
</tr>
<tr>
<td>9-10 AM</td>
<td>48.3%</td>
<td>46.5%</td>
<td>38.8%</td>
</tr>
<tr>
<td>10-11 AM</td>
<td>72.0%</td>
<td>80.2%</td>
<td>74.6%</td>
</tr>
<tr>
<td>11-Noon</td>
<td>81.3%</td>
<td>77.8%</td>
<td>75.9%</td>
</tr>
<tr>
<td>Noon-1 PM</td>
<td>59.7%</td>
<td>56.0%</td>
<td>50.3%</td>
</tr>
<tr>
<td>1-2 PM</td>
<td>61.9%</td>
<td>58.3%</td>
<td>49.3%</td>
</tr>
<tr>
<td>2-3 PM</td>
<td>69.3%</td>
<td>69.3%</td>
<td>65.1%</td>
</tr>
<tr>
<td>3-4 PM</td>
<td>43.5%</td>
<td>42.9%</td>
<td>48.1%</td>
</tr>
<tr>
<td>4-5 PM</td>
<td>28.8%</td>
<td>29.2%</td>
<td>35.0%</td>
</tr>
</tbody>
</table>
SCHEDULE GUIDELINE COMPARISONS
BY TERM AND SCHEDULE TYPE
ACCORDING TO SCHEDULING GUIDELINES PUBLISHED BY
NORTHWESTERN UNIVERSITY’S OFFICE OF THE REGISTRAR

<table>
<thead>
<tr>
<th>Term</th>
<th>Standard Scheduling</th>
<th>Non-Standard Scheduling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall 2003</td>
<td>1,173.3</td>
<td>30.9</td>
</tr>
<tr>
<td>Winter 2004</td>
<td>1,173.3</td>
<td>30.9</td>
</tr>
<tr>
<td>Spring 2004</td>
<td>1,173.3</td>
<td>30.9</td>
</tr>
<tr>
<td>Total</td>
<td>1,173.3</td>
<td>30.9</td>
</tr>
</tbody>
</table>

Standard Type 1 refers to courses scheduled on Mondays, Wednesdays, and Fridays beginning on the hour and lasting 30 minutes; courses scheduled on Tuesdays and Thursdays beginning on the hour, 30 minutes, 45 minutes, or 1 hour.

Standard Type 2 refers to courses scheduled 4 or 5 days weekly at the same time, a common section for Science, Engineering, Math, and Language Classes.

Non-Standard Type 3 refers to classes meeting one or two days per week other than MWF or TuTh; courses meeting one day per week to be scheduled from the hours of 8 AM to 3 PM and any time after 5:30 PM.

Non-Standard Type 4 refers to classes meeting 2 days a week other than MWF; courses meeting 2 days per week from 8 AM to 3 PM and any time after 5:30 PM.

Schedule Guideline Comparisons
Fall 2003 - Winter 2004 - Spring 2004

<table>
<thead>
<tr>
<th>Term</th>
<th>Type 1</th>
<th>Type 2</th>
<th>Type 3</th>
<th>Type 4</th>
<th>No Type</th>
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</thead>
<tbody>
<tr>
<td>Fall 2003</td>
<td>53.7%</td>
<td>31.3%</td>
<td>9.2%</td>
<td>0.5%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Winter 2004</td>
<td>53.2%</td>
<td>28.0%</td>
<td>10.5%</td>
<td>0.2%</td>
<td>8.1%</td>
</tr>
<tr>
<td>Spring 2004</td>
<td>50.3%</td>
<td>26.1%</td>
<td>14.1%</td>
<td>0.3%</td>
<td>9.2%</td>
</tr>
</tbody>
</table>
Appendix IV: Report on Smart Classroom Upgrades and Issues

NU Smart Classroom upgrades accomplished in FY04

With the oversight of the Classroom Committee, a team from Academic Technologies and Facilities Management upgraded sixteen classrooms in Evanston to Smart Classroom status.

All sixteen classrooms were built in accordance with the new, less-expensive “laptop classroom model” that was proposed by the Classroom Committee to Crown Budget in 2003 as a practical way to bring technology enhancements more quickly to a larger number of University classrooms. University funding for 3-years (and for approximately 24 new classrooms) was obtained in September, 2003.

Eight laptop-based Smart Classrooms were completed in March 2004: four in Kresge (rooms #4-335, #4-420, #4-435, and #4-440) and four in Tech (rooms #L160, #L170, #M120 and #M166). A training room for NU faculty was established in March 2004 in Academic Technologies’ offices in the University Library, and this room has become the primary site at which NU faculty get first experience in using the new classroom systems.

Eight additional laptop-based Smart Classrooms were completed during August and September 2004. (The final billing for these 8 classrooms will straddle both FY04 and FY05.) These latest Smart Classrooms are in Kresge 4-445 and Kresge 4-425, University Hall 101 and University Hall 112, Harris Hall 205, Tech Institute L158 and Tech Institute L150, and Searle 2-407.

The podium in these laptop-based Smart Classrooms has a 10-foot tether, which allows instructors more options to place the podium in a location that best suites their particular teaching style. The podium is based upon a secure but “open access” model: no cabinet key is needed by faculty or by students to use the classroom technology in these rooms.

Academic Technologies now supports a total of 46 Smart Classrooms for the University. Seventeen NU Smart Classrooms are laptop-based, and the other 29 are based upon the previous NU Smart Classroom design that includes resident computers.

The introduction of a laptop-based classroom standard was accompanied by a great deal of anxiety from some quarters of the faculty community. There was legitimate concern that the majority of NU faculty may not yet own a laptop computer for use in their teaching. However, the first feedback that we are getting from NU faculty in the new Evanston laptop classrooms is very positive, and it appears to be the case that more and more NU faculty are acquiring laptops. Early results seem to confirm the proposition that the laptop classrooms model is the most economical way for the University to bring technology enhancements to all University classrooms.
Surveys of Faculty Experience in NU Smart Classrooms

Every academic quarter, all faculty who have arranged with the Registrar to book a class into a NU Smart Classroom that quarter are polled via an on-line survey about their classroom experience.

Survey data collected this year confirms continuation of the trend that we have seen over the past 2 years that NU faculty are taking advantage of the technology capabilities of NU Smart Classrooms, that they are experiencing fewer problems in NU Smart Classrooms, and that laptop use by NU faculty for teaching is growing.

Network-based Support Services for NU Smart Classrooms

Academic Technologies (AT) began deploying a network-based classroom management technology this year into NU Smart Classrooms.

This technology allows AT support staff to remotely monitor and support the equipment in all of the new laptop-based Smart Classrooms. For instance, it allows AT support staff to do remote system diagnostics of the classroom projector and the podium control system, and it lets us identify and head off some equipment problems before they effect a class.

AT deployed this Roomiew and eControl management software to all laptop-based Smart Classrooms this year. Over the next two years, AT will retrofit the RoomView and eControl management system to the older models of NU Smart Classrooms.

Security Issues in NU Smart Classrooms

Thefts of NU Smart Classroom equipment reached a peak during the 2002-2003 year when we lost 3 projectors, and when several other break-in attempts resulted in damaged equipment or podiums. In response, AT and Facilities Management invested in a suite of additional theft-prevention technologies for our classrooms during the 2003-2004 year.

We are relieved to report that no equipment was lost by theft in NU Smart Classrooms during the 2003-2004 year.

We do not believe that security issues have been permanently addressed for our classrooms. But we appear to have improved our protection and to have gained, at least temporarily, the upper hand.
During the 2004-2005 year we will begin instituting network-based security measures in some of our Smart Classrooms, based partly upon the capabilities of the network-based support services described in the preceding section of this report.

Renewal Activities in Existing NU Smart Classrooms

During 2003-2004, Academic Technologies accomplished these renewal activities in existing NU Smart Classrooms:

- replaced the LCD projectors in Tech Lecture Halls #3 and #4;
- migrated from ordinary VCR players in Smart Classrooms to multi-standard VCR’s and multi-zone (international) DVD players;
- replaced all Smart Classrooms PC’s with new Pentium 2.8 Ghz Dell workstations.

Ryan Family Auditorium Upgrade in FY05

In May 2004, $148k in funding was awarded for upgrading the technology services in Ryan Family Auditorium in Tech during FY05.

The auditorium upgrade will be scheduled for either December 2004 or March 2005. A complete survey of current technology options for the auditorium upgrade will be performed during October 2004, and A/V contractor bids will be fielded during November 2005.

Two issues concern the Classroom Committee as we approach the work of improving the Ryan Family Auditorium in FY05.

1. In June 2004, we received reports from the McCormick Deans Office that the sound system in the Auditorium had suffered significant damage, possibly as a result of careless operation during the Dillo Day late-night movie event. The survey that we will perform in October 2004 will assess whether the existing sound system now needs to be completely replaced, or not. If we have to completely overhaul the sound system, this will most likely raise the costs of the upgrade project beyond the $148k budget.

2. No new funding has been provided for technical support staff for events in the Ryan Family Auditorium. The additional capabilities that will be built into the Ryan Family Auditorium in FY05 will inevitably result in additional large-scale events being booked into the Auditorium. We are concerned that the classroom support team at Academic Technologies is not staffed adequately to successfully support major events in the Auditorium.

Video Services for NU Classrooms and Auditoria
AT made investments this year to improve videoconferencing and webcast services in a number of Northwestern auditoria and classrooms. Advanced networking ports were added to Pick-Staiger Concert Hall, Coon Forum, Regenstein Hall, and Annie May Swift Auditorium.

The Sony Lab in the University Library (2EAST) began operation for distance learning classes. And AT consultants worked with Psychology, the Medical School, and the VP for Research to plan construction of new conference rooms in those units for videoconferencing.