

RESHHA

Campus Scheduling Guidelines

THROUGH COLLABORATION, OUTREACH, AND EDUCATION

Analysis of classroom use and utilization data provides essential information for strategic space planning. However, efforts to improve use and/or utilization metrics can be thwarted by ingrained cultural practices, campus politics, lack of understanding, failure to recognize the impact to programmatic needs, absence of a coordinated campus vision, or a combination of such factors. The University of Illinois at Urbana-Champaign used an **iterative approach** to adapt scheduling practices that had remained unchanged for nearly 50 years. The result was a major cultural shift in scheduling that has improved classroom scheduling efficiency, positively affected the campus's ability to respond to campus needs, and improved students' ability to register for needed courses.

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The University of Illinois at Urbana-Champaign (Illinois) is one of the original 37 land-grant institutions, with a current total enrollment of 41,918 students (31,209 undergraduates and 10,709 graduate and professional students). Illinois is home to seventeen distinct colleges and academic units that share the ten square miles of campus space that includes research, outreach, academic, athletic, and performance venues. Typically, large public universities have an average classroom space of only 5 percent (net assignable classroom square feet compared to total campus academic assignable square feet) (Fink 2002).¹ Illinois is comparable, with an inventory of approximately 400 general purpose classrooms, representing approximately 3.8 percent of total academic space (Ruprecht 2004). Also typical is the scheduling model, which is based on a process of a general purpose classroom pool controlled centrally and allocated to departments (based on prior average enrollments and hours of classroom use) for the

purpose of priority scheduling. After a period of priority scheduling, departments and central staff work jointly to schedule all classes in the general pool prior to timetable publication and registration activity. Scheduling several thousand course sections every semester is a complex puzzle involving a multitude of factors that may in fact compete in priority. These include: faculty preference, proximity to instructor offices, historic room assignments, room size, availability of advanced teaching system technologies, anticipated class enrollment, requested meeting time and pattern, new curricular programming needs, and current or planned campus remodeling projects, to name just a few. While a limited number of technologically based optimizers are on the market, Illinois has not identified an optimizer sufficiently robust to solve its unique scheduling puzzle without substantial (and costly) local modifications or workarounds.

Scheduling by classroom allocation has been standard practice since the campus created a general classroom pool model in early 1960; until recent years, it has been the *de facto* scheduling “policy” (Provost letter to “Deans, Direc-

¹ Ira Fink in “Classroom Use and Utilization,” published by APPA in *Facilities Manager* (May/June 2002). This basic and foundational article for classroom space planning can be found at <www.appa.org/FacilitiesManager/index.cfm?ItemNumber=199>.

Table 1.

*Illinois General Classroom Inventory by Capacity,
University of Illinois Urbana-Champaign*

Spring 1986		Spring 2006		Spring 2009	
Capacity	Number of Rooms	Capacity	Number of Rooms	Capacity	Number of Rooms
10-50	332	<50	283	<50	267
51-100	54	50-70	37	50-70	52
101 +	36	70-90	19	70-90	17
		90-125	16	90-125	17
		125-250	25	125-250	24
		250-500	9	250-500	10
		500+	2	500+	2
Total	422	Total	391	Total	389
Enrollment	36,329	Enrollment	41,342	Enrollment	41,918

tors, and Heads of Departments,” Urbana-Champaign, 1960). The classroom inventory was monitored carefully throughout the ensuing decades to keep pace with increasing enrollments and programmatic needs. This allowed schedulers to be flexible and extremely responsive to faculty. However, in the last two decades, approximately 65 smaller classrooms were repurposed; demand for instructional technology increased (only 45 percent of the general purpose classrooms are outfitted with instructional technology systems, or ITS); campus enrollment increased by 14 percent; and coordinating required courses among departments in the inventory configuration became more challenging. (See Table 1.)

With neither a clear scheduling policy to mandate change nor a campus philosophy to guide current practice, fitting all the pieces together became increasingly complex. Scheduling problems began to creep into the routine of producing the class schedule. Of greatest concern was growing evidence that students were unable to register for classes required for timely progress toward their degrees.

The projected closing and renovation of one of the campus’s largest classroom facilities created an opportunity for Illinois to evaluate scheduling issues. In fall 2006, the provost

formed two successive committees: the first was to identify current facility use and scheduling needs with a goal of making long-term recommendations; the second was to analyze data, define critical elements, prioritize issues, and provide a framework for moving forward. Important to the success of these committees were a clear charge from the provost; strong leadership provided by an academic dean; involvement of faculty (including those recognized for excellence in teaching); engagement of facility administrators; and reports and other information provided by functional stakeholders (registrar’s office staff, classroom technology staff, provost’s office staff).

During the first year of study, the initial committee considered multiple topics, including ownership and authority of scheduling classrooms, improving classroom technologies, innovative classroom design, optimizing classroom use, and classroom uses beyond instruction. The committee’s evaluative process culminated in recommendations for the second committee, whose focus soon became the critical nature of the class schedule and its impact on students. Important outcomes of the second committee were the publication of a set of “Guiding Principles for Classroom Space Scheduling” followed by implementation of standardized meeting patterns, both of which were recognized to be major cultural adjustments for the campus. These outcomes are described in detail below. (The full reports of both committees are available at the following Web sites: www.provost.illinois.edu/committees/reports/Instructional%20Spaces.pdf and www.provost.illinois.edu/committees/instructionalSpace.html.)

GETTING DOWN TO WORK

It took several months for the second committee to acquire foundational knowledge. Committee members studied

basic classroom standards and reviewed campus policy and practice as well as the variety of classroom reports available from the Office of the Registrar. The committee also investigated the scheduling practices of peer institutions. As is typical for many large, public institutions, data showed that peak hours of classroom use at Illinois were Monday through Friday between 10 a.m. and 3 p.m. During that time, campus-wide seat fill reached 74 percent of capacity. Yet classroom use on Fridays decreased markedly: Even during peak times, campus-wide seat fill reached only 52 percent of capacity. This compression each day and across the week made it challenging for students to choose a mix of courses to fill their schedules. (See Figure 1.)

Additional insight was gained when the committee looked at campus classroom use and utilization data. According to Ira Fink (2002) in “Classroom Use and Utilization,” classroom use is easily defined as *scheduled classroom hours per total available classroom hours*. “Use” is a measure of classroom occupancy over the typical instructional hours in a week. One common guideline is that a classroom is considered fully used if it is occupied for instruction at least 67 percent of the time or for 30 scheduled classroom hours per 45 total available classroom hours (*i.e.*, 8 a.m. to 5 p.m. daily). The Illinois campus classroom use rate of 54 percent (spring 2006) was less than the target of 67 percent.

The “classroom utilization benchmark” is defined as *the number of workstations occupied per total number of workstations*. “Utilization” is a measure of classroom use efficiency. A classroom is considered fully utilized if 60 percent of the seats are occupied over the defined instructional class week. The Illinois campus classroom utilization figure of 35 percent (spring 2006) was less than the standard of 60 percent.

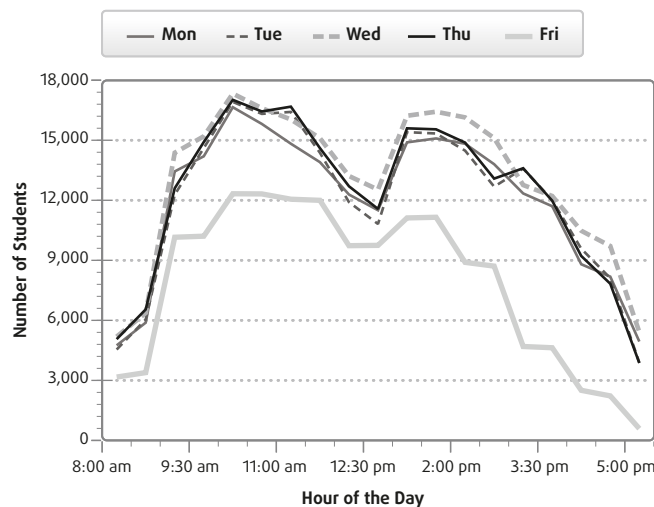


FIGURE 1. Number of Students in Class by Hour Each Day, Fall 2007, University of Illinois Urbana-Champaign

Campus figures related to use and utilization were less than the standards in most categories of room size inventory, yet staff efforts to schedule courses and register students were becoming more and more challenging. How was this possible when reports were run to match enrollments to room capacity, when campus staff manually scheduled the largest lecture rooms for full daily

use, and when some courses had sections that were scheduled hourly each day of the week? Careful examination of classroom schedules revealed multiple and varied gaps in the schedule (especially in classrooms shared between departments), non-standard start and end times (for example, beginning at 9:20 a.m. and ending at 10:45 a.m.), multiple combinations of class meeting days that often excluded Friday (*e.g.*, Monday/Wednesday, Tuesday/Thursday, Monday/Tuesday, *etc.*), and various lengths of class meeting times (60 minutes, 90 minutes, 120 minutes, *etc.*). Subsequent compilation of meeting days/times across all courses showed more than 600 unique combinations of meeting patterns in any given semester. The Fink article is clear on this finding: “While such scheduling is likely to accommodate the faculty and course needs, it plays havoc in establishing a continuous use of instructional space.”

The committee recognized that reducing and standardizing the number of meeting patterns was of utmost necessity, but coordinating this schedule across all departments would be a challenge. How would the institution turn this knowledge into action? (Pfeffer and Sutton 2000)

ESTABLISHING A FRAMEWORK

In an effort to meet the standardized meeting pattern goal and to move the campus forward, the committee planned successive implementation stages that were incremental

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in nature. Each stage included elements of change management to create buy-in from faculty, administrators, and department schedulers. The overarching goal was to promote education and ongoing awareness and to include several formats for stakeholder input (*e.g.*, a campus survey, college town hall meetings, and departmental consultations). At each stage, staff from the registrar's office provided data to stakeholders and shared anecdotal examples of the positive impact of the changes being implemented.

Five guiding principles were determined to be paramount in reassuring stakeholders of the campus's common goals. The most important of these was repeated throughout the process:

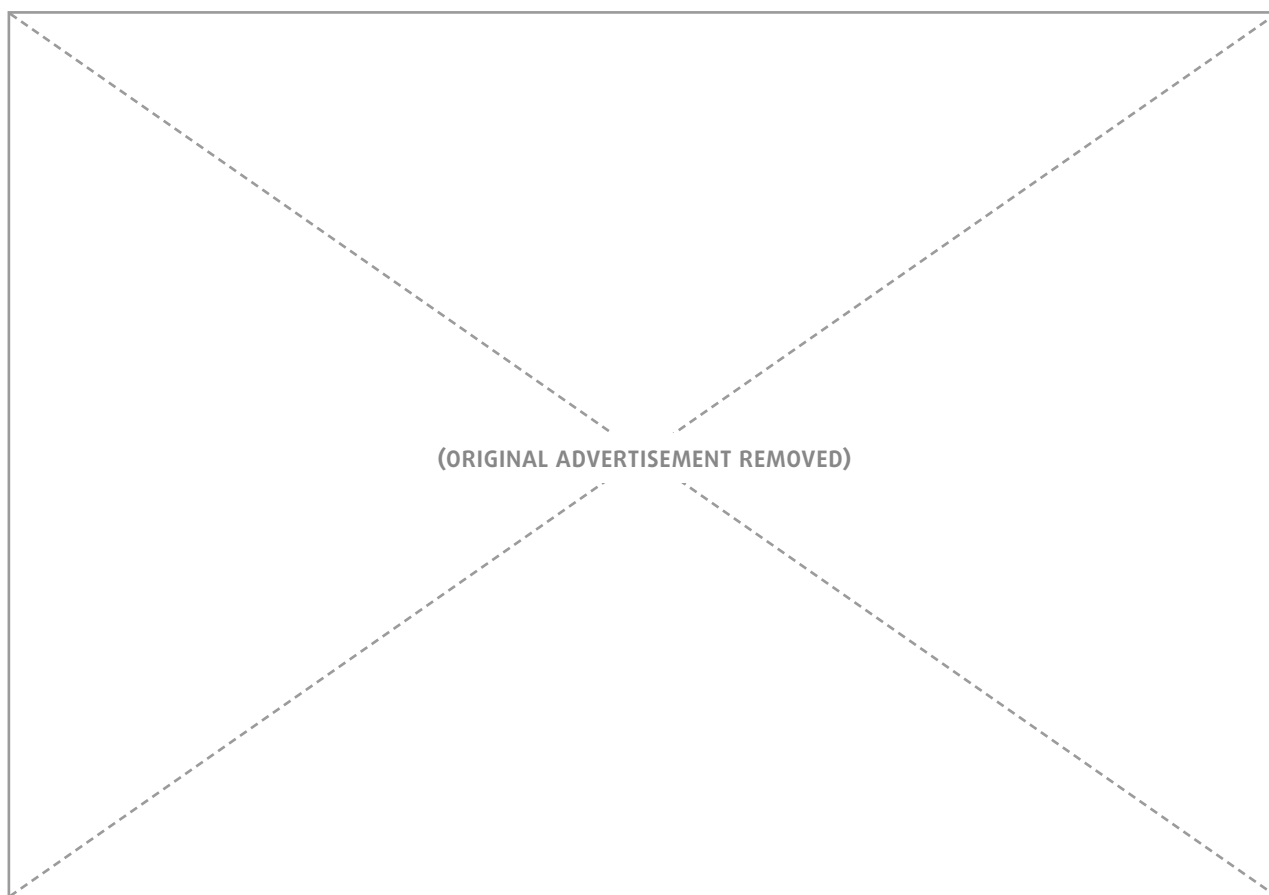
- *"Scheduling should support: (1) the pedagogical requirements of teaching and learning, (2) efficient use of campus resources, and (3) student access to and choice among courses."*

Stage One: Given the closure of one of the campus's largest classroom facilities (Lincoln Hall) and the resul-

tant relocation of hundreds of classes, the committee drafted a set of guidelines for fall 2008 academic scheduling. The scheduling guidelines, which included several suggested meeting patterns, were sent to all deans, directors, and department heads during the fall 2007 term. This allowed plenty of time for departments to work at the local level to study scheduling requests. Rather than mandating any particular meeting patterns, the guidelines requested cooperation and flexibility given the constraints resulting from the building closure. This led to the next guiding principle, which became an important factor in compliance:

- *"Classes taught within the campus standard teaching schedule will have priority and will be scheduled first."*

Stage Two: During the spring 2008 semester, the committee expanded the stakeholder group and solicited feedback to an online survey. The survey helped to maintain awareness of scheduling issues, obtained im-



portant feedback, and quantified scheduling metrics. It also provided an important opportunity for gauging campus input related to the “soft” scheduling standards that had resulted in many good faith efforts on the part of many departments. The survey helped formulate another guiding principle:

- *“Proper use and scheduling of classroom space is a shared responsibility. Good stewardship is achieved through co-operation among campus units, the Office of the Registrar, and the Office of the Provost.”*

The classroom survey had a high response rate (87 percent of academic units responded) and provided the following information related to standard meeting times: 56 percent of courses were scheduled solely on the basis of instructor preference; 30 percent of units avoided scheduling on specific days (*i.e.*, Monday and Friday); 63 percent had course enrollments constrained by classroom size.

Stage Three: During summer 2008, committee members began an extensive education and listening campaign. They met with college administrators, departmental schedulers, and departments heads (many of whom invited interested faculty) in a town hall format to more fully explain the issues and to present data and survey results identifying campus needs and scheduling challenges. Findings included the following:

- Colleges and departments were willing to change to meet the need of increased utilization and efficiency but needed more guidance in doing so.
- Departments were sensitive to the effect of scheduling on students and their ability to make progress toward graduation.
- Many colleges already were working toward a more standardized schedule (most often as a result of the provost’s initial email).
- Inventory of classroom space in the range of 75 to 125 seats did not meet demand. This provided an opportunity to discuss how optimizing the schedule could free up common classroom resources and reinforced the authority of the provost’s office in setting policies and procedures for managing all campus classrooms and learning spaces.

The committee heard many arguments in support of non-standard meeting patterns, including information about programs with specific pedagogical needs. For example, the history teacher education program needed specific time blocks and days of the week for subject-intensive courses so that students could fit in required classroom observation hours as well as theoretical coursework offered through another unit. The College of Business also communicated its need for reduced scheduling on Fridays so students could participate in all-day workshops with invited guest speakers. Accommodating practicums, internships, and other activities designed to enrich students’ academic experience also was discussed. Faculty raised awareness of other scheduling priorities relating to research and participation in a multitude of activities requiring travel. Overall, the town hall meetings provided a forum for discussion of the unique and often critical needs of multiple programs of study on campus. This led the committee to include more faculty and student perspective in its subsequent guideline:

- *“Practices should always reflect evolving student and instructor responsibilities, educational practices, technologies, and interfaces with other student support services.”*

Stage Four: Together, the survey, town hall meetings, and classroom reports provided the basis for additional recommendations made by the committee to the provost. In November 2008—prior to fall 2009 class scheduling—the provost released a memo providing further incremental adjustments to classroom scheduling policies that more clearly defined expectations for the campus. The memo included the list of guiding principles and a set of policies that established a standard campus teaching schedule. Specifically, classes on Monday, Wednesday, and Friday would begin on the hour (*i.e.*, 8:00 a.m., 9:00 a.m., 10:00 a.m., etc.) for a 50-minute class period; classes on Tuesday/Thursday would begin on the hour or half-hour for either 75- or 80-minute class periods (*i.e.*, 8 am–9:20 a.m., 9:30 a.m.–10:50 am, 11 a.m.–12:20 p.m., etc.).

In a departure from the practice of prior years, the initial copy of the fall 2009 timetable was blank: that is, all classroom assignments had been eliminated so they could be entered “from scratch.” The Office of

the Registrar was given the responsibilities of working with departments to implement the guidelines; making scheduling adjustments based on departmental program pedagogical needs; and finding alternative time or class space when necessary. Allocations to departments based solely on past practice were no longer the norm. If individual faculty balked at changing a classroom location, departmental schedulers were supported by college administrators, central schedulers, and the provost's office—in addition to a written policy—to effect needed changes.

Overall, the response from departments was positive. The Office of the Registrar received few complaints from instructors. Departments were given the opportunity to adjust their class meeting times or to provide a justification for scheduling outside the guidelines. Second and third notices as well as direct phone calls—again asking departments to adjust course times—were issued in February 2009. Those departments that did not respond were notified that their classes would be adjusted to fit the guidelines. Strict adherence to the guidelines was enforced for ITS rooms. For the initial fall 2009 class schedule, more than 80 percent of courses were in compliance by late February 2009.

Like its predecessors, this stage of implementation also was incremental. For fall 2009, the focus was to align the large lecture halls (>50 seats) and the technologically outfitted classrooms (which are in heavy demand) with the scheduling guidelines. In subsequent terms, the focus shifted to the smaller classrooms. Continuing the iterative approach, scheduling staff are working through the entire inventory until all sections in all classroom sizes have been evaluated and scheduled to comply with the standard meeting guidelines. Because the schedule rolls from one like term to another (*e.g.*, fall schedule rolls to fall schedule), staff can lay a foundation over time to reduce inefficiencies.

Unlike institutions that wholly revamped their meeting patterns according to strict criteria (or that may have developed software solutions to preclude departments from entering data if they did not comply), the university made large and sufficient gains as a result of the goodwill compliance by the campus community. To date, only one annual cycle has been completed. A final guiding principle is warranted:

- *“Scheduling policies should undergo periodic assessment and evaluation by a campus committee charged with this task. Policies should be adaptable and flexible.”*

Important as this principle is, it has yet to be implemented.

OUTCOMES

Improvements in use and utilization data are small when viewed across total compilations of classroom data but large when viewed on a room-by-room or sub-unit basis. (See Table 2, on page 40.) The registrar's office has reported a significant increase in the use of the largest and/or most coveted (because of location, equipment, recent remodel, etc.) classroom spaces. A significant result has been the ability to “fit” more classes into these rooms, allowing for enrollment growth in many highly sought-after general education and required courses. Increased efficiency has meant better use of large lecture halls, such that one previously considered plan—to centrally impose the scheduling of several large departmental classrooms—has not been necessary. Closure of the campus's largest classroom has not had an adverse impact on the institution's ability to schedule courses (although a significant contributing factor was the opening of a new instructional facility that is sharing some departmental classrooms during the Lincoln Hall closure). Central schedulers have found it easier to make scheduling adjustments and have been able to locate suitable open space more quickly. Students needing open classrooms for events programming also have found more availability. Student and academic advisor feedback have been positive. The priority and summer registration process for new students has been more successful than in previous summers, with fewer course conflicts. Finally, the nearly 600 unique class meeting patterns have been reduced (thus far) to 500; more progress is anticipated.

With the standard class scheduling guidelines in place, the registrar's office has been able to respond quickly to several campus incidents involving space: a teaching assistant strike lasted only one day but required the relocation of 120 course sections; a building security threat resulted in relocation of 21 classes, six scheduled exams, and twelve student events; and routine operations occurrences (*e.g.*, malfunctioning elevator, broken water pipe, power outage, etc.) required numerous classes to be moved. The most significant positive outcome of the standardized meeting

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Table 2.

Fall 2008 vs. Fall 2009 Selected Room Use, University of Illinois Urbana-Champaign

Bldg-Room	Room Capacity	M	T	W	R	F	Total Weekly Room Hours (WRH)	Percentage Room Use (WRH/45)
FALL 2008								
1ARMRY-101	204	8	6.5	6	5.5	2	28	62%
1BUR-140	70	5	4	7	4	5	25	56%
1GH-112	369	6	5	7	5	3	26	58%
1SMITH-114	750	3	6.5	4	6.5	3	23	51%
FALL 2009								
1ARMRY-101	204	8	7.5	6	7.5	3	32	71%
1BUR-140	70	7	5	7	5	5	29	64%
1GH-112	369	8	6.5	8	6.5	5	34	76%
1SMITH-114	750	6.5	8	6.5	8	4	33	73%

patterns has been the campus's ability to find open class space to accommodate major capital construction projects underway in existing buildings.

CONCLUSION

Change—particularly as it relates to a campus commodity like space—is never easy. In creating, defining, and implementing classroom scheduling guidelines at Illinois, success was achieved through a collaborative and communicative process involving all campus stakeholders. Support for and adherence to the guidelines were the results of a multi-year process and the commitment of an appointed group that studied the issue of space; evaluated current and projected needs; and then took time to educate, listen, and validate the concerns of the campus community. The investment in the process of shifting the campus's scheduling expectations will continue to pay dividends in the academic experience of students and faculty for years to come.

REFERENCES

- Fink, I. 2002. Classroom use and utilization. *Facilities Manager*. APPA. Accessed at <www.appa.org/FacilitiesManager/index.cfm?ItemNumber=199>.
- Ruprecht, T. 2004. *UIUC Classroom Management Report*.
- Pfeffer, J. and R.I. Sutton. 2000. *The Knowing-Doing Gap, How Smart Companies Turn Knowledge into Action*, Boston: Harvard Business School Press.

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