Using Semi-Automated Forms for Student Advising

Ron Fulbright
rfulbright@uscupstate.edu

Donna Sandor
dsandor@uscupstate.edu

University of South Carolina Upstate
800 University Way
Spartanburg, SC 29303

Abstract

At the University of South Carolina Upstate, each student must be advised every semester before registering for classes. Historically, advisement has involved the completion of a multi-part, carbon-paper form on which an advisor lists recommended courses in consultation with the student. Students use the information to later complete the registration process online. Because of budget limitations, the university recently decided to eliminate the handwritten carbon-paper forms without providing a campus-wide replacement mechanism leaving it up to individual departments to innovate and adapt. We considered using physical hard copies of the old forms, developing a fully-automated online advisement system, and Microsoft Word-based forms but all had limitations. The best solution for us was to create a standalone PDF file employing drop-down selection boxes populated with the most likely course information. We experimented with several different layouts and continue to refine the form each semester. The form is such that one can type over the drop-down box (information can often be cut and pasted from our online course information system). The form can also be printed and filled in by hand if necessary. The form can be retained electronically, emailed, and the printed form stored physically. We have found that the new partially automated form, a very inexpensive solution that can be done by anyone with no special skills, reduces advisement time and effort while retaining much of the flexibility and utility of the old handwritten form.

Introduction

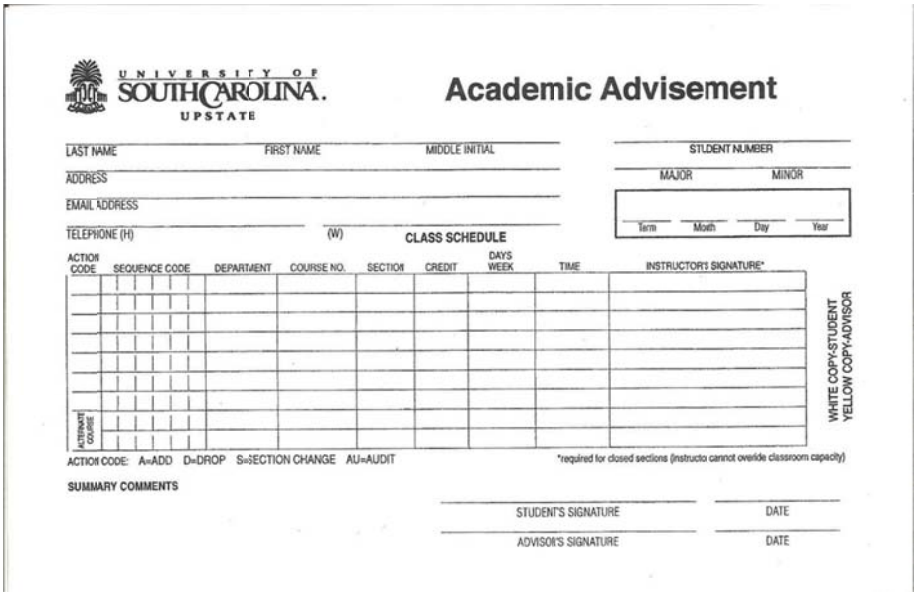
The University of South Carolina Upstate, one of the satellite campuses in the University of South Carolina system, is a metropolitan university offering a variety of degrees predominantly at the baccalaureate level, and is home to over 5,500 students. The university has always strived to retain a small-campus feel even though it has grown dramatically over the last fifteen years. Personal interaction with each student is a continual goal. In a session called an advisement, each semester, every active student meets with a faculty advisor who reviews the student's academic progress and recommends several courses for the student to take the following semester. This allows advisors to tailor a student's academic program to individual needs and is a wonderful retention and student satisfaction mechanism.

However, advisement places a burden on the advising faculty who must conduct over 10,000 advisements each academic year. Averaging ten to fifteen minutes per advisement, this effort represents thousands of person-hours each year. Also, not surprisingly, there is a workflow associat-

ed with advisement. Students' ability to register for classes is disabled until completion of the advisement is verified by an administrative action known as clearing the advisement flag. The flag is cleared only after a signed advisement form is completed and signed. The advisement form contains the list of recommended courses and information associated with the courses and - is signed by both the advisor and the student. One copy of this form goes to the student who uses it to later register for classes. A copy of the advisement form is retained by the academic department and becomes part of the students' permanent file. Retaining documentation of the advisement process is important. Once advised, students are able to register for any course, even those not recommended by the advisor. Therefore, it is possible for students to register for courses counterproductive to progress toward a degree. In such cases, the advisement form copies in the student's file serve as proof of proper advisement.

Until last year, two-part carbon-paper forms were used for student advisement and the forms were purchased in bulk for the entire university. The forms could be filled out with a typewriter or by hand to make a suitable copy. The original was retained by the student and the carbon copy was filed in the student's file. However, last year administration made the decision to stop using the carbon-paper forms in an effort to save money. This meant that each academic department was left to adapt to the new situation and do advisement documentation in their own manner.

Figure 1 shows the carbon-paper form.



UNIVERSITY OF SOUTH CAROLINA. UPSTATE

Academic Advisement

LAST NAME FIRST NAME MIDDLE INITIAL STUDENT NUMBER

ADDRESS MAJOR MINOR

EMAIL ADDRESS

TELEPHONE (H) (W) Term Month Day Year

CLASS SCHEDULE

ACTION CODE	SEQUENCE CODE	DEPARTMENT	COURSE NO.	SECTION	CREDIT	DAYS WEEK	TIME	INSTRUCTOR'S SIGNATURE*
ALTERNATE COURSE								

WHITE COPY-STUDENT
YELLOW COPY-ADVISOR

ACTION CODE: A=ADD D=DROP S=SECTION CHANGE AU=AUDIT

*required for closed sections (instructo cannot overide classroom capacity)

SUMMARY COMMENTS

STUDENT'S SIGNATURE DATE

ADVISOR'S SIGNATURE DATE

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Some New Methods For Advisement

Departments have tried a number of different ways including:

- Purchasing the carbon-paper forms themselves and continuing as before
- Making single-page copies of the carbon-paper forms
- Making 3-per-page copies of the carbon-paper forms
- Implementing an electronic "form" using an Excel spreadsheet

- "Blank paper" –totally handwritten advisements

Purchasing the carbon-paper forms is an option that is difficult to beat. When bought in bulk for the entire university, the forms cost about $.05 each. When bought by individual departments, the cost is higher since the quantity is not as large. Typically the cost per form is over $.09.

Making copies of the carbon-paper forms is an attractive option since it is the easiest. The carbon-paper forms are roughly four inches high so simply copying them on a standard copier leaves most of the paper blank. Three of the forms can be copied on a sheet of paper to fully utilize the sheet, but then must be separated with a paper cutter requiring significant effort. However, copying the forms almost triples the cost when compared with the carbon-paper forms. Plus, since two copies are required, the form must be copied again after it is completed and signed. This is significant additional cost and overhead considering the utility of the form is not improved. In fact, because of the lack of the carbon copy, most would say that utility has declined.

Many administrative assistants are versed in using Microsoft Excel to create rudimentary reports. This is attractive because of the natural fill-in-the-blank and list-oriented nature of Excel and the ability to perform calculations. Therefore, some departments implemented computer-based advisement forms in Excel. While functional, these forms look more like spreadsheets than administrative forms. It is possible to create a true form-like look in Excel but this requires moderately advanced skills beyond most casual users' ability.

Motivation For Our Solution

From the outset, it was obvious to us that any solution we came up with was not going to cost less than the carbon-paper form. Our overall goal then was to improve the advisement process in some way with our solution. We refused to implement something new that did not make it easier to perform an advisement. The most time-consuming part of an advisement is the entry of the course information. Figure 2 shows the nine pieces of information the carbon-paper form required for each course:

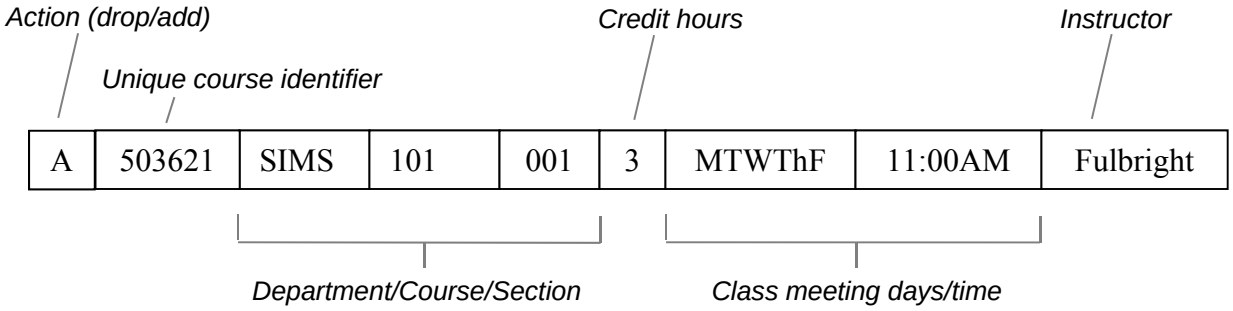

Figure 2 – The advisor must retrieve and record up to nine pieces of information for each course on the advisement form. Handwritten entry of this information is the most time consuming part of an advisement session.

This information must be retrieved by the advisor from our online master schedule of courses, or from our course database system, or from a printed schedule. The carbon-paper forms required

this information be written by hand. Our primary goal was for our solution to lessen the time required for entry of form information. A secondary goal was to retain the utility and flexibility of using the carbon-paper forms. A third goal was to make the solution so that any administrative assistant on campus could implement it for their own department.

The Semi-Automated PDF Advisement Form

Drop-Down Lists

An obvious solution to the data entry challenge was to populate the form with course information in a series of *drop-down boxes*. A drop-down box is an element on a form that when interacted with a mouse pointer causes a list of selection options to display. The list appears to "drop down" out of the blank space on the form. Selecting an item in the drop-down list causes that information to be entered in the blank space.

The first problem encountered with drop-down lists was how to populate them with current information for the thousands of courses offered each semester. Drop-down lists on Web pages are ubiquitous and we certainly could have crafted a Web page with an interactive form supported by client-side and server-side programming to populate the form with data retrieved directly from the university's course schedule dataset. Developing such a page and maintaining it during advisement periods is a costly endeavor. This may well be a future campus-wide solution developed by information technology support but it was beyond the budget of our department. Another option we considered was to use a Microsoft Word-based form with add-in code to retrieve current data. An add-in is a small piece of program attached to a Microsoft Office document. However, this involved the same detriments as the Web-based form in terms of developing and maintaining the program.

These two options were driven by our initial idea of making *all* courses available through the drop-down lists on our form. However, we realized that since our advisors advise majors only in our department, they tend to advise students into a small subset of the available courses each semester. Therefore, we decided to offer via the drop-down boxes only those courses most likely to be advised by our faculty. Besides, it would have been too unwieldy to populate a simple drop-down box with *every* course. Such a list containing thousands of entries would have continued on for many "pages" and would have been difficult for the user to use.

Once we decided to limit the courses on the form, it became feasible for our administrative assistant to enter the course information prior to each advisement period. This has proven to require only about an hour's time each semester, so has proven to be an efficient solution.
Because we offer only a limited set of drop-down courses, it was necessary to insure that users be able to enter other course information via manual entry. Our first implementation attempt was with Microsoft Word. It is certainly easy enough to add drop-down boxes in Word. However, we were not able to make the blank line on the form available for both manual entry *and* drop-down entry—one precluded the other. The ideal solution was to have *all* blanks lines either drop-down or manual-entry. We discovered that this was possible using PDF files. This is why we used Adobe Acrobat to create our form.

Columns and Fields

Each line on the carbon-paper form was segmented into fields as shown in Figure 2. At first, we architected our form to have fields. However, in practice, it was difficult to get the drop-down list information to accurately fit within the pre-defined fields on the form. We spent many days battling this problem only to find some course with missing or different information that upset the spacing and thus ruin the alignment. We finally hit upon the idea that our form did not really require the fields and we were just doing it this way to make it look and feel like the carbon-paper form without any compelling reason to do so. Once we abandoned the notion of fields, the alignment problem went away. We have also observed that the freedom of having a line on the form without fields affords space for the advisor to enter whatever notes or other information he or she desires. This unintended benefit has proven quite useful.

Simplification

As shown in Figure 1, the carbon-paper form included areas for students' address, phone number, email address, and major/minor. These pieces of information may have been required at some point in the past but we do not require this now as part of advisement because we have all of this information on file already. Therefore, we did not put requests for this information on our form. This greatly increased available space and simplified the creation of the form. Figure 3 shows the resulting semi-automated advisement form.

Lessons Learned

We have used our semi-automated advisement form for two semesters and note the following observations and lessons learned:

- The drop-down lists reduce advisement time dramatically. Most advisements can be satisfied by selecting courses from the drop-down lists. Filling out the carbon-paper form by hand usually required 5-7 minutes (1/2 of the advisement meeting). However, if all courses come from the drop-down lists, the form can be completed in about one minute.

- If course information is needed beyond that available on the drop-down lists, the advisor can either type the information in or copy/paste it from our master schedule and our schedule database. This process is three times faster than hand-writing the information and twice as fast as type-writing the information.

- The PDF form allows the user to select something from the drop-down list and then also type on the same line. This has proven to be very useful in annotating the entries. There was no room on the carbon-paper forms for this which was often inconvenient.

- We have placed the form on a shared folder so all advisors can open it and use it. This allows our administrative assistant to make edits to the file without having to "distribute" the current version.

- Having the form in an electronic file has often proved useful because it can be easily emailed. Several advisements are done "remotely" because the student is unable to

physically be present for the advisement. With the carbon-paper forms, one had to scan the form and then attach it to an email which was so cumbersome that we advisors usually just typed in the email body itself, thereby fouling the record trail in the students' folder.

- The version of the form presented here has evolved through several edits since its first use. The form as it is now is not very much more than name, identification, semester, and some blank drop-down list lines. In retrospect, we should have done it this way from the very beginning. However, at the beginning of the process we tried to stay true to the carbon-paper form. Simplification became obvious only after actual use.

- Because we need the student's signature, it is necessary to print two copies of the PDF form once it is completed. Some advisors have personal printers in their office, so this is an easy matter. Others have to launch the print, then go and retrieve the print outs for signature. This is not ideal, but savings in data entry time more than compensates.

- In general, the semi-automated form has reduced advisement time by more than 50%. The solution does cost more because we require two prints of each form. However, because we are printing on personal printers, the per-page cost is minimal. We estimate the total cost per advisement to be about $.12. The additional cost is compensated by the reduction in effort.

Authors

Donna Sandor
Donna Sandor is the Administrative Assistant in the Department of Informatics at the University of South Carolina Upstate and has been with the university for 16 years. Previously, Ms. Sandor worked in the banking industry as a customer service representative

Ron Fulbright
Dr. Ron Fulbright is the Chair of the Department of Informatics at the University of South Carolina Upstate. Dr. Fulbright has 28 years of experience in computer/software engineering and information technology and has been the Chair since 2003 when he joined the university's faculty. Previously, Dr. Fulbright was a software engineer and software architect and has won several innovation awards. The author of more than 25 papers, Dr. Fulbright's research interests lie in emergent phenomena and computer-aided innovation.