At the outset of the Digital Resources Internship, three main projects were identified for completion:

- The development and deployment of an automated new acquisitions list for the Inforum
- The development of a course documentation repository
- The evaluation of the process by which faculty members at the Faculty of Information are notified of new articles, also known as the “current contents” process. Development of methods by which this process could benefit from automation, and the implementation of such plans.

These projects continued throughout the course of the internship, or until they were completed. Each will be addressed in turn.

**New Acquisitions List**

This was the continuation of a project I began as a student assistant at the Inforum, beginning in the Fall semester of 2007. While two years is a rather lengthy development period for a fairly basic bibliographic application, the project was very fruitful from an educational perspective. In the course of completing this project, I had the opportunity to learn a great deal about a range of topics, including things both computing- and library-focused. In every case, the depth of knowledge I had to gain in order to complete the project was well beyond that which was required in any of the coursework I underwent at the Faculty of Information.

The first step in the development of this application was the investigation of how the application would communicate with the library catalog. This particular decision was fairly easy to make, as the identification of the Z39.50 protocol as being appropriate for the task was straightforward. In addition to providing a standard interface to library catalogues (including U of T’s), there exist a set of robust libraries to support this protocol in PHP. Having made this decision, it was then time to start the actual development of the application.

I was able to draw on some example code from the documentation to get a basic web-based Z39.50 interface up and running, but I quickly learned that the protocol uses a fairly complex query notation known as Prefix Query Format (PQF). From what I can gather, this query format seems to be widely disliked by humans who have to read and write it, as the way it is written is somewhat counter-intuitive. However, it is easily interpretable by machines, and hence its use in this context.
Once the application was able to query the library catalogue on a variety of fields (and it should be noted that building in this functionality required me to do significant research on the MARC record format), a decision needed to be made on how relevant records (i.e. recent acquisitions by the Inforum) would be identified. For this part of the project, I was able to prevail upon Nadia, Elisa, and Marte for a great deal of help. Unfortunately, the Sirsi catalogue does not expose a usable date through the Z39.50 interface. It was therefore decided that a local note should be added to the catalogue record of relevant items. This process allows the Inforum not only to have better control over when items appear in the list, but also to potentially identify items that we do not want to appear in the catalogue. Finally, a decision was reached on when in the acquisitions workflow the creation of this local note should occur. It was decided that it would most smoothly fit into the workflow at the time the material is received, at such a time as it passes through Meera’s desk.

With all these decisions made, the application finally came together. It was placed on a test web server so that Inforum staff could see how the list developed as new materials were acquired. As this evaluation process went on, various corrections and refinements were made to the code, and the application was green-lighted for deployment. Given the timeframe in which this happened, it was decided that it would be best just to get the application deployed as a part of the new web site, and that is where it lives today, at: http://www.ischool.utoronto.ca/inforum-technology/collections/new-acquisitions-list

Course Documentation Repository

The second major project undertaken as part of this internship was the creation of a course documentation repository. Envisioned as a way for all Faculty of Information stakeholders to have ready access to “first day of class”-type of information, this repository would contain such documents as course syllabi, reading lists, course schedules, and so on. An additional objective of the repository was to serve as a central location for the documentation needed for the re-accreditation of the Faculty of Information by the American Libraries Association (ALA). Given that this re-accreditation process will be beginning in January of 2010, this project was extremely important and time-sensitive.

The first step in the process was the selection of a platform to house the materials. Several platforms were briefly investigated, including eduCommons and Dspace, but in the end it was decided that the repository would best be integrated with the new and forthcoming Faculty of Information website. This would necessitate the creation of custom code to handle the repository functions, but would allow for the creation of a system that conforms exactly to the Faculty’s requirements.

With regard to requirements, their development and codification was the first major step in this project. The initial requirement meetings consisted of Joe, Tasha, James, and myself. In these meetings, initial requirements were hammered out. These initial requirements mainly sprang from the needs of the ALA auditors, as the audit was the first
and most pressing need for the repository. After these basic needs had been figured out, they were then expanded to encompass the potential needs of other users of the course content repository. This process began in the meetings mentioned above, but was completed mostly in offline discussions between Tasha, myself, and various members of the perceived stakeholder groups. At the end of this process, a formal requirements document was drawn up and submitted to the development team.

At this point, the Web Group took primary responsibility for the development of the repository itself, as their department had the most expertise on the Drupal platform from their work on the new website. Specifically, James, Danny, and their intern Luke did pretty much all the work on the repository itself.

In the meantime, the job of inventorying the Inforum’s collection of material and digitizing those items we did not have an electronic copy of fell to the Inforum side of the project team. Fortunately, Leigh had gone through and organized and inventoried the paper copies of all the historical course documentation, so we were well aware of what we had on that front. Unfortunately, this amounted to approximately 8,000 pages of paper documentation that needed to be converted to digital format. There was also a cache of previously acquired electronic documents that needed to be sorted and inventoried.

For the physical documents, the decision was made to outsource the scanning process to a vendor specializing in this kind of job. In retrospect, this was a great decision because the scanning process would likely still be going on if it was done in-house. I went through the process of evaluating vendors to do the work and settled on Octacom, a document management company operating out of Hamilton. This decision was based on the price to generate digital copies of the documents, and to run them through an optical character recognition process, so that at some point in the future, they might be fully indexable. Once this decision had been made, I prepared the documents for scanning by removing paper clips, staples, etc. and had Octacom come take delivery of the documents.

Upon the return of the documents, some post-processing was still necessary. Due to the limitations of Octacom’s scanning workflows, and their lack of knowledge regarding our curriculum, each class’s documents were grouped in to one PDF file, regardless of how many years of documents there were. These documents obviously had to be split apart in order to be properly ingested into the repository, and to this end, I was allowed to enlist the aid of the Student Assistants. With the kind the kind assistance of Rebecca, Sarah, and Cintia, we were able to get the PDFs split up into their constituent documents in short order.

Once the documents had been split, we had a bit of a lull, as we waited for the actual repository to be completed. The decision was made not to do any further inventory of the documents at this point, as we would be able to generate reports automatically once the repository was completed.

Around the beginning of 2009, the course document repository came online, and the ingest process could begin. This process was primarily carried out by Tasha and myself,
and basically involved associating each document with a specific ‘Section’ node within the repository, which denoted not only the class number, but also the semester in which it was offered. Additional metadata was created at this time to describe what requirements of the ALA auditors the document fulfilled, and the general nature of its contents.

At the end of a week of pretty intense data manipulation, all existing course documentation for the years 2001-2009 was imported into the repository. Reports were then generated to determine what documents were missing, and instructors are now being notified that they need to submit this documentation to the Inforum.

Overall, this was a very rewarding project, in the sense that it gave me the opportunity to work on the design of an information system of significant scale from start to finish, beginning with the design requirements and ending with the entering of the system into the maintenance cycle. As a student in the Information Systems stream, it was quite interesting to observe the relevancy of much of the coursework I had completed, especially as it regards user requirements and usability issues.

**Automation of the Current Contents Process**

The final, and least successful, of the primary projects I was assigned at the beginning of the internship was an investigation into the potential for automation in the Inforum’s Current Contents process. This process is the procedure by which faculty and staff at the Faculty of Information are notified of the publication of new articles in their specific areas of interest. They do this by specifying certain journals that they are interested in monitoring, and they receive photocopies of the journals’ tables of contents. From these photocopies they may request articles which are then photocopied and forwarded on to them through campus mail. Obviously, this is a highly manual process and hence the desire for some level of automation.

Early on in this project, I was contacted by a new professor at the Faculty, Kelly Lyons, who was interested in using the reworking of this process as a basis for a paper she is writing on process management in organizations. She inquired as to whether I would be interested in being involved in this paper and I assented.

With the project being rolled into an academic paper, the requirements suddenly shifted a bit, as it became more important to capture exactly what improvements the service’s user base would like to see. To this end, it was decided that interviewing some of the stakeholders would be a prudent move. With this, we embarked on a rather lengthy process of designing an interview form to use in requirements gathering, and on organizing the administrivia of the interviews themselves. Unfortunately, it turns out that between the time demands of a first-year professor and a second-year graduate student, very little time was available to actually do the interviews. As such, they proceeded at a very slow pace. They did proceed however, and the resulting data has allowed us to get a general idea of what users would like to see from the process.
Now that the interview phase is wrapping up, we are getting ready to embark on the second part of the project, which will involve actually planning the changes to be made to the process. Although my internship is complete at this point, I have been tasked with continuing this project in my capacity as System Administrator at the iSchool, and am still looking forward to seeing how it turns out.

Other Duties As Assigned

There were a number of other duties that I came to be responsible for in my time at Inforum. One of these duties was the teaching of a couple of workshops on more technical matters as part of the Inforum’s Instructional Series. The two workshops I taught were Introduction to Podcasting and Introduction to Adobe Photoshop. While I had some previous documents to work off for the Photoshop course, it was necessary for me to draw up an all-new curriculum for the podcasting one. This was an interesting experience for me, as it drew into sharp relief the difficulties in designing instructional material for a group of students who may be at very different levels of knowledge. It was also a learning experience to try and fill the appropriate amount of time for a given workshop. To wit, in one of the podcasting workshops, we basically ran out of time because there was so much discussion, while in the other we finished 15 minutes early. The same material was covered in both workshops. In total, I found the experience rewarding, as I had never before taught a class in such a structured environment. Although I can’t say I caught the “teaching bug,” I am definitely happy to have gotten the chance to teach these workshops.

Another duty that was assigned to me in course of this internship was that of being the primary support contact for the Sakai learning management system. Previously, support has been done by a member of the Web Group, but of course with the advent of the new website, they had very little time to dedicate to support. I was brought in to do some initial data entry regarding class sections, and to provide help when things went wrong. The initial part of the project, the data entry, was pitched to me as being a very high-intensity task, and it did create a brief spike of work, but in fact the “long tail” of support calls after the term had started proved to require much more effort to deal with.

Having done a great deal of technical support in my career, I was comfortable helping people figure out how to use the system. Of course, there was a significant learning curve on my part, as there is when you start to pick up any new product, but overall I found the Sakai system to be quite pleasant to work with. One thing that I feel could have benefited this duty is the presence of a ticket-tracking system for IT issues here at the iSchool. The hardest part of providing support on the LMS was tracking which issues had been acted upon, and which were still outstanding. In the end, I had to resort to a fancy system of email folders to track my progress on trouble tickets, and this slowed down the process considerably.

Conclusion
Overall, I would characterize the Inforum internship experience as extremely positive. My initial concern was that the technical nature of some of the work to be done would not be as challenging as the work I had done in my previous career as a systems administrator. However, this concern proved to be completely unfounded, and I was constantly pushed to learn new things in the technical arena, as well as having to learn a very great deal about the operation of an academic library. Much of what I had to learn in order to do this job was the kind of thing that I came to the University of Toronto to learn in the first place, so this was a very gratifying experience. In fact, I would go so far as to say that I learned much more about library operations, as well as library-standard technologies and protocols, than I ever came close to learning in my classes. In this light, I can only speak in the highest terms of my time here at the Inforum.

I very much appreciate the opportunity I was given to be a part of the Inforum team, and the opportunity to make a lasting contribution to the Faculty of Information as the Digital Initiatives Intern. Throughout the entire process I never felt anything less than completely supported by the staff and faculty here at the iSchool. I understand that, given the limitations of the coming year's budget, there will be no possibility of internships for the coming year. Speaking as someone who benefited immensely from this program, I would like to express my most sincere hope that the program is reinstated sometime in the near future. I would like to think that we interns made a significant contribution to the quality of service offered at the Inforum, but I know in no uncertain terms that the quality of education that I was able to obtain through this program was invaluable.