

## PROVOST'S RESPONSE TO RECOMMENDATIONS ON WEB-REG OPTIONS, 2009

The RCSC REPORT ON WEB-REG OPTIONS (below) was prepared by the Registration and Class Scheduling Committee (RCSC) in response to my request to evaluate options for necessary upgrades to our registration software. Thanks are due to Barbara Rowe and the members of RCSC, ITS, and FEC for their careful thought and analysis on this issue.

The two main choices were to either: a) continue to build and maintain our homegrown software, or b) to move to new commercial software that we already own as part of our Datatel package. The concluding summary paragraph of the report, on the last page, reports that after extensive study and debate, the committee recommended by 8-4 vote to move to the Datatel software, which has the secondary consequence of moving also to section-based registration. This means that students would be able register themselves for specific sections of a multi-section course, rather than just registering for the course with administrative distribution of student course registrations into balanced sections. I next asked the Faculty Executive Committee (FEC) for advice on the matter. By a narrower margin, FEC concurred with the RCSC's recommendation. Based on the reasoning behind these two committee votes, and in light of an ITS survey which showed that students strongly prefer section-based registration, I am inclined to make an administrative decision to move to the Datatel software. Because this is a complex issue involving practical, technical, budgetary, and philosophical considerations, I also want to invite the undergraduate faculty at-large to review the full report and express opinions. A list of pros and cons will be reviewed at the January 11, 2010 faculty meeting; email comments on the issue are also welcome ([japrille@wlu.edu](mailto:japrille@wlu.edu), by January 29, 2010 please).

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### **Course-based Homegrown Registration versus Section-based Datatel Registration Report to Provost June Aprille from the Registration and Class Schedules Committee November 2009**

**2008-09 and 2009-10 RCSC Committee members:** Barbara Rowe, chair; Scott Boylan, Roger Crockett, Neil Cunningham, Scott Dittman, Timothy Gaylard, Phillip Graham '10, Jan Hathorn, Janet (Callie) Hughes '12, Kimberly Jew, Elizabeth Knapp, Simon Levy, Joel Kuehner, Alan McRae, Cyrus Moshiri '11, Robert Straughan, Stephen Wilson '12

#### **Original charge from the Provost (February 2009):**

Washington and Lee, via the Registration and Class Schedules committee, should immediately begin discussing upgrading web registration software with a charge of:

- a. Evaluating the options generated by ITS;
- b. Determining, based on ITS' provided options and community input, the pros and cons of developing a new course-based web registration system "in-house," or using an existing "off the shelf" section-based web registration system;

- c. Presenting options to the faculty with or without a recommendation for one or the other option.
- d. Making a decision by Jan. 2010 for implementation in Fall 2011.

**Throughout this report the following abbreviations are used.**

CB = current, course-based system of undergraduate course registration

SB = section-based system of undergraduate course registration, under consideration

**Three WebRegistration subcommittees** – RCSC, including additional faculty members from ITAC (Information Technology Advisor Committee), broke into three subcommittees which met in April 2009 and reported back to RCSC in two May meetings.

**I. Faculty Survey subcommittee** – Kimberly Jew, chair; Roger Crockett, Jan Hathorn, Krzysztof Jasiewicz, Elizabeth Knapp, Barbara Rowe. Also included student survey results from an April 2009 ITS survey.

Key faculty survey points included:

- 60% do not use PreRegistration as an advising tool, but 77% use it to determine course interest.
- Should adviser permission be required for WebReg? – 49% yes and 51 % no or no opinion.
- 58% supported online authorization to allow students to WebRegister – e.g. rather than use a pin #, open access to WebReg.
- 63% said continue with sending an e-mail warning for conflicts, but allow the student to WebReg
- 65% said continue with sending an e-mail warning if they do not meet the prerequisites for a class, but allow the student to WebReg
- 66% said to continue NOT allowing a student to register for a class schedule that results in an overload, without a dean's approval.
- 24 had no concerns and 24 had concerns about "allowing students to register for specific sections."
- 29 had no concerns and 7 had concerns about "continuing the current process of course-based scheduling."
- 28 said that it's fair or ok and 10 suggested change to "the current manner by which students are assigned a 'window' to participate in WebReg."
- 75% would "support WebReg windows opening at time outside the typical class day (e.g. 7:00 a.m.)."
- For the current process for registering first-year students in September, 13 felt it was fine or works well and 22 submitted ideas for change.
- 79% would prefer student schedules displayed in a grid layout (showing class times on each day) rather than the current simple listing.
- 76% would like "add/drop processes to move from a paper to an online medium."

- 87% said that there should be "an online process by which the instructor can drop the student from a course."
- 75% said that advisers should give permissions for online adds and drops.
- 100% said that 'Add' instructors should give permission for online adds.
- 63% said that 'Drop' instructors do NOT need to give permission for online drops.
- 71% said that there should be an "e-mail or web confirmation, copied to the adviser, of all add/drop activity in an advisee's schedule," but 52% said that this confirmation should not replace the current system of requiring adviser authorization.

Key student survey points included:

- 71% of the students (N=515) responded that students should have "the ability to pick the specific section of a course."
- The next higher priorities were 45% (have drop/add online into the beginning of the next term) and 39% (have balanced rotation of WebReg starting times).
- The three least important features were 61% (meeting with your adviser prior to the WebReg to receive access), 43% (ability to override prerequisite or conflict warnings), and 31% (immediate feedback about any registration change).

**II. WebRegistration software subcommittee** – Scott Boylan, chair; Neil Cunningham, William Graham '10, Paul Gregory, Barbara Rowe, David Saacke

The committee concluded that the Datatel software would be satisfactory for web registration if the decision was made to change to section-based registration. The cost likely would be limited to consulting fees relating to the switch, because the university already owns this software. If course-based registration was the way to continue, the current in-house WebReg system would need to be re-written in an up-to-date language. ITS does not anticipate that the cost of implementing this option would be materially different than the cost of switching to section-based registration.

**III. Section vs. Course registration subcommittee.** – Joel Kuehner, chair; Bob Ballenger, Scott Dittman, Cyrus Moshiri '11, Rob Straughan

Summary: The subcommittee recommends that CB registration remain in place, which will require that new, customized software be developed. This recommendation assumes that the total lifetime cost of the methods are roughly equal and that the operation of either would be similar in scope. The most significant factor affecting the recommendation is the constraint of resources imposed by the lack of classroom space. While only anecdotal evidence is available, we believe that Washington and Lee is more limited by a classroom shortage than colleague institutions. By ensuring balanced enrollment at section times early and late in the day, CB registration aids in reducing the stress on

classroom demand. This will become increasingly necessary as the number of classrooms decreases further in the next decade while major renovations take place. The subcommittee is aware of techniques that can be used in conjunction with SB registration to remove some of the drawbacks identified here (such as the decision-tree model in use by Davidson and Rhodes); however, these techniques cannot ensure balanced enrollment in the manner that CB registration can and still result in students being assigned particular sections of courses.

In making this recommendation, the subcommittee recognizes that it does not address the major factor identified by the student body in the registration software survey results: control over selecting sections. The advantages to the student body were confirmed by the student representative to the subcommittee, including the fact that it would encourage students to invest more time thinking about their possible course schedule before registration begins, rather than once the registration period has begun. Given the constraints in resources the university faces in the coming years and the desire to maintain balanced enrollment, the subcommittee could not recommend SB registration because of the potential risk of increased classroom demand at popular times.

**Last meeting of 2008-09** – committee members were split on whether or not to endorse the subcommittee recommendation to stay with course-based registration and ultimately make that recommendation to the faculty. RCSC decided to continue the conversation in September 2009.

**2009-10 academic year** – the committee met three times in September and October to finalize a recommendation.

**Analysis of Registration Data** – Reviewed data compile by Scott Boylan on the number of open seats and distribution of the course blocks. Looked at questions of where are the open seats and how section-based registration may impact the distribution and utilization of the earlier in the day and later in the day time blocks. A summary of this report follows.

"Some general conclusions, useful in informing the committee's decision about course-based versus section-based registration, emerged from this analysis. First, modest excess capacity in the middle of the day means that if we were to offer the same courses at the same times, students could use section-based registration to fill those seats, at the expense of early morning and late afternoon sections. However, there is little evidence to suggest that students are doing this now via blocking or drop/add. Finally, the distribution of course offerings appears to be a potentially significant impediment to students migrating, en-masse, out of early morning and late afternoon sections. The bulk of the open seats are concentrated in a few departments, many of which offer heavily quantitative courses. In addition, the bulk of the seats are for courses numbered 200 or higher, many of which carry prerequisites. This, coupled with the fact that students need to make progress toward graduation, constrains students who might consider opting out

of an early or late class in favor of one in which seats are available in the middle of the day.

Based on the preceding, it appears that concerns that section-based registration will lead to inequitable distribution of class sizes, and the possible cancellation of classes offered at unpopular times (i.e., early or late) due to lack of enrollment appear to overestimate the opportunities (and possibly desire) for students to avoid unpopular class times, and underestimate the related constraints."

The committee also reviewed drop/add data compiled by Barbara Rowe which indicated that the number of sections affected suggest a considerable number of changes to class rosters during drop-add week. On the last day of fall and winter drop-add, over 50% of all sections had changes to the registration. Approximately 27% of drops-adds are section switches during the long terms.

The committee discussed the difficulty of making a recommendation based on data and trends due to the number of variables (e.g., students picking time, changing to a different subject rather than taking an early time, instructor choices, prerequisites, major requirement versus elective). We cannot definitively predict that a change to SB registration will increase or decrease enrollments, or further cause classroom compression into the middle of the day; however, concerns continue that this may be the case.

**Registration Best Practices** – The committee reviewed a "best practices" statement from the American Association of Collegiate Registrar's and Admissions Officers.

Purpose of Registration: Achieve best possible fit between desires and needs of students and institutional resources and capabilities. <sup>1</sup>

Today's registration environment:

- Register from comfort of dorm or home
- Immediate feedback about transaction
- Waitlists maintained and processed automatically
- Adviser and faculty permissions to enroll in classes are all managed via the web
- drop/add online

<sup>1</sup> Cunningham, Bruce. 2006. *Registration and Related Functions. The Registrar's Guide: Evolving Best Practices in Records and Registration*. AACRAO Publications, Washington DC

## **Pros and Cons of Homegrown Course-based WebRegistration versus Datatel Section-based WebRegistration**

### **Neutral issues between the two options**

- Financial considerations: ITS does not anticipate that the cost of re-building the homegrown system would be materially different than the cost of switching to Datatel.
- Improvements: The new WebRegistration prioritization timeline (each class year to pick two courses first) can be used with either system. Goal is to improve registration fairness immediately.
- Improvements: With both systems, instead of a PIN #, WebReg could be opened to individual students by the adviser clicking on an authorization button.
- Faculty input: In the faculty survey, an equal number of concerns about SB registration and CB registration were expressed.

### **Homegrown system rebuilt with course-based WebRegistration (CB)**

#### **Pros**

- Optimization: Students compete for one spot in a multi-section course, not one spot in a section.
- Optimization: CB registration and the associated schedule-building process provide roughly equal enrollment between sections of a multi-section course.
- Optimization: CB is effective in utilizing limited classroom facilities by ensuring enrollment at less-popular section times and may help to relieve compression of the class day and associated classroom restraints.
- Faculty concern: Faculty may have concerns and anxiety about unbalanced sections and departments giving up control.
- Student and Faculty Concern: Potential dissatisfaction with look and feel of Datatel and its registration interface.
- Campus culture: W&L faculty determines underlying philosophy of registration and its role in the culture.
- Customizations: Excellent customizations to establish priorities and provide waitlisting exactly as faculty like them.
- Customizations: Archives a detailed log of registration activities – processed by the student, by the department, and by the administration (UR).
- Customizations: Automated communications can typically be more specific and in "W&L language"
- Customizations: Students are assigned a PE skills course after their academic course schedule is developed. Prevents the use of PE courses in a block-and-drop strategy employed to guarantee specific course times or specific times with no courses (e.g., Thursday morning).

#### **Cons**

- Long-term risk considerations: CB system is homegrown and needs to be completely rewritten with contemporary software standards. The long-term costs and risks for maintaining a homegrown system can be greater than a purchased system that is maintained by an external provider but are difficult to predict at this time. ITS says this is "not a pricing decision."

- Student concern: Of the 515 students who responded to a Winter 2009 ITS survey, 71 percent felt that students should have "the ability to pick the specific section of a course."
- Faculty concern: Several departments already utilize SB scheduling by assigning letters (ENGL 105A, 105B, etc., rather than multi-sectioned ENGL 105).
- Faculty concern: A newly-written program may have a new look and feel, which would not make it worse, just different.
- Campus Culture: Students work the system (use block-and-drop strategies) to obtain course times they prefer or wait until the drop/add period to move to the sections they prefer.
- Ease of Use: The registration process must be closed at some point so that schedules can be generated for every student, rather than leaving the system open for changes until at or near the beginning of the term.
- Faculty concern: The "guaranteed" course registration, on occasion, results in unbalanced sections of lab sciences and conflicts in student schedules due to incomplete student checking during the process.
- Ease of Use: Lack of cohesion for all registration processes, web links, locations of data. For example, the WebReg process and course listing is separate from the WebAdvisor search for classes and the paper drop/add process. There is no single location where course information can be obtained easily for the various sections being offered.
- Student concern: Students do not know their initial class schedules until after the scheduling process has been completed, which can present a problem for some students with specific time commitments (e.g., jobs).

### **Datatel system with section-based WebRegistration (SB)**

#### **Pros**

- Optimization: Very popular with students to have the control to choose their course section time and instructor.
- Optimization: Since W&L already has a SB software package (Datatel), the additional cost would likely be limited to consulting and customization fees and there would be more long-term guaranteed technical support.
- Optimization: A switch to SB registration might reduce the number of drop/add requests, since fewer students may want to optimize their schedule during the first days of class. CB block-and-drop strategy will become irrelevant under a SB system, further decreasing the number of drop/add requests.
- Optimization: Student schedules could be constructed in real-time, allowing the registration process to remain open longer and closer to the next term's start.
- Faculty concern: How SB would play out with final section enrollments and classroom management is hard to predict. Data suggests that we currently don't see systematically smaller early and late average section sizes, and systematically higher numbers of open seat in those sections. Even if students want to take (or switch to) mid-day courses, their opportunities are limited by the courses in which seats exist and the prerequisites that these courses have.

- Customizations: The need for a two-step process for PE skills courses might be eliminated with SB registration. Students would choose specific sections, resulting in the same unknown registration nuances for PE classes as for academic classes.
- Student concern: Students could purchase textbooks earlier, as they register, and possibly obtain better prices (especially true for fall term).

### Cons

- Faculty concern: By switching to SB registration, it may be that students will control the balancing of section enrollments. Limits can be used to maintain the balance for popular section times; however, early-morning and late-afternoon sections may see a disproportionately low number of students. Although data suggests that only a modest excess of seats exists in the middle of the day, and that the less desirable times would have only slightly lower enrollments; the concern is that students would rather pick a totally different course rather than an undesirable section.
- Student concern: SB may not increase happiness or reduce registration frustration and the number of students who experience difficulty in registering for courses may manifest in different ways, since the number of open sections will decrease as registration proceeds. As a hypothetical example, a student who needs a specific section of a multi-section course in order to schedule desired courses might compete for one of 100 seats, but under a new SB system, a student might instead be competing for one of only 20 seats in a specific section. Alternatively, if a student needs the multi-section course, they might have to change all of their other courses to fit into the only remaining open section.
- Customizations: A change would require development of significant new rules and other customizations in order to allow for features of the current CB system such as complex limits (senior majors, senior non-majors, etc.), prerequisite checking, conflict checking, overload checking, scheduling of athletes, waitlisting, e-mail communications, etc.
- Student concern: Would athletes still have the ability to find open sections of courses to avoid conflicts with late-afternoon practices and competitions, as they do now?
- Faculty concern: A concern remains that by possibly decreasing enrollment in less-popular sections, SB registration encourages potential compression of class times between 9 am and 2 pm, increasing the demand for particular classrooms.
- Faculty concern: Workload issue for department heads who would need to "inch up" limits in order to maintain balance.
- Faculty concern: Concern about appropriate use of limited classroom facilities and keeping early/late hours attractive to faculty.

**Summary and Final recommendation** – RCSC voted 8-4-0 to recommend section-based registration that is available through our current Datatel student information system. It should be noted that there was no overwhelming argument for or against either choice. Whether a new CB system was created or a new SB system implemented, a massive change to WebRegistration was forthcoming. This was not ultimately a financial decision, although the committee's decision was influenced by the long-term maintenance implications of any

homegrown software system. There was not a strong sense that CB registration was worse than SB, but it seemed that SB would allow students more control over creating their schedules which outweighed limitations that may arise from a purchased registration system. As stated earlier in the report, we cannot definitively predict the final functionality of SB registration at W&L because there are a number of variables that affect the ebb and flow of registration.

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