An Inter-Disciplinary Approach to Web Programming: A Collaboration Between the University Archives and the Department of Computer Science

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Computing in the Humanities, an undergraduate course at New York University, represents a unique collaboration between the Computer Science Department and the University Archives. The final assignment required students to select, digitize, and contextualize materials from the Archives' collections in an interactive website. The design and implementation of the course incorporates four current and important trends in both disciplines. First, the professor and archivist worked closely together before and during the course, integrating the archival research component into the core mission of the course. Second, the students' projects provided both increased subject access and dynamic Web content to the repository and meaningful work to the students.

Third, this course produced students who "bridge" the needs of humanists with the capabilities of technology. Fourth, this course illustrated the growing importance of web programming in undergraduate computer science education.

Archiving journals and conference presentations have increasingly focused on the experiences of archivists at educational institutions who seek to integrate archival resources into the undergraduate curriculum. Notably absent from this literature, however, is any mention of collaboration between archivists and professors in computer science or related departments.

http://cs.nyu.edu/~deena/DH/civil_war_journal_300dpi.jpg.
The scanned cover of a journal. Clicking on this image allows users to browse scanned images from the collection.

http://cs.nyu.edu/~deena/DH/dance_opening_300dpi_ssSeen.jpg
Top of the main page of this student's site provides a timeline for browsing options.

http://cs.nyu.edu/~deena/DH/civil_war_300dpi_grayBgcolor.jpg.
The main page of this student's site alerts users to the collections relevant to a particular subject in the Archives (namely, collections relating to the experience of Civil War surgeons) and provides both scanned images from those collections (content) and information about the collections (context).
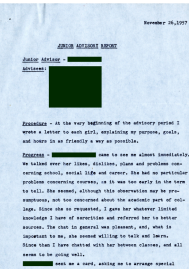
Before the course began, the professor, undergraduate librarian, and University archivists discussed the structure of the course. The librarian and assistant University archivist co-lectured for one class session. The students who elected to work in the University Archives for their final projects were also required to meet with the assistant archivist before embarking on their research. These meetings ensured that students would have sufficient resources at the Archives to conduct their primary (visual) and secondary (textual) research. Students from the class were also required to digitize photographs, documents, and audio materials as part of the assignment.

Catalogue ID	Item Type	Image File	Year	Photographer/Author	Dimensions	Description
1966.1	photograph		1966	unknown	3"x5"	Carlo Mazzone teaching a class, doing an exercise in sharing of weight with a student
1966.2	photograph		1966	unknown	3"x5"	Carlo Mazzone with students in class
1966.3	photograph		1966	unknown	5"x7"	Eve Gentry teaching a body conditioning class in Studio 1
1966.4	photograph		1966	unknown	8"x10"	Jean Erdman, chair of the Dance Department in 1966
1966.5	photograph		1966	unknown	8"x10"	Gladys Bailin teaching modern while accompanying the class on a drum

http://cs.nyu.edu/~deena/DH/dance_catalogue1_300dpi.jpg
A document catalogue depicting materials from the New York University Archives Photograph Collection, including descriptive metadata.

http://cs.nyu.edu/~deena/DH/Dorie_redacted_letterOnly_300dpi.jpg
An image of a scanned document with names redacted to protect privacy. (from RG 19.3, Records of the Office of the Dean of Women, Washington Square College [Dorothy McSparran Arnold])

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    <photographer_Author>unknown</photographer_Author>
    <dimensions>3"x5"</dimensions>
    <description>Carlo Mazzone with students in class</description>
    <timelinePage>1966.2.html</timelinePage>
  </item>
</catalogue>
```
http://cs.nyu.edu/~deena/DH/dance_catalogue1_300dpi.jpg
Excerpt from the XML document for the catalogue depicting materials from the New York University Archives Photograph Collection, including descriptive metadata.

In addition to requiring students to conduct archival research, this course also counts towards the Computer Science Department Web Programming minor. The Computer Science Department undergraduate program at New York University offers both a Computer Science major and minor as well as a minor in Web Programming and Applications. The department encourages faculty to create courses in web programming to meet the needs of students in both the CS major and minor programs.

Students with only one semester of studies in implementing websites and one semester of a high-level programming language such as Java or Python can build complex and interactive websites. We can thus reach students across a variety of disciplines, as this project offers a rich opportunity for inter-disciplinary studies. Both early CS majors and CS minors have an opportunity to focus on the content of the sites as well as the technology and programming required to build them. Programming and technology requirements for this project included:

1. XML and XSLT (using text editors without a WYSIWYG interface) for the collection catalogues
2. PHP and JavaScript as well as advanced XHTML and CSS for the user interface
3. Original podcasts and work with appropriate multi-media objects related to the collections

At the University of Houston, Clear Lake, faculty used the following goals to design programming assignments for web programming coursework (Yue, 2004):

• Realistic: the assignments should be similar to useful real-world projects.
• Complete and ready: the products of the assignments should be Web applications that can be deployed with no or little modification.
• Technically important: the assignments should use important concepts and technologies.
• Illustrative and interesting: the assignments should be intellectually appealing and interesting.

We believe that the project that we developed together for this course meets these criteria with the added benefit of the intellectual and research challenge posed to the students using primary source materials as the foundation of their work. This allowed us to expand on the criteria as follows for our projects:

• The assignments should provide a basis for substantive historical research.
• The assignments should provide a basis for inter-disciplinary discussion and research for dual-major students and students with majors outside of computer science.
• The assignments should provide real world experience with skill sets that students in the Humanities fields would use in future research and graduate studies.
• The assignment should provide the student with an opportunity to experience the complete life-cycle of a programming project: from inception, research and design through implementation and publication.

NYU and the Civil War

For my final project for the course Computing in the Humanities, I set out to find a picture of life at New York University during the Civil War. During my research at the NYU archives, however, I discovered very little information on the subject.

What I did find were documents relating to NYU graduates who served as physicians and surgeons during the war. In my research I used two main sources: the J.J. Stevenson Collection and the Memories of Dr. P.L. Schenck. This site serves as both a catalogue of the documents from those sources and biographical sketches of the individuals contained therein. I have also included relevant information on the Civil War to put the material from the documents in context.

J.J. Stevenson Collection | Memories of Dr. P.L. Schenck | Catalogue

Catalogue of Documents: NYU and the Civil War

catalogID	doctype	imagefile	docyear	source	Enlarged Image and Transcription
001.001	photograph		1863	NYU Class Portraits	henrickson-young.html
001.002	letter		1888	J.J. Stevenson Collection	henrickson-1.html

http://cs.nyu.edu/~deena/DH/civil_war_catalogue1_300dpi_grayBgcolor.jpg.
A document catalogue depicting materials from different collections with thumbnail scans of each document.

http://cs.nyu.edu/~deena/DH/civil_war_transcription_300dpi_grayBgcolor.jpg.
A split-screen view of a scanned document and its transcription. The document is from MC 18, the John James Stevenson Papers.

We believe that the current trends in archival research and computer science undergraduate education have converged in a way that provides rich opportunities for our students as well as for the university. Students were engaged in and enthusiastic about their projects, which represented real-world applications of the concepts that comprised the course's goals. Several students cited the course as their inspiration to attend graduate school in library and information science. We believe that the need for graduates with this combined set of skills will continue to grow.

[1] Nesmith, T. (2007). "What is an archival education?" Journal of the Society of Archivists 28, 1: 1-17, 3 and 7.
[2] Eamon, M. (2006). "A 'Genuine Relationship with the Actual': New Perspectives on Primary Sources, History, and the Internet in the Classroom." The History Teacher 39,3: 1-32, 2.
[3] Riggs, M. (2005). "The Correlation of Archival Education and Job Requirements Since the Advent of Encoded Archival Description." Journal of Archival Organization 3, 1: 61-79.
[4] Jörgensen, C. (1999). "Access to Pictorial Material: A Review of Current Research and Future Prospects." Computers and the Humanities 33: 293-318, 294.
[5] Stepp, Marty, et al. (2009). "A 'CS 1.5' Introduction to Web Programming." Proceedings of SIGSCE. 121-125.
[6] Yue, Kwok-Bun, and Wei Ding. (2004). "Design and Evolution of an Undergraduate Course on Web Application Development." Proceedings of ITICSE. 22-26.