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Focused Information Support for Academic Classes

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Abstract

For the 2002 fall term, the River Campus Libraries at the University of Rochester developed a Web page for each course that had either print or electronic reserves. These course resources pages had a three-fold purpose. The first was to guide students to their reserve readings. The second aim was to make students aware of the name, face, and contact information of the subject librarian who could help them in the library with their course work. The third purpose of the page was to present a carefully filtered collection of resources designed to support their class work. This information was sorted into categories to help the student focus on their information need of the moment. These categories included: 1) class assignments, 2) background information, 3) finding Web sites, 4) finding books, 5) finding journal articles, 6) finding the journals, 7) finding multimedia, and 8) other relevant University of Rochester resources.

This team project required the expertise of reference librarians, the Digital Initiatives Unit, Reserves staff, and an in-house usability task force. Reserves staff provided links to both full-text reserve-readings and to the record in the catalog for books that were on reserve in the libraries. Where possible, they created links from a PDF copy of the professor's own syllabus, ensuring that the students would be able to find the reserve readings using the professor's language. The Digital Initiatives Unit designed a system that dynamically created Web pages using Cold Fusion to pull information from a database of resources. This system provided efficient management of Web page content, allowed pages to be prepared off-line and turned on as needed, and enabled subject librarians to use a form-based system to provide content for the database. This same system allowed subject librarians to edit page content without needing to know HTML, Cold Fusion or other programming languages. Last but not least, a key component in designing the course system was usability testing and actually observing students using the prototype pages.

This project demonstrates the kind of value-added service (link to reserve materials from an online syllabus with referrals to other highly relevant information sources) that characterizes the expanding role of today's reference librarian. The University of Rochester's biology librarian created twelve course resources pages for the fall semester. The process of resource selection and page creation will be described. Finally, feedback from undergraduates and librarians will be discussed.

Introduction

The River Campus Libraries have the goal of helping students of the University of Rochester engage the literature of their disciplines. We are continually looking for ways to reach the students so that they are aware of the resources and staff that the libraries have to offer. We have made lists of subject specialists, Web pages to highlight selected subject resources, and Web pages crafted to support specific courses. However, experience has shown us that the overwhelming majority of undergraduate students do not know that there are subject specialist librarians (let alone who, for example, the biology librarian is) and are unaware of and/or unable to find subject-oriented resource pages on the Web. Furthermore, after an in-class presentation many students cannot find the Web page shown in class or identify the librarian who gave the presentation. It would appear that the libraries are victims of the lure of the Web that has led about 73% of student to rely primarily on the Internet to find information for their classes rather than on libraries (Jones, 2002). On the other hand, students have repeatedly proven their persistence and determination in finding and using reserve readings and have readily adopted and even demanded the use of electronic reserves when they became available in 2000, even though there were challenges in locating the exact online reading that they needed.

In late 2001, the libraries decided to create Web pages that combined access to reserve readings, contact information for a subject specialist librarian, and a carefully tailored collection of pointers/links to paper and online resources. The concept was that access to reserve readings would add value to what is, in many ways, a course-oriented subject page and that the focused resources and librarian contact information would enrich the student's awareness and knowledge of the libraries' offerings. The idea proved both popular and practical, and within less than a year moved from concept to pilot project to a fully implemented CoURse Resources System that efficiently and dynamically generates tailored Web pages from a relational database. (Gibbons, 2003).

Now that the libraries have made the system available as Open Source Software (see Appendix), it is useful to review the system from both the perspective of the subject specialist librarians who provide the course-focused resources and the perspective of students who use the pages. At this stage there is relatively little statistical data to evaluate the success of the CoURse Resources System; however, anecdotal feedback gives the sense that it has been worth the investment. To ground this review, a brief description of the nature of the CoURse Resources System and the CoURse pages that the system generates follows.

Environment

University of Rochester is a small research university located in upstate New York with 4000 undergraduates on its River Campus. The university's River Campus Libraries have about 20 subject specialist librarians who offer reference assistance, course integrated library instruction, and content for subject and course-related Web pages to their undergraduates. For each of the fall and spring semesters,

four hundred River Campus courses have reserve readings managed by the libraries, and around 60% of these courses use electronic reserves.

CoURse Resources System

The public side of the CoURse Resources System is the CoURse Resources Web page (Figure 1). The creation of a CoURse Resources page is the work of four groups: the Usability Team, the Digital Initiatives Unit, the Reserves staff, and the subject specialist librarians. The Usability Team played a significant role in defining the terminology and layout of the CoURse Resources Web page and performed various tests and information gathering tasks before, during, and after the initial design of the Web pages.

The Digital Initiatives Unit (DIU) created and continues to maintain the relational database, the menu-driven staff interface, and the CoURse Resources page templates for each course (Figure 2). DIU staff populate the templates with information about each course from the registrar's database, add information about the subject librarians, check links to ensure they are operational, and provide resource related icons.

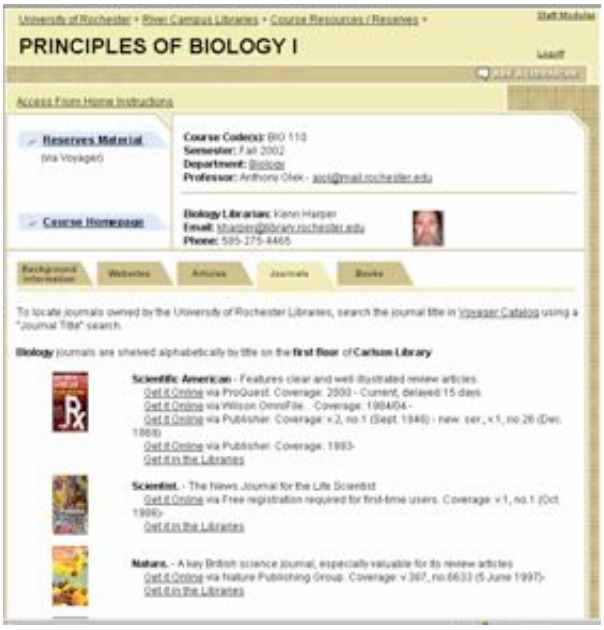


Figure 1. A complete CoURse page

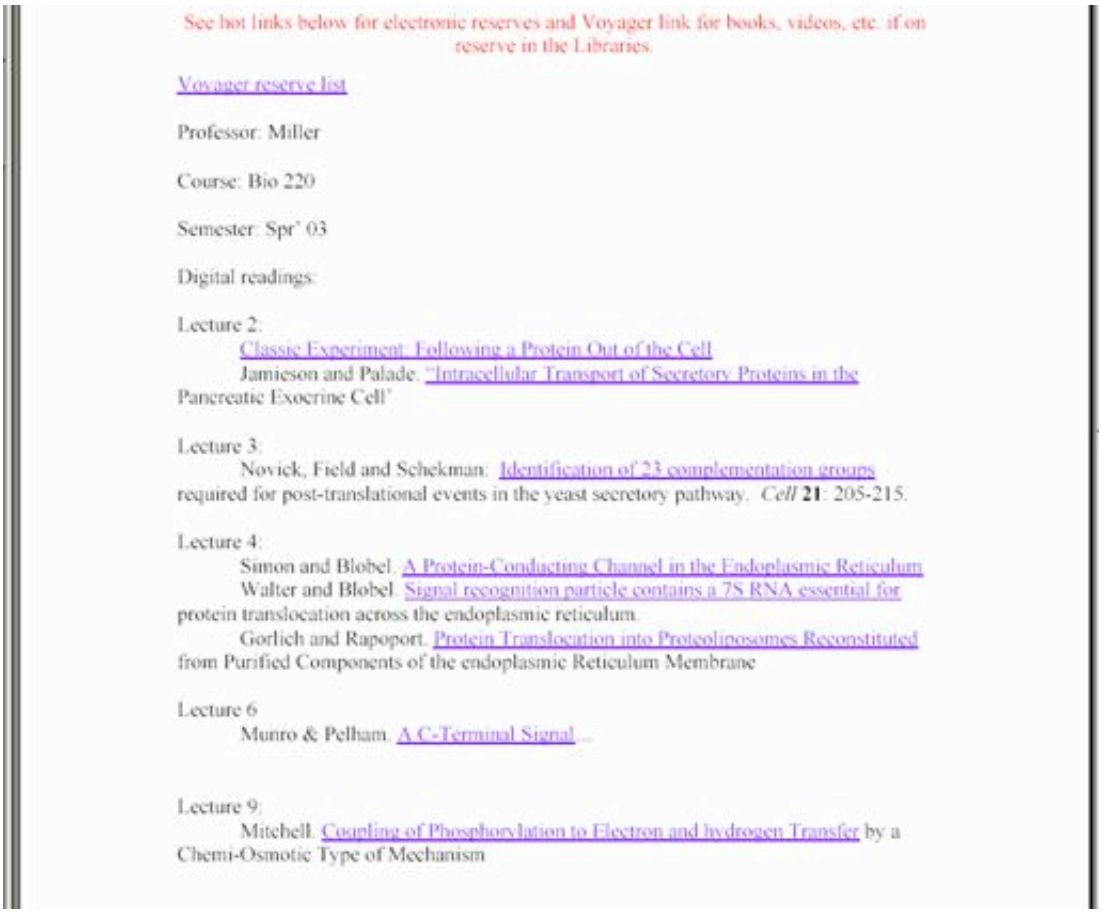
Figure 2. A CoURse page template

The subject specialist librarians are responsible for adding focused resources, resource descriptions, and explanatory statements to each CoURse page. Using the most appropriate of the standard information categories—1) class assignments, 2) background information, 3) Web sites, 4) books, 5) articles, 6)

journals, 7) multimedia, and 8) other relevant University of Rochester resources—they organize the resources to help students focus on their information need of the moment. Significant time may go into consulting with faculty and students, studying course syllabi, reviewing available resources and information seeking strategies, and in general defining *ad hoc* collection development plans for individual courses and groups of courses (e.g. all 100 level courses in biology). As resources and explanatory statements are added by the subject librarians to a CoURse page, they are also added to resource "libraries" within the database so that they can easily be added to additional course pages during the semester or in following semesters. Other subject librarians can also pick resources from these "libraries" for their own pages. Subject librarians generally add content to the CoURse pages templates while the pages are "off line". The pages are turned on (made public) at either the librarian's request or when one of the Reserves staff adds links to faculty course pages or to reserve readings.

The Reserves staff creates online searches that dynamically serve lists from the libraries' catalog of the books and photocopies that are on reserve in the libraries for any given course. They also create links to e-reserves. E-reserves may have links that are embedded within a copy of the faculty's syllabus, that are from a list provided by the faculty, or that are from a list generated by the Reserves staff. During the 2003 spring semester, 64% of CoURse pages that had e-reserves used a copy of the faculty's syllabus. When the reserve readings include both books and e-reserves, Reserves staff adds access to the books from within the e-reserves page (Figure 3).

It is worth noting that while most of the information categories are located "behind" tabs, so that only one category is visible at a time. The "Related UR Web Sites" at the bottom of the page stays fixed as the student tabs between information categories. Also at the top of the page, there is an "Ask a Librarian" icon that either connects the student to a live online chat service with a reference librarian from 11:00 am to 5:00 PM or lets them leave an e-mail message after hours.



See hot links below for electronic reserves and Voyager link for books, videos, etc. if on reserve in the Libraries.

Voyager reserve list

Professor: Miller

Course: Bio 220

Semester: Spr' 03

Digital readings:

Lecture 2:
Classic Experiment: Following a Protein Out of the Cell
Jamieson and Palade. "Intracellular Transport of Secretory Proteins in the Pancreatic Exocrine Cell"

Lecture 3:
Novick, Field and Schekman. Identification of 23 complementation groups required for post-translational events in the yeast secretory pathway. *Cell* **21**: 205-215.

Lecture 4:
Simon and Blobel. A Protein-Conducting Channel in the Endoplasmic Reticulum
Walter and Blobel. Signal recognition particle contains a 7S RNA essential for protein translocation across the endoplasmic reticulum.
Gorlich and Rapoport. Protein Translocation into Proteoliposomes Reconstituted from Purified Components of the endoplasmic Reticulum Membrane

Lecture 6
Munro & Pelham. A C-Terminal Signal...

Lecture 9:
Mitchell. Coupling of Phosphorylation to Electron and hydrogen Transfer by a Chemi-Osmotic Type of Mechanism

Figure 3. Link to books on reserve in the libraries (Voyager catalog reserve list) embedded in a list of electronic reserves

Librarians' Experience

The CoURse Resources System's menu-driven interface and database have contributed significantly to the subject librarians' success in management of their CoURse pages. Within the limits of the standard CoURse Resources page, each subject librarian has nearly complete freedom as to what resources are added and how the resources are described and organized both among and within the information categories. This policy, along with the efficiency of the system, lends itself to pages that are timely and responsive to the needs of students and faculty. Subject librarians have quickly made changes to their CoURse pages, right at the reference desk, immediately following an interaction with students.

The chemistry librarian’s experience is an impressive example of the system’s efficiency. There were already four well-established hand-coded chemistry pages that were rich in resources but the chemistry librarian switched almost completely to using the new CoURse Resources System. Without committing significantly more resources, she was able to go from the four hand-coded pages to creating and maintaining 20 pages rich in resources as well as an additional 27 pages with some minimal resources. The CoURse pages also made it easy to find a place to put resources that did not fit on the chemistry subject guide or on one of the existing course pages.

The success of this example was partly due to the ability to simultaneously add a resource to multiple pages. It was also partly due to the DIU staff assuming significant responsibility for tracking problems with links on the CoURse pages. Subject librarians are notified by e-mail when a page is activated. This alerting and the ease of adding resources to pages has enabled all librarians to respond quickly if a page is turned on when reserve readings are added, before the page has been fully finished.

The River Campus Libraries are hosting a demonstration version of the CoURse Resources System's menu-driven staff modules used by the subject librarians and the Reserves staff. See the appendix for connection details.

Changes in student and even faculty interactions have been observed relative to the new CoURse Resources System. One positive by-product seems to be that undergraduate students are seeking out their subject librarians to a significantly increased extent. There is a general sense that students are coming to the reference desks looking for a particular librarian based both on name and visual recognition. For some students this identification is reinforced when they notice that the person speaking to their class and the person on the Web page are one and the same.

The comparative languages librarian went from getting no student e-mails to receiving 12 e-mails so far this year, and some students were definitely looking for her at the reference desk because they had seen her photograph on their CoURse page. In the fall semester, 5 students requested extended consultation with the new interim political science librarian after they discovered her name and photo on their CoURse page. The brain and cognitive sciences librarian has also seen an increase in the number of students contacting her at the reference desk as well as calling or e-mailing. She has also seen some subtle changes in her interactions with the students. When working with her on their class projects, some students launch into a discussion of their class assignment clearly assuming that she understands their needs, the class assignment, and the class itself. There are also students that start their conversation with her by going to the CoURse page. This year, for two of her classes, the physics librarian has had multiple e-mail exchanges with many of her students. Prior to the introduction of the CoURse page there had been little or no contact with the students outside of the classroom presentation. The biology librarian has also seen an increase in the number of students

seeking his help by e-mail and at the reference desk even though there was no associated class presentation.

It would appear that there is a general increase in the awareness by undergraduates of subject librarians. This is supported by the fact that, in a preparative course for biology teaching assistants, three out of eight undergraduates had learned of the existence of subject librarians from a CoURse page. In fact, a lively discussion about the role of the subject librarian was generated from the placement of the librarian's name and face on their CoURse page.

There is also some evidence that recognition of resources is also increasing. At the Carlson Science Library, organic chemistry students are coming to the reference desk and asking for a particular database by name. In previous years students had not known the name of the database, and many had forgotten that it had been mentioned during in their in-class library presentation.

In addition to seeing an increase in the number of student appointments and e-mails after the CoURse Resources pages went live, the linguistics librarian believes that her faculty may also have been influenced by CoURse pages. She has the sense that having her name and e-mail on the CoURse pages makes her relationship to the course more formal for them and may explain why several faculty have announced in class that their students should contact her for research help.

Subject librarians have configured and used their CoURse pages in a variety of ways. For example, there has been a wide variation in the number of categories (tabs) and in the number of resources that have been added to the CoURse page template for any given page. Some librarians have adopted a "more is better" approach and add multiple resources for most of the resource categories and even include call number ranges to browse in the book stacks for a particular topic. Other librarians have taken a "less is more" approach. In this later case there may be as few as one category with two or three resources such as online dictionaries and encyclopedias. Sometimes, for example when faculty request it, there are no resources added to the template other than links to reserve readings. A common pattern seems to be to include more resources for the lower level courses and for courses that will actually be using specific information resources.

CoURse pages are frequently beefed up in preparation for going into a class, although there are significant variations in how the CoURse pages are used during in-class presentations. Many subject librarians make their presentations directly from their CoURse page and tell students that the page is their handout. This may work especially well when frequent visits to access reserve readings help students keep track of how to find the CoURse page. There are also some cases in which a familiarity of the CoURse page is assumed or secondary, for example for in-depth hands on database training.

There are varying opinions about how effective the CoURse pages are without an accompanying in-class presentation. The comparative languages librarian's experience is that "Classes that had bibliographic instruction use the CoURse page more extensively and feel more comfortable with the use of different resources." On the other hand, when the physics librarian was only offered 7 minutes with a class her confidence in her CoURse page was so strong that she declined an offer to address the class in exchange for the faculty's promotion of the CoURse page.

Students' Experience

Surveys conducted during the pilot project made it clear that a solid majority of students strongly appreciated the CoURse pages [Gibbons, 2003]. After the CoURse Resources System was fully implemented, additional feedback was gathered, primarily from a second-term organic chemistry class and a class of biology teaching assistants. This feedback has confirmed that nearly all undergraduates have used a

CoURse page. The pages that have been most used tend to be those that have either reserve readings and/or a library-related class assignment. For individual students this use may be frequent. In the aggregate, student use has made the entrance page for the CoURse Resources System (http://www.lib.rochester.edu/index.cfm?page=10) the second most used page of all of the libraries' Web pages. There were nearly 17,000 hits for March 2003 alone. One student commented that the selected and authoritative sites on the CoURse page made it much faster than going out to the Web to find needed information. One student had shared how cool the CoURse pages are with friends at other schools. On a scale of 1-10, with 10 being excellent/must have, five undergraduate biology TA's ranked the usefulness of the CoURse Resources System as an 8, two ranked it as a 9, and one ranked it as a 10. Students generally could recognize the librarian from the photo on the CoURse page, and there was a sense that they like having the photo on the page.

Students were more ambivalent about the practice of linking course reserve reading from the professor's syllabus. Several found it useful and in one case the libraries' copy of the syllabus was the only one available when a student really needed it to be online at the beginning of the term. Others found that a concise list of reserve reading was much easier to use than trying to find the reserve reading links on their multi-page syllabi. So far there is little evidence that students have actually used 1) the link to the "Ask a Librarian" live chat/message system, 2) the "Related UR Web Sites" links, 3) or the circulation status of books that the CoURse Resources System displays along with the books location and call number.

One thing that has become very clear is that students bond with their CoURse pages and approach the libraries' resources through the perspective of their courses. For example, when the CoURse page for a second-term organic chemistry class was not turned on right away, a number of students searched the Web and queried friends, frequently without success, to find the URL's for familiar and critical resources that had been on their first term CoURse page. They seemed to be unaware of the chemistry subject guide and that it had all the resources that they needed. Another example of this loyalty to the CoURse pages came to light during usability testing of the River Campus Libraries home page (Figure 4) in the spring term of 2003. When asked to find a Web page with anthropology dictionaries and encyclopedia, four out of five students bypassed the link that would lead to the anthropology subject guide in favor of seeking out the CoURse page for an introductory anthropology course.

Figure 4. University of Rochester River Campus Libraries home page

Future Study

At the beginning of the project, it was hypothesized that embedding links to reserve readings from within a copy of a professor's syllabus would be popular and useful [Gibbons, 2003]. Using the professor's own course organization and terminology made sense. Use of the libraries' catalog to list a course's reserve readings was sometimes challenging because the faculty and the catalog tended to use different ways to list and even to name the reading assignments (e.g., the faculty might say read Campbell 15-30 and the catalog would only display the book title, *Biology of the Cell*, in the list of course readings). Using the syllabus still seems like a sound approach and a number of students expressed their appreciation for the syllabi. However, some students were very clear that they preferred the concise lists that were used for some courses. This response may not be so much about the syllabus approach as about the mechanics of getting to the reserve readings. In some cases the reserve links are scattered through out a long syllabus or even at the end of a multi-page syllabus. If a student has to use the reserve links frequently, they find the need to do a lot of scrolling very unattractive. It may be that this preference for a quick and concise list needs to be considered for designing the methodology of linking to reserves.

Faculty perception of CoURse pages is another area for further investigation. Some faculty clearly approve, yet not all faculty are completely comfortable with the libraries' pages. In addition, some librarians are not be completely comfortable with the potential for faculty to "look over their shoulder" and evaluate the quality of the resources and advice on the CoURse pages. This may be worthy of additional consideration and outreach.

Also of interest is the significant "brand loyalty" to CoURse pages that we have seen. This may make it less likely that students will explore other parts of the libraries' Web pages such as subject guides and may have implication for future Web page designs

Summary

Implementation of the CoURse Resources System has been a success. Students seem, almost universally, to find the CoURse pages useful. Their awareness of and interaction with subject specialist librarians has increased significantly. Librarians have also found the pages effective and efficient way to organize and present library resources to students. The efficiency of the "back-end" of the system has made it very possible for every course to have at least a basic CoURse template. CoURse pages are often used as centerpieces of in-class presentations and are easily updated and tailored to the needs of each course. The River Campus Libraries' CoURse Resources System is now available as Open Source Software for non-commercial use.

References

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Jones, S. (2002). The Internet goes to college: How students are living in the future with today's technology. Pew Internet & American Life Project. Retrieved March 22, 2003 from the World Wide Web: http://www.pewinternet.org/reports/pdfs/PIP_College_Report.pdf

Appendix

The CoURse Resources System that the University of Rochester libraries' created can be viewed at http://www.library.rochester.edu/index.cfm?page=10 . To explore, select a course from the drop-down menus.

The source code will be available for free to anyone who wishes to use it for non-commercial purposes. The source code and supporting documentation will be available at Sourceforge.net (http://sourceforge.net/projects/libcb/) starting March 28, 2003. We are calling the source code LibCB or Library Course Builder. Complete documentation including a bibliomanual on how to use the various modules is included in the LibCB-ReadMeFiles.zip file

A demo system is being hosted on the libraries' Web site. The interface has been stripped down, but all of the functionality is there. The demo's "patron view" is at http://www.library.rochester.edu/libcb/. A couple of demonstration courses have been added.

To work with the administrative side of the system, click on "login to Admin".

1. If you want to experience what it is like to add library resources to the system and associate them with courses, log in as username = **biblio** and password = **123456**. The system is connected to our Voyager catalog, so if you want to add a book or journal to the system, make sure it is first present in our Voyager catalog (http://groucho.lib.rochester.edu/cgi-bin/Pwebrecon.cgi?DB=local&PAGE=First).

2. If you want to experience what it is like to add classes, professor and reserve information to the system, log in as username = **reserves** and password = **123456**. The attached reserves manual explains in detail how to use these modules. Feel free to add any imaginary classes and professors to the system.

Remember to toggle back and forth to the "patron view" in order to see how your actions immediately impact the public display.

Please send comments or suggestions to:

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